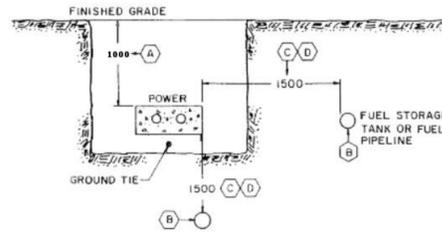


NOTES

1. CONCRETE - 30MPa @ 28 DAYS.
2. LEAVE A MINIMUM OF 2000mm OF SECONDARY CABLE ABOVE THE PAD TO ALLOW FOR CABLE TRAINING AND TERMINATING ON THE TRANSFORMER.
3. PROVIDE PROTECTIVE BOLLARDS AS REQUIRED BY LOCAL UTILITY.
4. DETAILS AND INSTALLATION MUST BE APPROVED BY LOCAL UTILITY.

CONCRETE PAD FOR SINGLE PHASE PADMOUNT TRANSFORMER

1
E-101 N.T.S.

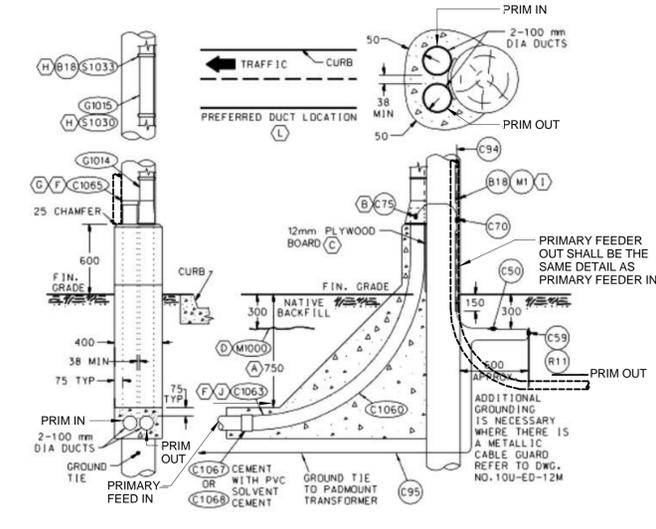


NOTES

- A. DIMENSION FROM GRADE REQUIRED BY OESC.
- B. FUEL STORAGE APPLIES TO OIL, PROPANE OR GASOLINE TANKS OR PIPELINES.
- C. 1500mm IS THE REQUIRED CLEARANCE WHETHER THE DUCTS ARE CONCRETE ENCASED OR DIRECT BURIED.
- D. MAY BE REDUCED TO 600mm WHERE THE FUEL STORAGE TANK HOLDS LESS THAN 7600 LITRES.
- E. UNDERGROUND POWER CABLES SHALL NOT BE ROUTED UNDER STORAGE TANKS CONTAINING FLAMMABLE LIQUID OR GAS.
- F. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.

MINIMUM CLEARANCE BETWEEN POWER DUCTS AND FUEL STORAGE TANKS OR PIPE LINES

2
E-101 N.T.S.

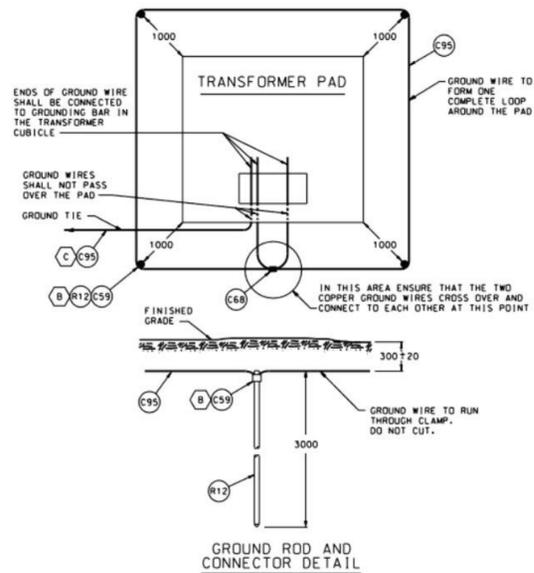


NOTES

- A. DIMENSION FROM GRADE TO TOP OF DUCT BANK.
- B. DIMENSIONS FROM GRADE TO TOP OF GROUNDING TERMINATED AT METALLIC CABLE GUARD.
- C. DUCTS SHALL BE SECURED TO THE POLE WITH CONDUIT STRAPS AND HAVE A 12mm THICK PLYWOOD BOARD SPACER BEFORE CONCRETE IS POURED.
- D. DUCT RUNS SHALL BE FORMED BY THE DEPARTMENTAL REPRESENTATIVE AND INSPECTED BY NSPI REPRESENTATIVES PRIOR TO POURING OF THE CONCRETE. MARKER TAPE TO BE INSTALLED AS SHOWN.
- E. NOT USED.
- F. ALL DUCTS MUST BE SWABBED, THEN CAPPED FOR PROTECTION.
- G. ALL DUCTS SHALL HAVE A NYLON FISH LINE INSTALLED PRIOR TO CAPPING.
- H. STRAP CABLES UNDER GUARD EVERY 3000mm AND CABLE GUARD TO POLE EVERY 1200mm.
- I. STAPLED GROUND WIRE MOULDINGS TO POLE EVERY 1200mm.
- J. 100mm DUCTS SHALL NORMALLY BE USED, IN SPECIAL CIRCUMSTANCES WHEN MORE THAN THREE 90° BENDS ARE NEEDED BETWEEN CABLE PULLING POINTS, OR DUCT RUN EXCEEDS 92m, 125mm DUCTS SHALL BE USED.
- K. DETAILS AND INSTALLATION MUST BE APPROVED BY OESC.
- L. REFERENCED DUCT LOCATION.

