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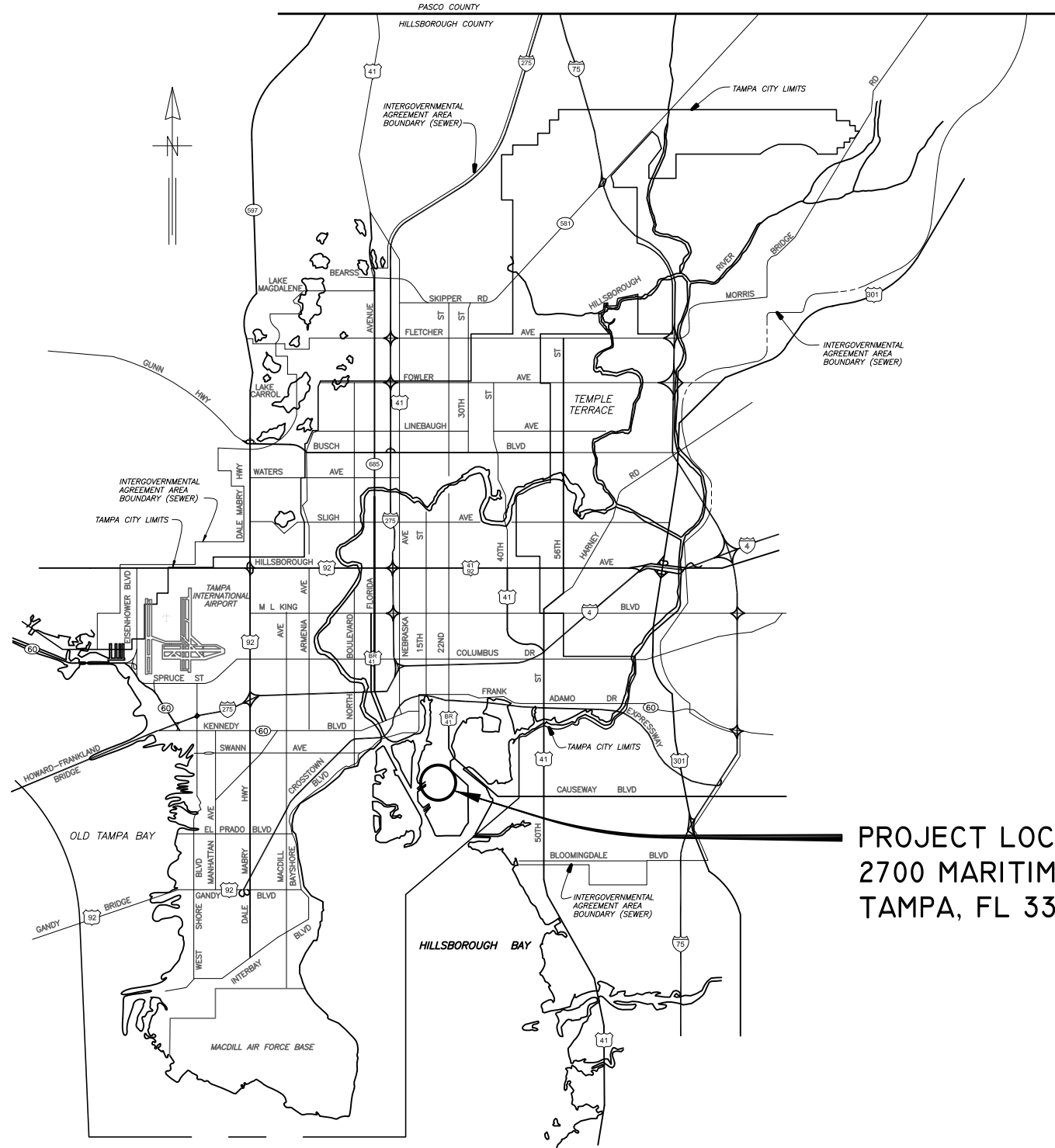
**Please Email ALL Questions:**

**[MailTo:ContractAdministration@TampaGov.net](mailto:ContractAdministration@TampaGov.net)**

**Please Let Us Know If You Plan To Bid**

City of Tampa  
Contract Administration Department  
306 E. Jackson St. #280A4N  
Tampa, FL 33602  
(813)274-8456

LOCATION MAP



PROJECT LOCATION  
 2700 MARITIME BLVD.  
 TAMPA, FL 33605

PLANS

FOR

CITY OF TAMPA FLORIDA  
 WASTEWATER DEPARTMENT

FOR

THE CONSTRUCTION OF THE

HOWARD F. CURREN AWTP  
 LARGE MOTOR SOFTSTART  
 MODIFICATIONS

CONTRACT: 17-C-00034

MAY 2017



**TRICON**  
 CONSULTING ENGINEERS

777 S. Harbour Island Blvd,  
 Suite 250  
 Tampa, FL 33602  
 813.227.9190  
 Certificate of Authorization No. 8363

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E-26	FILTER BUILDING NO. 1 MCC 57 SHUNT TRIP AND SEL-849 WIRING DIAGRAMS
E-27	FILTER BUILDING NO. 2 PARTIAL FLOOR PLAN #2
E-28	FILTER BUILDING NO. 2 MCC-85 ELEVATION
E-29	FILTER BUILDING NO. 2 MCC-85 ONE-LINE DIAGRAM
E-30	FILTER BUILDING NO. 2 FB-BWB-3, 4 & 5 CONTROL SCHEMATICS
E-31	FILTER BUILDING NO. 2 MCC 85 SHUNT TRIP AND SEL-849 WIRING DIAGRAMS

SCOPE OF WORK
<p>THE WORK CONSISTS OF FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, TRANSPORTATION, COMMISSIONING AND PERFORMING ALL OPERATIONS REQUIRED TO SUPPORT THE MODIFICATION OF THE PROTECTIVE DEVICES ASSOCIATED WITH FIFTEEN (15) SOFTSTARTERS AT THE HOWARD F. CURREN AWTP. THE WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:</p> <ol style="list-style-type: none"> <li>SUBMIT WORKING DRAWINGS, PARTS SCHEDULES AND CUT-SHEETS TO THE ENGINEER.</li> <li>FURNISH AND INSTALL ALL EQUIPMENT AND CONTROL DEVICES AS SHOWN ON THE PLANS AND DESCRIBED IN THE SPECIFICATIONS.</li> </ol> <p>SPECIFICALLY:</p> <p>FURNISH ALL LABOR, MATERIALS, EQUIPMENT, TRANSPORTATION AND PERFORMING ALL OPERATIONS REQUIRED TO SUPPORT THE INSTALLATION AND COMMISSIONING OF FIFTEEN (15) NEW 480V, 3-POLE CIRCUIT BREAKERS AND FIFTEEN (15) NEW SCHWEITZER ENGINEERING LABORATORIES MOTOR MANAGEMENT RELAYS, TYPE SEL-849. THE WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING :</p> <ol style="list-style-type: none"> <li>REMOVE THE EXISTING MOTOR PROTECTION DEVICES (CIRCUIT BREAKER OR MOTOR CIRCUIT PROTECTOR AS REQUIRED) FROM THE ASSOCIATED MOTOR CONTROL CENTERS (MCC'S).</li> <li>PROVIDE AND INSTALL NEW 480V, 3-POLE, 65 KAIC CIRCUIT BREAKERS, EACH WITH A 120V SHUNT TRIP UNIT (CIRCUIT BREAKER AMPERE RATING VARIES PER LOCATION).</li> <li>PROVIDE AND INSTALL A NEW SCHWEITZER ENGINEERING LABORATORIES MOTOR MANAGEMENT RELAY, TYPE SEL-849. IN THE ASSOCIATED MCC CUBICLE.</li> <li>PROVIDE AND INSTALL CONTROL RELAYS, TIMING RELAYS, TERMINAL BLOCKS, PILOT LIGHTS, ETC. AS REQUIRED FOR A COMPLETE AND FULLY FUNCTIONAL CONTROL CIRCUIT.</li> <li>PROVIDE AND INSTALL MISCELLANEOUS CONTROL CIRCUIT CONDUCTORS.</li> <li>PROVIDE AND INSTALL 120V, SINGLE-POLE, 20A CIRCUIT BREAKERS IN EXISTING 120/208V PANELBOARDS AS INDICATED TO SUPPLY 120V CONTROL POWER.</li> <li>PROVIDE AND INSTALL MISCELLANEOUS CONTROL POWER CONDUIT AND CONDUCTORS.</li> <li>PROVIDE STARTUP AND COMMISSIONING OF NEW CIRCUIT BREAKERS AND MOTOR MANAGEMENT RELAYS.</li> </ol> <p>B. OUTAGES</p> <ol style="list-style-type: none"> <li>THE CONTRACTOR SHALL COORDINATE ALL REQUIRED OUTAGES WITH THE CITY OF TAMPA. REQUESTS FOR OUTAGES SHALL BE MADE IN WRITING AND SUBMITTED TO THE CITY OF TAMPA A MINIMUM OF 14 CALENDAR DAYS PRIOR TO THE REQUESTED DATE OF THE OUTAGE.</li> </ol> <p>C. DEMOLITION</p> <ol style="list-style-type: none"> <li>VERIFY EXISTING POWER / INSTRUMENTATION / CONTROL CONNECTIONS IN THE FIELD PRIOR TO COMMENCING DEMOLITION OF MOTOR CIRCUIT PROTECTIVE DEVICES. THE CONTRACTOR SHALL MAKE ACCOMMODATIONS FOR DEMOLITION SCHEDULING.</li> <li>THE CITY RETAINS THE RIGHT TO SALVAGE SOME, OR ALL, OF THE EQUIPMENT REMOVED BY THE CONTRACTOR. THE CITY WILL INSTRUCT THE CONTRACTOR PRIOR TO DEMOLITION, ON WHAT IS TO BE SALVAGED. EQUIPMENT NOT DESIRED BY THE CITY SHALL BE REMOVED FROM THE PREMISES AND DISPOSED OF PROPERLY BY THE CONTRACTOR.</li> </ol>



JOB No.	171501842								
DESIGNED	TDT								
DRAWN	JLH								
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City of Tampa Wastewater Department

**HOWARD F. CURREN AWTP**

**LARGE MOTOR SOFTSTART MODIFICATIONS**

**INDEX AND SCOPE OF WORK**

SHEET NUMBER	2
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842

480V LARGE MOTOR SOFTSTARTER MODIFICATONS SCHEDULE								
MOTOR SIZE	VOLTAGE	FULL LOAD AMPS	EX PROTECTIVE DEVICE	TYPE OF LOAD	SERVICE	LOCATION	MCC	DESIGNATION
200	480	250	MOTOR CIRCUIT PROTECTOR	CENTRIFUGAL	BACKWASH WATER PUMP	FILTER BUILDING NO. 2 - 047	MCC-86	FB-BWP-4
200	480	250	MOTOR CIRCUIT PROTECTOR	CENTRIFUGAL	BACKWASH WATER PUMP	FILTER BUILDING NO. 2 - 047	MCC-86	FB-BWP-5
200	480	250	MOTOR CIRCUIT PROTECTOR	CENTRIFUGAL	BACKWASH WATER PUMP	FILTER BUILDING NO. 2 - 047	MCC-86	FB-BWP-6
250	480	324	MOTOR CIRCUIT PROTECTOR	POSITIVE DISPLACEMENT	AIR BLOWER	JUNCTION CHAMBER NO. 1 - 002	MCC-27	JC-1-AB-1
250	480	324	MOTOR CIRCUIT PROTECTOR	POSITIVE DISPLACEMENT	AIR BLOWER	JUNCTION CHAMBER NO. 1 - 002	MCC-27	JC-1-AB-2
250	480	324	MOTOR CIRCUIT PROTECTOR	POSITIVE DISPLACEMENT	AIR BLOWER	JUNCTION CHAMBER NO. 1 - 002	MCC-27A	JC-1-AB-3
250	480	324	MOTOR CIRCUIT PROTECTOR	POSITIVE DISPLACEMENT	AIR BLOWER	JUNCTION CHAMBER NO. 1 - 002	MCC-27A	JC-1-AB-4
400	480	434	CIRCUIT BREAKER	CENTRIFUGAL	MAIN PUMP AIR BLOWER	MAIN PUMPING STATION - 010	MCC-31	MP-AB-1
400	480	434	CIRCUIT BREAKER	CENTRIFUGAL	MAIN PUMP AIR BLOWER	MAIN PUMPING STATION - 010	MCC-31	MP-AB-2
400	480	434	CIRCUIT BREAKER	CENTRIFUGAL	MAIN PUMP AIR BLOWER	MAIN PUMPING STATION - 010	MCC-31	MP-AB-3
350	480	395	CIRCUIT BREAKER	POSITIVE DISPLACEMENT	BACKWASH AIR BLOWER	FILTER BUILDING NO. 1 - 015	MCC-57	FB-BWB-1
350	480	395	CIRCUIT BREAKER	POSITIVE DISPLACEMENT	BACKWASH AIR BLOWER	FILTER BUILDING NO. 1 - 015	MCC-57	FB-BWB-2
350	480	395	CIRCUIT BREAKER	POSITIVE DISPLACEMENT	BACKWASH AIR BLOWER	FILTER BUILDING NO. 2 - 047	MCC-85	FB-BWB-3
350	480	395	CIRCUIT BREAKER	POSITIVE DISPLACEMENT	BACKWASH AIR BLOWER	FILTER BUILDING NO. 2 - 047	MCC-85	FB-BWB-4
350	480	395	CIRCUIT BREAKER	POSITIVE DISPLACEMENT	BACKWASH AIR BLOWER	FILTER BUILDING NO. 2 - 047	MCC-85	FB-BWB-5

**GENERAL NOTES**

THE WORK CONSIST OF FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, AND TECHNICAL SUPERVISION TO MAKE MODIFICATIONS TO THE PROTECTIVE SYSTEM/DEVICES FOR THE ASSOCIATED SOFTSTARTERS AS INDICATED AND SHOWN. THE WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
- FOR EACH MCC, ONLY ONE PUMP MAY BE TAKEN OUT OF SERVICE AT A TIME TO COMPLETE THIS WORK.
- AFTER COMPLETION OF WORK ON A SINGLE PUMP, THERE SHALL BE A MINIMUM OF A 2-DAY WAITING PERIOD PRIOR TO THE NEXT PUMP BEING TAKEN OUT OF SERVICE.
- MOTOR CONNECTIONS SHALL BE BY BOLTED COMPRESSION LUGS PROPERLY TAPED TO MATCH CONDUCTOR INSULATION CHARACTERISTICS.
- CONTROL CONDUCTORS SHALL BE STRANDED COPPER, 14 AWG MINIMUM, WITH XHHW INSULATION, UNLESS OTHERWISE NOTED.
- ALL WIRING SHALL BE IDENTIFIED WITH NUMBERS AT ALL TERMINALS AND ON WIRING DIAGRAMS.
- FIELD VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.
- ALL NEW EQUIPMENT SHALL BE PERMANENTLY IDENTIFIED WITH A BLACK ON WHITE LAMACOID TAG ENGRAVED WITH MINIMUM 3/16 INCH LETTERING.
- ALL CIRCUITS SHALL HAVE A GROUNDING CONDUCTOR ROUTED INSIDE EACH CONDUIT WITH POWER CONDUCTORS.
- ALL CONDUCTOR LENGTHS SHALL BE CONTINUOUS. NO SPLICES OR CONDUCTOR TERMINATIONS SHALL BE PERMITTED UNLESS SPECIFICALLY DESIGNATED IN THE DRAWINGS.
- ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR THE CONTRACTORS REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
- MAKE MODIFICATIONS TO THE EXISTING MOTOR CONTROL CENTERS AS SHOWN AND SPECIFIED.
- PROVIDE AND INSTALL CIRCUIT BREAKERS, MOTOR MANAGEMENT RELAYS (SEL-849), RELAYS, TIMERS, ETC. AND ALL ASSOCIATED HARDWARE AS SHOWN AND SPECIFIED.
- MAKE REQUIRED INTERCONNECTIONS BETWEEN NEW COMPONENTS AND NEW CIRCUIT BREKAERS AS SHOWN AND SPECIFIED.
- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE, 5TH EDITION 2014, THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) SERIES 70/NATIONAL ELECTRICAL CODE (NEC) 2011 EDITION AND CHAPTER 5 OF THE CITY OF TAMPA CODE.
- CONTRACTOR SHALL USE THE MOTOR DATA PROVIDED IN THE SPECIFICATIONS TO ESTABLISH THE PROGRAMMABLE PARAMETERS FOR THE NEW MOTOR MANAGEMENT RELAYS (SEL-849). CONTRACTOR SHALL FULLY PROGRAM THE RELAY PRIOR TO INITIAL START-UP OF THE SYSTEM TO AVOID UNEXPECTED OR HARMFUL OPERATION OF THE SYSTEM.
- AFTER COMPLETING THE EQUIPMENT INSTALLATION AND PROGRAMMING TASKS, THE SYSTEM SHALL BE TESTED TO SHOW FUNCTIONALITY. IF NECESSARY, SEL-849 PROGRAM PARAMETERS SHALL BE ADJUSTED TO ACHIEVE THE PROPER MOTOR STARTING AND STOPPING CHARACTERISTICS.
- TEST AND START-UP REPORTS FOR THE MOTOR PROTECTION SYSTEM SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE (O&M) MANUALS PROVIDED UNDER THIS CONTRACT. ALL RELAY SETTINGS SHALL BE TABULATED AND INCLUDED IN THE O&M MANUAL.



JOB No.	171501842						
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DATE	05/2017	No.	DATE	BY	APP	REVISION	DESCRIPTION

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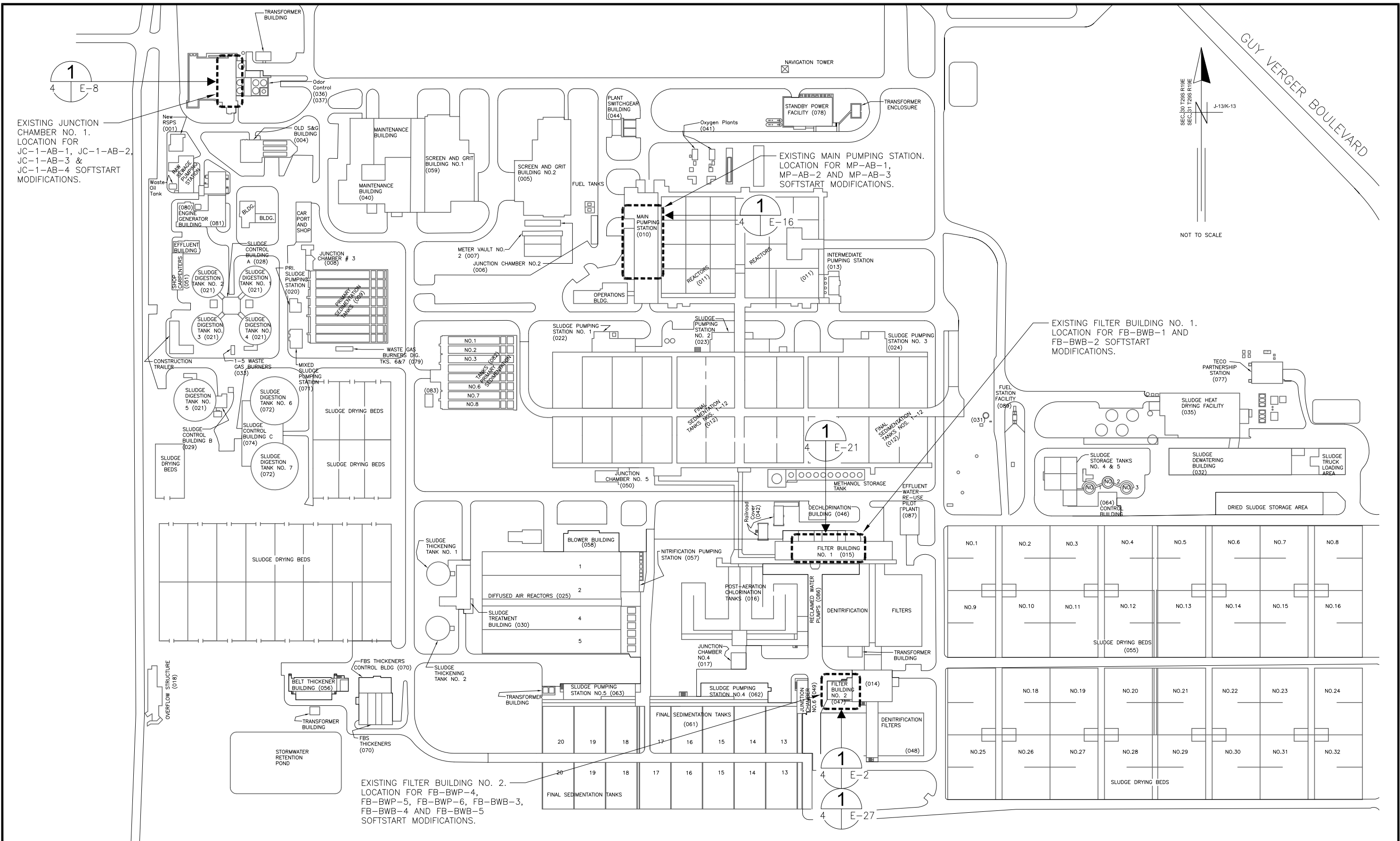
City of Tampa Wastewater Department

**HOWARD F. CURREN AWTP**

**LARGE MOTOR SOFTSTART MODIFICATIONS**

**SCHEDULE AND GENERAL NOTES**

SHEET NUMBER	3
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842



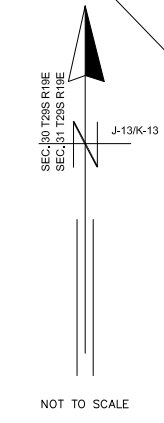
1  
4 E-8

EXISTING JUNCTION CHAMBER NO. 1. LOCATION FOR JC-1-AB-1, JC-1-AB-2, JC-1-AB-3 & JC-1-AB-4 SOFTSTART MODIFICATIONS.

EXISTING MAIN PUMPING STATION. LOCATION FOR MP-AB-1, MP-AB-2 AND MP-AB-3 SOFTSTART MODIFICATIONS.

EXISTING FILTER BUILDING NO. 1. LOCATION FOR FB-BWB-1 AND FB-BWB-2 SOFTSTART MODIFICATIONS.

EXISTING FILTER BUILDING NO. 2. LOCATION FOR FB-BWP-4, FB-BWP-5, FB-BWP-6, FB-BWB-3, FB-BWB-4 AND FB-BWB-5 SOFTSTART MODIFICATIONS.



**TRICON CONSULTING ENGINEERS**  
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 Tampa, FL 33602  
 813.227.9190  
 Certificate of Authorization No. 8363

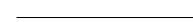




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DATE	05/2017	No.	DATE	BY	APP	REVISION	DESCRIPTION



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City of Tampa Wastewater Department  
**HOWARD F. CURREN AWWP**  
**LARGE MOTOR SOFTSTART MODIFICATIONS**


**SITE PLAN FOR**  
**SOFTSTARTER MODIFICATIONS**

SHEET NUMBER	4
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842

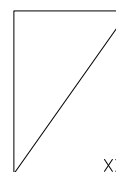
 CONDUIT RUN EXPOSED  
 CONDUIT RUN CONCEALED UNDERGROUND  
 CONDUIT RUN CONCEALED IN FLOOR OR SLAB  
 GROUNDING ELECTRODE CONDUCTOR  
 CONDUIT STUB OUT AND CAP

 GROUND ROD  
 JUNCTION BOX

 JUNCTION BOX WITH FLEXIBLE CONNECTION

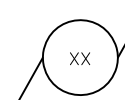
 TRANSFORMER, 480V INDICATED PRIMARY VOLTAGE, 120/240V INDICATES SECONDARY VOLTAGE, 15 KVA REPRESENTS POWER RATING, AND 1\* INDICATES SINGLE PHASE (THREE PHASE IF NOT INDICATED)

 THERMAL MAGNETIC CIRCUIT BREAKER WITH NUMBER OF POLES AND AMPERE RATING

 COMBINATION MAGNETIC STARTER WITH CONTROL POWER TRANSFORMER (SIZED FOR LOAD). LETTERS INDICATE TYPE:  
 N - NON-REVERSING  
 R - REVERSING  
 2S - TWO-SPEED  
 C - CONTACTOR  
 SS - SOLID STATE SOFT START

XXX	XXX_DEVICE	DESCRIPTION
HLS	HLS	HIGH LEVEL SWITCH
HOA	HOA	HAND-OFF-AUTO
LD	LD	LEAK DETECTION
LLS	LLS	LOW LEVEL SWITCH
LOR	LOR	LOCAL-OFF-REMOTE
PB	PB	PUSH BUTTON
RTU	RTU	REMOTE TERMINAL UNIT
SS	SS	SOFT STARTER
SS/B	SS/B	SOFT START OR BYPASS
TS	TS	TEMPERATURE SWITCH
TVSS	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
ZS	ZS	POSITION SENSOR (LIMIT SWITCH)

 FUSE

 MOTOR

 THERMAL OVERLOAD

 UTILITY METER

 TRANSFER SWITCH

 ELECTRIC PANELBOARD

 DISCONNECT OR SAFETY SWITCH

 FLOAT SWITCH. OPENS ON LOW LEVEL.

 FLOAT SWITCH. CLOSES ON LOW LEVEL.


 NORMALLY OPEN (N.O.) CONTACT


 NORMALLY CLOSED (N.C.) CONTACT

 GROUND CONNECTION

 INDICATING PILOT LIGHT LETTER INDICATES COLOR OF LENS

 DISCONNECT OR TOGGLE SWITCH

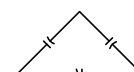
 NORMALLY OPEN MOMENTARY CIRCUIT CLOSING PUSH-BUTTON SWITCH. SPRING OPEN. NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC

 NORMALLY CLOSED MOMENTARY CIRCUIT OPENING PUSH-BUTTON SWITCH. SPRING CLOSE. NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC

 LIMIT SWITCH NORMALLY CLOSED CONTACT. CONTACT OPENS WHEN ACTUATED

 TORQUE SWITCH NORMALLY CLOSED CONTACT. CONTACT OPENS WHEN ACTUATED

 PUMP THERMAL SENSOR

 3-PHASE, 480V CAPACITOR

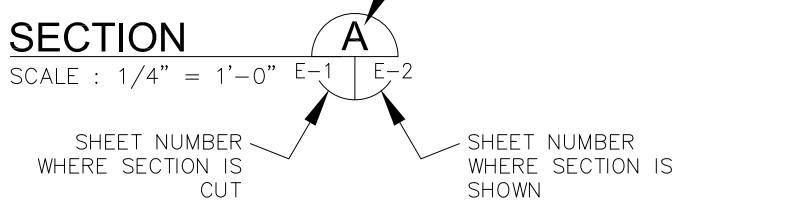
ABBREVIATIONS:

A	AMPS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ATL	ACROSS-THE-LINE
C	CONDUIT
CU	COPPER
EX	EXISTING
ELEC	ELECTRICAL
EXP	EXPLOSION PROOF
FU	FUSE
GFI	GROUND FAULT INTERRUPTER
GND	GROUNDING CONDUCTOR
HP	HORSEPOWER
HZ	HERTZ
IG	ISOLATED GROUND
KVA	KILOVOLT AMPERES
KW	KILOWATTS
MAX	MAXIMUM
MIN	MINIMUM
N/A	NOT APPLICABLE
PH	PHASE
RECP	RECEPTACLE
RPM	REVOLUTIONS PER MINUTE
RTU	REMOTE TERMINAL UNIT
SPD	SURGE PROTECTION DEVICE
TYP	TYPICAL
V	VOLTS
WP	WEATHERPROOF

EXAMPLE OF SECTION CUT AND DETAIL

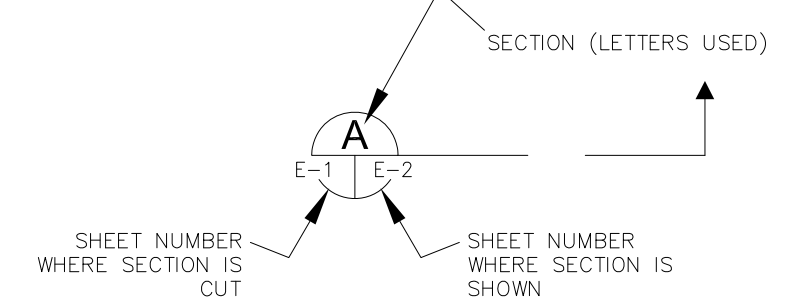
SECTION

SCALE : 1/4" = 1'-0"



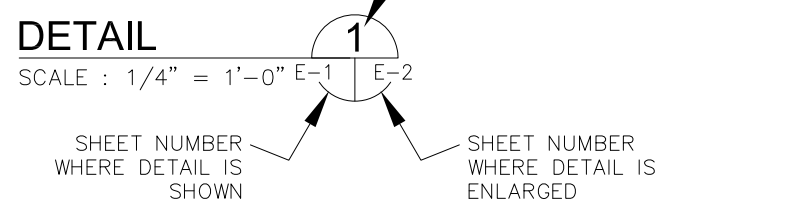
SECTION

SCALE : 1/4" = 1'-0"



DETAIL

SCALE : 1/4" = 1'-0"



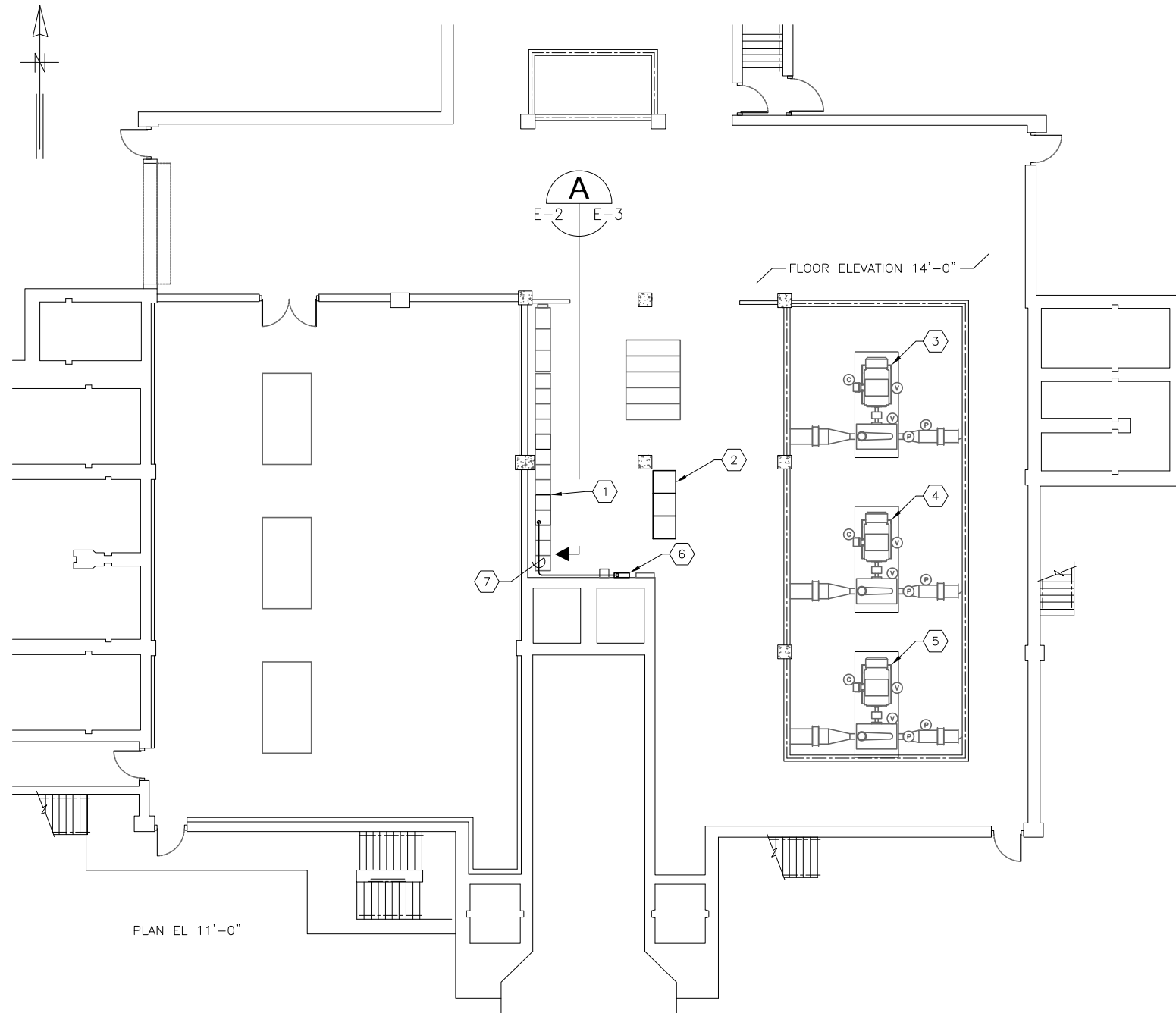
 VIBRATION SWITCH

 PRESSURE SWITCH

 CONTROL STATION

 SEL-849 SCHWEITZER ENGINEERING LABORATORIES MOTOR MANAGEMENT RELAY. TYPE SEL-849. 120V AC POWER SUPPLY AND ARC FLASH SENSOR

 120V FLASHER. SSAC MODEL #FS126.



