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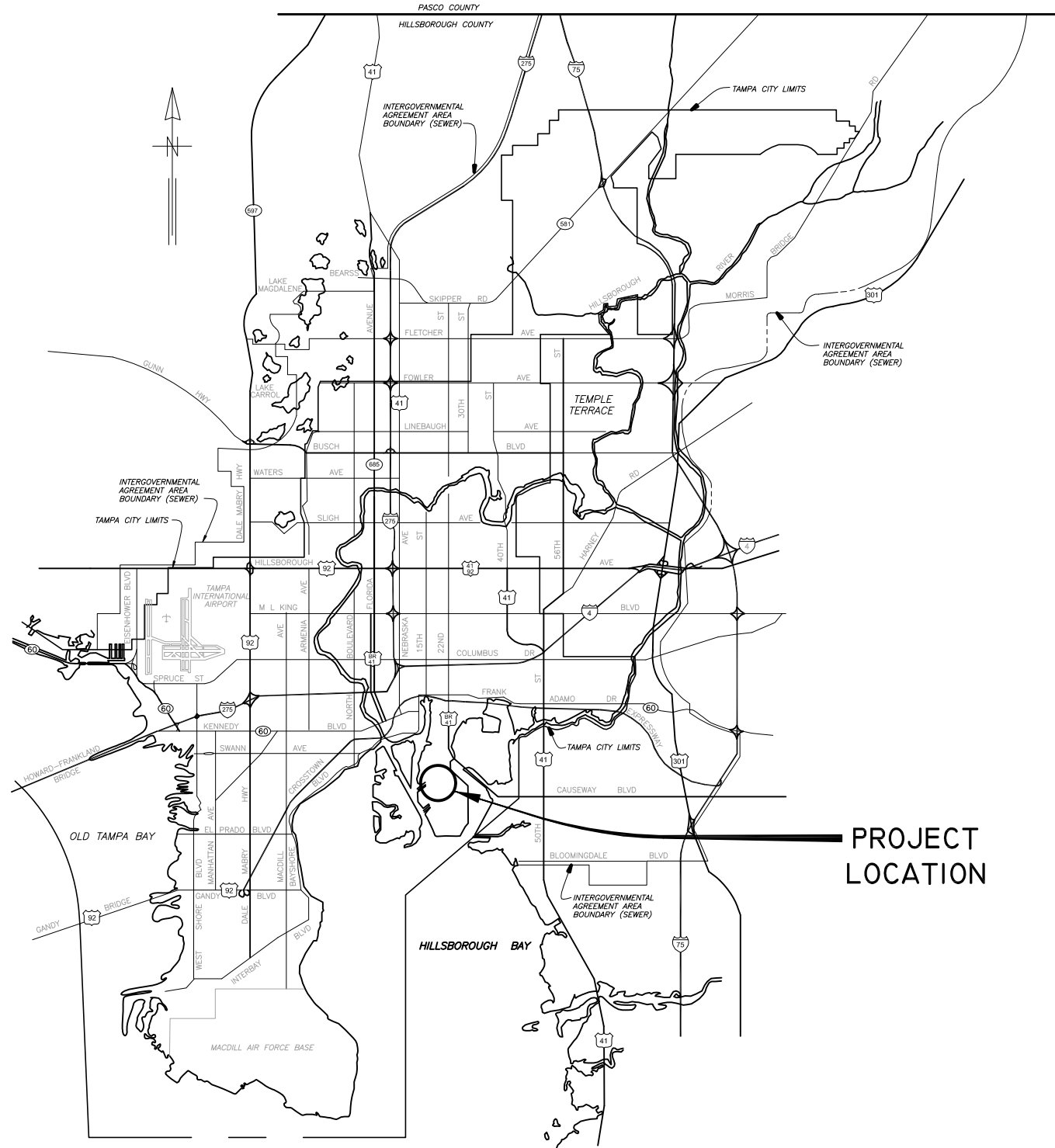
**Please Email ALL Questions:**

**[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



PLANS

FOR

CITY OF TAMPA FLORIDA  
WASTEWATER DEPARTMENT

FOR

THE CONSTRUCTION OF THE

HOWARD F. CURREN AWTP  
TRANSFORMER REPLACEMENTS  
PHASE II

CONTRACT : 14-C-00026

MARCH 2014



777 S. Harbour Island Blvd,  
Suite 870  
Tampa, FL 33602  
813.227.9190  
Certificate of Authorization No. 8363

DRAWING INDEX	
SHEET No.	SHEET TITLE
1	COVER SHEET
2	INDEX, SCHEDULES AND GENERAL NOTES
3	SITE PLAN FOR TRANSFORMER REPLACEMENTS
E-1	ELECTRICAL LEGEND AND ABBREVIATIONS
E-2	ONE LINE DIAGRAM : TRANSFORMER REPLACEMENTS & 15KV FEEDER INSTALLATION
E-3	TRANSFORMER REPLACEMENTS : PARTIAL SITE PLANS
E-4	MAIN PUMPING STATION SITE PLAN
E-5	MAIN PUMPING STATION PARTIAL FLOOR PLAN (LOWER LEVEL)
E-6	TRANSFER SWITCH TS-3B-3 PARTIAL SITE PLAN
E-7	END OF LINE TRANSFORMER DETAILS
E-8	LOOP FEEDER TRANSFORMER DETAILS
E-9	LOOP FEEDER TRANSFORMER WITH DUAL SECONDARY CIRCUIT BREAKERS
E-10	DUCTBANK SECTIONS AND ELECTRICAL DETAILS

TRANSFORMER REPLACEMENT SCHEDULE				
EQUIPMENT #	MANUFACTURER	KVA	PRIMARY	SECONDARY
T-5A-2	GENERAL ELECTRIC	1000	13.2 KV	480V
T-5B-2	GENERAL ELECTRIC	1000	13.2 KV	480V
T-5A-3	STANDARD TRANS	1500	13.2 KV	480V
T-5B-3	STANDARD TRANS	1500	13.2 KV	480V
T-2A-2	STANDARD TRANS	750	13.2 KV	480V
T-2B-2	STANDARD TRANS	750	13.2 KV	480V

NEW 15KV DISTRIBUTION FEEDER INSTALLATION SCHEDULE					
CONDUIT No.	DATE	NUMER OF CONDUCTORS	APPROXIMATE LENGTH (ft)	FROM	TO
1H3BTS1	2014	3-350 MCM, 1-#2 600V GND	420 (PVC)	JUNCTION BOX IN MAIN PUMPING STATION (010)	MANUAL TRANSFER SWITCH TS-3B-3

GENERAL NOTES	
1.	CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
2.	FIELD VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.
3.	ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL ORDINANCES.
4.	ALL TRANSFORMERS SHALL BE LABELED WITH NAMEPLATES. NAMEPLATES SHALL BE STAINLESS STEEL AND SHALL BE FASTENED IN PLACE WITH 316 STAINLESS STEEL SCREWS.
5.	ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH CITY OF TAMPA CODE 5-111.6.1.5, CITY OF TAMPA CODE CHAPTER 5, AMENDED 5/7/2009.
6.	ALL FASTENING HARDWARE (SCREWS, BOLTS, NUTS, ETC.) SHALL BE 316 STAINLESS STEEL. FASTENING HARDWARE CONSTRUCTED OF FERROUS MATERIAL ARE NOT ACCEPTABLE.
7.	316 STAINLESS STEEL CHANNEL SHALL BE USED TO ELEVATE ALL TRANSFORMERS OFF OF CONCRETE PADS. USE 316 STAINLESS STEEL ANCHORING HARDWARE.
8.	THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY TO EXECUTE THE PROPOSED INSTALLATIONS.
9.	ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR THE CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
10.	CONDUIT ROUTING SHOWN IS DIAGRAMMATICAL UNLESS OTHERWISE NOTED. CONTRACTOR SHALL OPTIMIZE THE CONDUIT ROUTING, TAKING INTO ACCOUNT THE FILED CONDITIONS AND THE FINAL EQUIPMENT SELECTED AND APPROVED IN THE SUBMITTALS.
11.	THE CONTRACTOR SHALL COORDINATE ALL REQUIRED SYSTEM OUTAGES WITH PLANT PERSONNEL. THE CONTRACTOR SHALL NOTIFY PLANT PERSONNEL FIVE (5) WORKING DAYS PRIOR TO ANY PLANNED OUTAGE.
12.	THE EXISTING HOWARD F. CURREN 15KV DISTRIBUTION SYSTEM IS COMPRISED OF REDUNDANT 15KV SYSTEMS 'A' AND 'B'. THE CONTRACTOR SHALL COORDINATE THEIR WORK WITH PLANT PERSONNEL. THE CONTRACTOR SHALL SCHEDULE THE WORK SO THAT ALL THE WORK ON SYSTEM 'A' HAS BEEN COMPLETED AND TESTED PRIOR TO COMMENCING WORK ON SYSTEM 'B'.
13.	ONCE THE TRANSFORMERS HAVE BEEN INSTALLED, THE CONTRACTOR SHALL ADD NITROGEN TO EACH TRANSFORMER. NITROGEN SHALL BE ADDED UNTIL THE TANK PRESSURE REACHES BETWEEN 0.5 AND 1.0 P.S.I.. THE TRANSFORMERS SHALL THEN BE PLACED IN SERVICE AND SHALL BE ALLOWED TO OPERATE FOR ONE (1) HOUR TO ALLOW THE TRANSFORMERS TO HEAT UP AND REACH OPERATING TEMPERATURE. AT THE END OF THE ONE HOUR PERIOD, THE CONTRACTOR SHALL CHECK THE TANK PRESSURE. THE WORKING PRESSURE OF THE TANK SHALL BE BETWEEN 2.0 AND 3.0 P.S.I.. IF PRESSURES ARE RECORDED OUTSIDE OF THIS RANGE THE CONTRACTOR SHALL MAKE THE MODIFICATIONS NECESSARY TO ACHIEVE THE SPECIFIED OPERATING PRESSURE.
14.	THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSURING THAT THE EXISTING TRANSFORMER LOCATIONS CAN ACCOMMODATE THE NEW TRANSFORMER DIMENSIONS.



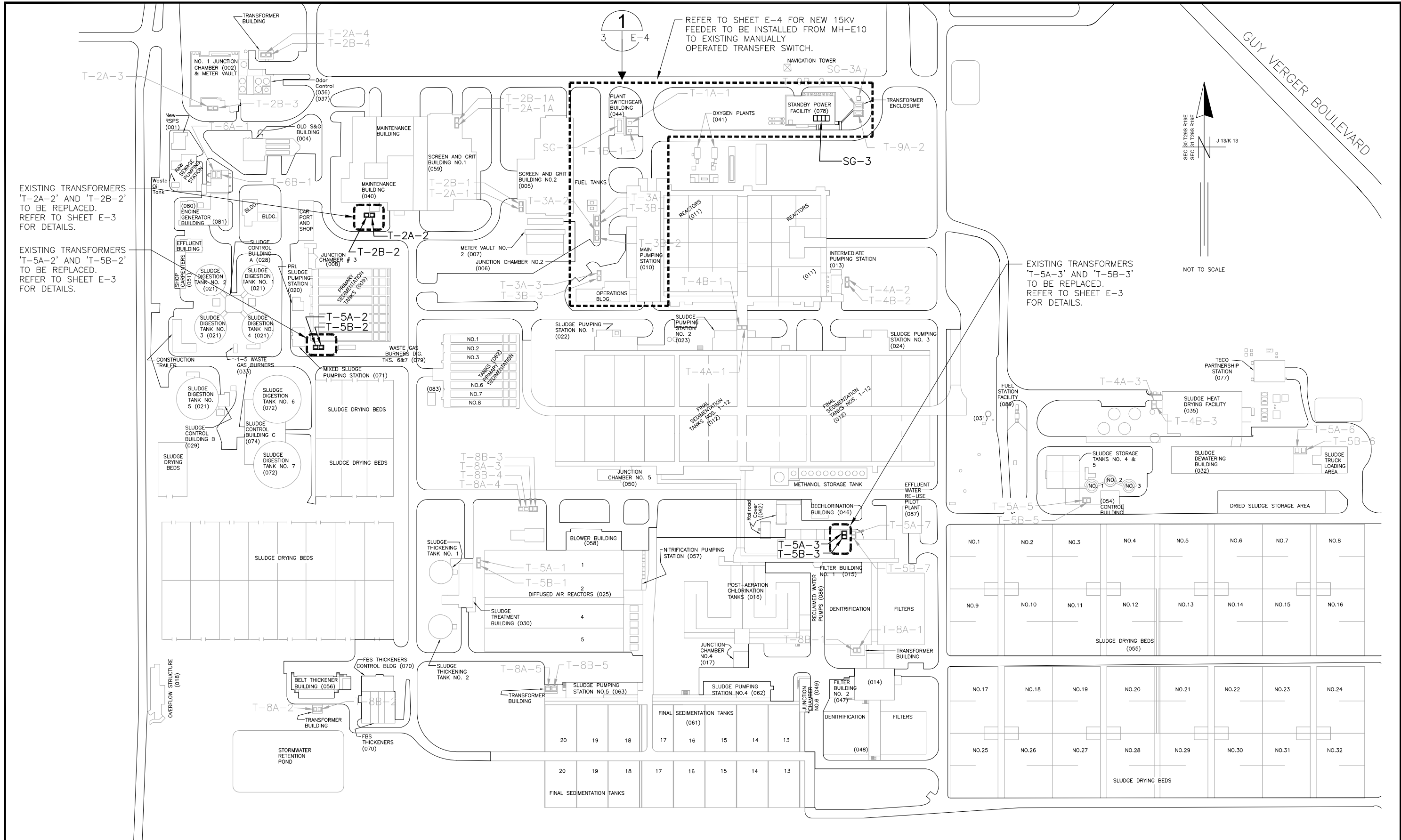
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City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP  
TRANSFORMER REPLACEMENTS : PH II**

