

ELECTRICAL PLAN SYMBOLS

IDENTIFICATION SYMBOLS

**EQUIP #** EQUIPMENT AND INSTRUMENT IDENTIFICATION

EQUIPMENT/INSTRUMENT LOCATOR

LUMINAIRE IDENTIFICATION  
a = CIRCUIT DESIGNATION  
b = DEVICE SWITCHED FROM  
c = MOUNTING HEIGHT IN FEET TO BOTTOM OF FIXTURE

CONDUIT IDENTIFICATION  
XXXX = CONDUIT NUMBER, REFER TO CONDUIT SCHEDULE UNLESS OTHERWISE NOTED, GROUPED CONDUITS ARE LABELED LEFT TO RIGHT OR TOP TO BOTTOM.

INDICATES KEYNOTE X (PERTAINS ONLY TO SHEET WHERE NOTE IS FOUND)

DISCONNECT SWITCH  
a = TYPE, REFER TO DISCONNECT SCHEDULE

GROUNDING

UNDERGROUND GROUND CABLE #4/0 SDBC UNLESS OTHERWISE NOTED

GROUND ROD

GROUND ROD AND GROUND WELL

GROUND CONNECTION

LUMINAIRES

2', 4', OR 8' STRIP

2' X 2' LAY-IN TROFFER

2' X 4' LAY-IN TROFFER

LUMINAIRE POLE MOUNTED

STROBE  
a = COLOR  
R = RED  
G = GREEN  
A = AMBER

LUMINAIRE, EMERGENCY BATTERY-POWERED

LUMINAIRE, EMERGENCY/EXIT BATTERY-POWERED

LUMINAIRE, EMERGENCY BATTERY-POWERED REMOTE

LUMINAIRE, SURFACE OR PENDANT MOUNTED

LUMINAIRE, WALL MOUNTED

LUMINAIRE, FLOOD/SPOT

LUMINAIRE, EXIT ONE OR TWO FACES AS INDICATED. ARROW POINTS IN DIRECTION OF EGRESS.

LUMINAIRE, WALL WASHER

PHOTOCELL

SWITCHES/RECEPTACLES

SINGLE POLE SWITCH  
a = CIRCUIT DESIGNATION  
b = DEVICE SWITCHED DESIGNATION  
c = TYPE  
2 = DOUBLE POLE SWITCH  
3 = THREE-WAY SWITCH  
4 = FOUR-WAY SWITCH  
K = KEY OPERATED SWITCH  
F = SWITCH AND FUSE/STAT HOLDER  
P = SWITCH AND PILOT LIGHT  
T = THERMOSTAT  
D = DIMMER SWITCH  
L = LOW VOLTAGE LIGHT SWITCH  
M = MANUAL MOTOR STARTER

OCCUPANCY SENSOR  
a = CIRCUIT DESIGNATION  
b = DEVICE SWITCHED DESIGNATION

SWITCH AND SINGLE RECEPTACLE  
a = CIRCUIT DESIGNATION  
b = DEVICE TYPE DESIGNATION

DUPLEX RECEPTACLE  
a = CIRCUIT DESIGNATION  
b = DEVICE TYPE DESIGNATION

QUADRUPLUX RECEPTACLE  
a = CIRCUIT DESIGNATION  
b = DEVICE TYPE DESIGNATION

IN FLOOR DUPLEX RECEPTACLE  
a = CIRCUIT DESIGNATION  
b = DEVICE TYPE DESIGNATION

IN FLOOR QUADRUPLUX RECEPTACLE  
a = CIRCUIT DESIGNATION  
b = DEVICE TYPE DESIGNATION

DUPLEX RECEPTACLE w/SPLIT WIRE  
a = CIRCUIT DESIGNATION  
b = DEVICE TYPE DESIGNATION

APPLIANCE RECEPTACLE  
a = CIRCUIT DESIGNATION  
b = DEVICE TYPE DESIGNATION

WELDING RECEPTACLE  
a = CIRCUIT DESIGNATION  
b = DISCONNECT TYPE

SPECIAL PURPOSE RECEPTACLE  
a = CIRCUIT DESIGNATION  
b = DEVICE TYPE DESIGNATION

TWIST LOCK RECEPTACLE  
a = AMP RATING

TELEPHONE OUTLET  
a = CIRCUIT DESIGNATION  
b = MOUNTING HEIGHT

DATA COMMUNICATIONS OUTLET  
a = CIRCUIT DESIGNATION  
b = MOUNTING HEIGHT

FIRE ALARM

SMOKE DETECTOR  
a = TYPE  
I = IONIZATION  
P = PHOTOELECTRIC  
d = DUCT DETECTOR

FIRE ALARM CONTROL PANEL

FIRE ALARM PULL STATION

FIRE ALARM HORN/STROBE COMBINATION

FIRE ALARM STROBE

FIRE SPRINKLER  
F = FLOW SWITCH  
T = TAMPER SWITCH

RACEWAY

EXPOSED CONDUIT

BREAK AND CONTINUATION IN CONDUIT RUN

EXPOSED CONDUIT HIDDEN BEHIND WALLS, FLOORS OR OTHER STRUCTURES

UNDERGROUND CONDUIT, DIRECT BURIED OR IN DUCTBANK

CONDUIT IN SLAB

CONDUIT VERTICAL CHANGE IN DIRECTION

CONDUIT CAP

JUNCTION BOX

CONDUIT SEAL

CONDUIT TEE

DUCTBANK APPROXIMATE DIMENSIONS SHOWN ON DUCTBANK SECTIONS

CONDUIT SIZE AND CONDUCTORS

INDIVIDUAL CONDUCTORS

W"C-(3-X (Ø), 1-Y (N) & 1-Z (G))