**KEYED NOTES:**

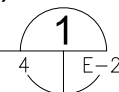
- ① EXISTING MOTOR CONTROL CENTER : MCC-86. REFER TO PARTIAL ELEVATION ON SHEET E-3.
- ② EXISTING SET OF THREE (3) 30 INCH WIDE CABINETS CONTAINING EXISTING SOFTSTARTERS. NO WORK REQUIRED.
- ③ EXISTING BACKWASH WATER PUMP FB-BWP-4. NO WORK REQUIRED.
- ④ EXISTING BACKWASH WATER PUMP FB-BWP-5. NO WORK REQUIRED.
- ⑤ EXISTING BACKWASH WATER PUMP FB-BWP-6. NO WORK REQUIRED.
- ⑥ EXISTING 120/208V, 3Ø, 4-WIRE PANELBOARD LP-86. PROVIDE AND INSTALL NEW SINGLE-POLE 20A CIRCUIT BREAKER FOR SEL-849 RELAYS AND SHUNT TRIP POWER (LP-86 CIRCUIT 25). PROVIDE CIRCUIT BREAKER WITH HANDLE LOCK ON PROVISION.
- ⑦ PROVIDE AND INSTALL 2-#12 CU + 1-#12 CU GND IN 3/4"Ø. FROM EXISTING PANELBOARD LP-86 TO EXISTING MOTOR CONTROL CENTER : MCC-86. FOR SEL-849 RELAY AND SHUNT TRIP POWER.

**GENERAL NOTES:**

- 1. ALL EXISTING INSTALLATIONS DENOTED ARE FOR THE CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO ORDERING MATERIALS OR COMMENCING CONSTRUCTION.
- 2. COORDINATE THE REMOVAL OF ALL EXISTING EQUIPMENT, THE INSTALLATION OF ALL NEW EQUIPMENT AND ALL SYSTEM DOWNTIME WITH THE CITY OF TAMPA.
- 3. CONTRACTOR SHALL FIELD VERIFY THE EXISTING MOTOR CIRCUIT PROTECTIVE DEVICE'S TYPE, PHYSICAL SIZE, SETTINGS AND MANUFACTURER PRIOR TO ORDERING NEW PROTECTIVE DEVICE OR COMMENCING CONSTRUCTION.
- 4. NEW 120V POWER CONDUIT/CONDUCTORS FOR SEL-849 RELAYS AND SHUNT TRIPS ARE SHOWN DIAGRAMMATICALLY. FIELD ROUTE NEW CONDUIT AND CONDUCTORS BASED ON EXISTING CONDITIONS.

**FILTER BUILDING NO. 2 (047)  
PLAN ELEVATION 14'-0"**

SCALE : 1/16" = 1'-0"



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LARGE MOTOR SOFTSTART MODIFICATIONS**

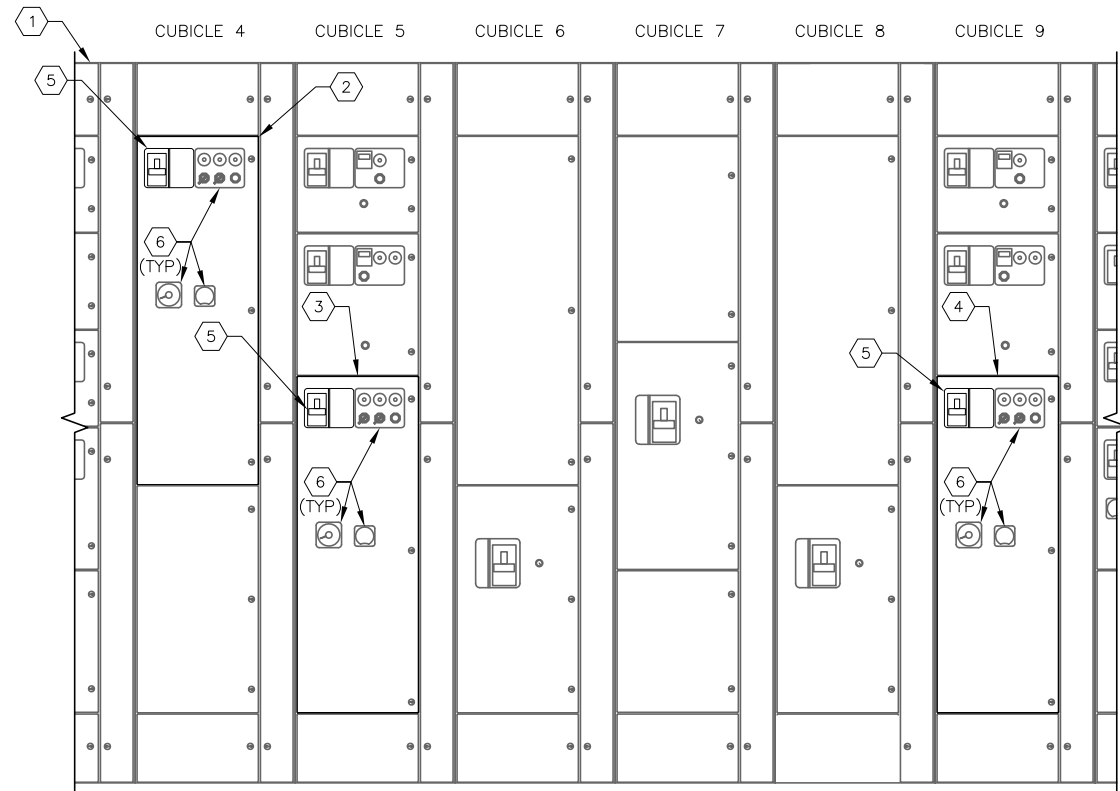
**FILTER BUILDING NO. 2  
PARTIAL FLOOR PLAN**

SHEET NUMBER

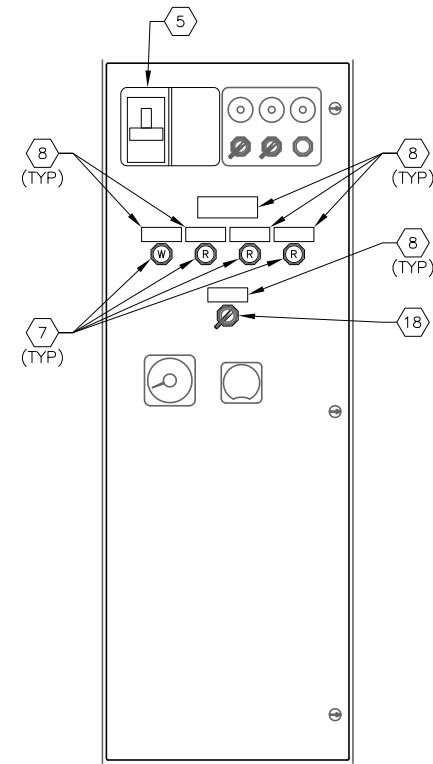
**E-2**

TIMOTHY THOMAS, P.E. No. 47079

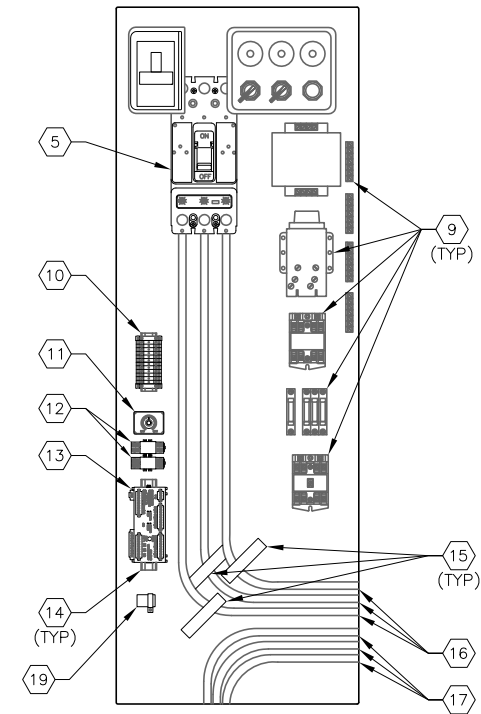
FILE: 171501842



**MCC-86 EXISTING FRONT ELEVATION** A  
 SCALE : N.T.S. E-2 | E-3



**FB-BWP-4 EXTERIOR DOOR MODIFICATIONS**  
 SCALE : N.T.S.  
 TYPICAL FOR FB-BWP-5 & FB-BWP-6



**FB-BWP-4 INTERIOR BUCKET NEW WORK**  
 SCALE : N.T.S.  
 TYPICAL FOR FB-BWP-5 & FB-BWP-6

**KEYED NOTES:**

- ① EXISTING MOTOR CONTROL CENTER : MCC-86.
- ② EXISTING STARTER BUCKET FB-BWP-6.
- ③ EXISTING STARTER BUCKET FOR FB-BWP-5.
- ④ EXISTING STARTER BUCKET FOR FB-BWP-4.
- ⑤ EXISTING 400A, 3-POLE CIRCUIT BREAKER TO BE REPLACED WITH 400A, 3-POLE CIRCUIT BREAKER. PROVIDE CIRCUIT BREAKER WITH 120V AC SHUNT TRIP. EATON HKD OR APPROVED EQUAL.
- ⑥ EXISTING PILOT LIGHTS, LOCKOUT RELAY RESET PUSHBUTTON, AMMETER, ELAPSED TIME METER, TO REMAIN. NO WORK REQUIRED.
- ⑦ PROVIDE AND INSTALL PILOT LIGHT FOR SINGLE PHASE, ARC FLASH, ARC FLASH PROTECTION OFF AND SEL CONTROL POWER ON INDICATION. LED TYPE WITH RED COLOR CAP (ALARMS) WHITE COLOR CAP FOR CONTROL POWER ON. PUSH-TO-TEST TYPE. ALLEN BRADLEY 800H-QRTH2R AND 800H-QRTH2W RESPECTIVELY.
- ⑧ PROVIDE AND INSTALL LAMACOID NAMEPLATE (TYPICAL). LETTERING SHALL BE 1/2" MINIMUM. SECURE NAMEPLATE WITH STAINLESS STEEL SCREWS. NAMEPLATES TO STATE "SEL CONTROL POWER FED FROM PANELBOARD LP-85 CIRCUIT 25 OPENING MOTOR CIRCUIT BREAKER DOES NOT DEENERGIZE SEL CONTROL POWER", "SEL CONTROL POWER ON", "SINGLE PHASE DETECTED", "ARC FLASH DETECTED", "RVSS ARC FLASH PROTECTION BYPASS/ON" AND "ARC FLASH PROTECTION OFF".
- ⑨ EXISTING CONTROL POWER TRANSFORMER, TERMINAL BLOCKS, TIMING RELAY, CONTROL RELAY, FUSES, ETC. TO REMAIN. NO WORK REQUIRED.
- ⑩ PROVIDE AND INSTALL TERMINAL BLOCKS AS REQUIRED.
- ⑪ PROVIDE AND INSTALL SQUARE-D 9050 JCK SERIES DPDT TIME DELAY RELAY WITH 120V AC COIL.
- ⑫ PROVIDE AND INSTALL AB 700HF32A1-3-4 RELAYS WITH 120V AC COILS, PUSH-TO-TEST MANUAL OVERRIDE AND LED OPTION. PROVIDE RELAY BASE AND HOLD DOWN SPRINGS FOR EACH RELAY PROVIDED.
- ⑬ PROVIDE AND INSTALL NEW SCHWEITZER ENGINEERING LABORATORIES MOTOR MANAGEMENT RELAY, TYPE SEL-849.
- ⑭ PROVIDE AND INSTALL ALUMINUM DIN RAIL.
- ⑮ PROVIDE AND INSTALL NEW 4" FLEXIBLE, SPLIT-CORE CT WITH 300:5 RATIO. FLEX-CORE #FCL300/5-4 (TYP OF 3).
- ⑯ EXISTING 3-#373.7 DLO CU + 1-#3 XHHW CU GND FROM THE EXISTING STARTER MOTOR CIRCUIT PROTECTOR TO THE LINE SIDE OF THE NEW SOFTSTARTER. NO WORK REQUIRED.
- ⑰ EXISTING 3-#373.7 DLO CU + 1-#3 XHHW CU GND FROM THE LOAD SIDE OF THE NEW SOFTSTARTER, BACK TO THE ASSOCIATED STARTER CUBICLE AND DOWN TO THE ASSOCIATED MOTOR. NO WORK REQUIRED.
- ⑱ PROVIDE AND INSTALL 2-POSITION, MAINTAINED, ARC FLASH PROTECTION BYPASS/ON SELECTOR SWITCH. SQUARE-D CLASS 9001, KS43FB WITH CONTACTS AS REQUIRED.
- ⑲ PROVIDE AND INSTALL 120V AC FLASHER. SSAC #FS126. PROVIDE APPROPRIATELY SIZED LOAD RESISTOR IF REQUIRED.



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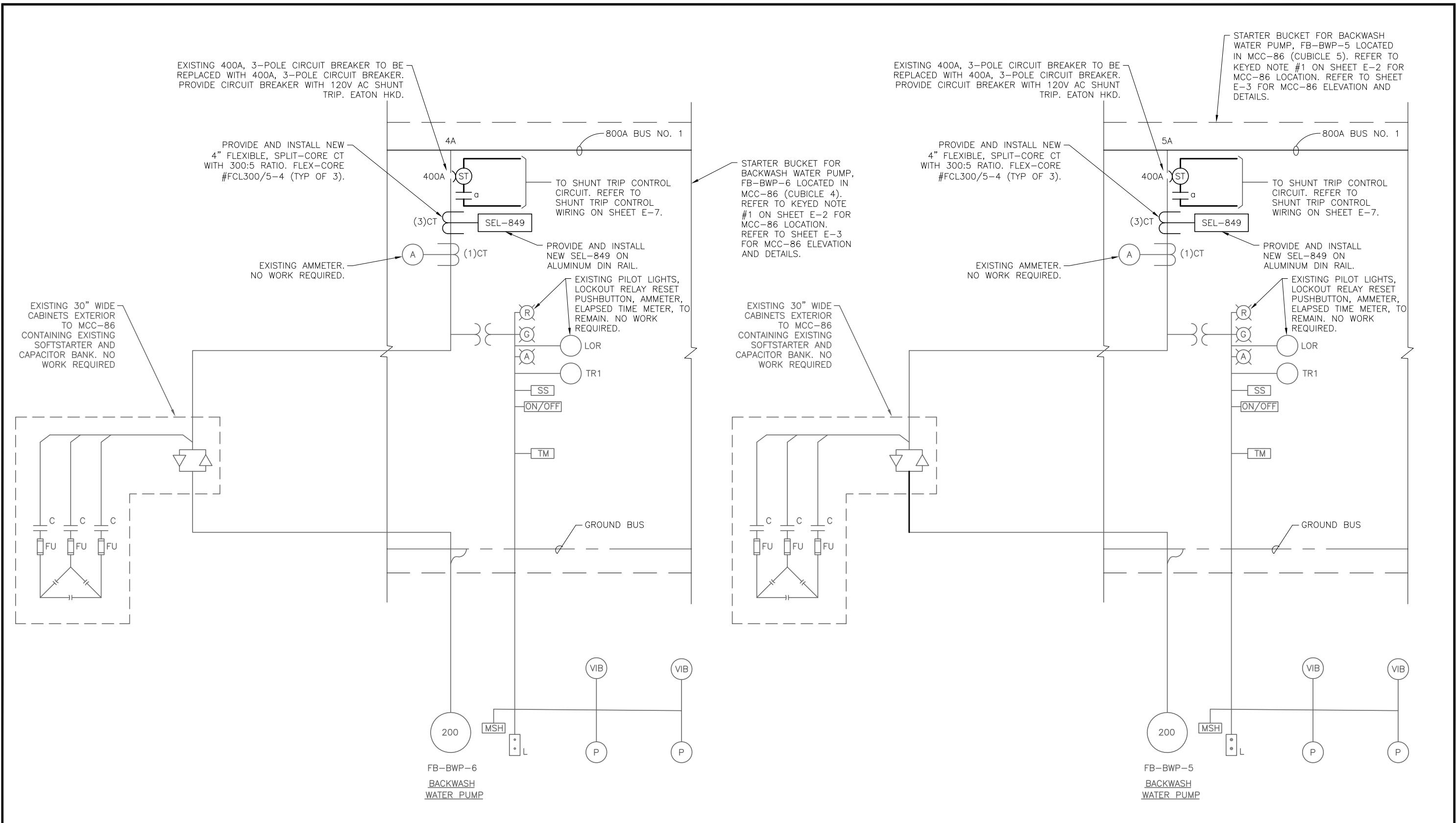
SCALE  
  
NOT TO SCALE

City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
**LARGE MOTOR SOFTSTART MODIFICATIONS**

**FILTER BUILDING NO. 2**  
**MCC-86 PARTIAL ELEVATION**

SHEET NUMBER	<b>E-3</b>
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842





MCC-86 PARTIAL ONE-LINE DIAGRAM

**TRICON**  
CONSULTING ENGINEERS

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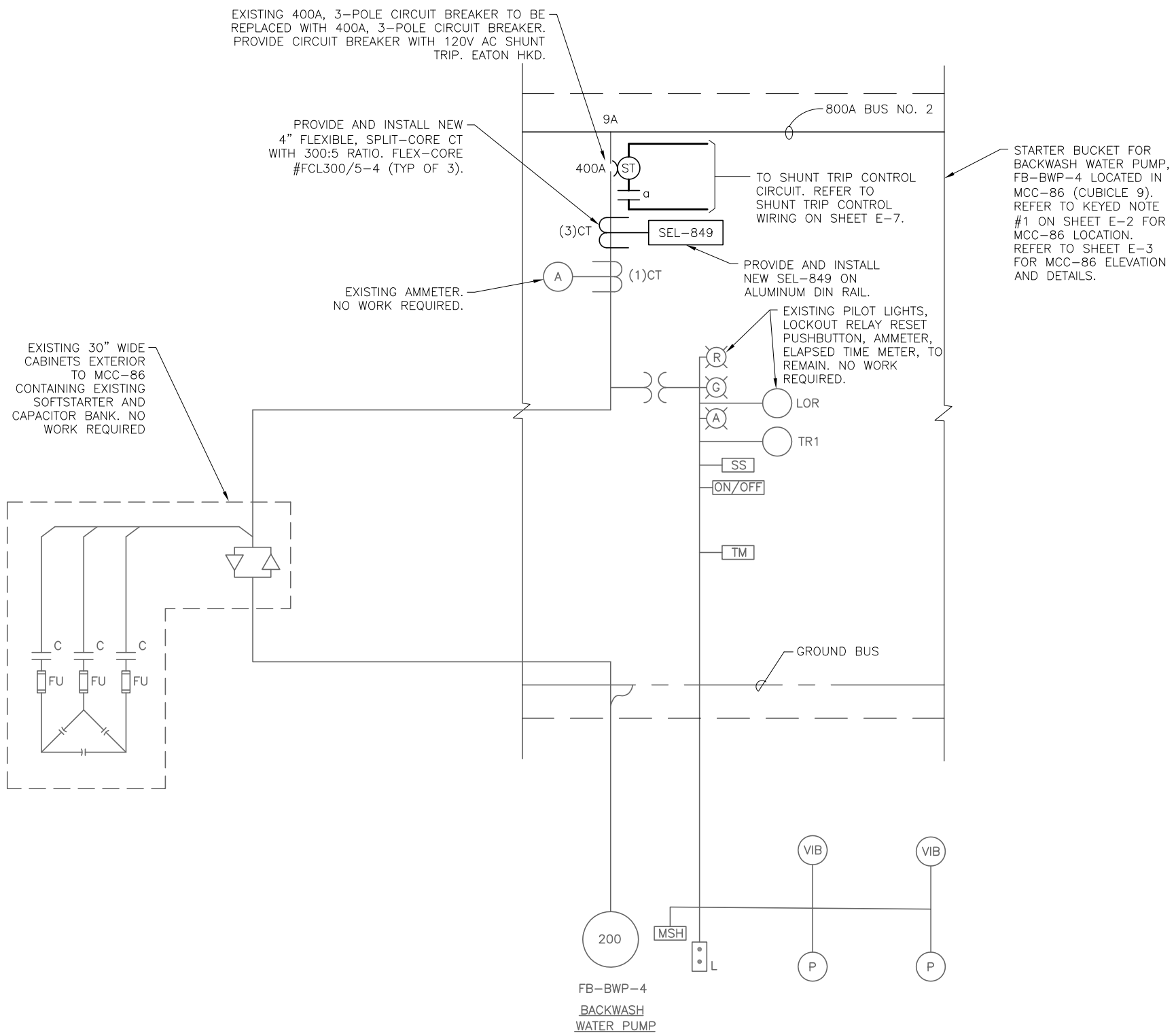
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NOT TO SCALE

City of Tampa Wastewater Department  
HOWARD F. CURREN AWTP  
LARGE MOTOR SOFTSTART MODIFICATIONS

FILTER BUILDING NO. 2  
MCC-86 ONE-LINE DIAGRAM  
(SHEET 1 OF 2)

SHEET NUMBER	E-4
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842



MCC-86 PARTIAL ONE-LINE DIAGRAM



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DATE	05/2017	No.	DATE	BY	APP	REVISION	DESCRIPTION

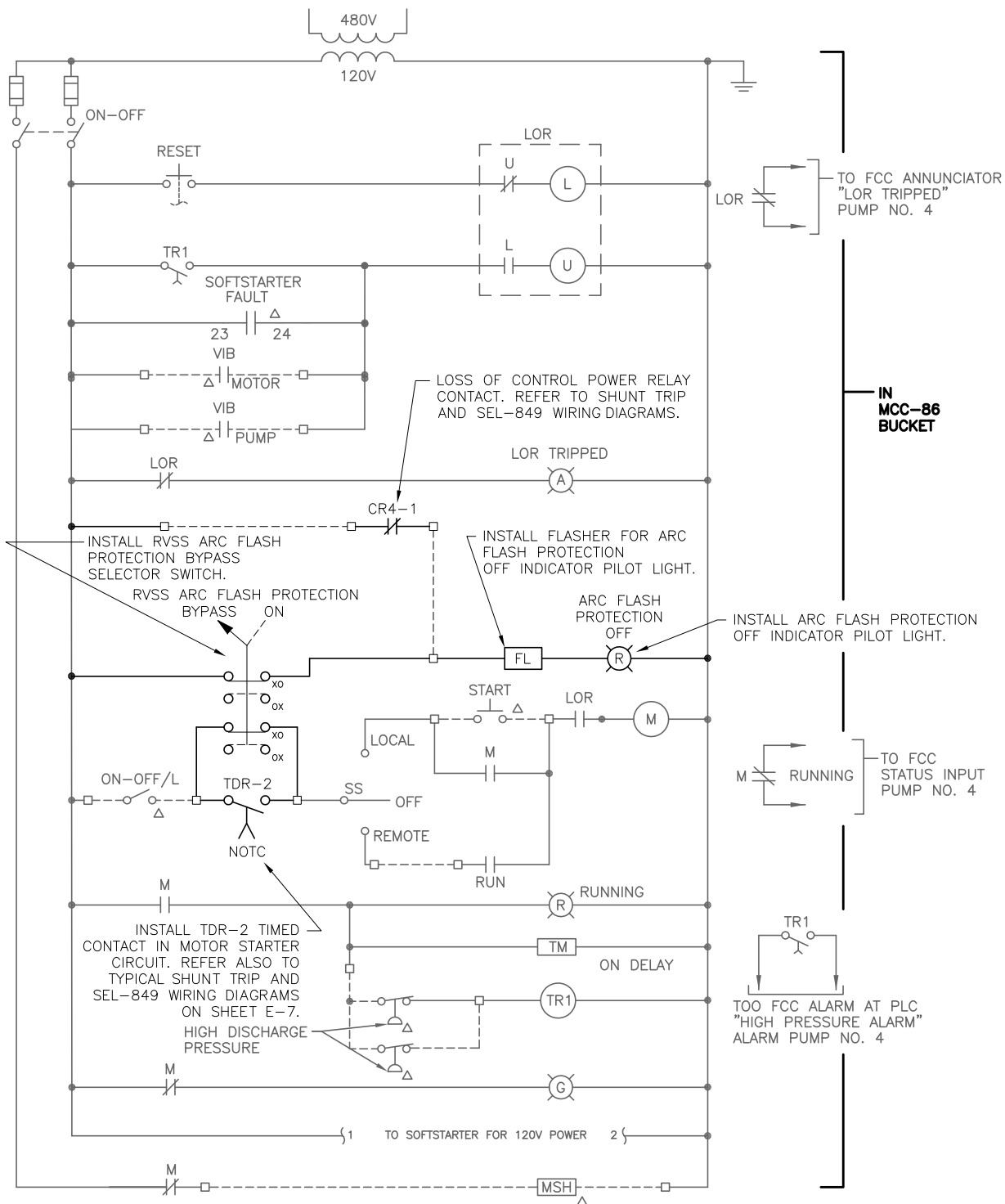
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NOT TO SCALE

City of Tampa Wastewater Department  
HOWARD F. CURREN AWTP  
LARGE MOTOR SOFTSTART MODIFICATIONS

FILTER BUILDING NO. 2  
MCC-86 ONE-LINE DIAGRAM  
(SHEET 2 OF 2)

SHEET NUMBER	E-5
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842



**TYPICAL CONTROLS WIRING DIAGRAM  
(MCC-86 BUCKET)**

TYPICAL FOR FB-BWP-4, FB-BWP-5 AND FB-BWP-6

**CONTROLS LEGEND**

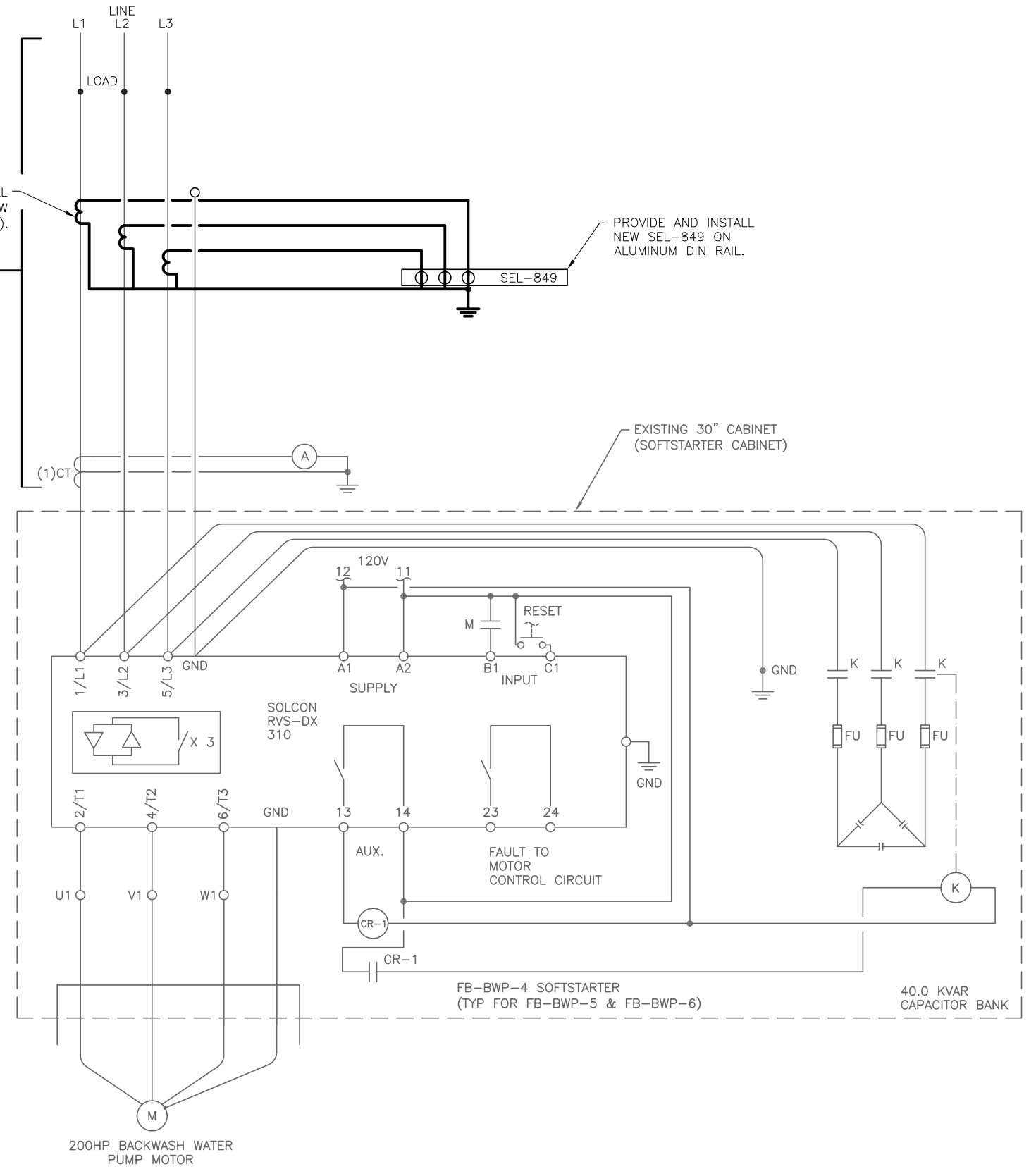
△ DEVICE LOCATED REMOTE FROM MCC-86

PROVIDE AND INSTALL NEW CT'S FOR NEW SEL-849 (TYP OF 3).

