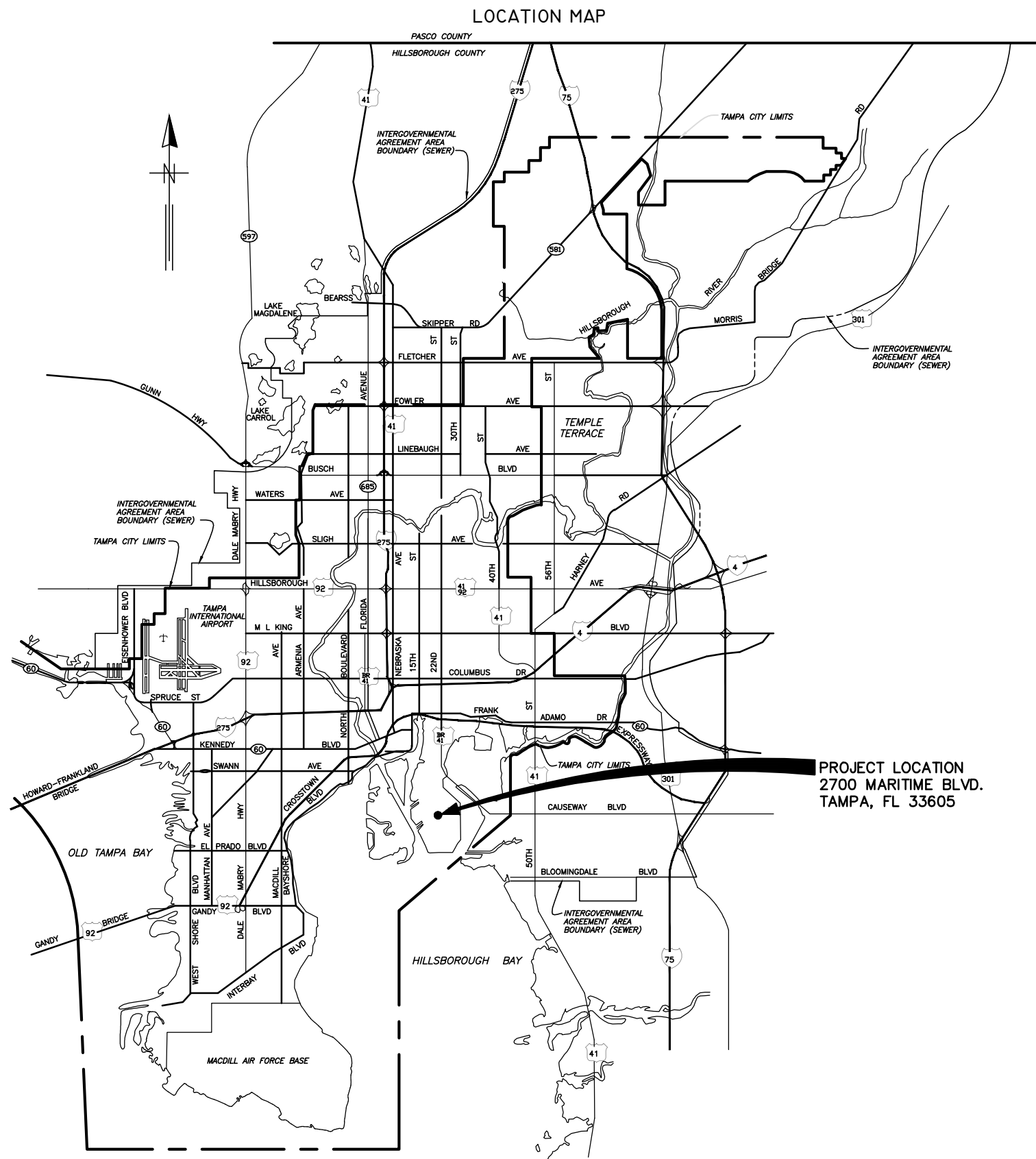


The Enclosed Document Is Provided For Your Convenience.

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



CITY of TAMPA



WASTEWATER DEPARTMENT

PLANS FOR

DIGESTION CONTROL BUILDING "A"
MCC REPLACEMENT
CONTRACT NUMBER 15-C-00042
JANUARY 13, 2016

PROJECT LOCATION
2700 MARITIME BLVD.
TAMPA, FL 33605

ENGINEER OF RECORD:
BOB E. HALLMAN, P.E.
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CITY of TAMPA
WASTEWATER DEPARTMENT

DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

COVER SHEET

NO.	DATE	REVISIONS

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DESIGN: STK
QC: BEH
DATE: 01/13/16

COVER

Certificate of Authorization Number: 4795

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CITY of TAMPA
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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

DRAWING INDEX

NO.	DATE	REVISIONS

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INDEX

SCOPE OF WORK NARRATIVE


The work in this section consists of furnishing all labor, materials, equipment, transportation, and performing all operations required to support the installation and commissioning of the Digestion Control Building "A" MCC Replacement. The work includes, but is not limited to, the following:

1. Submit working drawings, parts schedules and cut-sheets to the Engineer.
2. Furnish and install all equipment, controls and instrumentation as shown on the Plans and described in the Specifications.

Specifically:

- a) The Contractor shall coordinate with plant operations any necessary shutdowns and the transferring of loads during the replacement of MCC-62 and the associated controls.
- b) Provide and install a temporary MCC, as shown in the drawings and described in the specifications.
- c) Install temporary feeders to the temporary MCC and existing MCC-62, as shown in the drawings and as specified.
- d) Disconnect the existing feeders and controls connected to existing MCC-62 and reconnect these existing feeders and controls to the temporary MCC, utilizing temporary cabling, as shown in the drawings and as specified.
- e) After all of the feeders and controls have been removed from existing MCC-62 and connected to the temporary MCC, remove the existing MCC-62 and dispose of it properly.
- f) Remove the existing control panel and wiring from the electrical room. Care should be taken so as to not damage the MicroMod Automation Single Loop Controllers, Model No. 53SL6000, mounted in the existing control cabinet. These controllers will be installed in the new control panel.
- g) Provide and install a new control cabinet, as shown in the drawings and as specified.
- h) Provide and install a new MCC-62, as shown in the drawings and as specified.
- i) Reconnect the existing feeders and controls to the new MCC-62, utilizing the existing wiring and conduit, as shown in the drawings and as specified. Additional conduit and wiring may be necessary to extend the feeders and control wiring to the new MCC-62 and to provide the proper connections.

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SOW-1

SCOPE OF WORK NARRATIVE - (CONTINUED)

- j) After all of the feeders and controls have been removed from the temporary MCC and connected to the new MCC-62, the temporary MCC, temporary cabling and associated connectors and supporting hardware shall be removed and disposed of properly.
- k) Install conduit and wiring from the new control panel and the new MCC-62 to the existing RTU/PLC in the electrical room, as shown in the drawings and as specified. Coordinate the RTU/PLC connections with the City. All PLC programming and HMI programming will be performed by the City.
- l) Install a new gas detector, as shown in the drawings and as specified.
- m) Install a new magnetic flow meter, as shown in the drawings and as specified.
- n) Remove the conduit and wiring associated with the two (2) fuel gas compressors. A third fuel gas compressor was previously removed. Remove the conduit and wiring that was associated with the third fuel gas compressor.
- o) Any salvageable materials, as determined by the engineer, shall be delivered, by the Contractor, to a location designated in the Howard F. Curren AWT Plant. The Contractor shall properly dispose of all other removed equipment.
- p) 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) 2014 Edition and Chapter 5 of the City of Tampa Code.

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SOW-2

LEGEND

SYMBOL	DESCRIPTION
	HEAVY DUTY SAFETY SWITCH
	TRANSFORMER
	FLUORESCENT OR LED FIXTURE – CEILING MTD.
	INCAND., HID OR LED FIXTURE – CEILING MTD.
	INCAND., FLUORESCENT OR LED FIXTURE – STANCHION MTD.
	INCAND., HID OR LED FIXTURE – WALL MTD.
	EMERGENCY EXIT LIGHT
	EMERGENCY LIGHT
	20A, 125V, 3–WIRE DUPLEX RECEPT. CTR. @ 18" AFF.
	20A, 125V, 3–WIRE GROUNDING DUPLEX RECEPT. CTR. @ 50" AFF.
	20A, 125V, 3–WIRE DUPLEX RECEPT. FED FROM DEDICATED CIRCUIT.
	BRANCH CIRCUIT PANELBOARD
	120V, 1Ø CIRCUIT HOMERUN TO 1–POLE BRKR.
	SLASH MARKS DENOTE NO. OF WIRES; LONG – NEUTRAL, X – GROUND.
	240V OR 480V, 1Ø CIRCUIT HOMERUN TO 2–POLE BRKR.
	208V OR 480V, 3Ø CIRCUIT HOMERUN TO 3–POLE BRKR.
	MOTOR, 75 HP
	LIMIT SWITCH – NORMALLY OPEN
	MOTOR OPERATED VALVE
	MOTOR SPACE HEATER
	RESISTANCE TEMPERATURE DETECTOR
	VIBRATION SENSOR

SYMBOL	DESCRIPTION
	DOWN CONDUCTOR TO GROUND ROD
	CIRCUIT BREAKER, 600 AMPERE FRAME, 600 AMPERE TRIP
	OUTPUT REACTOR
	SOLID STATE TRIP UNIT w/ FUNCTIONS NOTED, 50 INSTANTANEOUS TRIP, 51 TIME DELAY TRIP, 51 GROUND FAULT TRIP
	CUSTOMER METERING
	LIMIT SWITCH – NORMALLY CLOSED
	LEVEL SWITCH
	LIQUID LEVEL SWITCH – NORMALLY OPEN
	LIQUID LEVEL SWITCH – NORMALLY CLOSED
	PRESSURE SWITCH – NORMALLY OPEN
	PRESSURE SWITCH – NORMALLY CLOSED
	JUNCTION BOX, PULL BOX – SIZED PER NEC
	CONDUIT – DOWN
	CONDUIT – UP
	SELECTOR SWITCH – NORMALLY OPEN
	MOTOR STARTER COIL, x DESIGNATES MOTOR ID. NO.
	RELAY COIL, x DESIGNATES ID. NO.
	RELAY CONTACT – NORMALLY OPEN, xx DESIGNATES RELAY ID. NO. & y DESIGNATES CONTACT NO.
	RELAY CONTACT – NORMALLY CLOSED, xx DESIGNATES RELAY ID. NO. & y DESIGNATES CONTACT NO.
	MOTOR OVERLOAD RELAY – x DESIGNATES MOTOR I.D. NO.
	SOLENOID VALVE
	FUSE
	KEYED NOTE
	LED PILOT LIGHT, x INDICATES COLOR, G=GREEN, R=RED, B=BLUE, A=AMBER
	TEC METER, RATING AS INDICATED ON DRAWINGS. CENTER METER 4'–6" ABOVE TOP OF PLATFORM.

SYMBOL	DESCRIPTION
	SURGE PROTECTIVE DEVICE
	PHASE MONITOR
	PUSH BUTTON
	KIRK KEY INTERLOCK
	CONDUIT BUBBLE – REFERENCE CONDUIT SCHEDULE

ABBREVIATIONS

∅	PHASE	NC	NORMALLY CLOSED
A	AMPERES	NO	NORMALLY OPEN
AF	AMPERE FRAME	PB	PUSH BUTTON
AFD	ADJUSTABLE FREQUENCY DRIVE	PSV	PUMP SUCTION VALVE
AFF	ABOVE FINISHED FLOOR	PT	PRESSURE TRANSMITTER
AT	AMPERE TRIP	PWR	POWER
ATS	AUTOMATIC TRANSFER SWITCH	RCBP	REMOTE CIRCUIT BREAKER PANEL
C	CONDUIT	RECEPT	RECEPTACLE
CAT	CATALOG	RTD	RESISTANCE TEMPERATURE DETECTOR
CLG	CEILING	SPD	SURGE PROTECTIVE DEVICE
CKT	CIRCUIT	SW	SWITCH
CTR	CENTER	SWBD	SWITCHBOARD
DISC	DISCONNECT	TC	TRAY CABLE
DT	DOUBLE THROW	TEC	TAMPA ELECTRIC COMPANY
DV	PUMP DISCHARGE VALVE	THRU	THROUGH
DWG	DRAWING	TR	TRIP
ELEC	ELECTRICAL, ELECTRIC	TT	TEMPERATURE TRANSMITTER
E.O.	ELECTRICALLY OPERATED	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
ESD	EMERGENCY SHUTDOWN	TYP	TYPICAL
EXH	EXHAUST	UON	UNLESS OTHERWISE NOTED
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	V	VOLT
HP	HORSEPOWER	VIB	VIBRATION
JB, JBOX	JUNCTION BOX	W	WIRE
KW	KILOWATTS	w/	WITH
KVA	KILOVOLT–AMPERE	XFMR	TRANSFORMER
LPX	LIGHTING PANEL X	XFR	TRANSFER
MIN.	MINIMUM	XMTR	TRANSMITTER
MCC	MOTOR CONTROL CENTER		
MLO	MAIN LUGS ONLY		
MNTD	MOUNTED		
MOV	MOTOR OPERATED VALVE		
MSH	MOTOR SPACE HEATER		

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ELECTRICAL LEGEND & ABBREVIATIONS

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SHEET E-1

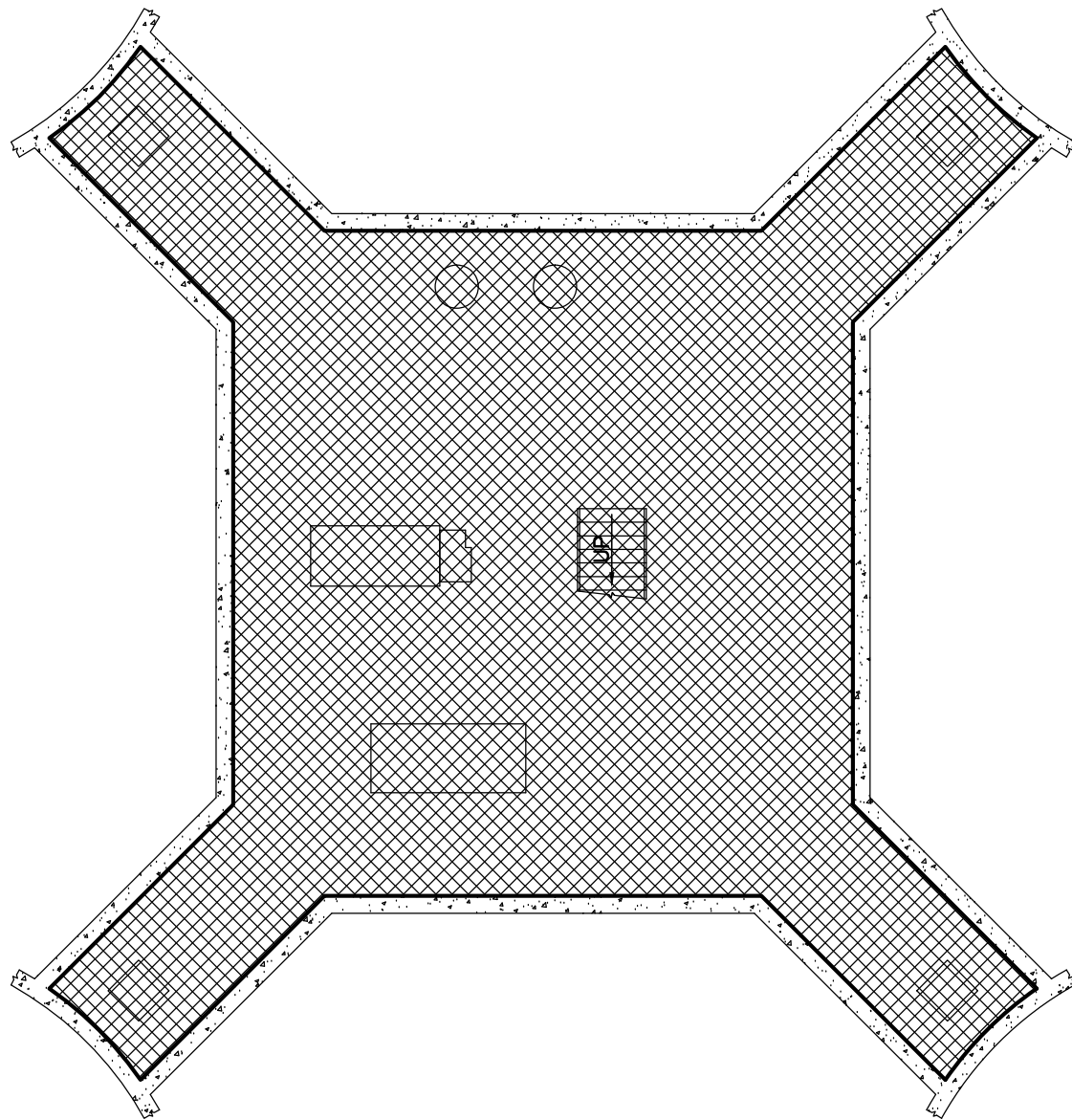
Certificate of Authorization Number: 4795

GENERAL NOTES:

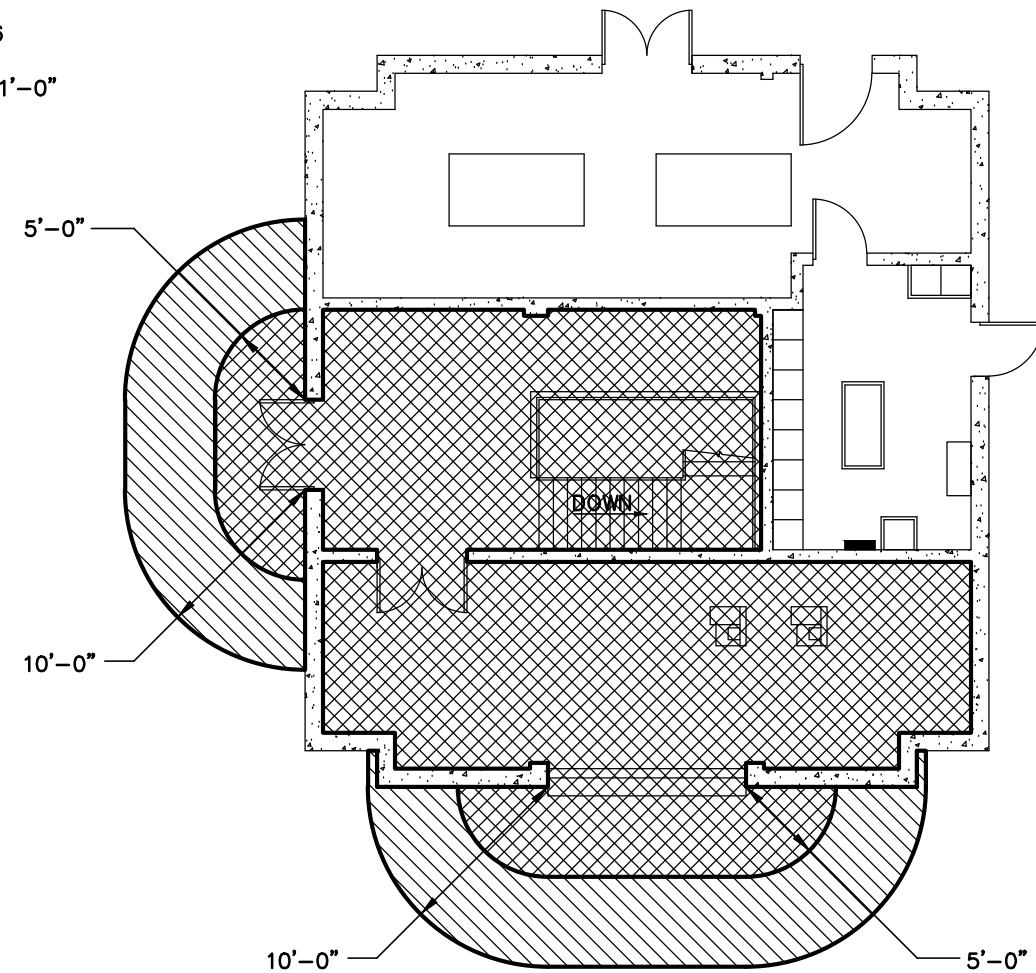
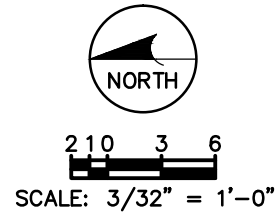
1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL AND SHALL RECEIVE SAID APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
2. ALL SHOP DRAWINGS SUBMITTED TO ENGINEER FOR APPROVAL SHALL BE ORIGINAL COPIES. COPIES OF SHOP DRAWINGS OR DATA SHEETS TRANSMITTED BY FACSIMILE (FAX) WILL NOT BE REVIEWED.
3. SHIELD AND DRAIN WIRE FOR EACH ANALOG SIGNAL (4-20 mA) CABLE SHALL BE GROUNDED AT ONE END ONLY. THE GROUND SHALL BE AT THE PLC OR THE TRANSMITTER ONLY, NOT AT THE FIELD DEVICE. THE SHIELD AND DRAIN WIRE AT EACH FIELD DEVICE SHALL BE NEATLY TRIMMED & TAPED w/ (2) LAYERS OF VINYL ELECTRICAL TAPE (SCOTCH 33+).
4. ALL CONDUCTORS SHALL BE STRANDED COPPER, #12 AWG MIN. w/ THHN INSULATION, UNLESS OTHERWISE NOTED.
5. ALL WIRING SHALL BE IDENTIFIED w/ NUMBERS AT ALL TERMINALS AND ON WIRING DIAGRAMS. MARKERS SHALL BE THOMAS & BETTS INSTA-CODE CLIP-ON MARKERS OR APPROVED EQUAL.
6. ALL CIRCUITS SHALL HAVE GROUNDING CONDUCTORS ROUTED INSIDE THE CONDUIT w/ POWER CONDUCTORS.
7. ALL POWER CONDUCTORS AND MOTOR WINDINGS SHALL BE TESTED WITH A 600 VOLT INSULATION RESISTANCE TESTER "MEGGER". INSULATION READINGS SHALL BE A MINIMUM OF 20 MEGOHMS TO GROUND. INSULATION READINGS THAT ARE LESS THAN 20 MEGOHMS SHALL REQUIRE THE REPLACEMENT OF THE CONDUCTOR OR MOTOR AS APPLICABLE.
8. NEATLY COIL & TAPE SPARE CONDUCTORS w/ VINYL ELECTRICAL TAPE (SCOTCH 33+) U.O.N.
9. ALL CONDUCTOR LENGTHS SHALL BE CONTINUOUS. NO SPLICES OR CONDUCTOR TERMINATIONS SHALL BE PERMITTED UNLESS SPECIFICALLY DESIGNATED IN THE DRAWINGS.
10. LIQUIDTIGHT FLEXIBLE NON-METALLIC CONDUIT CONNECTIONS TO EACH MOTOR SHALL NOT EXCEED A LENGTH OF 36".
11. ALL THREADED CONNECTIONS SHALL BE COATED w/ COPPER SHIELD ANTI-SEIZE COMPOUND MANUFACTURED BY THOMAS & BETTS (T & B).
12. ALL UNDERGROUND CONDUITS SHALL BE BURIED w/ A MINIMUM OF 24" COVER UNLESS OTHERWISE NOTED.
13. CONDUIT ROUTING SHOWN IS DIAGRAMMATIC UNLESS OTHERWISE NOTED. CONTRACTOR SHALL OPTIMIZE THE CONDUIT ROUTING, TAKING INTO ACCOUNT THE FIELD CONDITIONS AND THE FINAL EQUIPMENT SELECTED AND APPROVED IN THE SUBMITTALS.
14. PULL BOXES SHALL BE INSTALLED AS NECESSARY TO FACILITATE WIRE PULLS AND TO AVOID EXCESSIVE PULLING TENSION ON WIRING. IN NO CASE SHALL CONDUIT LENGTHS EXCEED 150' OR THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL) WITHOUT A PULL BOX.
15. PROVIDE PVC SLEEVES FOR ALL METALLIC CONDUIT PENETRATIONS THROUGH CONCRETE. WHERE ALUMINUM SURFACES SUCH AS BOXES, CONDUIT OR STRUCTURAL SUPPORTS COME IN CONTACT WITH INCOMPATIBLE METALS, LIME, MORTAR, CONCRETE OR OTHER MASONRY MATERIALS, THE CONTACT AREA SHALL BE GIVEN ONE FIELD COAT OF KOPPERS METAL PASSIVATOR NO. 40 AND ONE COAT OF KOPPERS BITUMASTIC SUPER SERVICE BLACK OR TWO COATS OF ASPHALT VARNISH.
16. ALL CONDUIT TRENCHES SHALL BE DUG BY HAND TO AVOID DAMAGING UNDERGROUND PIPING AND UTILITIES.
17. ALL UNDERGROUND CONDUITS SHALL BE ENCASED IN STEEL REINFORCED CONCRETE. CONCRETE ENCASEMENT SHALL BE IN ACCORDANCE w/ THE DUCT BANK DETAIL.
18. THE CONTRACTOR SHALL REPLACE ALL EXISTING PAVING, STABILIZED EARTH, CURBS, DRIVEWAYS, FENCES & OTHER IMPROVEMENTS WITH THE SAME TYPE OF MATERIAL THAT WAS REMOVED DURING CONSTRUCTION OR AS DIRECTED BY THE ENGINEER.
19. CONTRACTOR SHALL MAINTAIN A CLEAR PATH FOR ALL SURFACE WATER DRAINAGE STRUCTURES & DITCHES DURING ALL PHASES OF CONSTRUCTION.
20. ALL CONDUIT SHALL BE SUPPORTED AT MAXIMUM 5'-0" INTERVALS.
21. ALL FASTENING AND MOUNTING HARDWARE SHALL BE 316 SS. CAD PLATED HARDWARE WILL NOT BE ACCEPTED.
22. ALL UNISTRUT SHALL BE 1 5/8" x 1 5/8" x 12 GA. 316 STAINLESS STEEL.
23. CONTRACTOR SHALL FIELD VERIFY ALL MECHANICAL EQUIPMENT SIZES AND RATINGS PRIOR TO CONNECTING.
24. CONTRACTOR SHALL FIELD VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.
25. ALL PANELS, PANEL COMPONENTS, DISCONNECTS, SWITCHES & EQUIPMENT COVERPLATES SHALL BE LABELED w/ NAMEPLATES. NAMEPLATES SHALL BE THREE PLY PHENOLIC BLACK-WHITE-BLACK ENGRAVED THROUGH THE FIRST BLACK LAYER. LETTERING SHALL BE 0.5 CM (3/16") MIN. EDGES OF NAMEPLATES SHALL BE BEVELED 45°. THE NAMEPLATES SHALL BE SECURED TO EQUIPMENT WITH STAINLESS STEEL SCREWS OR RIVETS. THE USE OF GLUE IS NOT PERMITTED.
26. ALL INSTALLED COMPONENTS SHALL BE LISTED BY UNDERWRITERS LABORATORY (UL), OR SIMILAR NATIONALLY RECOGNIZED TESTING LABORATORY.
27. ALL EQUIPMENT SHALL BE INSTALLED AT AN ELEVATION ABOVE THE 100 YEAR FLOOD ELEVATION ESTABLISHED BY FEMA AND/OR LOCAL AUTHORITIES.
ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH CITY OF TAMPA CODE CHAPTER 5.
28. REFERENCE PLAN & SECTION DRAWINGS FOR EQUIPMENT LOCATIONS.
29. COORDINATE ALL INSTALLATIONS w/ ALL OTHER TRADES.
30. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WHEN CONFLICTS BETWEEN DRAWINGS & ACTUAL CONDITIONS ARE DISCOVERED.
31. ALL "AS BUILT" DRAWINGS PROVIDED BY THE CONTRACTOR SHALL BE SIGNED AND DATED WITH CHANGES CLEARLY NOTED IN RED. ADDITIONALLY, THE PRINTED NAME OF THE INDIVIDUAL SIGNING THE "AS BUILT" DRAWINGS ALONG WITH THAT PERSON'S COMPANY AFFILIATION SHALL BE INCLUDED. IF NO CHANGES WERE MADE DURING CONSTRUCTION, A NOTE DESIGNATING "NO CHANGES" SHALL BE INCLUDED ON THE "AS BUILT" DRAWINGS.
32. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID & PRIOR TO COMMENCING CONSTRUCTION.
33. PROVIDE A MINIMUM OF 3'-0" CLEARANCE IN FRONT OF ALL ELECTRICAL EQUIPMENT.
34. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE w/ THE 2014 EDITION OF THE NEC AND APPLICABLE LOCAL ORDINANCES.
35. ALL CONDUITS ROUTED IN CONCRETE SHALL BE INSTALLED WITH A SEPARATION BETWEEN CONDUITS OF NOT LESS THAN 3 DIAMETERS (CENTER-TO-CENTER).
36. ALL CONDUIT EXPOSED ABOVE GRADE SHALL BE RIGID HEAVY WALL ALUMINUM, UNLESS OTHERWISE NOTED. CONDUITS EXTENDING BELOW GRADE SHALL BE RIGID HEAVY WALL ALUMINUM CONDUIT THROUGH AND INCLUDING THE FIRST 90 DEGREE ELBOW (OR EQUIVALENT SET OF FITTINGS) INSTALLED BELOW GRADE. ALL PVC CONDUIT SHALL BE SCHEDULE 80. CONNECTIONS TO PVC CONDUIT SHALL BE MADE w/ A RIGID ALUMINUM TO PVC CONDUIT ADAPTER.
37. THE SUPPORT OF TEMPORARY CABLES SHALL BE IN THE FORM OF TY-RAPS, STRAPS OR SIMILAR TYPE OF SUPPORT TO SUPPORT OR CRADLE THE TEMPORARY CABLES DURING CONSTRUCTION.

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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">NO.</th> <th style="width: 15%;">DATE</th> <th style="width: 80%;">REVISIONS</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>			NO.	DATE	REVISIONS																
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**AREA CLASSIFICATION -
LOWER LEVEL PLAN**



**AREA CLASSIFICATION -
UPPER LEVEL PLAN**

NOTES:

1. CLASSIFIED AREAS NOTED ARE IN ACCORDANCE w/ NFPA 820 CHAPTER 2, 2016 EDITION.
2. THE EXTENT OF AREAS NOTED AS CLASSIFIED ARE SHOWN ONLY IN LOCATIONS ADJACENT TO OR OF NEW CONSTRUCTION OR ADDITIONS. AREAS NOT INVOLVED WITH THIS PROJECT ARE NOT DETAILED IN THIS DRAWING.
3. ALL INSTALLATIONS IN CLASSIFIED AREAS SHALL BE IN ACCORDANCE WITH:



- DENOTES CLASS I, GROUP D, DIVISION 1 CLASSIFIED AREA.



- DENOTES CLASS I, GROUP D, DIVISION 2 CLASSIFIED AREA.

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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

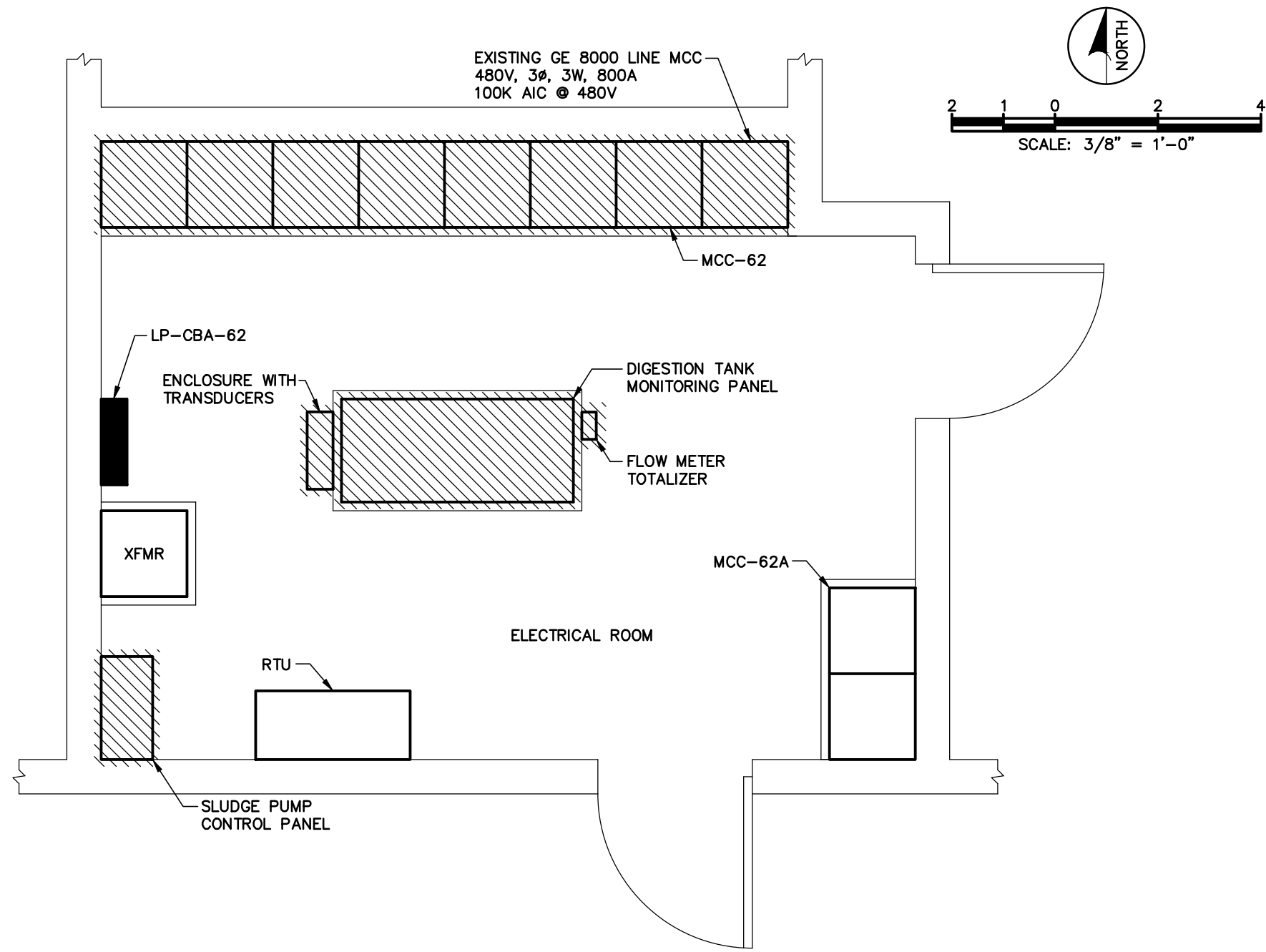
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SHEET E-3

Certificate of Authorization Number: 4795



**ELECTRICAL ROOM IN
DIGESTER "A" CONTROL BUILDING**

- NOTES:**
-  - DENOTES EXISTING EQUIPMENT TO BE REMOVED. ITEM SHALL BE REMOVED FROM PREMISES AND DISPOSED OF PROPERLY. UNLESS OTHERWISE NOTED, ALL ASSOCIATED CONDUIT & WIRING CONNECTED TO EQUIPMENT TO BE REMOVED, SHALL REMAIN FOR THE INSTALLATION OF THE NEW MCC AND CONTROLS.
 - 1. ALL EQUIPMENT, CONDUIT & WIRING INCLUDED ON THIS DRAWING ARE EXISTING. CONTRACTOR SHALL VISIT THE SITE & FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS BEFORE SUBMITTING A BID OR COMMENCING CONSTRUCTION.
 - 2. COORDINATE ALL DEMOLITION ACTIVITIES WITH OWNER AND ALL TRADES.
 - 3. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR CONTRACTORS REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
 - 4. TO FACILITATE THE REMOVAL OF MCC-62, CONDUITS EXTENDING OUTSIDE OF THE ELECTRICAL ROOM SHALL BE REMOVED BACK TO THE FIRST UNION IN THE CONDUIT.
 - 5. DEMOLITION OF MCC-62 SHALL NOT COMMENCE UNTIL CONNECTED LOADS AND CONTROLS HAVE BEEN CONNECTED TO THE TEMPORARY MCC.
 - 6. MAINTAIN EXISTING CONDUCTOR LENGTHS FOR ALL WIRING CONNECTED TO MCC-62. THESE CONDUCTORS SHALL BE UTILIZED IN THE NEW MCC-62 INSTALLATION.

