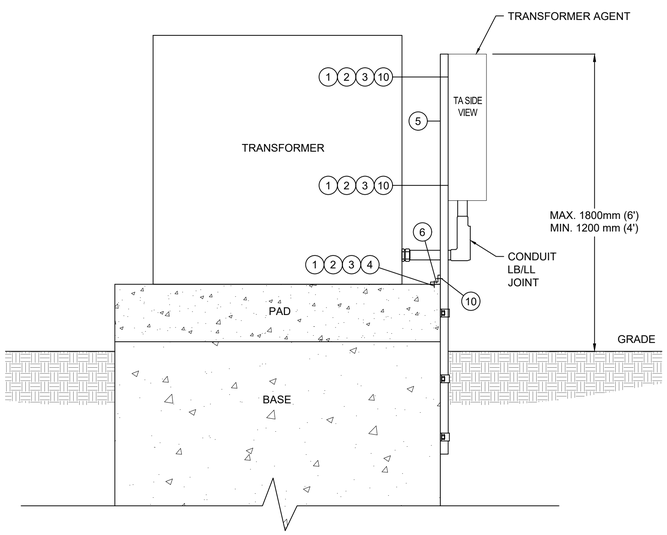
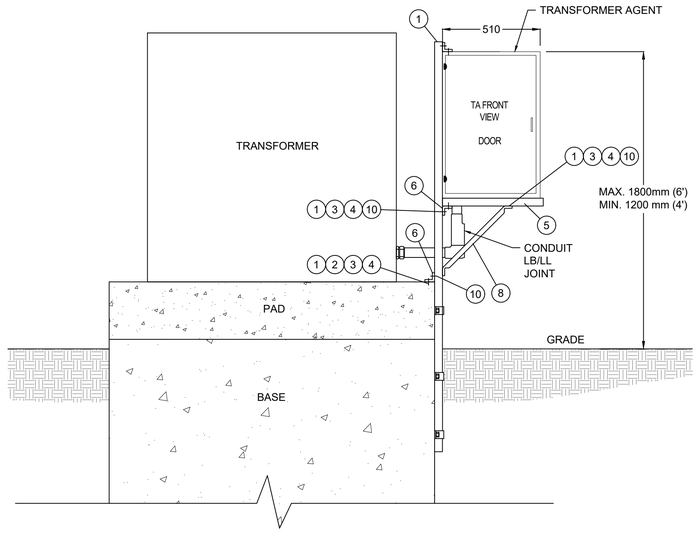
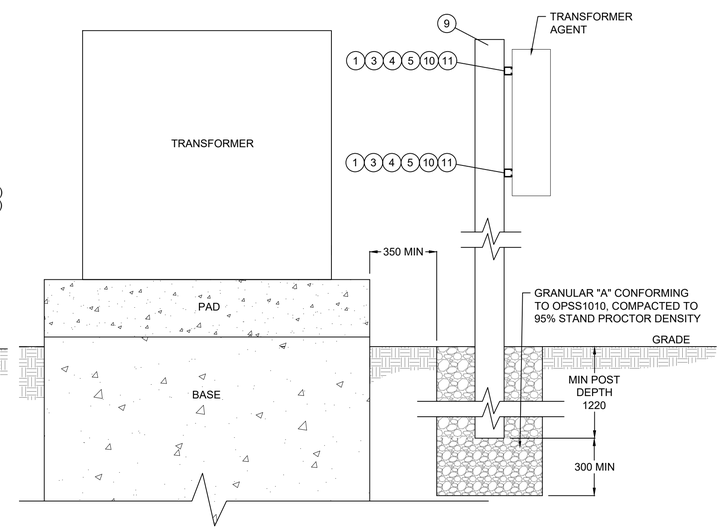


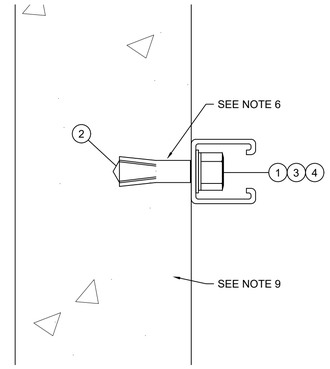
EXTERIOR VIEW OPTION "1"
TA CABINET DOOR OPENS TO SIDE