IN MCC-86 BUCKET

PROVIDE AND INSTALL NEW SEL-849 ON ALUMINUM DIN RAIL.

EXISTING 30" CABINET (SOFTSTARTER CABINET)



**TYPICAL MOTOR WIRING DIAGRAM**

TYPICAL FOR FB-BWP-4, FB-BWP-5 AND FB-BWP-6



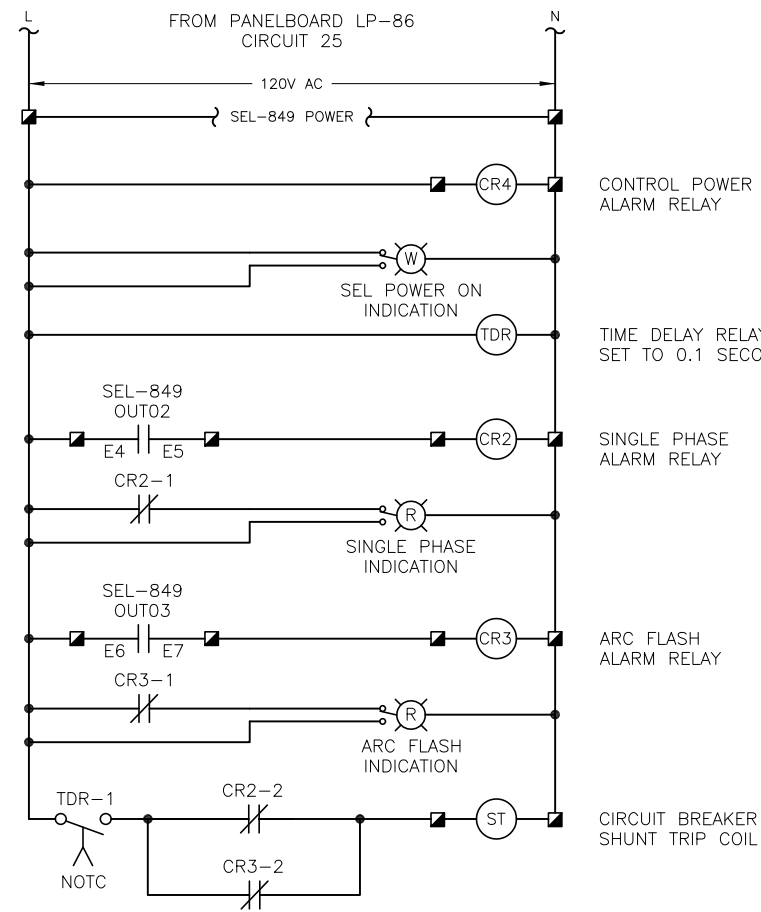
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City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP  
LARGE MOTOR SOFTSTART MODIFICATIONS**

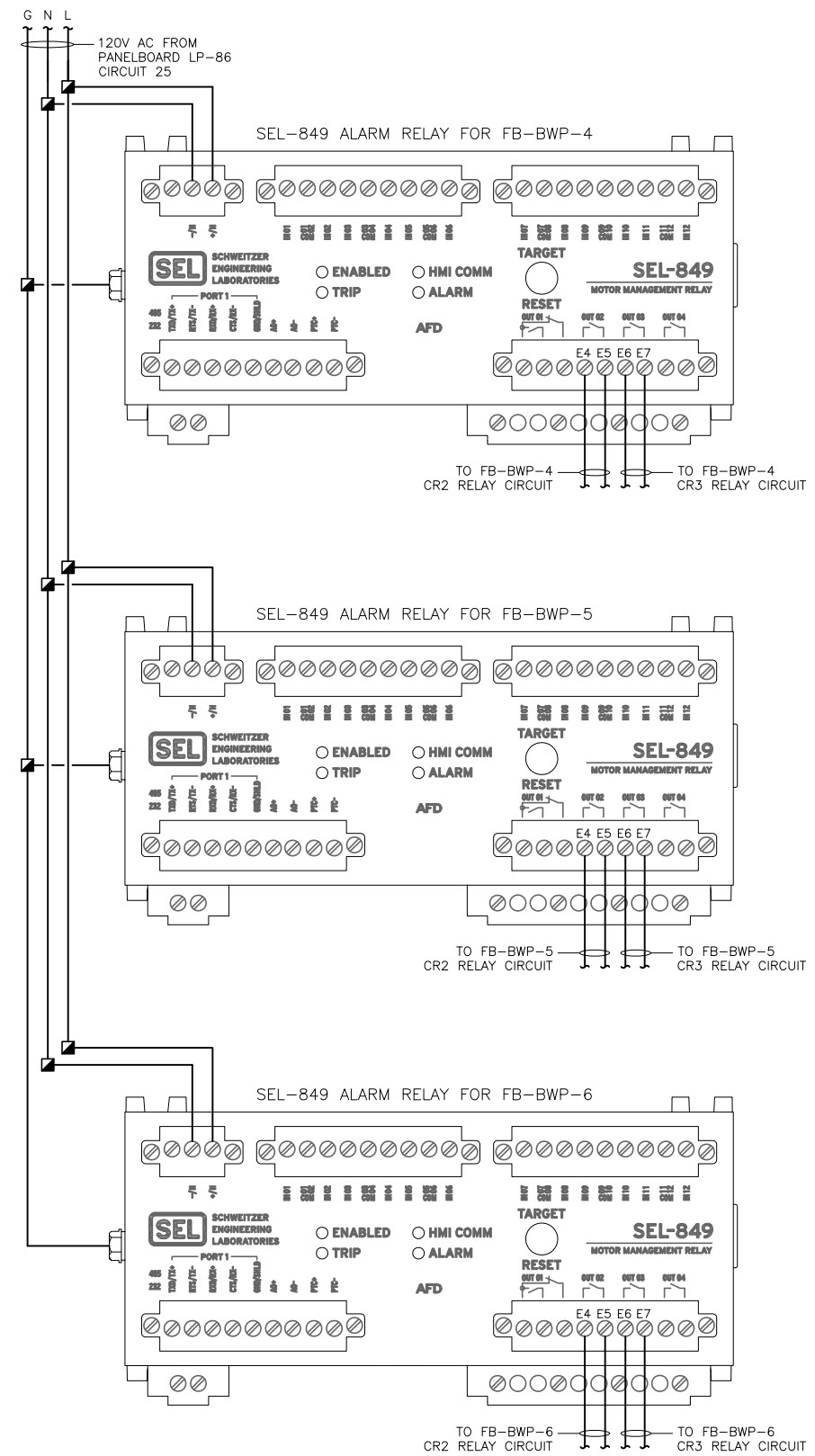
**FILTER BUILDING NO. 2  
FB-BWP-4 CONTROL &  
MOTOR WIRING DIAGRAMS (TYP)**

SHEET NUMBER	E-6
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842



### TYPICAL SHUNT TRIP CONTROL WIRING DIAGRAM

TYPICAL FOR FB-BWP-4, FB-BWP-5  
AND FB-BWP-6



### SEL-849 WIRING DIAGRAM



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City of Tampa Wastewater Department  
HOWARD F. CURREN AWP  
LARGE MOTOR SOFTSTART MODIFICATIONS

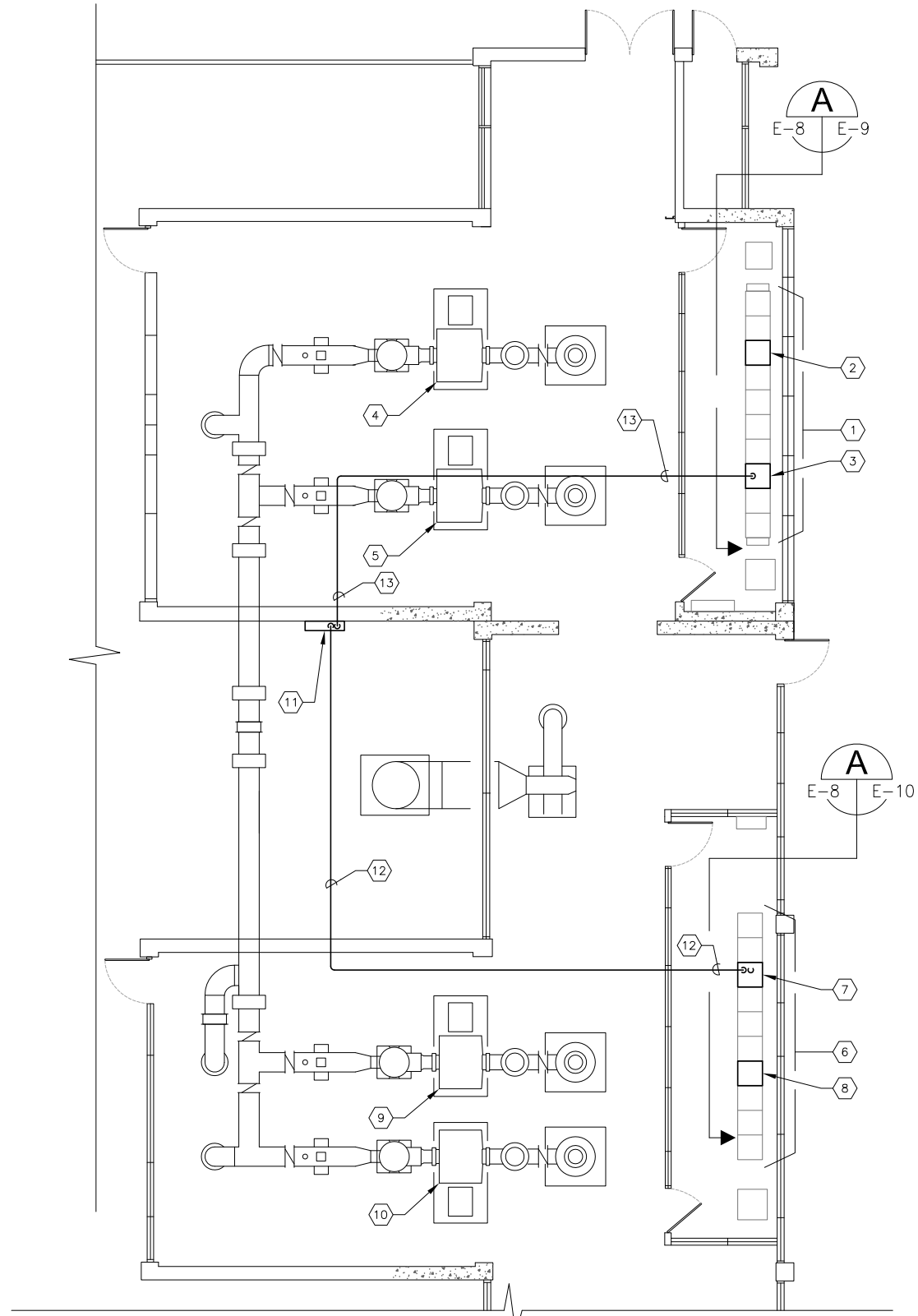
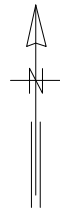
FILTER BUILDING NO. 2  
FB-BWB-4 SHUNT TRIP &  
SEL-849 WIRING DIAGRAMS (TYP)

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER

E-7

FILE: 171501842



JUNCTION CHAMBER NO. 1 (002)

PLAN EL 34'-0"

SCALE : 3/32" = 1'-0"

1  
4 E-8

**KEYED NOTES:**

- ① EXISTING MOTOR CONTROL CENTER : MCC-27A.
- ② EXISTING MOTOR CIRCUIT PROTECTOR INSTALLED IN MCC-27A FOR AIR BLOWER JC-1-AB-4. REFER TO TYPICAL DETAILS ON SHEET E-9.
- ③ EXISTING MOTOR CIRCUIT PROTECTOR INSTALLED IN MCC-27A FOR AIR BLOWER JC-1-AB-3. REFER TO TYPICAL DETAILS ON SHEET E-9.
- ④ EXISTING 480V, 250 H.P. MOTOR FOR AIR BLOWER JC-1-AB-4.
- ⑤ EXISTING 480V, 250 H.P. MOTOR FOR AIR BLOWER JC-1-AB-3.
- ⑥ EXISTING MOTOR CONTROL CENTER : MCC-27.
- ⑦ EXISTING MOTOR CIRCUIT PROTECTOR INSTALLED IN MCC-27 FOR AIR BLOWER JC-1-AB-2. REFER TO TYPICAL DETAILS ON SHEET E-10.
- ⑧ EXISTING MOTOR CIRCUIT PROTECTOR INSTALLED IN MCC-27 FOR AIR BLOWER JC-1-AB-1. REFER TO TYPICAL DETAILS ON SHEET E-10.
- ⑨ EXISTING 480V, 250 H.P. MOTOR FOR AIR BLOWER JC-1-AB-2.
- ⑩ EXISTING 480V, 250 H.P. MOTOR FOR AIR BLOWER JC-1-AB-1.
- ⑪ APPROXIMATE LOCATION OF EXISTING 120/208V, 3 $\phi$ , 4-WIRE PANELBOARD LP-27A. PROVIDE AND INSTALL TWO (2) NEW SINGLE-POLE 20A CIRCUIT BREAKERS. ONE CIRCUIT BREAKER FOR MCC-27 SEL-849 RELAYS AND SHUNT TRIP POWER (LP-27A CIRCUIT 29). ONE CIRCUIT BREAKER FOR MCC-27A SEL-849 RELAYS AND SHUNT TRIP POWER (LP-27A CIRCUIT 31). PROVIDE CIRCUIT BREAKERS WITH HANDLE LOCK ON PROVISION.
- ⑫ PROVIDE AND INSTALL 2-#12 CU + 1-#12 CU GND IN 3/4" C. FROM EXISTING PANELBOARD LP-27A TO EXISTING MOTOR CONTROL CENTER : MCC-27 FOR SEL-849 RELAYS AND SHUNT TRIP POWER. (CIRCUIT 29).
- ⑬ PROVIDE AND INSTALL 2-#12 CU + 1-#12 CU GND IN 3/4" C. FROM EXISTING PANELBOARD LP-27A TO EXISTING MOTOR CONTROL CENTER : MCC-27 FOR SEL-849 RELAYS AND SHUNT TRIP POWER. (CIRCUIT 31).

**GENERAL NOTES:**

- 1. NEW 120V POWER CONDUIT/CONDUCTORS FOR SEL-849 RELAYS AND SHUNT TRIPS ARE SHOWN DIAGRAMMATICALLY. FIELD ROUTE NEW CONDUIT AND CONDUCTORS BASED ON EXISTING CONDITIONS.



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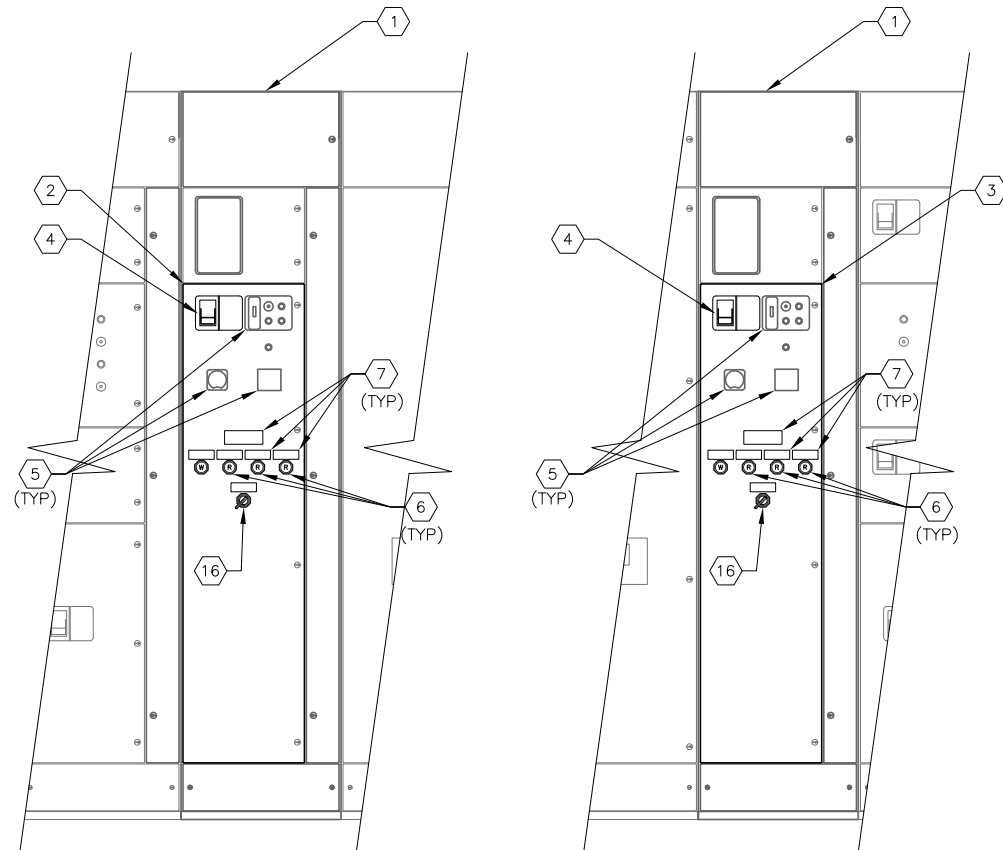
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NOT TO SCALE

City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
**LARGE MOTOR SOFTSTART MODIFICATIONS**

**JUNCTION CHAMBER NO. 1**  
**PARTIAL FLOOR PLAN**

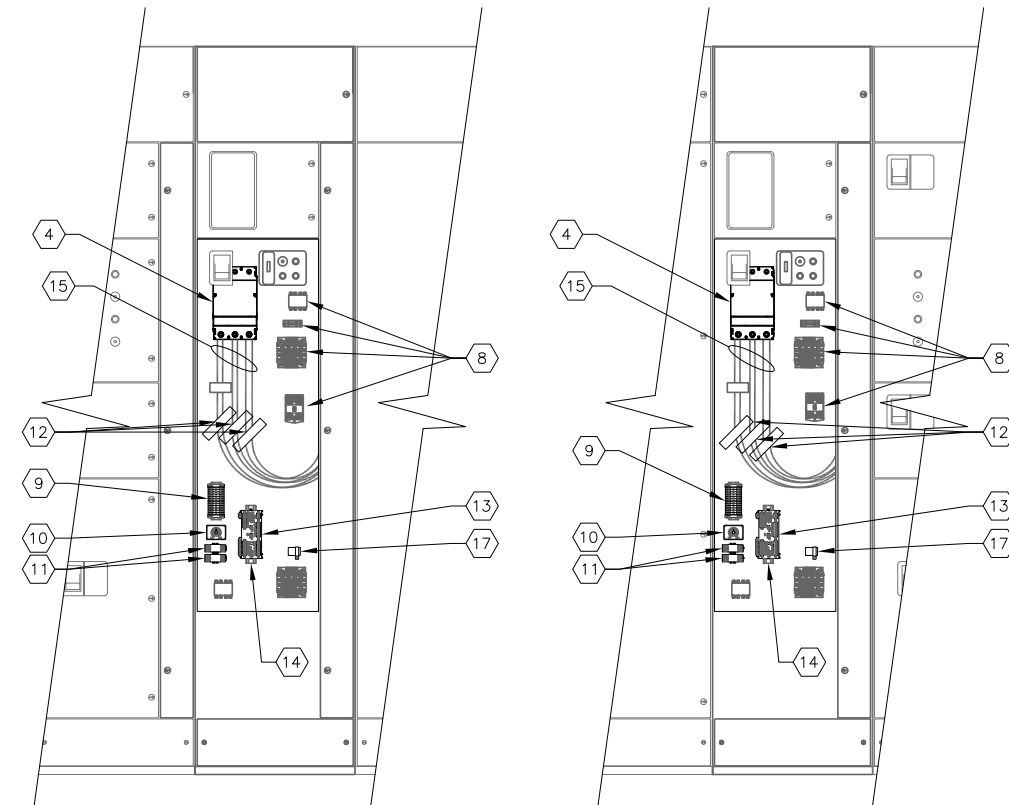
SHEET NUMBER	E-8
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842



**MCC-27A PARTIAL FRONT ELEVATION A**

SCALE : N.T.S.

E-8 E-9



**MCC-27A INTERIOR ELEVATION**

SCALE : N.T.S.

**KEYED NOTES:**

- 1 EXISTING MOTOR CONTROL CENTER : MCC-27A.
- 2 EXISTING STARTER CUBICLE FOR JC-1-AB-4.
- 3 EXISTING STARTER CUBICLE FOR JC-1-AB-3.
- 4 EXISTING 400A, 3-POLE MOTOR CIRCUIT PROTECTOR TO BE REPLACED WITH A 400A, 3-POLE CIRCUIT BREAKER WITH 120V AC SHUNT TRIP. EATON HLD OR APPROVED EQUAL.
- 5 EXISTING PILOT LIGHTS, LOCKOUT RELAY RESET PUSHBUTTON, AMMETER, ELAPSED TIME METER, TO REMAIN. NO WORK REQUIRED.
- 6 PROVIDE AND INSTALL PILOT LIGHT FOR SINGLE PHASE, ARC FLASH, ARC FLASH PROTECTION OFF AND SEL CONTROL POWER ON INDICATION. LED TYPE WITH RED COLOR CAP (ALARMS) WHITE COLOR CAP FOR CONTROL POWER ON. PUSH-TO-TEST TYPE. ALLEN BRADLEY 800H-QRTH2R AND 800H-QRTH2W RESPECTIVELY.
- 7 PROVIDE AND INSTALL LAMACOID NAMEPLATE (TYPICAL). LETTERING SHALL BE 1/2" MINIMUM. SECURE NAMEPLATE WITH STAINLESS STEEL SCREWS. NAMEPLATES TO STATE "SEL CONTROL POWER FED FROM PANELBOARD LP-85 CIRCUIT 25 OPENING MOTOR CIRCUIT BREAKER DOES NOT DEENERGIZE SEL CONTROL POWER", "SEL CONTROL POWER ON", "SINGLE PHASE DETECTED", "ARC FLASH DETECTED", "RVSS ARC FLASH PROTECTION BYPASS/ON" AND "ARC FLASH PROTECTION OFF".

- 8 EXISTING CONTROL POWER TRANSFORMER, TERMINAL BLOCKS, TIMING RELAY, CONTROL RELAY, FUSES, ETC. TO REMAIN. NO WORK REQUIRED.
- 9 PROVIDE AND INSTALL TERMINAL BLOCKS AS REQUIRED.
- 10 PROVIDE AND INSTALL SQUARE-D 9050 JCK SERIES DPDT TIME DELAY RELAY WITH 120V AC COIL.
- 11 PROVIDE AND INSTALL AB 700HF32A1-3-4 RELAYS WITH 120V AC COILS, PUSH-TO-TEST MANUAL OVERRIDE AND LED OPTION. PROVIDE RELAY BASE AND HOLD DOWN SPRINGS FOR EACH RELAY PROVIDED.
- 12 PROVIDE AND INSTALL NEW 4" FLEXIBLE, SPLIT-CORE CT WITH 400:5 RATIO. FLEX-CORE #FCL400/5-4 (TYP OF 3).
- 13 PROVIDE AND INSTALL NEW SCHWEITZER ENGINEERING LABORATORIES MOTOR MANAGEMENT RELAY, TYPE SEL-849.
- 14 PROVIDE AND INSTALL ALUMINUM DIN RAIL.
- 15 EXISTING PARALLEL RUNS OF 3-#4/0 DLO CU + 1-#1/0 DLO CU FROM EXISTING MCP TO EXISTING SOFTSTARTER. NO WORK REQUIRED.
- 16 PROVIDE AND INSTALL 2-POSITION, MAINTAINED, ARC FLASH PROTECTION BYPASS/ON SELECTOR SWITCH. SQUARE-D CLASS 9001, KS43FB WITH CONTACTS AS REQUIRED.
- 17 PROVIDE AND INSTALL 120V AC FLASHER. SSAC #FS126. PROVIDE APPROPRIATELY SIZED LOAD RESISTOR IF REQUIRED.

**GENERAL NOTES:**

1. ALL EXISTING INSTALLATIONS DENOTED ARE FOR THE CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO ORDERING MATERIALS OR COMMENCING CONSTRUCTION.
2. COORDINATE THE REMOVAL OF ALL EXISTING EQUIPMENT, THE INSTALLATION OF ALL NEW EQUIPMENT AND ALL SYSTEM DOWNTIME WITH THE CITY OF TAMPA.
3. CONTRACTOR SHALL FIELD VERIFY THE EXISTING MOTOR CIRCUIT PROTECTIVE DEVICE'S TYPE, PHYSICAL SIZE, SETTINGS AND MANUFACTURER PRIOR TO ORDERING NEW PROTECTIVE DEVICE OR COMMENCING CONSTRUCTION.
4. NEW 120V POWER CONDUIT/CONDUCTORS FOR SEL-849 RELAYS AND SHUNT TRIPS ARE SHOWN DIAGRAMMATICALLY. FIELD ROUTE NEW CONDUIT AND CONDUCTORS BASED ON EXISTING CONDITIONS.



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SCALE

NOT TO SCALE

City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
**LARGE MOTOR SOFTSTART MODIFICATIONS**

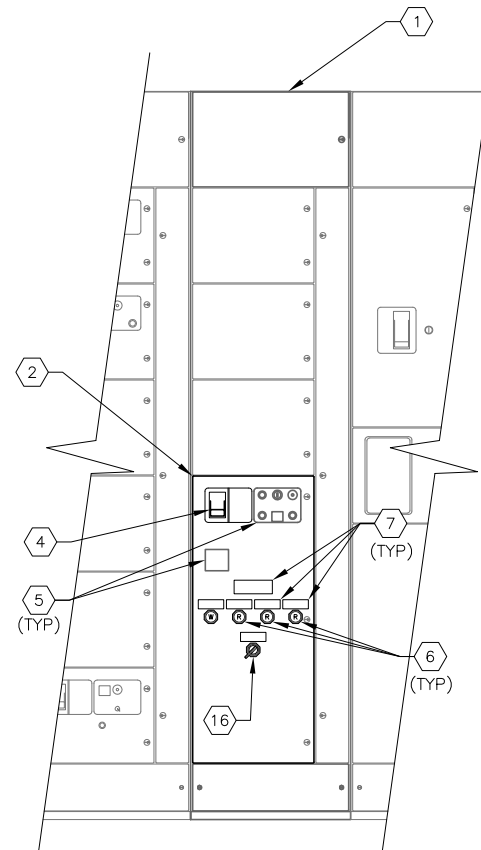
**JUNCTION CHAMBER NO. 1**  
**MCC-27A ELEVATION**

SHEET NUMBER

**E-9**

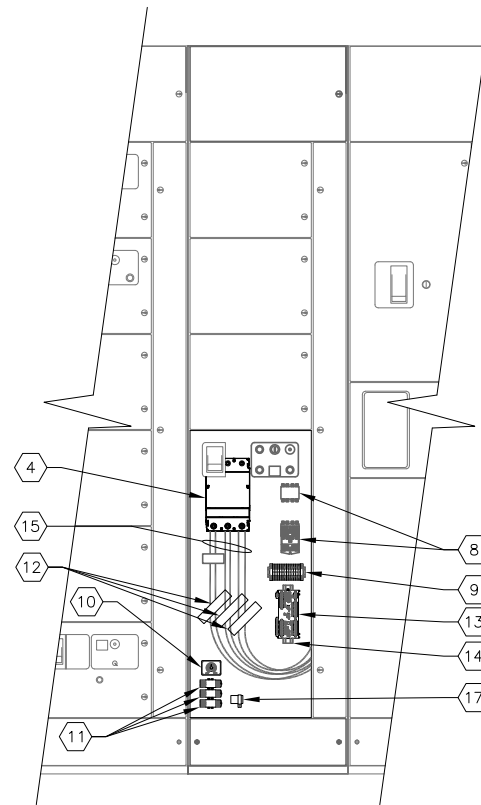
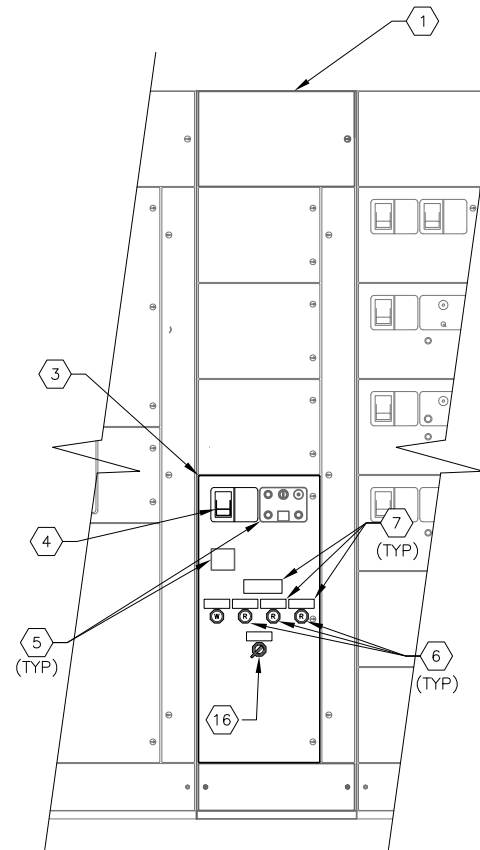
TIMOTHY THOMAS, P.E. No. 47079

FILE: 171501842



**MCC-27 PARTIAL FRONT ELEVATION**

SCALE : N.T.S.



**MCC-27 INTERIOR ELEVATION**

SCALE : N.T.S.