W"C (WHERE INDICATED): W = CONDUIT TRADE SIZE

3-X (Ø):  
3 = QUANTITY  
X = SIZE OF CONDUCTORS  
Ø = DESIGNATES PHASE CONDUCTORS

1-Y (N)(WHERE INDICATED):  
1 = QUANTITY  
Y = SIZE OF CONDUCTORS  
(N) = DESIGNATES NEUTRAL CONDUCTORS

1-Z (G)(WHERE INDICATED):  
1 = QUANTITY  
Z = SIZE OF CONDUCTORS  
(G) = DESIGNATES GROUND CONDUCTORS

U(3-X (Ø) & 1-X (G))  
U = NUMBER OF PARALLEL RUNS

MULTI CONDUCTOR CABLES

K/2/C#16S  
K (WHERE INDICATED) = NUMBER OF PAIRS  
2/C#16S = TWO CONDUCTOR, 16 GAUGE, TWISTED SHIELDED PAIR

K/3/C#16S  
K (WHERE INDICATED) = NUMBER OF TRIPLETS  
3/C#16S = THREE CONDUCTOR, 16 GAUGE, TWISTED SHIELDED TRIPLETS

N/CX  
N = NUMBER OF CONDUCTORS IN THE CABLE  
X = SIZE OF CONDUCTORS

FIBER OPTIC CABLES

FO/N  
N = NUMBER OF INDIVIDUAL FIBERS

ELECTRICAL ONE-LINE SYMBOLS

MEDIUM VOLTAGE

CIRCUIT BREAKER, MEDIUM VOLTAGE  
a = CIRCUIT BREAKER NUMBER  
b = FRAME SIZE

ANSI RELAY DEVICE  
a = ANSI DEVICE FUNCTION  
b = QUANTITY

MEDIUM VOLTAGE DISCONNECT SWITCH NON-FUSED CUT OUT

MEDIUM VOLTAGE DISCONNECTING FUSE SINGLE FUSE CUT OUT

MEDIUM VOLTAGE DISCONNECT SWITCH DOUBLE FUSE CUT OUT

MEDIUM VOLTAGE SINGLE FUSE

MEDIUM VOLTAGE DOUBLE FUSE

MEDIUM VOLTAGE LIVE FRONT TERMINATOR

MEDIUM VOLTAGE ELBOW

MEDIUM VOLTAGE TEE

MEDIUM VOLTAGE CONTACTOR

MEDIUM VOLTAGE STARTER

MOV-ELBOW ARRESTER

LOW VOLTAGE

LOW VOLTAGE CIRCUIT BREAKER  
a = TYPE  
MCP = MOTOR CIRCUIT PROTECTOR  
TM = THERMAL MAGNETIC  
SS = SOLID STATE  
b = FRAME SIZE (MANUFACTURER TO DETERMINE FRAME SIZE UNLESS INDICATED)  
c = NUMBER OF POLES  
d = TRIP SETTING (AT = AMP TRIP) (AC = MCP CONTINUOUS RATING)  
e = DESIGNATION  
f = INTERRUPTING RATING

LOW VOLTAGE CIRCUIT BREAKER AUXILIARY OPERATOR  
S = SHUNT TRIP  
G = GROUND FAULT INTERRUPTER  
V = SOLENOID KEY RELEASE

DISCONNECT SWITCH  
A = TYPE, REFER TO DISCONNECT SCHEDULE

FUSED DISCONNECT SWITCH  
B = TYPE, REFER TO DISCONNECT SCHEDULE  
b = FUSE RATING

FUSE

COMBINATION STARTER WITH CONTROL POWER TRANSFORMER  
a = CIRCUIT BREAKER DISCONNECT, TYPE AS NOTED  
b = STARTER TYPE  
c = NEMA STARTER SIZE  
d = OVERLOAD

VARIABLE FREQUENCY DRIVE WITH FEATURES AS SHOWN  
a = INPUT CONTACTOR  
b = OUTPUT CONTACTOR  
c = BYPASS STARTER  
d = INPUT CIRCUIT BREAKER

REDUCED VOLTAGE SOLID STATE STARTER WITH FEATURES AS SHOWN  
BS = BYPASS STARTER

EQUIPMENT ENCLOSURE

MISCELLANEOUS

MOTOR  
HP = HORSEPOWER RATING  
FULL LOAD AMPS AS NOTED

PACKAGED EQUIPMENT LOAD RATING AS INDICATED  
a = RATED LOAD  
b = UNIT(HP, KW, KVA) AS INDICATED

TRANSFORMER  
a = DEVICE I.D.  
b = KVA RATING  
c = NUMBER OF PHASES  
d = PRIMARY VOLTAGE  
e = SECONDARY VOLTAGE  
f,g = CONNECTION TYPE SYMBOL  
h = IMPEDANCE

GROUNDED WYE CONNECTION

DELTA CONNECTION

ENGINE-GENERATOR RATINGS AS INDICATED ON THE DRAWINGS  
a = KVA/KW  
b = VOLTAGE/CONNECTION  
c = PHASE  
d = WIRE  
e = PF