**INDEX, SCHEDULES AND  
GENERAL NOTES**

SHEET NUMBER	2
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171309542E01



EXISTING TRANSFORMERS 'T-2A-2' AND 'T-2B-2' TO BE REPLACED. REFER TO SHEET E-3 FOR DETAILS.

EXISTING TRANSFORMERS 'T-5A-3' AND 'T-5B-3' TO BE REPLACED. REFER TO SHEET E-3 FOR DETAILS.

EXISTING TRANSFORMERS 'T-5A-3' AND 'T-5B-3' TO BE REPLACED. REFER TO SHEET E-3 FOR DETAILS.

**TRICON**  
CONSULTING ENGINEERS

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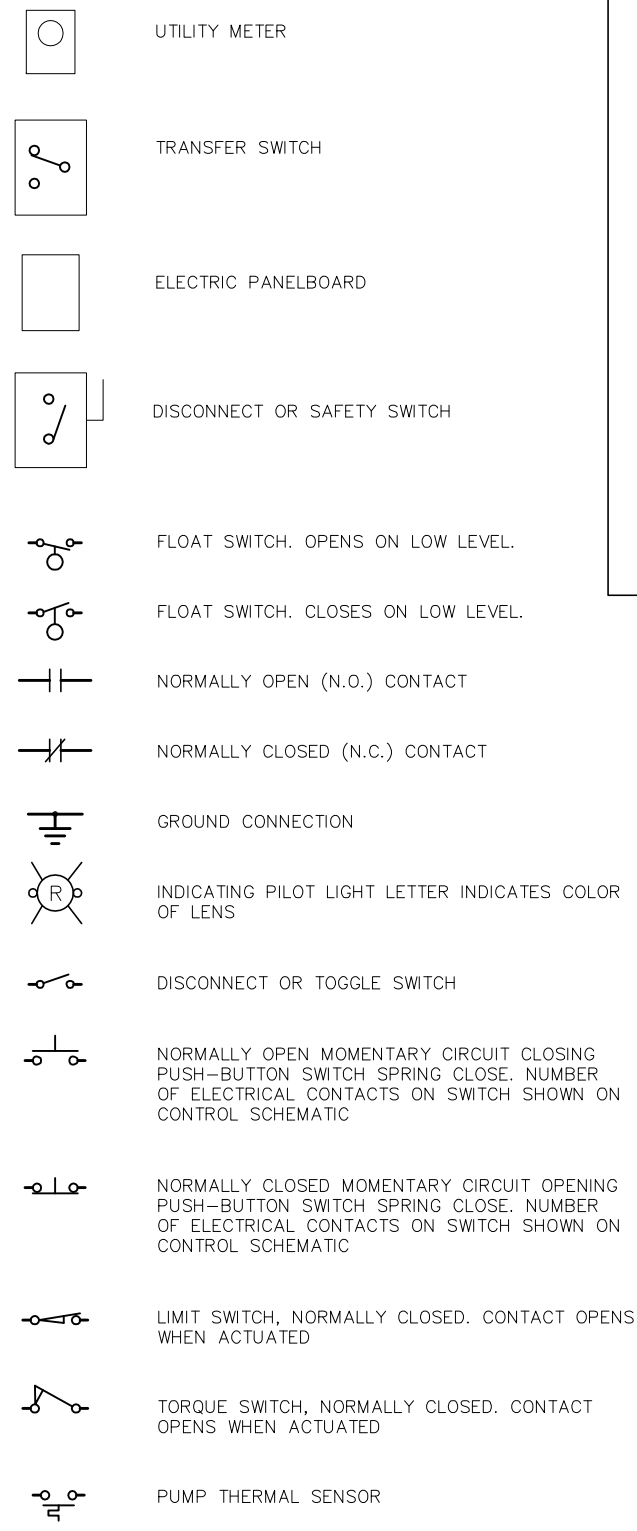
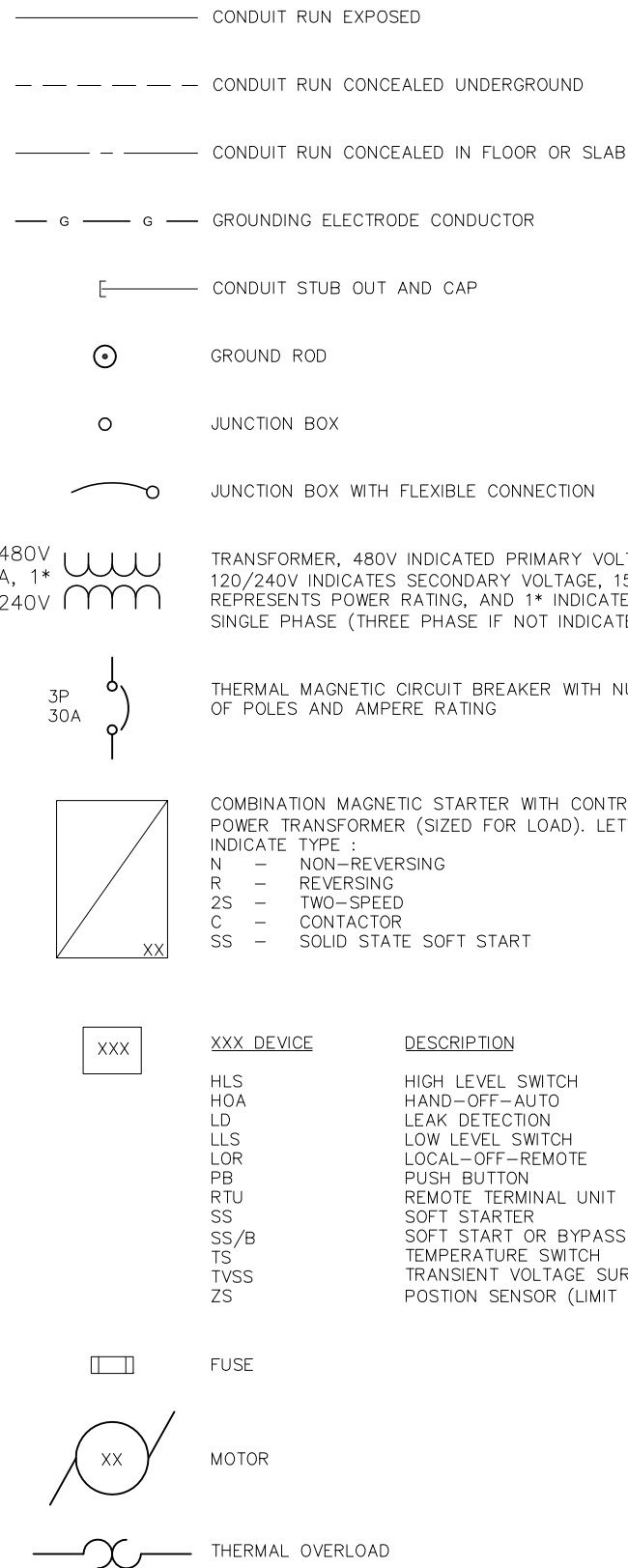
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**HOWARD F. CURREN AWP**  
TRANSFORMER REPLACEMENTS : PH II

**SITE PLAN FOR  
TRANSFORMER REPLACEMENTS  
& PREVENTATIVE MAINTENANCE**

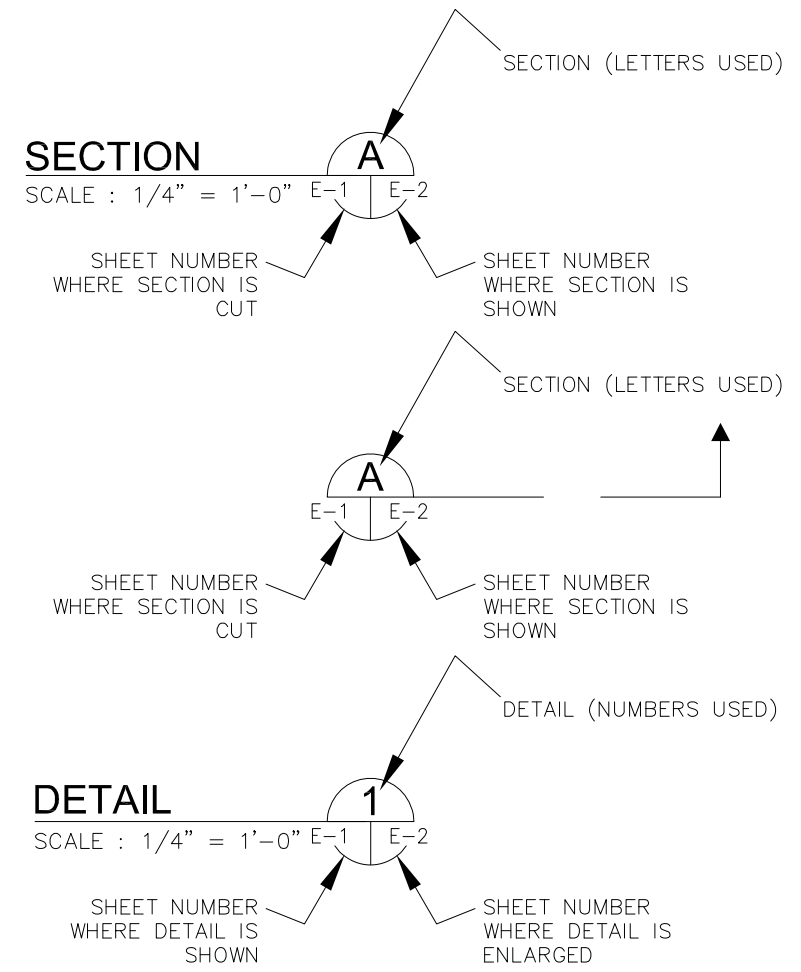
SHEET NUMBER	<b>3</b>
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171309542E01



**ABBREVIATIONS:**

A	AMPS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
EX	EXISTING
ELEC	ELECTRICAL
EXP	EXPLOSION PROOF
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
OA	OIL-IMMERSED, SELF-COOLED
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**



