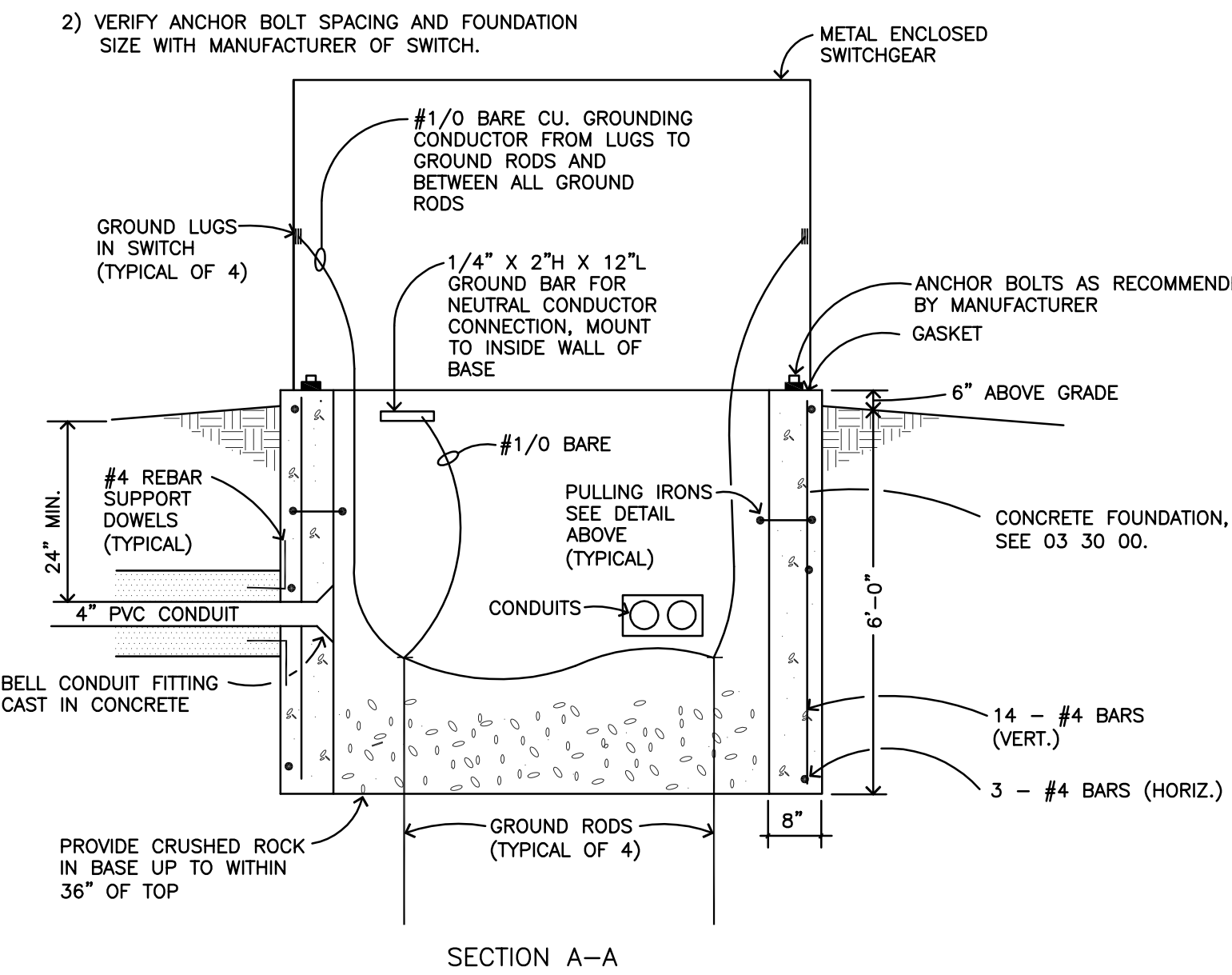




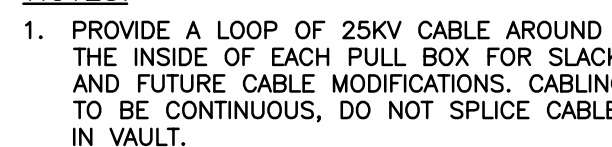
- 1) REMOVE AND SALVAGE EXISTING LIGHT POLE FOR REINSTALLATION. PROVIDE NEW BASE AND HEAD. SEE SHEET E2 FOR RELOCATION, ROUTING OF WIRING AND CONDUIT, DISPOSE OF EXISTING BASE AND HEAD.
- 2) EXISTING CHILLER AND ASSOCIATED TRANSFORMER TO BE RELOCATED. DISCONNECT AND REMOVE ALL ASSOCIATED ELECTRICAL CONNECTIONS, CONTROL CONNECTIONS AND ASSOCIATED CONDUIT. SEE SHEET E2 FOR REVEALED LOCATION. CHILLER SHALL BE RELOCATED AFTER NEW CHILLER PLANT HAS BEEN INSTALLED AND TESTED.
- 3) EXISTING SWITCH SAG-1 AND SAG-2 TO REMAIN. SEE DETAIL 1/4" AND 3/4".
- 4) REMOVE EXISTING CHILLER DISCONNECT AND ASSOCIATED WIRING, CONDUIT AND MOUNTING HARDWARE.
- 5) REMOVE EXISTING CHILLER ELECTRICAL WIRING, CONDUIT WIRING, AND ASSOCIATED CONDUIT TO THEIR SOURCE. PAD TO BE REMOVED BY OTHERS, SEE CIVIL PLANS. BURIED ELECTRICAL CONDUIT SHALL BE LEFT IN PLACE UNDER DEDUCT ALTERNATE #2.
- 6) REMOVE EXISTING COOLING FAN ELECTRICAL WIRING, CONDUIT WIRING, AND CONDUIT TO THEIR SOURCE. LEAVE EXISTING BURIED CONDUIT IN PLACE UNDER DEDUCT ALTERNATE #2.
- 7) POWER FOR EXISTING HAZMAT BUILDING TO BE MAINTAINED. PROTECT EXISTING WIRING AND CONDUIT AS REQUIRED.
- 8) DISCONNECT AND REMOVE EXISTING CHILLER TRANSFORMER FOR RELOCATION, SEE SHEET E2 FOR NEW LOCATION.
- 9) REMOVE EXISTING TRANSFORMER AND ASSOCIATED WIRING AND CONDUIT. PAD TO BE REMOVED BY OTHERS, SEE CIVIL PLANS. EXISTING BURIED ELECTRICAL CONDUIT TO REMAIN IN PLACE UNDER DEDUCT ALTERNATE #2.
- 10) EXISTING 25KV DUCTBANK.
- 11) EXISTING 25KV VAULT.