**KEYED NOTES:**

- ① EXISTING MOTOR CONTROL CENTER : MCC-27.
- ② EXISTING STARTER CUBICLE FOR JC-1-AB-2.
- ③ EXISTING STARTER CUBICLE FOR JC-1-AB-1.
- ④ EXISTING 400A, 3-POLE MOTOR CIRCUIT PROTECTOR TO BE REPLACED WITH A 400A, 3-POLE CIRCUIT BREAKER WITH 120V AC SHUNT TRIP. EATON HLD OR APPROVED EQUAL.
- ⑤ EXISTING PILOT LIGHTS, LOCKOUT RELAY RESET PUSHBUTTON, AMMETER, ELAPSED TIME METER, TO REMAIN. NO WORK REQUIRED.
- ⑥ PROVIDE AND INSTALL PILOT LIGHT FOR SINGLE PHASE, ARC FLASH PROTECTION OFF AND SEL CONTROL POWER ON INDICATION. LED TYPE WITH RED COLOR CAP (ALARMS) WHITE COLOR CAP FOR CONTROL POWER ON. PUSH-TO-TEST TYPE. ALLEN BRADLEY 800H-QRTH2R AND 800H-QRTH2W RESPECTIVELY.
- ⑦ PROVIDE AND INSTALL LAMACOID NAMEPLATE (TYPICAL). LETTERING SHALL BE 1/2" MINIMUM. SECURE NAMEPLATE WITH STAINLESS STEEL SCREWS. NAMEPLATES TO STATE "SEL CONTROL POWER FED FROM PANELBOARD LP-85 CIRCUIT 25 OPENING MOTOR CIRCUIT BREAKER DOES NOT DEENERGIZE SEL CONTROL POWER", "SEL CONTROL POWER ON", "SINGLE PHASE DETECTED", "ARC FLASH DETECTED", "RVSS ARC FLASH PROTECTION BYPASS/ON" AND "ARC FLASH PROTECTION OFF".

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- ⑬ PROVIDE AND INSTALL NEW SCHWEITZER ENGINEERING LABORATORIES MOTOR MANAGEMENT RELAY, TYPE SEL-849.
- ⑭ PROVIDE AND INSTALL ALUMINUM DIN RAIL.
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**GENERAL NOTES:**

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2. COORDINATE THE REMOVAL OF ALL EXISTING EQUIPMENT, THE INSTALLATION OF ALL NEW EQUIPMENT AND ALL SYSTEM DOWNTIME WITH THE CITY OF TAMPA.
3. CONTRACTOR SHALL FIELD VERIFY THE EXISTING MOTOR CIRCUIT PROTECTIVE DEVICE'S TYPE, PHYSICAL SIZE, SETTINGS AND MANUFACTURER PRIOR TO ORDERING NEW PROTECTIVE DEVICE OR COMMENCING CONSTRUCTION.



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NOT TO SCALE

SCALE

City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
**LARGE MOTOR SOFTSTART MODIFICATIONS**

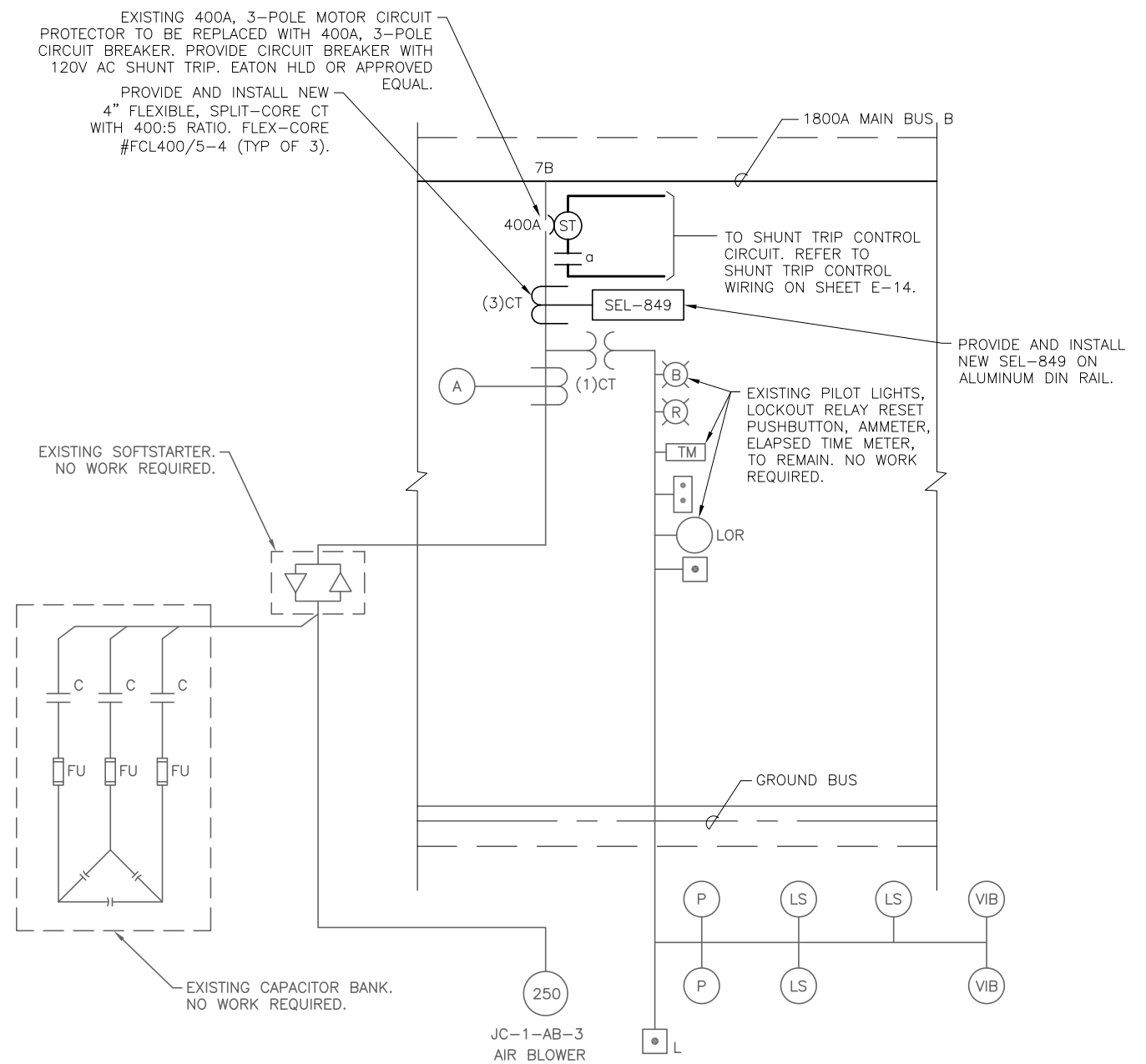
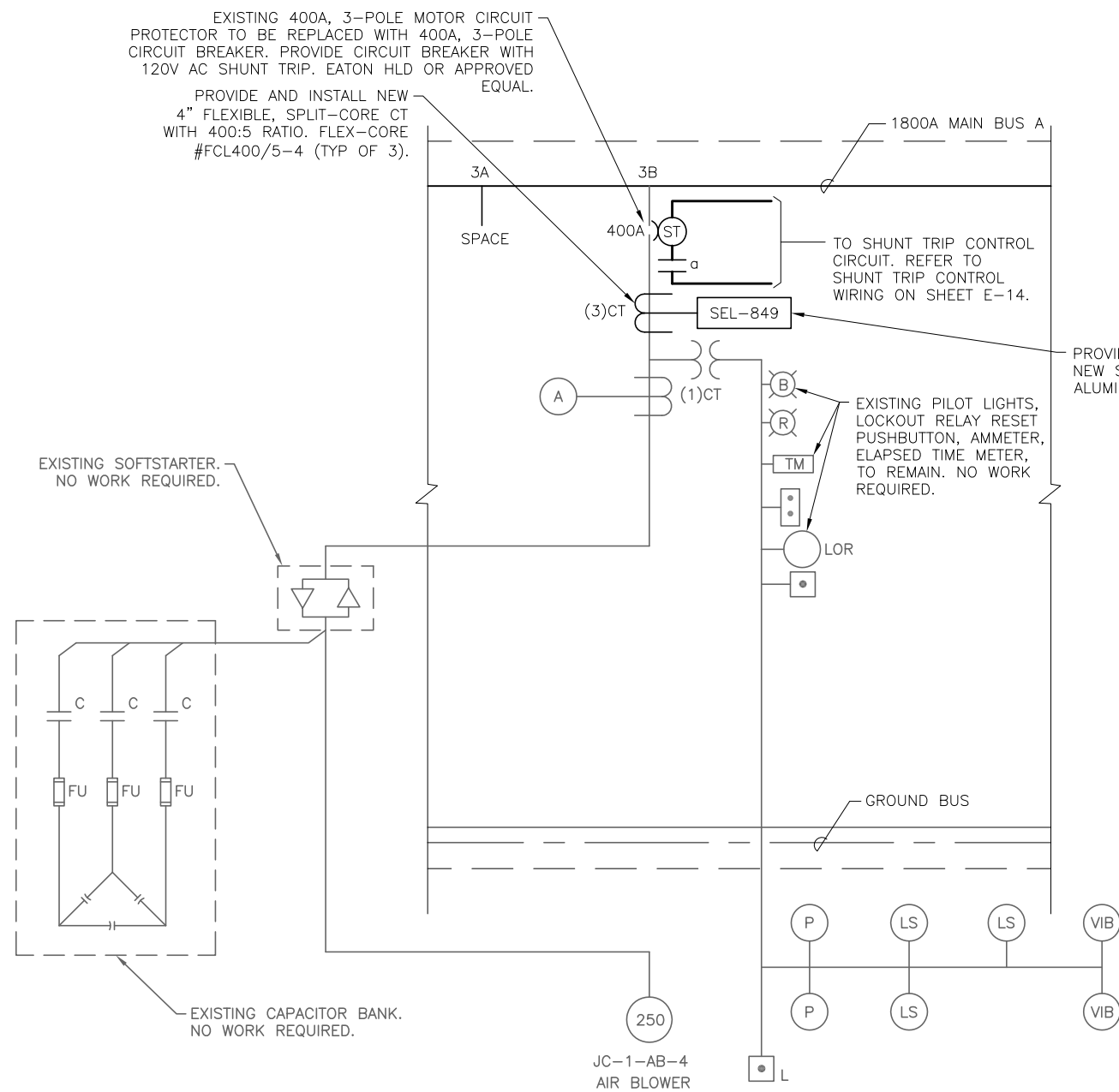
**JUNCTION CHAMBER NO. 1**  
**MCC-27 ELEVATION**

SHEET NUMBER

**E-10**

TIMOTHY THOMAS, P.E. No. 47079

FILE: 171501842



**MCC-27A : PARTIAL ONE-LINE DIAGRAM**  
SCALE : N.T.S.

JOB No.	171501827								
DESIGNED	TDT								
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CHECKED	TDT								
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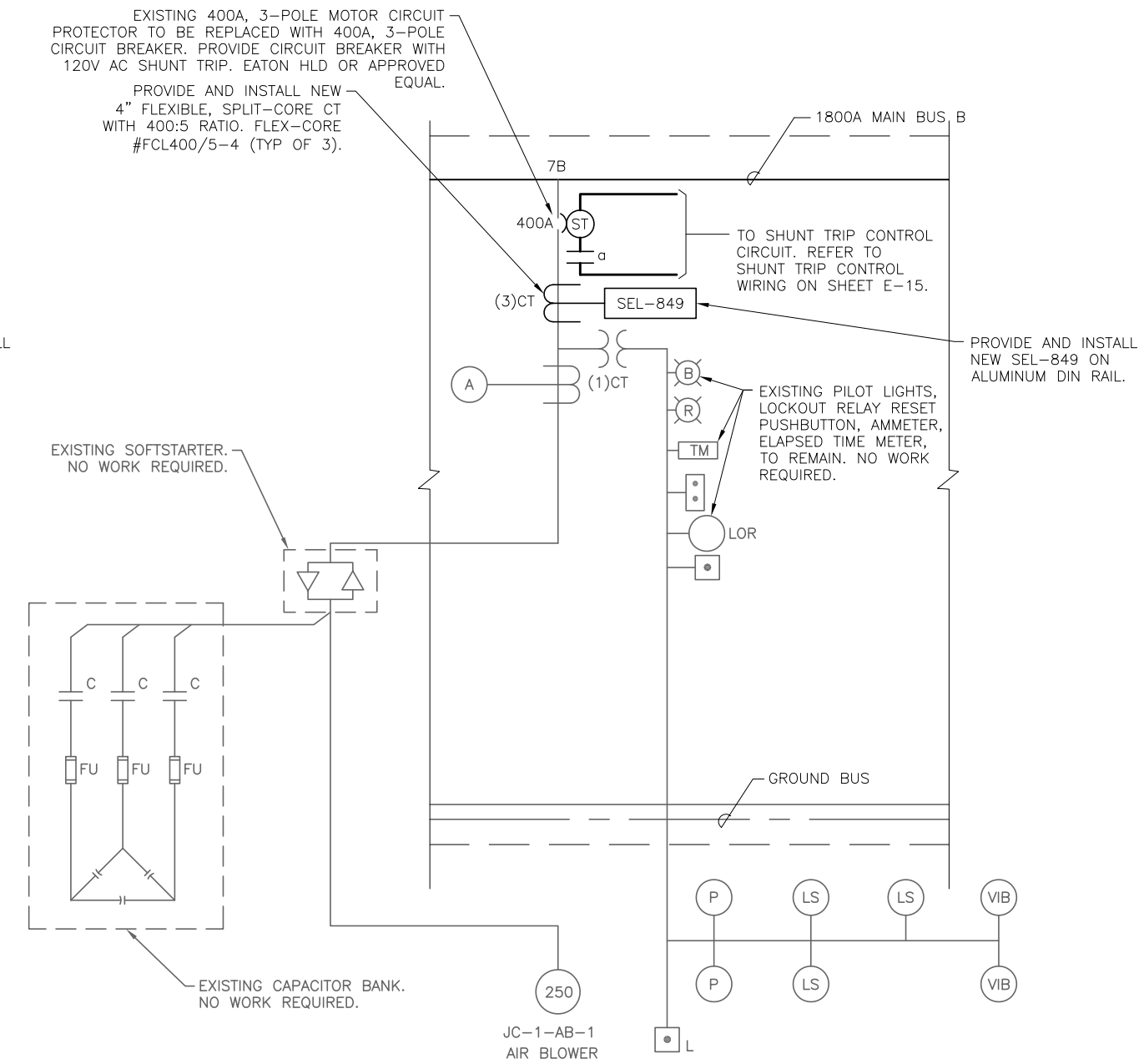
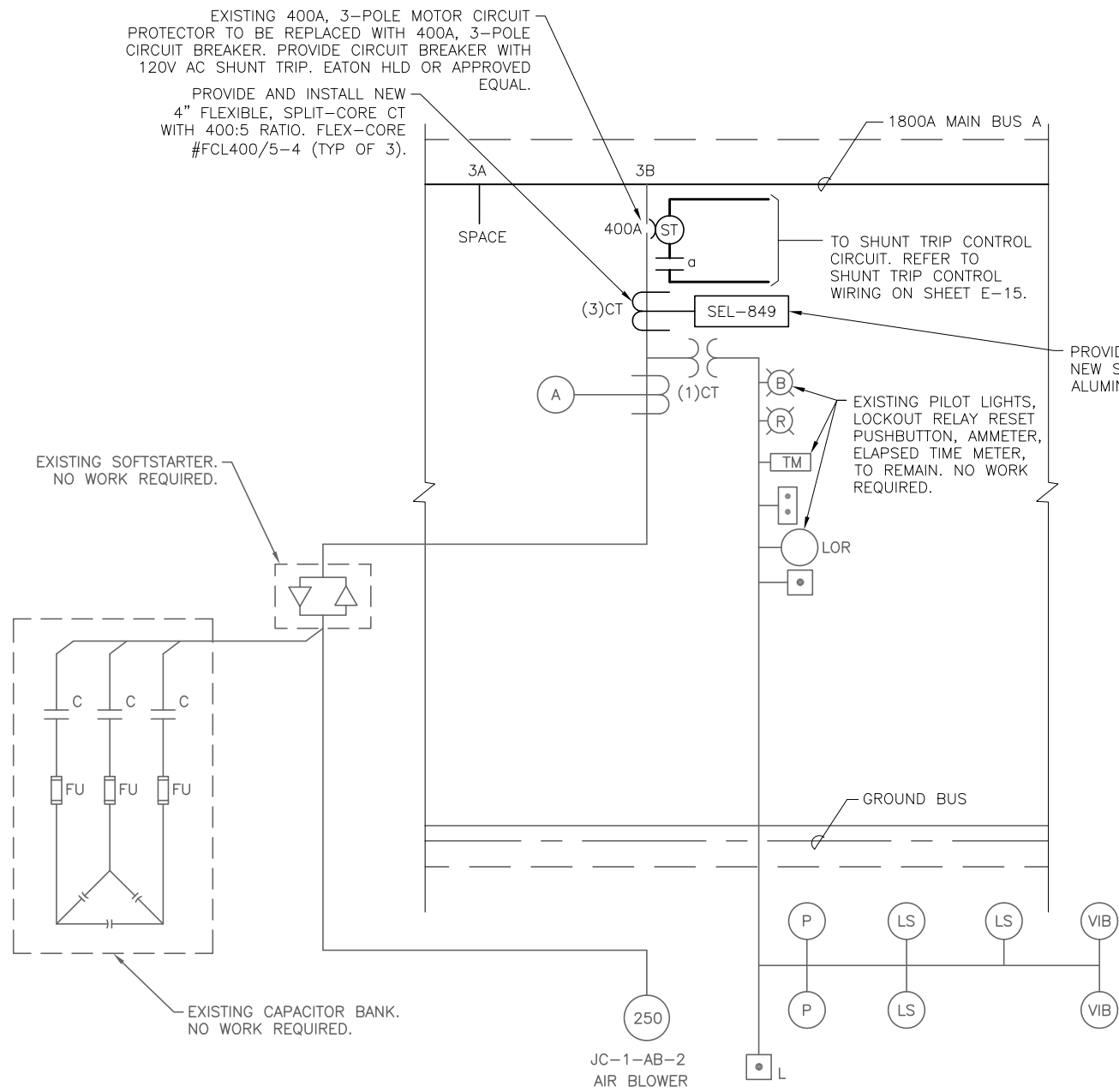
SCALE  
NOT TO SCALE

City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
LARGE MOTOR SOFTSTART MODIFICATIONS

JUNCTION CHAMBER NO. 1  
MCC-27A  
ONE-LINE DIAGRAM

SHEET NUMBER	E-11
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842





**MCC-27 : PARTIAL ONE-LINE DIAGRAM**  
SCALE : N.T.S.



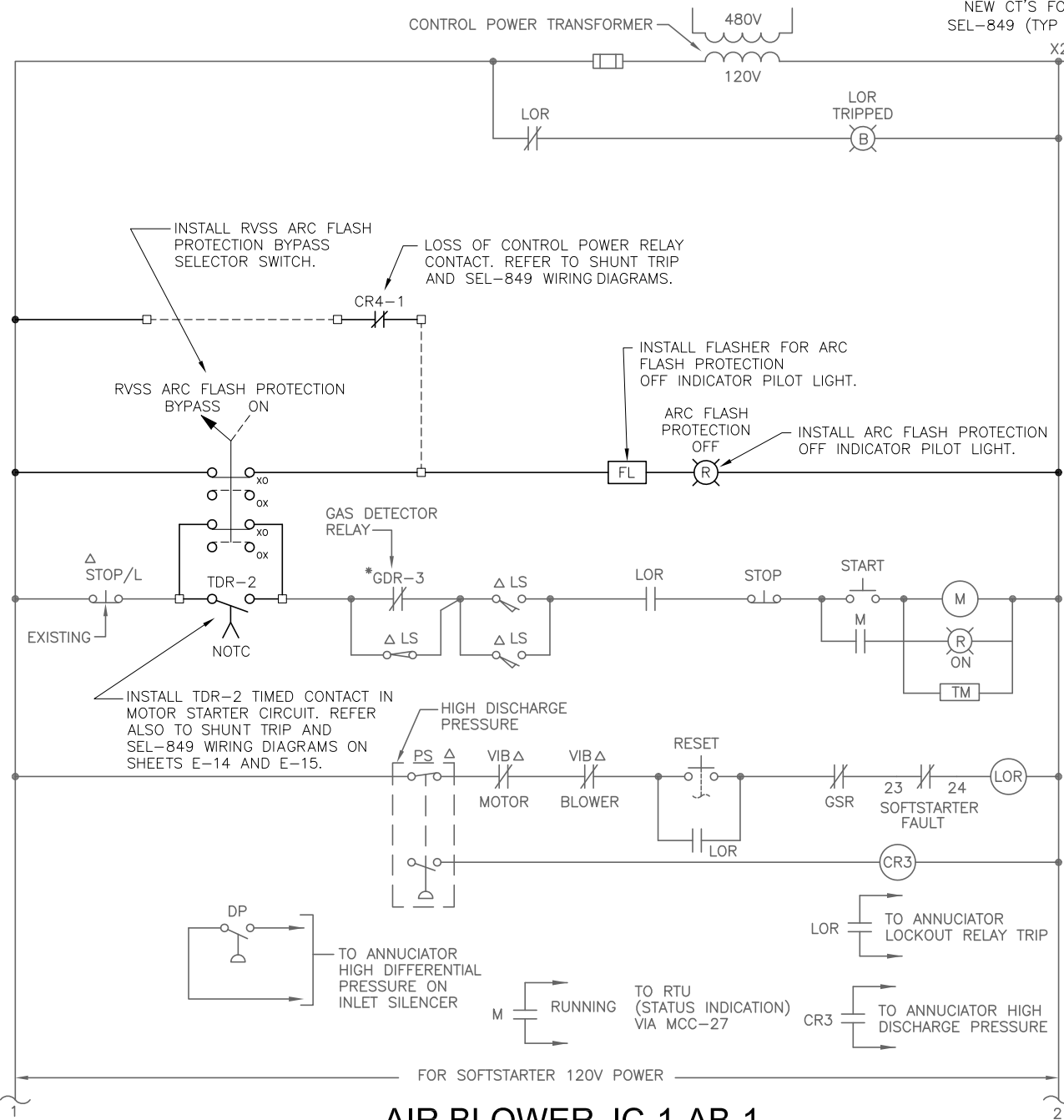
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DATE	05/2017	No.	DATE	BY	APP	REVISION	DESCRIPTION

SCALE  
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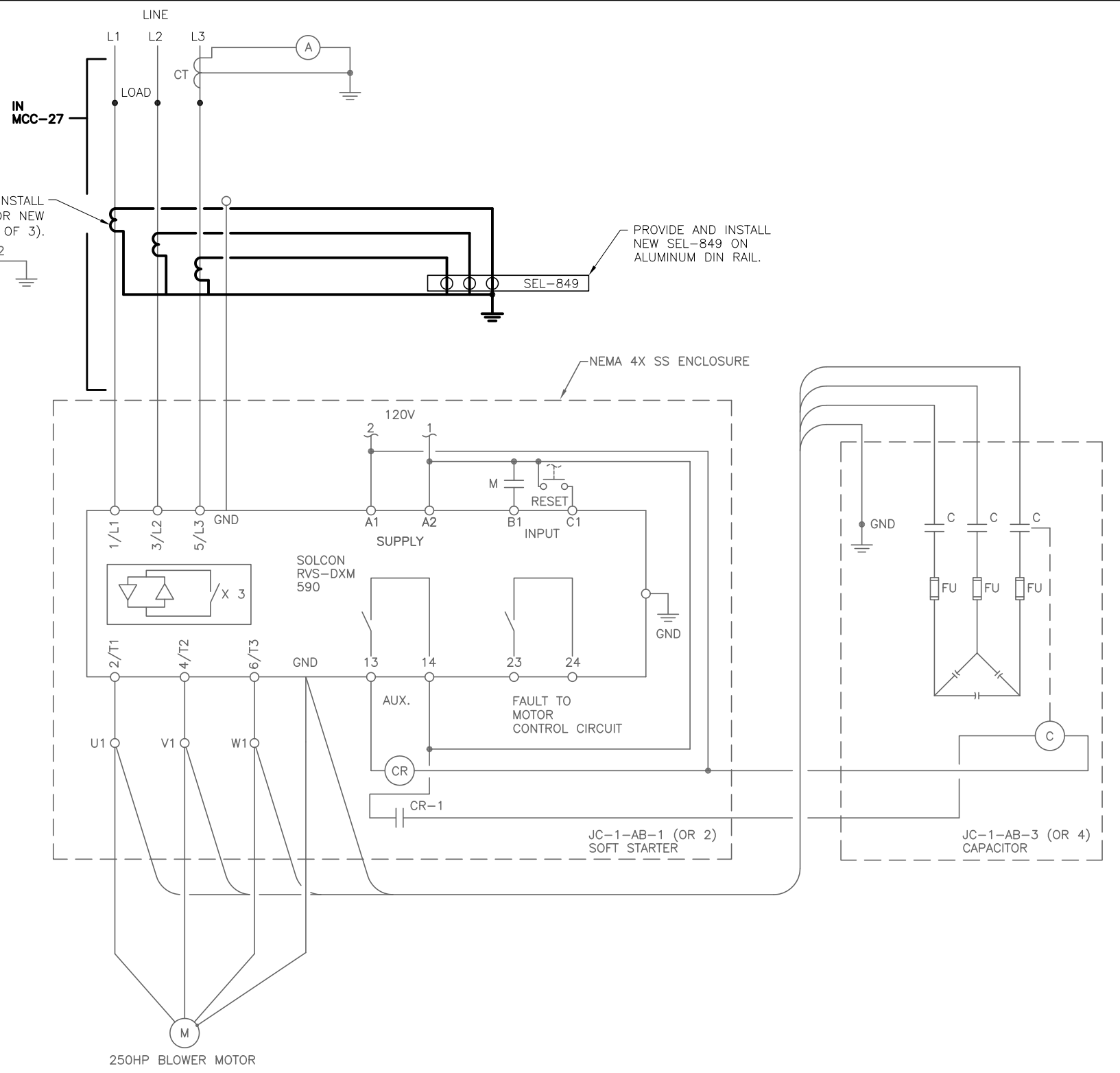
City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
LARGE MOTOR SOFTSTART MODIFICATIONS

**JUNCTION CHAMBER NO. 1**  
MCC-27  
ONE-LINE DIAGRAM

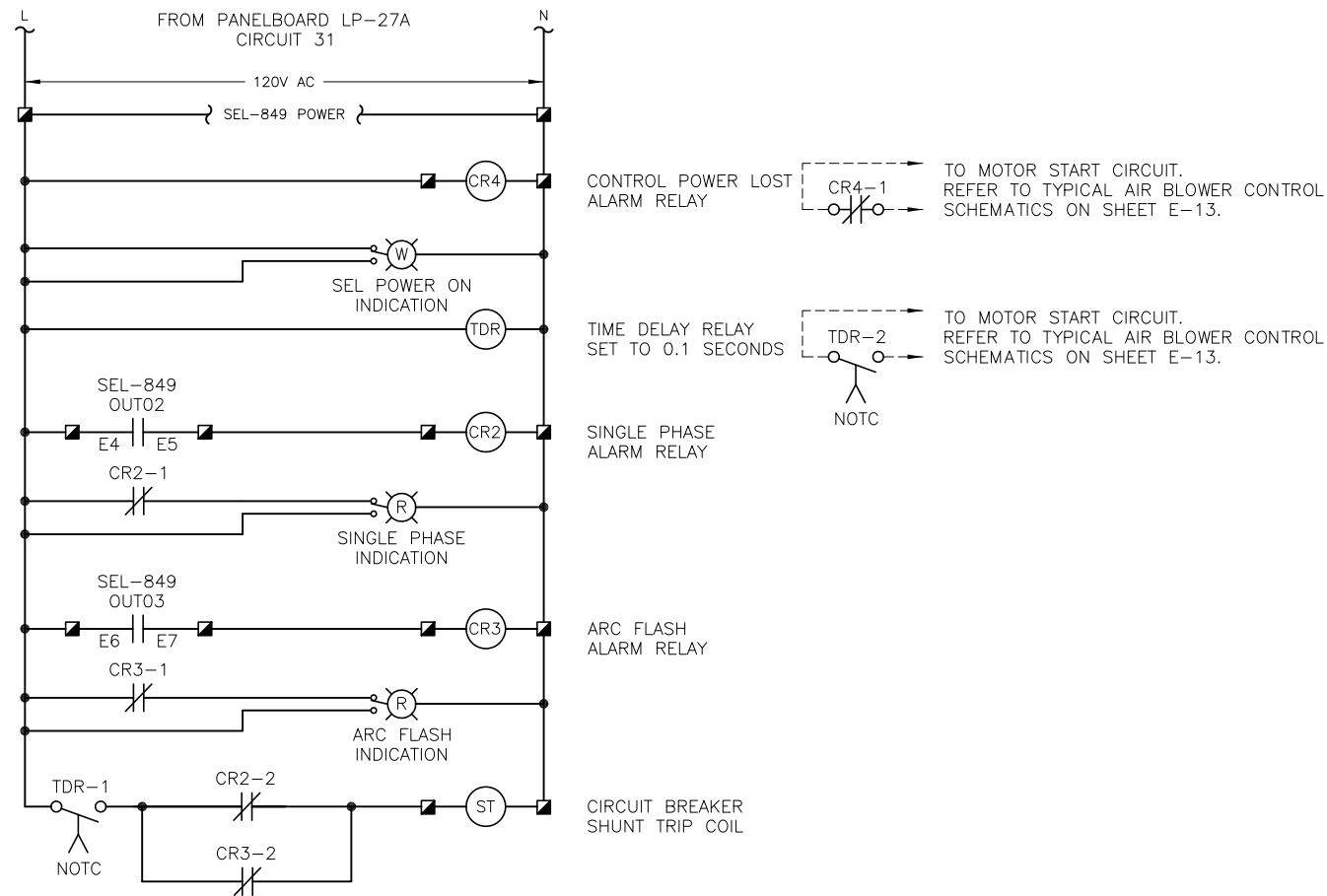
SHEET NUMBER	E-12
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842