CURRENT TRANSFORMER WITH SHORTING TERMINAL BLOCK  
a = QUANTITY  
b = RATIO

POTENTIAL TRANSFORMER  
a = QUANTITY  
b = RATIO  
c,d = CONNECTION TYPE SYMBOL

SOLID STATE MULTIFUNCTION METER

AMPERE TEST POINT

VOLTAGE TEST POINT

UTILITY METER

LIGHTNING ARRESTER

SURGE PROTECTIVE DEVICE

DRAWOUT CONNECTION

GROUND

CAPACITOR

BATTERY

KIRK KEY INTERLOCK

LOAD BANK

				DESIGNED CAC	DISCIPLINE ENGINEER	PROJECT ENGINEER	PARTNER		SOUTH VALLEY WATER RECLAMATION FACILITY		VERIFY SCALES	JOB NO. 10548.B10
				DRAWN MNH					MISCELLANEOUS ELECTRICAL UPGRADES		BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. 00GE01
				CHECKED CLL					ELECTRICAL		0  1"	SHEET NO.
				DATE					LEGEND		IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	OF XXX
REV	DATE	BY	DESCRIPTION									



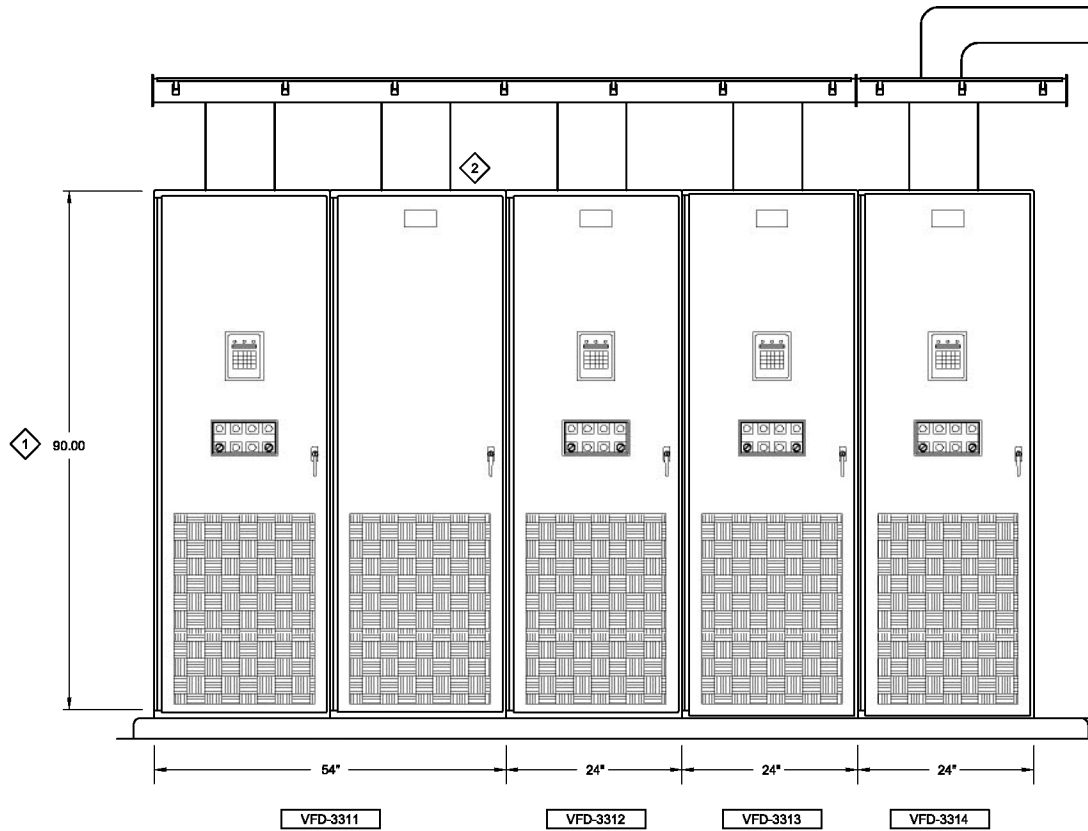
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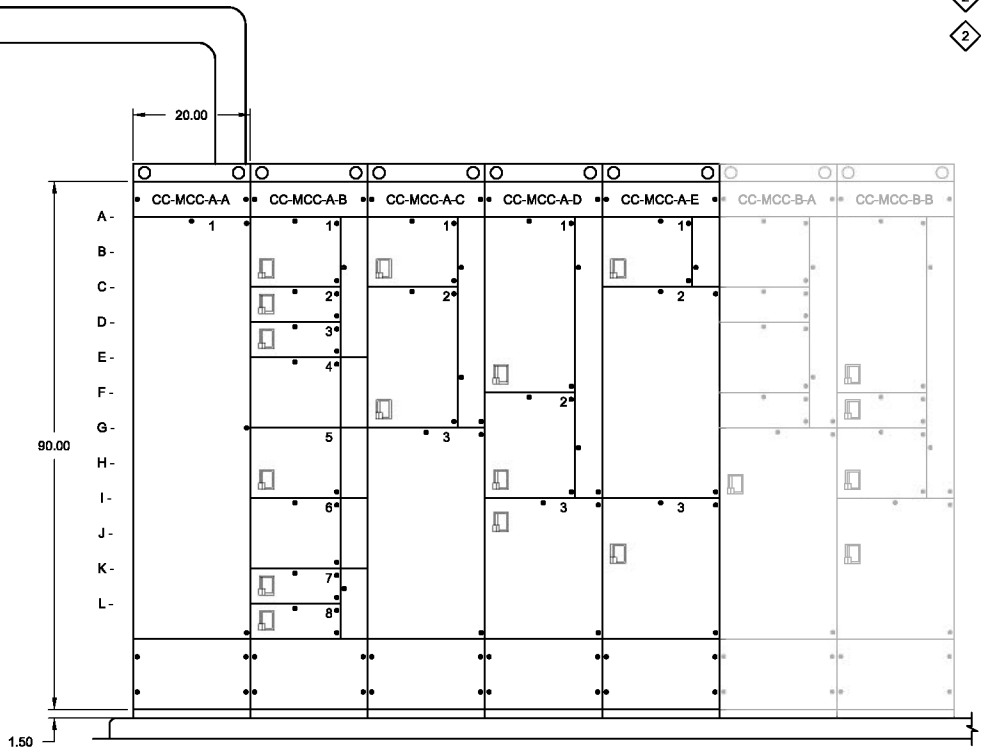
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- KEY NOTES:
- 1 ALL VFDs ARE 24" DEEP THE NEW VFDs CANNOT EXCEED THE DIMENSIONS SHOWN.
  - 2 ALL CONDUIT CONNECTIONS ARE MADE THROUGH THE TOP OF THE VFD.
  - 2 THE VFD ELEVATION SHOWN IS THE EXISTING VFDs. THE NEW VFDs CANNOT EXCEED THE DIMENSIONS OF THE EXISTING CABINETS.