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CITY of TAMPA
WASTEWATER DEPARTMENT

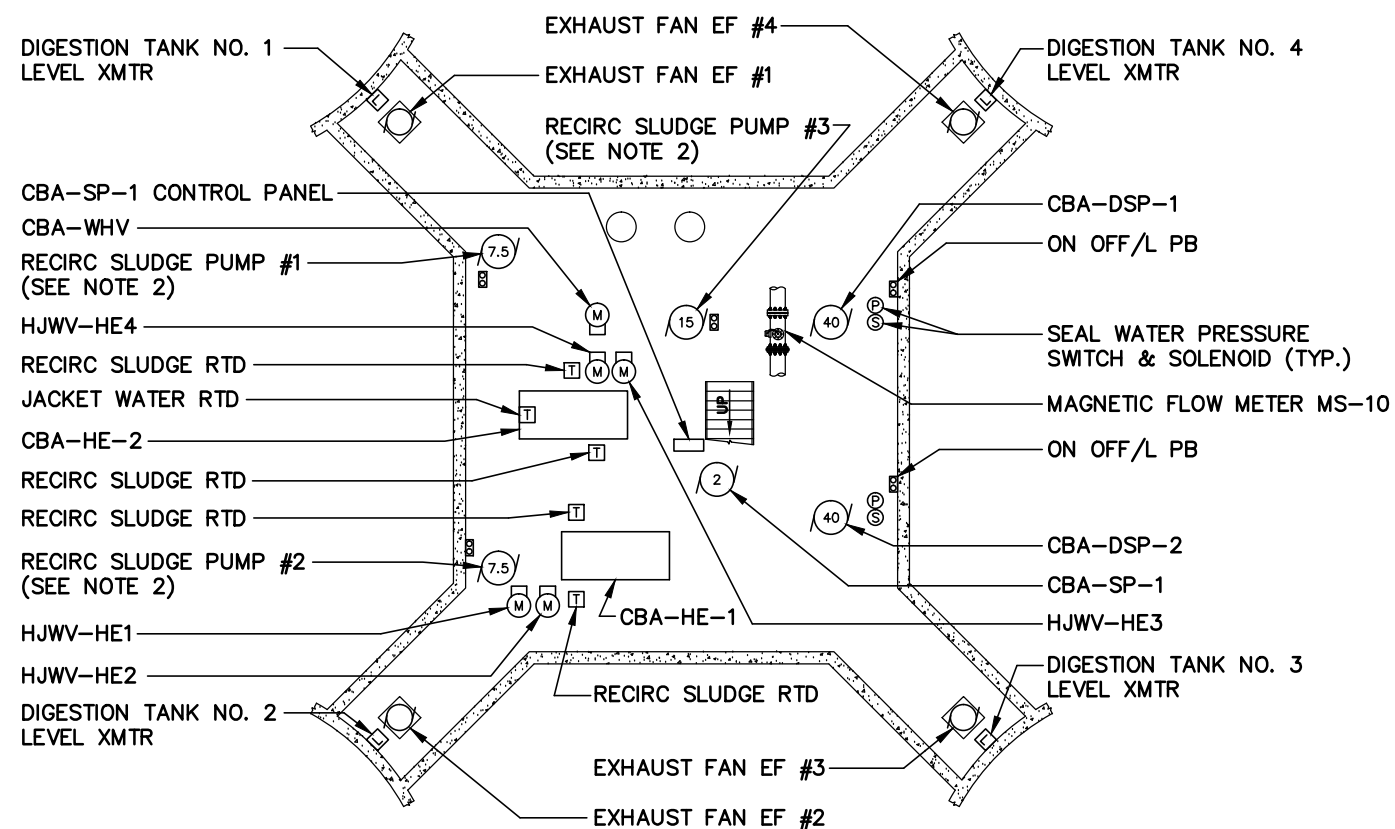
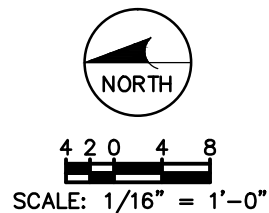
DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

**MCC-62 ELECTRICAL
DEMOLITION PLAN**

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET E-4



**BUILDING "A" LOWER LEVEL
ELECTRICAL EQUIPMENT LOCATIONS**

NOTES:

1. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR CONTRACTORS REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
2. EXISTING RECIRCULATION PUMPS CONNECTED TO EXISTING MCC-62A.

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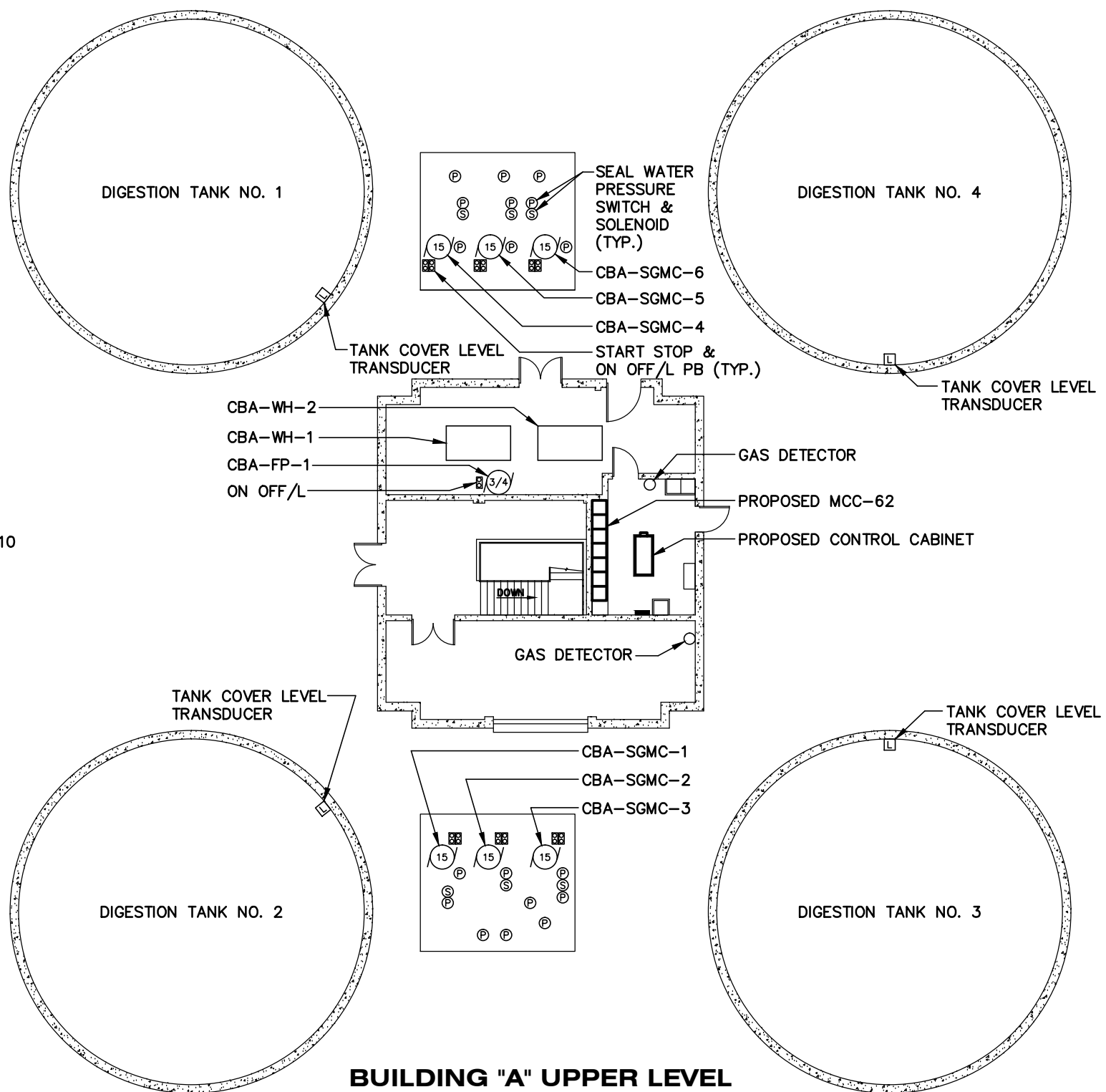


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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

**BUILDING "A"
LOWER LEVEL & UPPER LEVEL
ELECTRICAL EQUIPMENT LOCATIONS**



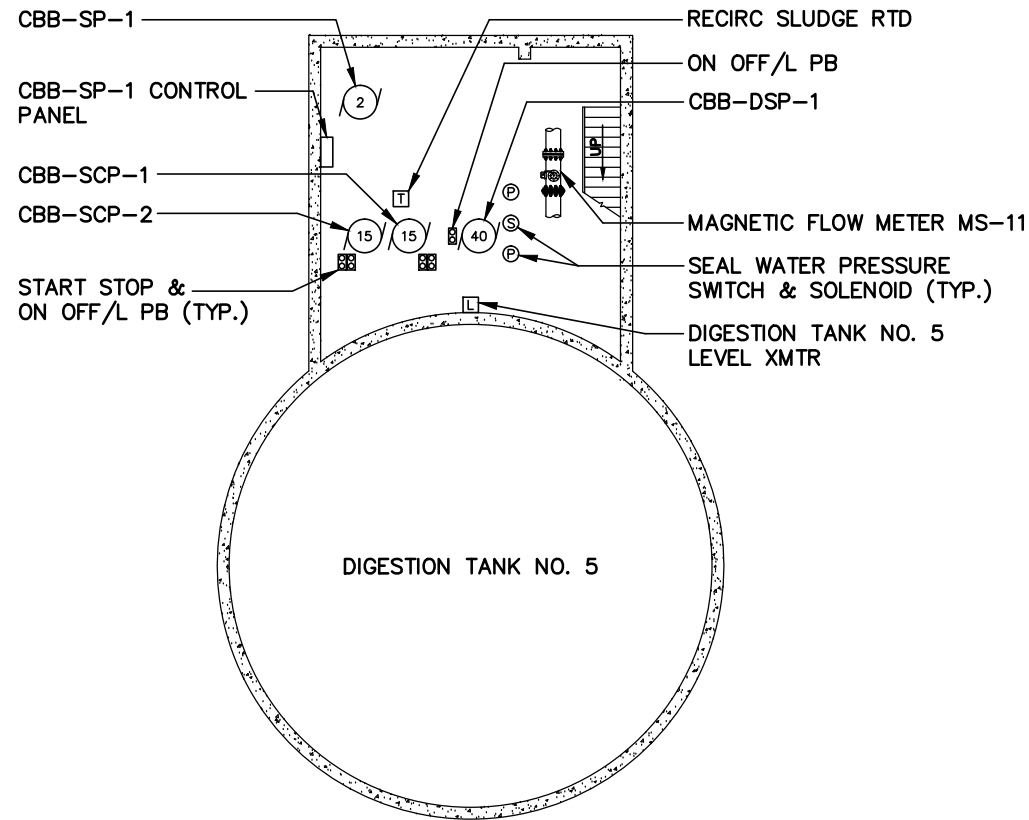
**BUILDING "A" UPPER LEVEL
ELECTRICAL EQUIPMENT LOCATIONS**

NO.	DATE	REVISIONS

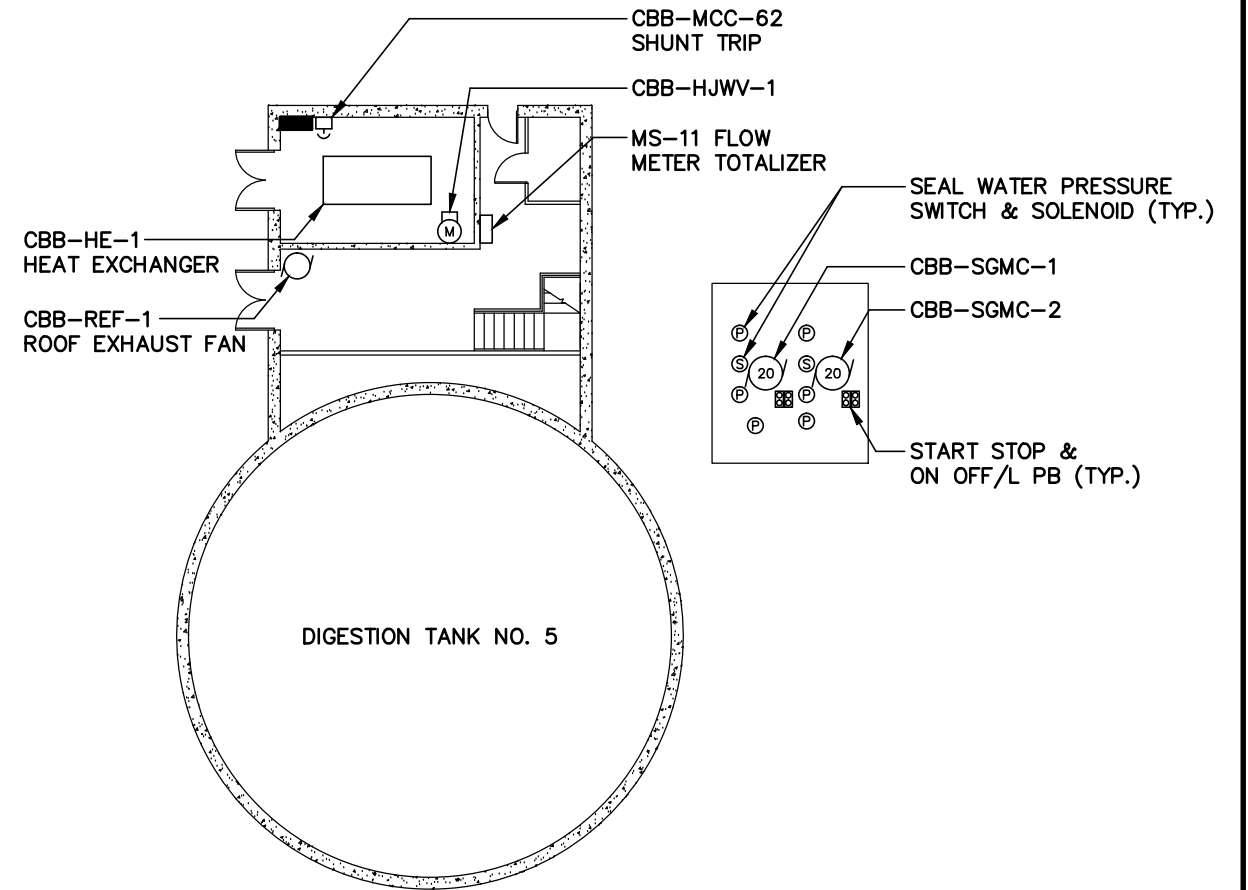
DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16
SHEET E-5



4 2 0 4 8
SCALE: 1/16" = 1'-0"



**BUILDING "B" LOWER LEVEL
ELECTRICAL EQUIPMENT LOCATIONS**



**BUILDING "B" UPPER LEVEL
ELECTRICAL EQUIPMENT LOCATIONS**

NOTES:

1. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR CONTRACTORS REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.

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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

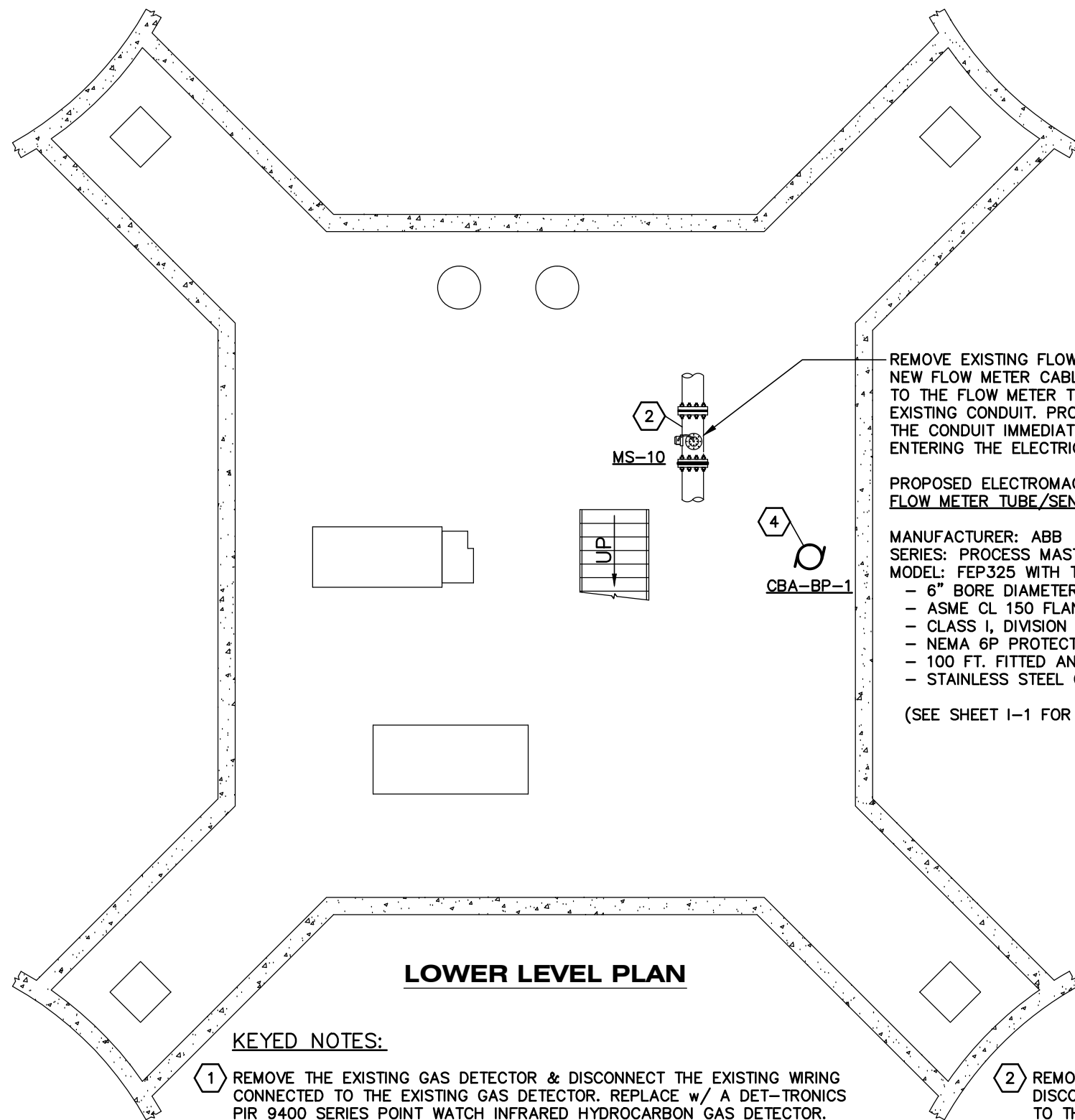
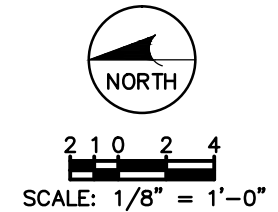
**BUILDING "B"
LOWER LEVEL & UPPER LEVEL
ELECTRICAL EQUIPMENT LOCATIONS**

NO.	DATE	REVISIONS

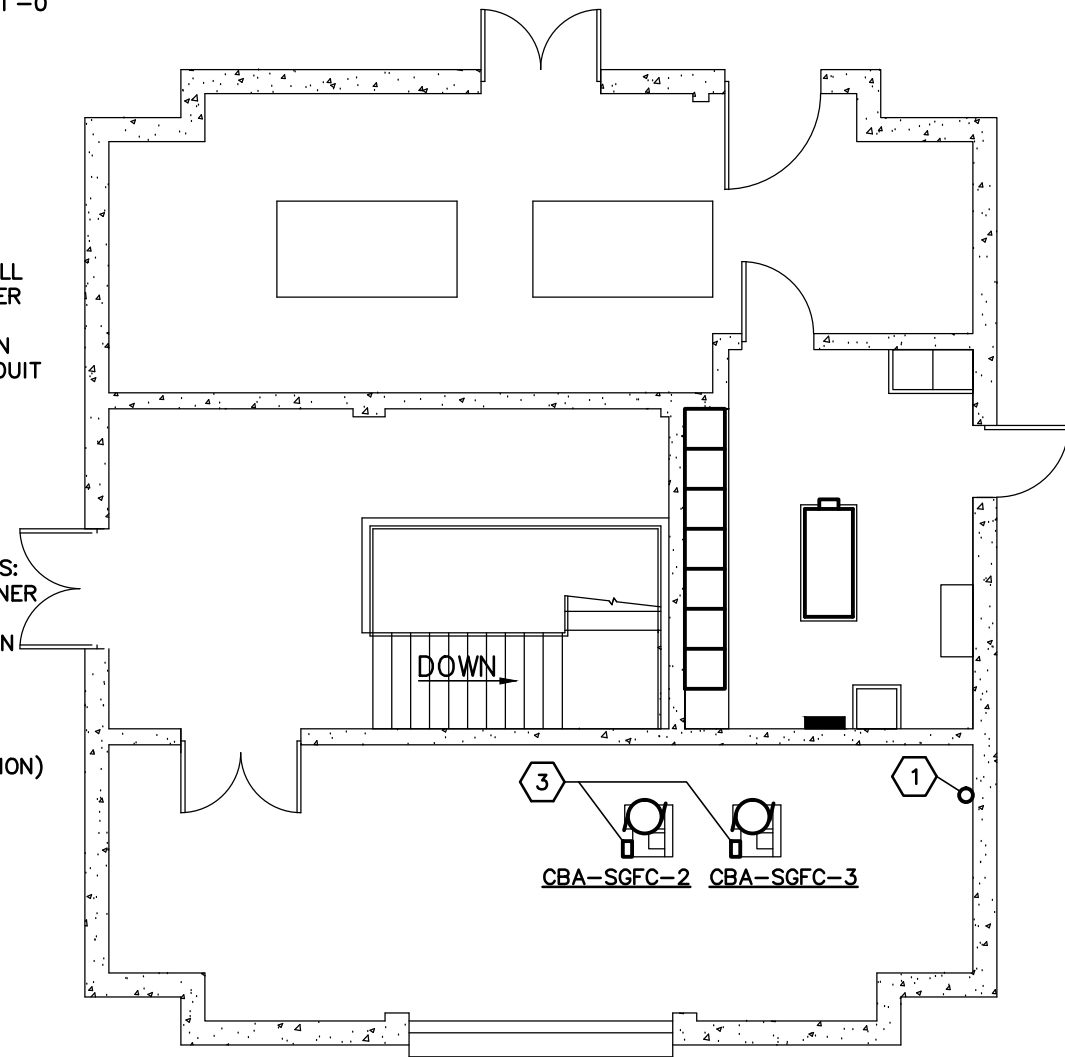
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DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET E-6

Certificate of Authorization Number: 4795



LOWER LEVEL PLAN



UPPER LEVEL PLAN

REMOVE EXISTING FLOW METER CABLE & INSTALL NEW FLOW METER CABLE FROM THE FLOW METER TO THE FLOW METER TOTALIZER, UTILIZING THE EXISTING CONDUIT. PROVIDE A CONDUIT SEAL IN THE CONDUIT IMMEDIATELY PRIOR TO THE CONDUIT ENTERING THE ELECTRICAL ROOM.

PROPOSED ELECTROMAGNETIC FLOW METER TUBE/SENSOR

- MANUFACTURER: ABB
 SERIES: PROCESS MASTER
 MODEL: FEP325 WITH THE FOLLOWING FEATURES:
- 6" BORE DIAMETER WITH HARD RUBBER LINER
 - ASME CL 150 FLANGES
 - CLASS I, DIVISION 1 EXPLOSION PROTECTION
 - NEMA 6P PROTECTION CLASS
 - 100 FT. FITTED AND POTTED CABLE
 - STAINLESS STEEL GROUNDING RINGS

(SEE SHEET I-1 FOR TRANSMITTER INFORMATION)

KEYED NOTES:

- 1 REMOVE THE EXISTING GAS DETECTOR & DISCONNECT THE EXISTING WIRING CONNECTED TO THE EXISTING GAS DETECTOR. REPLACE w/ A DET-TRONICS PIR 9400 SERIES POINT WATCH INFRARED HYDROCARBON GAS DETECTOR. DET-TRONICS MODEL PIR9400S3B1AW (GAS DETECTOR) & PIRTB-006414-017 SS (TERMINATION BOX). THE DET-TRONICS SUPPLIED TERMINATION BOX SHALL INCLUDE TERMINALS & CALIBRATION SWITCHES. CONTRACTOR SHALL UTILIZE THE EXISTING WIRING FOR CONNECTIONS. PROVIDE CONNECTIONS TO NEW GAS DETECTOR & CALIBRATE IN ACCORDANCE w/ MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL SET UNIT DIAL TO "0", FOR METHANE GAS DETECTION & CALIBRATE UNIT w/ A 50% LEL CALIBRATION GAS.
- 2 REMOVE THE EXISTING FLOW METER & DISCONNECT THE EXISTING WIRING CONNECTED TO THE EXISTING FLOW METER. REPLACE THE EXISTING FLOW METER w/ AN ABB PROCESS MASTER FLOW METER. PROVIDE CONNECTIONS TO NEW FLOW METER IN ACCORDANCE w/ MANUFACTURER'S RECOMMENDATIONS. REFERENCE MAGNETIC FLOW METER CONNECTION DETAIL.
- 3 EXISTING SLUDGE GAS FUEL COMPRESSORS (CBA-SGFC-2 AND CBA-SGFC-3) SHALL BE ABANDONED IN PLACE. THE ASSOCIATED CONDUCTORS SHALL NOT BE CONNECTED TO THE NEW MCC-62. COIL, TAPE & STORE THE CONDUCTORS AND MARK "TO ABANDONED SGFC-2/SGFC-3".
- 4 EXISTING SEAL WATER BOOSTER PUMP (CBA-BP-1) SHALL BE ABANDONED IN PLACE. THE ASSOCIATED CONDUCTORS SHALL NOT BE CONNECTED TO THE NEW MCC-62. COIL, TAPE & STORE THE CONDUCTORS AND MARK "TO ABANDONED CBA-BP-1".

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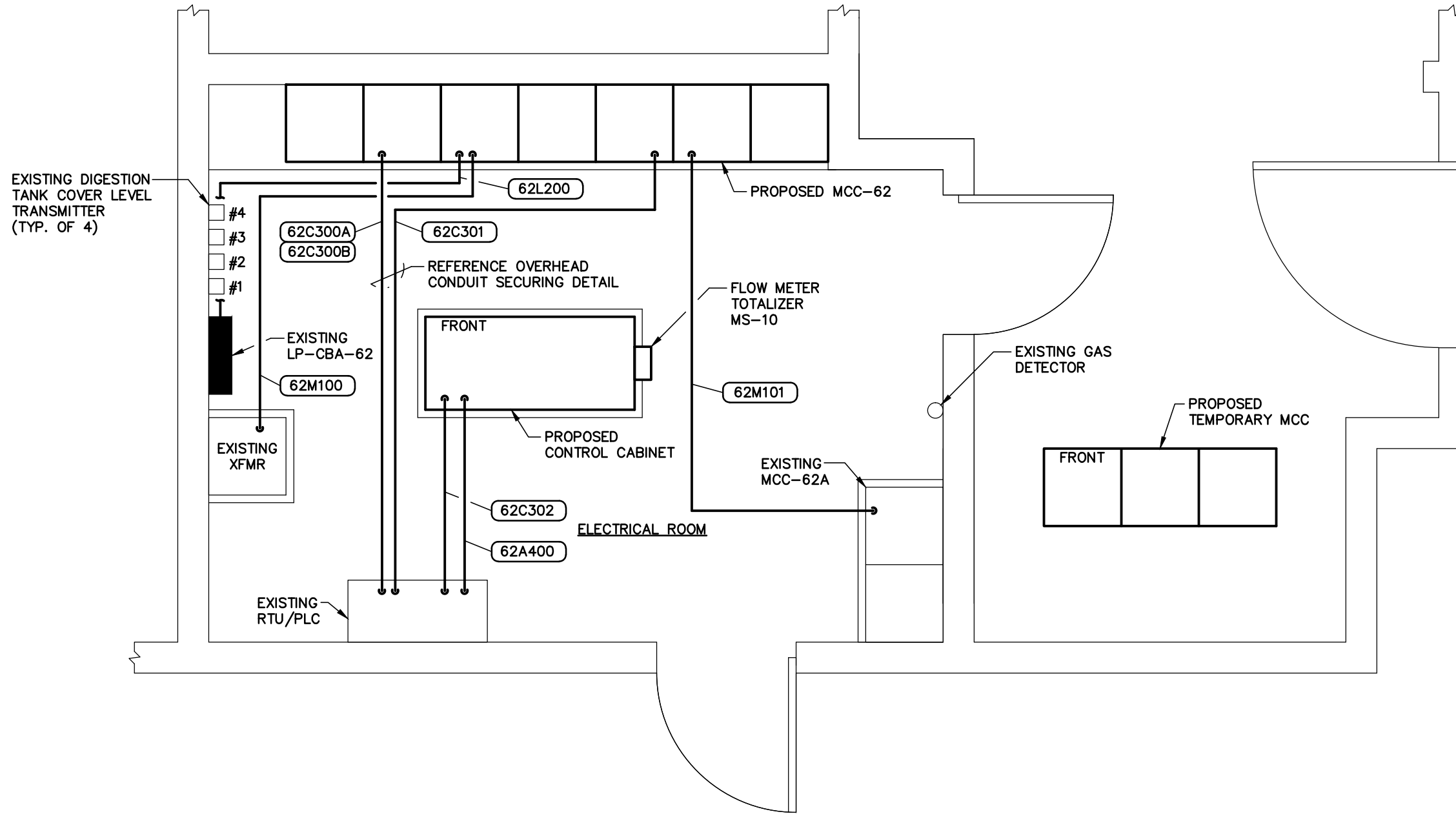
DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

BUILDING "A"
 LOWER LEVEL & UPPER LEVEL
 PLAN VIEWS

NO.	DATE	REVISIONS

DRAWN: RWB
 DESIGN: STK
 QC: BEH
 DATE: 01/13/16

SHEET E-7



**BUILDING "A" PROPOSED
ELECTRICAL EQUIPMENT LAYOUT**

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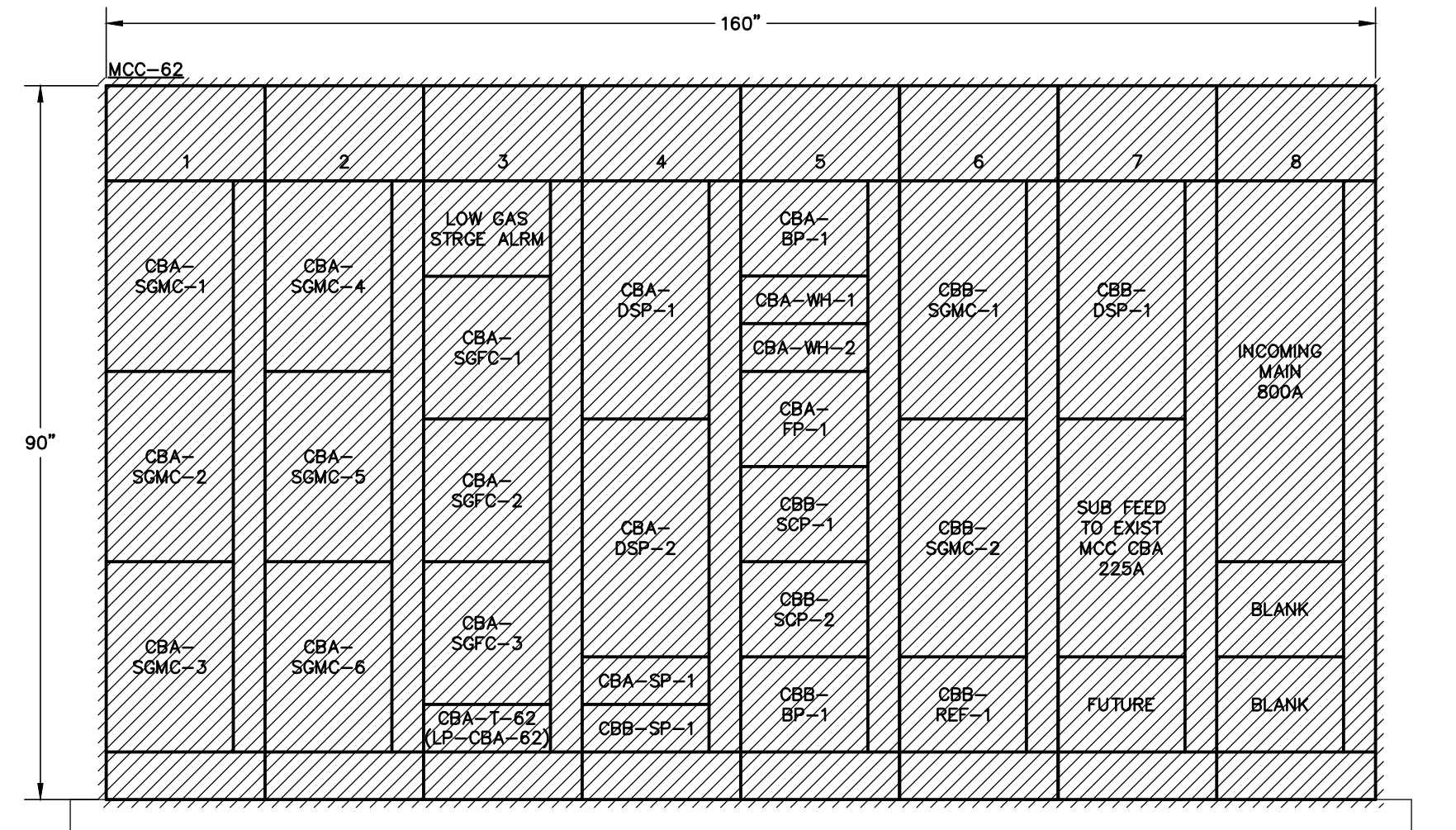
DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

**BUILDING "A" PROPOSED
ELECTRICAL EQUIPMENT LAYOUT**

NO.	DATE	REVISIONS


DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET E-8



EXISTING MOTOR CONTROL CENTER MCC-62

NOTES:

 - DENOTES EXISTING EQUIPMENT TO BE REMOVED. ITEM SHALL BE REMOVED FROM PREMISES AND DISPOSED OF PROPERLY. UNLESS OTHERWISE NOTED, ALL ASSOCIATED CONDUIT & WIRING CONNECTED TO EQUIPMENT TO BE REMOVED, SHALL REMAIN FOR THE INSTALLATION OF THE NEW MCC AND CONTROLS.

1. THE EXISTING MOTOR CONTROL CENTER LAYOUT IS PROVIDED FOR CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID & PRIOR TO COMMENCING CONSTRUCTION.
2. CONTRACTOR SHALL REMOVE EXISTING MCC-62 AFTER THE CONNECTED LOADS & CONTROLS HAVE BEEN CONNECTED TO THE TEMPORARY MCC.

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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

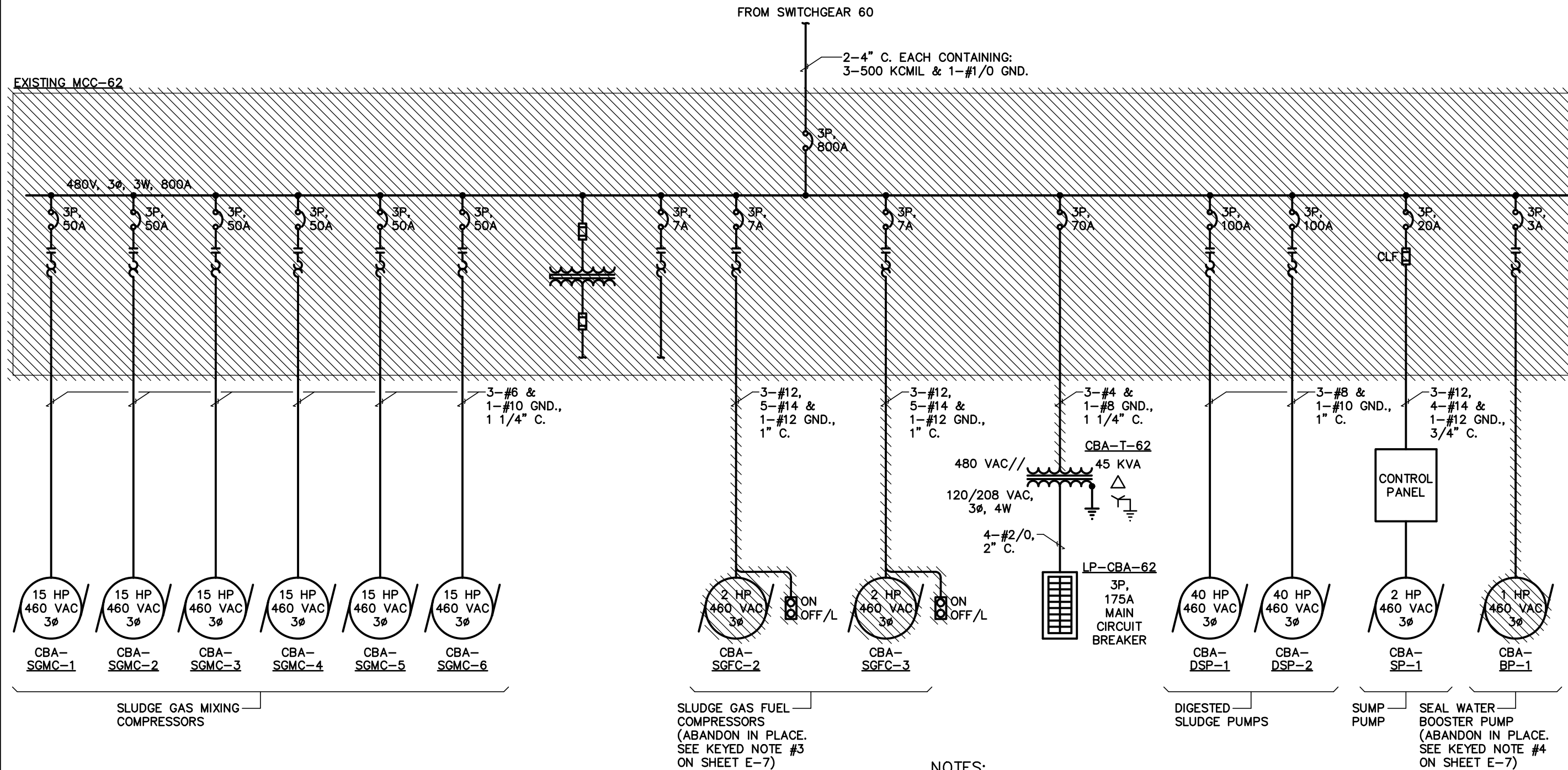
EXISTING MOTOR CONTROL CENTER
MCC-62

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET E-9

Certificate of Authorization Number: 4795



MATCHLINE - REFERENCE SHEET E-11 FOR CONTINUATION

EXISTING MCC-62 ELECTRICAL ONE-LINE DIAGRAM

- NOTES:**
- 1. THE EXISTING ELECTRICAL ONE-LINE DIAGRAM IS PROVIDED FOR CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID & PRIOR TO COMMENCING CONSTRUCTION.
 - 2. DENOTES EXISTING EQUIPMENT TO BE REMOVED. ITEM SHALL BE REMOVED FROM PREMISES AND DISPOSED OF PROPERLY. UNLESS OTHERWISE NOTED, ALL ASSOCIATED CONDUIT & WIRING CONNECTED TO EQUIPMENT TO BE REMOVED, SHALL REMAIN FOR THE INSTALLATION OF THE NEW MCC AND CONTROLS.