**AIR BLOWER JC-1-AB-1 CONTROL SCHEMATICS**  
 (TYPICAL FOR JC-1-AB-2, JC-1-AB-3 AND JC-1-AB-4)

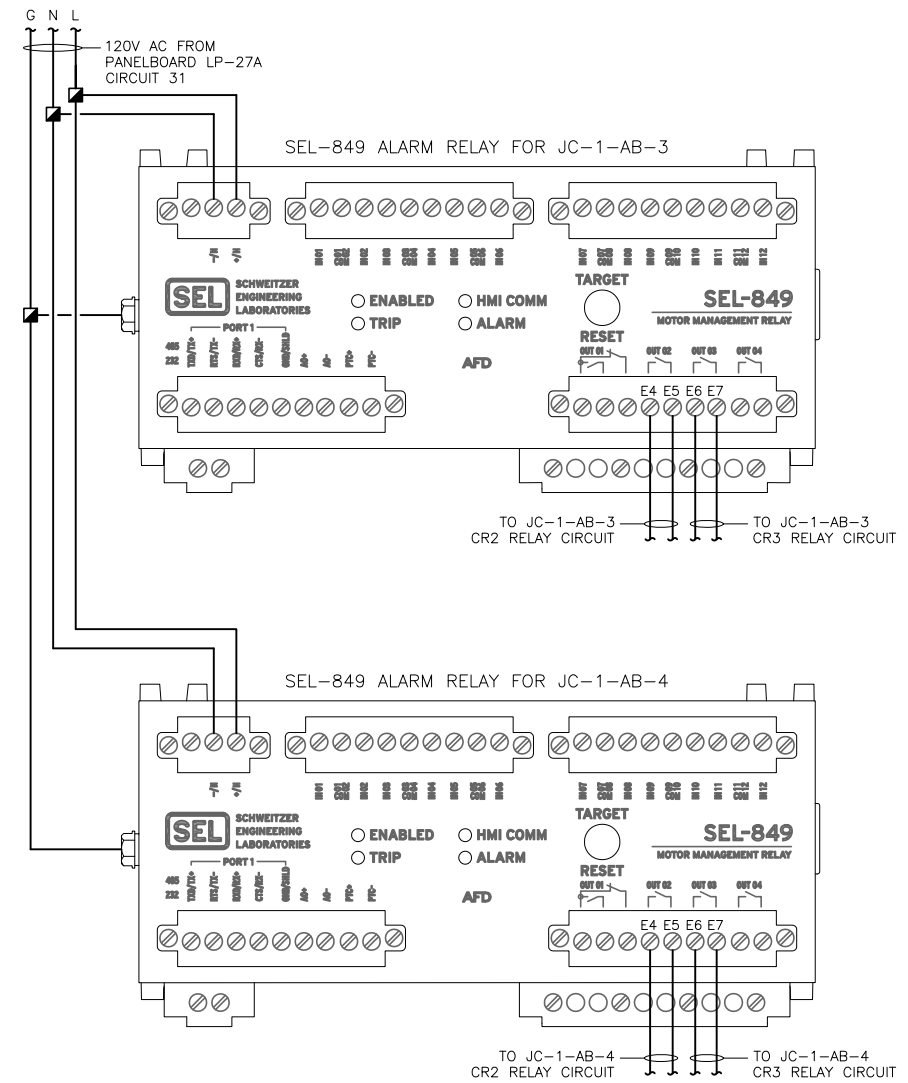


**TYPICAL MOTOR WIRING**



### JC-1-AB-3 SHUNT TRIP CONTROL WIRING DIAGRAM

TYPICAL FOR JC-1-AB-4



### MCC-27A SEL-849 WIRING DIAGRAM



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LARGE MOTOR SOFTSTART MODIFICATIONS

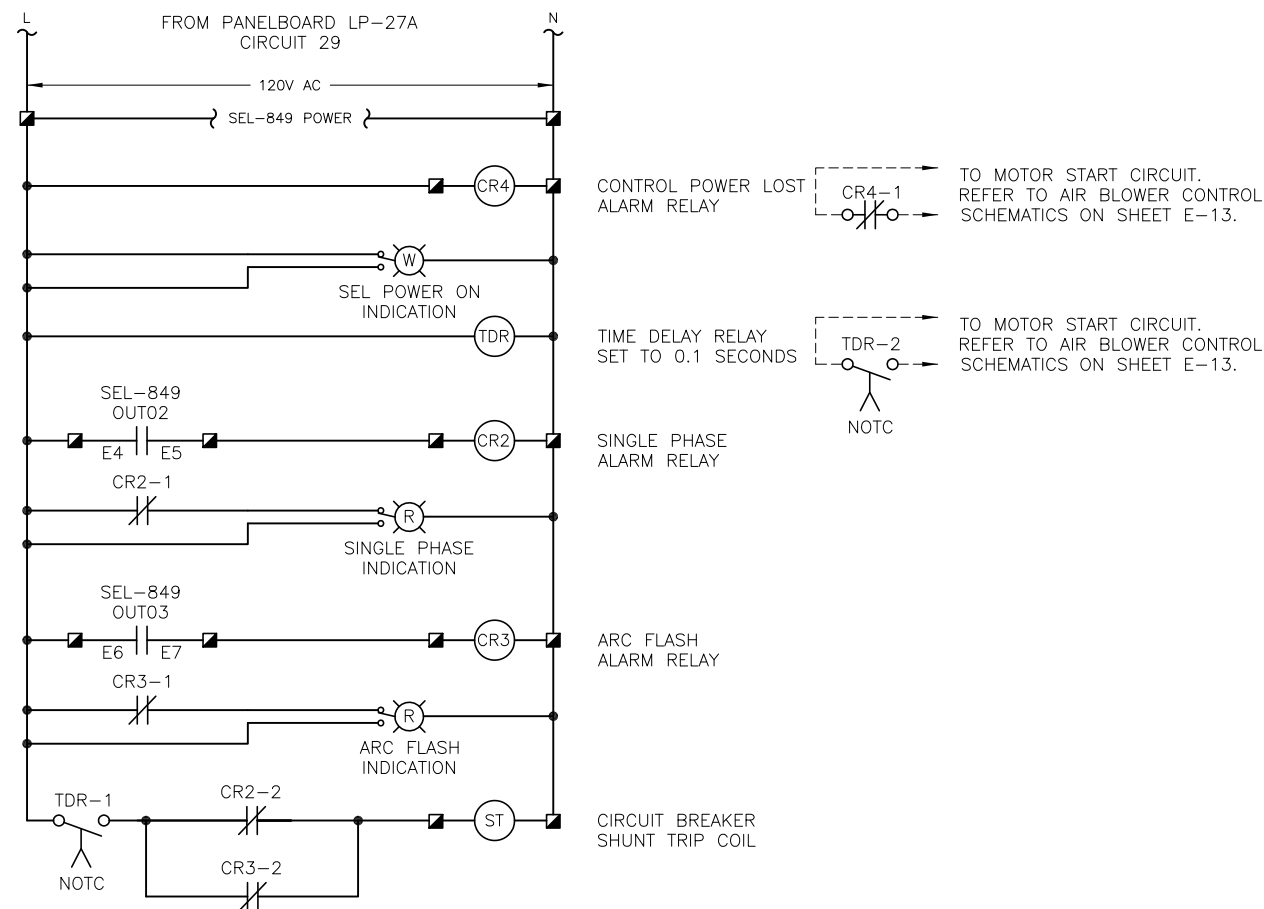
JUNCTION CHAMBER NO. 1  
MCC 27A SHUNT TRIP AND  
SEL-849 WIRING DIAGRAMS

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER

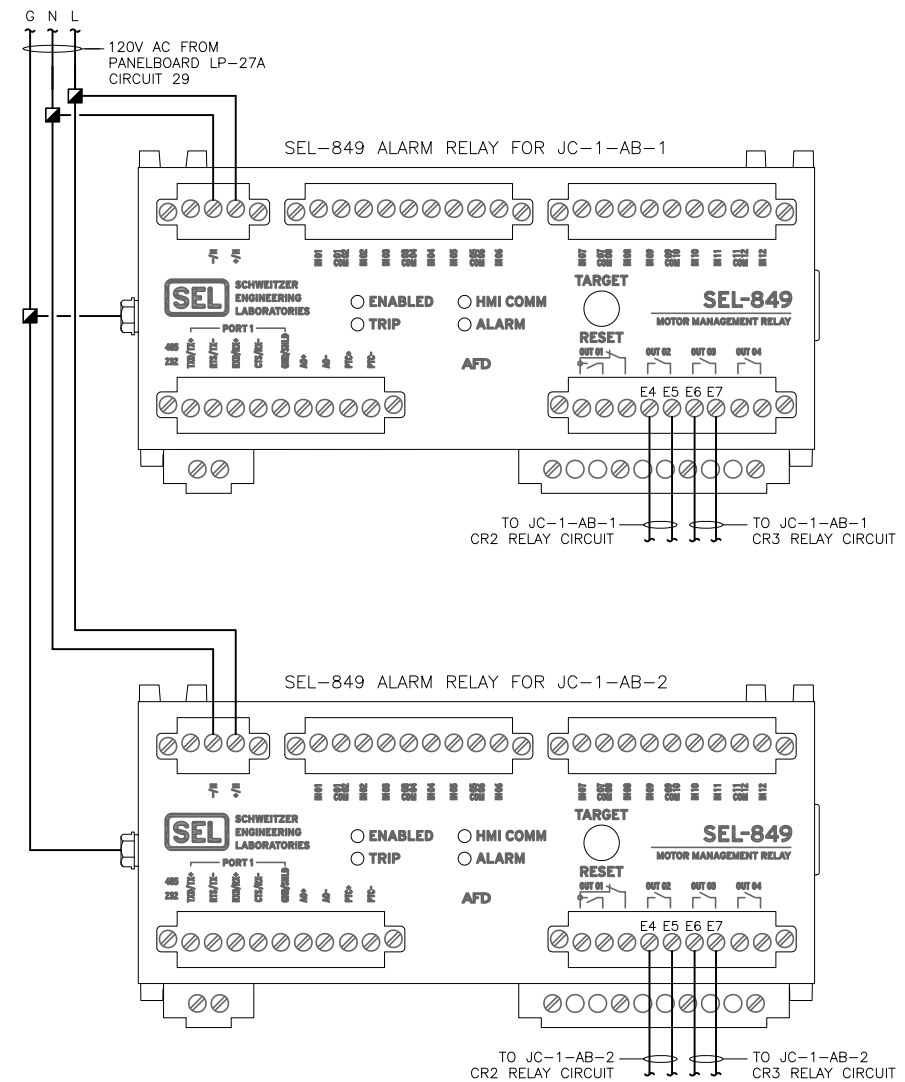
E-14

FILE: 171501842



### JC-1-AB-1 SHUNT TRIP CONTROL WIRING DIAGRAM

TYPICAL FOR JC-1-AB-2



### MCC-27 SEL-849 WIRING DIAGRAM



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City of Tampa Wastewater Department  
HOWARD F. CURREN AWTP  
LARGE MOTOR SOFTSTART MODIFICATIONS

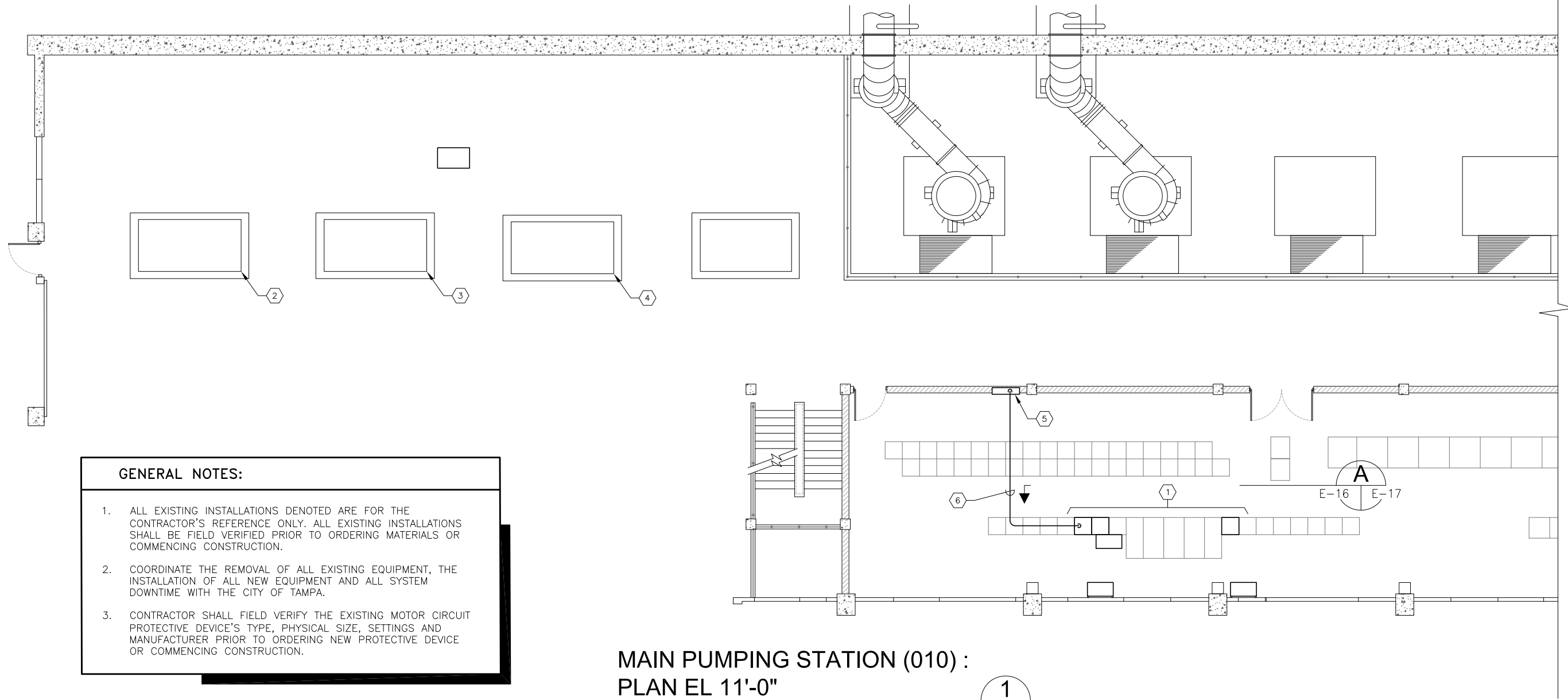
JUNCTION CHAMBER NO. 1  
MCC 27 SHUNT TRIP AND  
SEL-849 WIRING DIAGRAMS

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER

E-15

FILE: 171501842

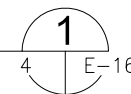


**GENERAL NOTES:**

1. ALL EXISTING INSTALLATIONS DENOTED ARE FOR THE CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO ORDERING MATERIALS OR COMMENCING CONSTRUCTION.
2. COORDINATE THE REMOVAL OF ALL EXISTING EQUIPMENT, THE INSTALLATION OF ALL NEW EQUIPMENT AND ALL SYSTEM DOWNTIME WITH THE CITY OF TAMPA.
3. CONTRACTOR SHALL FIELD VERIFY THE EXISTING MOTOR CIRCUIT PROTECTIVE DEVICE'S TYPE, PHYSICAL SIZE, SETTINGS AND MANUFACTURER PRIOR TO ORDERING NEW PROTECTIVE DEVICE OR COMMENCING CONSTRUCTION.

**MAIN PUMPING STATION (010) :  
PLAN EL 11'-0"**

SCALE : 3/32" = 1'-0"



**KEYED NOTES:**

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>① EXISTING MOTOR CONTROL CENTER : MCC-31. REFER TO PARTIAL ELEVATION ON SHEET E-17.</li> <li>② EXISTING 480V, 400 H.P. MOTOR FOR AIR BLOWER MP-AB-1. NO WORK REQUIRED.</li> <li>③ EXISTING 480V, 400 H.P. MOTOR FOR AIR BLOWER MP-AB-2. NO WORK REQUIRED.</li> <li>④ EXISTING 480V, 400 H.P. MOTOR FOR AIR BLOWER MP-AB-3. NO WORK REQUIRED.</li> </ul> | <ul style="list-style-type: none"> <li>⑤ APPROXIMATE LOCATION OF EXISTING 120/208V, 3<math>\phi</math>, 4-WIRE PANELBOARD LP-32. PROVIDE AND INSTALL NEW SINGLE-POLE 20A CIRCUIT BREAKER FOR MCC-31 SEL-849 RELAYS AND SHUNT TRIP POWER (LP-32 CIRCUIT 42). PROVIDE CIRCUIT BREAKER WITH HANDLE LOCK ON PROVISION.</li> <li>⑥ PROVIDE AND INSTALL 2-#12 CU + 1-#12 CU GND IN 3/4" C. FROM EXISTING PANELBOARD LP-32 TO EXISTING MOTOR CONTROL CENTER : MCC-31 FOR SEL-849 RELAYS AND SHUNT TRIP POWER. (CIRCUIT 42).</li> </ul> |
|--|---|



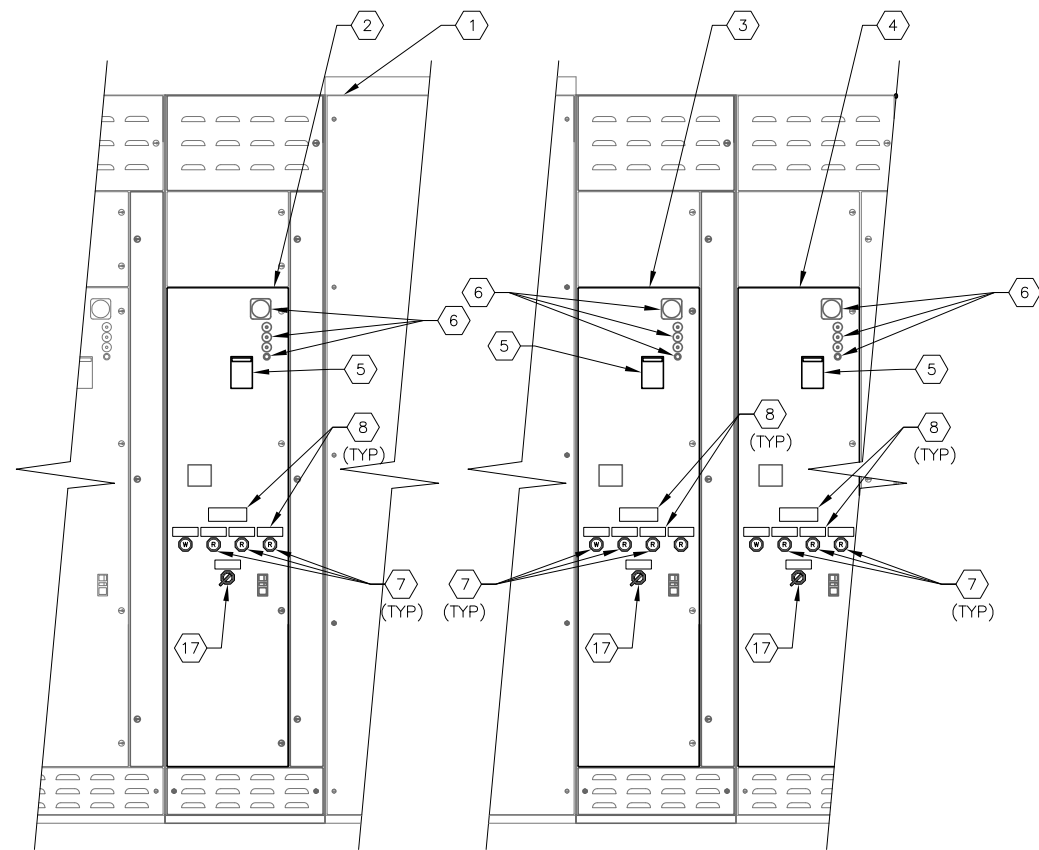
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SCALE  
  
NOT TO SCALE

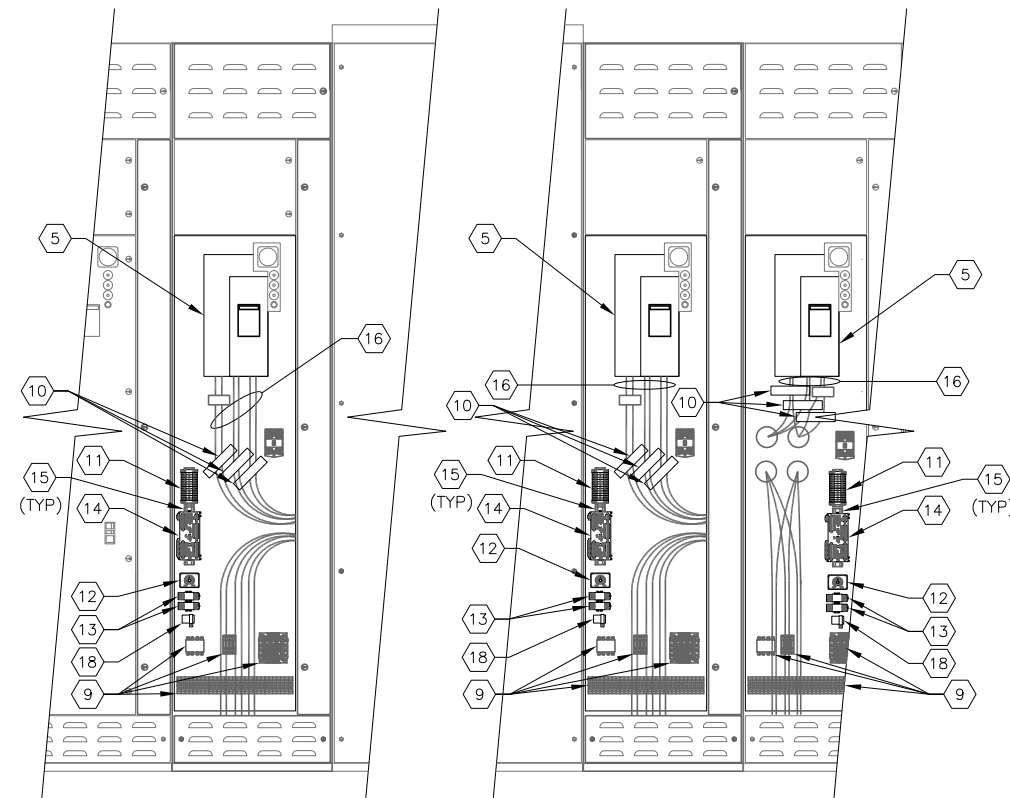
City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP  
LARGE MOTOR SOFTSTART MODIFICATIONS**

**MAIN PUMPING STATION  
PARTIAL FLOOR PLAN**

SHEET NUMBER	<b>E-16</b>
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842



**MCC-31 PARTIAL FRONT ELEVATION A**  
SCALE : N.T.S. E-16 E-17



**MCC-31 INTERIOR ELEVATION**  
SCALE : N.T.S.

**KEYED NOTES:**

- |  |   |
|--|---|
| <p>① EXISTING MOTOR CONTROL CENTER : MCC-31.</p> <p>② EXISTING STARTER BUCKET FOR MP-AB-3.</p> <p>③ EXISTING STARTER BUCKET FOR MP-AB-2.</p> <p>④ EXISTING STARTER BUCKET FOR MP-AB-1.</p> <p>⑤ EXISTING 800A, 3-POLE CIRCUIT BREAKER TO BE REPLACED WITH 800A, 3-POLE CIRCUIT BREAKER WITH 120V AC SHUNT TRIP. EATON HMDL OR APPROVED EQUAL.</p> <p>⑥ EXISTING PILOT LIGHTS, LOCKOUT RELAY RESET PUSHBUTTON, AMMETER, ELAPSED TIME METER, TO REMAIN. NO WORK REQUIRED.</p> <p>⑦ PROVIDE AND INSTALL PILOT LIGHT FOR SINGLE PHASE, ARC FLASH, ARC FLASH PROTECTION OFF AND SEL CONTROL POWER ON INDICATION. LED TYPE WITH RED COLOR CAP (ALARMS) WHITE COLOR CAP FOR CONTROL POWER ON. PUSH-TO-TEST TYPE. ALLEN BRADLEY 800H-QRTH2R AND 800H-QRTH2W RESPECTIVELY.</p> <p>⑧ PROVIDE AND INSTALL LAMACOID NAMEPLATE (TYPICAL). LETTERING SHALL BE 1/2" MINIMUM. SECURE NAMEPLATE WITH STAINLESS STEEL SCREWS. NAMEPLATES TO STATE "SEL CONTROL POWER FED FROM PANELBOARD LP-85 CIRCUIT 25 OPENING MOTOR CIRCUIT BREAKER DOES NOT DEENERGIZE SEL CONTROL POWER", "SEL CONTROL POWER ON", "SINGLE PHASE DETECTED", "ARC FLASH DETECTED", "RVSS ARC FLASH PROTECTION BYPASS/ON" AND "ARC FLASH PROTECTION OFF".</p> | <p>⑨ EXISTING CONTROL POWER TRANSFORMER, TERMINAL BLOCKS, TIMING RELAY, CONTROL RELAY, FUSES, ETC. TO REMAIN. NO WORK REQUIRED.</p> <p>⑩ PROVIDE AND INSTALL NEW 6" FLEXIBLE, SPLIT-CORE CT WITH 500:5 RATIO. FLEX-CORE #FCL500/5-6 (TYP OF 3).</p> <p>⑪ PROVIDE AND INSTALL TERMINAL BLOCKS AS REQUIRED.</p> <p>⑫ PROVIDE AND INSTALL SQUARE-D 9050 JCK SERIES DPDT TIME DELAY RELAY WITH 120V AC COIL.</p> <p>⑬ PROVIDE AND INSTALL AB 700HF32A1-3-4 RELAYS WITH 120V AC COILS, PUSH-TO-TEST MANUAL OVERRIDE AND LED OPTION. PROVIDE RELAY BASE AND HOLD DOWN SPRINGS FOR EACH RELAY PROVIDED.</p> <p>⑭ PROVIDE AND INSTALL NEW SCHWEITZER ENGINEERING LABORATORIES MOTOR MANAGEMENT RELAY, TYPE SEL-849.</p> <p>⑮ PROVIDE AND INSTALL ALUMINUM DIN RAIL.</p> <p>⑯ EXISTING PARALLEL RUNS OF 3-373.7 KCML DLO CU + 1-#1/0 DLO CU GND TO ASSOCIATED SOFTSTARTER.</p> <p>⑰ PROVIDE AND INSTALL 2-POSITION, MAINTAINED, ARC FLASH PROTECTION BYPASS/ON SELECTOR SWITCH. SQUARE-D CLASS 9001, KS43FB WITH CONTACTS AS REQUIRED.</p> <p>⑱ PROVIDE AND INSTALL 120V AC FLASHER. SSAC #FS126. PROVIDE APPROPRIATELY SIZED LOAD RESISTOR IF REQUIRED.</p> |
|--|---|

**GENERAL NOTES:**

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SCALE

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City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
**LARGE MOTOR SOFTSTART MODIFICATIONS**

**MAIN PUMPING STATION**  
**MCC-31 PARTIAL ELEVATION**

SHEET NUMBER

**E-17**

TIMOTHY THOMAS, P.E. No. 47079

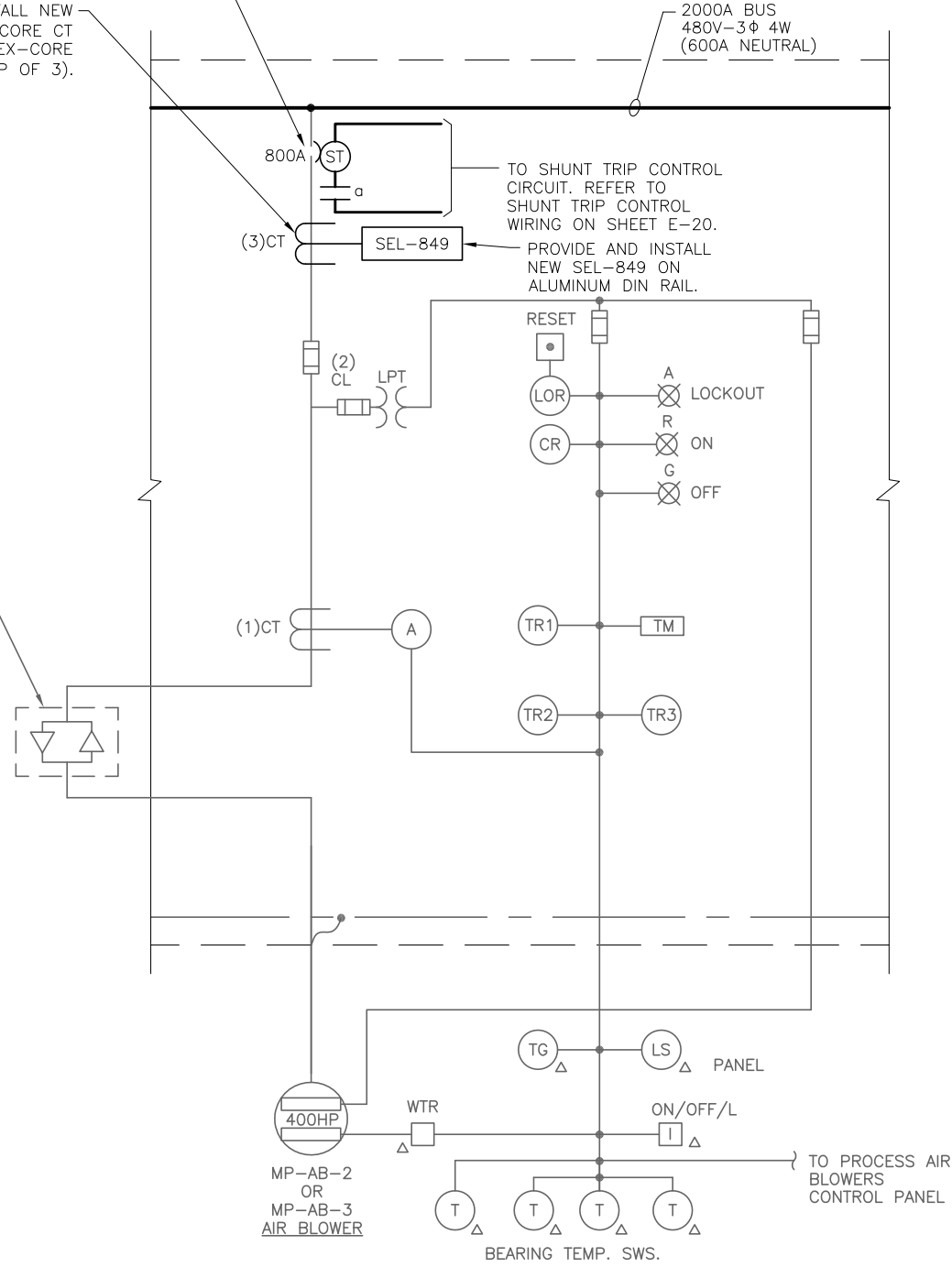
FILE: 171501842

EXISTING 800A, 3-POLE CIRCUIT BREAKER TO BE REPLACED WITH 800A, 3-POLE CIRCUIT BREAKER. PROVIDE CIRCUIT BREAKER WITH 120V AC SHUNT TRIP. EATON HMDL OR APPROVED EQUAL.

PROVIDE AND INSTALL NEW 6" FLEXIBLE, SPLIT-CORE CT WITH 500:5 RATIO. FLEX-CORE #FCL500/5-6 (TYP OF 3).

2000A BUS  
480V-3Φ 4W  
(600A NEUTRAL)

EXISTING SOFTSTARTER.  
NO WORK REQUIRED.