VFD ELEVATION 3



ELEVATION CC-MCC-A  
SCALE: 3/4" = 1'-0"

	300A VERT. BUS	600A VERT. BUS	600A VERT. BUS	300A VERT. BUS
A1 - PCM-3300	B1 - UWP-3313 UTILITY WATER PUMP	C1 - SPACE	D1 - SPARE FVNR	E1 - SAMPLE PUMP P-6
	B2 - CONDENSOR ON ROOF	C2 - SPARE	D2 - EXHAUST FAN F-2	E2 - AUTOMATIC TRANSFER SWITCH
	B3 - LTG TRANSFORMER T-1 AND PANEL LO	C3 - UWP-3311 UTILITY WATER PUMP	D3 - POWER FEEDER (UTILITY #1)	E3 - POWER FEEDER EMERGENCY
	B4 - AC UNIT FAN			
	B5 - RECIR PUMP			
	B6 - P-5 SAMPLE PUMP			
	B7 - SPARE			
	B8 - SPACE			

DESIGNED CAC			
DRAWN SMF			
CHECKED CLL			
DATE			
REV	DATE	BY	DESCRIPTION
	01/2015	KW	ELECTRICAL STUDIES UPDATE

DISCIPLINE ENGINEER	
PROJECT ENGINEER	

PARTNER	
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SOUTH VALLEY WATER RECLAMATION FACILITY  
MISCELLANEOUS ELECTRICAL UPGRADES  
ELECTRICAL  
CC-MCC-A EXISTING  
MODIFIED ELEVATION