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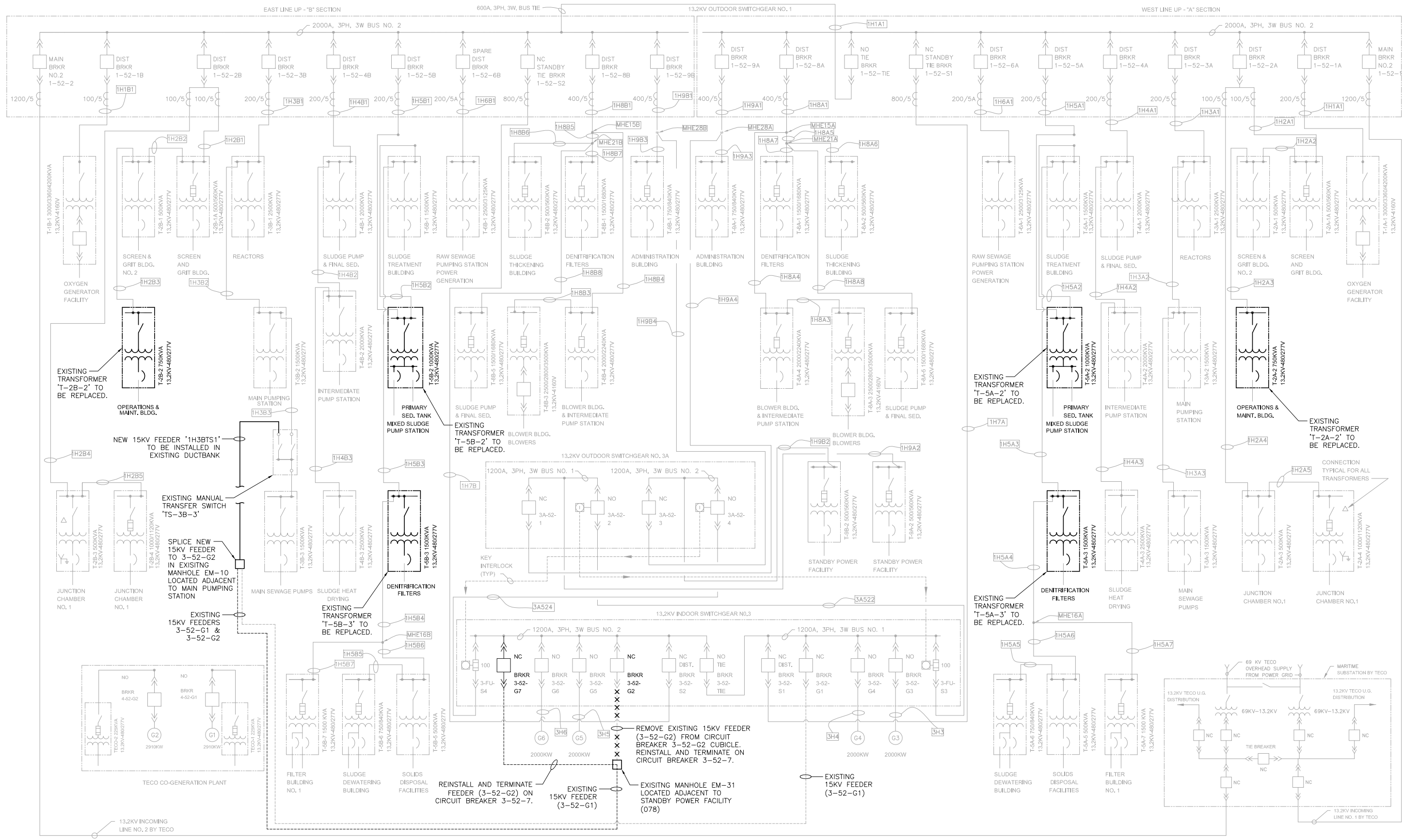
City of Tampa Wastewater Department

**HOWARD F. CURREN AWTP**

**TRANSFORMER REPLACEMENTS : PH II**

**ELECTRICAL LEGEND AND ABBREVIATIONS**

SHEET NUMBER	E-1
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171309542E01



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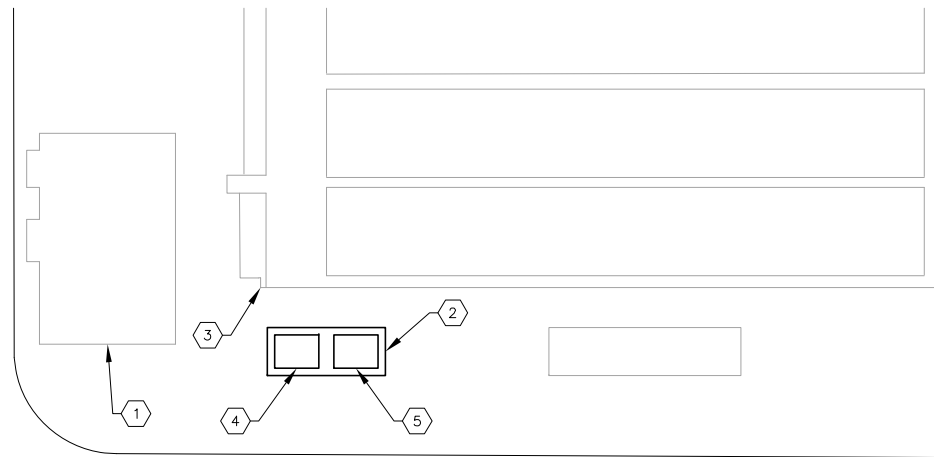
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**HOWARD F. CURREN AWP**  
 TRANSFORMER REPLACEMENTS : PH II

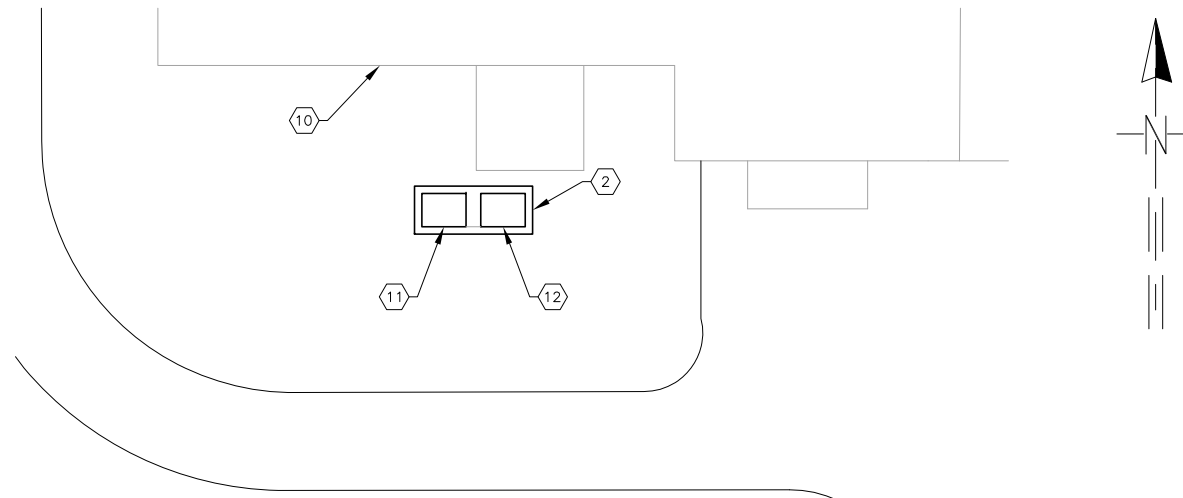
**ONE LINE DIAGRAM :  
 TRANSFORMER REPLACEMENTS  
 15KV FEEDER INSTALLATION**

SHEET NUMBER	E-2
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171309542C01



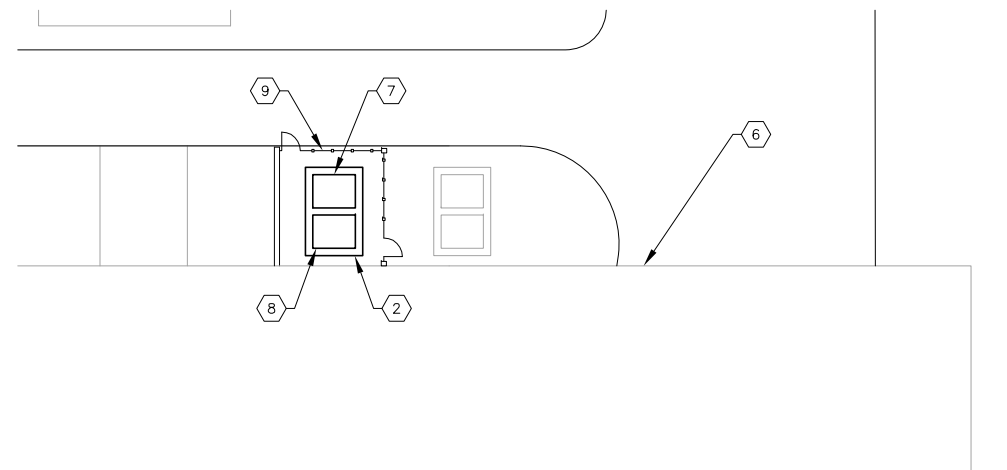
**T-5A-2 & T-5B-2 REPLACEMENT :  
PARTIAL SITE PLAN**

SCALE : N.T.S.



**T-2A-2 & T-2B-2 REPLACEMENT :  
PARTIAL SITE PLAN**

SCALE : N.T.S.



**T-5A-3 & T-5B-3 REPLACEMENT :  
PARTIAL SITE PLAN**

SCALE : N.T.S.

**KEYED NOTES:**

- ① EXISTING MIXED SLUDGE PUMPING STATION (071).
- ② EXISTING CONCRETE PAD TO REMAIN. NO WORK REQUIRED.
- ③ EXISTING PRIMARY SEDIMENTATION TANKS (009).
- ④ EXISTING TRANSFORMER 'T-5A-2' TO BE REPLACED. 1000 KVA/OA, 13.2KV-277/480V DELTA-WYE WITH ONE (1) 1200 AMPERE, 600V SECONDARY CIRCUIT BREAKER AND ONE (1) 225 AMPERE, 600V SECONDARY CIRCUIT BREAKER. REFER TO SHEET E-9 FOR TYPICAL DETAILS OF LOOP FEEDER TRANSFORMER WITH DUAL SECONDARY CIRCUIT BREAKERS.
- ⑤ EXISTING TRANSFORMER 'T-5B-2' TO BE REPLACED. 1000 KVA/OA, 13.2KV-277/480V DELTA-WYE WITH ONE (1) 1200 AMPERE, 600V SECONDARY CIRCUIT BREAKER AND ONE (1) 225 AMPERE, 600V SECONDARY CIRCUIT BREAKER. REFER TO SHEET E-9 FOR TYPICAL DETAILS OF LOOP FEEDER TRANSFORMER WITH DUAL SECONDARY CIRCUIT BREAKERS.
- ⑥ EXISTING FILTER BUILDING NO. 1 (015).
- ⑦ EXISTING TRANSFORMER 'T-5A-3' TO BE REPLACED. 1500 KVA/OA/FA, 13.2KV-277/480V DELTA-WYE WITH 2000 AMPERE, 600V SECONDARY CIRCUIT BREAKER. REFER TO SHEET E-8 FOR TYPICAL LOOP FEEDER TRANSFORMER DETAILS. NOTE: CONTRACTOR SHALL REMOVE EXISTING FANS AND STARTER CABINET (FOR FAN CONTROL) AND REINSTALL ON NEW TRANSFORMERS TO BE PROVIDED.
- ⑧ EXISTING TRANSFORMER 'T-5B-3' TO BE REPLACED. 1500 KVA/OA/FA, 13.2KV-277/480V DELTA-WYE WITH 2000 AMPERE, 600V SECONDARY CIRCUIT BREAKER. REFER TO SHEET E-8 FOR TYPICAL LOOP FEEDER TRANSFORMER DETAILS. NOTE: CONTRACTOR SHALL REMOVE EXISTING FANS AND STARTER CABINET (FOR FAN CONTROL) AND REINSTALL ON NEW TRANSFORMERS TO BE PROVIDED.
- ⑨ THE REMOVAL OF EXISTING TRANSFORMER T-5A-3 AND T-5B-3 (AND THE INSTALLATION OF THEIR REPLACEMENTS) SHALL REQUIRE REMOVAL/INSTALLATION VIA CRANE (EXISTING STRUCTURE HAS NO ROOF, AND IS OPEN AT THE TOP).
- ⑩ EXISTING MAINTENANCE BUILDING (040).
- ⑪ EXISTING TRANSFORMER 'T-2A-2' TO BE REPLACED. 750 KVA/OA, 13.2KV-277/480V DELTA-WYE WITH 1000 AMPERE, 600V SECONDARY CIRCUIT BREAKER. REFER TO SHEET E-7 FOR TYPICAL END OF LINE TRANSFORMER DETAILS.
- ⑫ EXISTING TRANSFORMER 'T-2B-2' TO BE REPLACED. 750 KVA/OA, 13.2KV-277/480V DELTA-WYE WITH 1000 AMPERE, 600V SECONDARY CIRCUIT BREAKER. REFER TO SHEET E-7 FOR TYPICAL END OF LINE TRANSFORMER DETAILS.



