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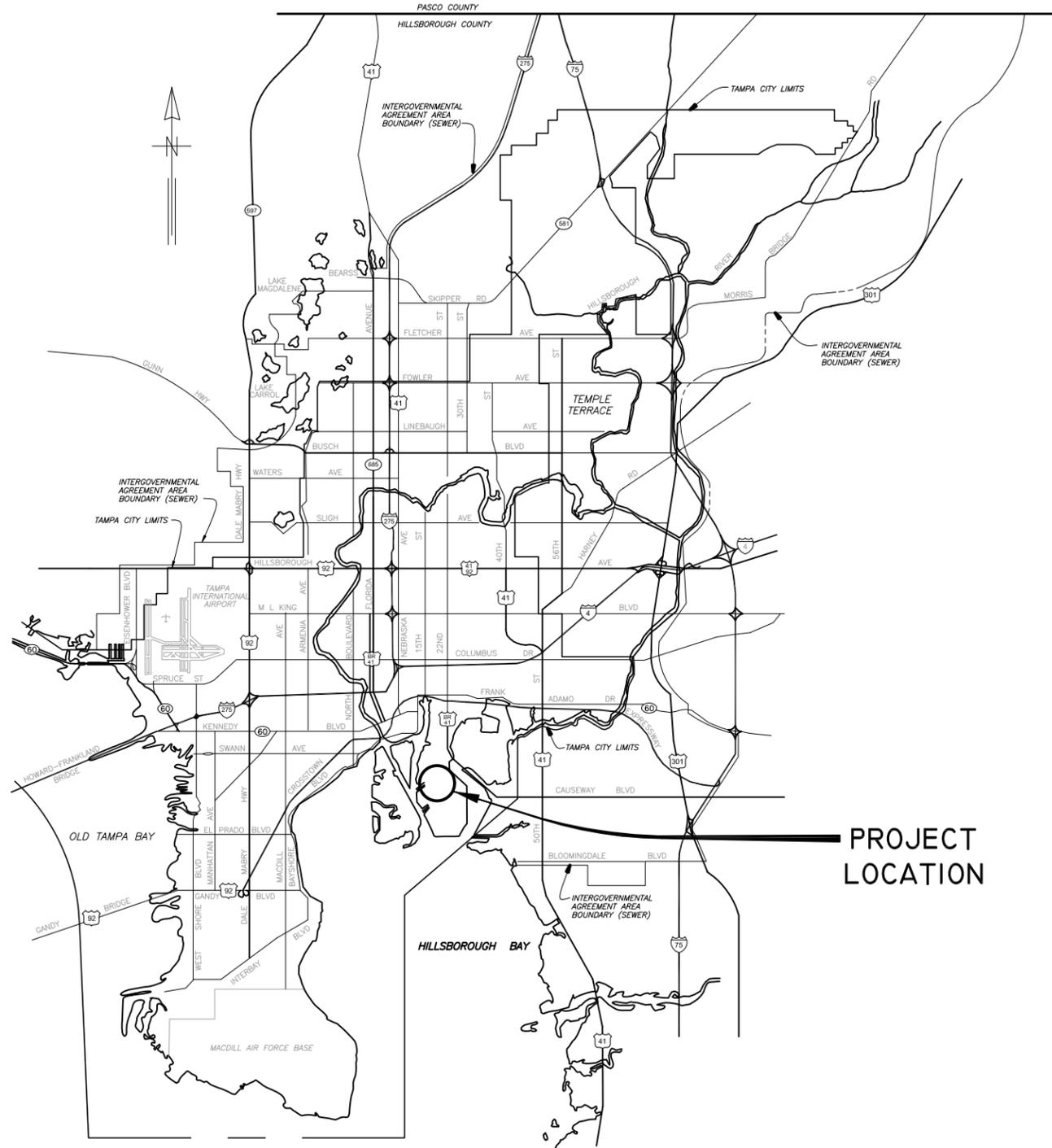
Please Email ALL Questions:

[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 III

CONTRACT : 15-C-00001

OCTOBER 13, 2014



TRICON
CONSULTING ENGINEERS

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	TYPICAL LOOP FEEDER TRANSFORMER DETAILS
E-5	ELECTRICAL DETAILS

TRANSFORMER REPLACEMENT SCHEDULE				
EQUIPMENT #	MANUFACTURER	KVA	PRIMARY	SECONDARY
T-4A-1	WESTINGHOUSE	1000	13.2 KV	480V
T-4B-1	WESTINGHOUSE	1000	13.2 KV	480V
T-2A-1	WESTINGHOUSE	500	13.2 KV	480V
T-2B-1	WESTINGHOUSE	500	13.2 KV	480V
T-5A-1	TRC AMERICA	1500	13.2 KV	480V
T-5B-1	TRC AMERICA	1500	13.2 KV	480V
T-5A-5	STANDARD TRANS	500	13.2 KV	480V
T-5B-5	STANDARD TRANS	500	13.2 KV	480V

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 C-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.	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.
11.	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'.
12.	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.



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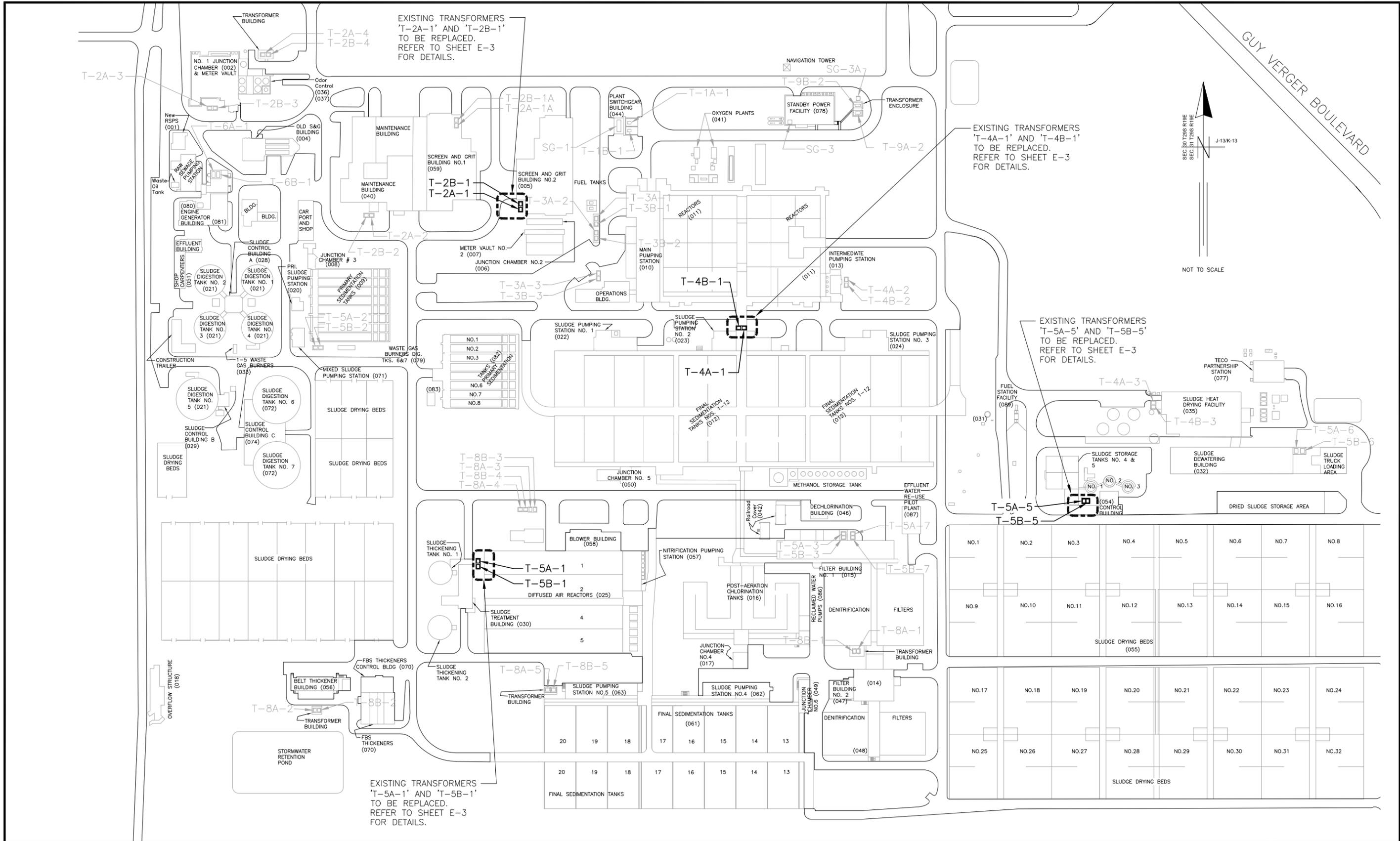
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City of Tampa Wastewater Department
HOWARD F. CURREN AWTP
TRANSFORMER REPLACEMENTS : PH III