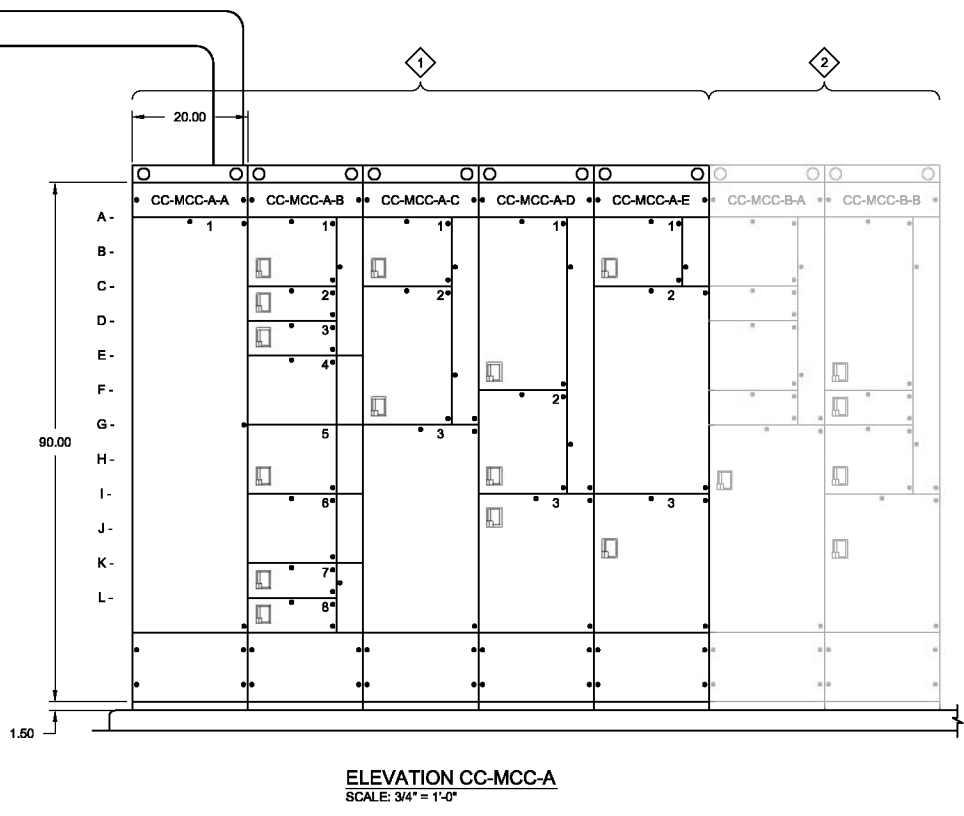
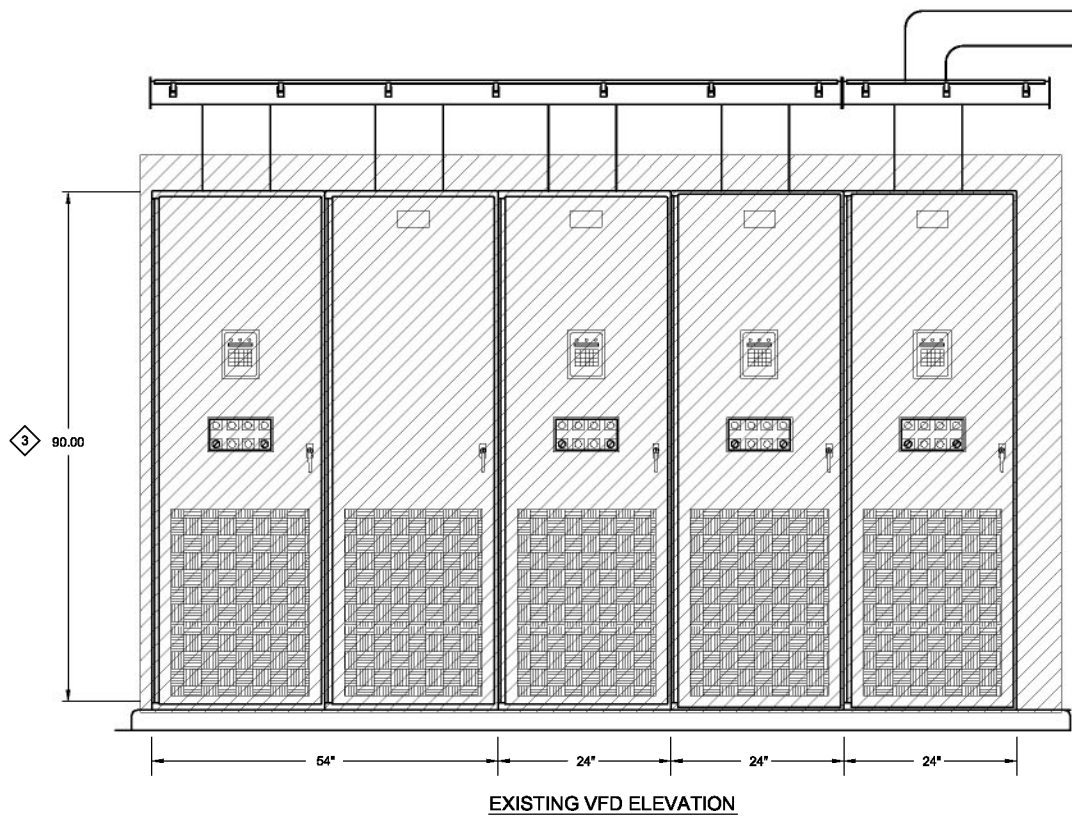
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 10648.B10 DRAWING NO. CC-01 SHEET NO. OF XXX
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\$\$\$\$DATE\$\$\$\$