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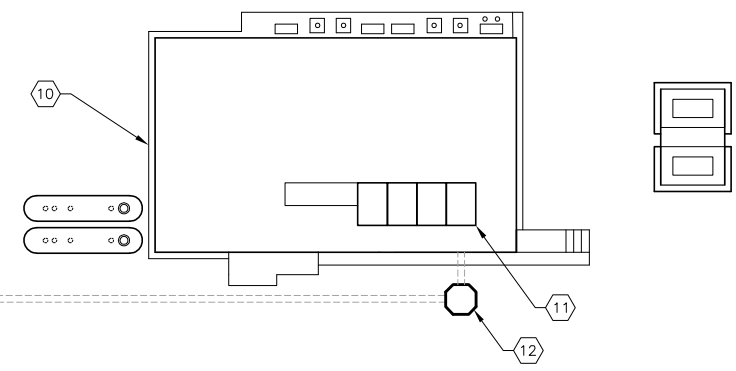
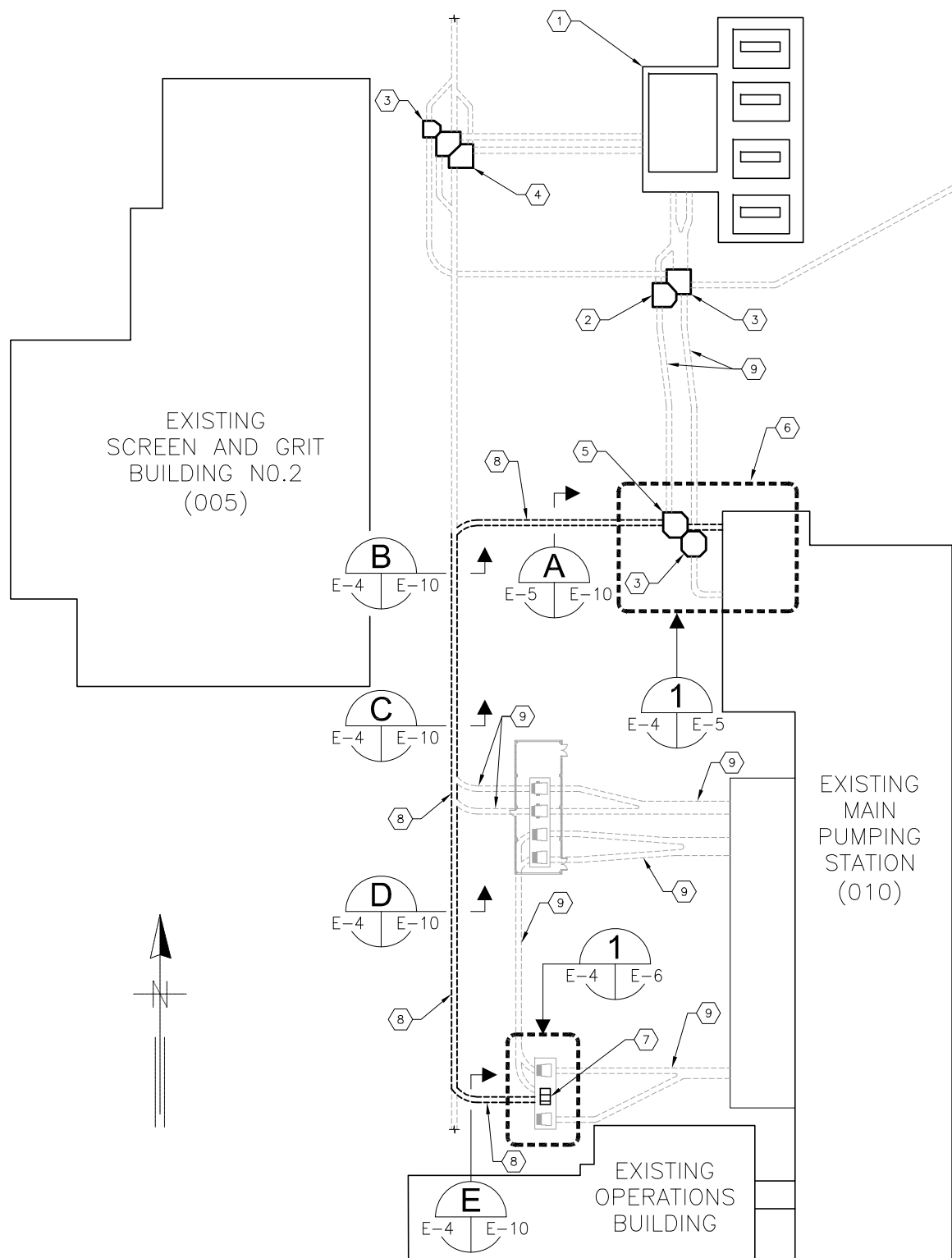
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**HOWARD F. CURREN AWTP**  
**TRANSFORMER REPLACEMENTS : PH II**

**TRANSFORMER REPLACEMENTS  
PARTIAL SITE PLANS**

SHEET NUMBER	<b>E-3</b>
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171309542E01



**KEYED NOTES:**

- 1 EXISTING PLANT SWITCHGEAR BUILDING (044).
- 2 EXISTING HIGH VOLTAGE MANHOLE (MH-E6). NO WORK REQUIRED.
- 3 EXISTING LOW VOLTAGE MANHOLE. NO WORK REQUIRED.
- 4 EXISTING HIGH VOLTAGE MANHOLE (MH-E1). NO WORK REQUIRED.
- 5 EXISTING HIGH VOLTAGE MANHOLE (MH-E10). CONTRACTOR SHALL UTILIZE MANHOLE TO PROVIDE AND INSTALL A NEW 15KV CIRCUIT (3-#350 MCM PLUS 1-#2 600V GND.) FROM EXISTING MANHOLE (MH-E10) TO EXISTING ELECTRICALLY OPERATED MANUAL TRANSFER SWITCH IN NOTE #7. CONTRACTOR PULL THE EXISTING 15KV FEEDER (3-52-G2) BACK FROM THE EXISTING 15KV JUNCTION BOX (REFER TO SHEET E-5 FOR EXACT 15KV JUNCTION BOX LOCATION) AND UTILIZE EXCESS CABLE FOR SPLICING THE EXISTING 3-52-G2 FEEDER TO THE NEW CONDUCTORS (SPLICE CONDUCTORS IN MANHOLE MH-E10). EXCESS CABLE SHALL ALSO BE UTILIZED TO REFEED 15KV FEEDER 3-52-G2 FROM SWITCHGEAR NO. 3, CIRCUIT BREAKER 3-52-G2 TO SWITCHGEAR NO. 3, CIRCUIT BREAKER 3-52-7. REFER ALSO TO NOTES #11 AND #12.
- 6 REFER TO SHEET E-5 FOR PARTIAL FLOOR PLAN OF MAIN PUMPING STATION (LOWER LEVEL) AND EXISTING 15KV JUNCTION BOX LOCATION.
- 7 EXISTING 600A, 15KV ELECTRICALLY OPERATED MANUAL TRANSFER SWITCH 'TS-3B-3'. REFER TO SHEET E-6 FOR TRANSFER SWITCH PARTIAL SITE PLAN.
- 8 CONTRACTOR TO UTILIZE EXISTING DUCTBANK TO INSTALL NEW 15KV FEEDER FROM EXISTING 15KV JUNCTION BOX IN LOWER LEVEL OF MAIN PUMPING STATION TO EXISTING ELECTRICALLY OPERATED MANUAL TRANSFER SWITCH. REFER TO DUCTBANK SECTIONS ON SHEET E-10 FOR AVAILABLE SPARE CONDUITS.
- 9 EXISTING DUCTBANK. NO WORK REQUIRED.
- 10 EXISTING STANDBY POWER FACILITY (078).
- 11 EXISTING 13.2KV, INDOOR SWITCHGEAR NO. 3. SWITCHGEAR CONTAINS EXISTING CIRCUIT BREAKERS 3-52-G2 AND 3-52-7. REFER ALSO TO ONE LINE DIAGRAM ON SHEET E-2.
- 12 EXISTING HIGH VOLTAGE MANHOLE MH-E31. CURRENTLY, FEEDER 3-52-G2 TERMINATES IN THE 3-52-G2 CUBICLE, BUT IS DISCONNECTED. THE CONTRACTOR SHALL UTILIZE THE FEEDER SLACK (REFER TO NOTE #5) TO PULL THE FEEDER BACK FROM CIRCUIT BREAKER 3-52-G2 CUBICLE AND THEN REINSTALL AND TERMINATE THE FEEDER ON CIRCUIT BREAKER 3-52-7.

**GENERAL NOTES:**

1. ALL INFORMATION PRESENTED IS BASED ON EXISTING RECORD DRAWING INFORMATION AND IS FOR REFERENCE ONLY. SPARE CONDUIT AVAILABILITY, CONDUIT LOCATIONS, CONDUIT STUB-UPS, ETC., ARE APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY ALL INFORMATION PRIOR TO COMMENCING WORK.

**MAIN PUMPING STATION SITE PLAN** 1  
 SCALE : 1" = 60'-0"



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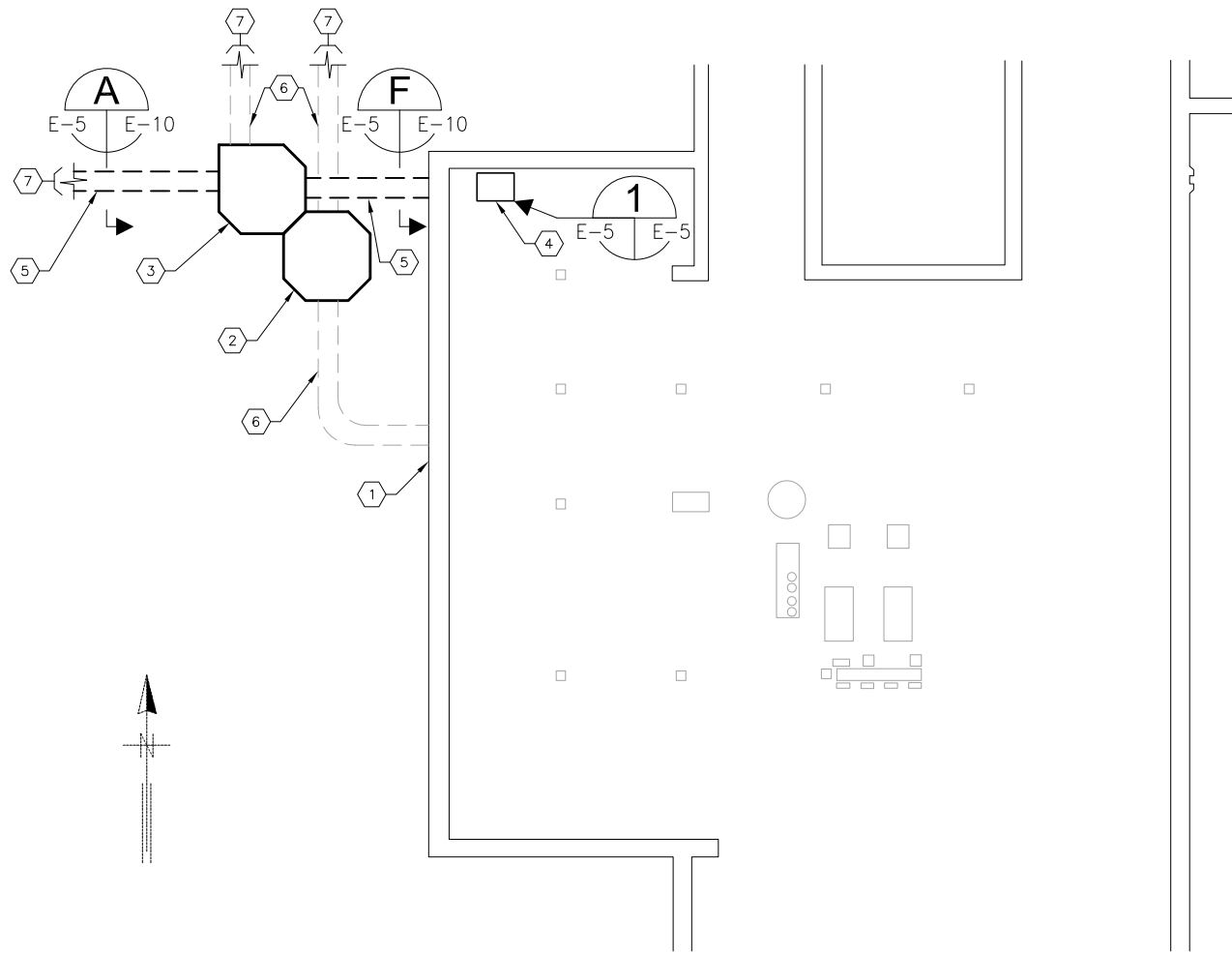
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**HOWARD F. CURREN AWTP  
 TRANSFORMER REPLACEMENTS : PH II**