4 DISCONNECT MOUNTING DETAIL  
E2 NO SCALE



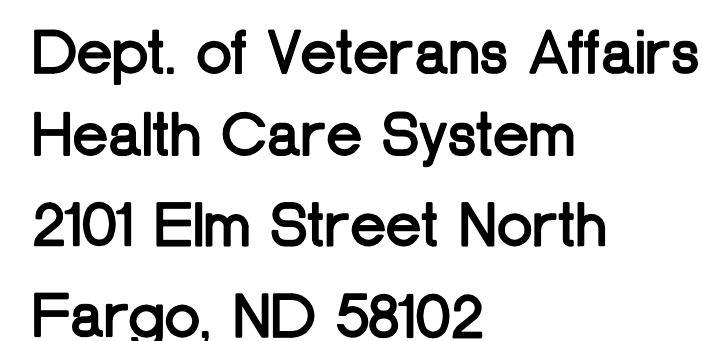
5 25KV SWITCHGEAR BASE DETAIL  
E2 NO SCALE



6  
E2

MEDIUM VOLTAGE PULLBOX DETAIL

NO SCALE

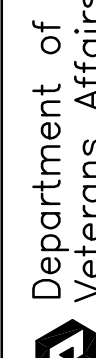
[illegible]

**IMAGE GROUP INC., Architecture & Interiors**  
**OBERMILLER NELSON ENGINEERING, Mechanical Engineers**  
**MBN ENGINEERING, Civil & Electrical Engineers**  
**SOLIE & LARSON ENGINEERING, Structural Engineers**



Drawing Title <b>SITE REMODELING PLAN - ELECTRICAL</b>		Project Title <b>REPLACE CENTRAL CHILLER PLANT</b>			Date <b>DECEMBER 18, 2015</b>
					Scale <b>AS NOTED</b>
VA Project No. <b>437-14-111</b>	Contract No. <b>VA263-P-127 VA263-C-</b>	Designed By <b>CH</b>	Checked By <b>MB</b>	Drawn By <b>CH</b>	Drawing No. <b>E2</b>
Building No. <b>56</b>	AutoCAD File Name <b>14-125 E2.dwg</b>	Location <b>FARGO VA HEALTH CARE SYSTEM FARGO, ND</b>			Dwg. 23 of 26