**INDEX, SCHEDULES AND
GENERAL NOTES**

TIMOTHY THOMAS, P.E. No. 47079

SHEET NUMBER
2
FILE: 171309542E01



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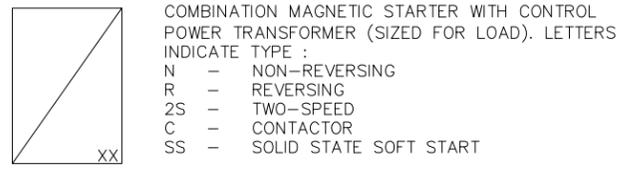
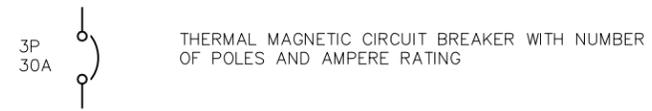
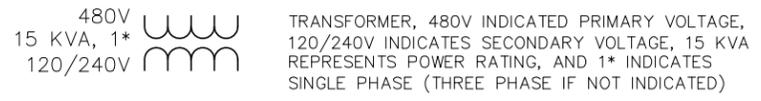
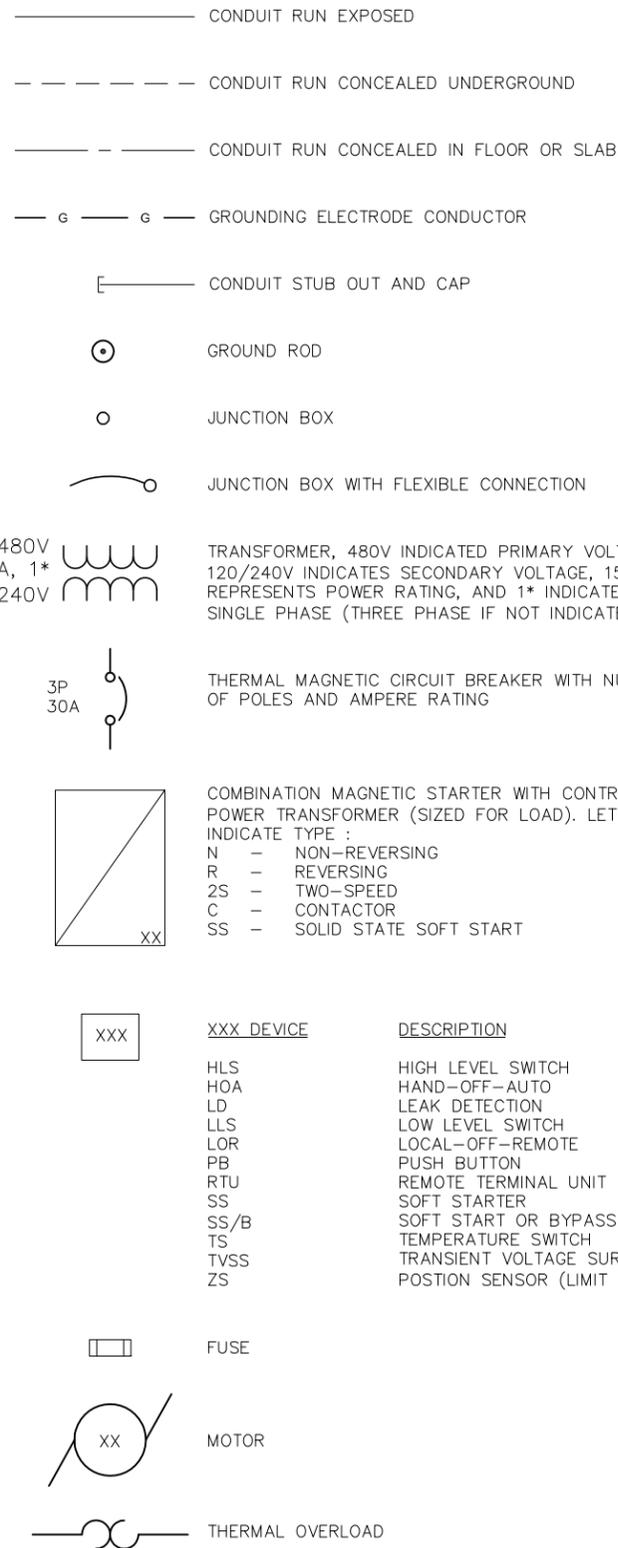
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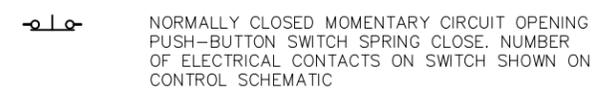
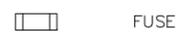
City of Tampa Wastewater Department
HOWARD F. CURREN AWP
TRANSFORMER REPLACEMENTS : PH III