EXTERIOR VIEW OPTION "2"
TA CABINET DOOR OPENS TO FRONT



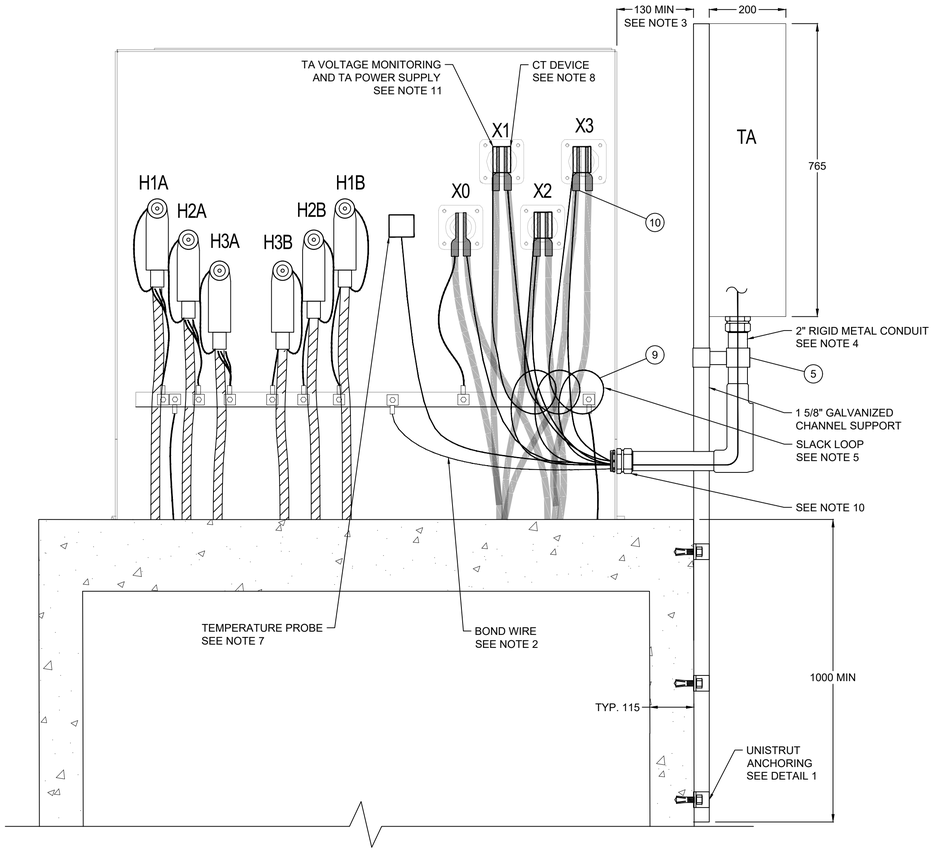
EXTERIOR VIEW OPTION "3"
WOODEN POST MOUNTED



DETAIL: 1
UNISTRUT ANCHORING (TYPICAL)
SEE NOTE 6, 9.

TABLE #1 - TA ANCHORING AND SUPPORT BILL OF MATERIAL						
ITEM	QUANTITY			DESCRIPTION	MAKE	CATALOG NUM
	OPTION 1	OPTION 2	OPTION 3			
1	14	22	4	BOLT CAP HEX GALV 1/2" x 1" TO 1 1/2" FULLY THREADED, GRADE 2. FINAL SIZE TO BE DEFINED ON SITE		
2	8	8	0	ANCHOR DROP-IN 1/2" MODEL: HDV 1/2"	HILTI	3499048
3	14	22	8	LOCK WASHER GALVANIZED 1/2"		
4	14	22	8	WASHER FLAT GALVANIZED 9/16" ID		
5	As Required	As Required	As Required	GALVANIZED 1 5/8" CHANNEL, SLOTTED	T&B	A-1200-S-HDG
6	2	4	0	90° BRACKET	T&B	AB201-HDG
8	0	2	0	CROSS BRACE, 25" LONG, GALVANIZED	T&B	AB-239-HDG
9	0	0	1	6"x6" PRESSURE TREATED 10' LONG		
10	6	14	4	1/2" CHANNEL NUTS	T&B	A-100 1/2"
11			4	1/2" WOODEN SCREWS, 4" LONG		