Department of  
Veterans Affairs





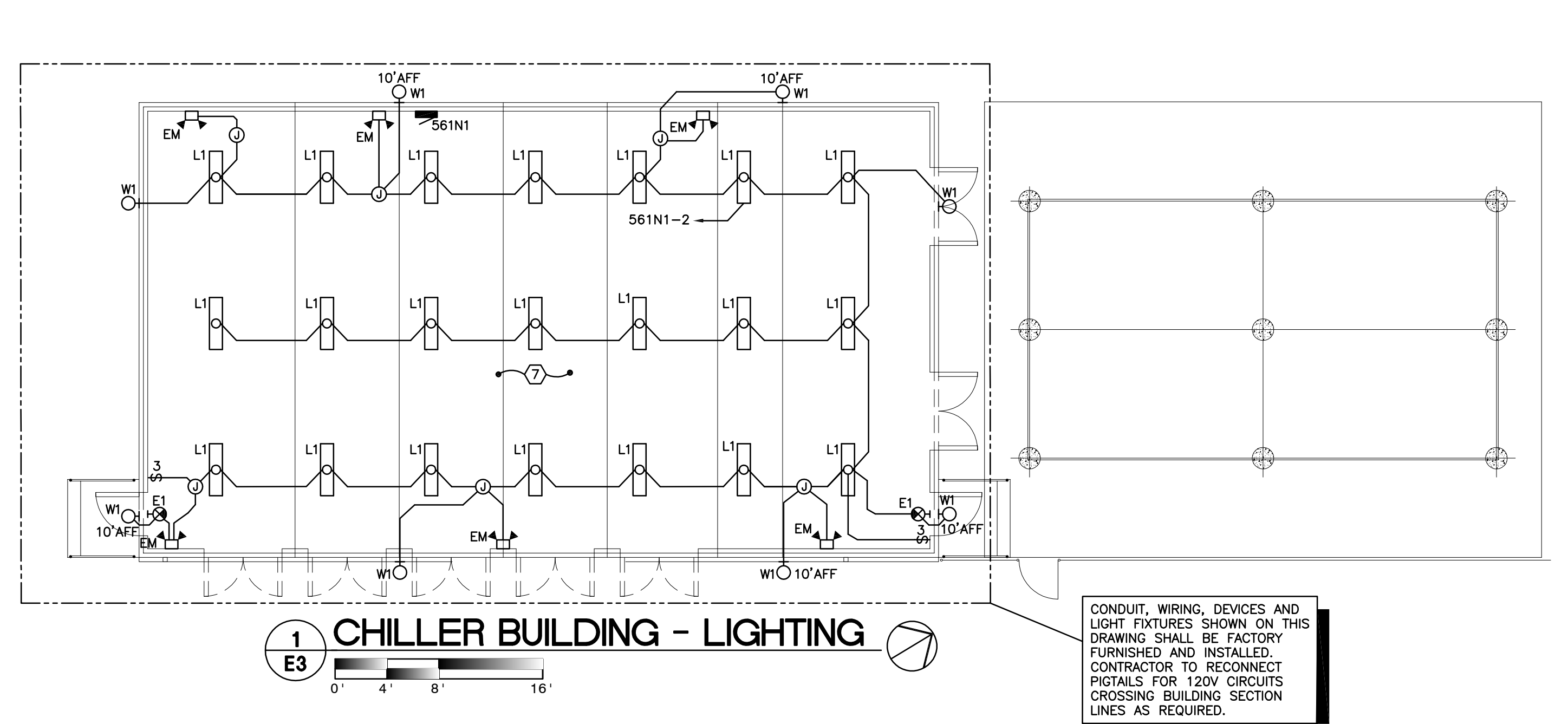
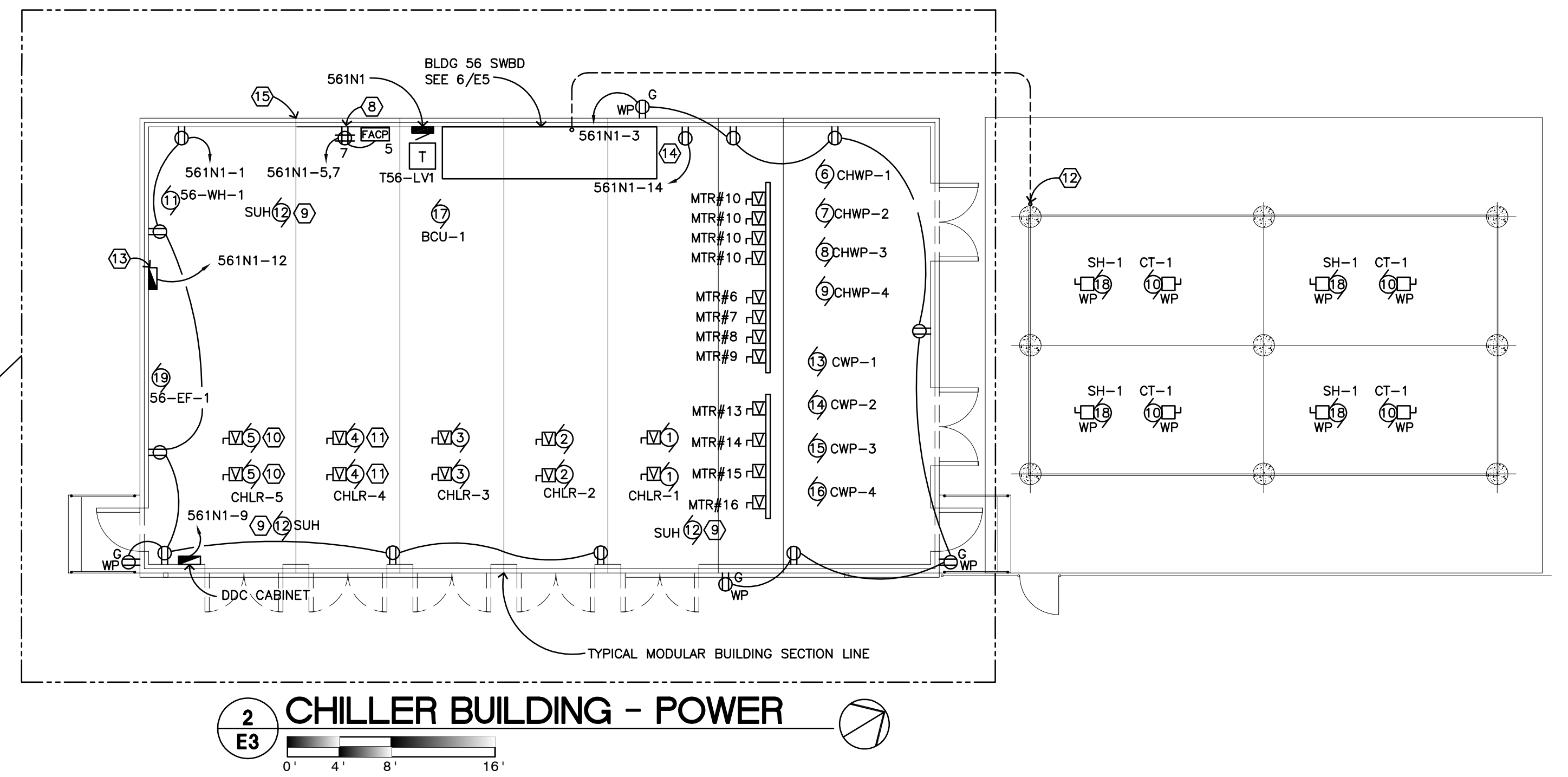
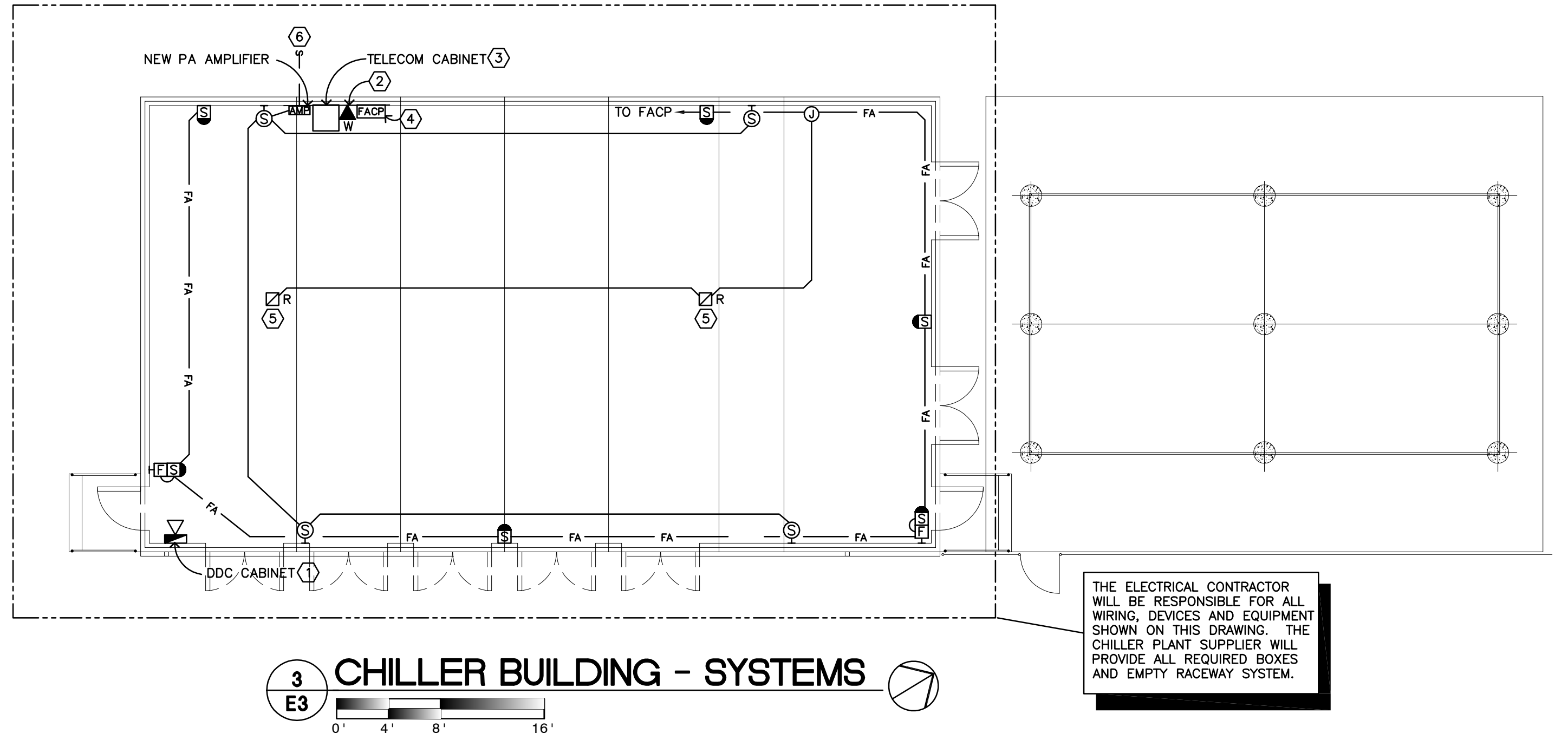
PANELBOARD LOAD SCHEDULE														
PANEL: 561N1			MAIN: MCB		200A	ENCLOSURE: NEMA 1		LOCATION: BLDG 56						
RATING: 225 AMP			VOLTS: 208Y/120, 3 PH., 4W.		AIC RATING: 35,000		MOUNTING: SURFACE		FED FROM: T56-LV1					
CKT #	TRIP AMPS	POLE	LOAD IN VOLT-AMPERES			LOAD DESCRIPTION	PH	LOAD IN VOLT-AMPERES			LOAD DESCRIPTION	TRIP AMPS	POLE	CKT #
			LIGHTING	RECPT	MTRS&EQUIP	KITCHEN	HEAT/AC	HEAT/AC	KITCHEN	MTRS&EQUIP	RECPT	LIGHTING		
1	20	1												20 1 2
3	20	1												20 1 4
5	20	1												15 6
7	20	1												2 8
9	20	1												20 1 10
11	15													20 1 12
13														20 1 14
15														15 16
17	20													15 18
19														15 20
21														15 22
23	30													3 24
25														3 26
27														15 28
29	20	1												30
31	20	1												3 32
33	20	1												20 34
35	20	1												3 36
37	20	1												3 38
39	20	1												20 1 40
41	20	1												20 1 42
LOAD CALCULATIONS														
LOAD TYPE		VA / PHASE			TOTAL VA	DEMAND FACTOR	DIVERSIFIED LOAD	NOTES:						
		A	B	C										
LIGHTING		1100	0	0	1100	1.00	1100							
RECEPTACLES		2000	2000	1000	5000	0.50	2500							
MOTORS & EQUIP		2280	1000	2660	6540	0.30	1962							
KITCHEN EQUIP.		0	0	0	0	0.65	0							
HEAT / AC		0	0	0	0	0.90	0							
LARGEST MOTOR						0.25	0							
TOTAL AMPS:		26			TOTAL VA:		9,486							