**MCC-31 PARTIAL ONE-LINE DIAGRAM**

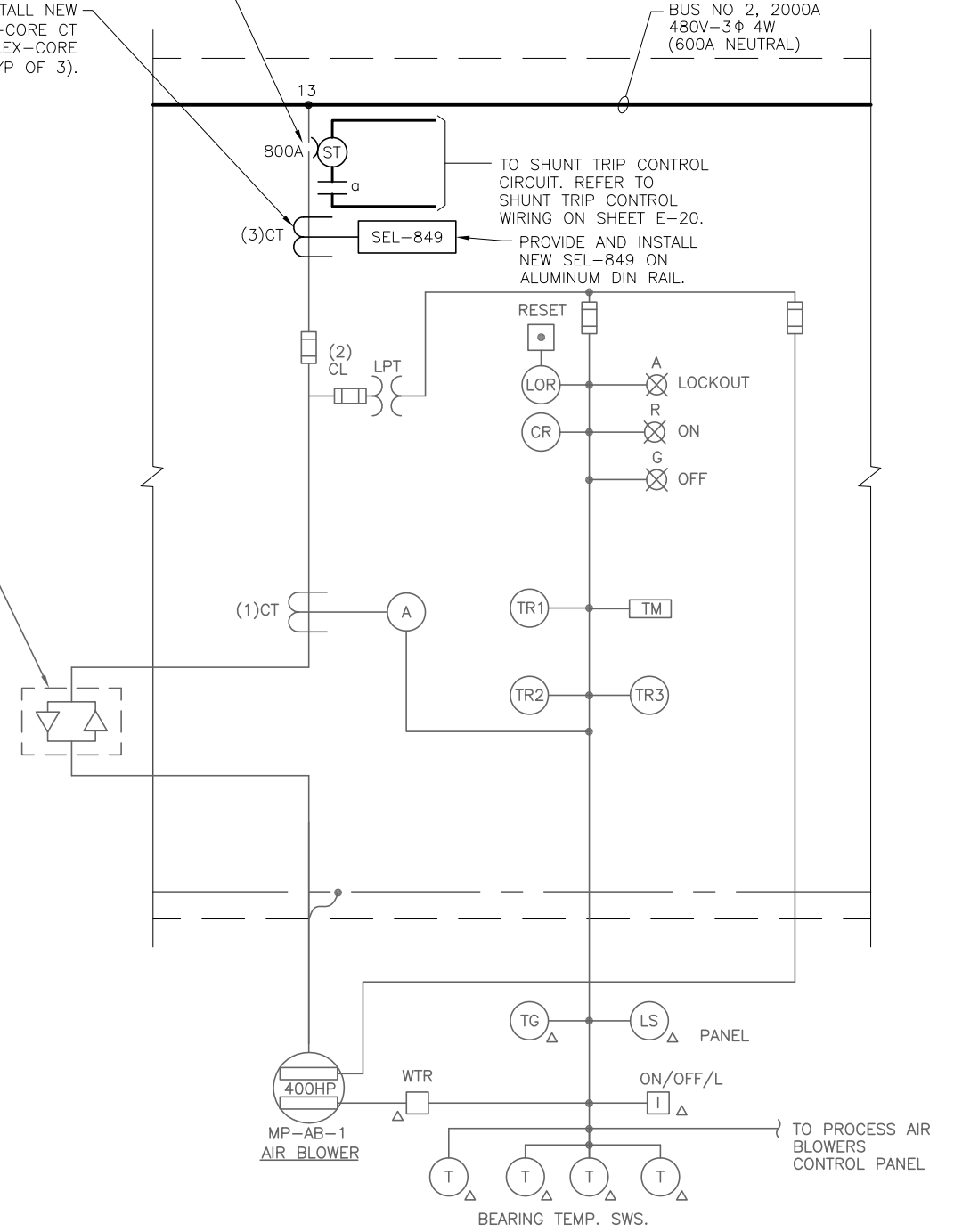
TYPICAL FOR STARTERS MP-AB-2 AND MP-AB-3

EXISTING 800A, 3-POLE CIRCUIT BREAKER TO BE REPLACED WITH 800A, 3-POLE CIRCUIT BREAKER. PROVIDE CIRCUIT BREAKER WITH 120V AC SHUNT TRIP. EATON HMDL OR APPROVED EQUAL.

PROVIDE AND INSTALL NEW 6" FLEXIBLE, SPLIT-CORE CT WITH 500:5 RATIO. FLEX-CORE #FCL500/5-6 (TYP OF 3).

BUS NO 2, 2000A  
480V-3Φ 4W  
(600A NEUTRAL)

EXISTING SOFTSTARTER.  
NO WORK REQUIRED.



**MCC-31 PARTIAL ONE-LINE DIAGRAM**

FOR STARTER MP-AB-1



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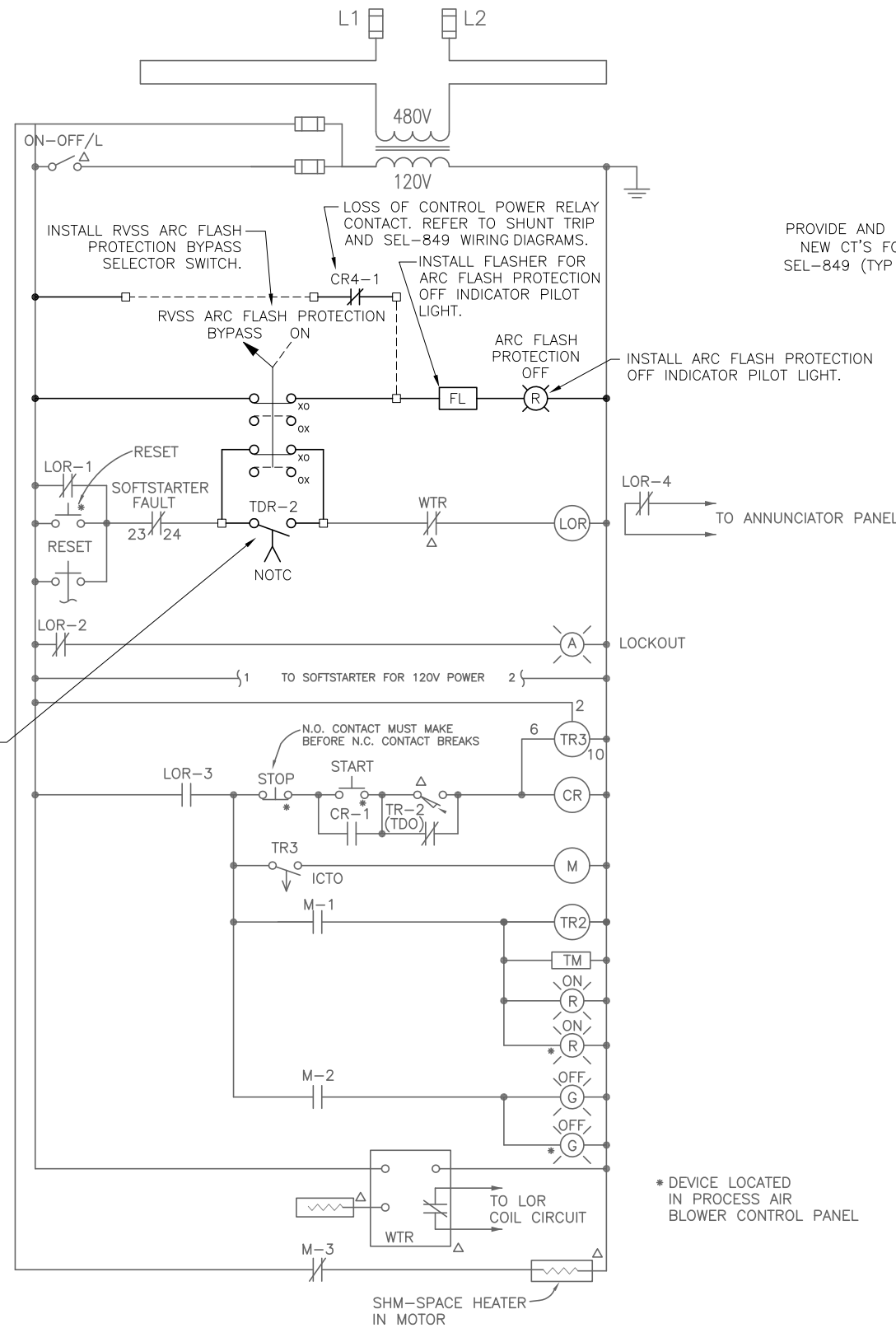
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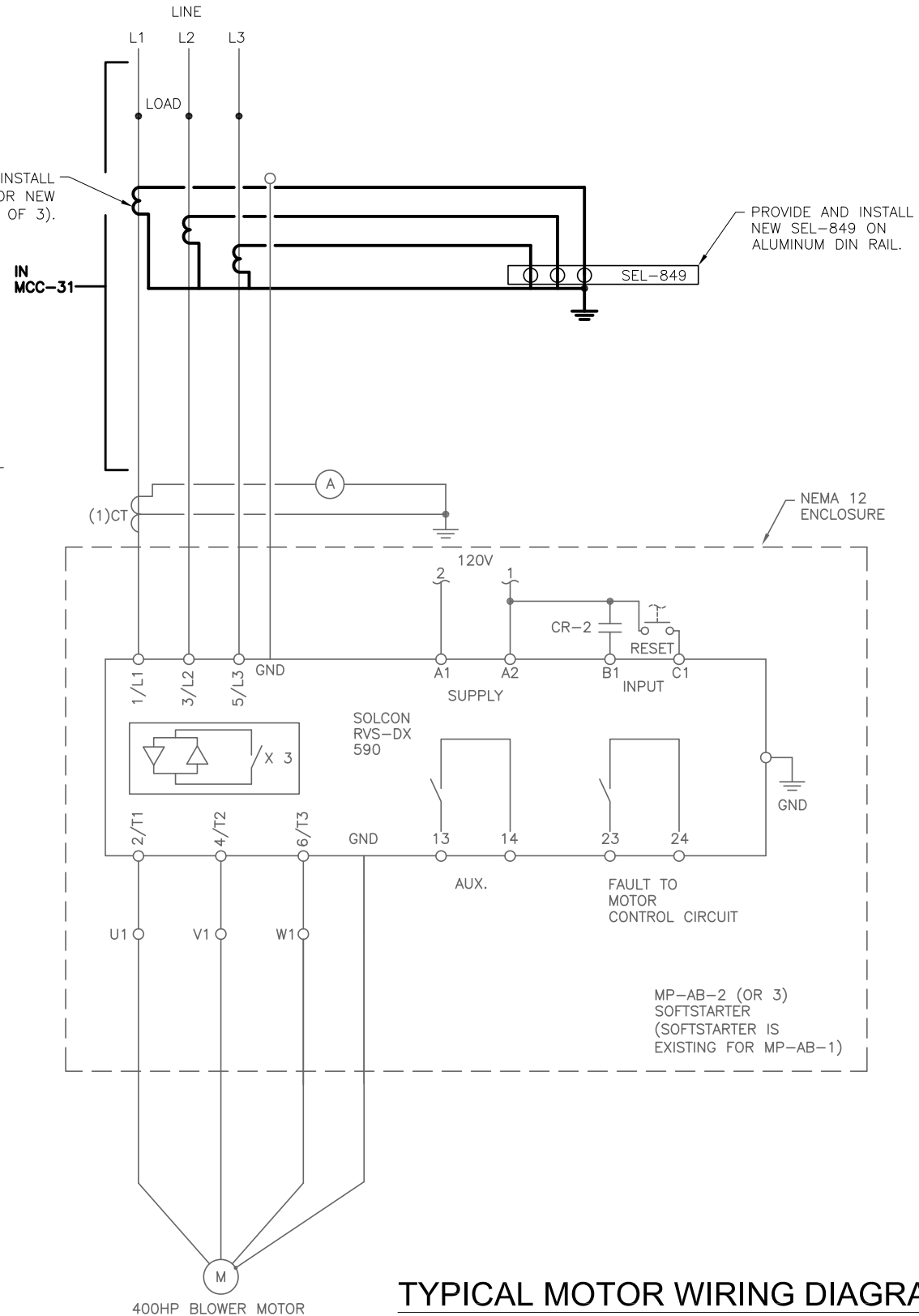
City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
LARGE MOTOR SOFTSTART MODIFICATIONS

MAIN PUMPING STATION  
**MCC-31**  
PARTIAL ONE-LINE DIAGRAM

SHEET NUMBER	E-18
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842



TYPICAL CONTROL SCHEMATIC



TYPICAL MOTOR WIRING DIAGRAM

MP-AB-1 SHOWN, MP-AB-2 AND MP-AB-3 ARE SIMILAR

INSTALL TDR-2 TIMED CONTACT IN MOTOR STARTER CIRCUIT. REFER ALSO TO MCC 31 SHUNT TRIP AND SEL-849 WIRING DIAGRAMS ON SHEET E-20.

PROVIDE AND INSTALL NEW CT'S FOR NEW SEL-849 (TYP OF 3).

PROVIDE AND INSTALL NEW SEL-849 ON ALUMINUM DIN RAIL.

\* DEVICE LOCATED IN PROCESS AIR BLOWER CONTROL PANEL



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City of Tampa Wastewater Department  
HOWARD F. CURREN AWTP  
LARGE MOTOR SOFTSTART MODIFICATIONS

MAIN PUMPING STATION  
CONTROL SCHEMATICS

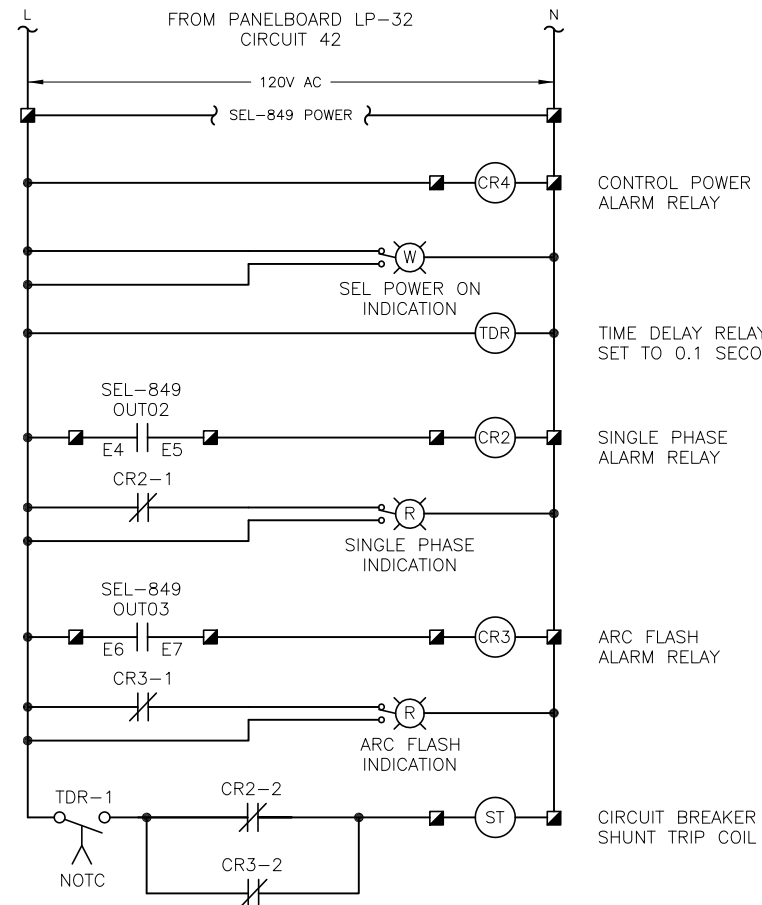
SHEET NUMBER

E-19

TIMOTHY THOMAS, P.E. No. 47079

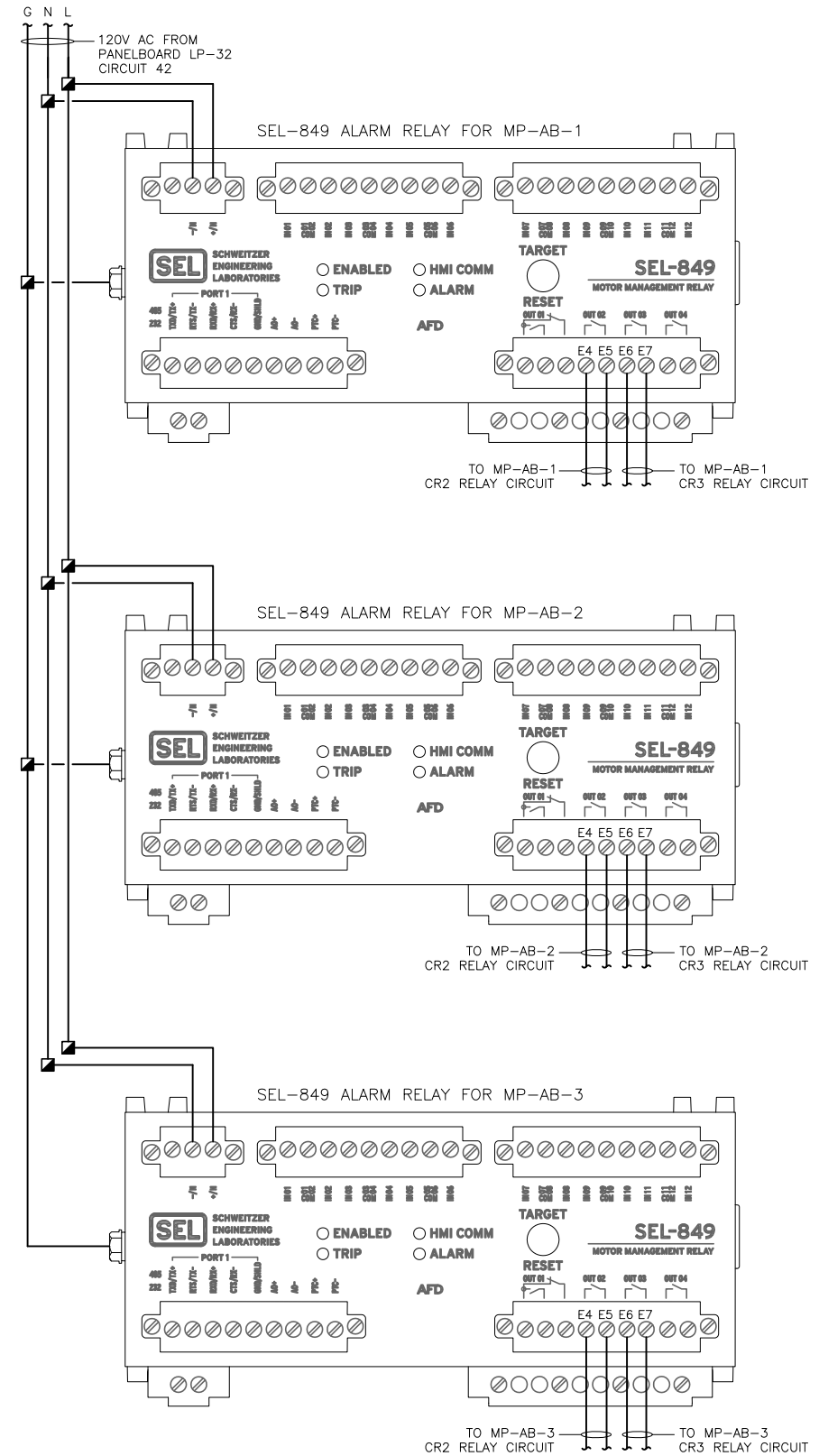
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### MP-AB-1 SHUNT TRIP CONTROL WIRING DIAGRAM

TYPICAL FOR MP-AB-2 AND MP-AB-3



### MCC-31 SEL-849 WIRING DIAGRAM



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LARGE MOTOR SOFTSTART MODIFICATIONS

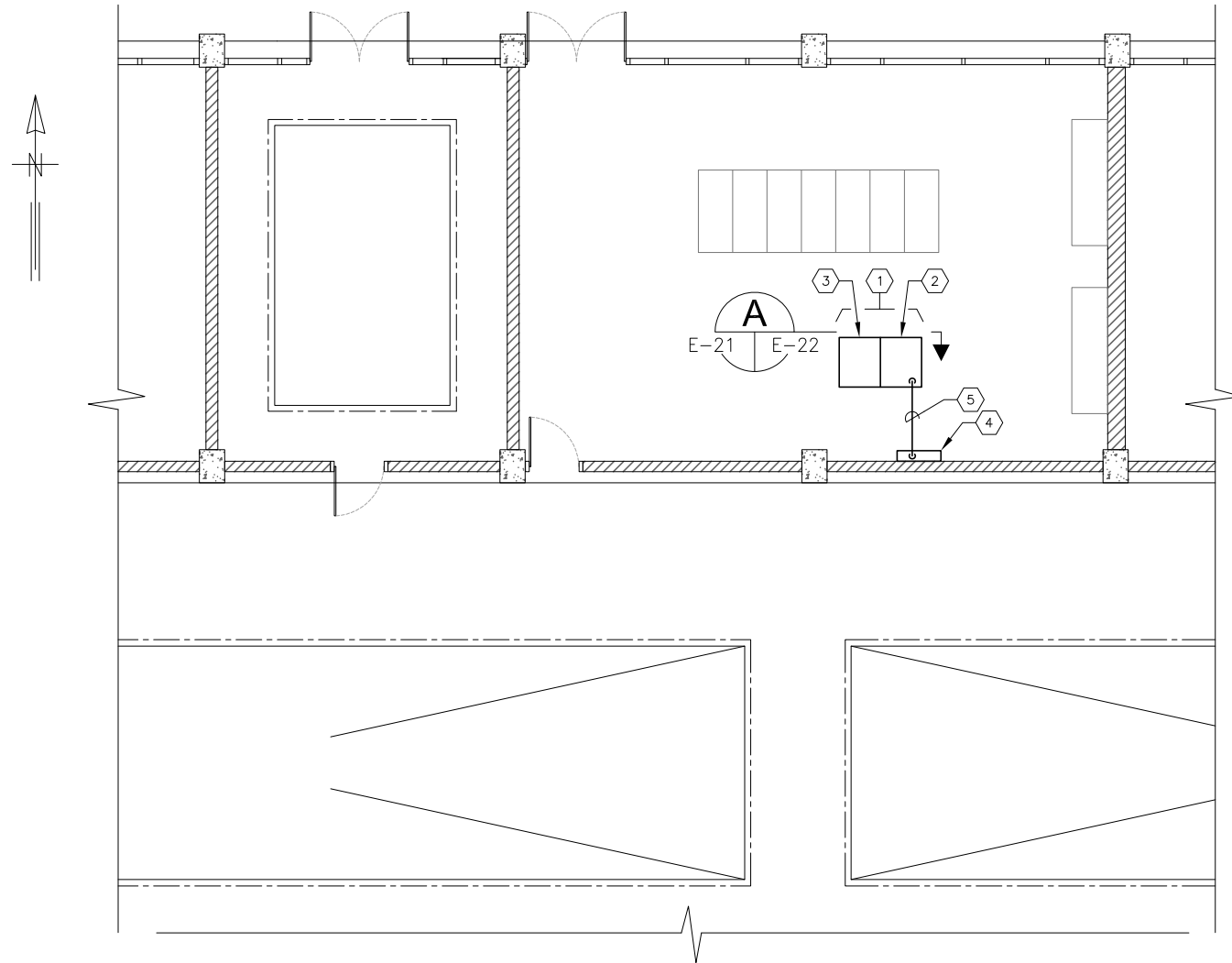
MAIN PUMPING STATION  
MCC 31 SHUNT TRIP AND  
SEL-849 WIRING DIAGRAMS

SHEET NUMBER

E-20

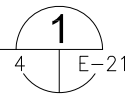
TIMOTHY THOMAS, P.E. No. 47079

FILE: 171501842



**FILTER BUILDING NO.1 (015) :  
PLAN EL 11'-0"**

SCALE : 3/32" = 1'-0"



**KEYED NOTES:**

- 1 BACKWASH AIR BLOWER CONTROL CENTER : MCC-57. REFER ALSO TO ELEVATION ON SHEET E-22.
- 2 EXISTING SOFTSTARTER FOR FB-BWB-1 IN CUBICLE NO. 1.
- 3 EXISTING SOFTSTARTER FOR FB-BWB-2 IN CUBICLE NO. 2.
- 4 APPROXIMATE LOCATION OF EXISTING 120/208V, 3 $\phi$ , 4-WIRE PANELBOARD LP-53-SUB. PROVIDE AND INSTALL NEW SINGLE-POLE 20A CIRCUIT BREAKER FOR MCC-57 SEL-849 RELAYS AND SHUNT TRIP POWER (LP-53-SUB CIRCUIT 13). PROVIDE CIRCUIT BREAKER WITH HANDLE LOCK ON PROVISION.
- 5 PROVIDE AND INSTALL 2-#12 CU + 1-#12 CU GND IN 3/4" C. FROM EXISTING PANELBOARD LP-53-SUB TO EXISTING MOTOR CONTROL CENTER : MCC-57 FOR SEL-849 RELAYS AND SHUNT TRIP POWER. (CIRCUIT 13).

**GENERAL NOTES:**

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- 4. NEW 120V POWER CONDUIT/CONDUCTORS FOR SEL-849 RELAYS AND SHUNT TRIPS ARE SHOWN DIAGRAMMATICALLY. FIELD ROUTE NEW CONDUIT AND CONDUCTORS BASED ON EXISTING CONDITIONS.



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City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
**LARGE MOTOR SOFTSTART MODIFICATIONS**

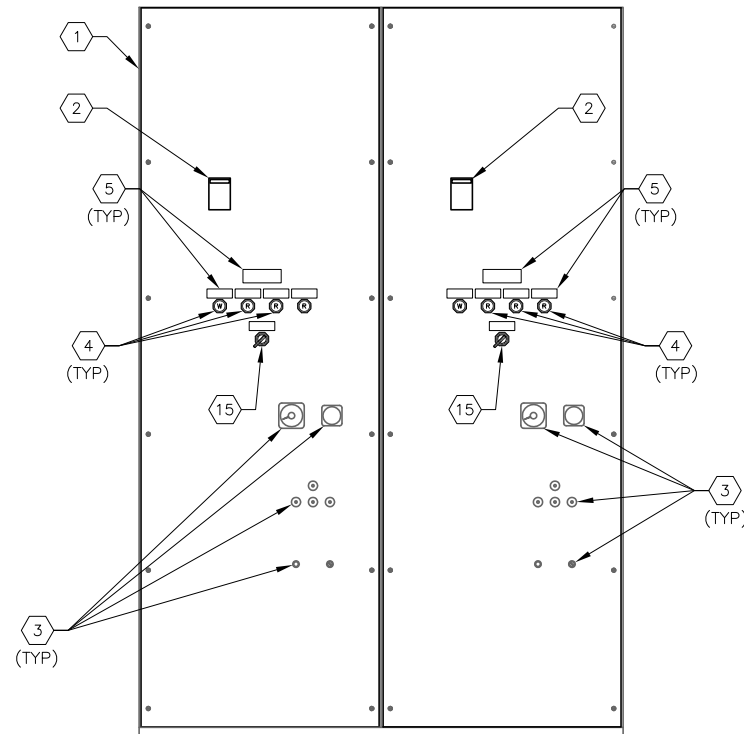
**FILTER BUILDING NO. 2**  
**PARTIAL FLOOR PLAN**

SHEET NUMBER

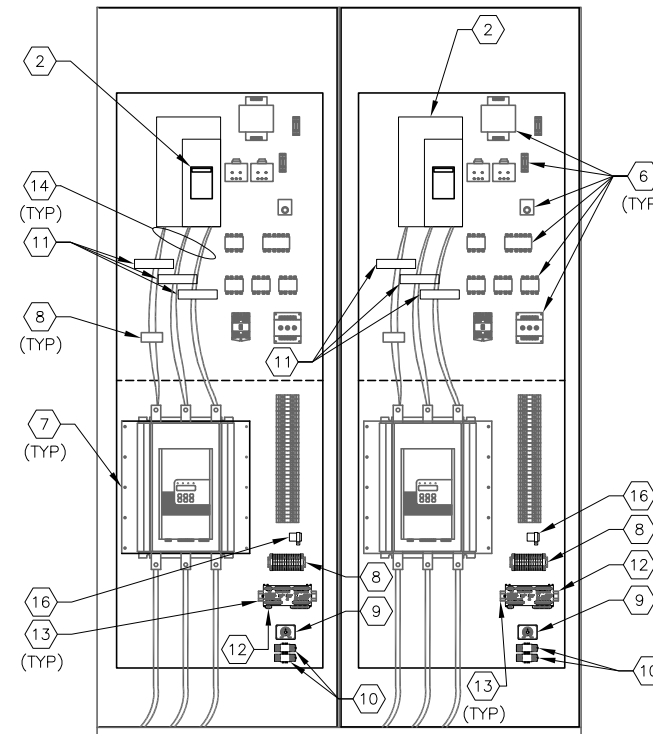
**E-21**

TIMOTHY THOMAS, P.E. No. 47079

FILE: 171501842



**MCC-57 FRONT ELEVATION A**  
SCALE : N.T.S. E-21 | E-22



**MCC-57 INTERIOR ELEVATION**  
SCALE : N.T.S.

**KEYED NOTES:**

- |   |  |
|---|--|
| <p>1 EXISTING MOTOR CONTROL CENTER : MCC-57.</p> <p>2 EXISTING 1200A, 3-POLE CIRCUIT BREAKER TO BE REPLACED WITH 600A, 3-POLE CIRCUIT BREAKER WITH 120V AC SHUNT TRIP. EATON HLD.</p> <p>3 EXISTING PILOT LIGHTS, PUSHBUTTONS, AMMETER, ELAPSED TIME METER, TO REMAIN. NO WORK REQUIRED.</p> <p>4 PROVIDE AND INSTALL PILOT LIGHT FOR SINGLE PHASE, ARC FLASH, ARC FLASH PROTECTION OFF AND SEL CONTROL POWER ON INDICATION. LED TYPE WITH RED COLOR CAP (ALARMS) WHITE COLOR CAP FOR CONTROL POWER ON. PUSH-TO-TEST TYPE. ALLEN BRADLEY 800H-QRTH2R AND 800H-QRTH2W RESPECTIVELY.</p> <p>5 PROVIDE AND INSTALL LAMACOID NAMEPLATE (TYPICAL). LETTERING SHALL BE 1/2" MINIMUM. SECURE NAMEPLATE WITH STAINLESS STEEL SCREWS. NAMEPLATES TO STATE "SEL CONTROL POWER FED FROM PANELBOARD LP-85 CIRCUIT 25 OPENING MOTOR CIRCUIT BREAKER DOES NOT DEENERGIZE SEL CONTROL POWER", "SEL CONTROL POWER ON", "SINGLE PHASE DETECTED", "ARC FLASH DETECTED", "RVSS ARC FLASH PROTECTION BYPASS/ON" AND "ARC FLASH PROTECTION OFF".</p> <p>6 EXISTING CONTROL POWER TRANSFORMER, TERMINAL BLOCKS, TIMING RELAY, CONTROL RELAY, FUSES, ETC. TO REMAIN. NO WORK REQUIRED.</p> | <p>7 EXISTING SOFTSTARTER. NO WORK REQUIRED.</p> <p>8 PROVIDE AND INSTALL TERMINAL BLOCKS AS REQUIRED.</p> <p>9 PROVIDE AND INSTALL SQUARE-D 9050 JCK SERIES DPDT TIME DELAY RELAY WITH 120V AC COIL.</p> <p>10 PROVIDE AND INSTALL AB 700HF32A1-3-4 RELAYS WITH 120V AC COILS, PUSH-TO-TEST MANUAL OVERRIDE AND LED OPTION. PROVIDE RELAY BASE AND HOLD DOWN SPRINGS FOR EACH RELAY PROVIDED.</p> <p>11 PROVIDE AND INSTALL NEW 6" FLEXIBLE, SPLIT-CORE CT WITH 500:5 RATIO. FLEX-CORE #FCL500/5-6 (TYP OF 3).</p> <p>12 PROVIDE AND INSTALL NEW SCHWEITZER ENGINEERING LABORATORIES MOTOR MANAGEMENT RELAY, TYPE SEL-849.</p> <p>13 PROVIDE AND INSTALL ALUMINUM DIN RAIL.</p> <p>14 EXISTING TWO PARALLEL RUNS OF 3-313.3 KCMIL DLO CU + 1-#1/0 DLO CU GND TO EXISTING SOFTSTARTER.</p> <p>15 PROVIDE AND INSTALL 2-POSITION, MAINTAINED, ARC FLASH PROTECTION BYPASS/ON SELECTOR SWITCH. SQUARE-D CLASS 9001, KS43FB WITH CONTACTS AS REQUIRED.</p> <p>16 PROVIDE AND INSTALL 120V AC FLASHER. SSAC #FS126. PROVIDE APPROPRIATELY SIZED LOAD RESISTOR IF REQUIRED.</p> |
|---|--|