**MAIN PUMPING STATION  
 SITE PLAN**

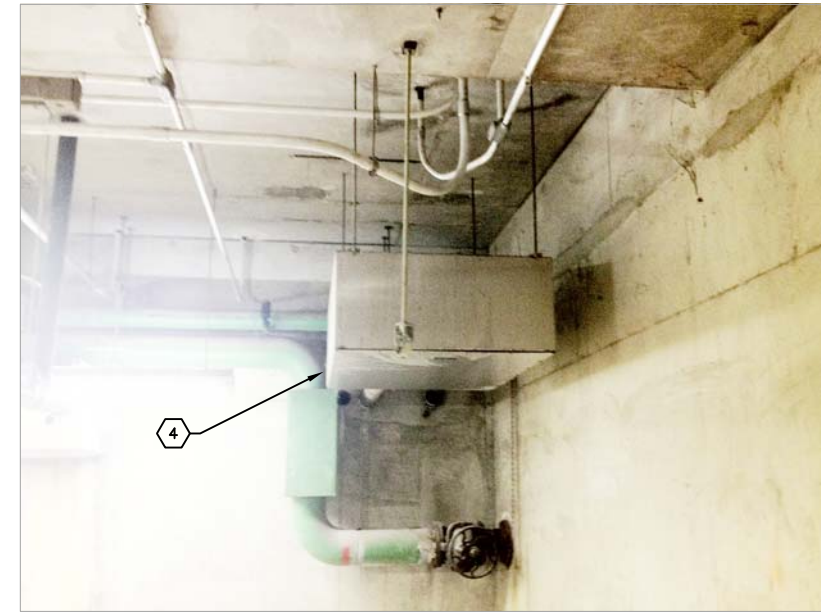
SHEET NUMBER	<b>E-4</b>
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171309542E01





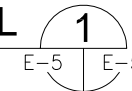
**MAIN PUMPING STATION PARTIAL FLOOR PLAN (LOWER LEVEL)**

SCALE : 1" = 20'-0"



**15KV JUNCTION BOX DETAIL**

SCALE : N.T.S



**KEYED NOTES:**

- ① EXISTING MAIN PUMPING STATION (010).
- ② EXISTING LOW VOLTAGE MANHOLE. NO WORK REQUIRED.
- ③ EXISTING HIGH VOLTAGE MANHOLE (MH-E10). CONTRACTOR SHALL UTILIZE MANHOLE TO SPLICE EXISTING FEEDER 3-52-G2 (FROM SWITCHGEAR NO. 3 TO MH-E10) TO NEW 15KV FEEDER (3-#350 MCM PLUS 1-#2 600V GND. FROM MH-E10 TO EXISTING MANUALLY OPERATED TRANSFER SWITCH). CONTRACTOR SHALL PULL FEEDER 3-52-G2 BACK FROM EXISTING 15KV JUNCTION BOX (REFER TO NOTE #4) TO PROVIDE EXCESS SLACK FOR SPLICING AND FEEDER RECONFIGURATION. REFER TO SHEETS E-2 AND E-4 FOR FEEDER 3-52-G2 RECONFIGURATION AT SWITCHGEAR NO. 3.
- ④ EXISTING 48" X 36" X 24" 15KV JUNCTION BOX CONTAINING 15KV FEEDERS 3-52-G1 AND 3-52-G2 FROM SWITCHGEAR NO. 3. CONTRACTOR SHALL PULL FEEDER 3-52-G2 BACK TO MANHOLE MH-E10 (REFER TO NOTE #3) TO PROVIDE EXCESS SLACK FOR SPLICING AND FEEDER RECONFIGURATION. REFER TO SHEETS E-2 AND E-4 FOR FEEDER 3-52-G2 RECONFIGURATION AT SWITCHGEAR NO. 3.
- ⑤ EXISTING DUCTBANK TO BE UTILIZED TO INSTALL NEW 15KV FEEDER (3-#350 MCM PLUS 1-#2 600V GND.) TO EXISTING MANUALLY OPERATED TRANSFER SWITCH. REFER TO DUCTBANK SECTIONS FOR SPARE CONDUITS AVAILABLE FOR CONDUCTOR INSTALLATION.
- ⑥ EXISTING DUCTBANK. NO WORK REQUIRED.
- ⑦ EXISTING DUCTBANK. REFER TO SHEET E-4 FOR CONTINUATION.



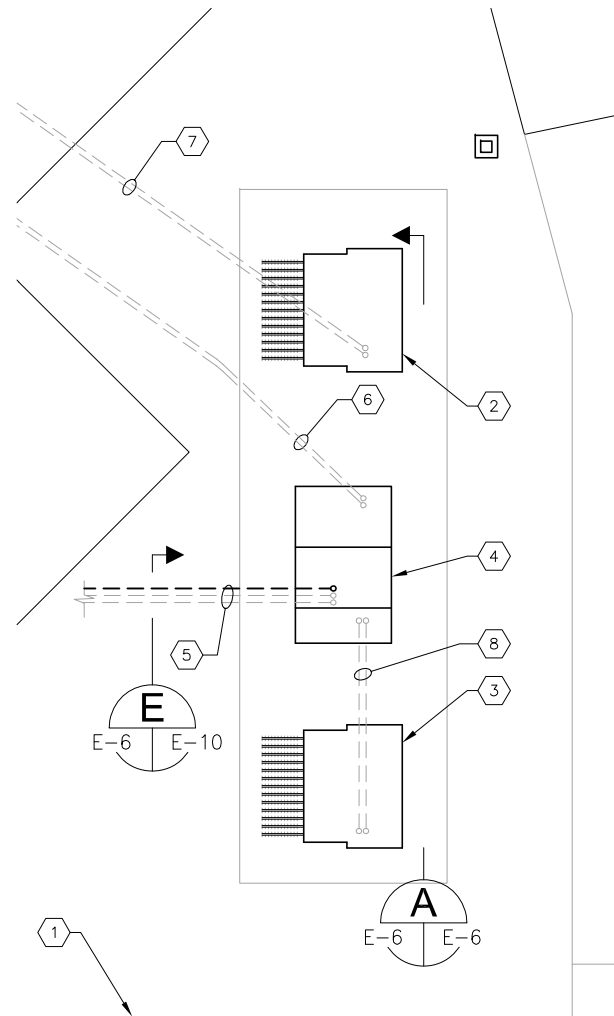
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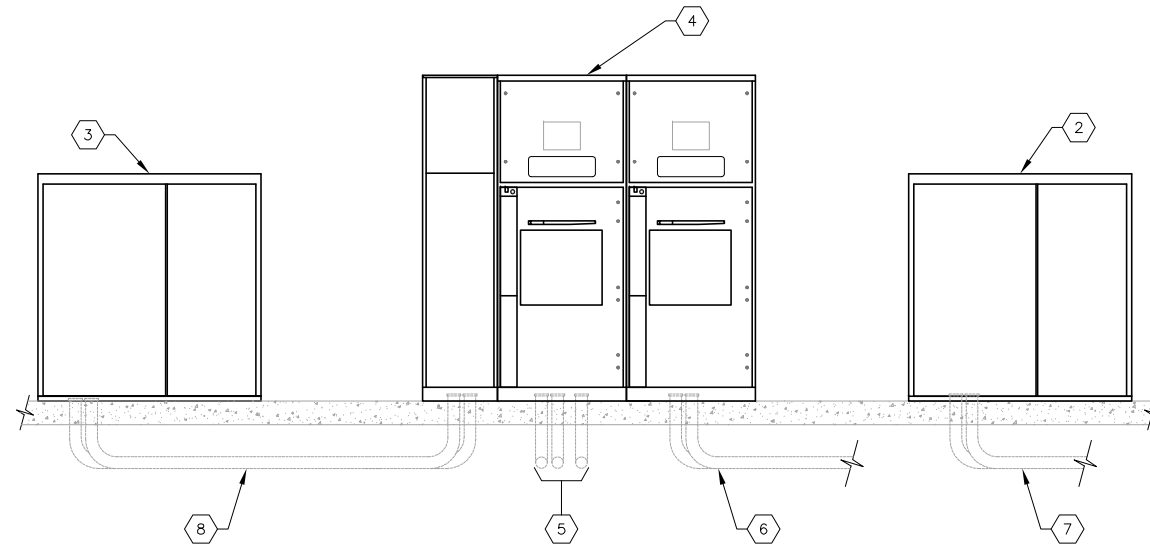
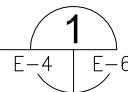
**MAIN PUMPING STATION  
PARTIAL FLOOR PLAN  
(LOWER LEVEL)**

SHEET NUMBER	<b>E-5</b>
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171309542E01



**TRANSFER SWITCH  
PARTIAL SITE PLAN**

SCALE : N.T.S.



**TRANSFORMER / TRANSFER SWITCH ELEVATION**

SCALE : N.T.S.



**KEYED NOTES:**

- ① EXISTING OPERATIONS OFFICE (BUILDING 010).
- ② EXISTING TRANSFORMER 'T-3A-3'. NO WORK REQUIRED.
- ③ EXISTING TRANSFORMER 'T-3B-3'. NO WORK REQUIRED.
- ④ EXISTING 600A, 15KV ELECTRICALLY OPERATED MANUAL TRANSFER SWITCH 'TS-3B-3'.
- ⑤ EXISTING DUCTBANK CONTAINING SPARE CONDUIT (REFER TO DUCTBANK SECTION 'E' ON SHEET E-10). CONTRACTOR TO PROVIDE AND INSTALL NEW CONDUCTORS IN EXISTING SPARE CONDUIT. CONDUCTORS TO BE NEW 15KV, 3-#350 MCM PLUS 1-#2 600V GND. FEEDER TO RUN FROM EXISTING TRANSFER SWITCH TO EXISTING MANHOLE MH-E10 ADJACENT TO MAIN PUMPING STATION. REFER TO SHEETS E-4 AND E-5 FOR MH-E10 LOCATION.
- ⑥ EXISTING DUCTBANK CONTAINING '1H3B3' (AND 1- 4" SPARE). DUCTBANK TERMINATES IN EXISTING TRANSFER SWITCH TS-3B-3. (EXISTING FEEDER FROM TRANSFORMER T-3B-2). NO WORK REQUIRED.
- ⑦ EXISTING DUCTBANK CONTAINING '1H3A3' (AND 1- 4" SPARE). DUCTBANK TERMINATES IN EXISTING TRANSFORMER T-3A-3. (EXISTING FEEDER FROM TRANSFORMER T-3A-2). NO WORK REQUIRED.
- ⑧ EXISTING CONDUIT '1H3BTS' (IN DUCTBANK WITH 4" SPARE) FOR 15KV FEEDER FROM EXISTING TRANSFER SWITCH TO TRANSFORMER T-3B-3. NO WORK REQUIRED.