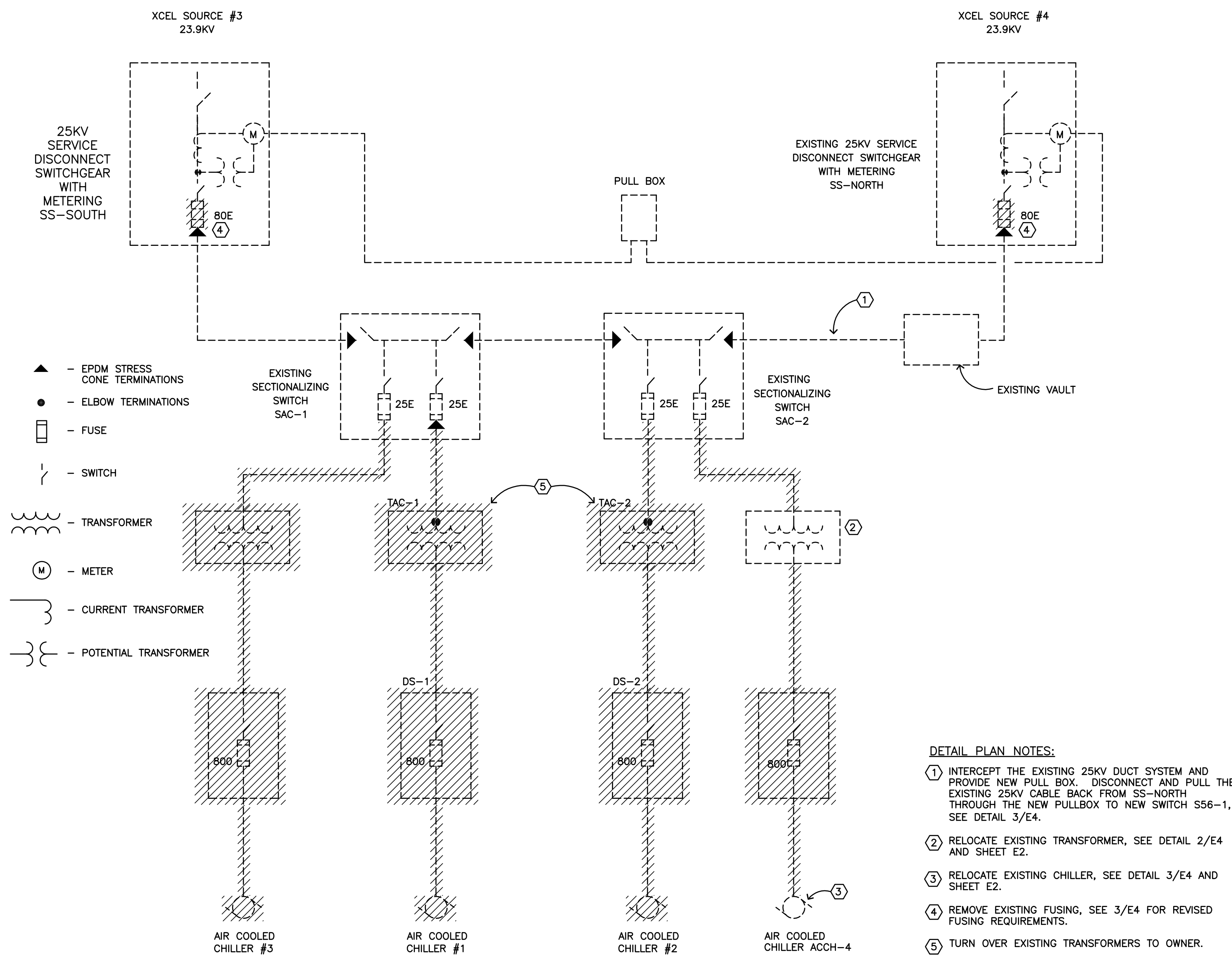
MOTOR AND EQUIPMENT SCHEDULE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
MOTOR NO	DESCRIPTION OF MOTOR OR EQUIPMENT	LOCATION	LOAD IN HORSEPOWER (HP) OR FULL LOAD AMPS (FLA)	VOLTAGE, PHASE	PANEL AND CIRCUIT NUMBER OR NO.	CONDUCTOR SIZE AND QUANTITY	GROUND CONDUCTOR SIZE	CONDUIT SIZE	CONTROLLER				DISCONNECT		CONTROL OR AUXILIARY DEVICE (SEE NOTES)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
									MAGNETIC STARTER/DISCONNECT	STARTER SIZE	VARIABLE FREQUENCY DRIVE	MANUAL MOTOR CONTROLLER	TOGGLE SWITCH	PILOT TOGGLE SWITCH	CONTROLLER BY (DIV. NO.)	CONTROLLER LOCATION	DISCONNECT SIZE	FUSIBLE / NON FUSIBLE	NEWA RATING	DISCONNECT BY (DIV. NO.)	VFD	DEFINITE PURPOSE RELAY	TIME SWITCH	THERMOSTAT	AGMSTAT	FLOAT SWITCH	FIRE ALARM DUCT DETECTORS	FIRE ALARM DUCT RELAYS (SUPPLY AND RETURN)	GENERATOR																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
1	CHILLER CHLR-1 ( TWO CONNECTIONS THIS)	BLDG 56	200 MCA	480, 3	SWBD 56	3 #3/0	#4	2"			X			23	BLDG 56		ON VFD	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