TABLE #2 - CONDUIT ROUTING BILL OF MATERIAL				
ITEM	QUANTITY	DESCRIPTION	MAKE	CATALOG NUM
1	As Required	RIGID CONDUIT LL TYPE OUTLET BODY 2"	COOPER	LL65 CGN
2	As Required	RIGID CONDUIT LB TYPE OUTLET BODY 2"	COOPER	LB65 CGN
3	As Required	GALVANIZED RIGID CONDUIT ALUMINUM 2"		
4	2	CONDUIT HUB 2"	COOPER	HUB6
5	As Required	2" SUPPORT CLAMP		
9	As Required	12 AWG COPPER CONDUCTOR, RW90 OR TEW, 600 VOLT, IN RED, BLUE, BLACK, WHITE AND GREEN		
10	As Required	12 AWG LUG CRIMPS COMPATIBLE WITH EXISTING HARDWARE		



TA CABLE ROUTING (TYPICAL)

DESIGN NOTES:

1. THIS DRAWING APPLIES TO AN INSTALLATION USING A SINGLE OR THREE PHASE PAD–MOUNTED TRANSFORMER. ALL WORK SHALL BE ACCORDING TO APPLICABLE CODES AND STANDARDS AND SHALL BE SUBJECT TO APPROVAL BY AUTHORITY HAVING JURISDICTION ON THE WORK. ALL MATERIAL SHALL BE APPROVED BY THE APPLICABLE STANDARDS AUTHORITY. PART NUMBER IS AN INDICATION OF THE QUALITY OF THE MATERIAL. EQUIVALENT MATERIAL WILL BE CONSIDERED. CHANGE OF MATERIAL SHALL BE APPROVED BY THE DER PROGRAM MANAGER. QUANTITY AND PART NUMBER LISTED MUST BE VALIDATED AND DOES NOT REPRESENT A COMPLETE DESIGN. THE CONTRACTOR IS RESPONSIBLE TO COMPLETE THE BILL OF MATERIAL FOR ALL SMALL HARDWARE. ADAPTATION TO A SPECIFIC LOCATION WILL BE REQUIRED. CONTACT DER PROJECT MANAGER FOR ADAPTATION REQUIRED FOR A SPECIFIC APPLICATION.
2. TRANSFORMER AGENT (TA), SUPPORTING UNI–STRUT STRUCTURE, AND INTERNAL EQUIPMENT SHALL BE BONDED TO THE EXISTING TRANSFORMER GROUND BAR.
3. TA SHALL MAINTAIN A MINIMUM 5" (127mm) FROM EXISTING TRANSFORMER AND SHALL NOT IMPEDE ACCESS TO ANY OPENINGS OR LIFTING OF EXISTING TRANSFORMER.
4. MINIMUM CONDUIT SIZING FOR ALL CABLE INSTALLATIONS SHALL MEET ELECTRICAL CODE. METAL RIGID CONDUIT IS SPECIFIED TO MAINTAIN TRANSFORMER TAMPER RESISTANT RATING.
5. SLACK LOOP TO BE PLACED WITHIN TRANSFORMER ENCLOSURE. CONTRACTOR TO SUPPORT SLACK LOOP WITHIN TRANSFORMER AND ENSURE THAT TA WIRES DO NOT ENCUMBER OPERATION OF TRANSFORMER CABLING.
6. HEAVY DUTY ANCHORING HARDWARE SHALL BE USED TO FASTEN SUPPORT BRACKET TO EXISTING CONCRETE BASE AND PAD USING TABLE #1 MATERIAL.
7. IDEALLY, THE TRANSFORMER TEMPERATURE PROBE IS MOUNTED INSIDE THE TRANSFORMER CORE OR WITHIN THE OIL. FAILING THAT, TEMPERATURE PROBE SHALL BE MOUNTED TO TRANSFORMER ENCLOSURE BACK WALL BY USE OF APPROVED REMOVABLE ADHESIVE AT A CENTRAL LOCATION FREE FROM CONTACT OF CABLING AND OTHER OBSTRUCTIONS AS TO BEST MEASURE INTERNAL TEMPERATURE OF TRANSFORMER ENCLOSURE.
8. CT TO BE PLACED AROUND THE NECK OF SECONDARY SPADE PADDLE OF TRANSFORMER.
9. UNDERGROUND BASE WALL THICKNESS AND DESIGN TO BE VERIFIED FOR STRUCTURAL INTEGRITY. UNDERGROUND BASE WALLS ARE PRESUMED TO BE WITHOUT VOIDS AND SUITABLE FOR USE OF CONVENTIONAL ANCHORS. ALTERNATIVELY, OPTION 3 COULD BE IMPLEMENTED. .
10. CONDUIT TO BE ROUTED THROUGH EXISTING KNOCKOUT WHERE ONE IS AVAILABLE. CONDUIT ENTRANCE TO BE VERIFIED BY CONTRACTOR AND UTILITY OWNING THE EQUIPMENT FOR APPROPRIATE SIZING AND TRANSFORMER COMPATIBILITY. UPON PERMANENT REMOVAL OF THE CONDUIT, THE HOLE SHALL BE SEALED WITH GALVANIZED STEEL PLATE BOLTED TO THE TRANSFORMER BASE AND PAINTED TO MATCH.
11. TA VOLTAGE MONITORING AND POWER SOURCE TO BE CONNECTED TO SECONDARY TRANSFORMER SPADES USING APPROPRIATE SIZED LUGS AND SHALL DROOP TO ENTER TA CONDUIT OPENING. TA WIRING AND ROUTING TO NOT ENCUMBER SECONDARY TRANSFORMER CABLE MANAGEMENT OR EXCEED BENDING MOMENT ON SECONDARY BAR. VOLTAGE MONITORING TO BE CONNECTED TO EACH PHASE (X0, X1, X2, X3). TA SINGLE PHASE POWER TO BE CONNECTED TO X1, X2 AND X3. ATTENTION SHALL BE GIVEN IN THE METHOD OF WIRING FOR THE VOLTAGE CONNECTION. IT IS ESSENTIAL THAT THE WIRES ARE MECHANICALLY PROTECTED (USING METALLIC FLEXIBLE CONDUIT FOR LOOSE WIRE OR ARMOURED TECK CABLE) WHEN ENTERING THE TA CABINET AS THE ENERGY LEVEL WILL BE UNUSUALLY HIGH FOR TA CONTROL CABINET.
12. METAL CHANNEL OR WOODEN POST SHOULD BE STURDY TO THE SAFE FOR PUBLIC AND INTEGRITY OF MOUNTED EQUIPMENT.