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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

EXISTING MCC-62
ELECTRICAL ONE-LINE DIAGRAM
(SHEET 1 OF 2)

NO.	DATE	REVISIONS

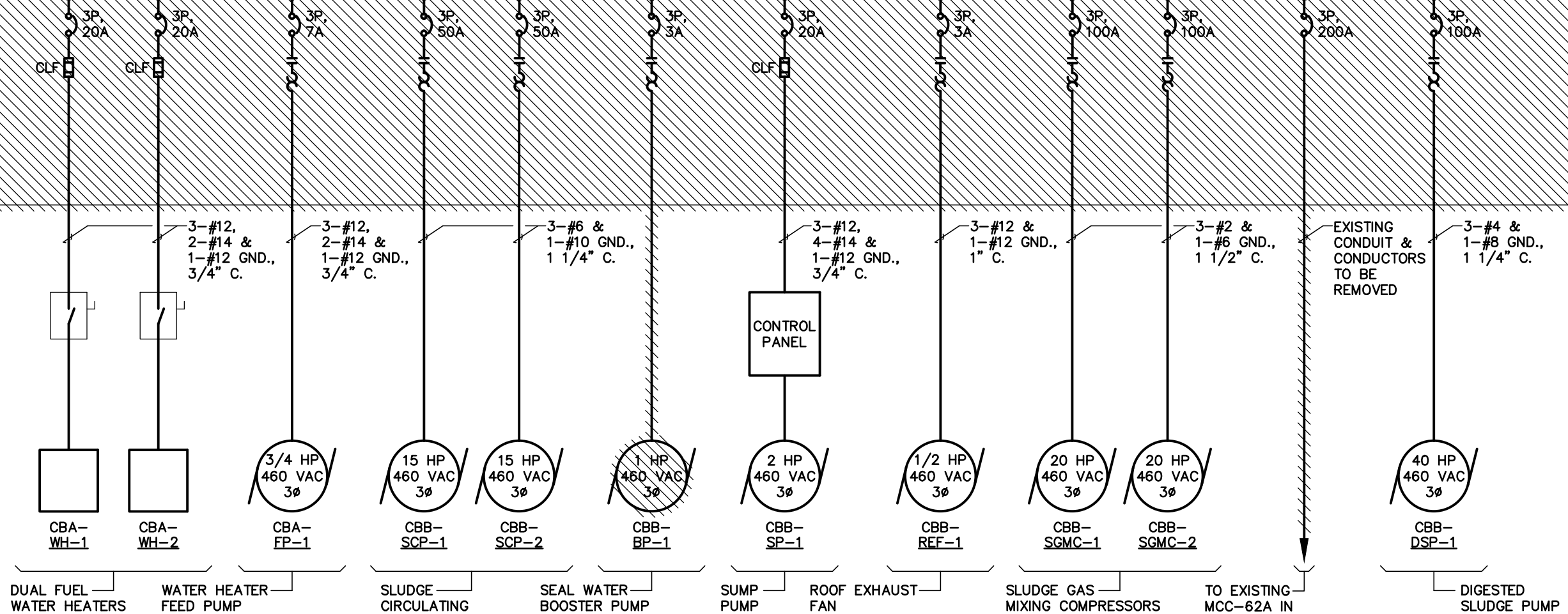
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QC: BEH
DATE: 01/13/16

SHEET E-10

MATCHLINE - REFERENCE SHEET E-10 FOR CONTINUATION

EXISTING MCC-62

480V, 3 ϕ , 3W, 800A



DUAL FUEL WATER HEATERS WATER HEATER FEED PUMP SLUDGE CIRCULATING PUMPS SEAL WATER BOOSTER PUMP (ABANDON IN PLACE. DO NOT CONNECT CONDUCTORS TO NEW MCC-62. COIL, TAPE & MARK "TO CONTROL BUILDING "B") SUMP PUMP ROOF EXHAUST FAN SLUDGE GAS MIXING COMPRESSORS TO EXISTING MCC-62A IN CONTROL BUILDING "A" DIGESTED SLUDGE PUMP

EXISTING MCC-62 ELECTRICAL ONE-LINE DIAGRAM

NOTES:

- 1. THE EXISTING ELECTRICAL ONE-LINE DIAGRAM IS PROVIDED FOR CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID & PRIOR TO COMMENCING CONSTRUCTION.

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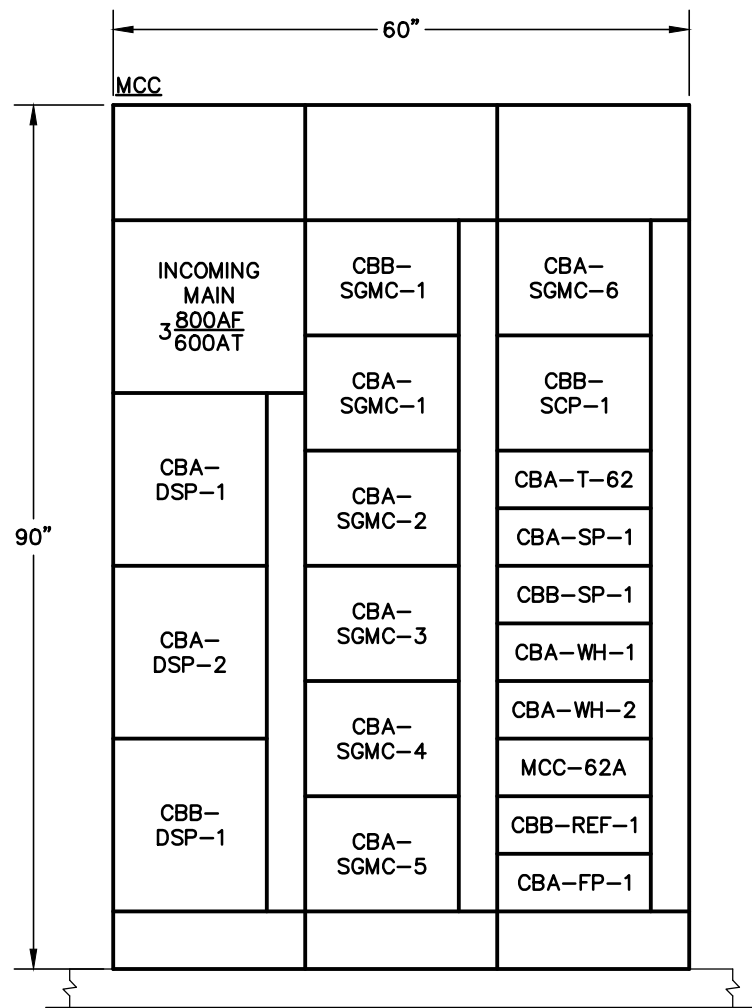
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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT
EXISTING MCC-62
ELECTRICAL ONE-LINE DIAGRAM
(SHEET 2 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16
SHEET E-11



TEMPORARY MCC ELEVATION

NOTE:

AT THE CONCLUSION OF THIS PROJECT THE CONTRACTOR SHALL REMOVE FROM THE PREMISES AND PROPERLY DISPOSE OF THE TEMPORARY MCC.

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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

TEMPORARY MCC ELEVATION

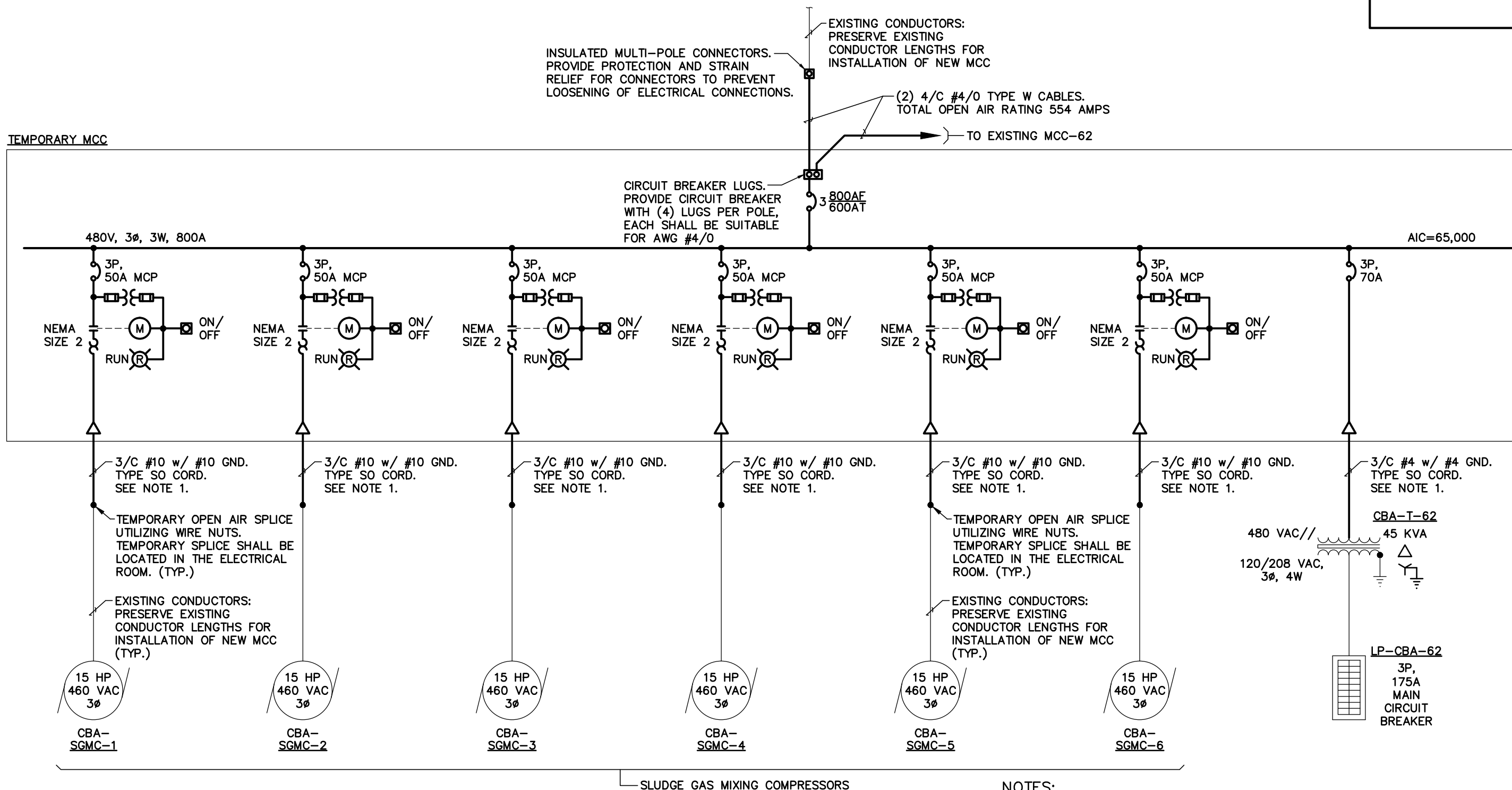
NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET E-12

Certificate of Authorization Number: 4795

TEMPORARY MCC



MATCHLINE - REFERENCE SHEET E-14 FOR CONTINUATION

NOTES:

1. TYPE SO CORD SHALL BE RATED FOR EXTRA HEAVY USAGE.
2. ALL TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE w/ ARTICLE 590 OF THE NEC.
3. CABLE SUPPORT SHALL BE IN THE FORM OF TY-RAPS, STRAPS OR SIMILAR TYPE OF SUPPORT TO SUPPORT OR CRADLE THE TEMPORARY CABLES DURING CONSTRUCTION.
4. ALL LOADS CONNECTED TO THE TEMPORARY MCC ARE EXISTING.

TEMPORARY MCC ELECTRICAL ONE-LINE DIAGRAM

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WASTEWATER DEPARTMENT

DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

TEMPORARY MCC ELECTRICAL ONE-LINE DIAGRAM (SHEET 1 OF 3)

NO.	DATE	REVISIONS

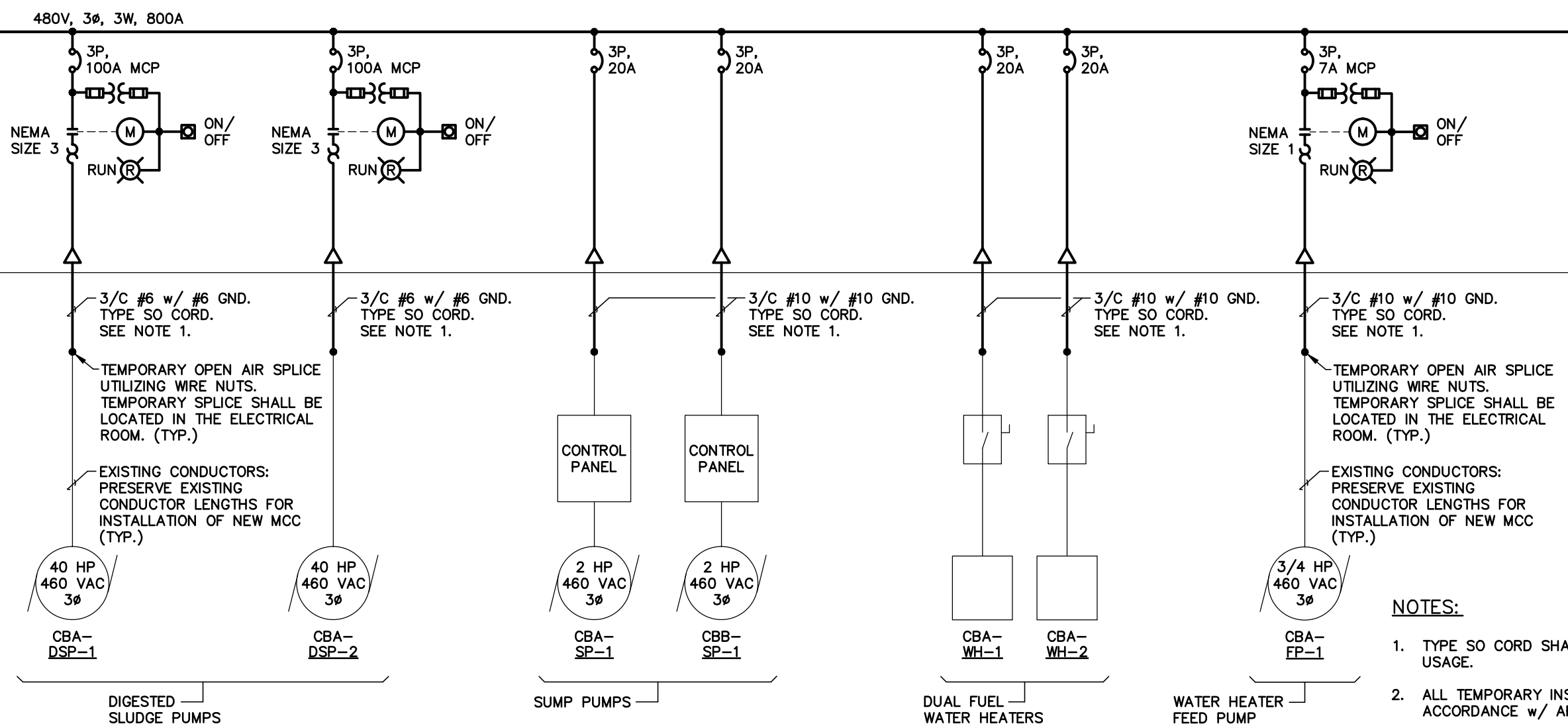
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DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET E-13

MATCHLINE - REFERENCE SHEET E-13 FOR CONTINUATION

MATCHLINE - REFERENCE SHEET E-15 FOR CONTINUATION

TEMPORARY MCC



NOTES:

1. TYPE SO CORD SHALL BE RATED FOR EXTRA HEAVY USAGE.
2. ALL TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE w/ ARTICLE 590 OF THE NEC.
3. CABLE SUPPORT SHALL BE IN THE FORM OF TY-RAPS, STRAPS OR SIMILAR TYPE OF SUPPORT TO SUPPORT OR CRADLE THE TEMPORARY CABLES DURING CONSTRUCTION.
4. ALL LOADS CONNECTED TO THE TEMPORARY MCC ARE EXISTING.

TEMPORARY MCC ELECTRICAL ONE-LINE DIAGRAM

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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

TEMPORARY MCC
ELECTRICAL ONE-LINE DIAGRAM
(SHEET 2 OF 3)

NO.	DATE	REVISIONS

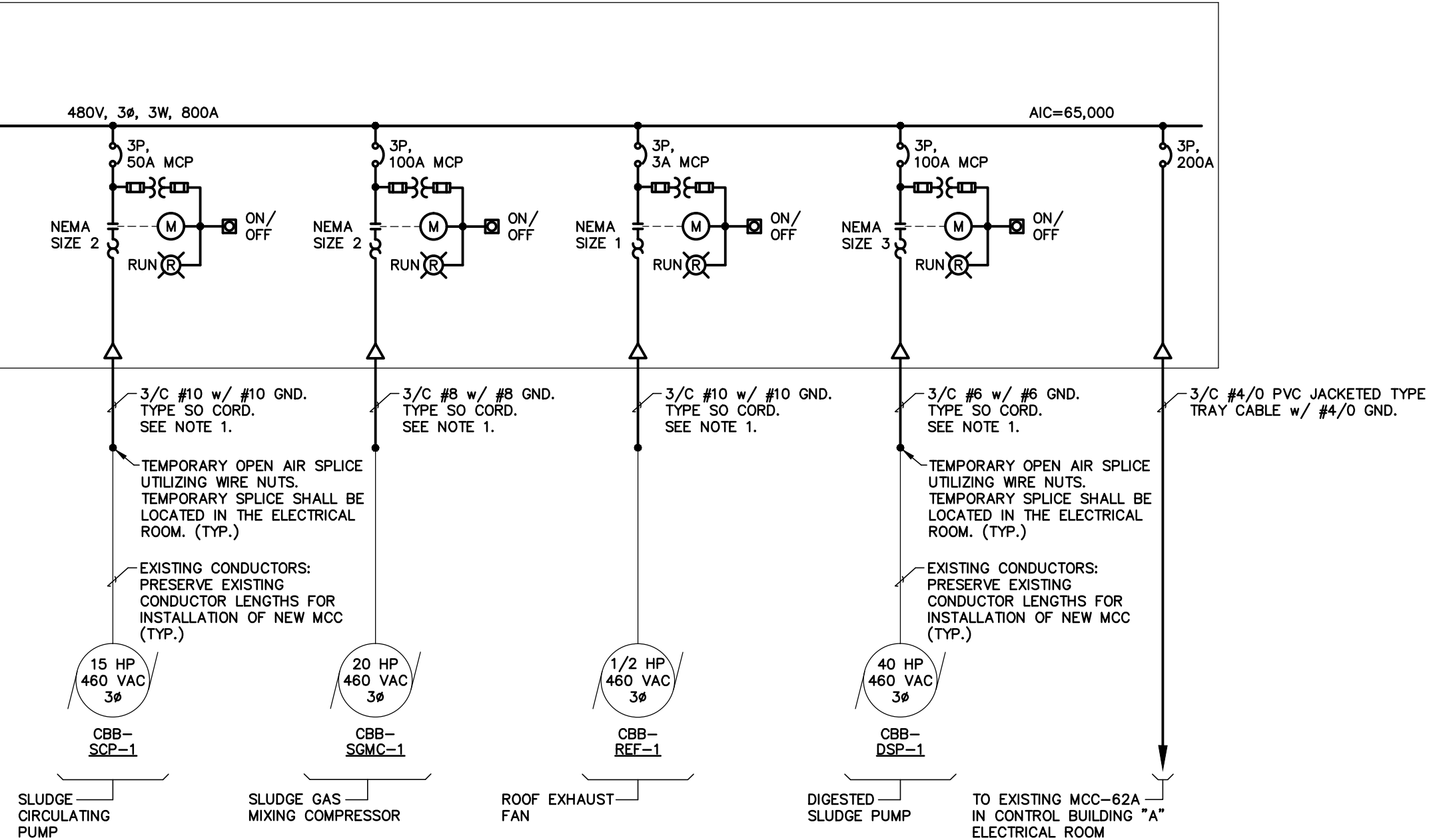
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DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET E-14

Certificate of Authorization Number: 4795

MATCHLINE - REFERENCE SHEET E-14 FOR CONTINUATION

TEMPORARY MCC



NOTES:

1. TYPE SO CORD SHALL BE RATED FOR EXTRA HEAVY USAGE.
2. ALL TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE w/ ARTICLE 590 OF THE NEC.
3. CABLE SUPPORT SHALL BE IN THE FORM OF TY-RAPS, STRAPS OR SIMILAR TYPE OF SUPPORT TO SUPPORT OR GRADLE THE TEMPORARY CABLES DURING CONSTRUCTION.
4. ALL LOADS CONNECTED TO THE TEMPORARY MCC ARE EXISTING.

TEMPORARY MCC ELECTRICAL ONE-LINE DIAGRAM

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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

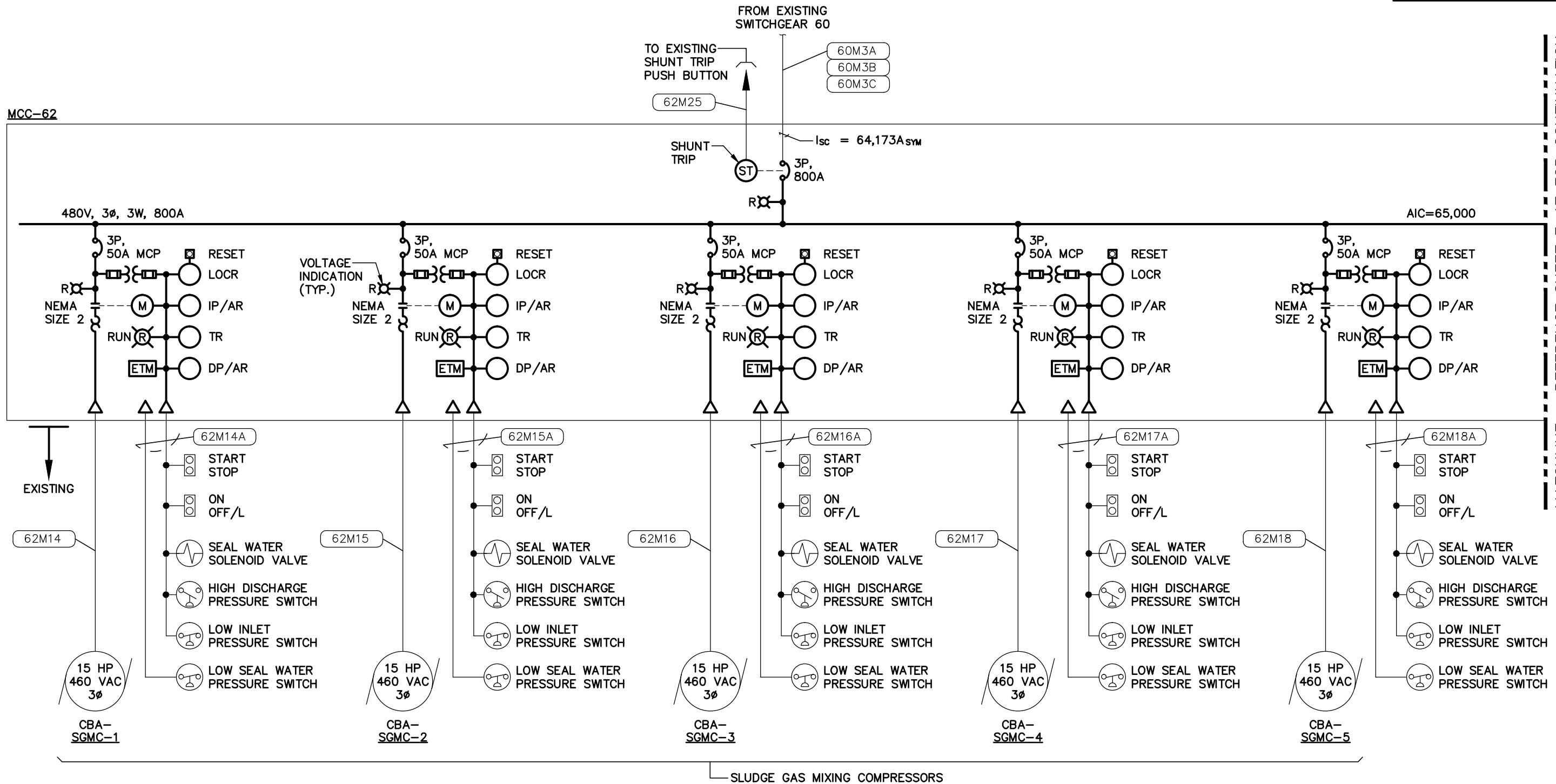
TEMPORARY MCC ELECTRICAL ONE-LINE DIAGRAM (SHEET 3 OF 3)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET E-15

MCC-62



MATCHLINE - REFERENCE SHEET E-17 FOR CONTINUATION

NOTES:

- UNLESS OTHERWISE NOTED, ALL WIRING & INSTALLATIONS EXTENDING OUTSIDE THE NEW MCC-62 ARE EXISTING.

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MCC-62 ELECTRICAL ONE-LINE DIAGRAM

DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

MCC-62
ELECTRICAL ONE-LINE DIAGRAM
(SHEET 1 OF 3)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16
SHEET E-16



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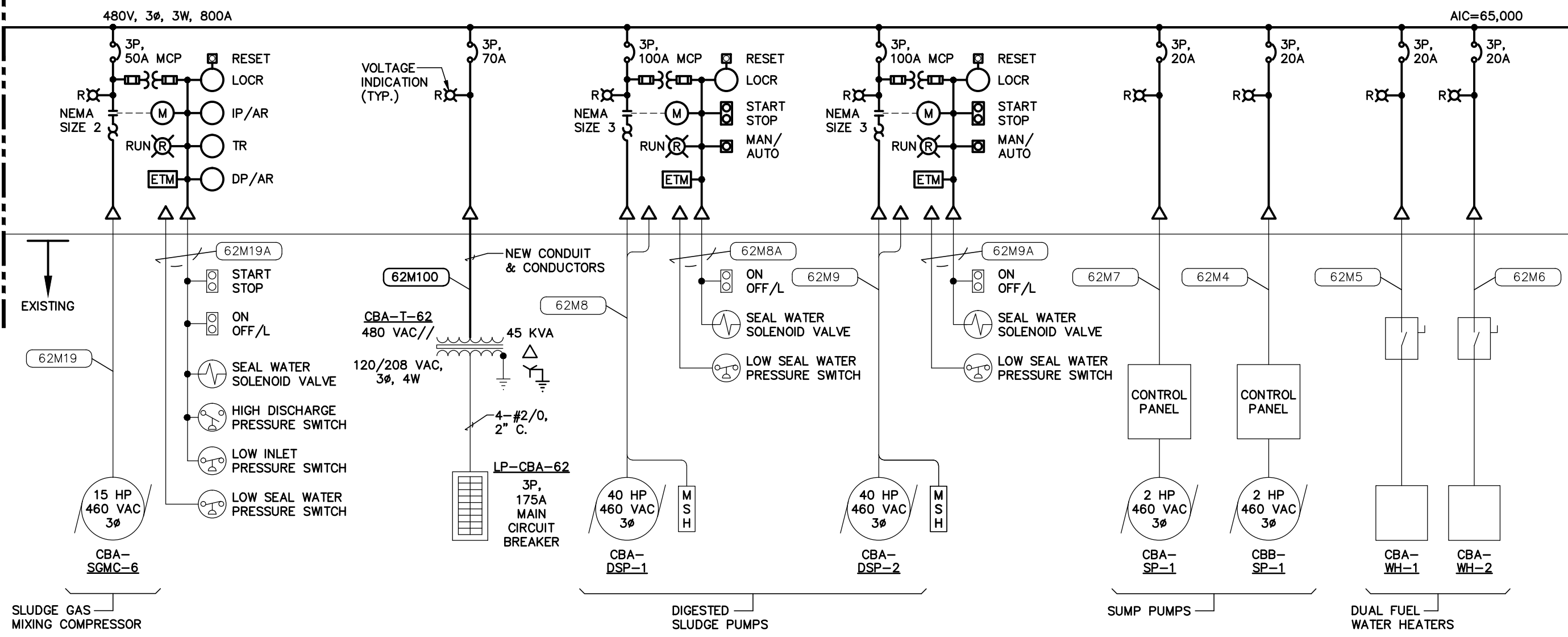
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Certificate of Authorization Number: 4795

MATCHLINE - REFERENCE SHEET E-16 FOR CONTINUATION

MATCHLINE - REFERENCE SHEET E-18 FOR CONTINUATION

MCC-62



NOTES:

- UNLESS OTHERWISE NOTED, ALL WIRING & INSTALLATIONS EXTENDING OUTSIDE THE NEW MCC-62 ARE EXISTING.

MCC-62 ELECTRICAL ONE-LINE DIAGRAM

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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

MCC-62
ELECTRICAL ONE-LINE DIAGRAM
(SHEET 2 OF 3)

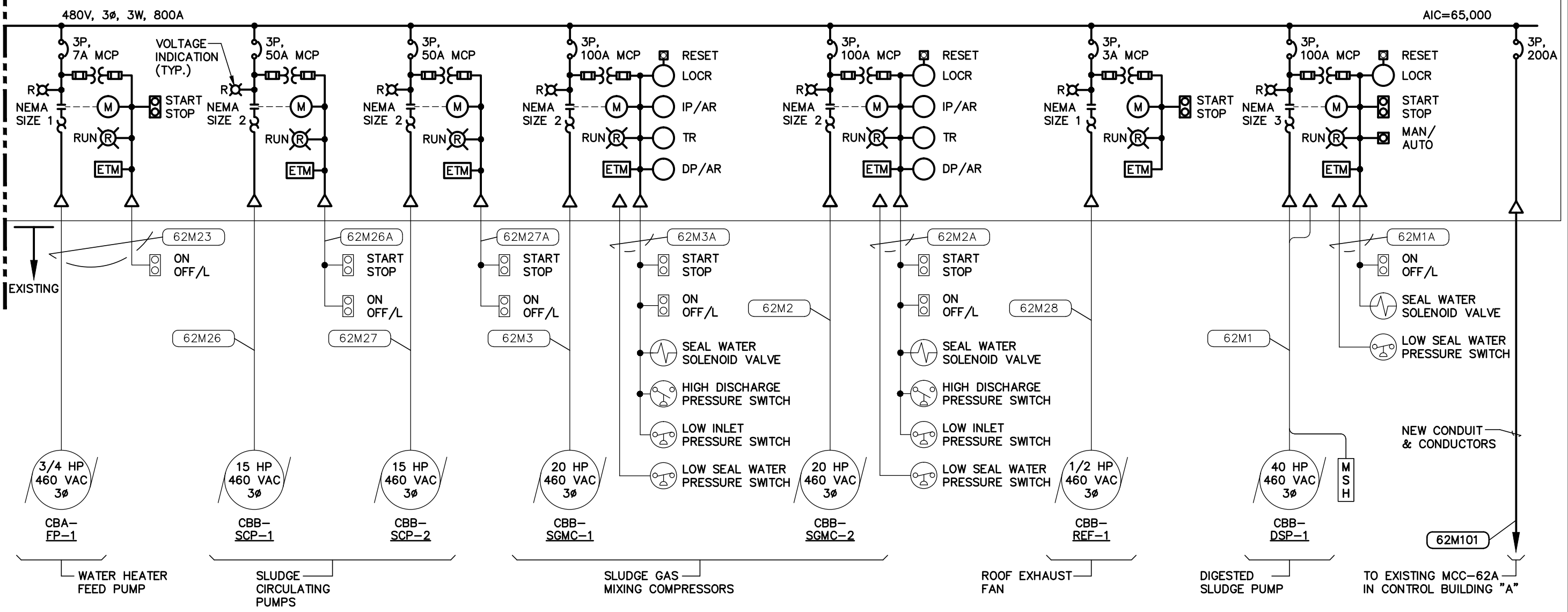
NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET E-17

MATCHLINE - REFERENCE SHEET E-17 FOR CONTINUATION

MCC-62



NOTES:
 1. UNLESS OTHERWISE NOTED, ALL WIRING & INSTALLATIONS EXTENDING OUTSIDE THE NEW MCC-62 ARE EXISTING.