LUMINAIRE SCHEDULE									
TYPE	MANUFACTURERS	CATALOG INFORMATION	FIXTURE DESCRIPTION	LAMP DATA		BALLAST DATA		INPUT WATTS	VOLTAGE
				NO.	TYPE	NO.	TYPE		
E1	LITHONIA OR EQUAL	LE SERIES	SOLID, DIE-CAST ALUMINUM HOUSING, WHITE ALUMINUM FACING WITH WHITE HOUSING, UNIVERSAL MOUNTING, SEALED NICKEL CADMIUM BATTERY.		LED			1.5	120
EM	DUAL-LITE OR EQUAL	LZ SERIES	EMERGENCY BATTERY PACK WITH (2) 3W/LED LAMPS, 90 MINUTE NICKEL CADMIUM BATTERY, WHITE POLYCARBONATE HOUSING.	2	3W LED	1		10	120V
L1	COOPER OR EQUAL	SNLED SERIES	LED, LINEAR 4 FT LOW BAY FIXTURE, SUSPENDED MOUNTING, CLEAR LENS, 4K, 80 CRI, 4600 LUMENS	1	LED	1	LED DRIVER	41	120
W1	MOGRAW EDISON OR EQUAL	ISS SERIES	EXTERIOR WALL PACK, QUARTER SPHERE, TYPE 111 DISTRIBUTION, SINGLE PIECE DIE-CAST ALUMINUM HOUSING, DIE-CAST DOOR FRAME WITH TEMPERED GLASS, DARK BRONZE FINISH, 4000K, INTEGRAL PHOTOCELL.	2	20-LED LIGHT BARS	1	LED-DRIVER	51	120