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

SHEET NUMBER	3
TIMOTHY THOMAS, P.E. No. 47079	FILE: 171309542E01



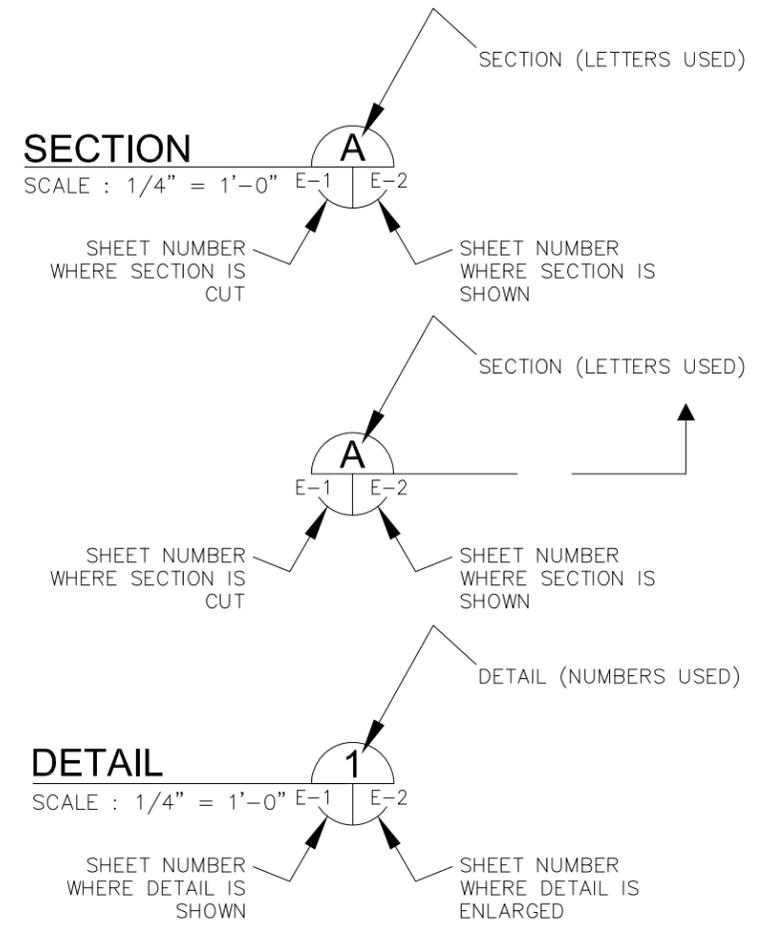
XXX	XXX DEVICE	DESCRIPTION
	HLS	HIGH LEVEL SWITCH
	HOA	HAND-OFF-AUTO
	LD	LEAK DETECTION
	LLS	LOW LEVEL SWITCH
	LOR	LOCAL-OFF-REMOTE
	PB	PUSH BUTTON
	RTU	REMOTE TERMINAL UNIT
	SS	SOFT STARTER
	SS/B	SOFT START OR BYPASS
	TS	TEMPERATURE SWITCH
	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
	ZS	POSITION SENSOR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



ABBREVIATIONS:

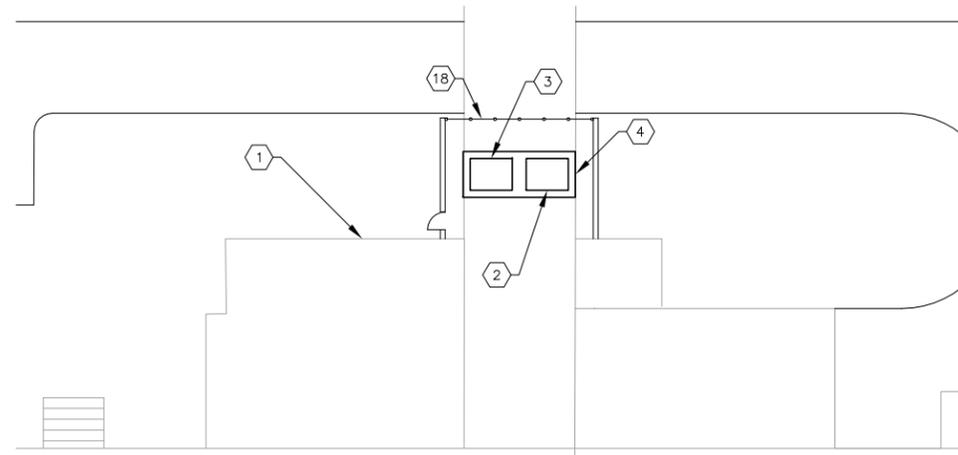
A	AMPS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
EX	EXISTING
ELEC	ELECTRICAL
EXP	EXPLOSION PROOF
GFI	GROUND FAULT INTERRUPTER
GND	GROUNDING CONDUCTOR
HP	HORSEPOWER
HZ	HERTZ
IG	ISOLATED GROUND
KVA	KILOVOLT AMPERES
KW	KILOWATTS
MAX	MAXIMUM
MIN	MINIMUM
N/A	NOT APPLICABLE
OA	OIL-IMMERSED, 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



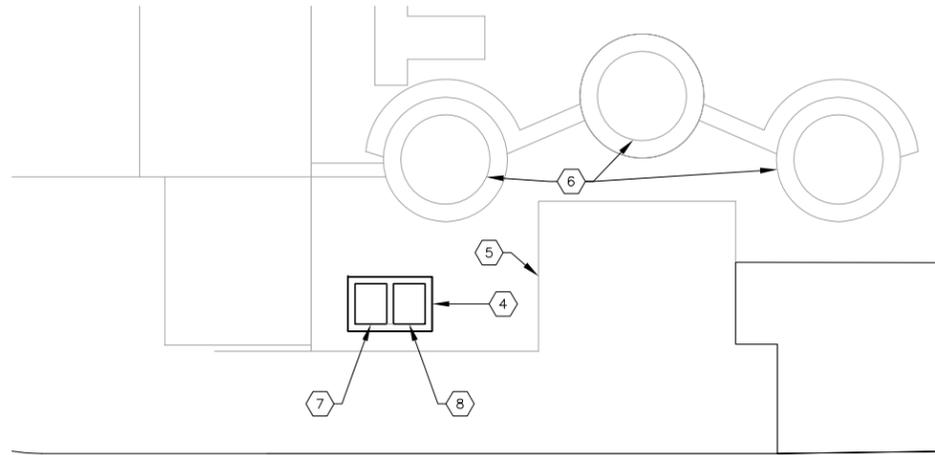
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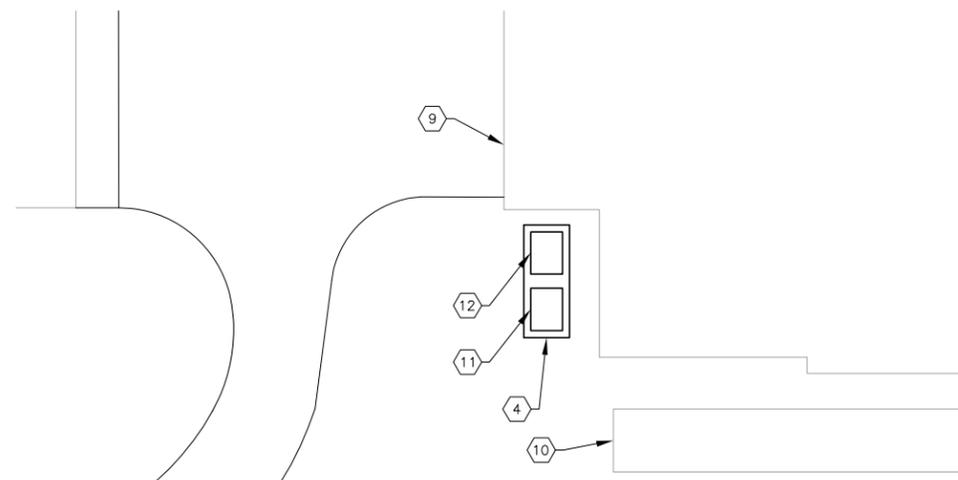
T-4A-1 & T-4B-1 REPLACEMENT :
PARTIAL SITE PLAN