**GENERAL NOTES:**

1. ALL INFORMATION PRESENTED IS BASED ON EXISTING RECORD DRAWING INFORMATION AND IS FOR REFERENCE ONLY. THE CONTRACTOR SHALL FIELD VERIFY ALL INFORMATION PRIOR TO COMMENCING WORK.
2. CONTRACTOR TO VERIFY PHASING OF THE EXISTING TRANSFER SWITCH.



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DATE	3/2014	No.	DATE	BY	APP	REVISION	DESCRIPTION		

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City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
**TRANSFORMER REPLACEMENTS : PH II**

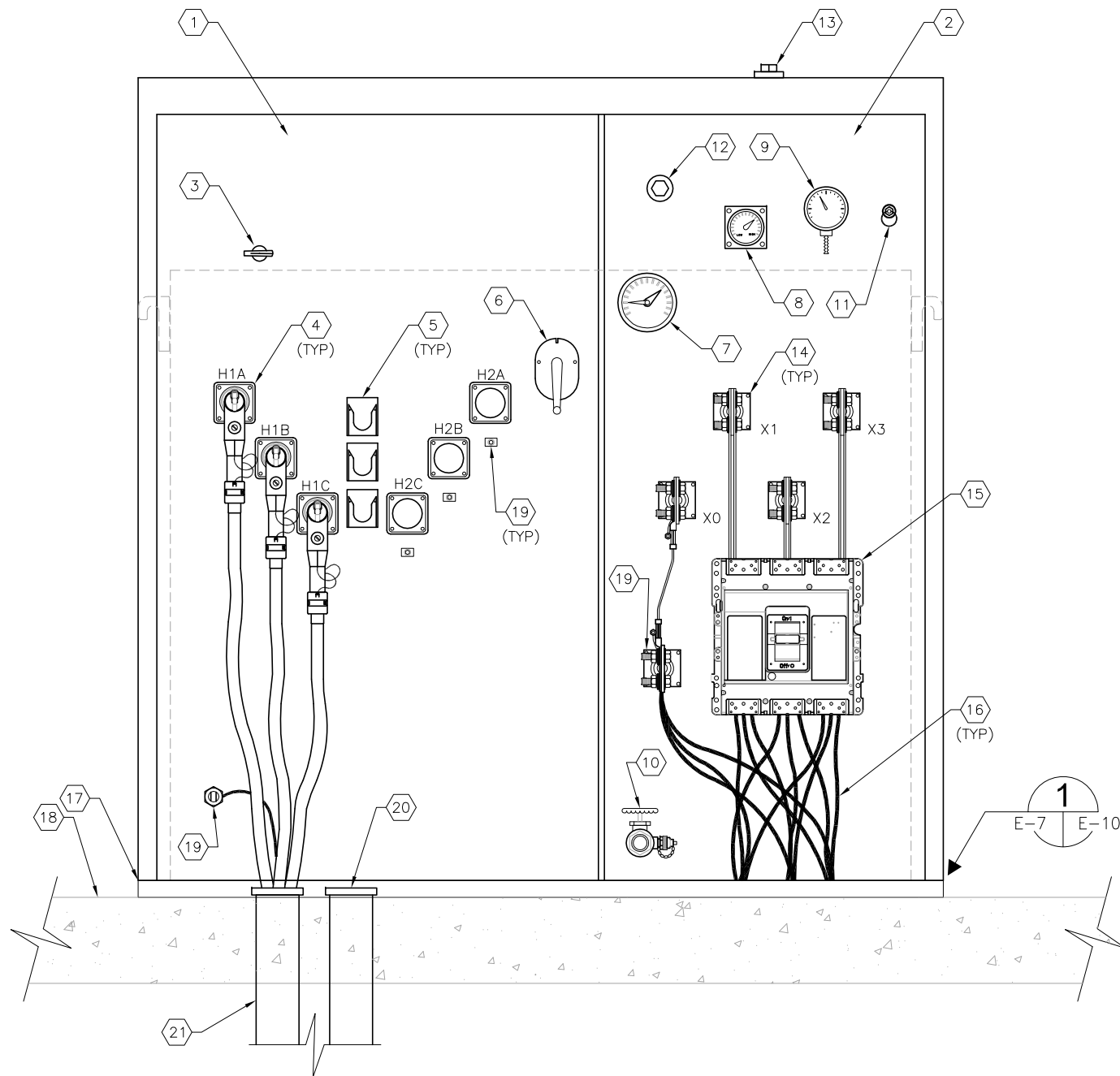
**TRANSFER SWITCH TS-3B-3  
PARTIAL SITE PLAN**

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER

**E-6**

FILE: 171309542E01



### END OF LINE TRANSFORMER DETAIL

SCALE : N.T.S.

TYPICAL FOR TRANSFORMERS T-2A-2 AND T-2B-2

#### KEYED NOTES:

- ① TRANSFORMER PRIMARY COMPARTMENT, FABRICATED FROM STAINLESS STEEL.
- ② TRANSFORMER SECONDARY COMPARTMENT, FABRICATED FROM STAINLESS STEEL.
- ③ TWO POSITION 'ON-OFF' SWITCH FOR LOAD BREAK, GANG OPERATED TRANSFORMER PRIMARY LOOP-ISOLATION SWITCH.
- ④ HIGH VOLTAGE BUSHING (TYP).
- ⑤ PARKING STAND (TYP).
- ⑥ TAP CHANGER.
- ⑦ DIAL TYPE THERMOMETER.
- ⑧ MAGNETIC LIQUID LEVEL GAUGE.
- ⑨ PRESSURE-VACUUM GAUGE.
- ⑩ ONE-INCH SCREW AND GLOBE TYPE DRAIN VALVE WITH SAMPLE PORT.
- ⑪ AUTOMATIC PRESSURE RELIEF VALVE.
- ⑫ ONE-INCH MALE PIPE FITTING FOR FILLING AND FILTER CONNECTION.
- ⑬ NITROGEN PORT
- ⑭ LOW VOLTAGE BUSHING (TYP).
- ⑮ LOW VOLTAGE CIRCUIT BREAKER. REFER TO SPECIFICATIONS. BREAKER RATINGS DEPENDENT ON TRANSFORMER KVA.
- ⑯ EXISTING LOW VOLTAGE DISTRIBUTION FEEDERS TO BE RECONNECTED TO CIRCUIT BREAKER. QUANTITY VARIES BASED ON TRANSFORMER KVA RATING.
- ⑰ PROVIDE AND INSTALL STAINLESS STEEL C-CHANNELS UNDER TRANSFORMER TANK TO ELIMINATE TRANSFORMER CONTACT WITH CONCRETE PAD. SECURE WITH STAINLESS STEEL ANCHOR SCREWS AND STAINLESS STEEL WASHERS. CONTRACTOR SHALL INSTALL 1/4-INCH NEOPRENE GASKET BETWEEN STAINLESS STEEL C-CHANNEL AND TRANSFORMER TANK BASE. PROVIDE A MINIMUM OF THREE (3) STAINLESS STEEL C-CHANNELS EVENLY SPACED BELOW TRANSFORMER TANK. CONTRACTOR SHALL ALSO PROVIDE STAINLESS STEEL C-CHANNEL UNDER THE FRAME OF THE PRIMARY AND SECONDARY TRANSFORMER COMPARTMENTS TO PREVENT RODENT INTRUSION. PROVIDE 1/4-INCH NEOPRENE GASKET BETWEEN C-CHANNEL AND PRIMARY/SECONDARY COMPARTMENT FRAME. ANCHORING OF C-CHANNEL FOR FRAME IS NOT REQUIRED. REFER ALSO TO DETAIL ON SHEET E-11.
- ⑱ EXISTING CONCRETE PAD. NO WORK REQUIRED.
- ⑲ GROUND LUG (TYP).
- ⑳ SPARE 4" CONDUIT. TYPICAL FOR ALL INSTALLATIONS. NO WORK REQUIRED.
- ㉑ EXISTING 4" CONDUIT AND EXISTING CONDUCTORS TO BE REUSED.

#### GENERAL NOTES:

1. THE CONTRACTOR SHALL RECONNECT THE EXISTING BOND FROM THE EXISTING 500 MCM BARE CU GROUND LOOP (LOCATED AROUND THE PERIMETER OF THE TRANSFORMER PAD) TO THE GROUND LUG OF THE NEW TRANSFORMER.
2. EXISTING CONDUITS SHOWN IN HIGH VOLTAGE COMPARTMENT ARE FOR REFERENCE ONLY. QUANTITIES AND LOCATIONS MAY VARY PER TRANSFORMER. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS.
3. EXISTING CONDUITS IN LOW VOLTAGE COMPARTMENT NOT SHOWN FOR CLARITY. NO WORK REQUIRED FOR THESE CONDUITS.
4. TRANSFORMER COMPONENT LAYOUT IS MANUFACTURER DEPENDENT. COMPONENT LOCATIONS ARE FOR REFERENCE ONLY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSURING THAT THE EXISTING TRANSFORMER LOCATIONS CAN ACCOMMODATE THE NEW TRANSFORMER DIMENSIONS.



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City of Tampa Wastewater Department  
**HOWARD F. CURREN AWTP**  
**TRANSFORMER REPLACEMENTS : PH II**

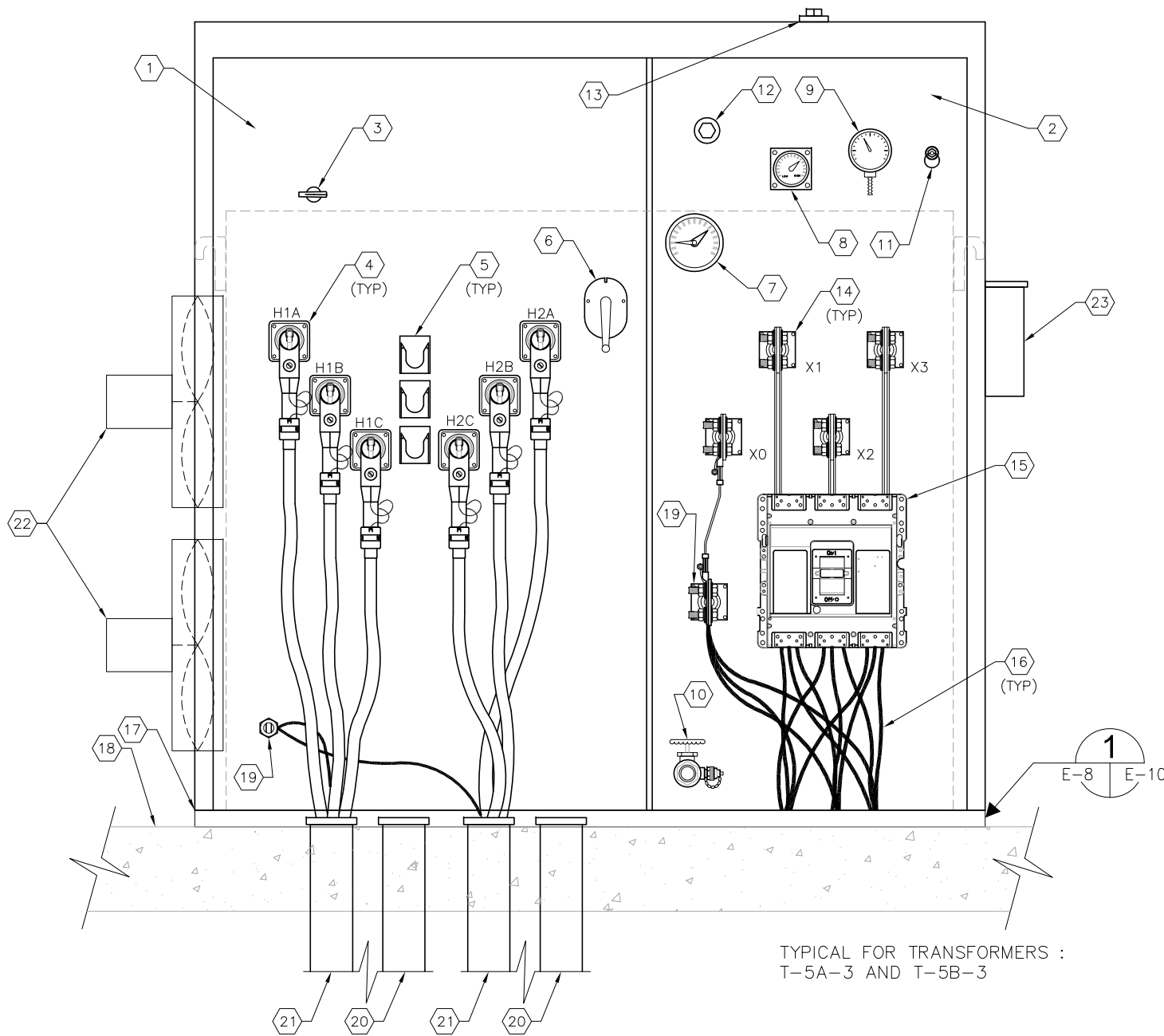
**END OF LINE**  
**TRANSFORMER DETAILS**