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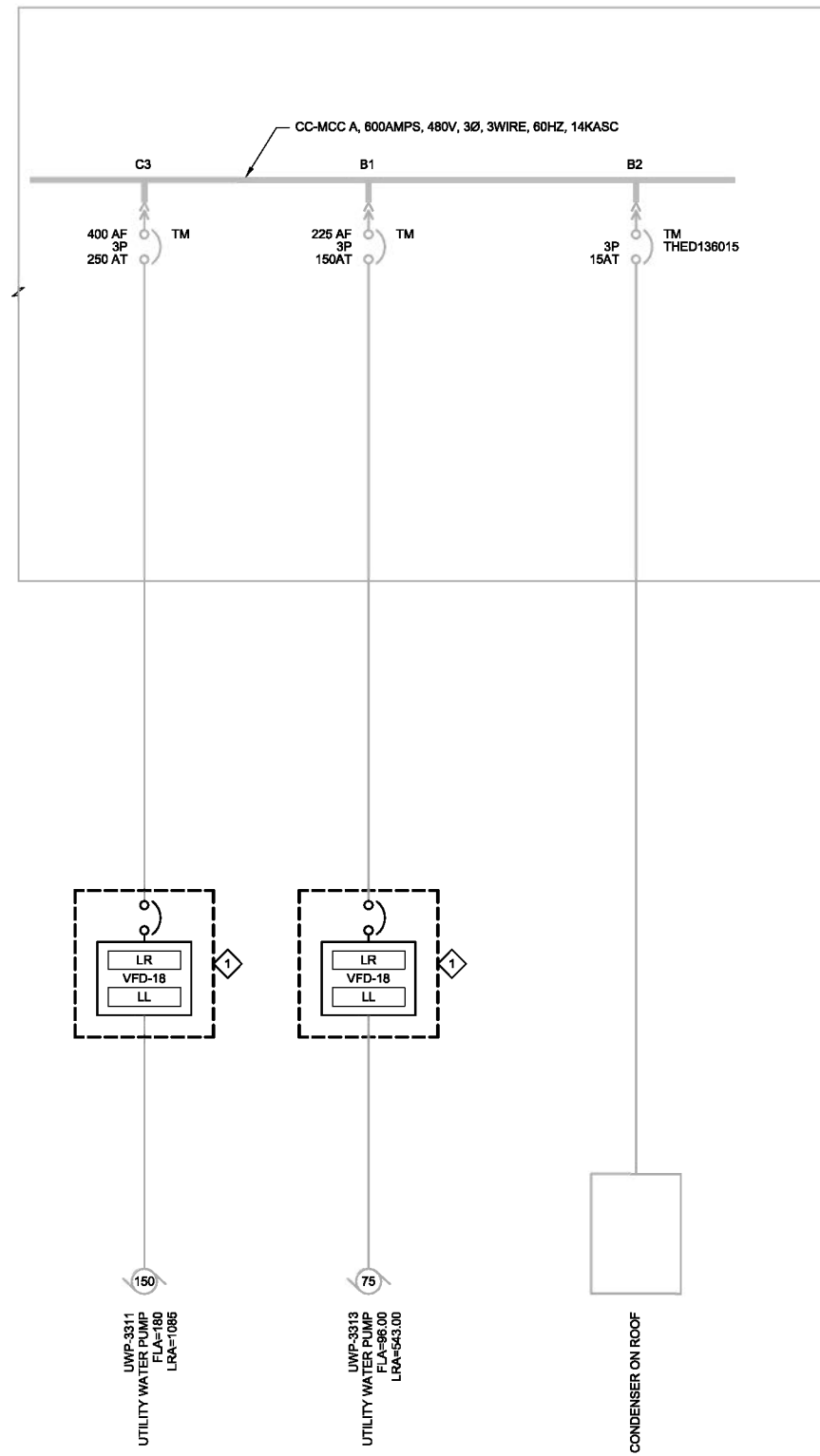
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- KEY NOTES:
- 1 CC-MCC A  
GE SERIES 8000  
CAT #0484XD418M10  
DIAGRAM #234B9647  
NEMA CLASS II, TYPE B, ENCL. 12  
480V, 3Ø, 3W, 60Hz  
800A MAIN BUS COPPER, SILVER PLATED  
300A GROUND BUS COPPER, SILVER PLATED  
22,000A SYMMETRICAL BUS RATING  
14,000A SYMMETRICAL MCC SHORT CKT RATING
  - 2 CC-MCC B  
GE SERIES 8000
  - 3 DEMOLISH THE EXISTING UTILITY WATER PUMP  
VFDS AND REPLACE WITH THE NEW OWNER  
FURNISHED VFDS.

	300A VERT. BUS	600A VERT. BUS	800A VERT. BUS	300A VERT. BUS
A1 - PCM-3300	B1 - UWP-3313 UTILITY WATER PUMP	C1 - SPACE	D1 - SPARE FVNR	E1 - SAMPLE PUMP P-6
	B2 - CONDENSOR ON ROOF	C2 - SPARE	D2 - EX-HAUST FAN F-2	E2 - AUTOMATIC TRANSFER SWITCH
	B3 - LTG TRANSFORMER T-1 AND PANEL LO	C3 - UWP-3311 UTILITY WATER PUMP	D3 - POWER FEEDER (UTILITY #1)	E3 - POWER FEEDER EMERGENCY
	B4 - AC UNIT FAN			
	B5 - RECIR PUMP			
	B6 - P-6 SAMPLE PUMP			
	B7 - SPARE			
	B8 - SPACE			

					DESIGNED CAC	DISCIPLINE ENGINEER	PROJECT ENGINEER	PARTNER		SOUTH VALLEY WATER RECLAMATION FACILITY		VERIFY SCALES  BAR IS ONE INCH ON ORIGINAL DRAWING  0  1"  IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 10648.B10
					DRAWN SMF					MISCELLANEOUS ELECTRICAL UPGRADES			DRAWING NO.
					CHECKED CLL					ELECTRICAL CC-MCC-A EXISTING DEMOLITION ELEVATION			CC-01D
					DATE								SHEET NO.
	REV	01/2015	KW	BY	DESCRIPTION								OF XXX
PROJECT NO:		FILENAME: CC-01D.dwg			PLOT TIME: \$TIMES								



GENERAL NOTES:

1. REFER TO THE VFD ELEVATION FOR MAXIMUM ALLOWABLE VFD EQUIPMENT DIMENSIONS.

**KEY NOTES:**

**1 NEW VFD**

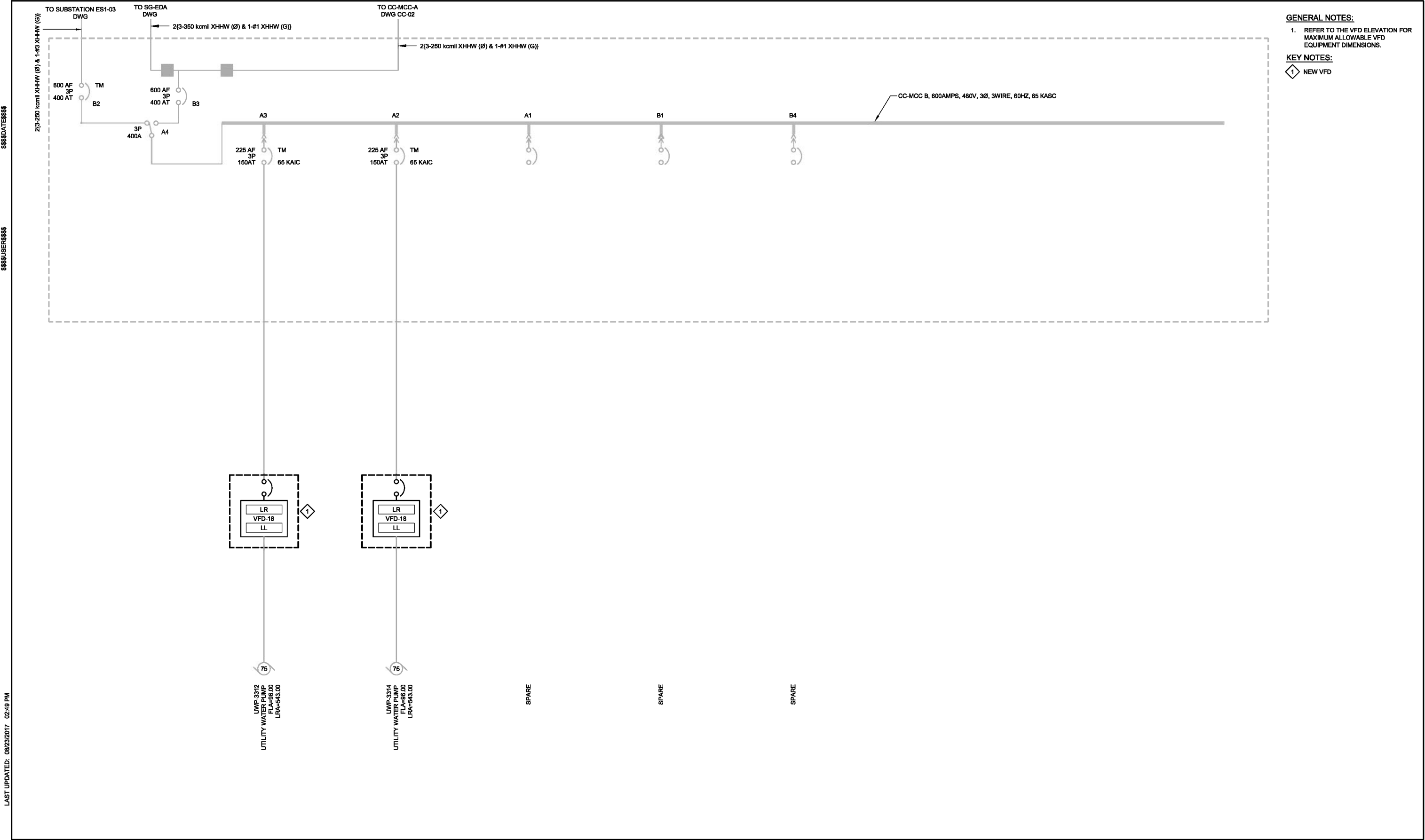
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				DESIGNED CAC	DISCIPLINE ENGINEER		PROJECT ENGINEER				SOUTH VALLEY WATER RECLAMATION FACILITY	VERIFY SCALES  BAR IS ONE INCH ON ORIGINAL DRAWING  0  1"  IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 10548.B10
				DRAWN SMF							DRAWING NO.		
				CHECKED CLL							CC-03		
				DATE							ELECTRICAL CC-MCC-A MODIFIED PARTIAL ONE-LINE DIAGRAM	SHEET NO. OF XXX	
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PROJECT NO:				FILENAME: CC-03.dwg			PLOT TIME: \$TIME\$						