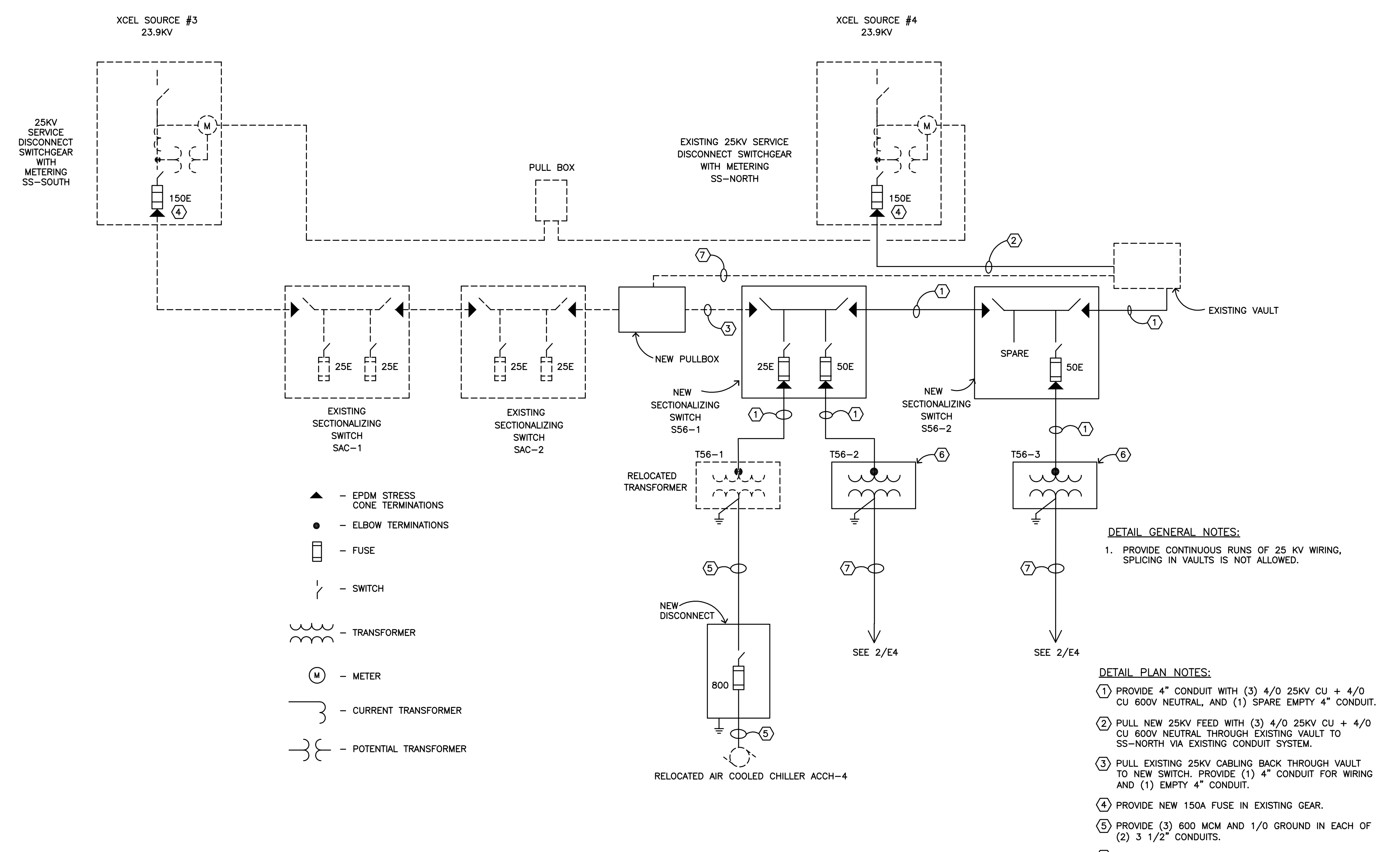
- PLAN NOTES:
- PROVIDE DATA JACK FOR DDC PANEL, COORDINATE EXACT LOCATION WITH CONTROLS CONTRACTOR.
  - 3/4" INCH PLYWOOD BACKBOARD FROM FLOOR TO 8'AFF. PAINTED WITH FIRE RETARDANT PAINT FOR TELECOM ENTRANCE. LEAVE MINIMUM OF ONE UL LABEL VISIBLE.
  - WALL MOUNTED TELECOM CABINET WITH LOCKING DOOR, SEE SECTION 27 10 05 FOR ADDITIONAL INFORMATION.
  - PROVIDE MAPNET CONNECTION TO FIRE ALARM CONTROL PANEL FROM BOILER BUILDING FIRE ALARM SYSTEM, SEE SHEET E2.
  - MOUNT DEVICE BELOW PIPING.
  - TO PAGING SYSTEM IN BOILER PLANT, SEE SHEET E2.
  - LIGHT FIXTURE LAYOUT IS DIAGRAMMATIC, ACTUAL LOCATIONS TO BE COORDINATED WITH PIPING AND MECHANICAL EQUIPMENT AND FURNISHED/INSTALLED BY THE CHILLER PLANT SUPPLIER.
  - MOUNT RECEPTACLE AT 48" AFF ADJACENT TO DATA RACK.
  - PROVIDE EQUAL TO BERKO HUM SERIES, 480V, THREE PHASE, 15KW SUSPENDED UNIT HEATER WITH INTEGRAL THERMOSTAT AND 3 POLE DISCONNECT.
  - OMIT ELECTRICAL CONNECTIONS TO CHILLER #5 AND ASSOCIATED VFD UNDER ALTERNATE #4.
  - OMIT ELECTRICAL CONNECTIONS TO CHILLER #4 AND ASSOCIATED VFD UNDER ALTERNATE #5.
  - ROUTE CONDUITS FOR COOLING TOWER AND SUMP HEATER CONNECTIONS UP COOLING TOWER COLUMNS AS REQUIRED TO EQUIPMENT ABOVE. SEE MOTOR AND EQUIPMENT SCHEDULE FOR CONDUIT AND WIRING REQUIREMENTS.
  - PROVIDE 120V CONNECTION FOR CHEMICAL TREATMENT SYSTEM CONTROL PANEL, COORDINATE EXACT LOCATION WITH EQUIPMENT SUPPLIER.
  - PROVIDE 120V RECEPTACLE FOR GLYCOL PUMP, COORDINATE EXACT LOCATION WITH EQUIPMENT SUPPLIER.
  - TYPICAL MODULAR BUILDING SECTION LINE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR RECONNECTING 120V PIGTAILS BETWEEN EACH MODULAR CHILLER PLANT SECTION. THE 120V WIRING, CONDUIT AND DEVICES SHALL BE INCLUDED WITH THE MODULAR CHILLER PLANT.