**GENERAL NOTES:**

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City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
**LARGE MOTOR SOFTSTART MODIFICATIONS**

**FILTER BUILDING NO. 1**  
**MCC-57 ELEVATION**

SHEET NUMBER

**E-22**

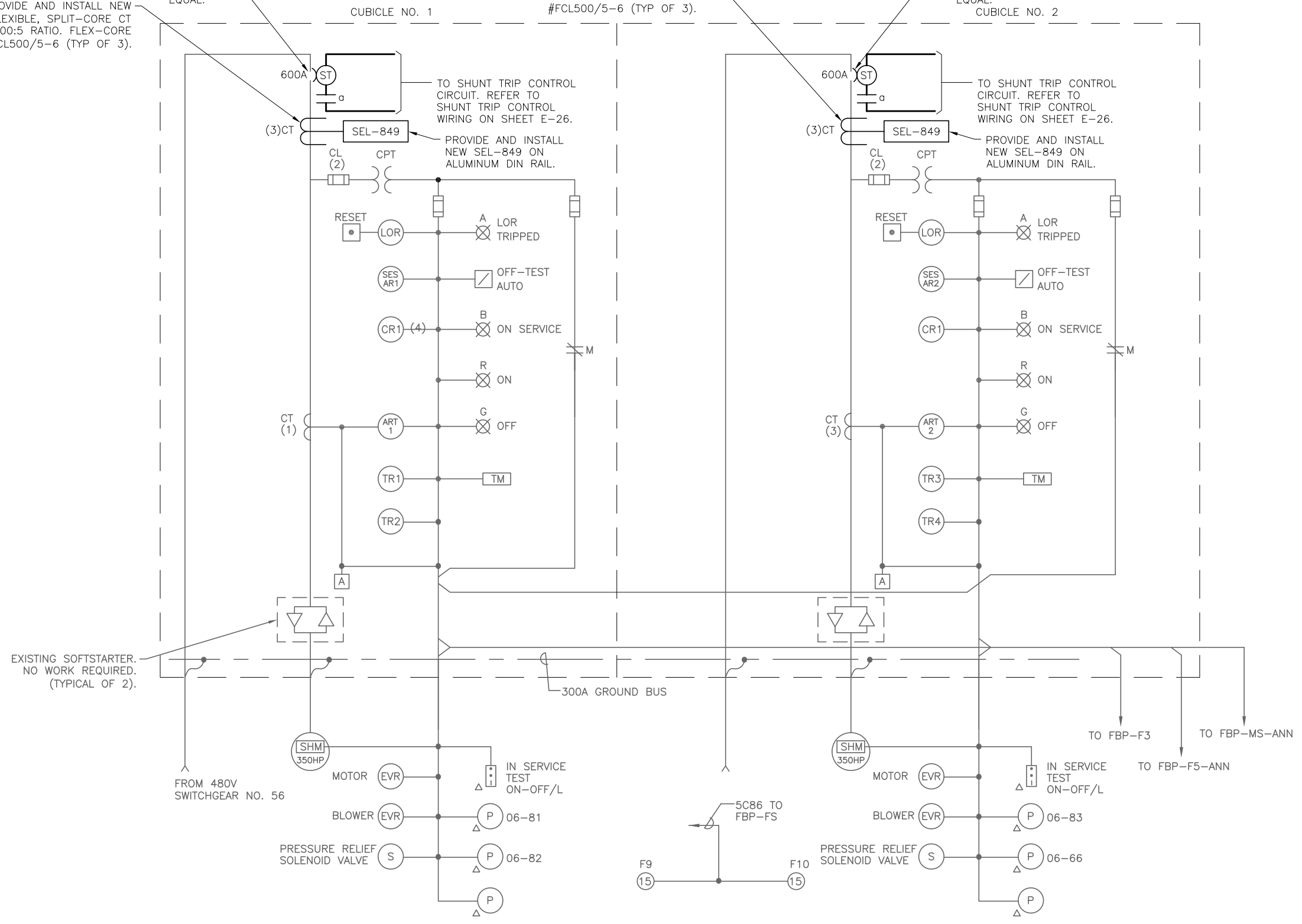
TIMOTHY THOMAS, P.E. No. 47079

FILE: 171501842

EXISTING 1200A, 3-POLE MOTOR CIRCUIT PROTECTOR TO BE REPLACED WITH 600A, 3-POLE CIRCUIT BREAKER. PROVIDE CIRCUIT BREAKER WITH 120V AC SHUNT TRIP. EATON HLD OR APPROVED EQUAL.  
 PROVIDE AND INSTALL NEW 6" FLEXIBLE, SPLIT-CORE CT WITH 500:5 RATIO. FLEX-CORE #FCL500/5-6 (TYP OF 3).

PROVIDE AND INSTALL NEW 6" FLEXIBLE, SPLIT-CORE CT WITH 500:5 RATIO. FLEX-CORE #FCL500/5-6 (TYP OF 3).

EXISTING 1200A, 3-POLE MOTOR CIRCUIT PROTECTOR TO BE REPLACED WITH 600A, 3-POLE CIRCUIT BREAKER. PROVIDE CIRCUIT BREAKER WITH 120V AC SHUNT TRIP. EATON HLD OR APPROVED EQUAL.  
 PROVIDE AND INSTALL NEW 6" FLEXIBLE, SPLIT-CORE CT WITH 500:5 RATIO. FLEX-CORE #FCL500/5-6 (TYP OF 3).



BACKWASH AIR BLOWER CONTROL CENTER : MCC-57 ONE-LINE DIAGRAM



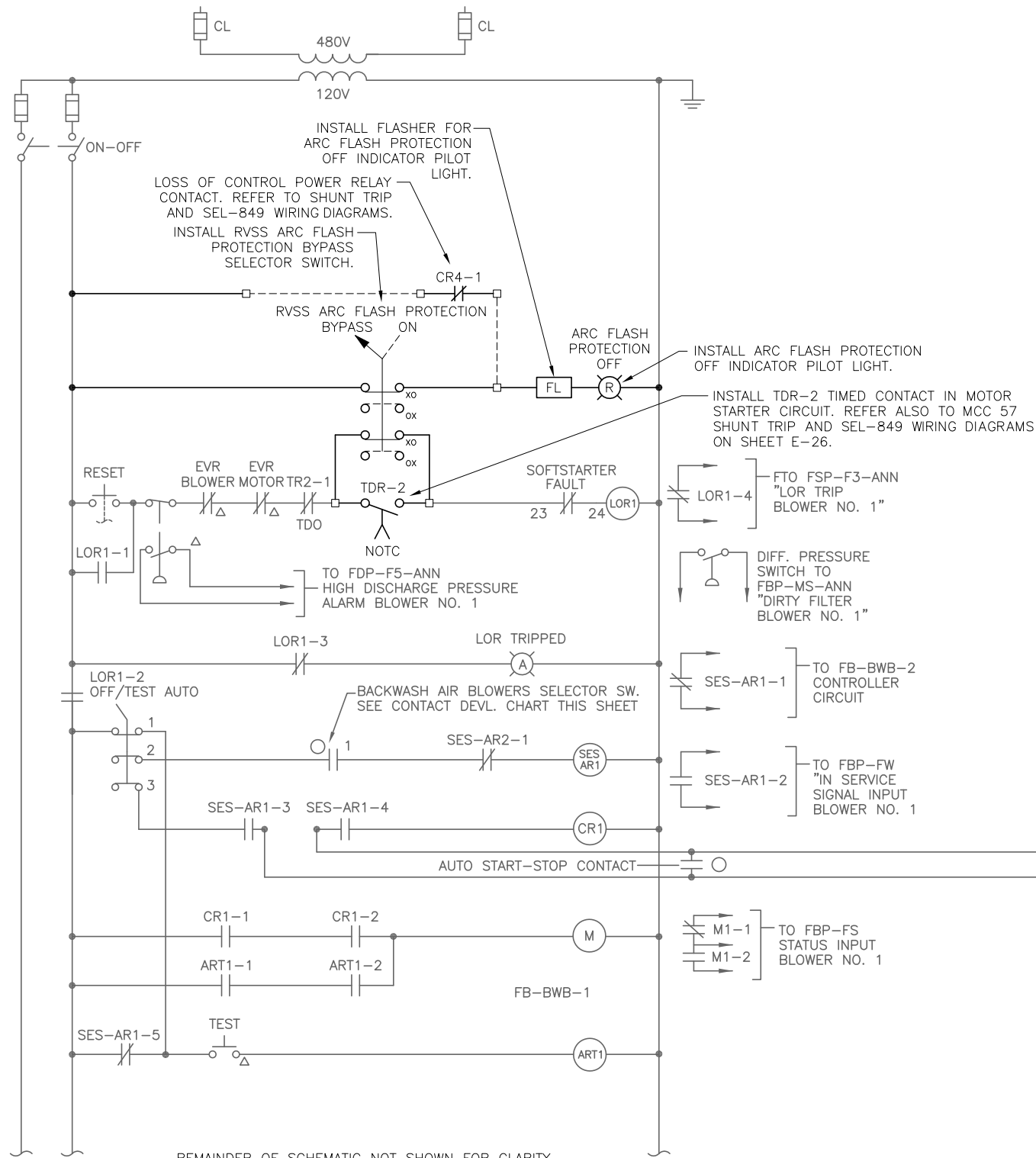
JOB No.	171501827						
DESIGNED	TDT						
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DATE	05/2017	No.	DATE	BY	APP	REVISION	DESCRIPTION

SCALE  
 NOT TO SCALE

City of Tampa Wastewater Department  
 HOWARD F. CURREN AWTP  
 LARGE MOTOR SOFTSTART MODIFICATIONS

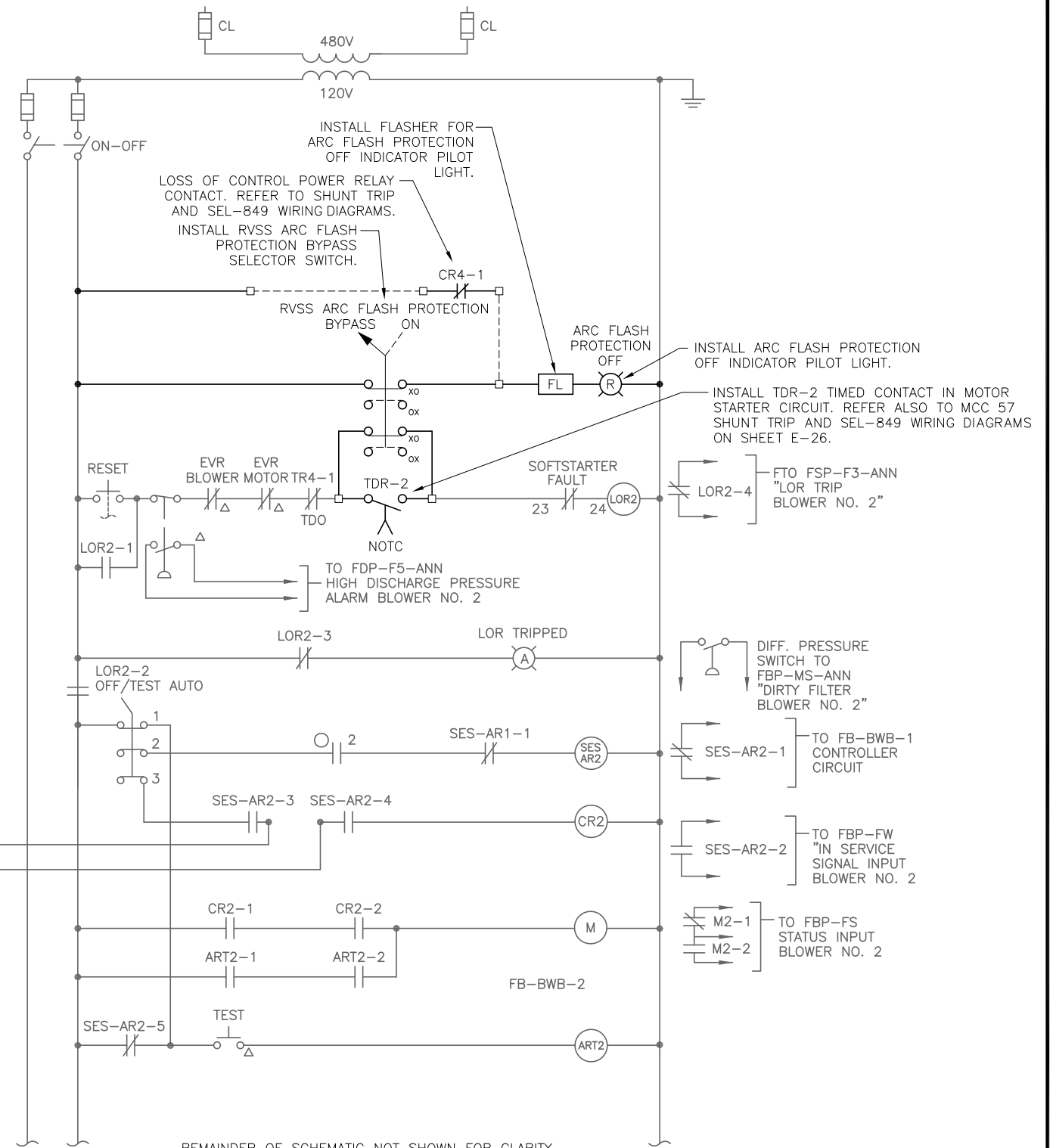
FILTER BUILDING NO. 1  
 MCC-57  
 ONE-LINE DIAGRAM

SHEET NUMBER	E-23
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842



REMAINDER OF SCHEMATIC NOT SHOWN FOR CLARITY.  
NO OTHER MODIFICATIONS ARE REQUIRED.

**BACKWASH AIR BLOWER FB-BWB-1**



REMAINDER OF SCHEMATIC NOT SHOWN FOR CLARITY.  
NO OTHER MODIFICATIONS ARE REQUIRED.

**BACKWASH AIR BLOWER FB-BWB-2**



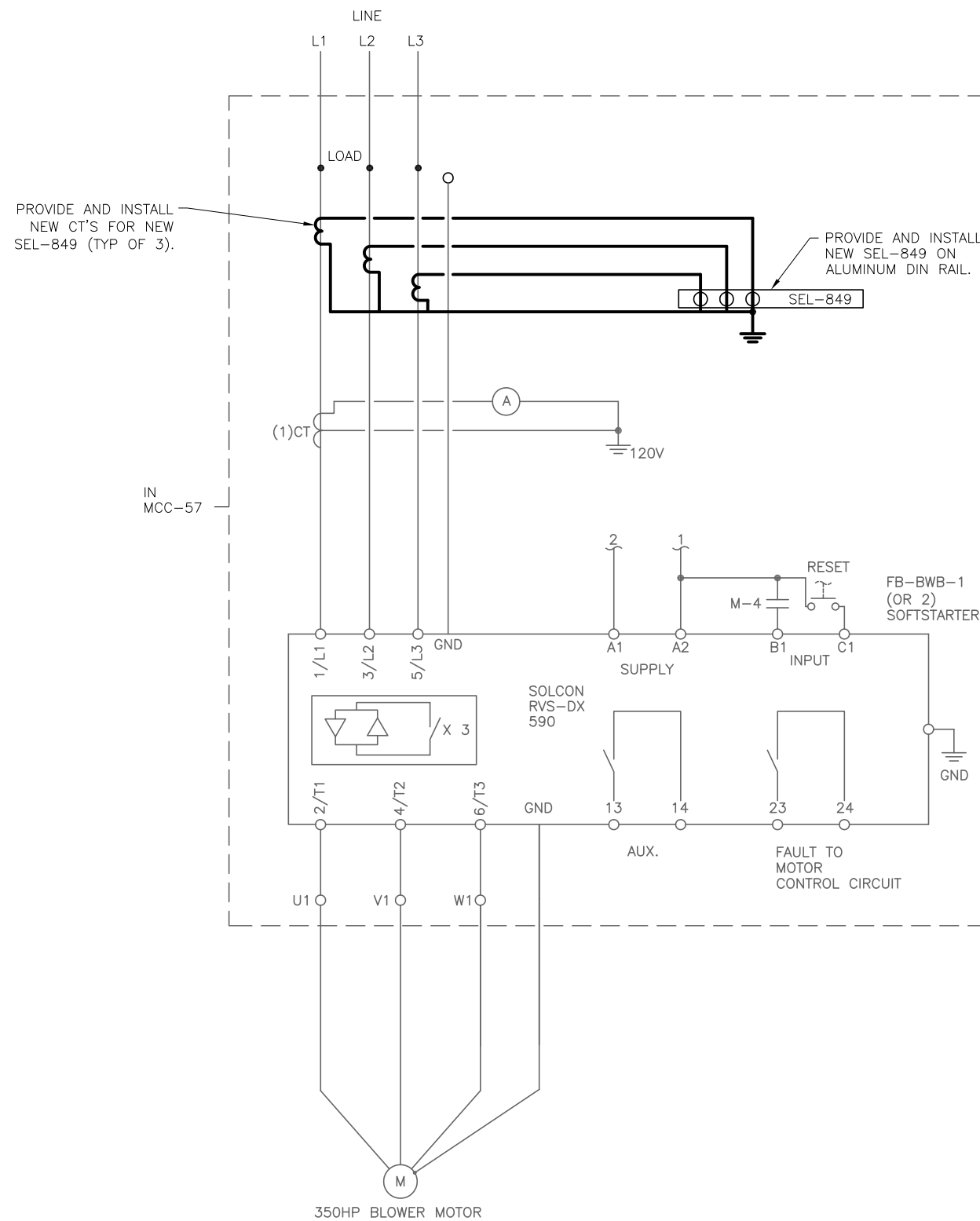
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DESIGNED	TDT						
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CHECKED	TDT						
DATE	05/2017	No.	DATE	BY	APP	REVISION	DESCRIPTION

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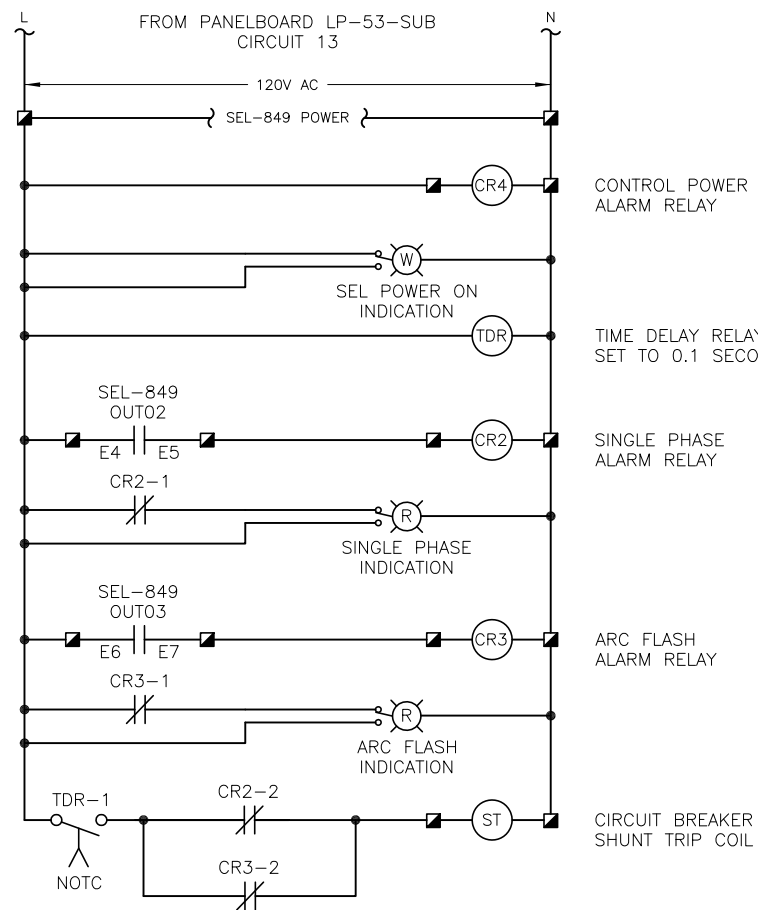
City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
LARGE MOTOR SOFTSTART MODIFICATIONS

**FILTER BUILDING NO. 1**  
**FB-BWB-1 & FB-BWB-2**  
**CONTROL SCHEMATICS**

SHEET NUMBER	E-24
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842



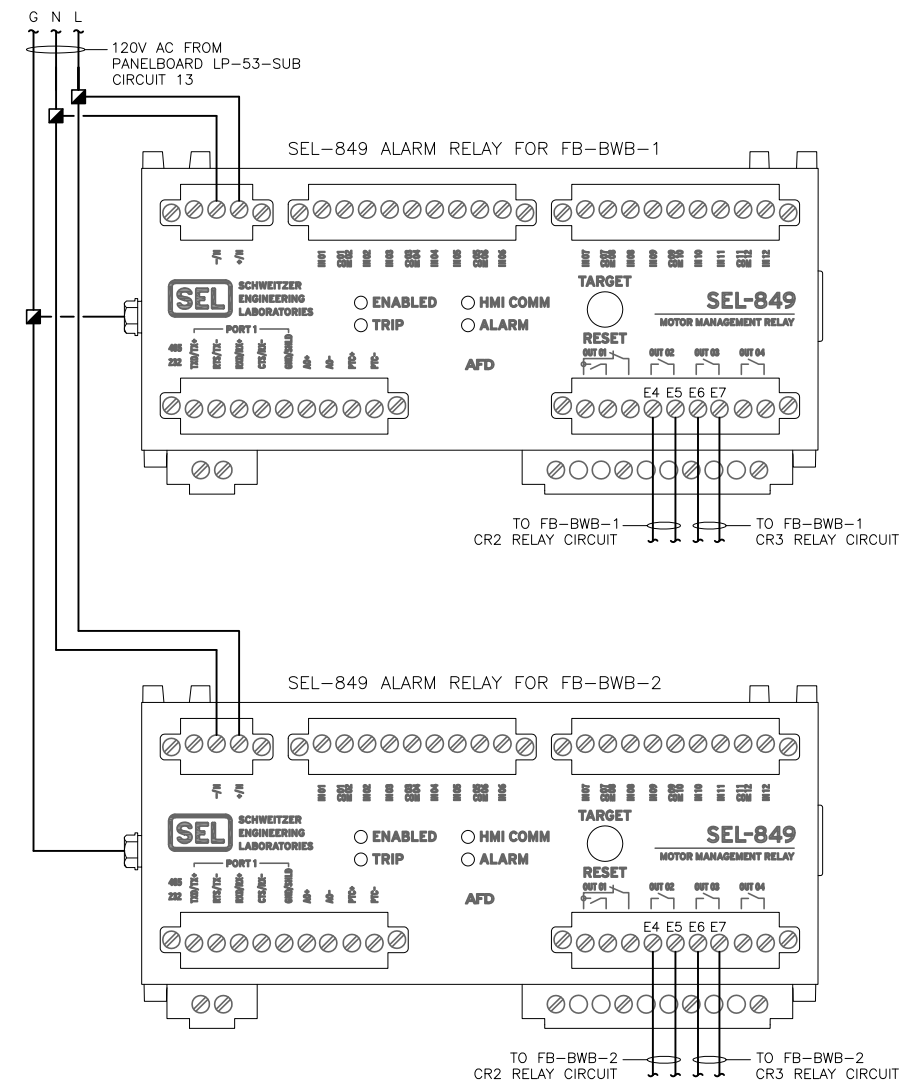
TYPICAL MOTOR WIRING



CONTROL POWER LOST ALARM RELAY  
 TO MOTOR START CIRCUIT. REFER TO FILTER BUILDING NO. 1 FB-BWB-1 & FB-BWB-2 CONTROL AND MOTOR WIRING DIAGRAMS ON SHEET E-24.

TIME DELAY RELAY SET TO 0.1 SECONDS  
 TO MOTOR START CIRCUIT. REFER TO FILTER BUILDING NO. 1 FB-BWB-1 & FB-BWB-2 CONTROL AND MOTOR WIRING DIAGRAMS ON SHEET E-24.

**FB-BWB-1 SHUNT TRIP CONTROL WIRING DIAGRAM**  
 TYPICAL FOR FB-BWB-2



**MCC-57 SEL-849 WIRING DIAGRAM**



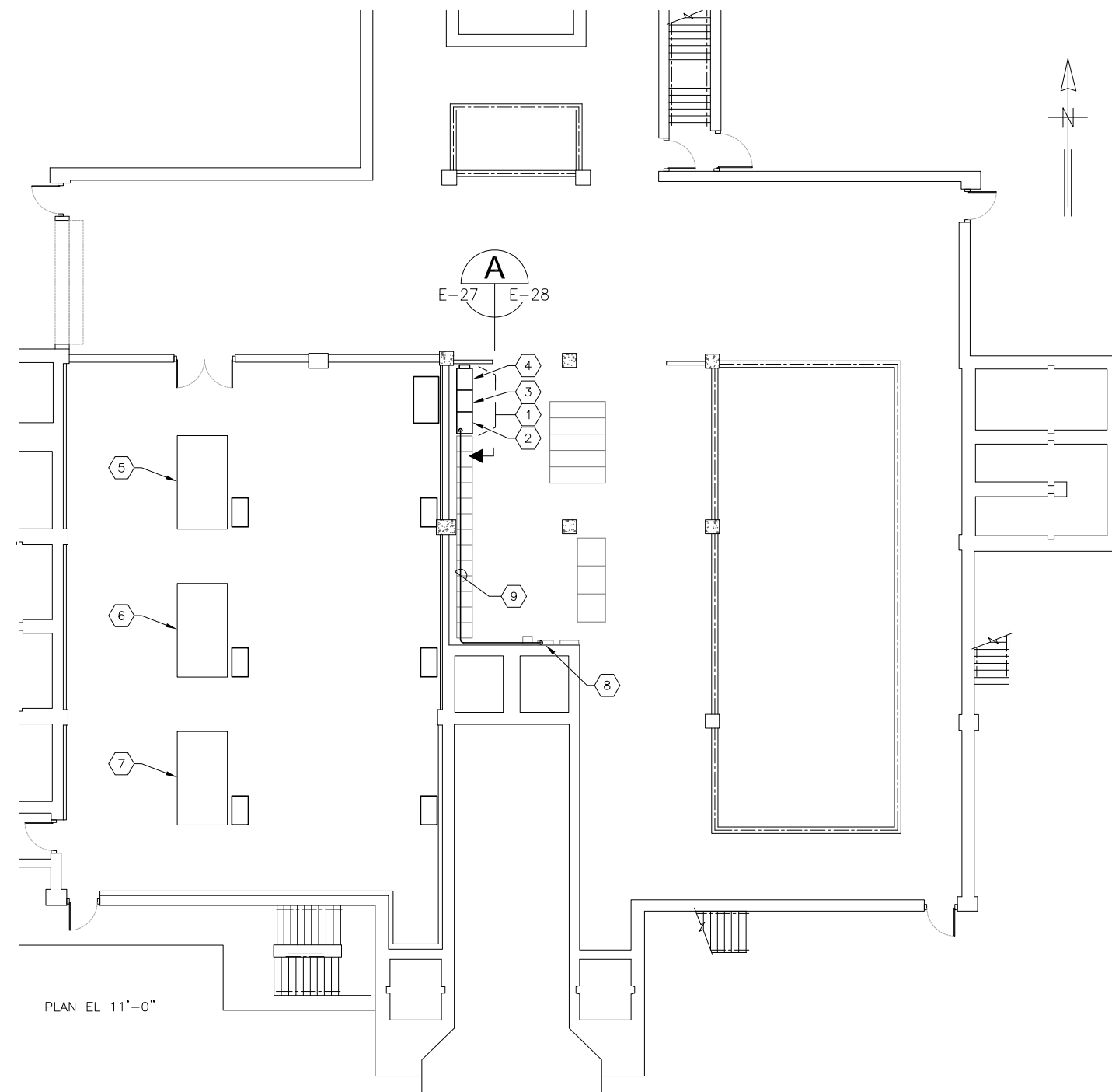
JOB No.	171501827						
DESIGNED	TDI						
DRAWN	JHL						
CHECKED	TDI						
DATE	05/2017	No.	DATE	BY	APP	REVISION	DESCRIPTION

SCALE  
  
NOT TO SCALE

City of Tampa Wastewater Department  
 HOWARD F. CURREN AWTP  
 LARGE MOTOR SOFTSTART MODIFICATIONS

FILTER BUILDING NO. 1  
 MCC 57 SHUNT TRIP AND  
 SEL-849 WIRING DIAGRAMS

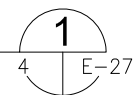
SHEET NUMBER	E-26
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842



PLAN EL 11'-0"

**FILTER BUILDING NO. 2 (047)**  
**PLAN EL 11'-0"**

SCALE : 1/16" = 1'-0"



**KEYED NOTES:**

- ① EXISTING MOTOR CONTROL CENTER : MCC-85. REFER TO ELEVATION ON SHEET E-28.
- ② EXISTING STARTER BUCKET FOR AIR BLOWER FB-BWB-3.
- ③ EXISTING STARTER BUCKET FOR AIR BLOWER FB-BWB-4.
- ④ EXISTING STARTER BUCKET FOR AIR BLOWER FB-BWB-5.
- ⑤ EXISTING 480V, 350 H.P. MOTOR FOR AIR BLOWER FB-BWB-3.
- ⑥ EXISTING 480V, 350 H.P. MOTOR FOR AIR BLOWER FB-BWB-4.
- ⑦ EXISTING 480V, 350 H.P. MOTOR FOR AIR BLOWER FB-BWB-5.
- ⑧ EXISTING 120/208V, 3φ, 4-WIRE PANELBOARD LP-86. PROVIDE AND INSTALL NEW SINGLE-POLE 20A CIRCUIT BREAKER FOR SEL-849 RELAYS AND SHUNT TRIP POWER (LP-86 CIRCUIT 27). PROVIDE CIRCUIT BREAKER WITH HANDLE LOCK ON PROVISION.
- ⑨ PROVIDE AND INSTALL 2-#12 CU + 1-#12 CU GND IN 3/4" C. FROM EXISTING PANELBOARD LP-86 TO EXISTING MOTOR CONTROL CENTER : MCC-85. FOR SEL-849 RELAY AND SHUNT TRIP POWER.