SHEET NUMBER

**E-7**

TIMOTHY THOMAS, P.E. No. 47079

FILE: 171309542E01



**LOOP FEEDER TRANSFORMER DETAIL**

SCALE : N.T.S. -- TYPICAL FOR TRANSFORMERS T-5A-3 AND T-5B-3

**KEYED NOTES:**

- 1 TRANSFORMER PRIMARY COMPARTMENT, FABRICATED FROM STAINLESS STEEL.
- 2 TRANSFORMER SECONDARY COMPARTMENT, FABRICATED FROM STAINLESS STEEL.
- 3 TWO POSITION 'ON-OFF' SWITCH FOR LOAD BREAK, GANG OPERATED TRANSFORMER PRIMARY LOOP-ISOLATION SWITCH.
- 4 HIGH VOLTAGE BUSHING (TYP).
- 5 PARKING STAND (TYP).
- 6 TAP CHANGER.
- 7 DIAL TYPE THERMOMETER.
- 8 MAGNETIC LIQUID LEVEL GAUGE.
- 9 PRESSURE-VACUUM GAUGE.
- 10 ONE-INCH SCREW AND GLOBE TYPE DRAIN VALVE WITH SAMPLE PORT.
- 11 AUTOMATIC PRESSURE RELIEF VALVE.
- 12 ONE-INCH MALE PIPE FITTING FOR FILLING AND FILTER CONNECTION.
- 13 NITROGEN PORT
- 14 LOW VOLTAGE BUSHING (TYP).
- 15 LOW VOLTAGE CIRCUIT BREAKER. REFER TO SPECIFICATIONS. BREAKER RATINGS DEPENDENT ON TRANSFORMER KVA.
- 16 EXISTING LOW VOLTAGE DISTRIBUTION FEEDERS TO BE RECONNECTED TO CIRCUIT BREAKER. QUANTITY VARIES BASED ON TRANSFORMER KVA RATING.
- 17 PROVIDE AND INSTALL STAINLESS STEEL C-CHANNELS UNDER TRANSFORMER TANK TO ELIMINATE TRANSFORMER CONTACT WITH CONCRETE PAD. SECURE WITH STAINLESS STEEL ANCHOR SCREWS AND STAINLESS STEEL WASHERS. CONTRACTOR SHALL INSTALL 1/4-INCH NEOPRENE GASKET BETWEEN STAINLESS STEEL C-CHANNEL AND TRANSFORMER TANK BASE. PROVIDE A MINIMUM OF THREE (3) STAINLESS STEEL C-CHANNELS EVENLY SPACED BELOW TRANSFORMER TANK. CONTRACTOR SHALL ALSO PROVIDE STAINLESS STEEL C-CHANNEL UNDER THE FRAME OF THE PRIMARY AND SECONDARY TRANSFORMER COMPARTMENTS TO PREVENT RODENT INTRUSION. PROVIDE 1/4-INCH NEOPRENE GASKET BETWEEN C-CHANNEL AND PRIMARY/SECONDARY COMPARTMENT FRAME. ANCHORING OF C-CHANNEL FOR FRAME IS NOT REQUIRED. REFER ALSO TO DETAIL ON SHEET E-11.
- 18 EXISTING CONCRETE PAD. NO WORK REQUIRED.
- 19 GROUND LUG (TYP).
- 20 SPARE 4" CONDUIT. TYPICAL FOR ALL INSTALLATIONS. NO WORK REQUIRED.
- 21 EXISTING 4" CONDUIT AND EXISTING CONDUCTORS TO REMAIN.
- 22 CONTRACTOR SHALL REMOVE EXISTING 480V, 1/6 HP FANS (TYPICAL OF BOTH EXISTING TRANSFORMERS) AND REINSTALL ON NEW TRANSFORMERS TO BE PROVIDED. CONTRACTOR SHALL PROVIDE NEW MOUNTING HARDWARE IN CASES WHERE NEW TRANSFORMER DIMENSIONS VARY. CONTRACTOR SHALL INSTALL ANY NEW CONDUCTORS, 1/2" SEALTITE CONDUIT, SEALTITE CONNECTORS, JUNCTION BOXES, ETC. AS REQUIRED TO MATCH EXISTING. THE FANS FACTORY INSTALLED CABLES AND CABLE CONNECTORS MAY BE REUSED. PROVIDE AND INSTALL 3-#12 + 1-#12 GND IN 1/2 CONDUIT FROM FAN JUNCTION BOX TO STARTER CABINET (REFER TO NOTE #23 FOR STARTER CABINET DETAILS).
- 23 CONTRACTOR SHALL REMOVE EXISTING STARTER CABINET (TYPICAL OF BOTH EXISTING TRANSFORMERS) AND REINSTALL ON NEW TRANSFORMERS TO BE PROVIDED. STARTER CABINET CONTAINS 480V, 3-POLE SQUARE-D CLASS 8502 SB02 STARTER WITH 480V COIL, AS WELL AS, FUSE HOLDER WITH THREE (3) 480V FUSES AND TERMINAL BLOCK. CONTRACTOR SHALL PROVIDE AND INSTALL NEW CONDUCTORS, 1/2" SEALTITE CONDUIT AND SEALTITE CONNECTORS AS NECESSARY. CONTRACTOR SHALL PROVIDE AND INSTALL 3-#12 + 1-#12 GND FROM LOAD SIDE OF TRANSFORMER SECONDARY CIRCUIT BREAKER TO LINE SIDE OF STARTER FOR FAN 480V POWER. CONTRACTOR SHALL PROVIDE 2-#12 + 1-#12 GND FROM LIQUID LEVEL TEMPERATURE GAUGE TO STARTER COIL FOR FAN CONTROL. REFER TO SPECIFICATION SECTION 16272, 2.01.G FOR LIQUID TEMPERATURE GAUGE REQUIREMENTS.

**GENERAL NOTES:**

- 1. THE CONTRACTOR SHALL RECONNECT THE EXISTING BOND FROM THE EXISTING 500 MCM BARE CU GROUND LOOP (LOCATED AROUND THE PERIMETER OF THE TRANSFORMER PAD) TO THE GROUND LUG OF THE NEW TRANSFORMER.
- 2. EXISTING CONDUITS SHOWN IN HIGH VOLTAGE COMPARTMENT ARE FOR REFERENCE ONLY. QUANTITIES AND LOCATIONS MAY VARY PER TRANSFORMER. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS.
- 3. EXISTING CONDUITS IN LOW VOLTAGE COMPARTMENT NOT SHOWN FOR CLARITY. NO WORK REQUIRED FOR THESE CONDUITS.
- 4. TRANSFORMER COMPONENT LAYOUT IS MANUFACTURER DEPENDENT. COMPONENT LOCATIONS ARE FOR REFERENCE ONLY.
- 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSURING THAT THE EXISTING TRANSFORMER LOCATIONS CAN ACCOMMODATE THE NEW TRANSFORMER DIMENSIONS.
- 6. FAN LOCATIONS VARY PER TRANSFORMER. LOCATION SHOWN IS NOT TYPICAL FOR BOTH.



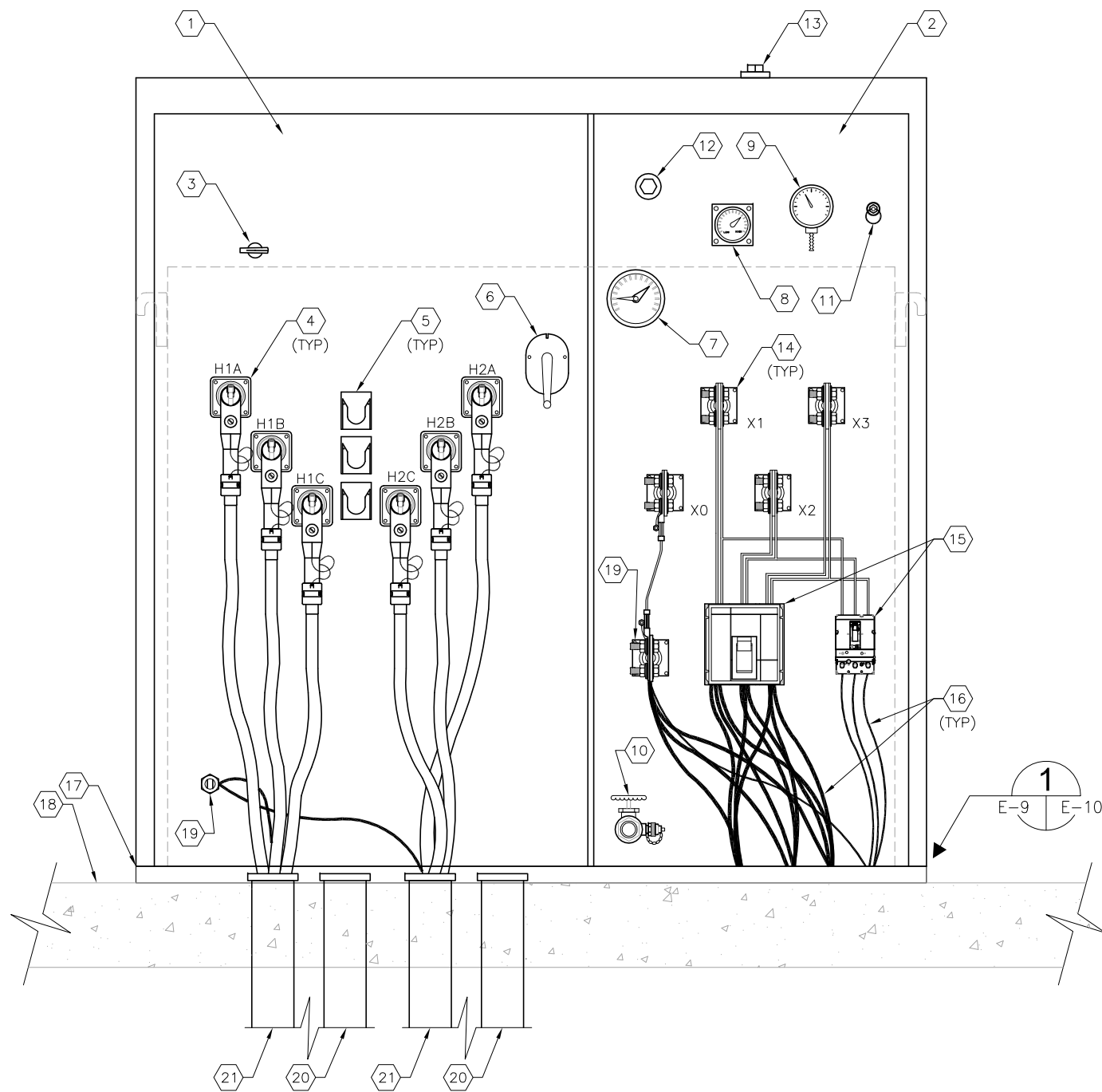
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City of Tampa Wastewater Department  
**HOWARD F. CURREN AWP**  
**TRANSFORMER REPLACEMENTS : PH II**

**LOOP FEEDER  
TRANSFORMER DETAILS**

SHEET NUMBER	<b>E-8</b>
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171309542E01



## LOOP FEEDER TRANSFORMER WITH DUAL SECONDARY CIRCUIT BREAKERS DETAIL

SCALE : N.T.S.