- THE MODULAR CHILLER PLANT WILL BE FURNISHED FROM THE FACTORY WITH THE FOLLOWING ELECTRICAL INFRASTRUCTURE:
- SWITCHBOARDS, ELECTRICAL PANELS, AND TRANSFORMERS
  - BRANCH CIRCUIT WIRING AND CONDUITS.
  - EMPTY RACEWAY TO ALL MECHANICAL EQUIPMENT AND ASSOCIATED VFDs AND/OR DISCONNECTS.
  - ELECTRIC UNIT HEATERS AND ASSOCIATED CONDUIT.
  - ELECTRICAL EQUIPMENT, CONDUIT ETC FURNISHED BY THE CHILLER PLANT SUPPLIER SHALL MEET THE REQUIREMENTS OF THE DIVISION 26 SPECIFICATIONS.
  - ALL EMPTY CONDUITS SHALL BE LABELED AT EACH END.
- THE ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR THE FOLLOWING:
- ASSEMBLY AND INSTALLATION OF SWBD 56 FURNISHED BY THE CHILLER PLANT SUPPLIER.
  - RECONNECT FEEDER CONDUITS AND PROVIDE WIRING TO PREINSTALLED ELECTRICAL SUBPANELS AND TRANSFORMERS FURNISHED BY THE CHILLER PLANT SUPPLIER.
  - INSTALL WIRING AND MAKE FINAL CONNECTIONS TO ALL MECHANICAL EQUIPMENT AND ASSOCIATED DISCONNECTS AND VFDs PREINSTALLED BY THE CHILLER PLANT SUPPLIER.
  - RECONNECT ELECTRICAL PIGTAILS FOR 120V CIRCUITING THAT EXTENDS ACROSS BUILDING SECTION LINES.
  - RECONNECT MECHANICAL EQUIPMENT FEEDER CONDUITS THAT EXTEND ACROSS BUILDING SECTION LINES.
  - ALL EXTERIOR CONNECTIONS, CONDUIT, TRENCHING AND FINAL CONNECTIONS TO COOLING TOWERS, EXTERIOR TRANSFORMERS, AND OTHER EXTERIOR SITE EQUIPMENT.