**GENERAL NOTES:**

- 1. ALL EXISTING INSTALLATIONS DENOTED ARE FOR THE CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO ORDERING MATERIALS OR COMMENCING CONSTRUCTION.
- 2. COORDINATE THE REMOVAL OF ALL EXISTING EQUIPMENT, THE INSTALLATION OF ALL NEW EQUIPMENT AND ALL SYSTEM DOWNTIME WITH THE CITY OF TAMPA.
- 3. CONTRACTOR SHALL FIELD VERIFY THE EXISTING MOTOR CIRCUIT PROTECTIVE DEVICE'S TYPE, PHYSICAL SIZE, SETTINGS AND MANUFACTURER PRIOR TO ORDERING NEW PROTECTIVE DEVICE OR COMMENCING CONSTRUCTION.
- 4. NEW 120V POWER CONDUIT/CONDUCTORS FOR SEL-849 RELAYS AND SHUNT TRIPS ARE SHOWN DIAGRAMMATICALLY. FIELD ROUTE NEW CONDUIT AND CONDUCTORS BASED ON EXISTING CONDITIONS.



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DATE	05/2017	No.	DATE	BY	APP	REVISION	DESCRIPTION

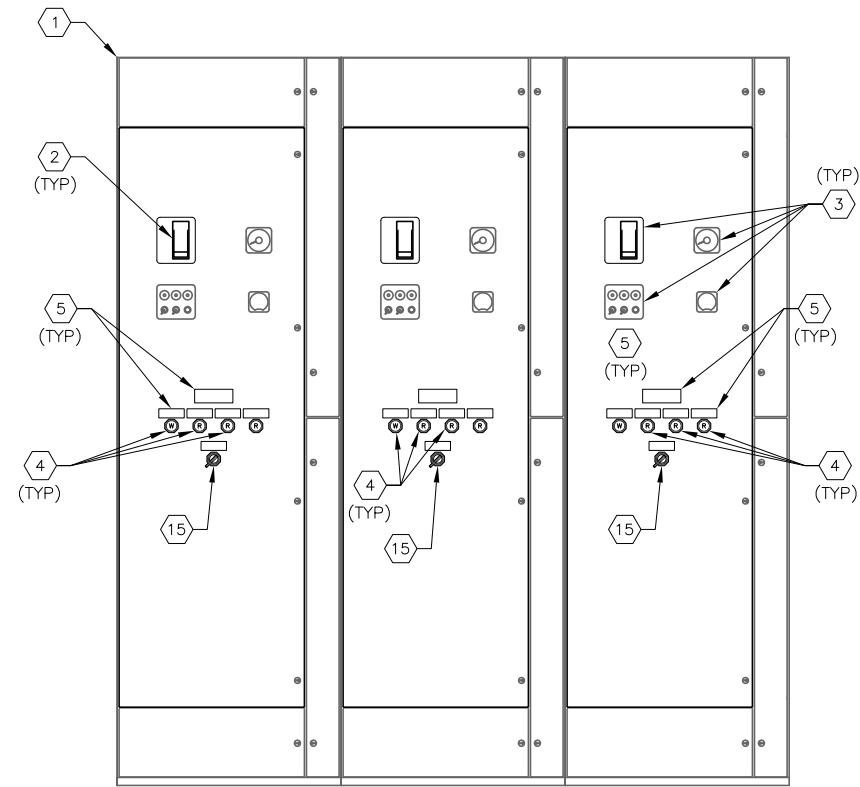
SCALE  
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City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
**LARGE MOTOR SOFTSTART MODIFICATIONS**

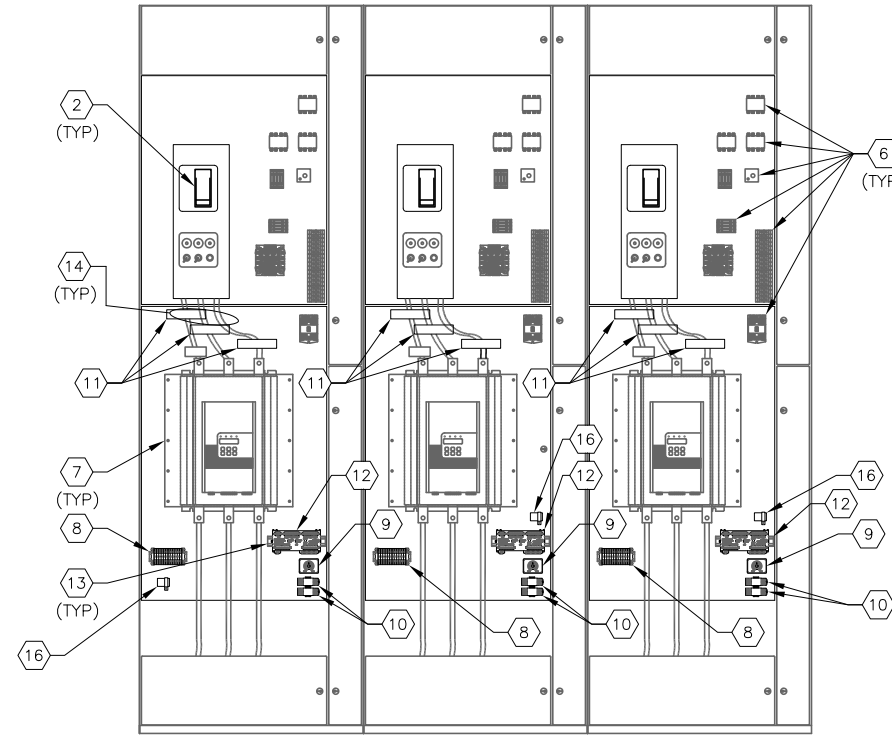
**FILTER BUILDING NO. 2**  
**PARTIAL FLOOR PLAN #2**

SHEET NUMBER	E-27
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842





**MCC-85 FRONT ELEVATION A**  
SCALE : N.T.S. E-27 | E-28



**MCC-85 INTERIOR ELEVATION**  
SCALE : N.T.S.

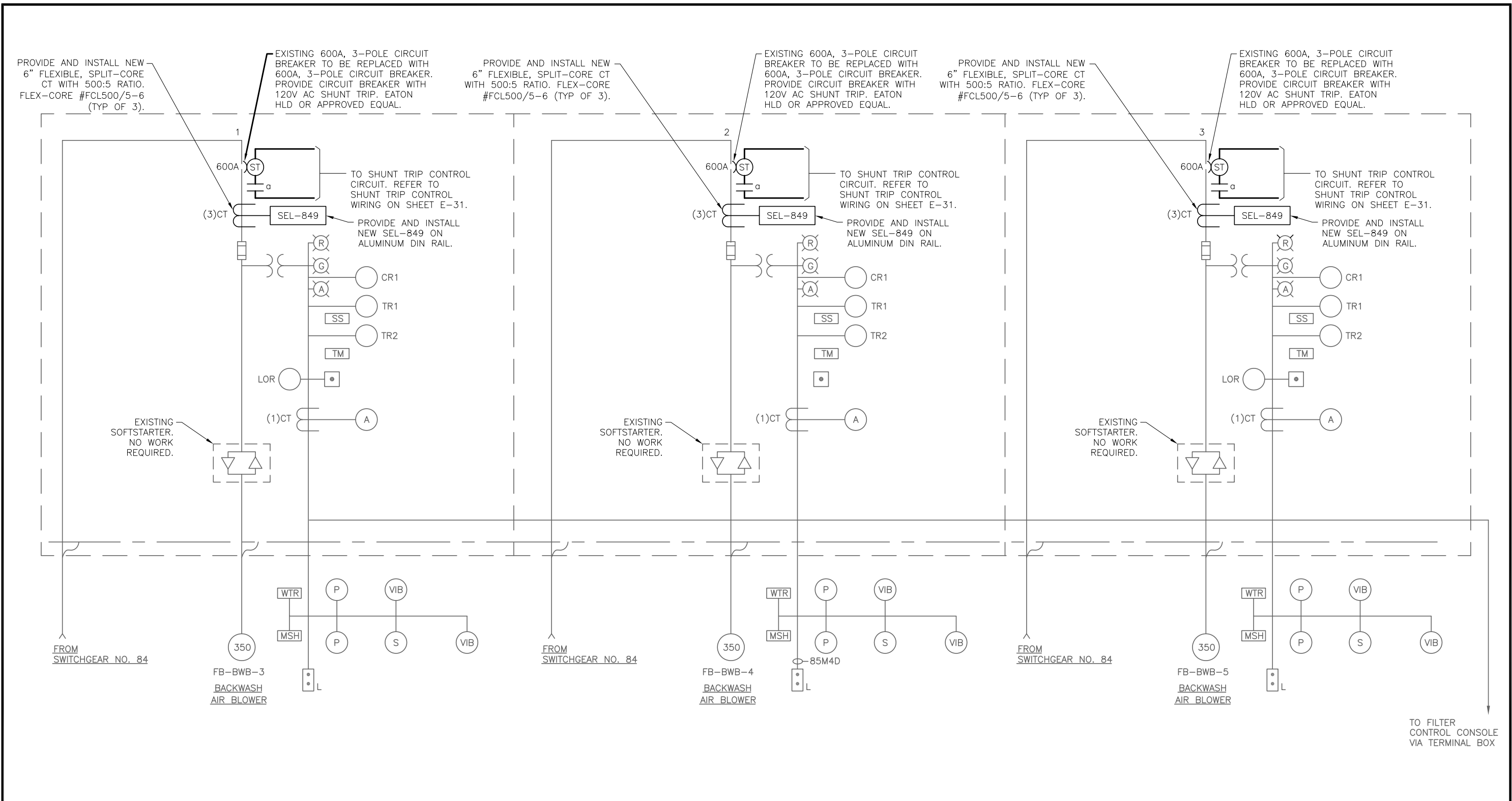
**KEYED NOTES:**

- |   |   |    |  |
|---|---|----|--|
| 1 | EXISTING MOTOR CONTROL CENTER : MCC-85.   | 7  | EXISTING SOFTSTARTER. NO WORK REQUIRED.  |
| 2 | EXISTING 600A, 3-POLE CIRCUIT BREAKER TO BE REPLACED WITH 600A, 3-POLE CIRCUIT BREAKER WITH 120V AC SHUNT TRIP. EATON HLD OR APPROVED EQUAL.  | 8  | PROVIDE AND INSTALL TERMINAL BLOCKS AS REQUIRED.   |
| 3 | EXISTING PILOT LIGHTS, PUSHBUTTONS, AMMETER, ELAPSED TIME METER, TO REMAIN. NO WORK REQUIRED.   | 9  | PROVIDE AND INSTALL SQUARE-D 9050 JCK SERIES DPDT TIME DELAY RELAY WITH 120V AC COIL.  |
| 4 | PROVIDE AND INSTALL PILOT LIGHT FOR SINGLE PHASE, ARC FLASH, ARC FLASH PROTECTION OFF AND SEL CONTROL POWER ON INDICATION. LED TYPE WITH RED COLOR CAP (ALARMS) WHITE COLOR CAP FOR CONTROL POWER ON. PUSH-TO-TEST TYPE. ALLEN BRADLEY 800H-QRTH2R AND 800H-QRTH2W RESPECTIVELY.  | 10 | PROVIDE AND INSTALL AB 700HF32A1-3-4 RELAYS WITH 120V AC COILS, PUSH-TO-TEST MANUAL OVERRIDE AND LED OPTION. PROVIDE RELAY BASE AND HOLD DOWN SPRINGS FOR EACH RELAY PROVIDED. |
| 5 | PROVIDE AND INSTALL LAMACOID NAMEPLATE (TYPICAL). LETTERING SHALL BE 1/2" MINIMUM. SECURE NAMEPLATE WITH STAINLESS STEEL SCREWS. NAMEPLATES TO STATE "SEL CONTROL POWER FED FROM PANELBOARD LP-85 CIRCUIT 25 OPENING MOTOR CIRCUIT BREAKER DOES NOT DEENERGIZE SEL CONTROL POWER", "SEL CONTROL POWER ON", "SINGLE PHASE DETECTED", "ARC FLASH DETECTED", "RVSS ARC FLASH PROTECTION BYPASS/ON" AND "ARC FLASH PROTECTION OFF". | 11 | PROVIDE AND INSTALL NEW 6" FLEXIBLE, SPLIT-CORE CT WITH 500:5 RATIO. FLEX-CORE #FCL500/5-6 (TYP OF 3).   |
| 6 | EXISTING CONTROL POWER TRANSFORMER, TERMINAL BLOCKS, TIMING RELAY, CONTROL RELAY, FUSES, ETC. TO REMAIN. NO WORK REQUIRED.  | 12 | PROVIDE AND INSTALL NEW SCHWEITZER ENGINEERING LABORATORIES MOTOR MANAGEMENT RELAY, TYPE SEL-849.  |
|   |   | 13 | PROVIDE AND INSTALL ALUMINUM DIN RAIL.   |
|   |   | 14 | EXISTING PARALLEL RUNS OF 3-313.3 KCML DLO CU + 1-#1/0 THWN CU GND TO SOFTSTARTER. NO WORK REQUIRED.   |
|   |   | 15 | PROVIDE AND INSTALL 2-POSITION, MAINTAINED, ARC FLASH PROTECTION BYPASS/ON SELECTOR SWITCH. SQUARE-D CLASS 9001, KS43FB WITH CONTACTS AS REQUIRED.                             |
|   |   | 16 | PROVIDE AND INSTALL 120V AC FLASHER. SSAC #FS126. PROVIDE APPROPRIATELY SIZED LOAD RESISTOR IF REQUIRED.   |

**GENERAL NOTES:**

- ALL EXISTING INSTALLATIONS DENOTED ARE FOR THE CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO ORDERING MATERIALS OR COMMENCING CONSTRUCTION.
- COORDINATE THE REMOVAL OF ALL EXISTING EQUIPMENT, THE INSTALLATION OF ALL NEW EQUIPMENT AND ALL SYSTEM DOWNTIME WITH THE CITY OF TAMPA.
- CONTRACTOR SHALL FIELD VERIFY THE EXISTING MOTOR CIRCUIT PROTECTIVE DEVICE'S TYPE, PHYSICAL SIZE, SETTINGS AND MANUFACTURER PRIOR TO ORDERING NEW PROTECTIVE DEVICE OR COMMENCING CONSTRUCTION.
- NEW 120V POWER CONDUIT/CONDUCTORS FOR SEL-849 RELAYS AND SHUNT TRIPS ARE SHOWN DIAGRAMMATICALLY. FIELD ROUTE NEW CONDUIT AND CONDUCTORS BASED ON EXISTING CONDITIONS.

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MCC-85 ONE-LINE DIAGRAM



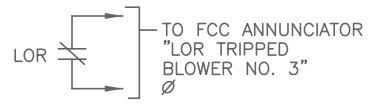
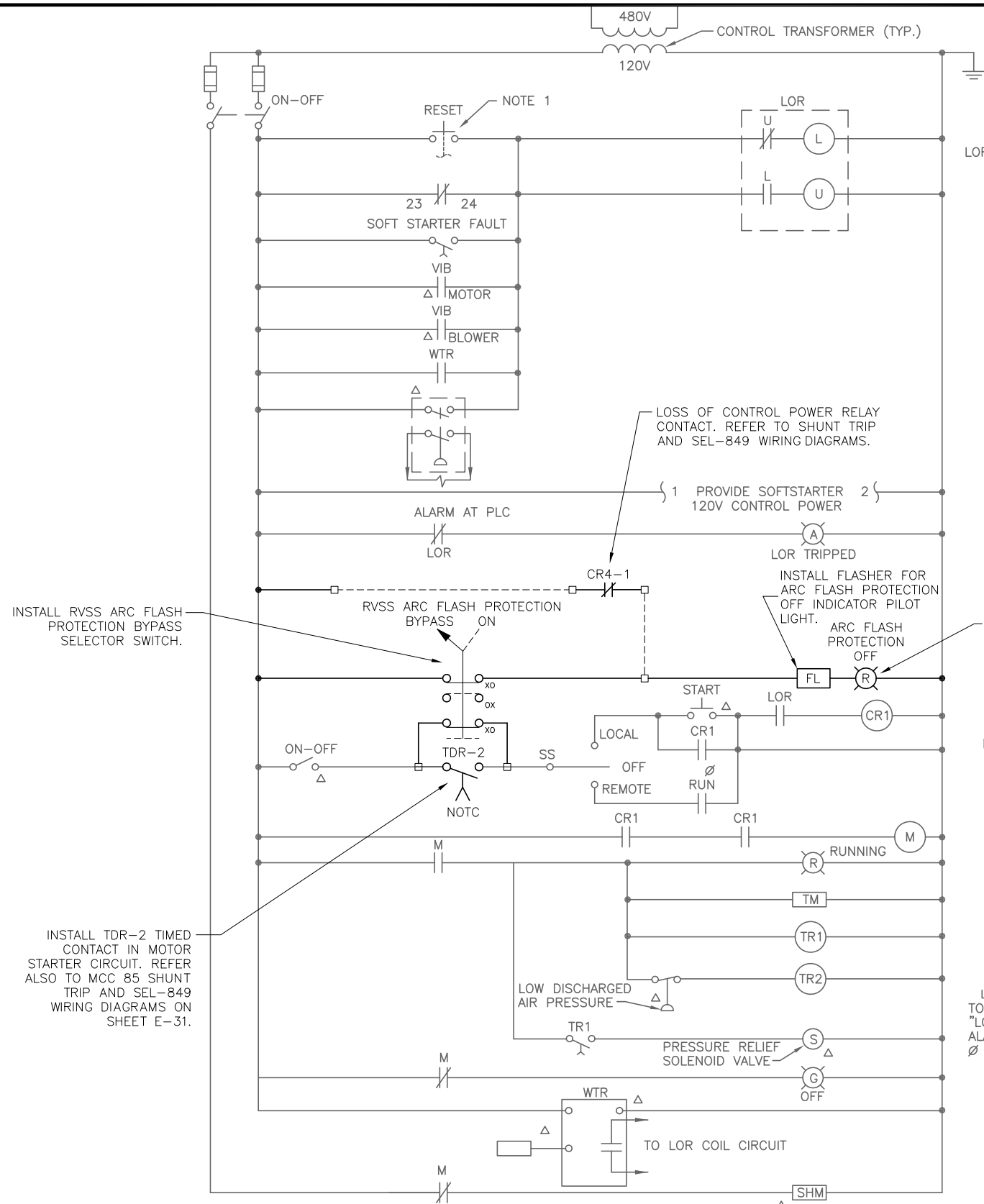
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DATE	05/2017	No.	DATE	BY	APP	REVISION	DESCRIPTION		

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City of Tampa Wastewater Department  
HOWARD F. CURREN AWTP  
LARGE MOTOR SOFTSTART MODIFICATIONS

FILTER BUILDING NO. 2  
MCC-85  
ONE-LINE DIAGRAM

SHEET NUMBER	E-29
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842

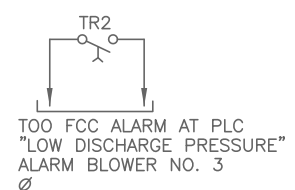


PROVIDE AND INSTALL NEW CT'S FOR NEW SEL-849 (TYP OF 3).

PROVIDE AND INSTALL NEW SEL-849 ON ALUMINUM DIN RAIL.

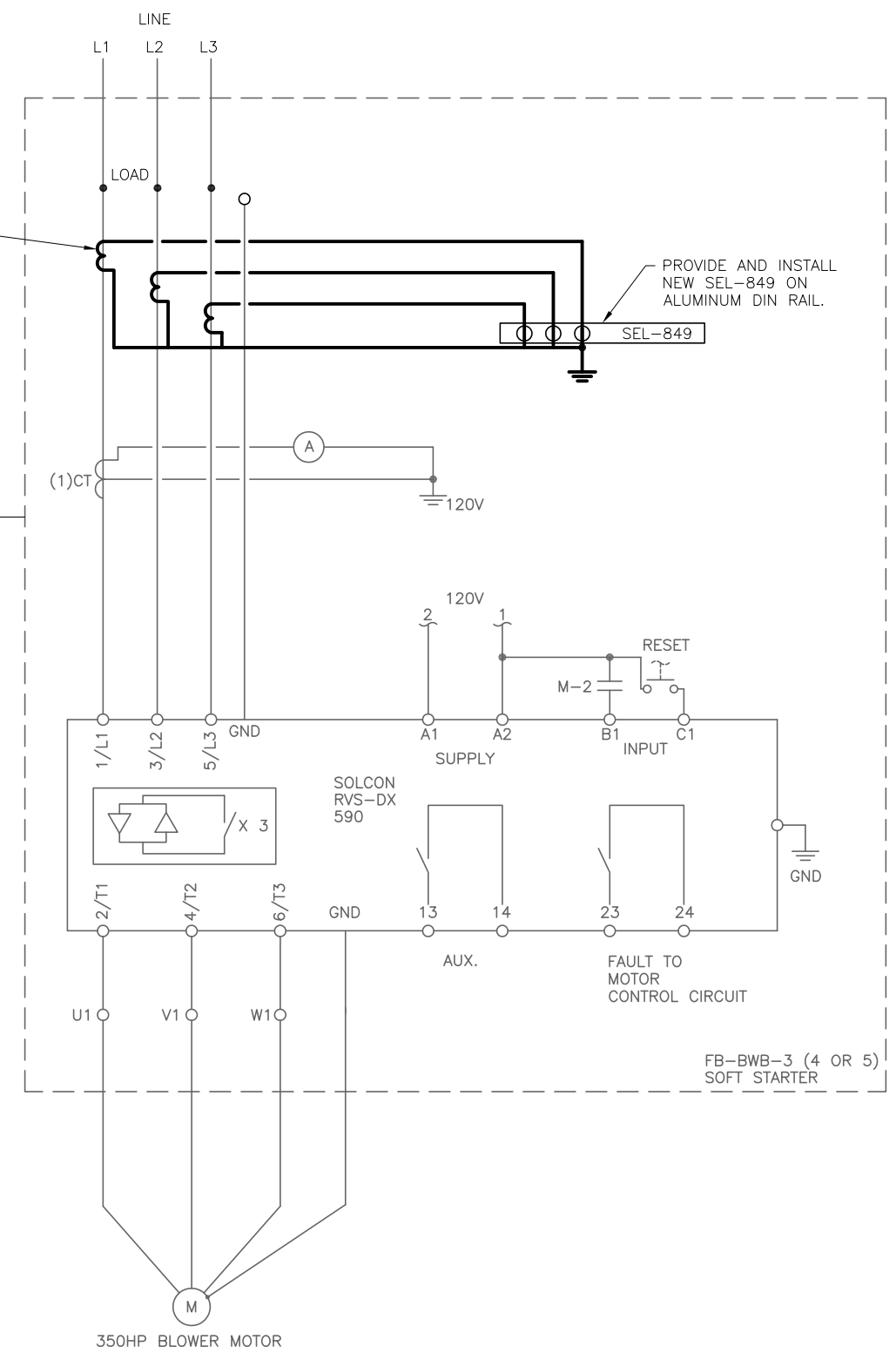
IN MCC-85

INSTALL ARC FLASH PROTECTION OFF INDICATOR PILOT LIGHT.



INSTALL RVSS ARC FLASH PROTECTION BYPASS SELECTOR SWITCH.

INSTALL TDR-2 TIMED CONTACT IN MOTOR STARTER CIRCUIT. REFER ALSO TO MCC 85 SHUNT TRIP AND SEL-849 WIRING DIAGRAMS ON SHEET E-31.



TYPICAL MOTOR WIRING

**BACKWASH AIR BLOWER FB-BWB-3**

SIMILAR FOR FB-BWB-4 AND FB-BWB-5



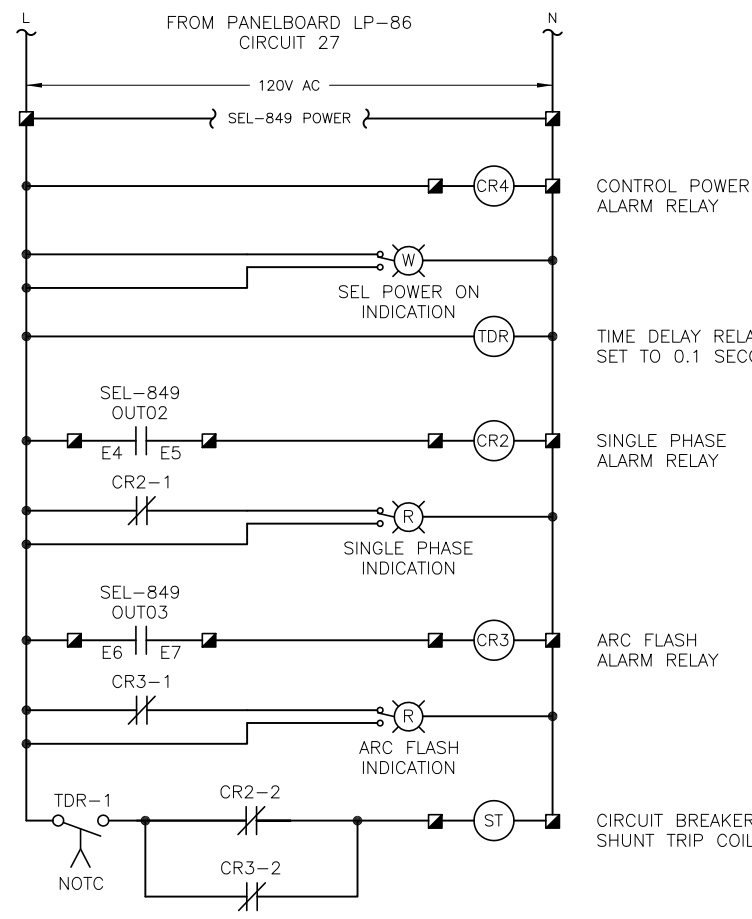
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City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
LARGE MOTOR SOFTSTART MODIFICATIONS

**FILTER BUILDING NO. 2**  
FB-BWB-3, 4 & 5  
CONTROL SCHEMATICS

SHEET NUMBER	E-30
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842

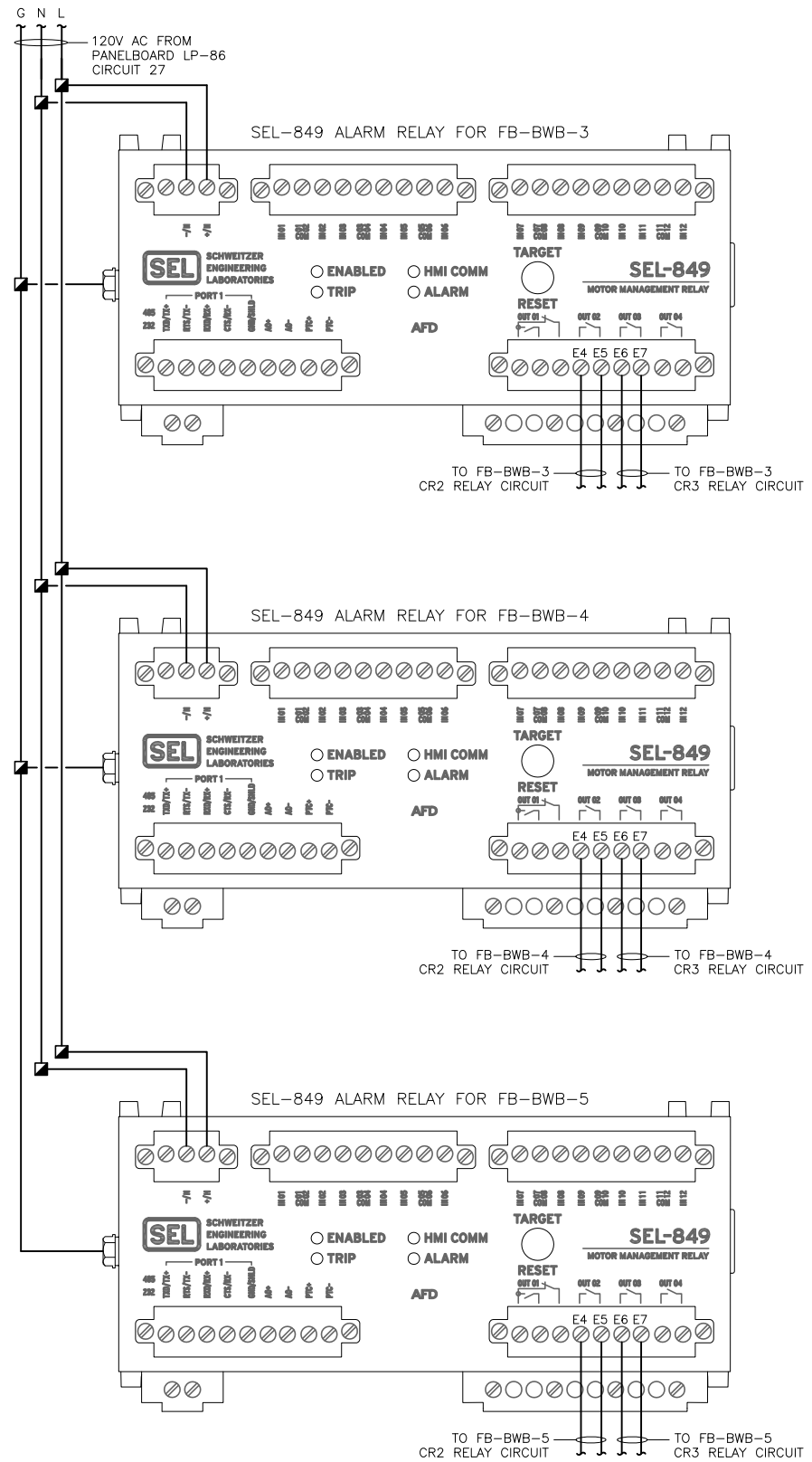


TO MOTOR START CIRCUIT.  
REFER TO FILTER BUILDING NO. 2  
FB-BWB-3, 4 & 5  
CONTROL SCHEMATICS  
ON SHEET E-30.

TO MOTOR START CIRCUIT.  
REFER TO FILTER BUILDING NO. 2  
FB-BWB-3, 4 & 5  
CONTROL SCHEMATICS  
ON SHEET E-30.

### FB-BWB-3 SHUNT TRIP CONTROL WIRING DIAGRAM

TYPICAL FOR FB-BWB-4 AND FB-BWB-5



### MCC-85 SEL-849 WIRING DIAGRAM



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LARGE MOTOR SOFTSTART MODIFICATIONS

FILTER BUILDING NO. 2  
MCC 85 SHUNT TRIP AND  
SEL-849 WIRING DIAGRAMS

SHEET NUMBER	E-31
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171501842