MCC-62 ELECTRICAL ONE-LINE DIAGRAM

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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

MCC-62
 ELECTRICAL ONE-LINE DIAGRAM
 (SHEET 3 OF 3)

NO.	DATE	REVISIONS

DRAWN: RWB
 DESIGN: STK
 QC: BEH
 DATE: 01/13/16

SHEET E-18

MCC-62 LOAD SUMMARY

480 VAC, 3 ϕ , 3W

<u>LOAD</u>	<u>CONNECTED</u>	<u>DEMAND</u>
CBA-SGMC-1	16.7 KVA	16.7 KVA
CBA-SGMC-2	16.7 KVA	16.7 KVA
CBA-SGMC-3	16.7 KVA	16.7 KVA
CBA-SGMC-4	16.7 KVA	16.7 KVA
CBA-SGMC-5	16.7 KVA	16.7 KVA
CBA-SGMC-6	16.7 KVA	--- KVA
CBA-T-62	45.0 KVA	30.0 KVA
CBA-DSP-1	41.4 KVA	41.4 KVA
CBA-DSP-2	41.4 KVA	41.4 KVA
CBA-SP-1	2.7 KVA	2.7 KVA
CBB-SP-1	2.7 KVA	--- KVA
CBA-WH-1	10.0 KVA	10.0 KVA
CBA-WH-2	10.0 KVA	10.0 KVA
CBA-FP-1	1.1 KVA	1.1 KVA
CBB-SCP-1	16.7 KVA	16.7 KVA
CBB-SCP-2	16.7 KVA	--- KVA
CBB-SGMC-1	21.5 KVA	21.5 KVA
CBB-SGMC-2	21.5 KVA	21.5 KVA
CBB-REF-1	0.8 KVA	0.8 KVA
CBB-DSP-1	41.4 KVA	41.4 KVA
MCC-62A	83.1 KVA	66.4 KVA
TOTAL	456.2 KVA	388.4 KVA

ENGINEER OF RECORD:
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CITY of TAMPA
WASTEWATER DEPARTMENT

DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

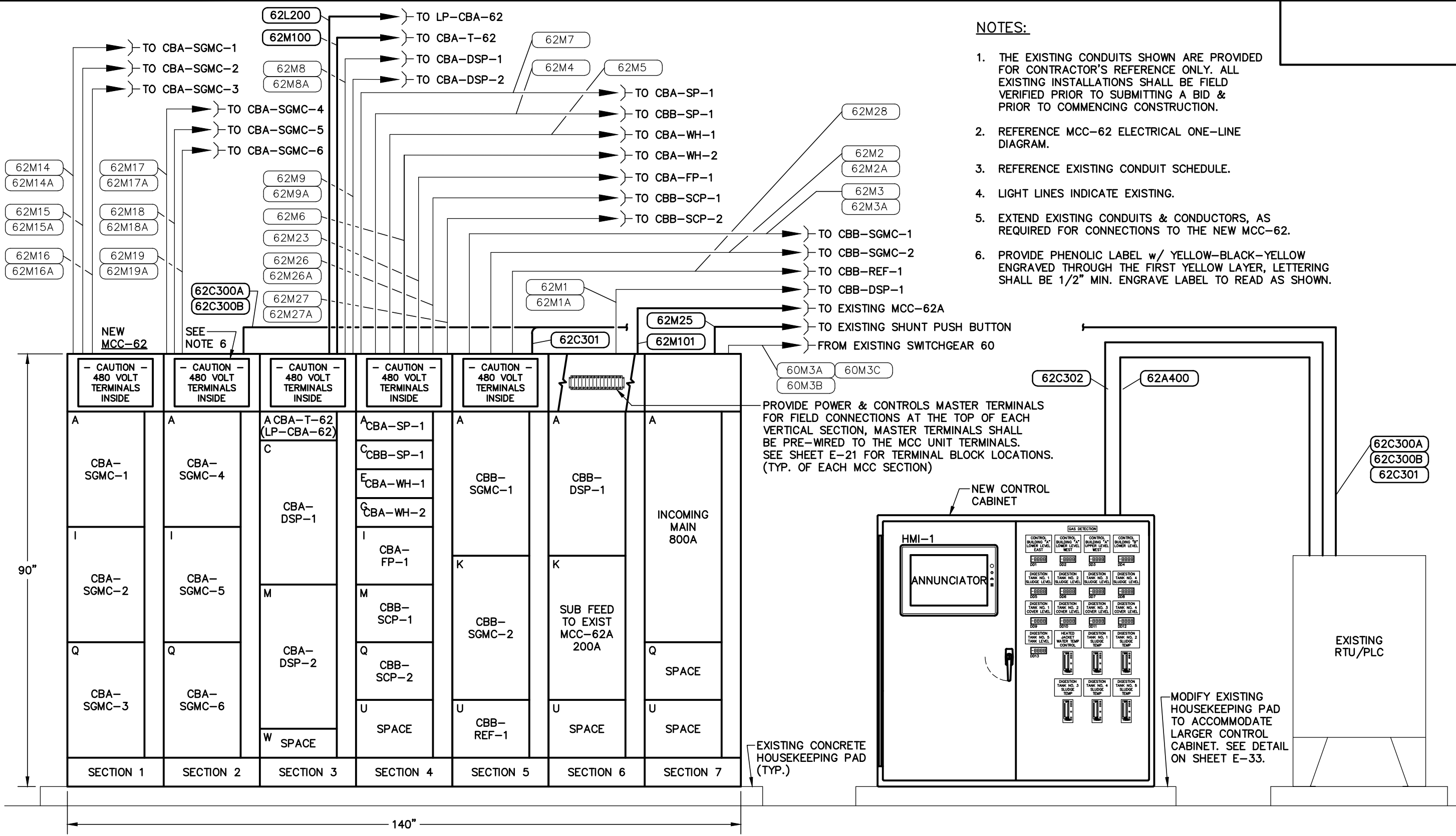
MCC-62 LOAD SUMMARY

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET E-19

Certificate of Authorization Number: 4795



**NEW MOTOR CONTROL CENTER MCC-62
ELECTRICAL RISER DIAGRAM**

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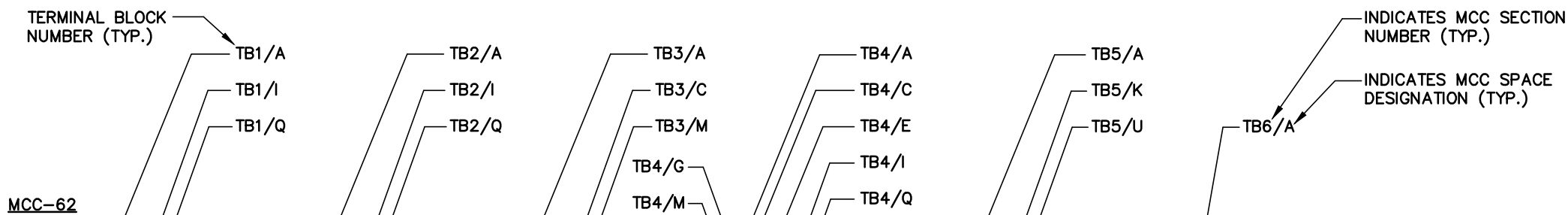
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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

NEW MOTOR CONTROL CENTER MCC-62
ELECTRICAL RISER DIAGRAM

NO.	DATE	REVISIONS

DRAWN: RWB
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DATE: 01/13/16
SHEET E-20



SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5	SECTION 6	SECTION 7
A CBA-SGMC-1	A CBA-SGMC-4	A CBA-T-62 (LP-CBA-62)	A CBA-SP-1	A CBB-SGMC-1	A CBB-DSP-1	A INCOMING MAIN 800A
I CBA-SGMC-2	I CBA-SGMC-5	C CBA-DSP-1	C CBB-SP-1	K CBB-SGMC-2	K SUB FEED TO EXIST MCC-62A 200A	Q SPACE
Q CBA-SGMC-3	Q CBA-SGMC-6	M CBA-DSP-2	E CBA-WH-1	U CBB-REF-1	U SPACE	U SPACE
		W SPACE	G CBA-WH-2			
			I CBA-FP-1			
			M CBB-SCP-1			
			Q CBB-SCP-2			
			U SPACE			

NOTES:

1. REFERENCE MOTOR CONTROL CENTER TERMINAL BLOCK CONNECTION DETAILS.
2. TBx/y; x INDICATES MCC SECTION NUMBER, y INDICATES MCC SPACE DESIGNATION.
3. MAINTAIN PROPER CLEARANCES BETWEEN TERMINAL BLOCKS FOR FIELD WIRING CONNECTIONS.
4. PROVIDE YELLOW WARNING LABEL OVER TERMINALS WITH 480 VOLTS. REFERENCE TERMINAL BLOCK 480V CAUTION LABEL DETAIL.
5. PROVIDE A PROTECTIVE INSULATING BARRIER BETWEEN 480V TERMINALS & CONTROL TERMINALS.

**NEW MOTOR CONTROL CENTER MCC-62
TERMINAL IDENTIFICATION**

ENGINEER OF RECORD:
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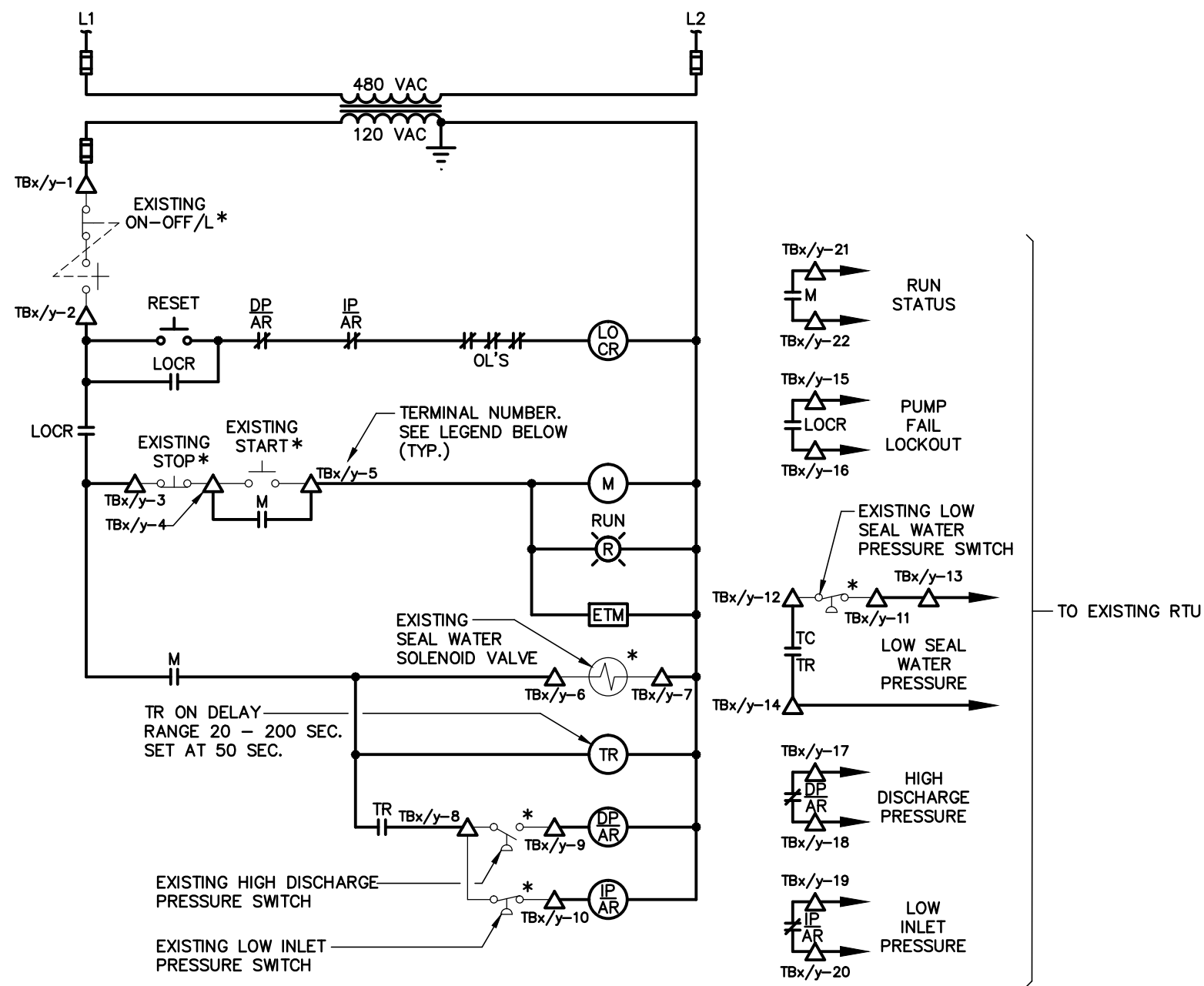
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**DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT
NEW MOTOR CONTROL CENTER MCC-62
TERMINAL IDENTIFICATION**

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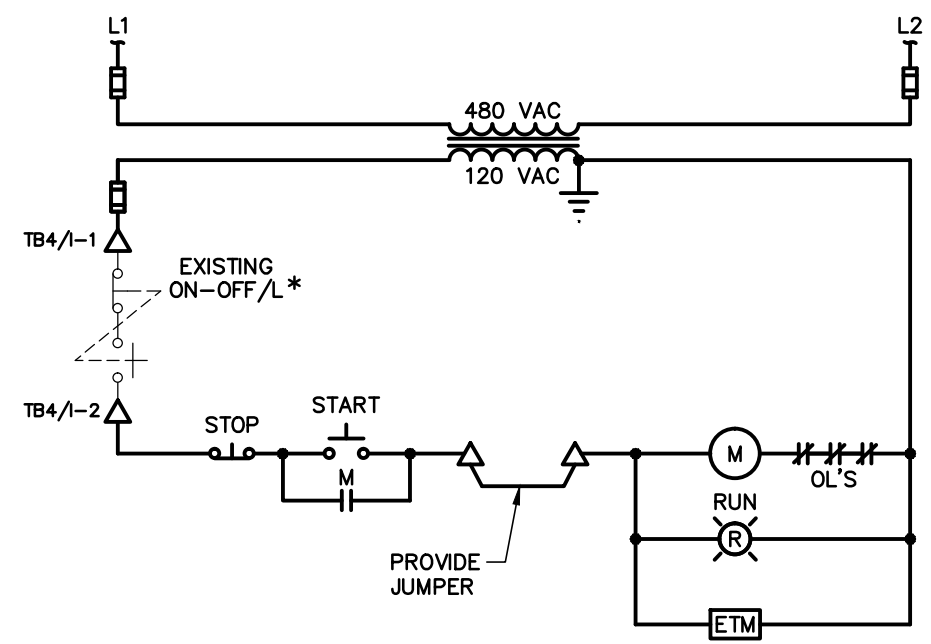


**SLUDGE GAS MIXING COMPRESSOR
MOTOR STARTER CONTROL CIRCUIT DIAGRAM**
(TYPICAL FOR CBA-SGMC-1 - SGMC-6 & CBB-SGMC-1 & CBB-SGMC-2)

TERMINAL BLOCK LEGEND:

- | | |
|--|--|
| CBA-SGMC-1; REPLACE x WITH 1, REPLACE y WITH A | CBA-SGMC-5; REPLACE x WITH 2, REPLACE y WITH I |
| CBA-SGMC-2; REPLACE x WITH 1, REPLACE y WITH I | CBA-SGMC-6; REPLACE x WITH 2, REPLACE y WITH Q |
| CBA-SGMC-3; REPLACE x WITH 1, REPLACE y WITH Q | CBB-SGMC-1; REPLACE x WITH 5, REPLACE y WITH A |
| CBA-SGMC-4; REPLACE x WITH 2, REPLACE y WITH A | CBB-SGMC-2; REPLACE x WITH 5, REPLACE y WITH K |

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WATER HEATER FEED PUMP CBA-FP-1

NOTES:

1. LIGHT LINES INDICATE EXISTING.
 2. ALL CONTROL CIRCUIT DIAGRAMS ARE SHOWN FOR THE CONTRACTOR'S REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXISTING MOTOR STARTER CONTROL CIRCUITS & RE-ESTABLISHING MOTOR CONTROL CIRCUITS FOR THE MOTOR STARTERS LOCATED IN THE NEW MOTOR CONTROL CENTER.
- * INDICATES DEVICE LOCATED REMOTE FROM MOTOR STARTER.
△ DENOTES TERMINAL FOR FIELD CONNECTION.

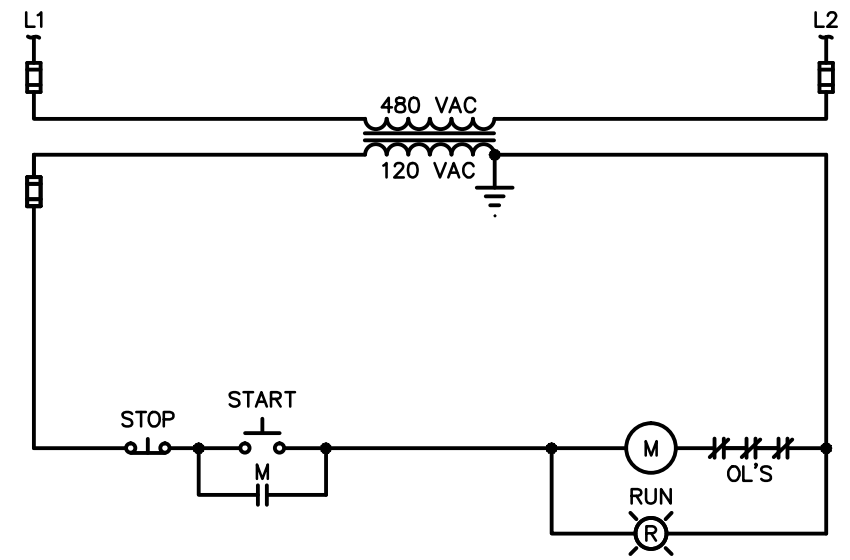
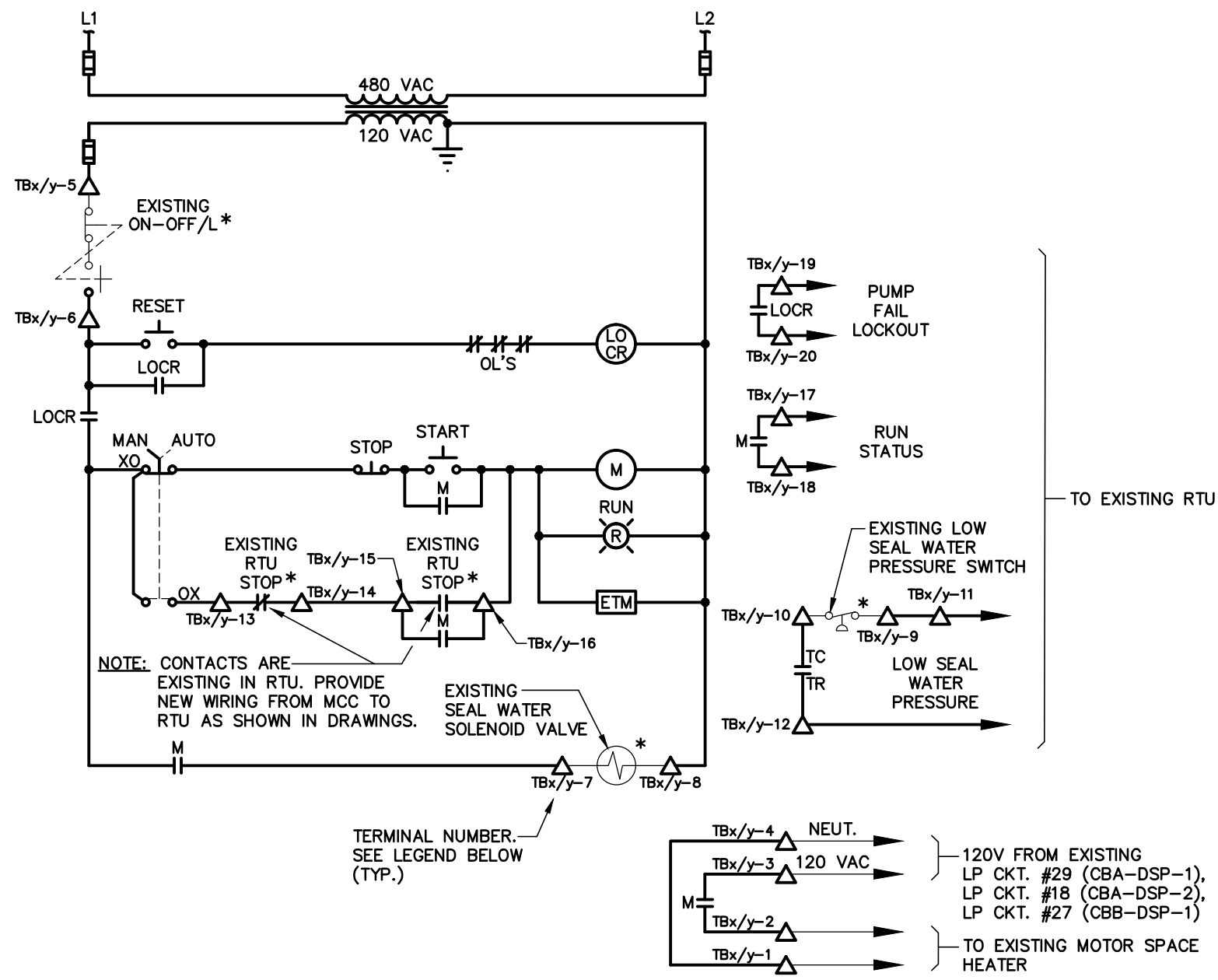
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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT
MOTOR STARTER CONTROL CIRCUIT DIAGRAMS
(SHEET 1 OF 3)

NO.	DATE	REVISIONS

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SHEET E-22



ROOF EXHAUST FAN CBB-REF-1

**DIGESTED SLUDGE PUMP
MOTOR STARTER CONTROL CIRCUIT DIAGRAM**
(TYPICAL FOR CBA-DSP-1, CBA-DSP-2 & CBB-DSP-1)

TERMINAL BLOCK LEGEND:

- CBA-DSP-1; REPLACE x WITH 3, REPLACE y WITH C
- CBA-DSP-2; REPLACE x WITH 3, REPLACE y WITH M
- CBB-DSP-1; REPLACE x WITH 6, REPLACE y WITH A

NOTES:

1. LIGHT LINES INDICATE EXISTING.
 2. ALL CONTROL CIRCUIT DIAGRAMS ARE SHOWN FOR THE CONTRACTOR'S REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXISTING MOTOR STARTER CONTROL CIRCUITS & RE-ESTABLISHING MOTOR CONTROL CIRCUITS FOR THE MOTOR STARTERS LOCATED IN THE NEW MOTOR CONTROL CENTER.
- * INDICATES DEVICE LOCATED REMOTE FROM MOTOR STARTER.
 Δ DENOTES TERMINAL FOR FIELD CONNECTION.

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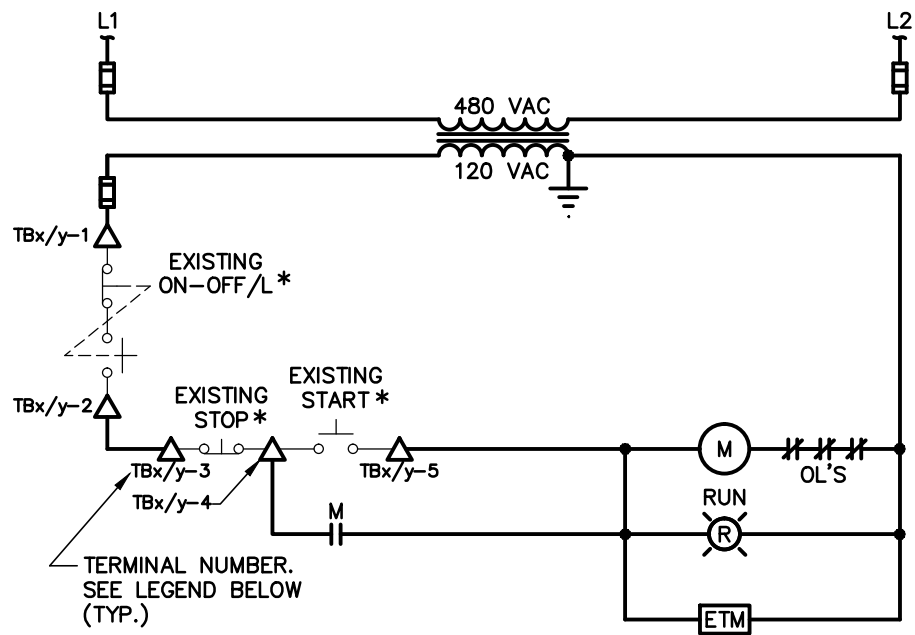
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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

MOTOR STARTER CONTROL CIRCUIT DIAGRAMS
(SHEET 2 OF 3)

NO.	DATE	REVISIONS

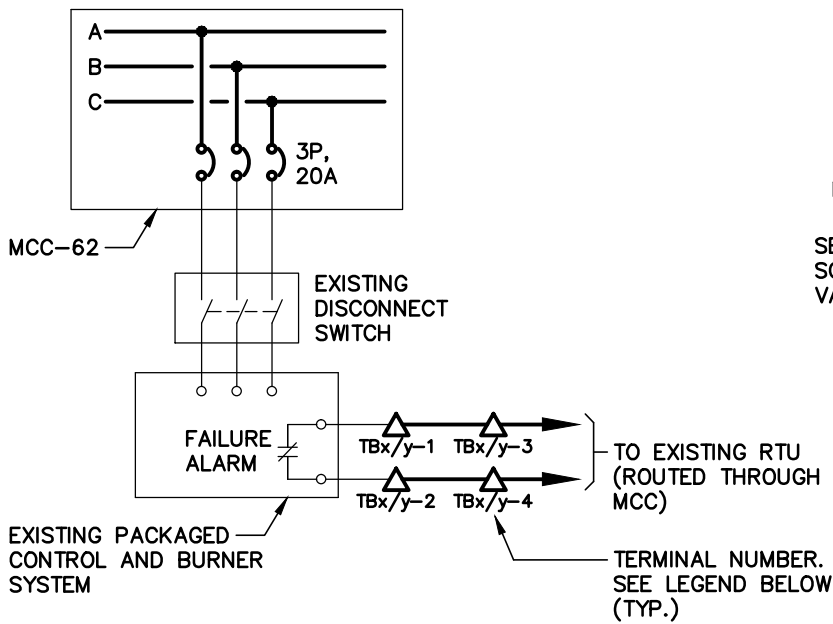
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 DESIGN: STK
 QC: BEH
 DATE: 01/13/16
SHEET E-23



SLUDGE CIRCULATING PUMP
(TYPICAL FOR CBB-SCP-1 & CBB-SCP-2)

TERMINAL BLOCK LEGEND:

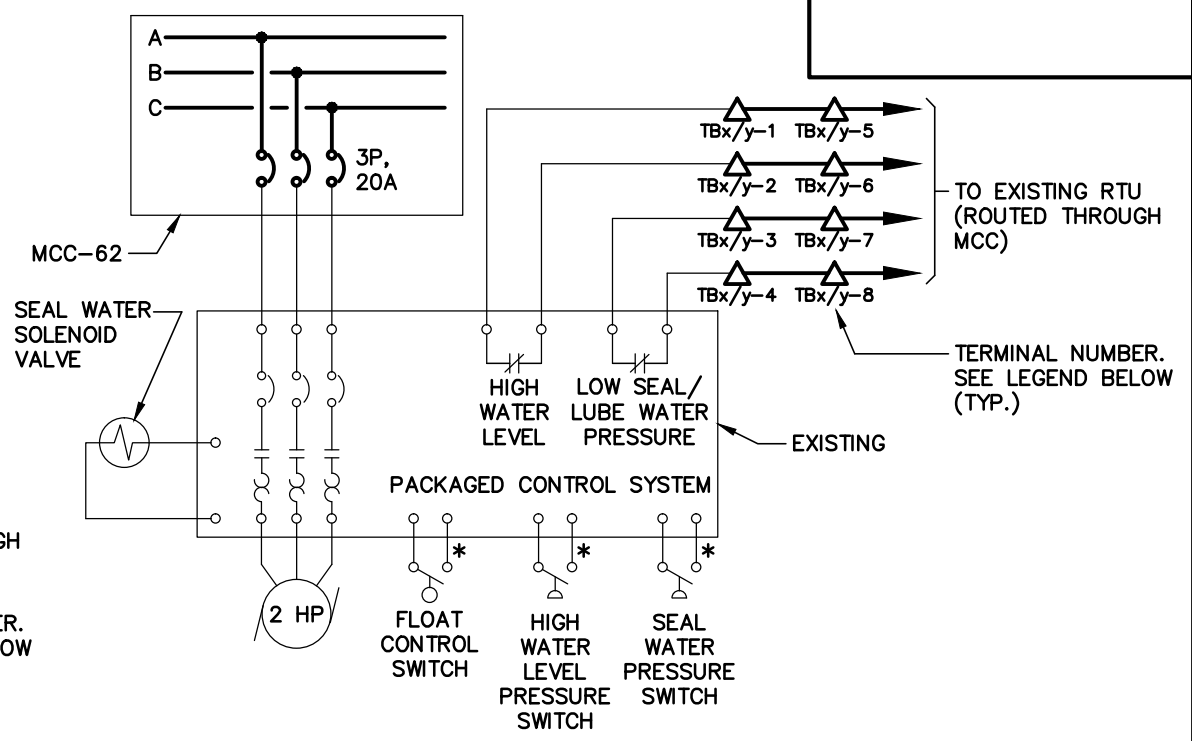
CBB-SCP-1; REPLACE x WITH 4, REPLACE y WITH M
CBB-SCP-2; REPLACE x WITH 4, REPLACE y WITH Q



DUAL FUEL WATER HEATER
(TYPICAL FOR CBA-WH-1 & CBA-WH-2)

TERMINAL BLOCK LEGEND:

CBA-WH-1; REPLACE x WITH 4, REPLACE y WITH E
CBA-WH-2; REPLACE x WITH 4, REPLACE y WITH G



SUMP PUMP
(TYPICAL FOR CBA-SP-1 & CBB-SP-1)

TERMINAL BLOCK LEGEND:

CBA-SP-1; REPLACE x WITH 4, REPLACE y WITH A
CBB-SP-1; REPLACE x WITH 4, REPLACE y WITH C

NOTES:

1. LIGHT LINES INDICATE EXISTING.
 2. ALL CONTROL CIRCUIT DIAGRAMS ARE SHOWN FOR THE CONTRACTOR'S REFERENCE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXISTING MOTOR STARTER CONTROL CIRCUITS & RE-ESTABLISHING MOTOR CONTROL CIRCUITS FOR THE MOTOR STARTERS LOCATED IN THE NEW MOTOR CONTROL CENTER.
- * INDICATES DEVICE LOCATED REMOTE FROM MOTOR STARTER.
△ DENOTES TERMINAL FOR FIELD CONNECTION.

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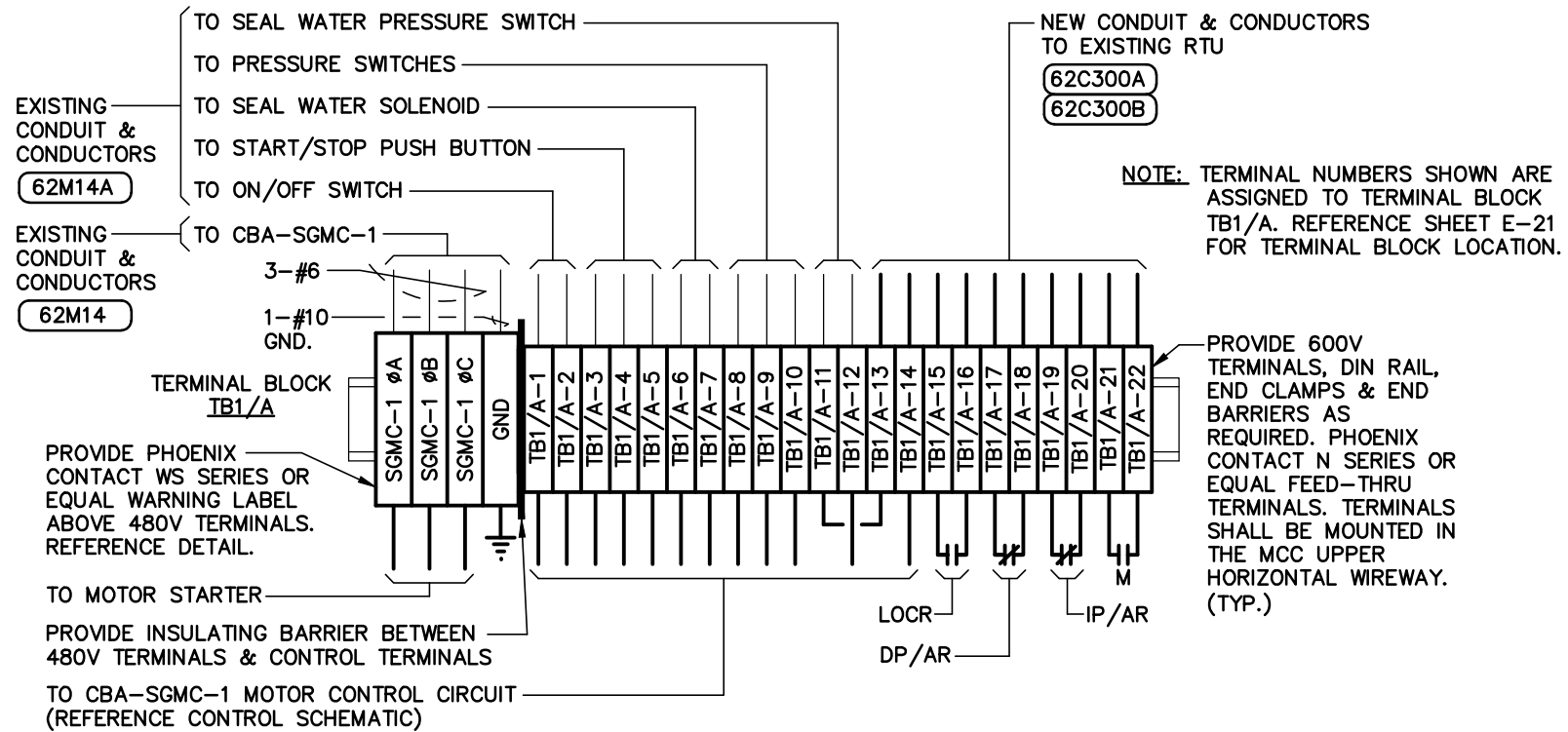
DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

MOTOR STARTER CONTROL CIRCUIT DIAGRAMS (SHEET 3 OF 3)

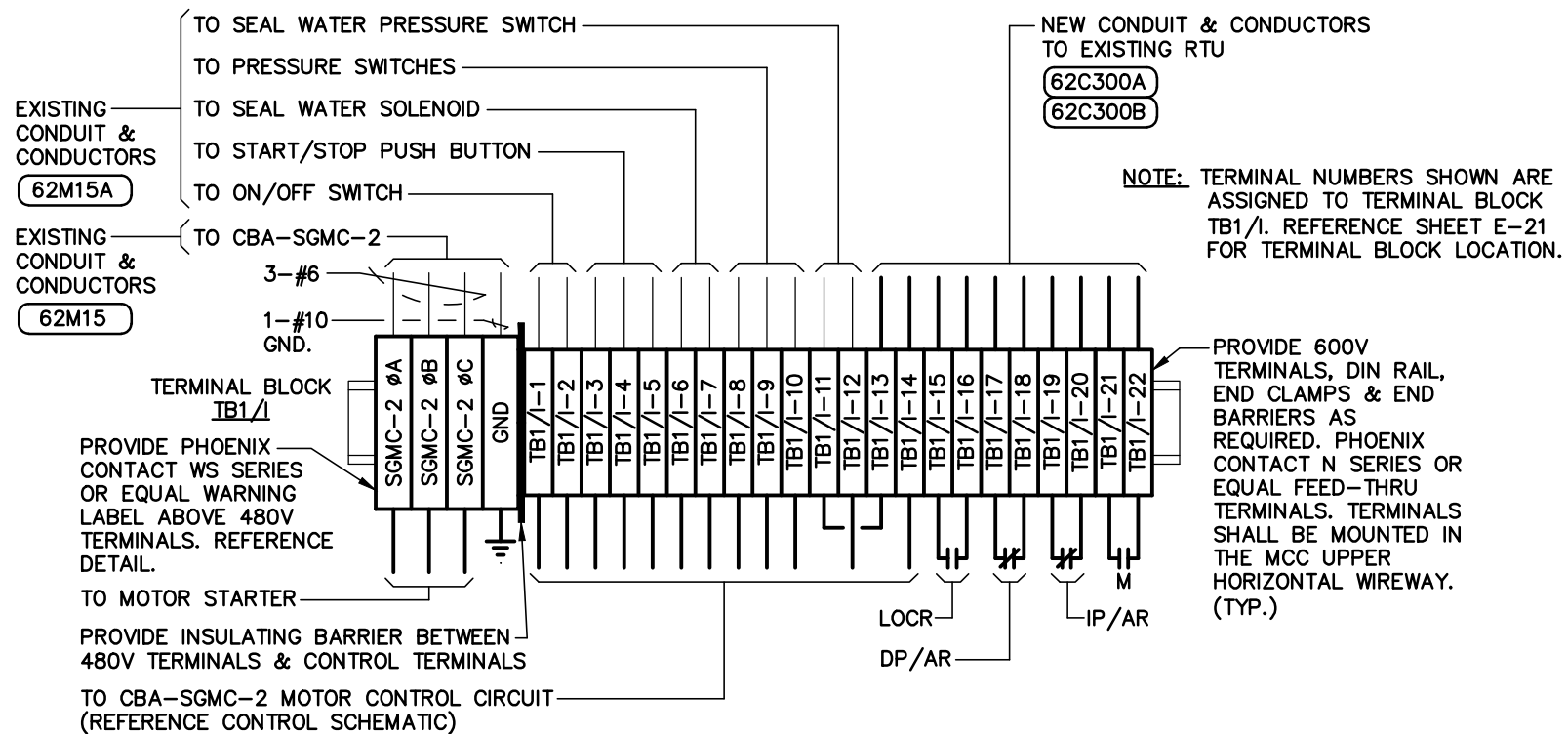
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DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET E-24