SCALE : N.T.S.



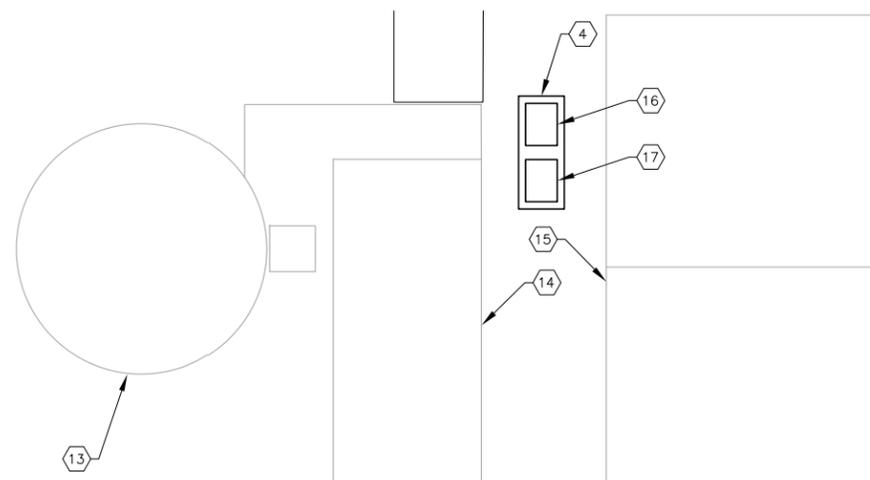
T-5A-5 & T-5B-5 REPLACEMENT :
PARTIAL SITE PLAN

SCALE : N.T.S.



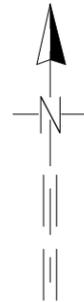
T-2A-1 & T-2B-1 REPLACEMENT :
PARTIAL SITE PLAN

SCALE : N.T.S.



T-5A-1 & T-5B-1 REPLACEMENT :
PARTIAL SITE PLAN

SCALE : N.T.S.



KEYED NOTES:

- ① EXISTING SLUDGE PUMPING STATION NO. 2 (023).
- ② EXISTING TRANSFORMER 'T-4A-1' TO BE REPLACED. 1000 KVA/OA, 13.2KV-277/480V DELTA-WYE WITH 1200 AMPERE, 600V SECONDARY CIRCUIT BREAKER. REFER TO SHEET E-4 FOR TYPICAL LOOP FEEDER TRANSFORMER DETAILS.
- ③ EXISTING TRANSFORMER 'T-4B-1' TO BE REPLACED. 1000 KVA/OA, 13.2KV-277/480V DELTA-WYE WITH 1200 AMPERE, 600V SECONDARY CIRCUIT BREAKER. REFER TO SHEET E-4 FOR TYPICAL LOOP FEEDER TRANSFORMER DETAILS.
- ④ EXISTING CONCRETE PAD TO REMAIN. NO WORK REQUIRED.
- ⑤ EXISTING CONTROL BUILDING (054).
- ⑥ EXISTING SLUDGE STORAGE TANKS.
- ⑦ EXISTING TRANSFORMER 'T-5A-5' TO BE REPLACED. 500 KVA/OA, 13.2KV-277/480V DELTA-WYE WITH 600 AMPERE, 600V SECONDARY CIRCUIT BREAKER. REFER TO SHEET E-4 FOR TYPICAL LOOP FEEDER TRANSFORMER DETAILS.
- ⑧ EXISTING TRANSFORMER 'T-5B-5' TO BE REPLACED. 500 KVA/OA, 13.2KV-277/480V DELTA-WYE WITH 600 AMPERE, 600V SECONDARY CIRCUIT BREAKER. REFER TO SHEET E-4 FOR TYPICAL LOOP FEEDER TRANSFORMER DETAILS.
- ⑨ EXISTING SCREEN AND GRIT BUILDING NO.2 (005).
- ⑩ EXISTING JUNCTION CHAMBER NO.2 (006).
- ⑪ EXISTING TRANSFORMER 'T-2A-1' TO BE REPLACED. 500 KVA/OA, 13.2KV-277/480V DELTA-WYE. EXISTING 600 AMPERE, 600V SECONDARY CIRCUIT BREAKER TO BE REUSED. REFER TO SHEET E-4 FOR TYPICAL LOOP FEEDER TRANSFORMER DETAILS.
- ⑫ EXISTING TRANSFORMER 'T-2B-1' TO BE REPLACED. 500 KVA/OA, 13.2KV-277/480V DELTA-WYE. EXISTING 600 AMPERE, 600V SECONDARY CIRCUIT BREAKER TO BE REUSED. REFER TO SHEET E-4 FOR TYPICAL LOOP FEEDER TRANSFORMER DETAILS.
- ⑬ EXISTING SLUDGE THICKENING TANK NO. 1.
- ⑭ EXISTING SLUDGE TREATMENT BUILDING (030).
- ⑮ EXISTING DIFFUSED AIR REACTORS (025).
- ⑯ EXISTING TRANSFORMER 'T-5A-1' TO BE REPLACED. 1500 KVA/OA, 13.2KV-277/480V DELTA-WYE WITH 1800 AMPERE, 600V SECONDARY CIRCUIT BREAKER. REFER TO SHEET E-4 FOR TYPICAL LOOP FEEDER TRANSFORMER DETAILS.
- ⑰ EXISTING TRANSFORMER 'T-5B-1' TO BE REPLACED. 1500 KVA/OA, 13.2KV-277/480V DELTA-WYE WITH 1800 AMPERE, 600V SECONDARY CIRCUIT BREAKER. REFER TO SHEET E-4 FOR TYPICAL LOOP FEEDER TRANSFORMER DETAILS.
- ⑱ THE REMOVAL OF EXISTING TRANSFORMER T-4A-1 AND T-4B-1 (AND THE INSTALLATION OF THEIR REPLACEMENTS) SHALL REQUIRE THE CONTRACTOR TO REMOVE AN EXISTING LOUVERED WALL. THE CONTRACTOR SHALL REMOVE LOUVERS AND FRAMES AS REQUIRED AND REPLACE AFTER ALL WORK IS COMPLETE. THE CONTRACTOR SHALL REINSTALL THE LOUVERS AND FRAMES TO EXISTING CONDITIONS AND RECAULK AS REQUIRED. ANY MATERIALS DAMAGED DURING REMOVAL SHALL BE REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.