TYPICAL FOR TRANSFORMERS :  
T-5A-2 AND T-5B-2

### KEYED NOTES:

- 1 TRANSFORMER PRIMARY COMPARTMENT, FABRICATED FROM STAINLESS STEEL.
- 2 TRANSFORMER SECONDARY COMPARTMENT, FABRICATED FROM STAINLESS STEEL.
- 3 TWO POSITION 'ON-OFF' SWITCH FOR LOAD BREAK, GANG OPERATED TRANSFORMER PRIMARY LOOP-ISOLATION SWITCH.
- 4 HIGH VOLTAGE BUSHING (TYP).
- 5 PARKING STAND (TYP).
- 6 TAP CHANGER.
- 7 DIAL TYPE THERMOMETER.
- 8 MAGNETIC LIQUID LEVEL GAUGE.
- 9 PRESSURE-VACUUM GAUGE.
- 10 ONE-INCH SCREW AND GLOBE TYPE DRAIN VALVE WITH SAMPLE PORT.
- 11 AUTOMATIC PRESSURE RELIEF VALVE.
- 12 ONE-INCH MALE PIPE FITTING FOR FILLING AND FILTER CONNECTION.
- 13 NITROGEN PORT
- 14 LOW VOLTAGE BUSHING (TYP).
- 15 LOW VOLTAGE CIRCUIT BREAKERS. REFER TO SPECIFICATIONS.
- 16 EXISTING LOW VOLTAGE DISTRIBUTION FEEDERS TO BE RECONNECTED TO CIRCUIT BREAKERS.
- 17 PROVIDE AND INSTALL STAINLESS STEEL C-CHANNELS UNDER TRANSFORMER TANK TO ELIMINATE TRANSFORMER CONTACT WITH CONCRETE PAD. SECURE WITH STAINLESS STEEL ANCHOR SCREWS AND STAINLESS STEEL WASHERS. CONTRACTOR SHALL INSTALL 1/4-INCH NEOPRENE GASKET BETWEEN STAINLESS STEEL C-CHANNEL AND TRANSFORMER TANK BASE. PROVIDE A MINIMUM OF THREE (3) STAINLESS STEEL C-CHANNELS EVENLY SPACED BELOW TRANSFORMER TANK. CONTRACTOR SHALL ALSO PROVIDE STAINLESS STEEL C-CHANNEL UNDER THE FRAME OF THE PRIMARY AND SECONDARY TRANSFORMER COMPARTMENTS TO PREVENT RODENT INTRUSION. PROVIDE 1/4-INCH NEOPRENE GASKET BETWEEN C-CHANNEL AND PRIMARY/SECONDARY COMPARTMENT FRAME. ANCHORING OF C-CHANNEL FOR FRAME IS NOT REQUIRED. REFER ALSO TO DETAIL ON SHEET E-11.
- 18 EXISTING CONCRETE PAD. NO WORK REQUIRED.
- 19 GROUND LUG (TYP).
- 20 SPARE 4" CONDUIT. TYPICAL FOR ALL INSTALLATIONS. NO WORK REQUIRED.
- 21 EXISTING 4" CONDUIT AND EXISTING CONDUCTORS TO REMAIN.

### GENERAL NOTES:

1. THE CONTRACTOR SHALL RECONNECT THE EXISTING BOND FROM THE EXISTING 500 MCM BARE CU GROUND LOOP (LOCATED AROUND THE PERIMETER OF THE TRANSFORMER PAD) TO THE GROUND LUG OF THE NEW TRANSFORMER.
2. EXISTING CONDUITS SHOWN IN HIGH VOLTAGE COMPARTMENT ARE FOR REFERENCE ONLY. QUANTITIES AND LOCATIONS MAY VARY PER TRANSFORMER. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS.
3. EXISTING CONDUITS IN LOW VOLTAGE COMPARTMENT NOT SHOWN FOR CLARITY. NO WORK REQUIRED FOR THESE CONDUITS.
4. TRANSFORMER COMPONENT LAYOUT IS MANUFACTURER DEPENDENT. COMPONENT LOCATIONS ARE FOR REFERENCE ONLY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSURING THAT THE EXISTING TRANSFORMER LOCATIONS CAN ACCOMMODATE THE NEW TRANSFORMER DIMENSIONS.



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TRANSFORMER REPLACEMENTS : PH II

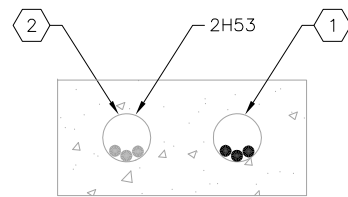
**LOOP FEEDER TRANSFORMER  
WITH DUAL SECONDARY  
CIRCUIT BREAKERS**

SHEET NUMBER

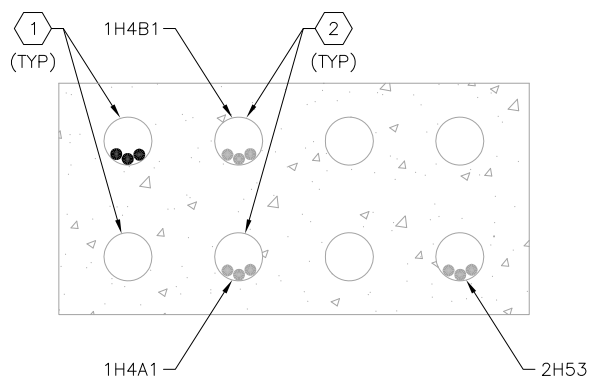
**E-9**

TIMOTHY THOMAS, P.E. No. 47079

FILE: 171309542E01



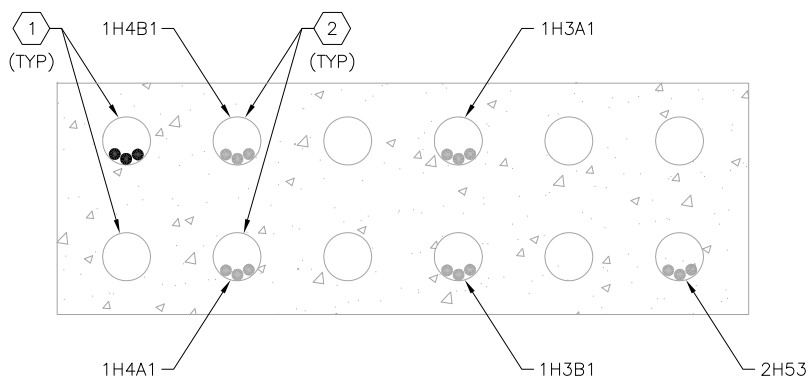
**DUCTBANK SECTION A**  
SCALE : N.T.S.  
E-5 | E-10  
E-5



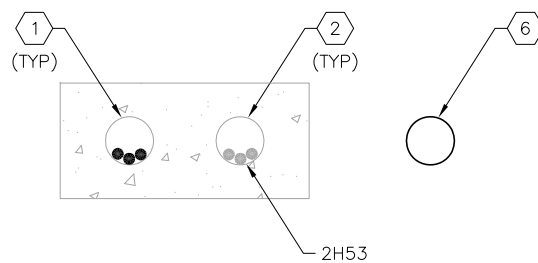
**DUCTBANK SECTION D**  
SCALE : N.T.S.  
E-4 | E-10  
E-5



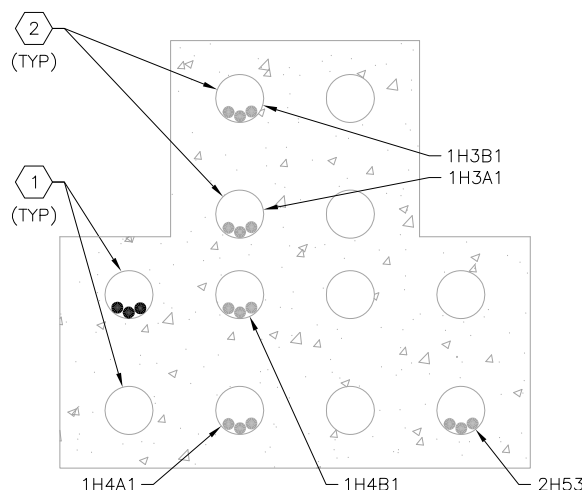
**C-CHANNEL SUPPORT DETAIL 1**  
SCALE : N.T.S.  
E-7 | E-10  
E-8  
E-9



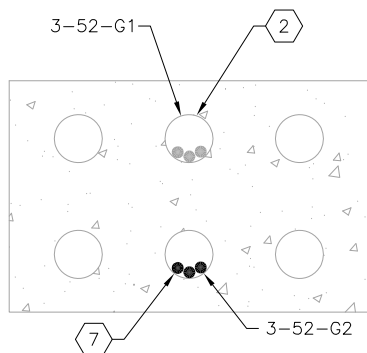
**DUCTBANK SECTION B**  
SCALE : N.T.S.  
E-4 | E-10



**DUCTBANK SECTION E**  
SCALE : N.T.S.  
E-4 | E-10  
E-6



**DUCTBANK SECTION C**  
SCALE : N.T.S.  
E-4 | E-10



**DUCTBANK SECTION F**  
SCALE : N.T.S.  
E-5 | E-10

**KEYED NOTES:**

- 1 4" SPARE PVC CONDUIT IN EXISTING DUCTBANK. CONTRACTOR SHALL UTILIZE SPARE CONDUIT (CONTRACTOR'S PREFERENCE WHERE MULTIPLE SPARE CONDUITS ARE AVAILABLE) TO INSTALL NEW 15KV FEEDER '1H3BTS1' (3-#350 MCM PLUS 1-#2 600V GND.)
- 2 EXISTING CONDUIT AND CONDUCTORS IN EXISTING DUCTBANK. NO WORK REQUIRED.
- 3 PROVIDE AND INSTALL STAINLESS STEEL ROUNDED C-CHANNEL UNDER TRANSFORMER TANK TO ELIMINATE TRANSFORMER CONTACT WITH CONCRETE PAD. SECURE WITH STAINLESS STEEL ANCHOR SCREWS AND STAINLESS STEEL WASHERS.
- 4 PROVIDE A MINIMUM OF THREE (3) - 2" WIDE X 1-1/4" TALL X 1/4" THICK STAINLESS STEEL, ROUNDED C-CHANNELS EVENLY SPACED BELOW TRANSFORMER TANK. CONTRACTOR SHALL ALSO PROVIDE AND INSTALL STAINLESS STEEL C-CHANNELS UNDER THE OUTER FRAME OF THE PRIMARY AND SECONDARY COMPARTMENTS OF THE TRANSFORMER TO PREVENT RODENT INTRUSION. ANCHORING OF C-CHANNELS FOR PRIMARY AND SECONDARY COMPARTMENTS WILL NOT BE REQUIRED. CONTRACTOR SHALL PROVIDE ADDITIONAL C-CHANNELS IF THE WEIGHT OF THE TRANSFORMER TO BE PROVIDED EXCEEDS THE WEIGHT CAPACITY OF THE C-CHANNELS.
- 5 CONTRACTOR SHALL INSTALL 1/4-INCH NEOPRENE GASKET BETWEEN STAINLESS STEEL C-CHANNEL AND TRANSFORMER TANK BASE.
- 6 EXISTING 4" SPARE PVC CONDUIT STUB-OUT FROM EXISTING MANUAL TRANSFER SWITCH. EXISTING 4" SPARE PVC CONDUIT STUB-OUT IS NOT ENCASED IN DUCTBANK.
- 7 EXISTING FEEDER '3-52-G2' TO BE PULLED BACK FROM 15KV JUNCTION BOX IN MAIN PUMPING STATION, TO EXISTING MANHOLE MH-E10 FOR SPLICING.

**GENERAL NOTES:**

- 1. ALL INFORMATION PRESENTED IS BASED ON EXISTING RECORD DRAWING INFORMATION AND IS FOR REFERENCE ONLY. THE CONTRACTOR SHALL FIELD VERIFY ALL INFORMATION PRIOR TO COMMENCING WORK.



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**HOWARD F. CURREN AWP**  
**TRANSFORMER REPLACEMENTS : PH II**

**DUCTBANK SECTIONS  
AND ELECTRICAL DETAILS**

SHEET NUMBER

**E-10**

TIMOTHY THOMAS, P.E. No. 47079

FILE: 171309542E01