**TERMINAL BLOCK DETAIL -
SLUDGE GAS MIXING COMPRESSOR CBA-SGMC-1**



**TERMINAL BLOCK DETAIL -
SLUDGE GAS MIXING COMPRESSOR CBA-SGMC-2**

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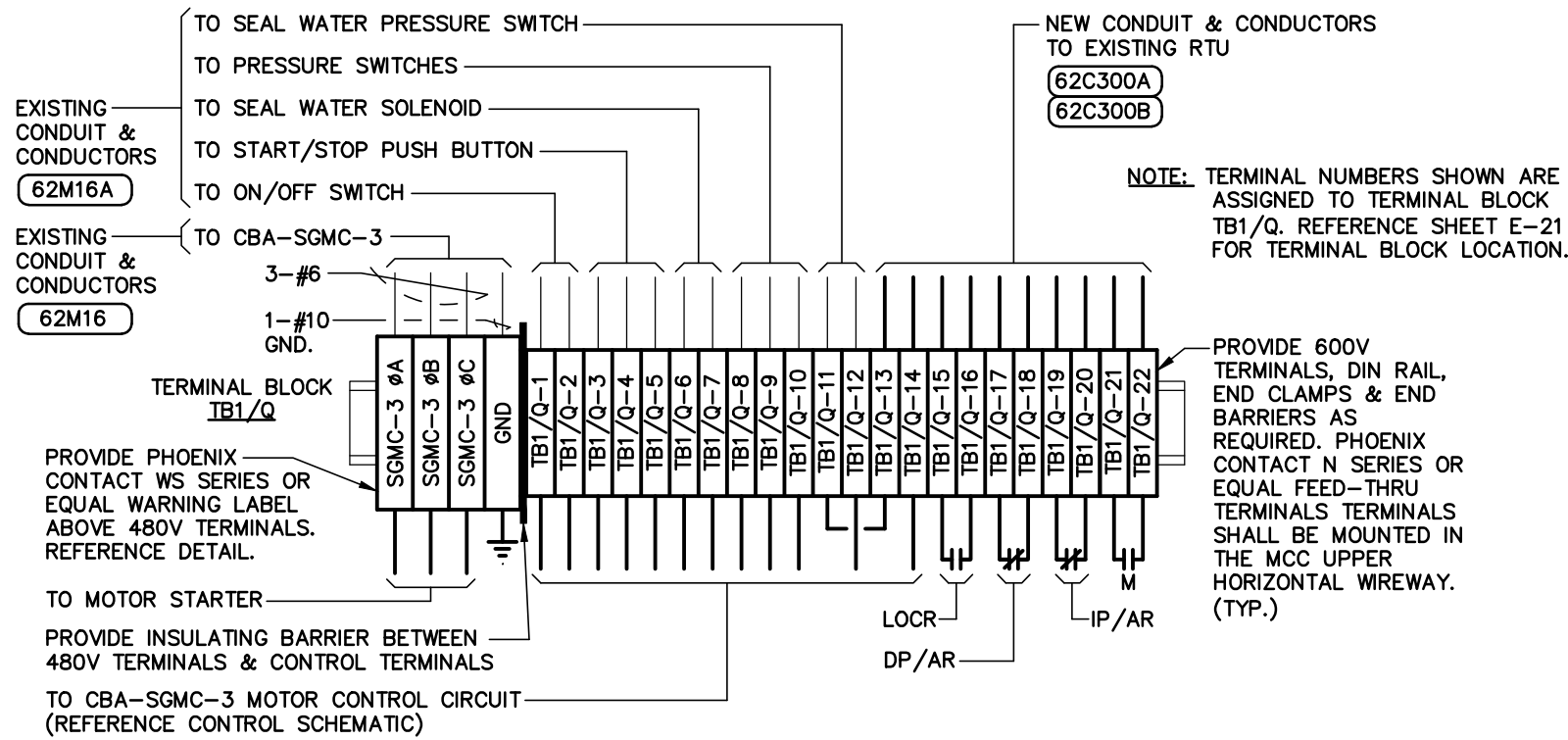
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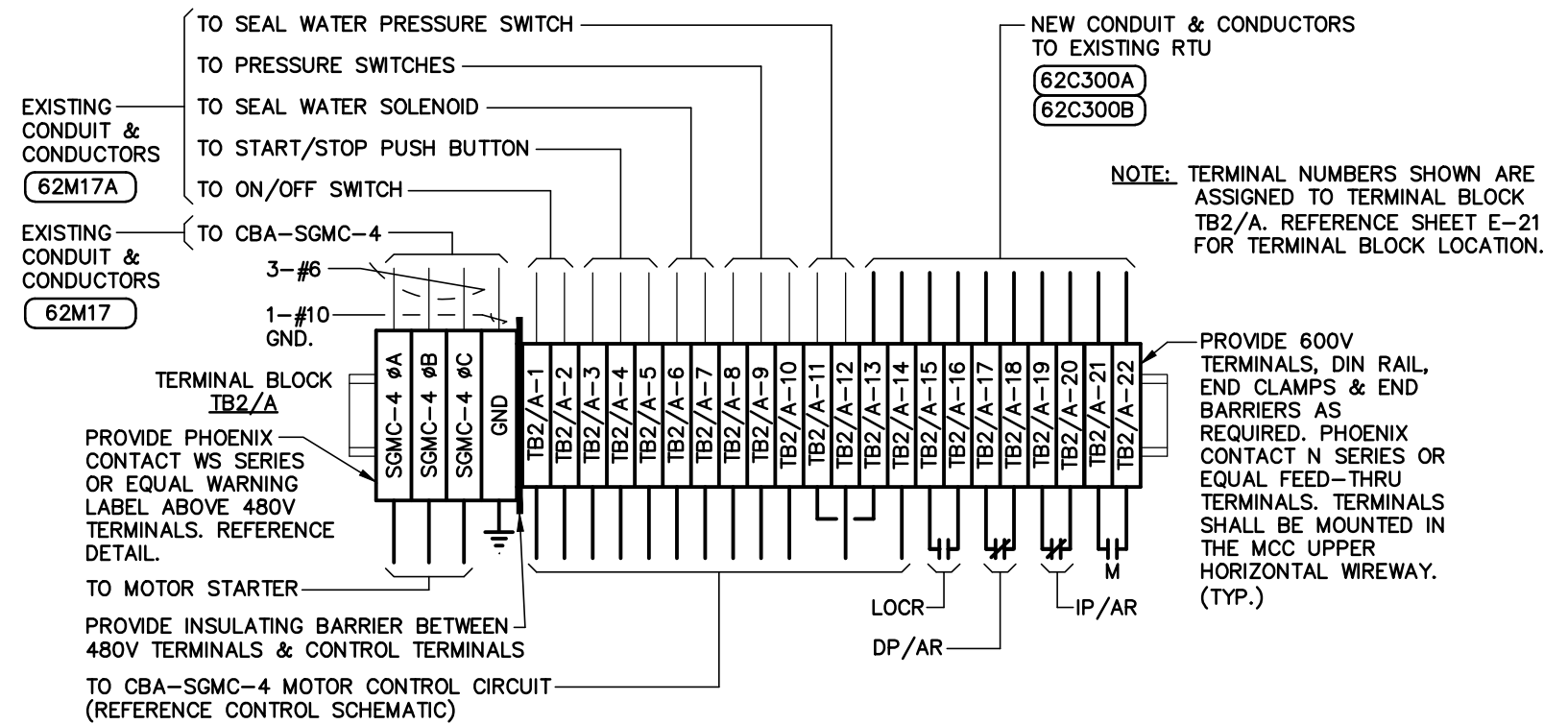
**DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT
MOTOR CONTROL CENTER TERMINAL BLOCK
CONNECTION DETAILS
(SHEET 1 OF 8)**

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16
SHEET E-25



**TERMINAL BLOCK DETAIL -
SLUDGE GAS MIXING COMPRESSOR CBA-SGMC-3**



**TERMINAL BLOCK DETAIL -
SLUDGE GAS MIXING COMPRESSOR CBA-SGMC-4**

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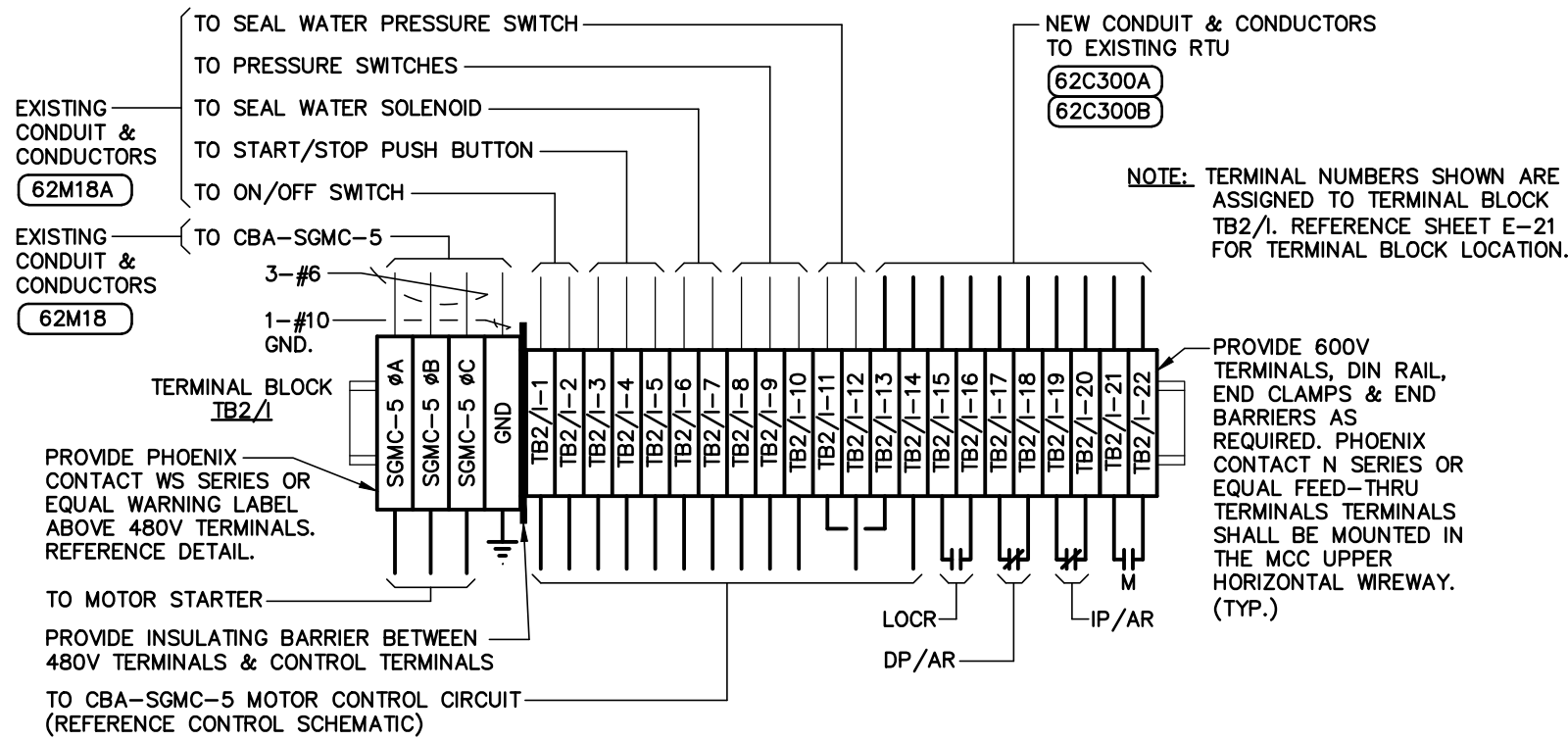
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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT
MOTOR CONTROL CENTER TERMINAL BLOCK
CONNECTION DETAILS
(SHEET 2 OF 8)

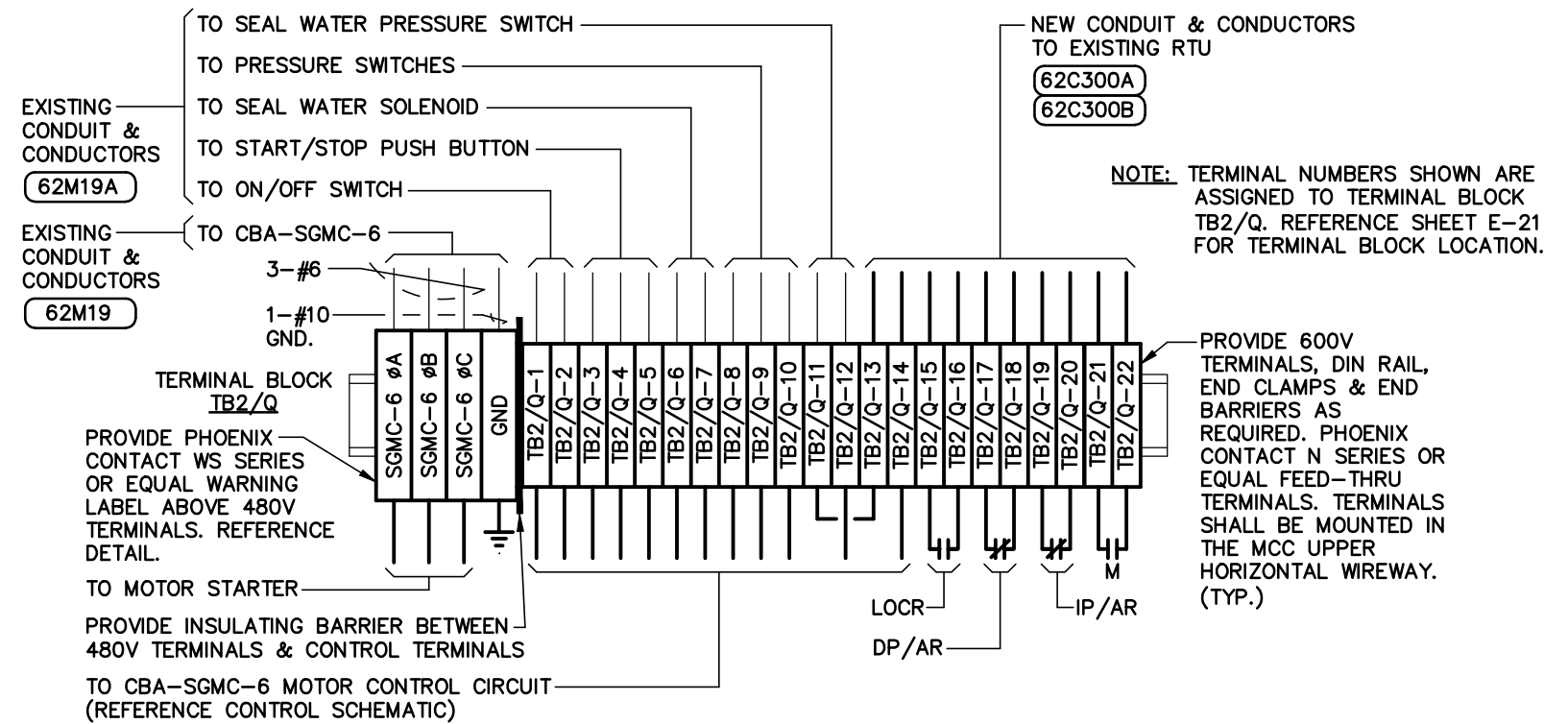
NO.	DATE	REVISIONS

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DESIGN: STK
QC: BEH
DATE: 01/13/16
SHEET E-26

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**TERMINAL BLOCK DETAIL -
SLUDGE GAS MIXING COMPRESSOR CBA-SGMC-5**



**TERMINAL BLOCK DETAIL -
SLUDGE GAS MIXING COMPRESSOR CBA-SGMC-6**

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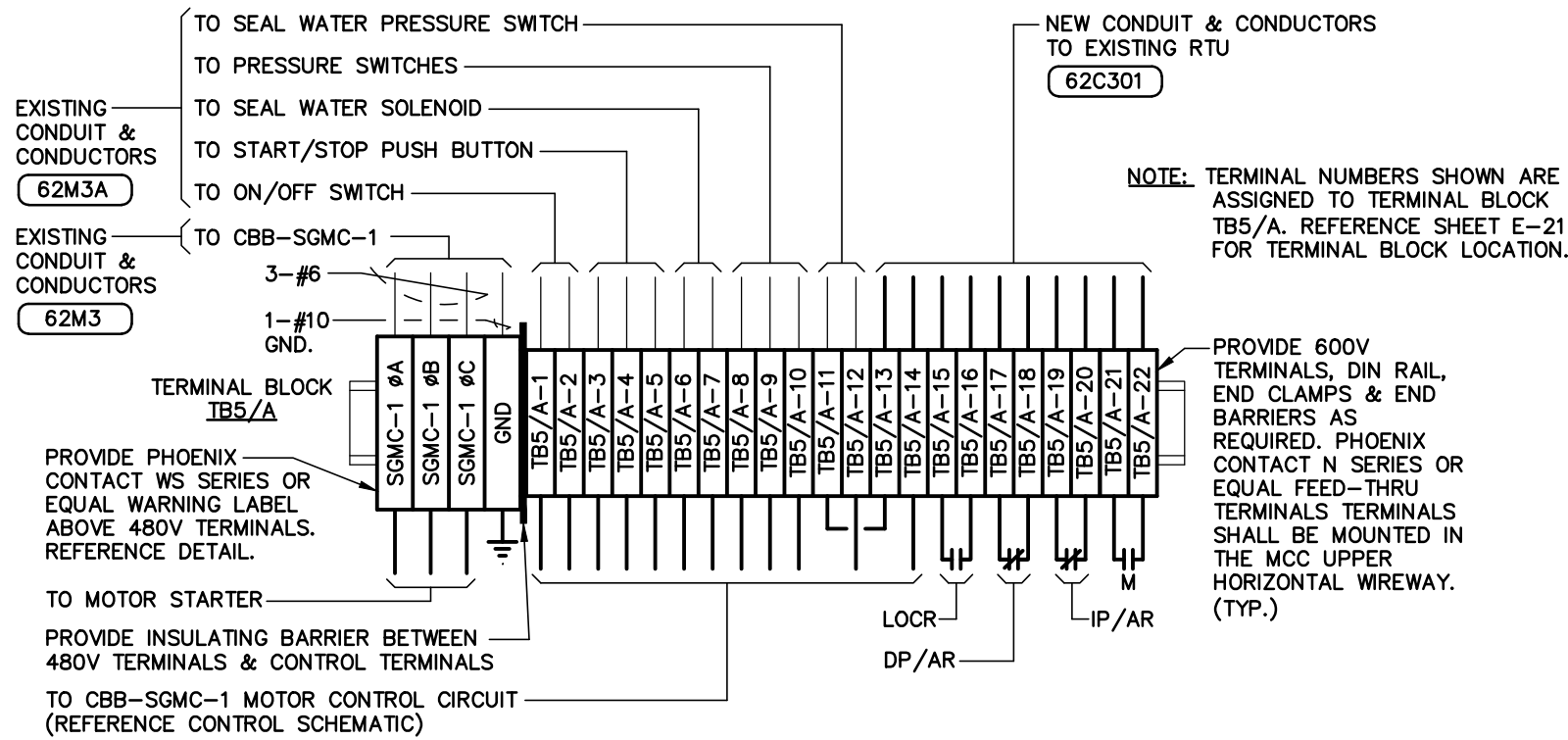
CITY of TAMPA
WASTEWATER DEPARTMENT

DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT
MOTOR CONTROL CENTER TERMINAL BLOCK
CONNECTION DETAILS
(SHEET 3 OF 8)

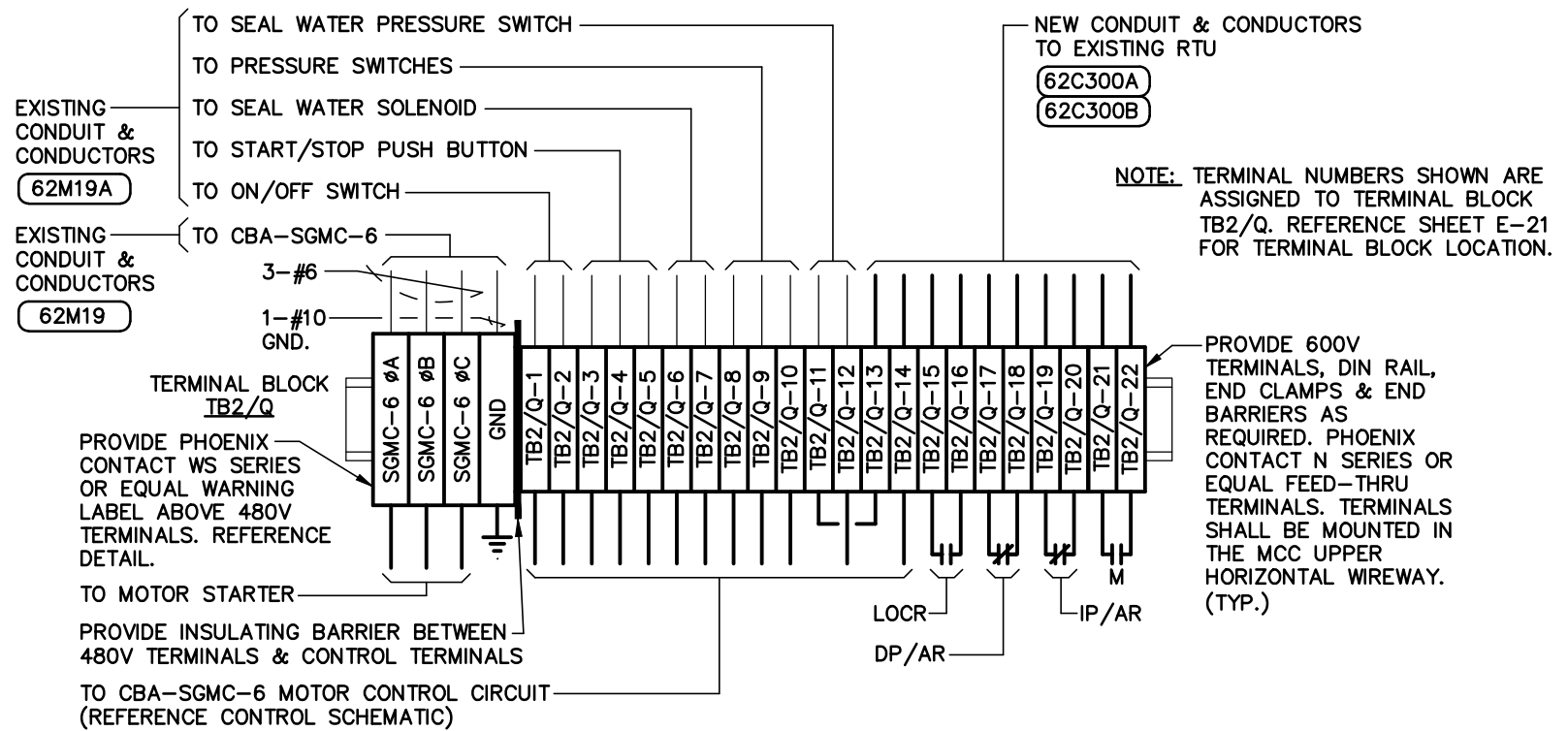
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DATE: 01/13/16
SHEET E-27

Certificate of Authorization Number: 4795



**TERMINAL BLOCK DETAIL -
SLUDGE GAS MIXING COMPRESSOR CBB-SGMC-1**



**TERMINAL BLOCK DETAIL -
SLUDGE GAS MIXING COMPRESSOR CBB-SGMC-2**

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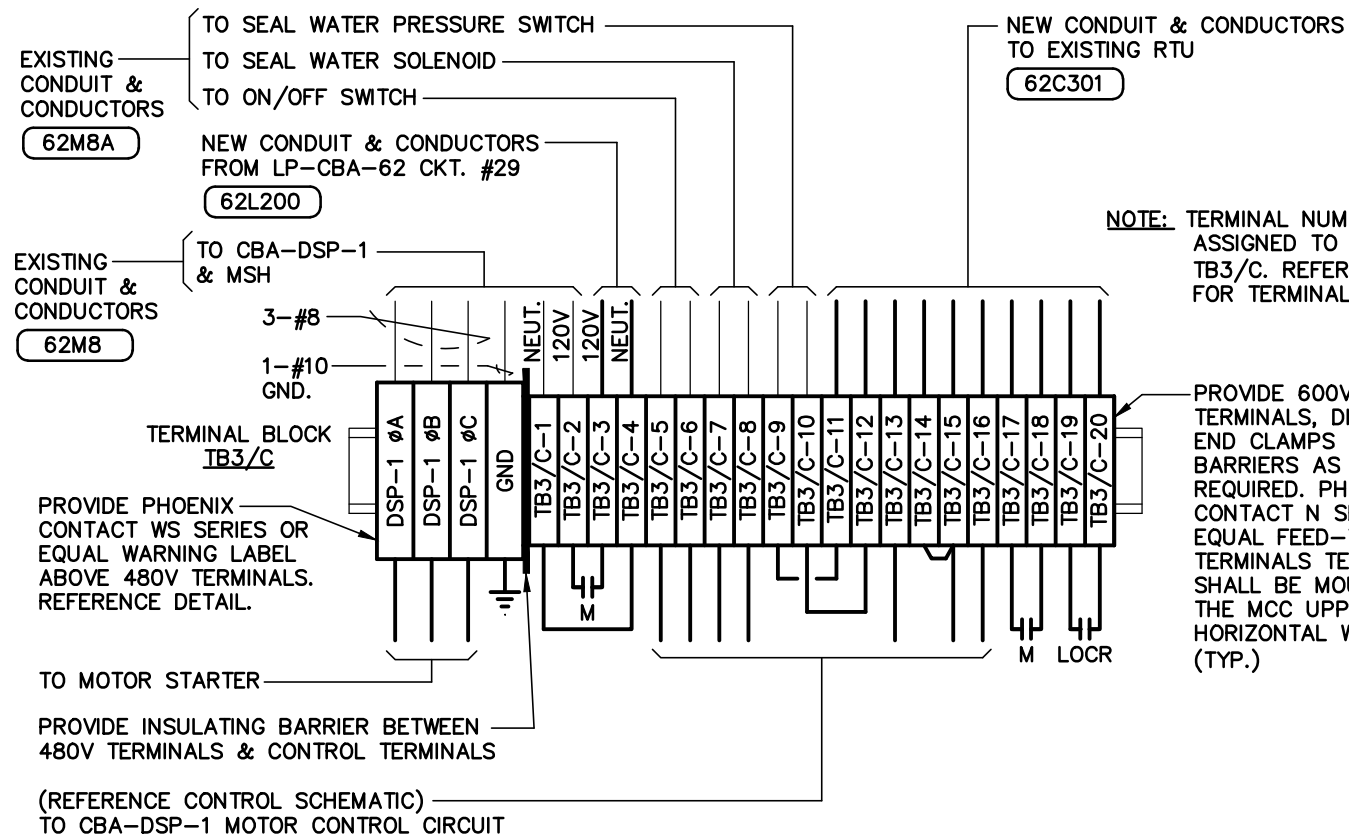
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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT
MOTOR CONTROL CENTER TERMINAL BLOCK
CONNECTION DETAILS
(SHEET 4 OF 8)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET E-28



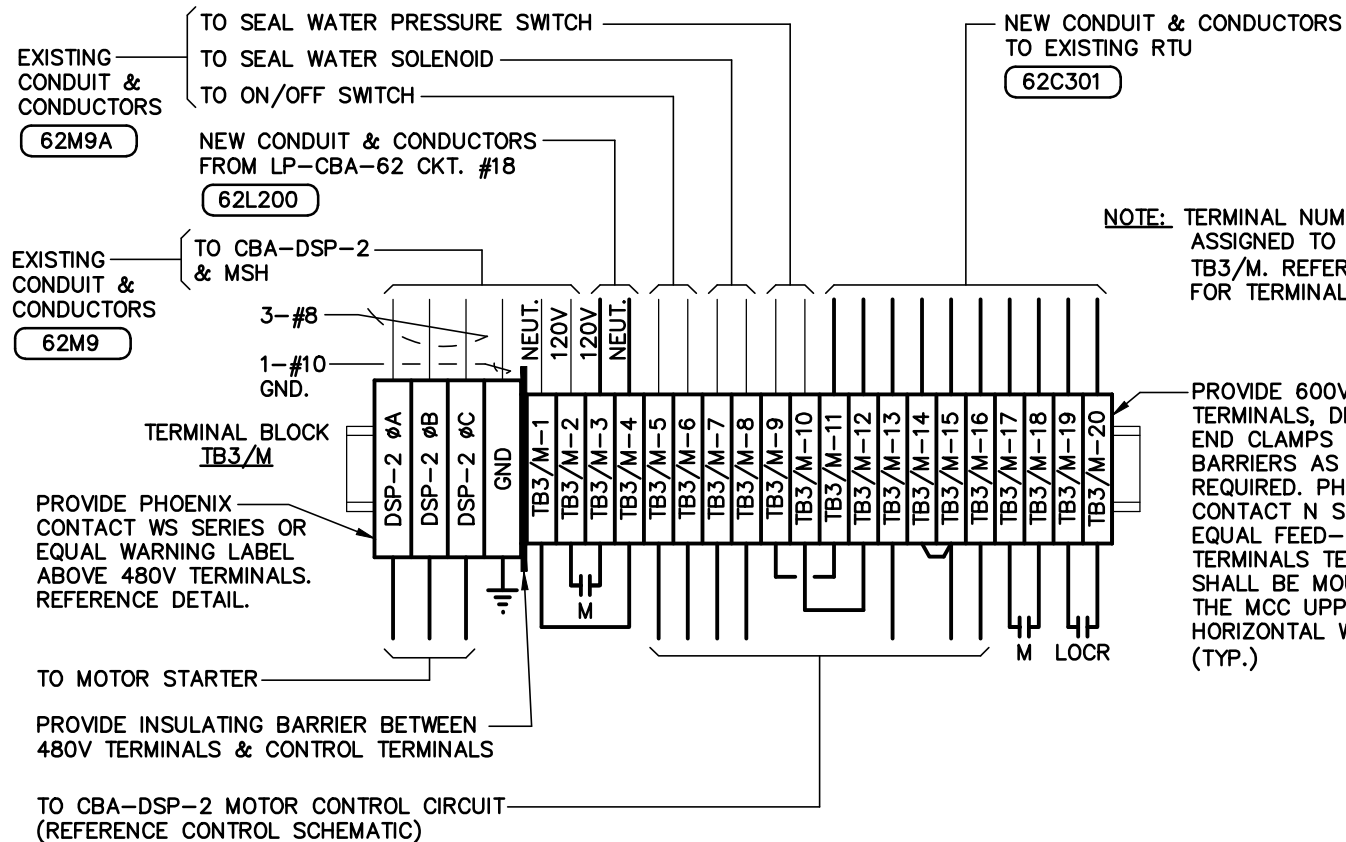
NOTE: TERMINAL NUMBERS SHOWN ARE ASSIGNED TO TERMINAL BLOCK TB3/C. REFERENCE SHEET E-21 FOR TERMINAL BLOCK LOCATION.

PROVIDE 600V TERMINALS, DIN RAIL, END CLAMPS & END BARRIERS AS REQUIRED. PHOENIX CONTACT N SERIES OR EQUAL FEED-THRU TERMINALS SHALL BE MOUNTED IN THE MCC UPPER HORIZONTAL WIREWAY. (TYP.)

PROVIDE PHOENIX CONTACT WS SERIES OR EQUAL WARNING LABEL ABOVE 480V TERMINALS. REFERENCE DETAIL.

TO MOTOR STARTER
 PROVIDE INSULATING BARRIER BETWEEN 480V TERMINALS & CONTROL TERMINALS
 (REFERENCE CONTROL SCHEMATIC)
 TO CBA-DSP-1 MOTOR CONTROL CIRCUIT

**TERMINAL BLOCK DETAIL -
 DIGESTED SLUDGE PUMP CBA-DSP-1**



NOTE: TERMINAL NUMBERS SHOWN ARE ASSIGNED TO TERMINAL BLOCK TB3/M. REFERENCE SHEET E-21 FOR TERMINAL BLOCK LOCATION.

PROVIDE 600V TERMINALS, DIN RAIL, END CLAMPS & END BARRIERS AS REQUIRED. PHOENIX CONTACT N SERIES OR EQUAL FEED-THRU TERMINALS SHALL BE MOUNTED IN THE MCC UPPER HORIZONTAL WIREWAY. (TYP.)

TO MOTOR STARTER
 PROVIDE INSULATING BARRIER BETWEEN 480V TERMINALS & CONTROL TERMINALS
 TO CBA-DSP-2 MOTOR CONTROL CIRCUIT (REFERENCE CONTROL SCHEMATIC)

**TERMINAL BLOCK DETAIL -
 DIGESTED SLUDGE PUMP CBA-DSP-2**

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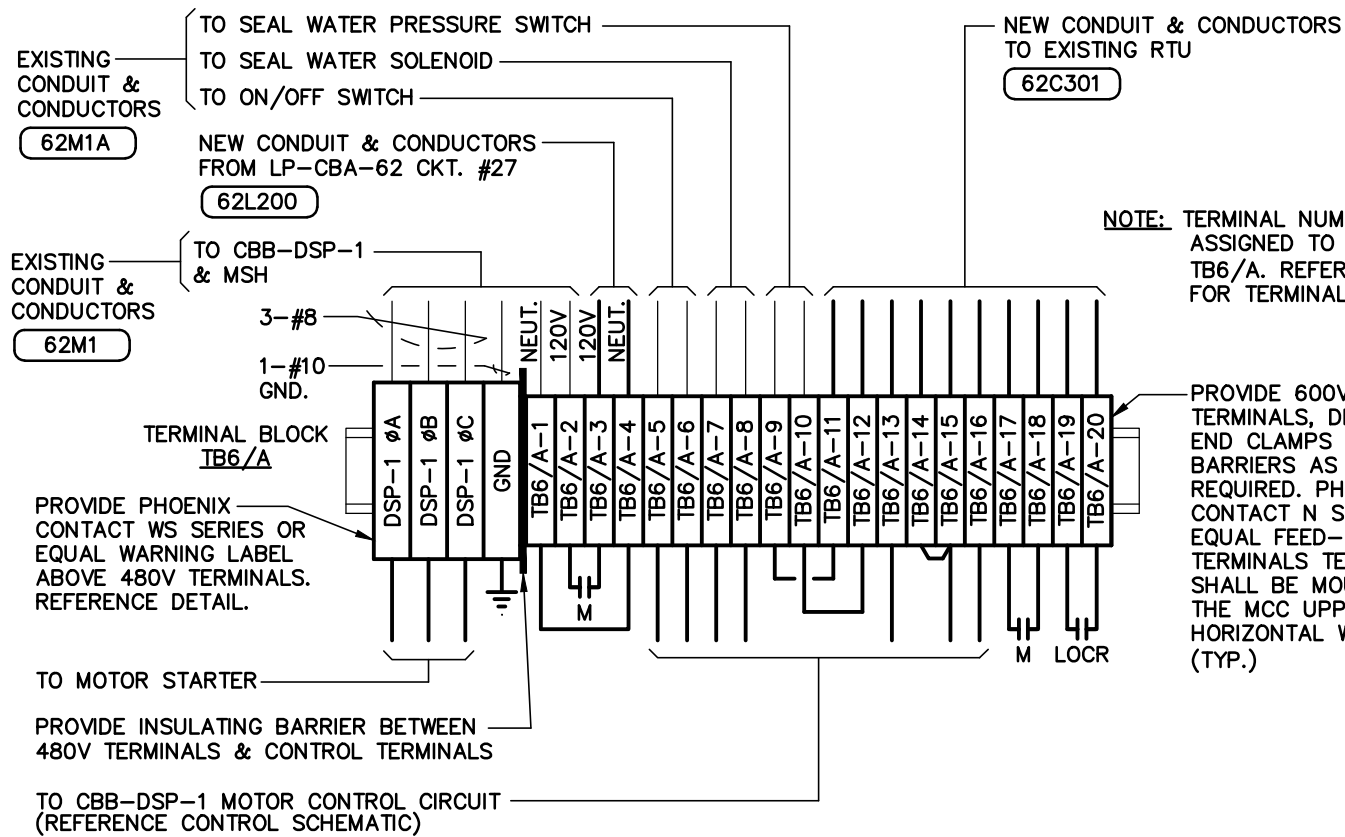
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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT
 MOTOR CONTROL CENTER TERMINAL BLOCK
 CONNECTION DETAILS
 (SHEET 5 OF 8)

NO.	DATE	REVISIONS

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 QC: BEH
 DATE: 01/13/16

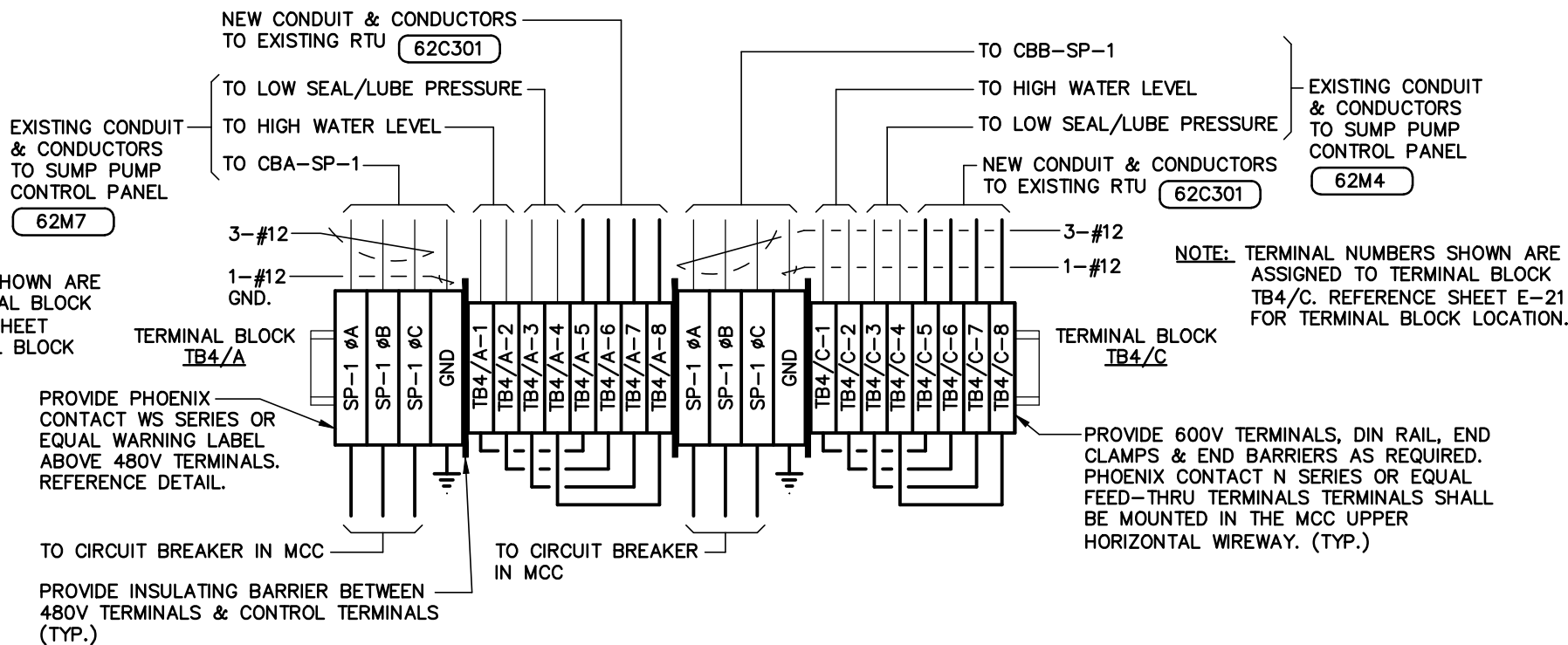
SHEET E-29



NOTE: TERMINAL NUMBERS SHOWN ARE ASSIGNED TO TERMINAL BLOCK TB6/A. REFERENCE SHEET E-21 FOR TERMINAL BLOCK LOCATION.