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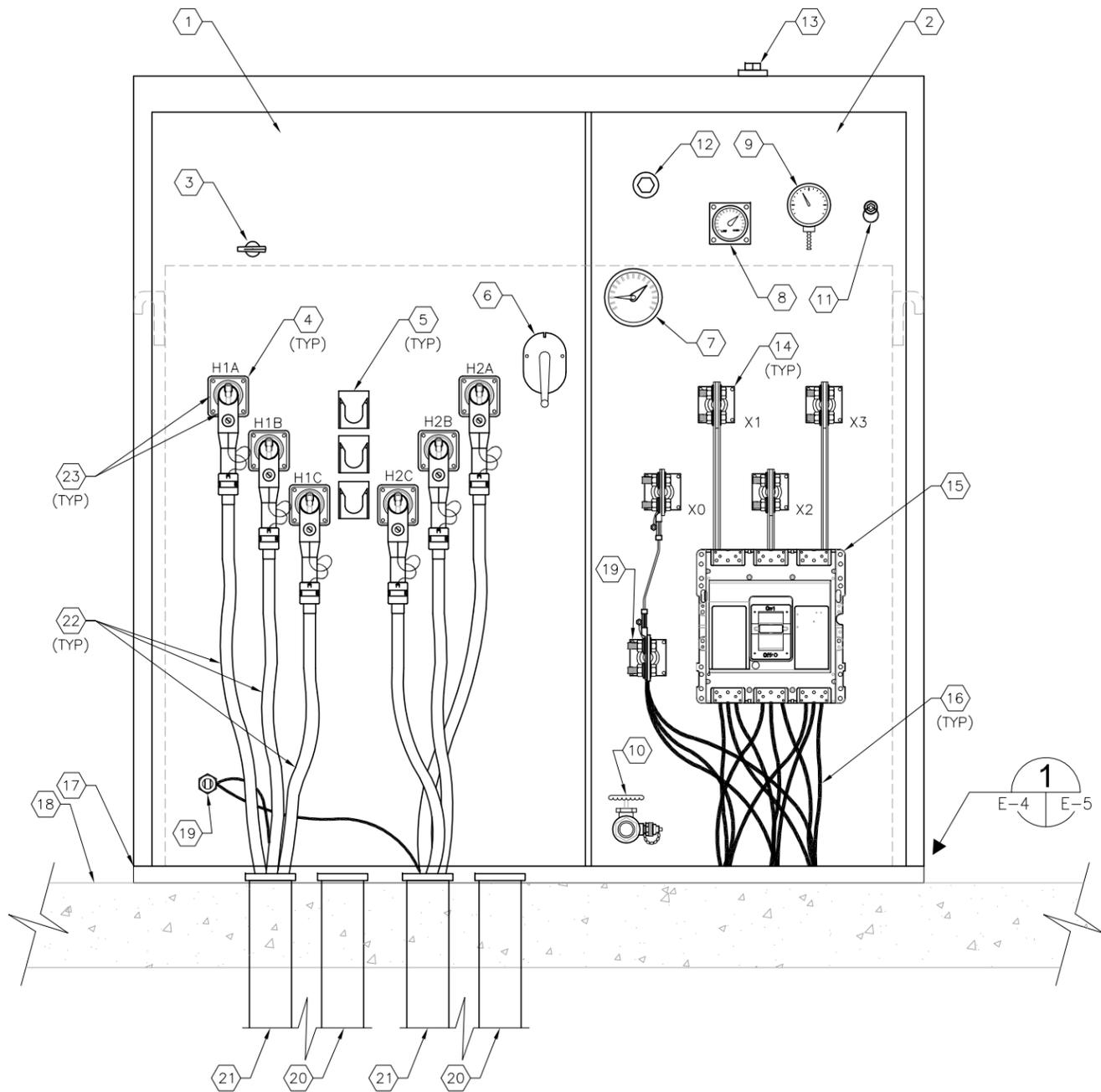
TRANSFORMER REPLACEMENTS
PARTIAL SITE PLANS

SHEET NUMBER

E-3

TIMOTHY THOMAS, P.E. No. 47079

FILE: 171309542E01



TYPICAL LOOP FEEDER TRANSFORMER DETAIL

SCALE : N.T.S.

TYPICAL FOR TRANSFORMERS :
 T-4A-1 AND T-4B-1
 T-2A-1 AND T-2B-1
 T-5A-1 AND T-5B-1
 T-5A-5 AND T-5B-5

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 EXISTING 15KV CABLES TO BE RE-TERMINATED WITH APPROPRIATELY SIZE/TYPE ELBOW (TYP).
- 23 CONTRACTOR SHALL FIELD VERIFY 15KV CABLE SIZES. CABLE SIZES OF 4/0 AWG OR LESS SHALL BE PROVIDED WITH 200 AMP LOADBREAK ELBOWS. CABLE SIZES OF 250 MCM OR GREATER SHALL BE PROVIDED WITH 600 AMP DEADBREAK ELBOWS. CONTRACTOR SHALL FIELD VERIFY CABLE SIZES (IN ORDER TO SPECIFY 600A OR 200A TRANSFORMER BUSHINGS) PRIOR TO THE PROCUREMENT OF TRANSFORMERS.

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.



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TYPICAL LOOP FEEDER TRANSFORMER DETAILS

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



C-CHANNEL SUPPORT DETAIL

SCALE : N.T.S.



KEYED NOTES:

- 1 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.
- 2 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.
- 3 CONTRACTOR SHALL INSTALL 1/4-INCH NEOPRENE GASKET BETWEEN STAINLESS STEEL C-CHANNEL AND TRANSFORMER TANK BASE.

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TRANSFORMER REPLACEMENTS : PH III

ELECTRICAL DETAILS

SHEET NUMBER	E-5
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