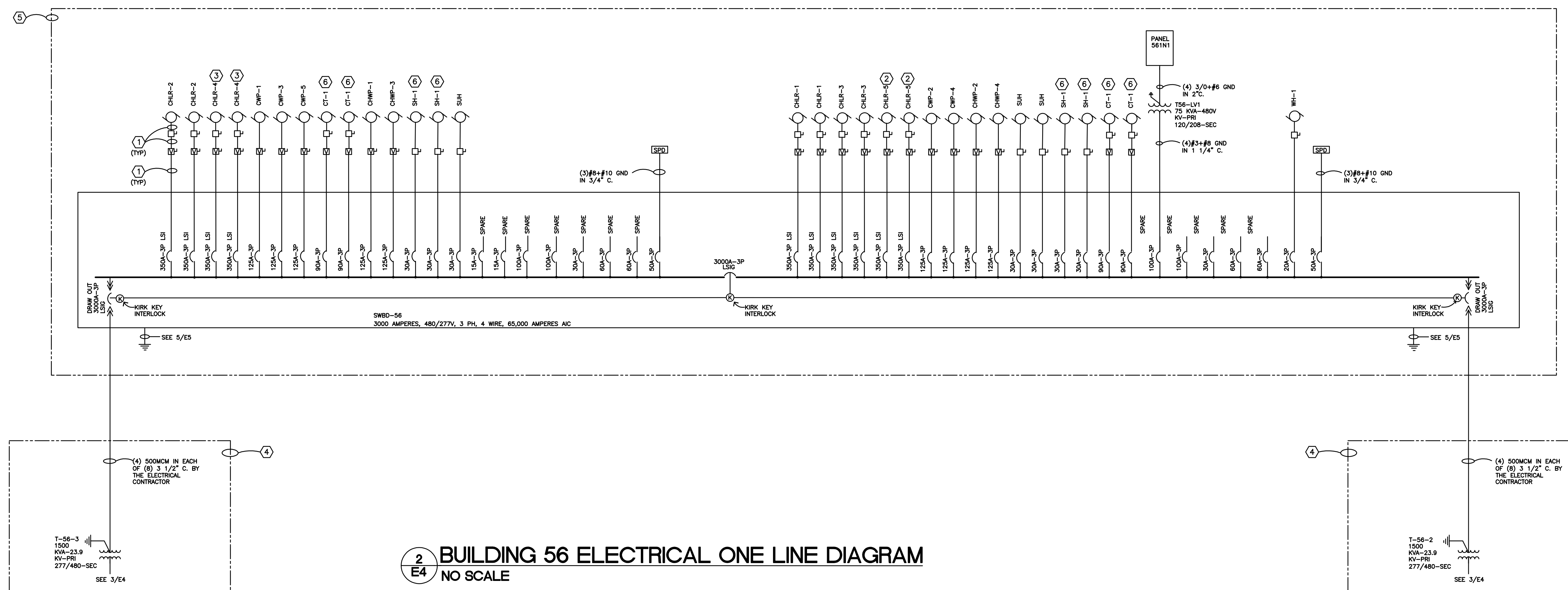




**1 E4 25KV ONE LINE DIAGRAM - DEMOLITION**  
NO SCALE



**3 E4 25KV ONE LINE DIAGRAM - REVISED**  
NO SCALE



**2 E4 BUILDING 56 ELECTRICAL ONE LINE DIAGRAM**  
NO SCALE



Dept. of Veterans Affairs  
Health Care System  
2101 Elm Street North  
Fargo, ND 58102



IMAGE GROUP INC.  
403 CENTER AVENUE, SUITE 300  
MOORHEAD, MN 56560

IMAGE GROUP INC., Architecture & Interiors  
OBERMILLER NELSON ENGINEERING, Mechanical Engineers  
MBN ENGINEERING, Civil & Electrical Engineers  
SOLIEN & LARSON ENGINEERING, Structural Engineers



MBN ENGINEERING  
MECHANICAL \* ELECTRICAL \* CIVIL  
903 7th St N, Suite 200  
FARGO, ND 58103  
PHONE: 701.478.4300  
FAX: 701.478.4340



Drawing Title  
**ELECTRICAL ONE-LINE  
DIAGRAMS**

VA Project No.  
**437-14-111**

Building No.  
**56**

Contract No.  
**VA263-P-1217**

AutoCAD File Name  
**14-125 E4.dwg**

Project Title  
**REPLACE CENTRAL CHILLER PLANT**

Designed By  
**CH**

Location  
**FARGO VA HEALTH CARE SYSTEM  
FARGO, ND**

Checked By  
**MB**

Drawn By  
**CH**

Dwg. 25 of 28

Date  
**DECEMBER 18, 2015**

Scale  
**AS NOTED**

Drawing No.  
**E4**

Dwg. 25 of 28