GENERAL NOTES:

1. EQUIPMENT LAMACOID LABELING TO COMPLY WITH LOCAL UTILITY STANDARDS. CONSTRUCTION AND MATERIALS AS PER DRAWING#.
   - FOR SINGLE PHASE SYSTEM: REF–EGN–03.
   - FOR THREE PHASE SYSTEM: REF–EGN–04.

   NOTE: FOR A SPECIFIC APPLICATION, THESE DRAWING NUMBERS MAY BE REPLACED WITH A SITE SPECIFIC NUMBER.
2. ALL MEASUREMENTS ARE IN mm UNLESS NOTED OTHERWISE.
3. EXACT TRANSFORMER AGENT MOUNTING LOCATION TO BE DETERMINED ON SITE AND BASED ON UTILITY STANDARD TRANSFORMER CLEARANCES.
4. DESIGN BASED ON EXTERNAL TRANSFORMER AGENT CABINET MAXIMUM DIMENSIONS OF 510mm WIDE, 205mm DEEP AND 765mm HIGH WITH A TOTAL EQUIPMENT WEIGHT OF 35kgs.

REFERENCE DRAWING

This document is to be used as a reference conceptual document and is based on the applicable standards in effect at time of issue. Use of this design for a specific location must be verified and adapted by a local professional engineer to meet site specific conditions, equipment selection, codes, standards and requirements from the authority having jurisdiction

MiGen Transactive Grid is a smart grid technology field demonstration project led by Hydro Ottawa and partially funded by the Ontario Ministry of Energy, Northern Development and Mines' Smart Grid Fund and the LDC Tomorrow Fund, with great support from the IEEE Standards Association and seven collaborating partners: Carleton University, CIMA+, Panasonic Eco Solutions Canada, Quadra Power, Tantalus (formerly Energate), Thorium Technologies, and University of Ottawa

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No	Revision	Date	Init. eng./ cad
0	ISSUE AS REFERENCE DRAWING	01/13/2020	RL/AL

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Project Manager: E. Cantin, tech.

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Project title: MiGen TRANSACTIVE GRID REFERENCE DRAWING

Drawing title: TA IMPLEMENTATION PAD MOUNTED

Project number:	A000597B
Designed by:	E.Cantin
Drawn by:	A.Teranun
Verified by:	R.Langlois
Revision:	0
Drawing N°:	REF-EGN-01

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Filename: MiGen_REF-EGN-01_TA IMPLEMENTATION-PAD MOUNTED.dwg / Layout: TA IMPLEMENTATION - PAD MOUNTED / Last save: 2020/01/24, 07:38 / Printed: 2020/01/24, 08:17