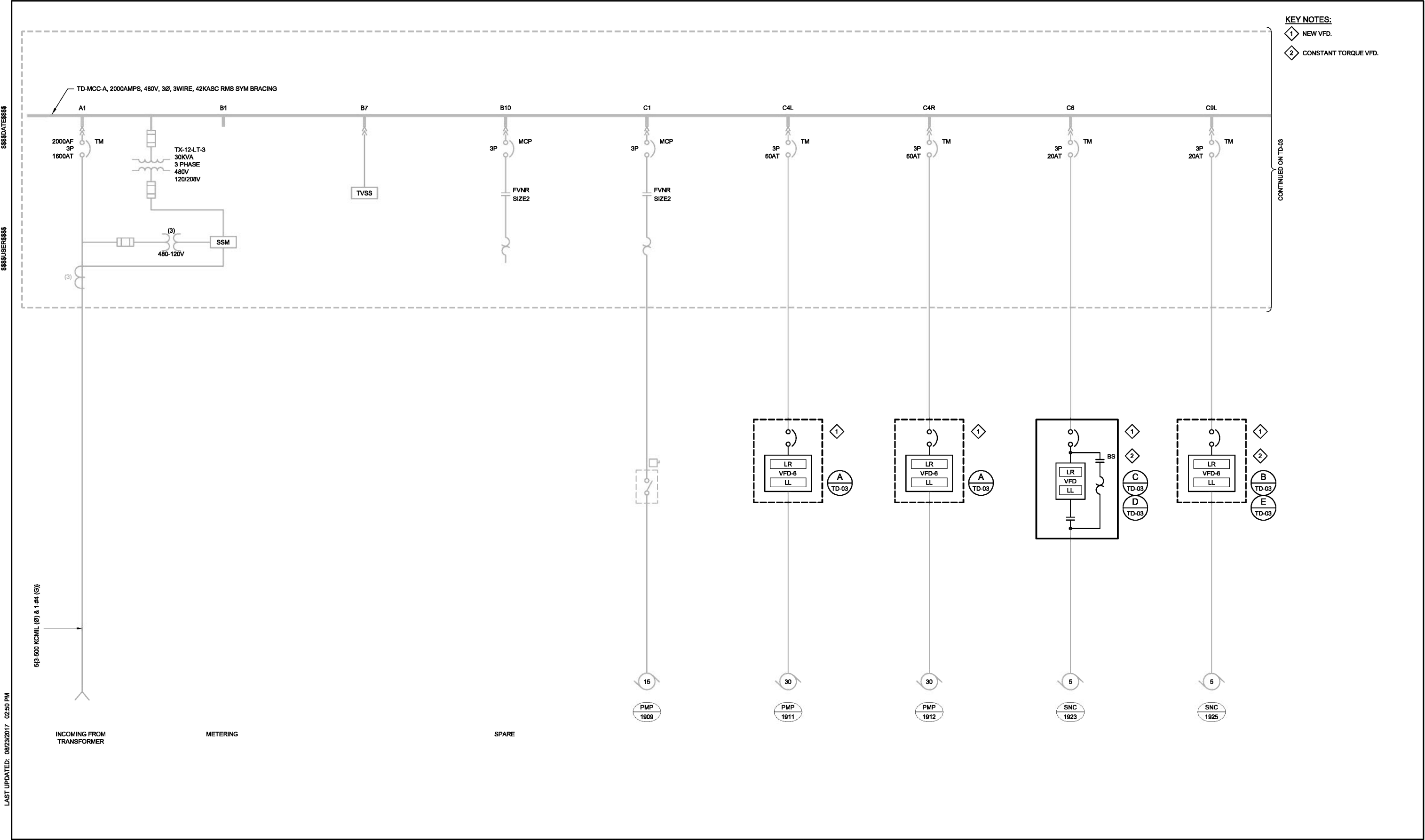
**GENERAL NOTES:**

1. REFER TO THE VFD ELEVATION FOR MAXIMUM ALLOWABLE VFD EQUIPMENT DIMENSIONS.

**KEY NOTES:**

1 NEW VFD

LAST SAVED BY: tmorelio			DESIGNED CAC DRAWN SMF CHECKED CLL DATE			DISCIPLINE ENGINEER			PROJECT ENGINEER			PARTNER						SOUTH VALLEY WATER RECLAMATION FACILITY			VERIFY SCALES			JOB NO. 1054B.B10		
																					BAR IS ONE INCH ON ORIGINAL DRAWING			DRAWING NO.		
																								CC-06		
																								SHEET NO.		
																								0  1"		
ELECTRICAL																										
CC-MCC-B																										
REV			DATE			BY			DESCRIPTION												MODIFIED ONE-LINE DIAGRAM - I					
PROJECT NO:			FILENAME: CC-06.dwg			PLOT TIME: \$TIME\$																				



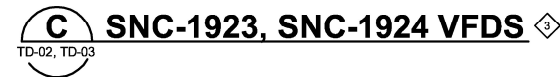
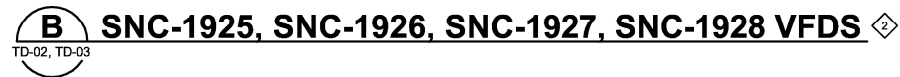
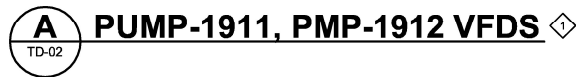
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				DRAWN SMW						MISCELLANEOUS ELECTRICAL UPGRADES		BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO.
				CHECKED CLL						ELECTRICAL TD-MCC-A		0  1"	TD-02
				DATE						MODIFIED ONE-LINE DIAGRAM - I		IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO.  OF XXX
LAST SAVED BY: mrodriguez													
PROJECT NO: FILENAME: TD-02.dwg PLOT TIME: \$TIME\$													
REV	DATE	BY	DESCRIPTION										
1	01/2015	KW	ELECTRICAL STUDIES UPDATE										

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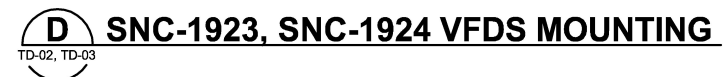
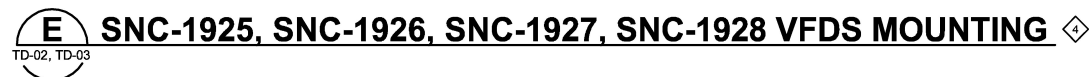




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- 1 THE VFD ENCLOSURE IS 46" H X 30" W X 10" DEEP.
- 2 THE VFD ENCLOSURE IS 30" H X 24" W X 10" DEEP.
- 3 THE VFD ENCLOSURE IS 30" H X 24" W X 16" DEEP.
- 4 MOUNTING IS SIMILAR FOR THE PUMP-1911 AND PUMP-1912 VFDs.



LAST SAVED BY: tmoradio					DESIGNED CAC	DISCIPLINE ENGINEER	PROJECT ENGINEER	PARTNER			SOUTH VALLEY WATER RECLAMATION FACILITY		VERIFY SCALES  BAR IS ONE INCH ON ORIGINAL DRAWING  0  1"  IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 10548.B10		
					DRAWN SMW						MISCELLANEOUS ELECTRICAL UPGRADES			DRAWING NO.		
					CHECKED CLL						ELECTRICAL TD-MCC-A VFD MOUNTING DETAILS			TD-04		
	REV	DATE	BY	DESCRIPTION	DATE								SHEET NO.			
	PROJECT NO:				FILENAME: TD-04.dwg						PLOT TIME: \$TIME\$		OF XXX			