PROVIDE 600V TERMINALS, DIN RAIL, END CLAMPS & END BARRIERS AS REQUIRED. PHOENIX CONTACT N SERIES OR EQUAL FEED-THRU TERMINALS SHALL BE MOUNTED IN THE MCC UPPER HORIZONTAL WIREWAY. (TYP.)

**TERMINAL BLOCK DETAIL -
DIGESTED SLUDGE PUMP CBB-DSP-1**



NOTE: TERMINAL NUMBERS SHOWN ARE ASSIGNED TO TERMINAL BLOCK TB4/A. REFERENCE SHEET E-21A FOR TERMINAL BLOCK LOCATION.

NOTE: TERMINAL NUMBERS SHOWN ARE ASSIGNED TO TERMINAL BLOCK TB4/C. REFERENCE SHEET E-21 FOR TERMINAL BLOCK LOCATION.

PROVIDE 600V TERMINALS, DIN RAIL, END CLAMPS & END BARRIERS AS REQUIRED. PHOENIX CONTACT N SERIES OR EQUAL FEED-THRU TERMINALS SHALL BE MOUNTED IN THE MCC UPPER HORIZONTAL WIREWAY. (TYP.)

**TERMINAL BLOCK DETAIL -
SUMP PUMP CBA-SP-1 & CBB-SP-1**

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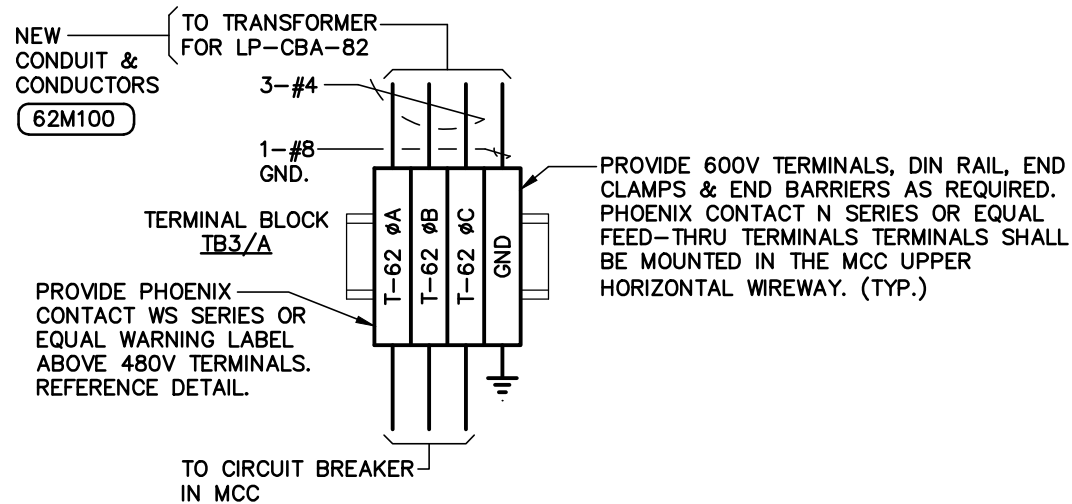
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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT
MOTOR CONTROL CENTER TERMINAL BLOCK
CONNECTION DETAILS
(SHEET 6 OF 8)

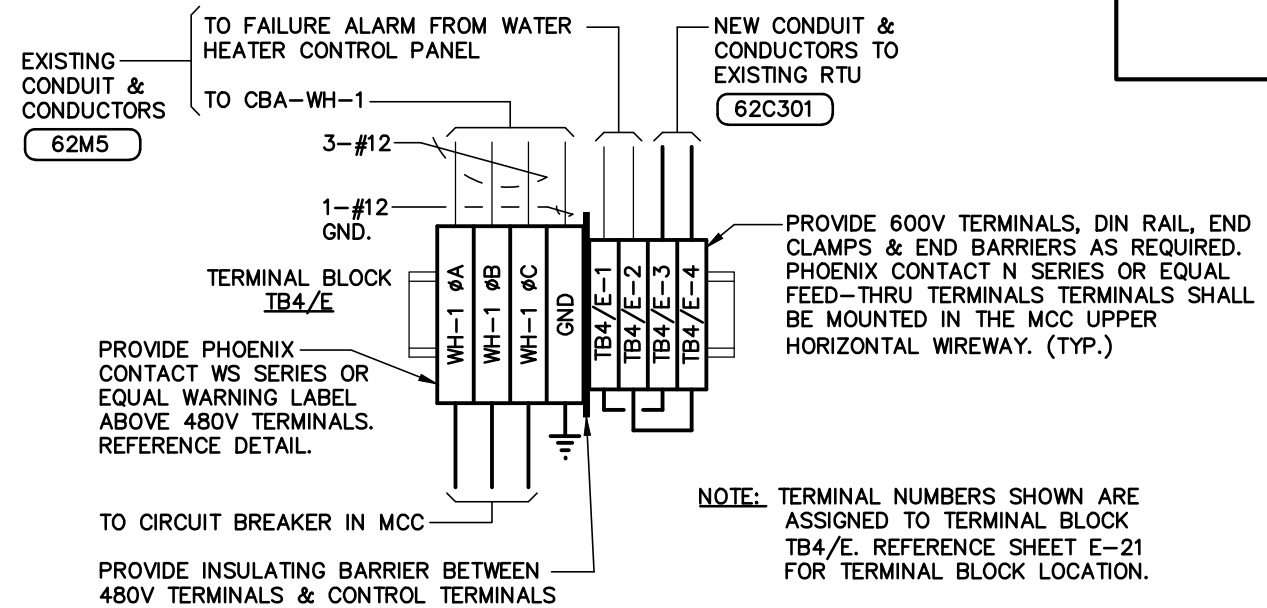
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DATE: 01/13/16

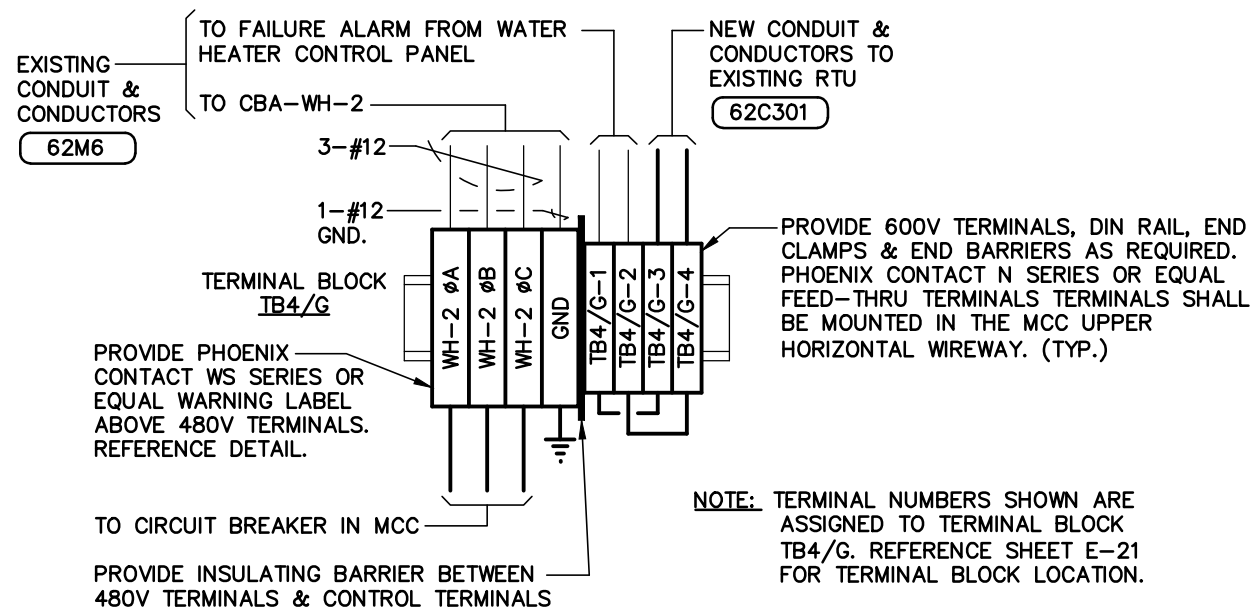
SHEET E-30



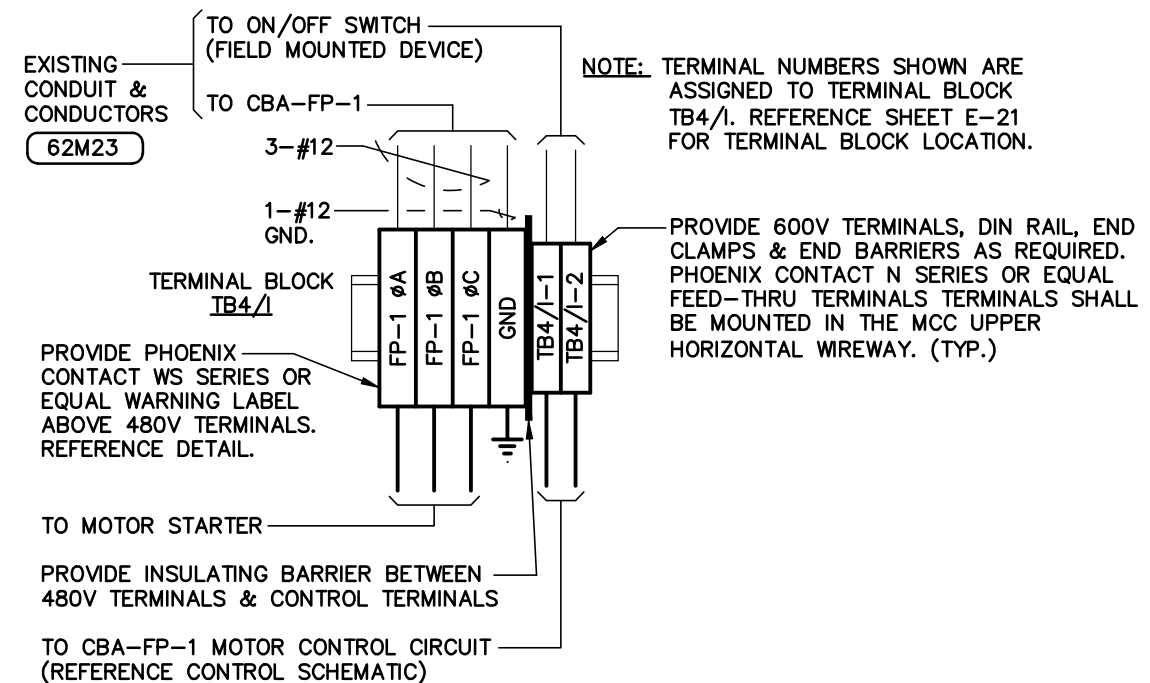
**TERMINAL BLOCK DETAIL -
TRANSFORMER CBA-T-62 (LP-CBA-62)**



**TERMINAL BLOCK DETAIL -
DUAL FUEL WATER HEATER CBA-WH-1**



**TERMINAL BLOCK DETAIL -
DUAL FUEL WATER HEATER CBA-WH-2**



**TERMINAL BLOCK DETAIL -
WATER HEATER FEED PUMP CBA-FP-1**

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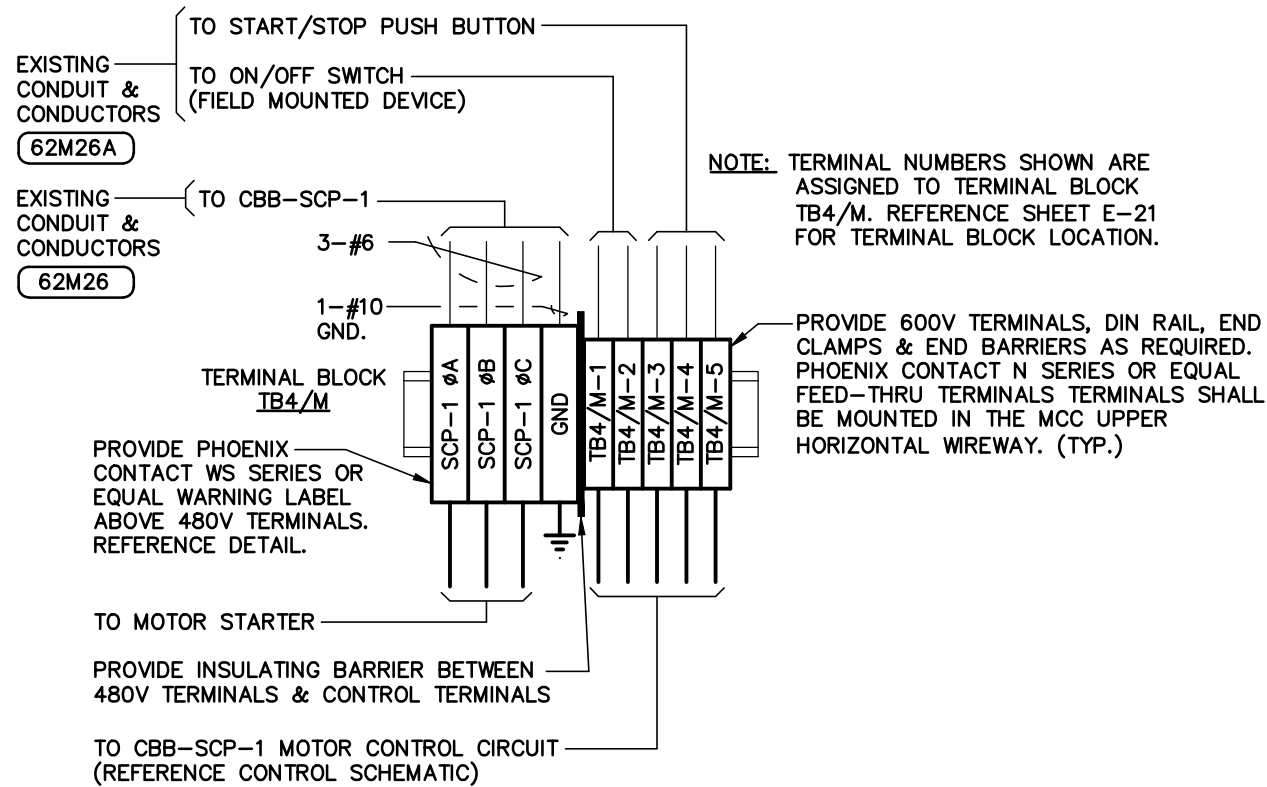
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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT
MOTOR CONTROL CENTER TERMINAL BLOCK
CONNECTION DETAILS
(SHEET 7 OF 8)

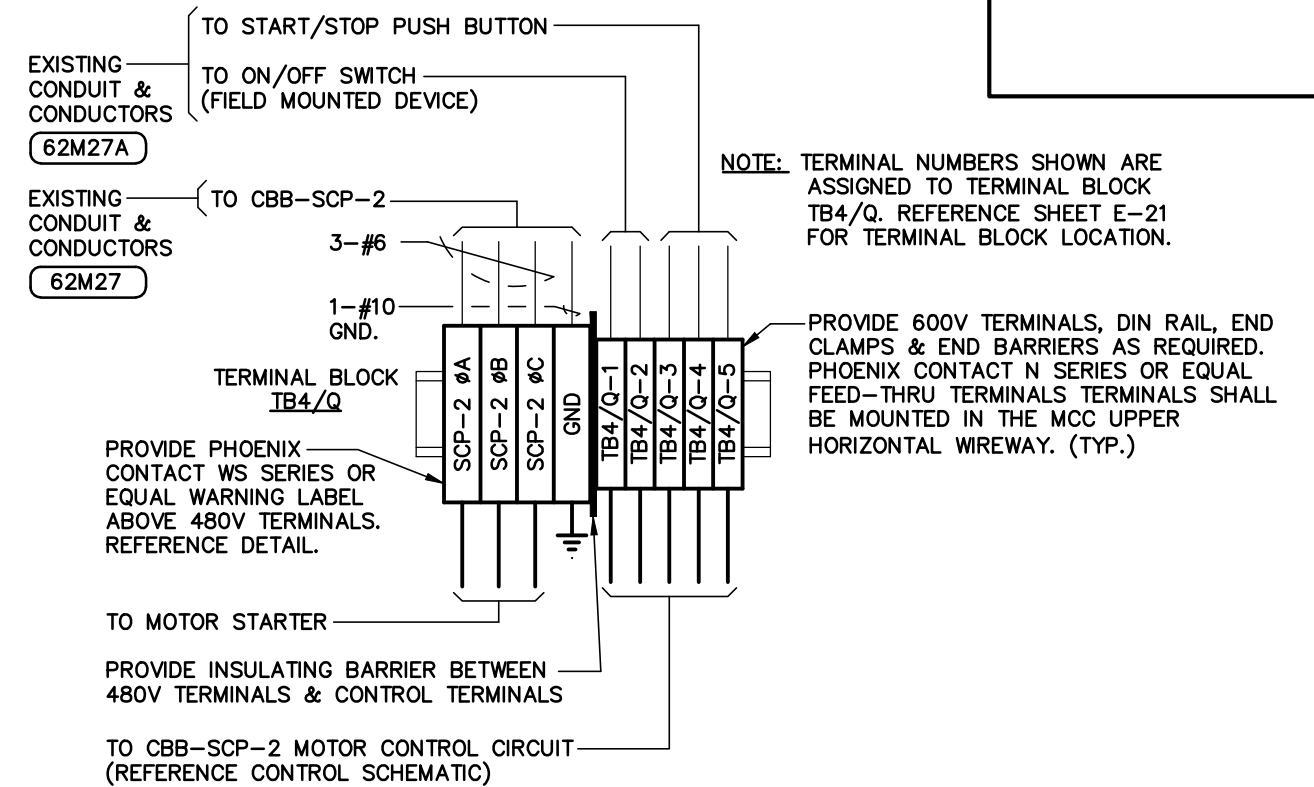
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DATE: 01/13/16
SHEET E-31

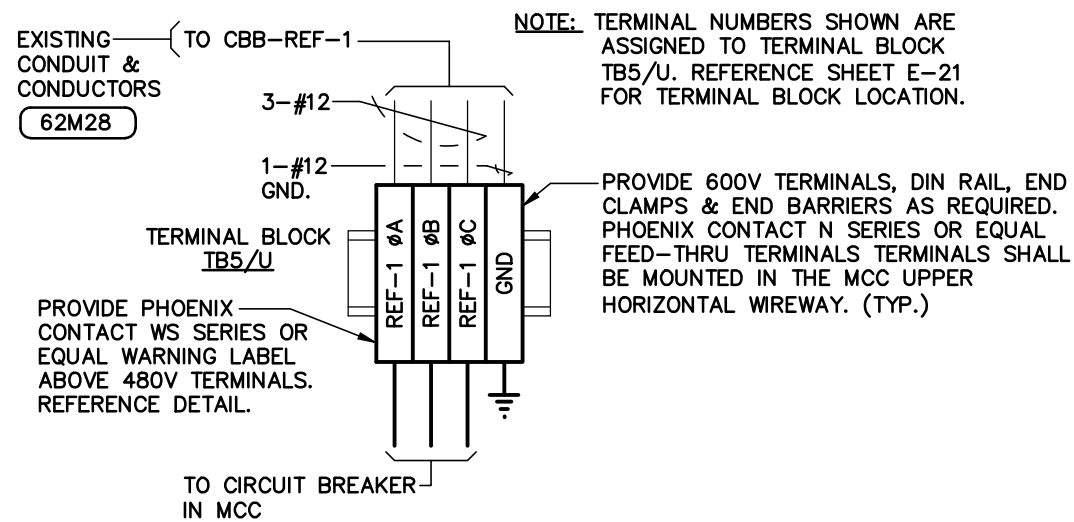
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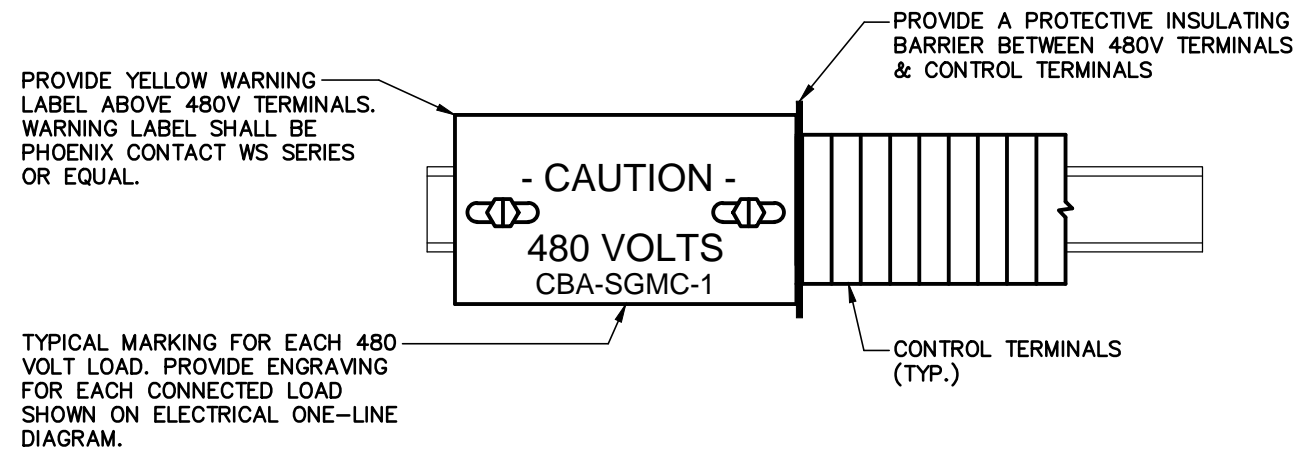
**TERMINAL BLOCK DETAIL -
SLUDGE CIRCULATING PUMP CBB-SCP-1**



**TERMINAL BLOCK DETAIL -
SLUDGE CIRCULATING PUMP CBB-SCP-2**



**TERMINAL BLOCK DETAIL -
ROOF EXHAUST FAN CBB-REF-1**



**TERMINAL BLOCK DETAIL -
480V - CAUTION LABEL DETAIL**

ENGINEER OF RECORD:
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CITY of TAMPA
WASTEWATER DEPARTMENT

DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT
MOTOR CONTROL CENTER TERMINAL BLOCK
CONNECTION DETAILS
(SHEET 8 OF 8)

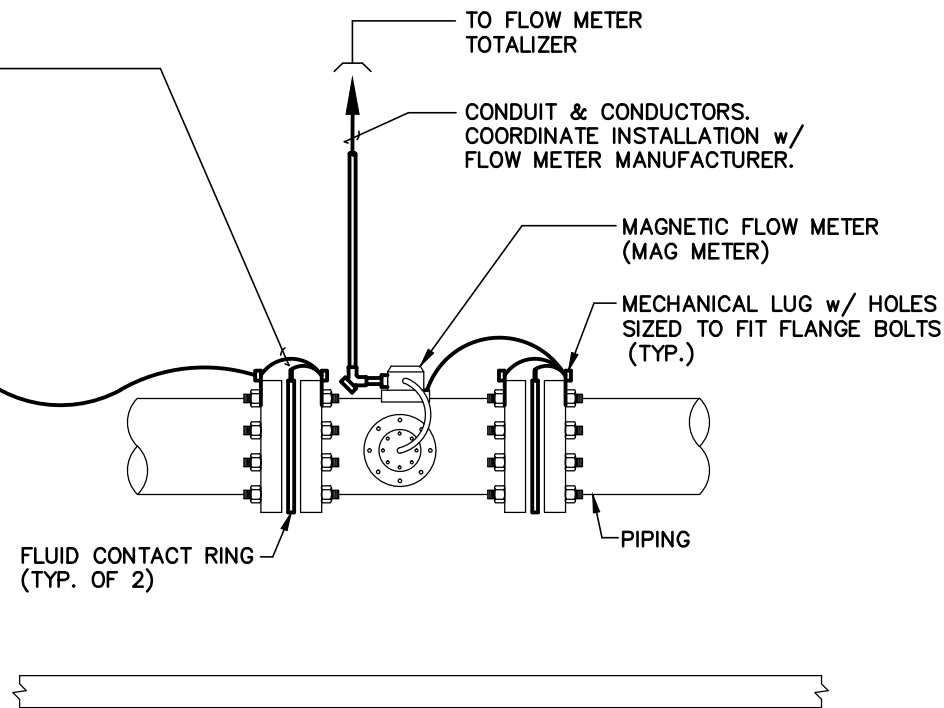
NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16
SHEET E-32

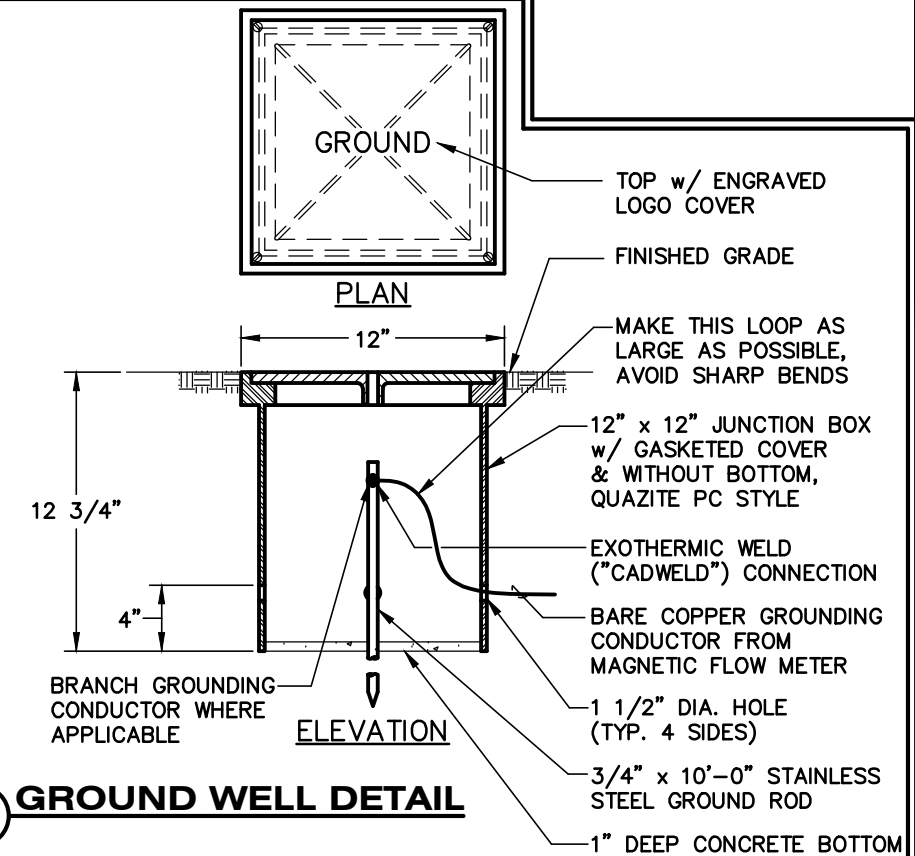
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CLASS K STRANDED, AWG #2 BARE COPPER CONDUCTOR OR BRAIDED GROUNDING STRAP. BOND TO MATING FLANGES OF MAGNETIC FLOW METER & TO 3/4" x 10'-0" STAINLESS STEEL GROUND ROD. COORDINATE GROUNDING REQUIREMENTS w/ FLOW METER MANUFACTURER.

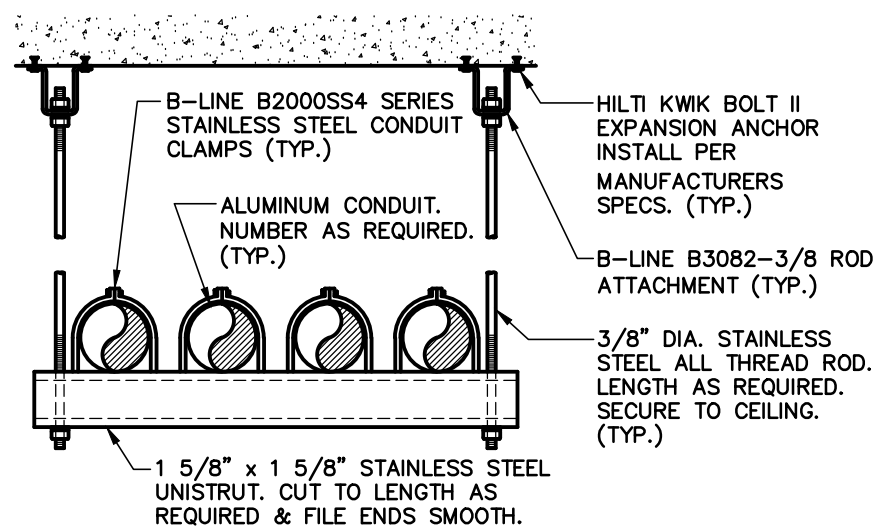
TO GROUND ROD. PROVIDE & INSTALL 3/4" x 10'-0" STAINLESS STEEL GROUND ROD OUTSIDE OF BUILDING. REFERENCE GROUND WELL DETAIL. COORDINATE GROUND WELL LOCATION WITH THE CITY.



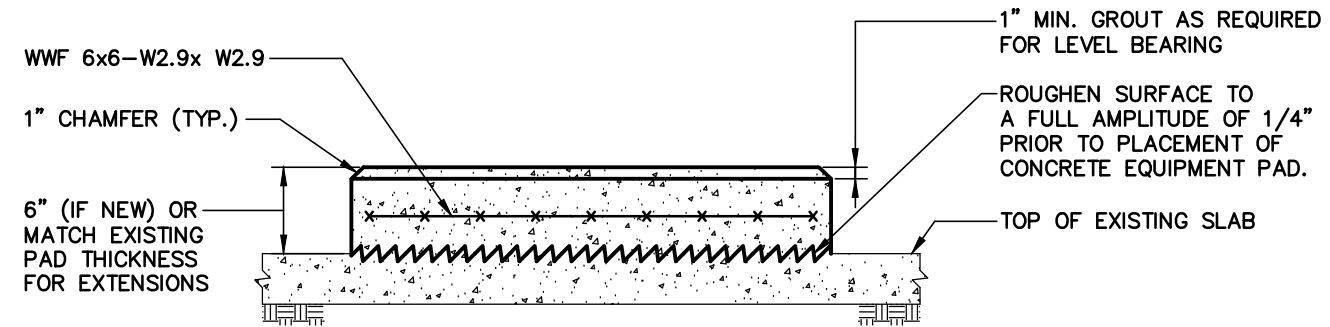
1 MAGNETIC FLOW METER CONNECTION DETAIL



3 GROUND WELL DETAIL



4 OVERHEAD CONDUIT SECURING DETAIL



5 TYPICAL HOUSEKEEPING PAD DETAIL

NOTES:

- PAD SIZE IN PLAN SHALL BE AS REQUIRED BY SPECIFICATIONS OR AS REQUIRED TO FULLY SUPPORT EQUIPMENT.
- CONTRACTOR SHALL VERIFY EQUIPMENT PAD LOCATIONS WITH FINAL DRAWINGS AND SPECIFICATIONS PRIOR TO CONSTRUCTION. EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS.

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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

ELECTRICAL DETAILS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET E-33

NO.	DATE	REVISIONS

PROPOSED CONDUIT / CONDUCTOR SCHEDULE

CONDUIT NO.	COND. SIZE	NO. WIRES	NO. SEALS	WIRE SIZE	FROM	TO	REMARKS
62M100	1 1/4"	3		#4	MCC-62	TRANSFORMER CBA-T-62	FEEDER TO TRANSFORMER CBA-T-62
		1		#8 GND.			
62M101	2"	3		#3/0	MCC-62	EXISTING MCC-62A	FEEDER TO MCC-62A
		1		#3 GND.			
62L200	1"	3		#10	MCC-62	LP-CBA-62	MOTOR SPACE HTRS CBA-DSP-1, CBA-DSP-2 CBB-DSP-1.
		1		#10 NEUT.			
		1		#10 GND.			
62C300A	2"	40		#14	MCC-62 (SECTION 2)	EXISTING RTU	SEE NOTE 1.
		12		#14 SPARE			
		1		#14 GND.			
62C300B	2"	40		#14	MCC-62 (SECTION 2)	EXISTING RTU	SEE NOTE 1.
		12		#14 SPARE			
		1		#14 GND.			
62C301	2"	42		#14	MCC-62 (SECTION 5)	EXISTING RTU	SEE NOTE 1.
		12		#14 SPARE			
		1		#14 GND.			
62C302	2"	42		#14	NEW CONTROL CABINET	EXISTING RTU	SEE NOTE 1.
		20		#14 SPARE			
		1		#14 GND.			
62A400	3"	20		2/C #16 SHLD.	NEW CONTROL CABINET	EXISTING RTU	BELDEN 8719. SEE NOTES 1 & 2.
		10		2/C #16 SHLD. SPARE			

NOTES:

1. CITY WILL BE RESPONSIBLE FOR TERMINATIONS & CONNECTIONS OF ALL WRING CONNECTED IN THE EXISTING RTU.
2. THE SHIELD & DRAIN WIRES FOR ANALOG CABLES SHALL BE GROUNDED AT THE RTU ONLY. THE SHIELD & DRAIN WIRE AT THE END DEVICE SHALL BE NEATLY TRIMMED & TAPED w/ 2 LAYERS OF VINYL ELECTRICAL TAPE (SCOTCH 33+).

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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

CONDUIT SCHEDULE

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16
SHEET E-34

Certificate of Authorization Number: 4795

EXISTING CONDUIT / CONDUCTOR SCHEDULE

CONDUIT NO.	COND. SIZE	NO. WIRES	NO. SEALS	WIRE SIZE	FROM	TO	REMARKS
60M3A	4"	3		500 KCMIL	480V SWITCHGEAR NO. 60	MCC-62	EXISTING CONDUIT & CONDUCTORS
		1		#1/0 GND.			
60M3B	4"	3		500 KCMIL	480V SWITCHGEAR NO. 60	MCC-62	EXISTING CONDUIT & CONDUCTORS
		1		#1/0 GND.			
60M3C	4"			SPARE	480V SWITCHGEAR NO. 60	MCC-62	EXISTING CONDUIT
62M1	1 1/4"	3		#4	MCC-62	CBB-DSP-1	EXISTING CONDUIT & CONDUCTORS
		2		#10			
		1		#8 GND.			
62M1A	1 1/4"	6		#14	MCC-62	CBB-DSP-1 FIELD DEVICES	CONTROLS. EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M2	1 1/2"	3		#2	MCC-62	CBB-SGMC-2	EXISTING CONDUIT & CONDUCTORS
		1		#6 GND.			
62M2A	1 1/4"	12		#14	MCC-62	CBB-SGMC-2 FIELD DEVICES	CONTROLS. EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M3	1 1/2"	3		#2	MCC-62	CBB-SGMC-1	EXISTING CONDUIT & CONDUCTORS
		1		#6 GND.			
62M3A	1 1/4"	12		#14	MCC-62	CBB-SGMC-1 FIELD DEVICES	CONTROLS. EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M4	3/4"	3		#12	MCC-62	CBB-SP-1	EXISTING CONDUIT & CONDUCTORS
		4		#14			
		1		#12 GND.			
62M5	3/4"	3		#12	MCC-62	CBA-WH-1	EXISTING CONDUIT & CONDUCTORS
		2		#14			
		1		#12 GND.			
62M6	3/4"	3		#12	MCC-62	CBA-WH-2	EXISTING CONDUIT & CONDUCTORS
		2		#14			
		1		#12 GND.			
62M7	3/4"	3		#12	MCC-62	CBA-SP-1	EXISTING CONDUIT & CONDUCTORS
		4		#14			
		1		#12 GND.			
62M8	1"	3		#8	MCC-62	CBA-DSP-1	EXISTING CONDUIT & CONDUCTORS
		2		#10			
		1		#10 GND.			
62M8A	1 1/4"	6		#14	MCC-62	CBA-DSP-1 FIELD DEVICES	CONTROLS. EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M9	1"	3		#8	MCC-62	CBA-DSP-2	EXISTING CONDUIT & CONDUCTORS
		2		#10			
		1		#10 GND.			
62M9A	1 1/4"	6		#14	MCC-62	CBA-DSP-2 FIELD DEVICES	CONTROLS. EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			

NOTES:

1. THE EXISTING CONDUIT SCHEDULE IS PROVIDED FOR CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID & PRIOR TO COMMENCING CONSTRUCTION.

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CITY of TAMPA
WASTEWATER DEPARTMENT

DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

EXISTING CONDUIT SCHEDULE
(SHEET 1 OF 2)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16
SHEET E-35

Certificate of Authorization Number: 4795

EXISTING CONDUIT / CONDUCTOR SCHEDULE

CONDUIT NO.	COND. SIZE	NO. WIRES	NO. SEALS	WIRE SIZE	FROM	TO	REMARKS
62M14	1 1/4"	3		#6	MCC-62	CBA-SGMC-1	EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M14A	1 1/4"	12		#14	MCC-62	CBA-SGMC-1 FIELD DEVICES	CONTROLS. EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M15	1 1/4"	3		#6	MCC-62	CBA-SGMC-2	EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M15A	1 1/4"	12		#14	MCC-62	CBA-SGMC-2 FIELD DEVICES	CONTROLS. EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M16	1 1/4"	3		#6	MCC-62	CBA-SGMC-3	EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M16A	1 1/4"	12		#14	MCC-62	CBA-SGMC-3 FIELD DEVICES	CONTROLS. EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M17	1 1/4"	3		#6	MCC-62	CBA-SGMC-4	EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M17A	1 1/4"	12		#14	MCC-62	CBA-SGMC-4 FIELD DEVICES	CONTROLS. EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M18	1 1/4"	3		#6	MCC-62	CBA-SGMC-5	EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M18A	1 1/4"	12		#14	MCC-62	CBA-SGMC-5 FIELD DEVICES	CONTROLS. EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M19	1 1/4"	3		#6	MCC-62	CBA-SGMC-6	EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M19A	1 1/4"	12		#14	MCC-62	CBA-SGMC-6 FIELD DEVICES	CONTROLS. EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M23	1"	3		#12	MCC-62	CBA-FP-1	EXISTING CONDUIT & CONDUCTORS
		2		#14			
		1		#12 GND.			
62M25	1"	2		#10	MCC-62	EXISTING SHUNT TRIP PUSH BUTTON	MAIN BREAKER SHUNT TRIP
		1		#10 GND.			
62M26	1 1/4"	3		#6	MCC-62	CBB-SCP-1	EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M26A	1"	5		#12	MCC-62	CBB-SCP-1 FIELD DEVICES	CONTROLS. EXISTING CONDUIT & CONDUCTORS
		1		#12 GND.			
62M27	1 1/4"	3		#6	MCC-62	CBB-SCP-2	EXISTING CONDUIT & CONDUCTORS
		1		#10 GND.			
62M27A	1"	5		#12	MCC-62	CBB-SCP-2 FIELD DEVICES	CONTROLS. EXISTING CONDUIT & CONDUCTORS
		1		#12 GND.			
62M28	1"	3		#12	MCC-62	CBB-REF-1	EXISTING CONDUIT & CONDUCTORS
		1		#12 GND.			

NOTES:

1. THE EXISTING CONDUIT SCHEDULE IS PROVIDED FOR CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID & PRIOR TO COMMENCING CONSTRUCTION.

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CITY of TAMPA
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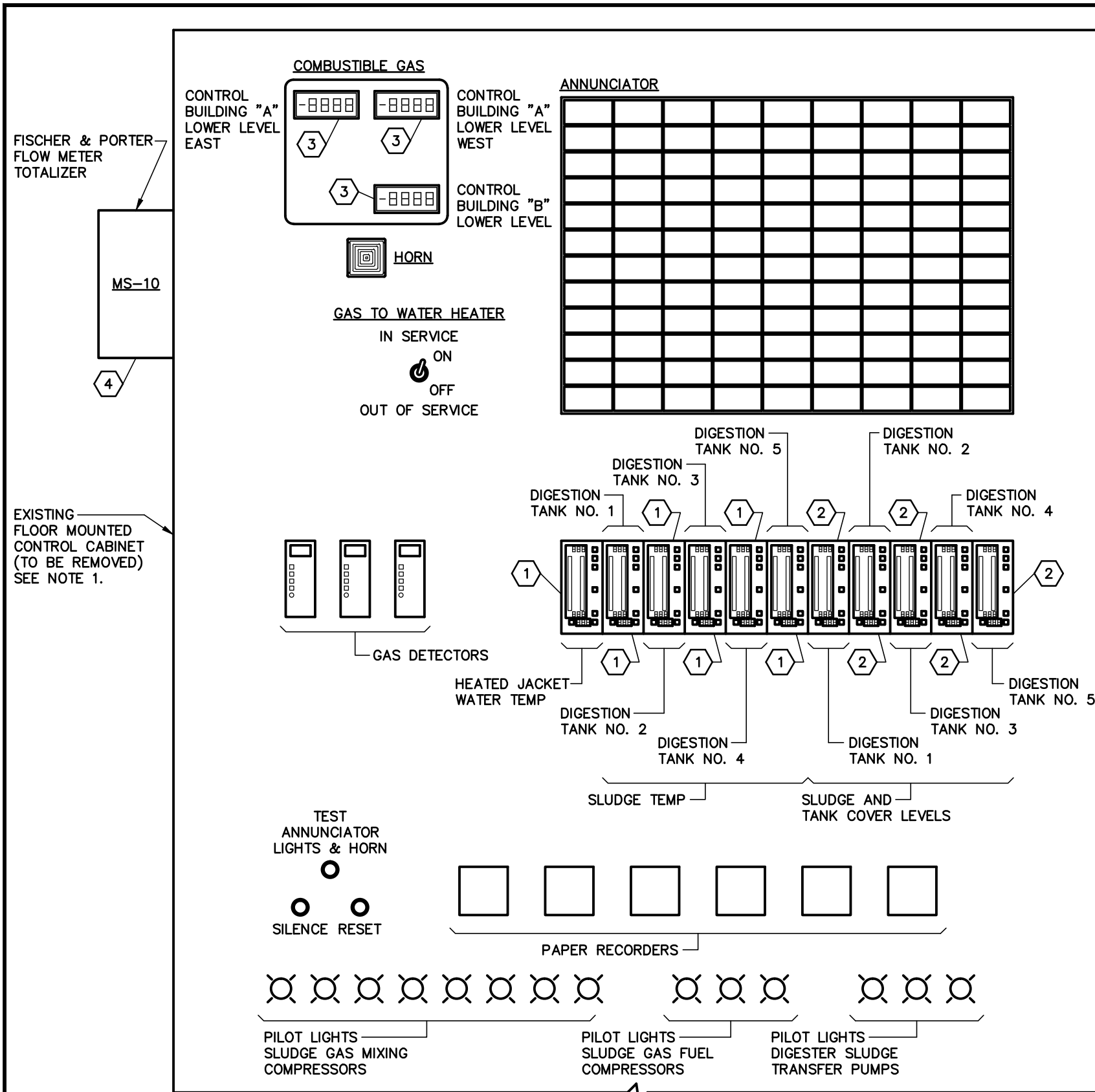
DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

**EXISTING CONDUIT SCHEDULE
(SHEET 2 OF 2)**

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16
SHEET E-36

Certificate of Authorization Number: 4795



KEYED NOTES:

- ① EXISTING MICROMOD AUTOMATION MICRO DCI SINGLE LOOP TEMPERATURE CONTROLLER. THE CONTROLLER SHALL BE REMOVED AND INSTALLED IN THE NEW CONTROL CABINET. THE EXISTING CONDUCTORS CONNECTED TO THE CONTROLLER SHALL REMAIN & SHALL BE RE-CONNECTED TO THE EXISTING CONTROLLERS INSTALLED IN THE NEW CONTROL CABINET.
- ② EXISTING MICROMOD AUTOMATION MICRO DCI SINGLE LOOP LEVEL CONTROLLER. THE CONTROLLER SHALL BE REMOVED AND DISCARDED. THE EXISTING CONDUCTORS CONNECTED TO THE CONTROLLER SHALL REMAIN & SHALL BE RE-CONNECTED TO NEW PRECISION DIGITAL DISPLAYS INSTALLED IN THE NEW CONTROL CABINET.
- ③ EXISTING PRECISION DIGITAL COMBUSTIBLE GAS DISPLAY. THE DISPLAY SHALL BE REMOVED AND DISCARDED. THE EXISTING CONDUCTORS CONNECTED TO THE DISPLAY SHALL REMAIN & SHALL BE RE-CONNECTED TO NEW PRECISION DIGITAL DISPLAYS INSTALLED IN THE NEW CONTROL CABINET.
- ④ EXISTING FISCHER & PORTER FLOW METER TOTALIZER. THE TOTALIZER SHALL BE REMOVED AND DISCARDED. FOR MORE INFORMATION ON THE PROPOSED FLOW METER MS-10, SEE SHEETS E-7 & E-33. THE FLOW METER TRANSMITTER PROPOSED FOR THE NEW CONTROL CABINET SHALL BE AS FOLLOWS:

MANUFACTURER: ABB
 SERIES: PROCESS MASTER
 MODEL: FET325 WITH THE FOLLOWING FEATURES:
 - CLASS I, DIVISION 2 EXPLOSION PROTECTION (NOTE THAT THIS WILL BE INSTALLED IN AN UNCLASSIFIED AREA)
 - NEMA 4X PROTECTION CLASS
 - 100 TO 230 VAC POWER SUPPLY
 - 4-20 mA AND HART SIGNAL OUTPUT

NOTE: A NEW CABLE WILL BE SUPPLIED WITH THE PROPOSED MS-10 FLOW METER TUBE/SENSOR (SEE SHEET E-7). THE EXISTING CONDUIT MAY BE UTILIZED TO RUN THIS CABLE TO THE NEW TRANSMITTER.

NOTES:

- 1. THE CONTROL CABINET SHALL BE REMOVED FROM PREMISES AND DISPOSED OF PROPERLY. UNLESS OTHERWISE NOTED, ALL CABINET MOUNTED COMPONENTS AND ASSOCIATED CONDUIT & WIRING SHALL BE REMOVED. COORDINATE DEMOLITION OF THE CONTROL CABINET w/ OWNER.
- 2. REFERENCE NEW CONTROL CABINET DETAILS.
- 3. CONTRACTOR SHALL EXERCISE CARE TO NOT DAMAGE THE WIRING THAT IS TO REMAIN & WILL BE UTILIZED IN THE CONNECTIONS TO THE NEW CONTROL CABINET.
- 4. THE TEMPERATURE CONTROLLERS TO BE REMOVED FROM THE EXISTING CONTROL CABINET HAVE EXISTING APPLICATION PROGRAMS STORED IN MEMORY. CONTRACTOR SHALL ENSURE THE PROGRAMS ARE NOT ALTERED. PROGRAMS THAT ARE ALTERED OR DELETED SHALL BE RESTORED IN THE CONTROLLER AT THE CONTRACTOR'S EXPENSE.

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CITY of TAMPA
 WASTEWATER DEPARTMENT

DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

EXISTING CONTROL CABINET DETAILS

NO.	DATE	REVISIONS

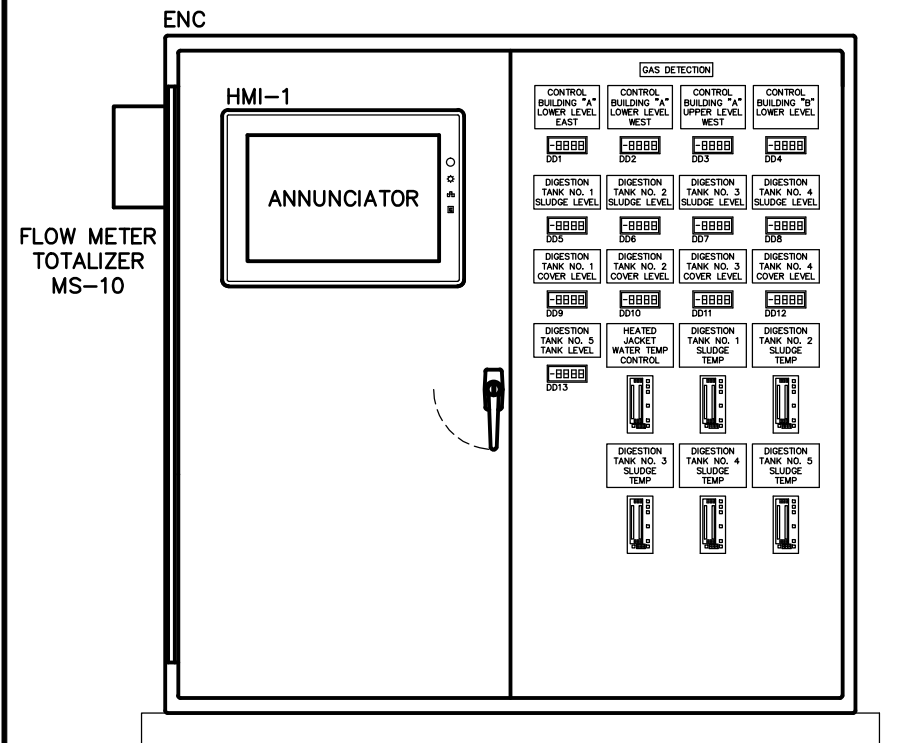
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SHEET I-1

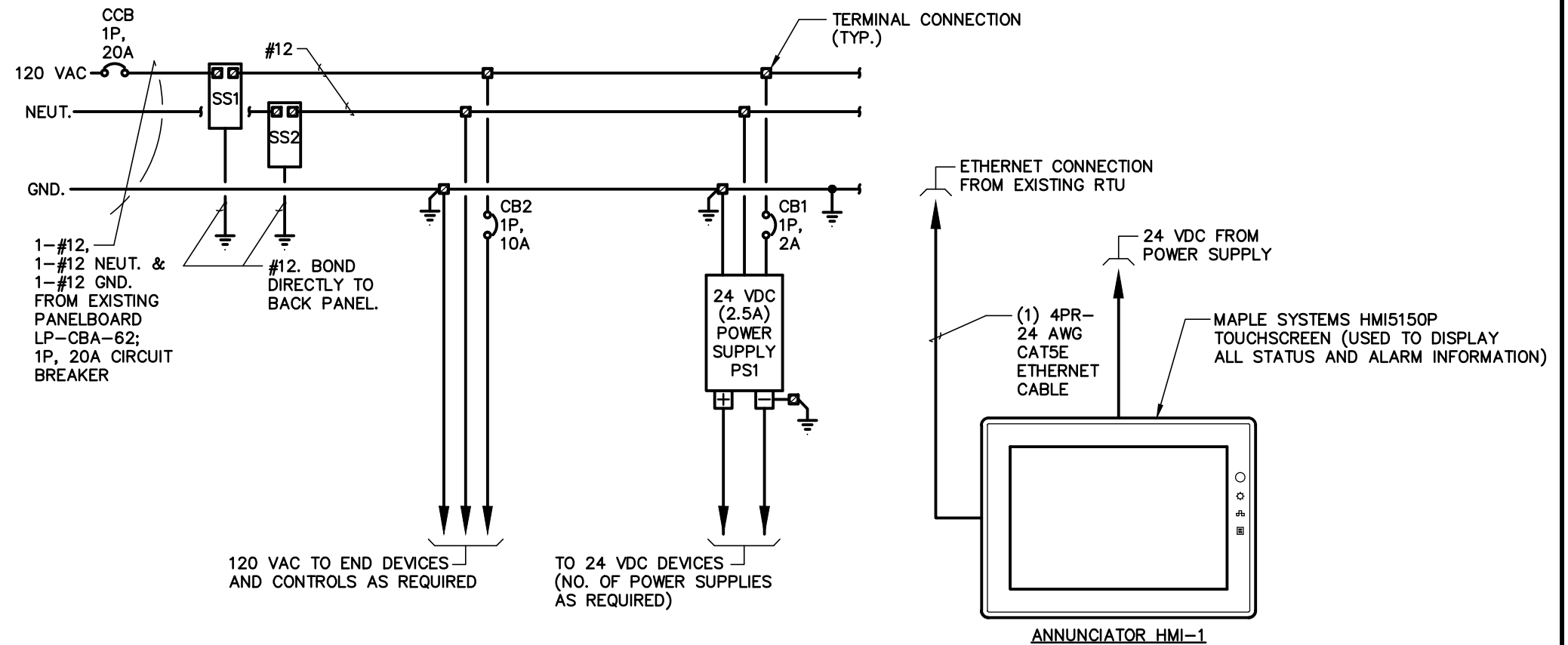
BILL OF MATERIALS

MARK	DESCRIPTION	RATING	MANUFACTURER	CATALOG NUMBER	REMARKS
CB1	DIN RAIL MOUNT SUPPLEMENTARY PROTECTOR	1P, 2A, 120 VAC	SIEMENS	5SY4102-7	
CB2	DIN RAIL MOUNT SUPPLEMENTARY PROTECTOR	1P, 10A, 120 VAC	SIEMENS	5SY4110-7	
CCB	CONTROL CIRCUIT BREAKER	1P, 20A, 120 VAC	SIEMENS	BQXD SERIES	INSULATE UNUSED CONNECTION POSITIONS.
DD1 - DD13	LARGE DISPLAY PROCESS METER	85 VAC - 265 VAC, 12 VDC - 36 VDC	PRECISION DIGITAL	PD765-6X2-00	w/ 4-20 mA OUTPUT
ENC	CONTROL CABINET ENCLOSURE	NEMA TYPE 12, GASKETED, 304 SS	HOFFMAN	A727224SSFSAD (72" x 72" x 24")	w/ BACK PANEL & 3-PT LATCH
HMI-1	HUMAN MACHINE INTERFACE - ANNUNCIATOR	24 VDC, 15"	MAPLE SYSTEMS	HMI5150P	ANNUNCIATOR
PS1	24 VDC POWER SUPPLY	INPUT 1Ø, 120 VAC, 1.3A OUTPUT 24 VDC, 2.5A	SOLA	SDN 2.5-24-100	PROVIDE MOUNTING TRACK AND ACCESSORIES.
SS1 - SS2	DIN RAIL MOUNT SURGE SUPPRESSOR	1Ø, 120 VAC, 60 HZ	PHOENIX CONTACT	2807586	PROVIDE MOUNTING TRACK & BASE. (2817741)

NOTE: ALL DIN RAILS SHALL BE OF ALUMINUM CONSTRUCTION.



CONTROL CABINET



CONTROL CABINET CONNECTIONS

ENGINEER OF RECORD:
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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

NEW CONTROL CABINET DETAILS

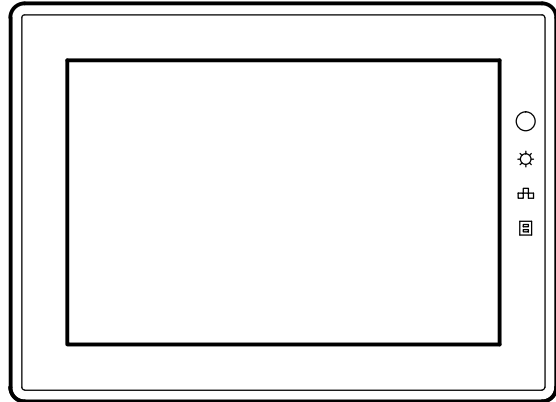
NO.	DATE	REVISIONS

DRAWN: RWB
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DATE: 01/13/16

SHEET 1-2

FLOW METER
TOTALIZER
MS-10

HMI-1



GAS DETECTION

CONTROL BUILDING "A" LOWER LEVEL EAST-LEL	CONTROL BUILDING "A" LOWER LEVEL WEST-LEL	CONTROL BUILDING "A" UPPER LEVEL WEST-LEL	CONTROL BUILDING "B" LOWER LEVEL-LEL
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-8888 DD1	-8888 DD2	-8888 DD3	-8888 DD4
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DIGESTION TANK NO. 1 SLUDGE LEVEL	DIGESTION TANK NO. 2 SLUDGE LEVEL	DIGESTION TANK NO. 3 SLUDGE LEVEL	DIGESTION TANK NO. 4 SLUDGE LEVEL
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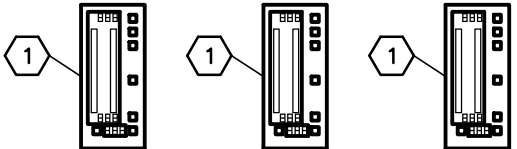
-8888 DD5	-8888 DD6	-8888 DD7	-8888 DD8
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DIGESTION TANK NO. 1 COVER LEVEL	DIGESTION TANK NO. 2 COVER LEVEL	DIGESTION TANK NO. 3 COVER LEVEL	DIGESTION TANK NO. 4 COVER LEVEL
----------------------------------	----------------------------------	----------------------------------	----------------------------------

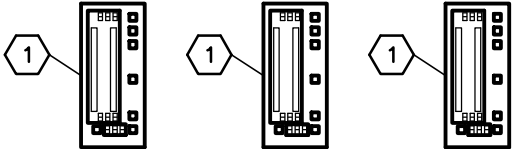
-8888 DD9	-8888 DD10	-8888 DD11	-8888 DD12
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DIGESTION TANK NO. 5 TANK LEVEL	HEATED JACKET WATER TEMP CONTROL	DIGESTION TANK NO. 1 SLUDGE TEMP	DIGESTION TANK NO. 2 SLUDGE TEMP
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-8888 DD13	1	1	1
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DIGESTION TANK NO. 3 SLUDGE TEMP	DIGESTION TANK NO. 4 SLUDGE TEMP	DIGESTION TANK NO. 5 SLUDGE TEMP
----------------------------------	----------------------------------	----------------------------------



KEYED NOTES:

- 1 EXISTING MICROMOD AUTOMATION MICRO DCI SINGLE LOOP TEMPERATURE CONTROLLER RELOCATED FROM THE EXISTING CONTROL CABINET. TERMINATE EXISTING FIELD CONDUCTORS TO THE EXISTING CONTROLLER. SEE NOTE 1.

NOTES:

- 1. THE TEMPERATURE CONTROLLERS TO BE REMOVED FROM THE EXISTING CONTROL CABINET HAVE EXISTING APPLICATION PROGRAMS STORED IN MEMORY. CONTRACTOR SHALL ENSURE THE PROGRAMS ARE NOT ALTERED. PROGRAMS THAT ARE ALTERED OR DELETED SHALL BE RESTORED IN THE CONTROLLER AT THE CONTRACTOR'S EXPENSE.

ENGRAVED PHENOLIC LABEL. LABEL SHALL BE THREE PLY PHENOLIC BLACK-WHITE-BLACK ENGRAVED THROUGH THE FIRST BLACK LAYER. THE LETTERING SHALL BE 0.5 CM (3/16") MIN. EDGES OF LABEL SHALL BE BEVELED 45 DEG. SECURE IN PLACE WITH A MINIMUM OF TWO (2) STAINLESS STEEL SHEET METAL SCREWS. (TYP.)

NEW CONTROL CABINET

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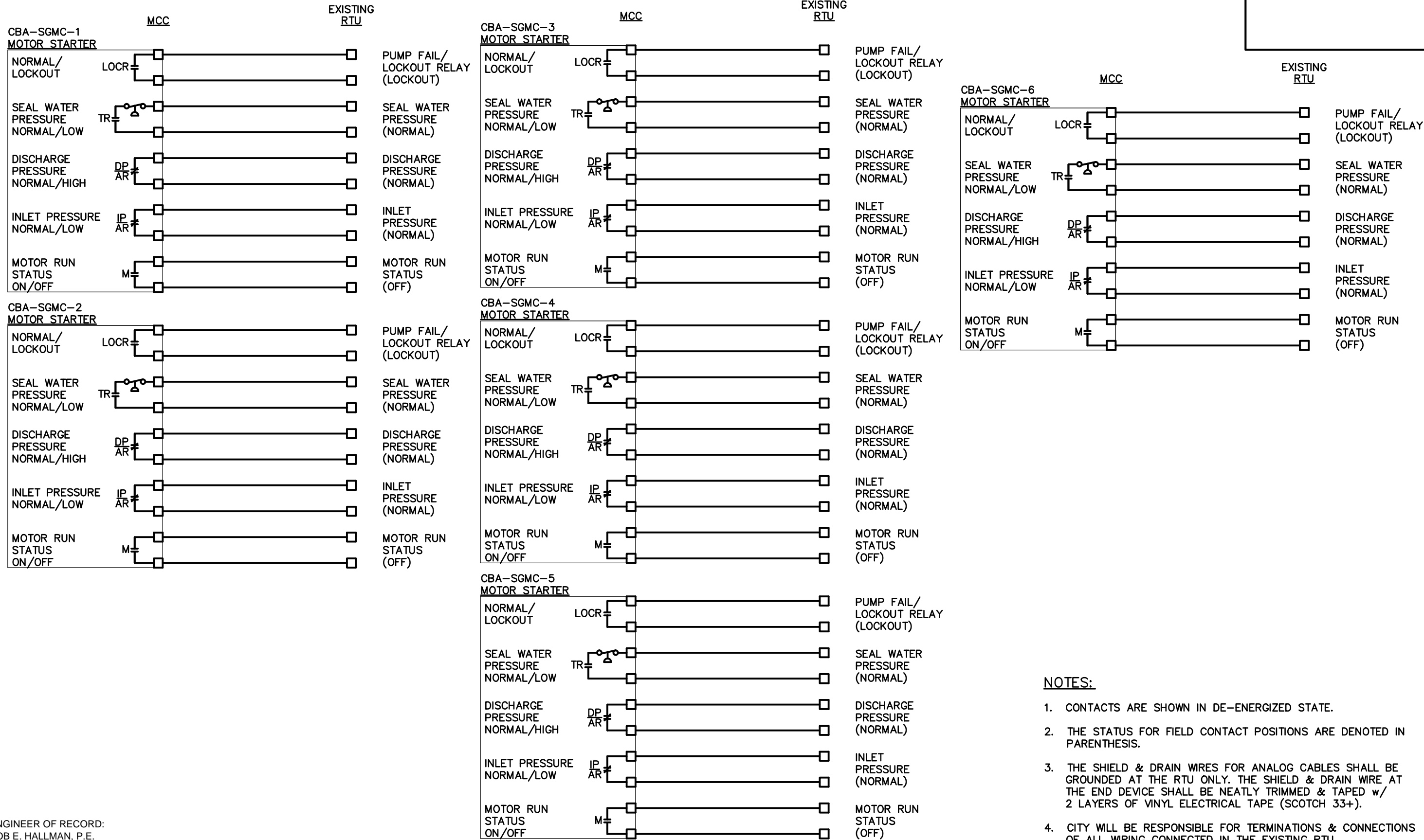
NEW CONTROL CABINET DETAILS

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET I-3

Certificate of Authorization Number: 4795



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CITY of TAMPA
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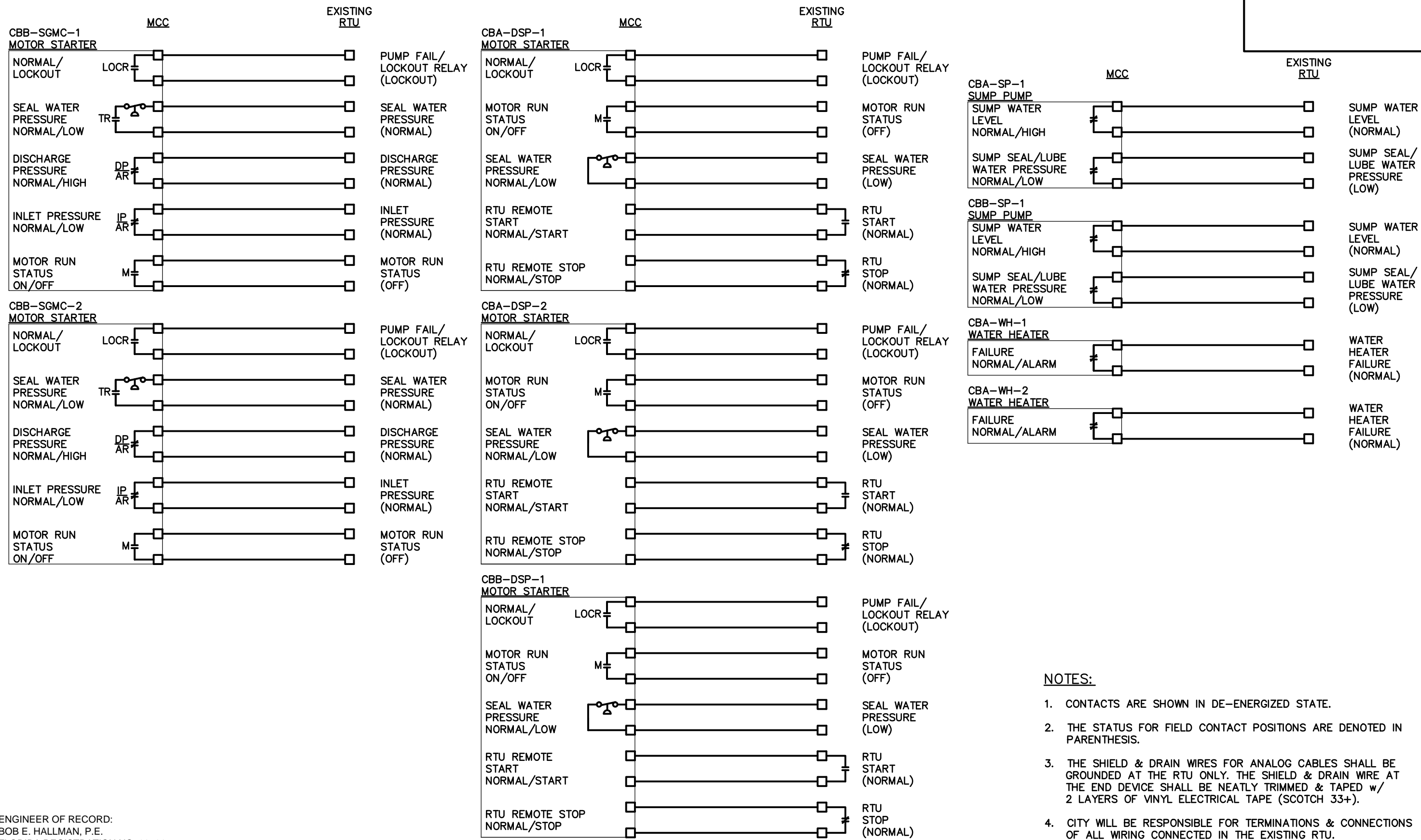
DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

**RTU INTERCONNECTION DIAGRAM
(SHEET 1 OF 5)**

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET I-4



NOTES:

1. CONTACTS ARE SHOWN IN DE-ENERGIZED STATE.
2. THE STATUS FOR FIELD CONTACT POSITIONS ARE DENOTED IN PARENTHESIS.
3. THE SHIELD & DRAIN WIRES FOR ANALOG CABLES SHALL BE GROUNDED AT THE RTU ONLY. THE SHIELD & DRAIN WIRE AT THE END DEVICE SHALL BE NEATLY TRIMMED & TAPED w/ 2 LAYERS OF VINYL ELECTRICAL TAPE (SCOTCH 33+).
4. CITY WILL BE RESPONSIBLE FOR TERMINATIONS & CONNECTIONS OF ALL WIRING CONNECTED IN THE EXISTING RTU.

ENGINEER OF RECORD:
BOB E. HALLMAN, P.E.
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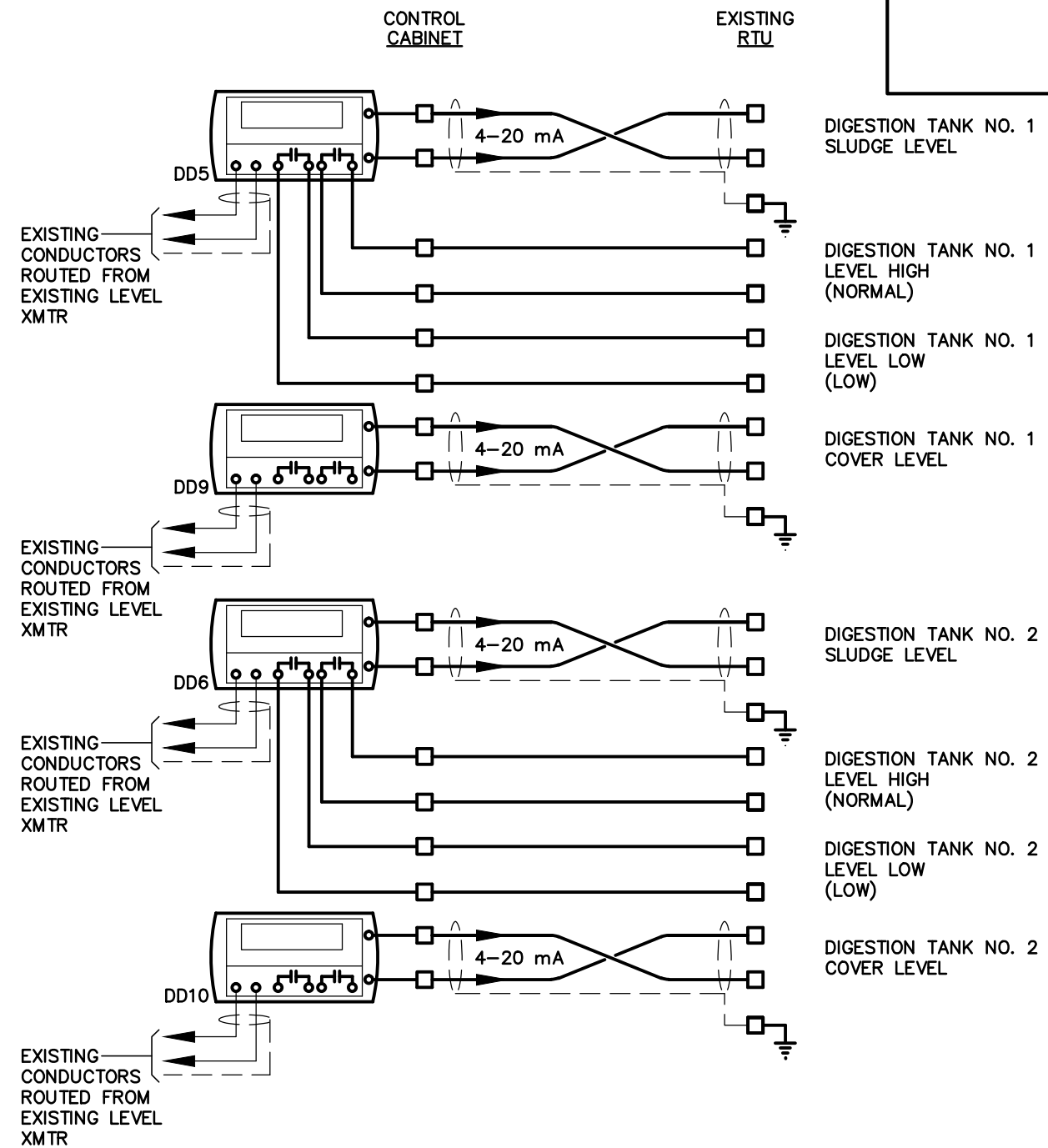
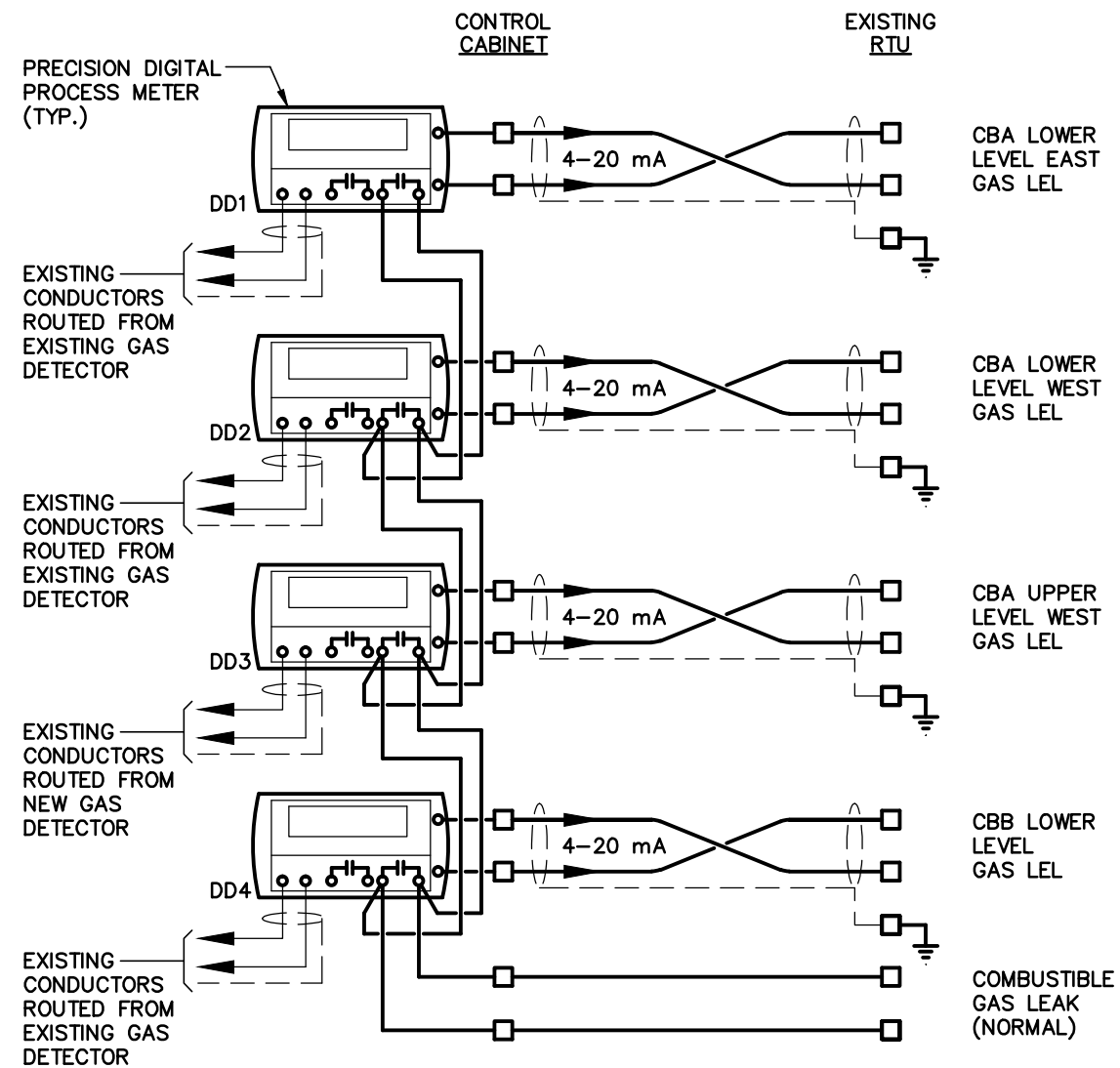
CITY of TAMPA
WASTEWATER DEPARTMENT

DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

RTU INTERCONNECTION DIAGRAM (SHEET 2 OF 5)

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16



NOTES:

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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

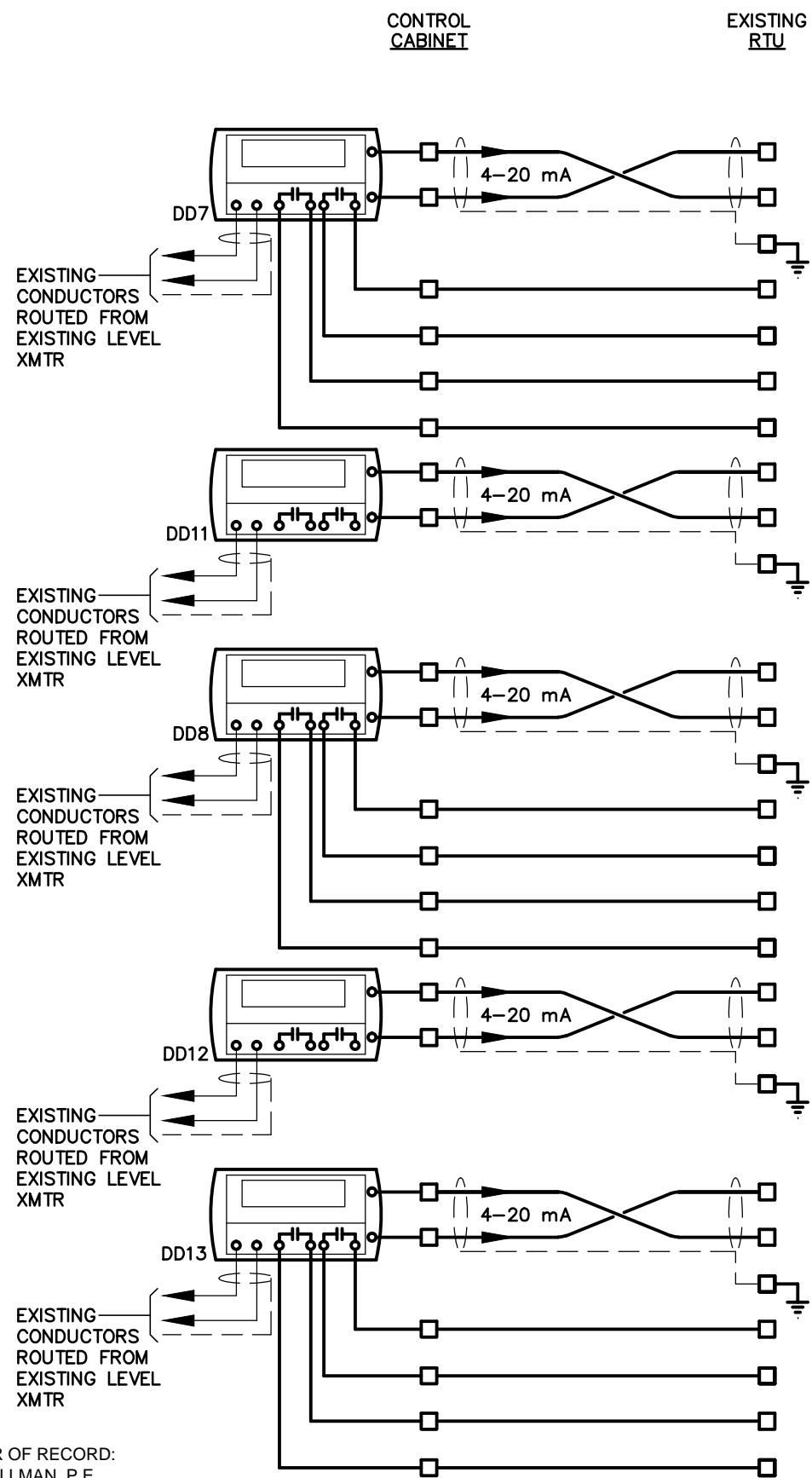
**RTU INTERCONNECTION DIAGRAM
(SHEET 3 OF 5)**

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET I-6

Certificate of Authorization Number: 4795



DIGESTION TANK NO. 3
SLUDGE LEVEL

DIGESTION TANK NO. 3
LEVEL HIGH (NORMAL)

DIGESTION TANK NO. 3
LEVEL LOW (LOW)

DIGESTION TANK NO. 3
COVER LEVEL

DIGESTION TANK NO. 4
SLUDGE LEVEL

DIGESTION TANK NO. 4
LEVEL HIGH (NORMAL)

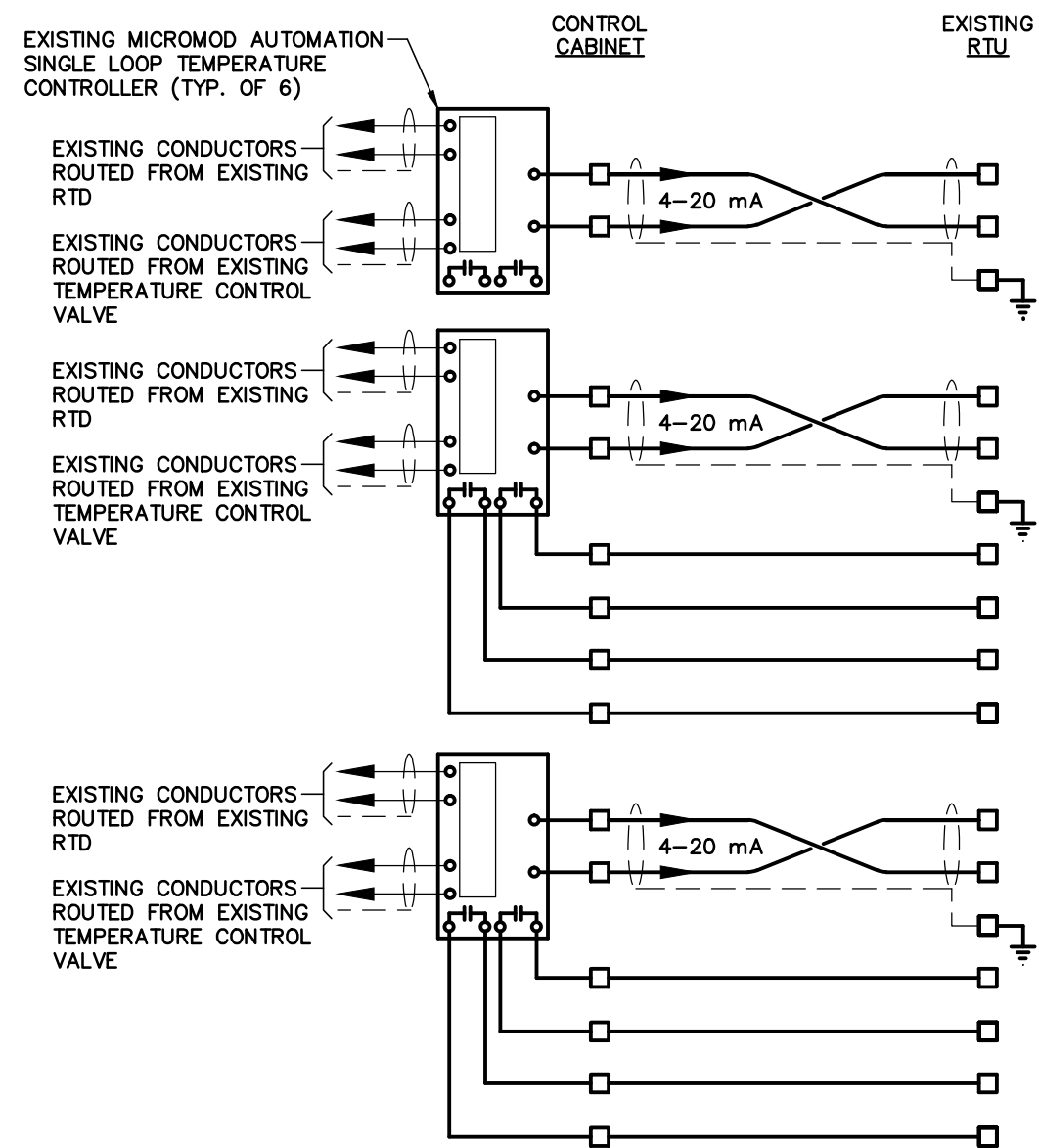
DIGESTION TANK NO. 4
LEVEL LOW (LOW)

DIGESTION TANK NO. 4
COVER LEVEL

DIGESTION TANK NO. 5
SLUDGE LEVEL

DIGESTION TANK NO. 5
LEVEL HIGH (NORMAL)

DIGESTION TANK NO. 5
LEVEL LOW (LOW)



HEATED JACKET
WATER TEMPERATURE

DIGESTION TANK NO. 1
SLUDGE TEMPERATURE

DIGESTION TANK NO. 1
TEMPERATURE HIGH (NORMAL)

DIGESTION TANK NO. 1
TEMPERATURE LOW (LOW)

DIGESTION TANK NO. 2
SLUDGE TEMPERATURE

DIGESTION TANK NO. 2
TEMPERATURE HIGH (NORMAL)

DIGESTION TANK NO. 2
TEMPERATURE LOW (LOW)

NOTES:

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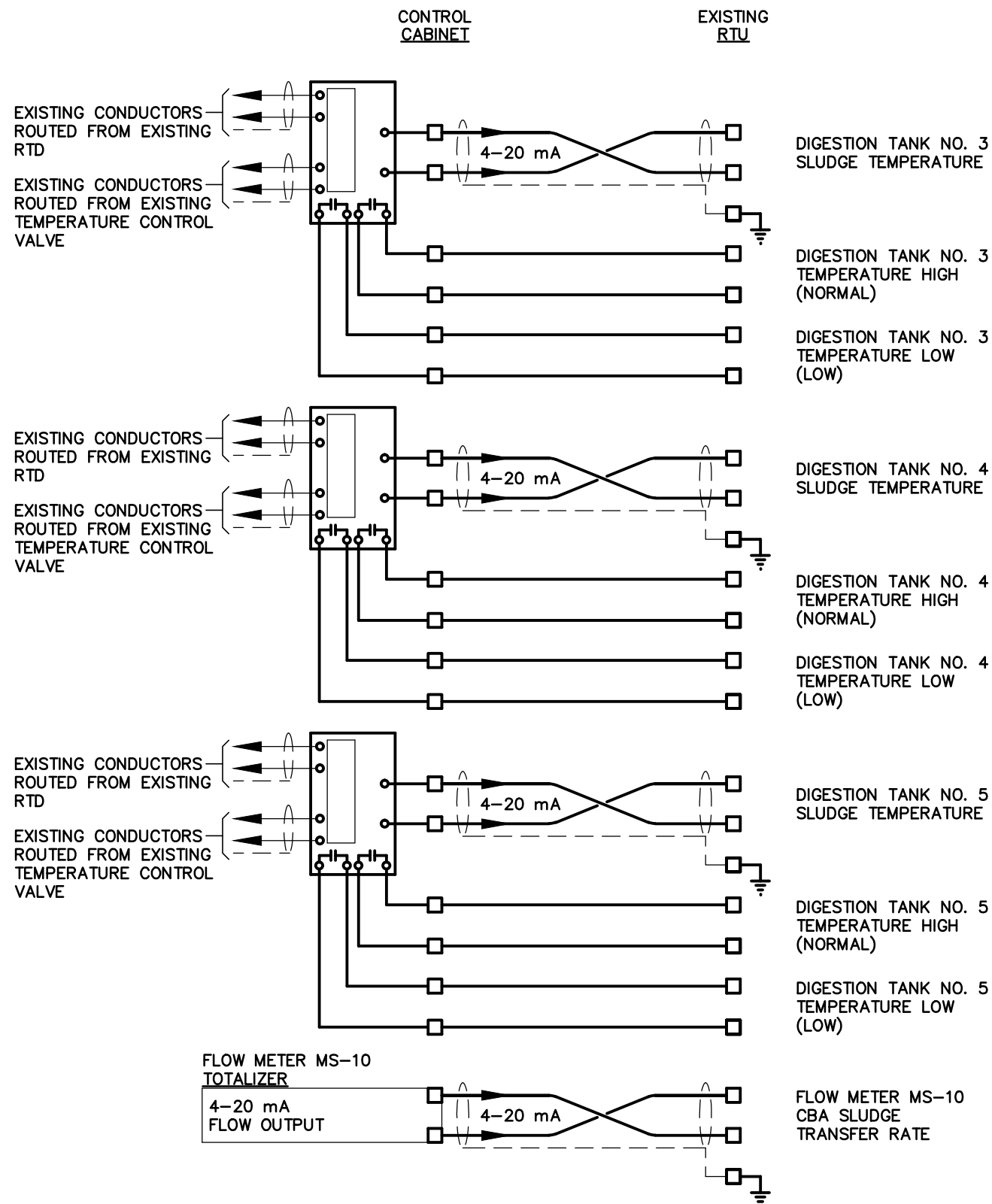
DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

**RTU INTERCONNECTION DIAGRAM
(SHEET 4 OF 5)**

NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

SHEET I-7



NOTES:

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CITY of TAMPA
WASTEWATER DEPARTMENT

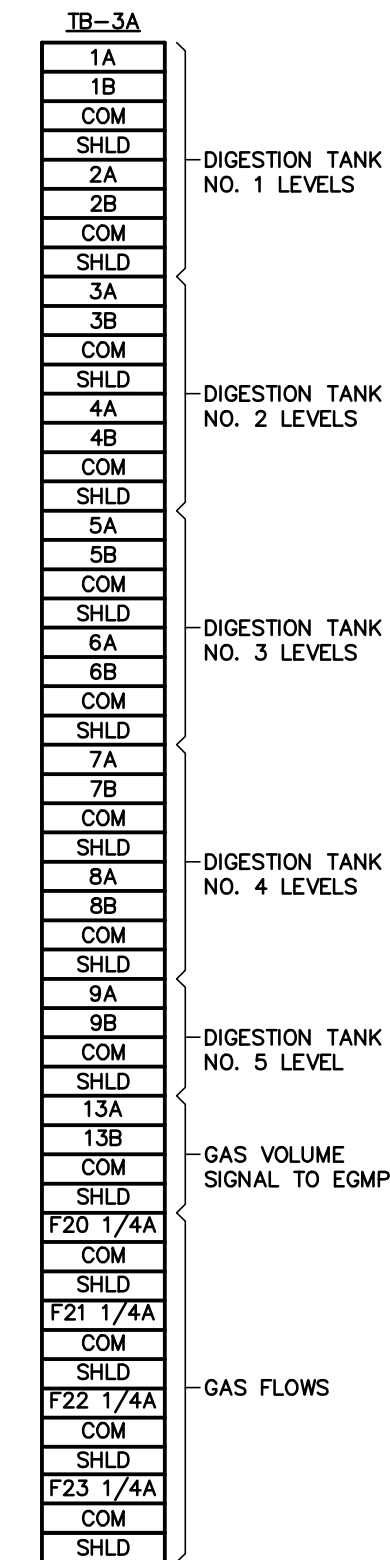
DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

RTU INTERCONNECTION DIAGRAM
(SHEET 5 OF 5)

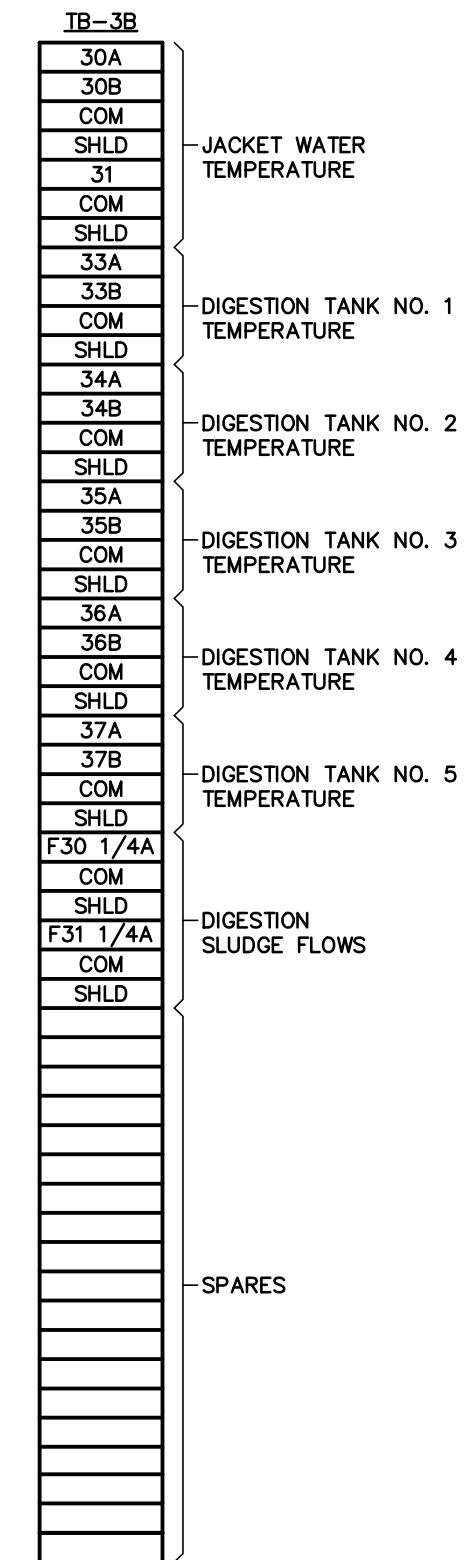
NO.	DATE	REVISIONS

DRAWN: RWB
DESIGN: STK
QC: BEH
DATE: 01/13/16

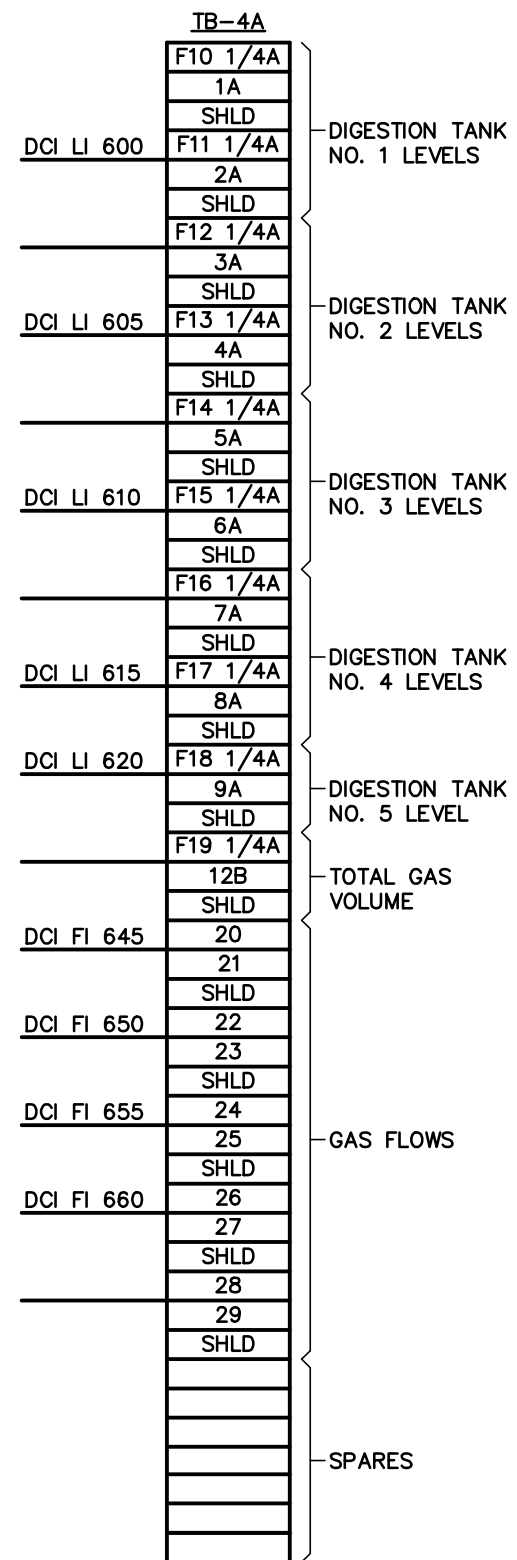
SHEET I-8



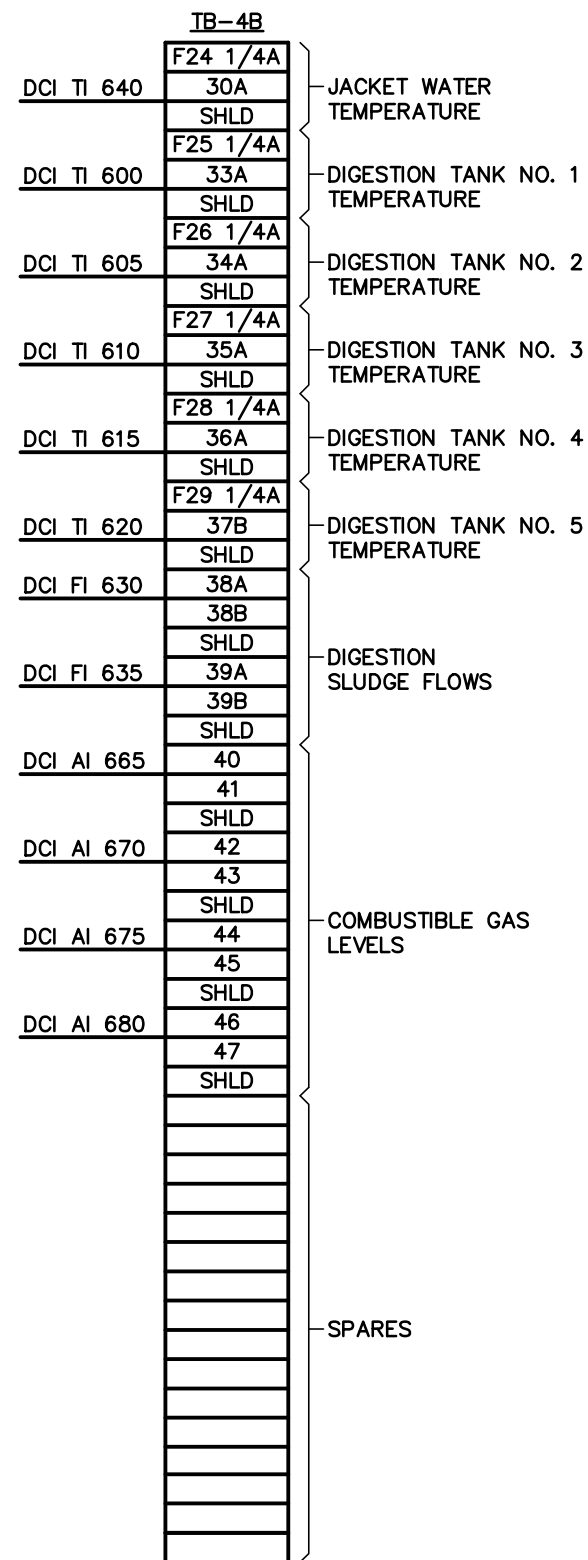
(48 TERMINALS, 4 FUSE BLOCKS)



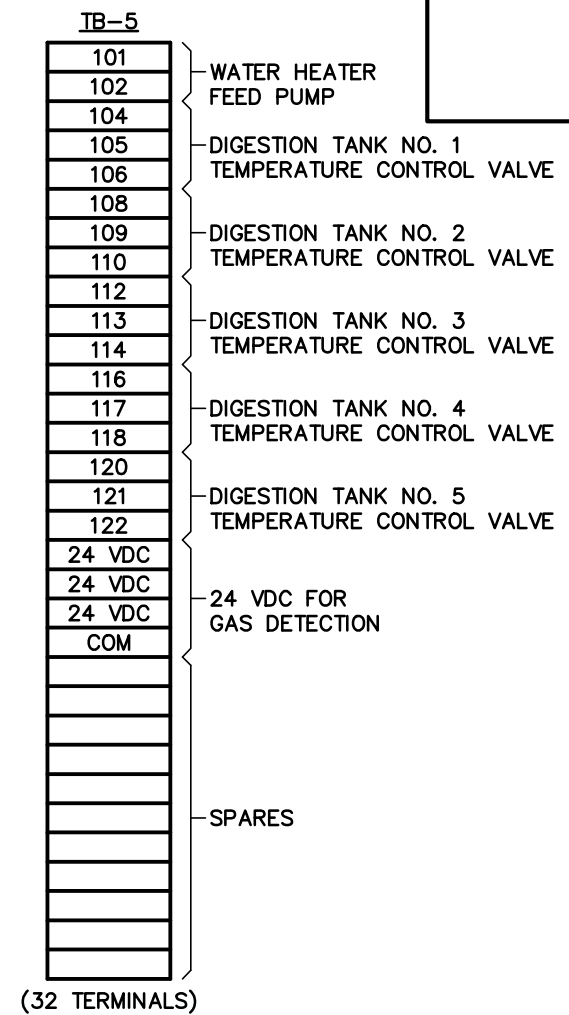
(50 TERMINALS, 2 FUSE BLOCKS)



(42 TERMINALS, 10 FUSE BLOCKS)



(46 TERMINALS, 6 FUSE BLOCKS)



NOTES:

1. THE EXISTING TERMINAL BLOCK LAYOUTS AND THE EXISTING CONDUCTORS SHOWN ARE PROVIDED FOR CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID & PRIOR TO COMMENCING CONSTRUCTION.
2. ALL EXISTING CONDUCTORS ROUTED FROM FIELD DEVICES THROUGH THE EXISTING CONTROL CABINET TO THE EXISTING RTU/PLC SHALL REMAIN. THE CONTRACTOR SHALL PROVIDE TERMINALS AS REQUIRED IN THE PROPOSED CONTROL CABINET TO MAINTAIN CONNECTIONS FROM THE CONTROL CABINET TO THE EXISTING RTU/PLC.
3. CONTRACTOR SHALL EXERCISE CARE IN REMOVING THE EXISTING CONTROL CABINET SO AS NOT TO DAMAGE EXISTING WIRING THAT IS TO REMAIN.

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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT

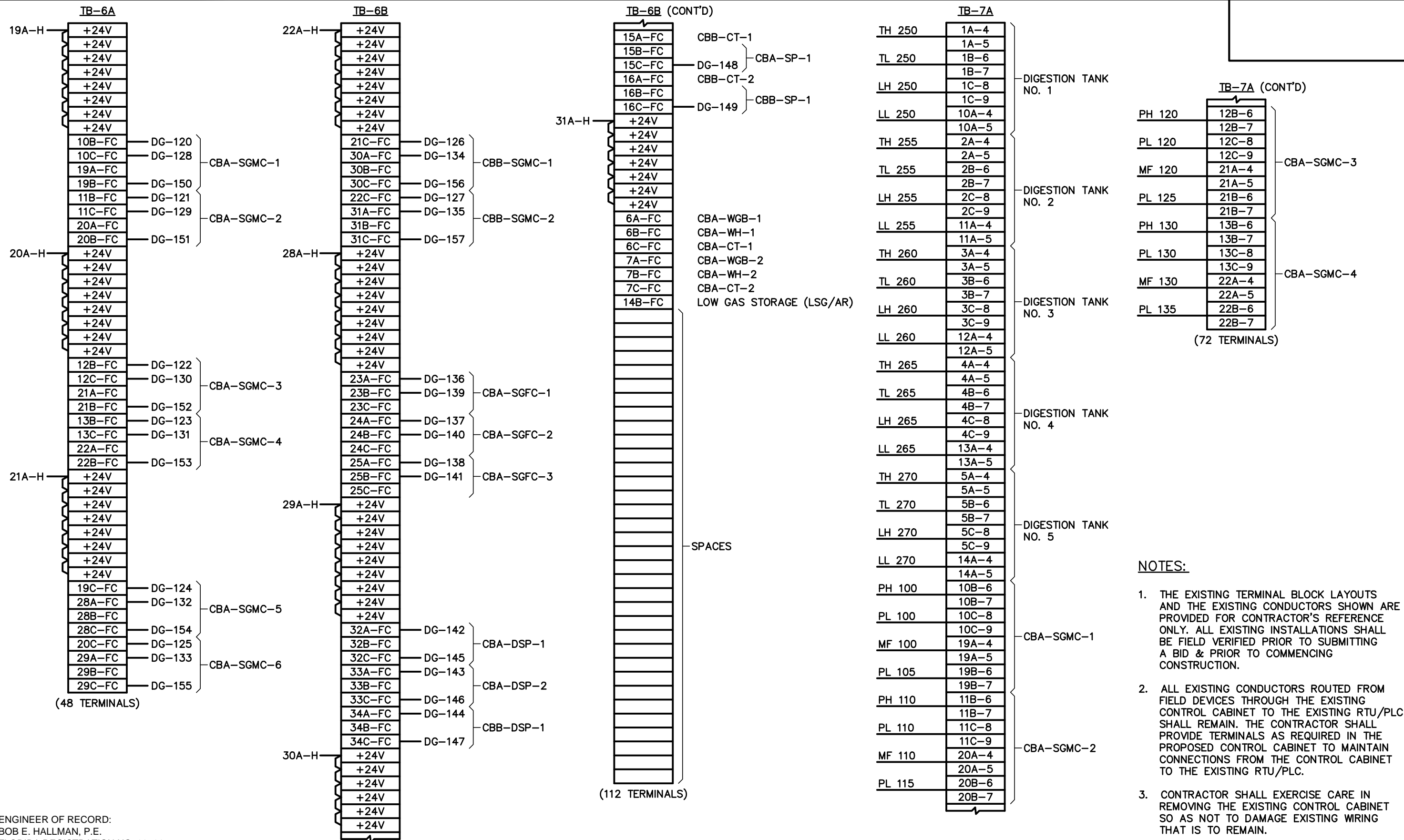
EXISTING CONTROL CABINET
TERMINAL BLOCK LAYOUTS
(SHEET 1 OF 3)

NO.	DATE	REVISIONS
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DRAWN:	RWB
DESIGN:	STK
QC:	BEH
DATE:	01/13/16

SHEET I-9

Certificate of Authorization Number: 4795



- NOTES:**
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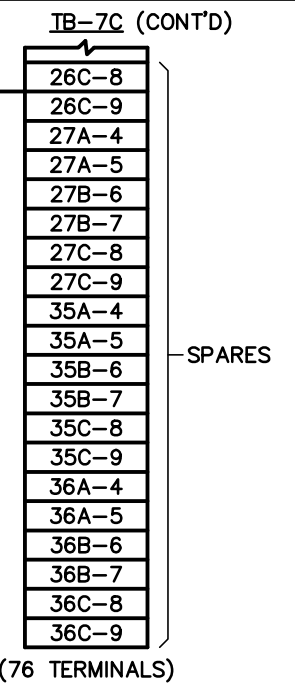
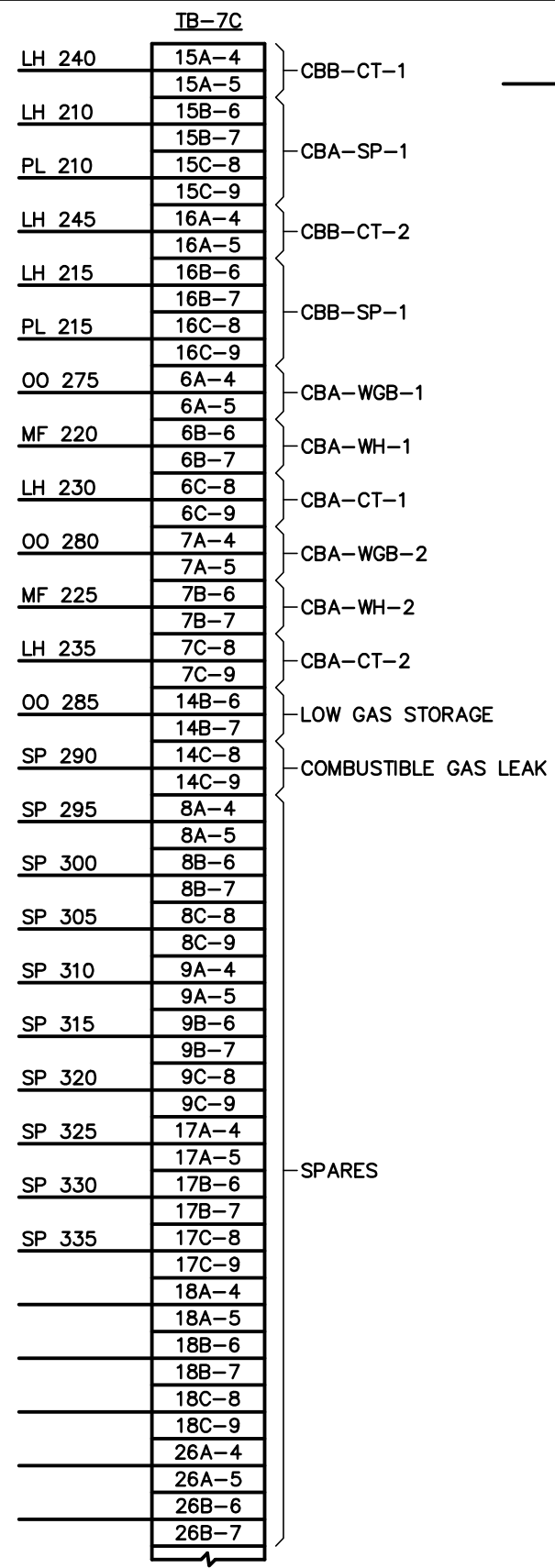
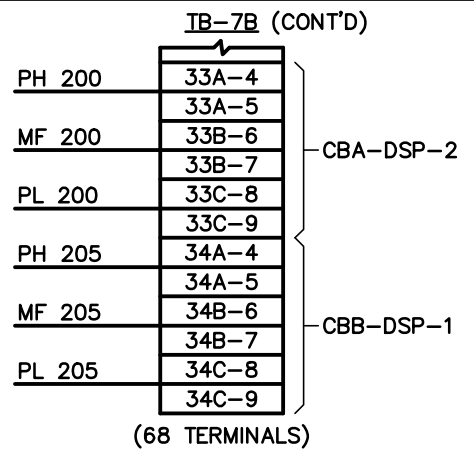
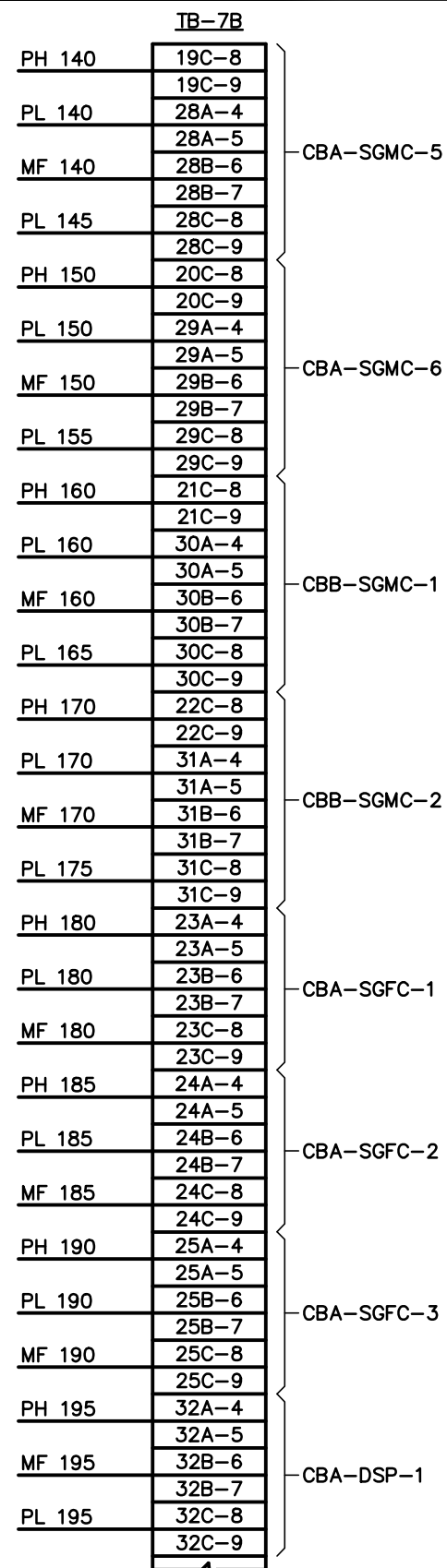
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CITY of TAMPA
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DIGESTION CONTROL BUILDING "A" MCC REPLACEMENT
 EXISTING CONTROL CABINET
 TERMINAL BLOCK LAYOUTS
 (SHEET 2 OF 3)

NO.	DATE	REVISIONS

DRAWN: RWB
 DESIGN: STK
 QC: BEH
 DATE: 01/13/16
SHEET I-10



NOTES:

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