DUCT TERMINATION AT POLE FOR UNDERGROUND PRIMARY SERVICE

3
E-101 N.T.S.



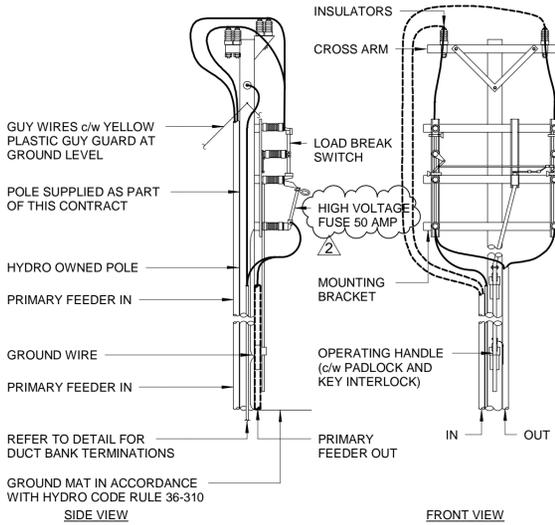
NOTES

- A. GROUNDING SHALL BE IN ACCORDANCE WITH SECTION 36 OF CSA C22.1-2018 CANADIAN ELECTRICAL CODE PART 1 AND OESC/CSA APPROVED.
- B. GROUND ROD AND WIRE.
- C. THE GROUND TIE SHALL BE A BARE COPPER CONDUCTOR INSTALLED UNDERNEATH THE CONCRETE ENCASED DUCTBANK OR ADJACENT TO THE DIRECT BURIED CONDUITS.
- D. THE MINIMUM WIRE SIZE SHALL BE #20 AWG.
- E. THE GROUND TIE SHALL INTERCONNECT THE PADMOUNT GROUND TO THE RISER POLE GROUND ROD(S) AND ANY OTHER PADMOUNT GROUND.
- F. UNDER SPECIAL CIRCUMSTANCES A CUSTOMER GROUND TIE FROM THE PAD TO THE CUSTOMER SERVICE SWITCH MAY BE REQUIRED BY THE INSPECTION AUTHORITY.
- G. MUST BE APPROVED BY LOCAL UTILITY.

H. A LINE NEUTRAL CONDUCTOR ON THE 2.4KV GROUNDED NEUTRAL SYSTEM SHALL BE CONNECTED TO THE STATION GROUNDING ELECTRODE BY A GROUNDING CONDUCTOR HAVING AN AMPERAGE NOT LESS THAN THE NEUTRAL CONDUCTOR PER RULE 26-308.5.

GROUNDING DETAILS FOR PADMOUNT TRANSFORMER

4
E-101 N.T.S.

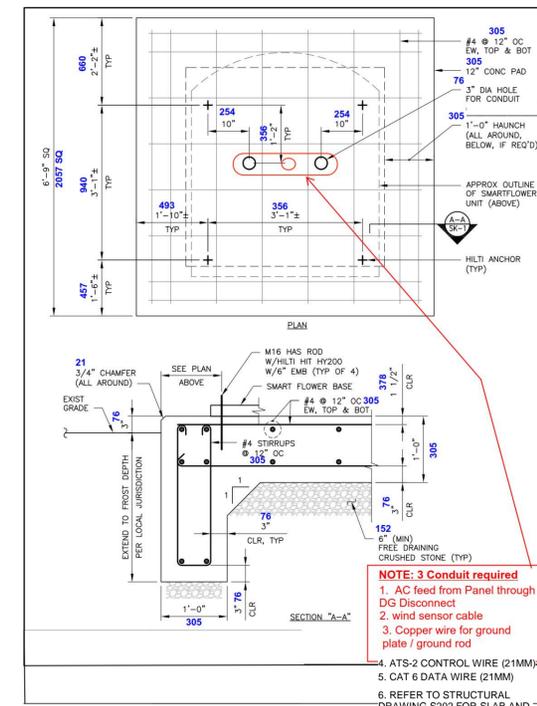


NOTES:

1. SECTION 75 OF THE OESC SHALL BE USED AS A GUIDE FOR THIS DETAIL.
2. PROVIDE WARNING SIGN IN ACCORDANCE WITH OESC RULE 36-006.3 "WARNING OPERATORS NOT TO REPLACE FUSES WHILE THE SUPPLY CIRCUIT IS ENERGIZED"
3. "WOOD POLES SHALL BE SPECIES-TREATMENT AND SHALL COMPLY WITH OESC RULE 75-120.1) TABLE 102"
4. THE MINIMUM REQUIRED LENGTH FOR PRIMARY POLES IS 12.2 METERS - RULE 75-102.
5. PRIMARY NEUTRAL SHALL NOT BE MORE THAN 6.1 METERS ABOVE FINISHED FLOOR - RULE 75-7006.2
6. ALL PRIMARY POLES SHALL HAVE WARNING SIGN "DANGER KEEP OFF" RULE 75-108.
7. PROVIDE GRADIENT CONTROL MAT LOCATED UNDER THE GROUP OPERATOR SWITCHES AND CONNECTED TO OPERATING HANDLE GROUNDING WITH MINIMUM OF TWO #20 GROUND CONDUCTOR AS DETAILED IN RULE 36-310.2
8. THE OPERATING SHAFT HANDLE SHALL BE GROUNDED TO THE STATION GROUND ELECTRODE BY A COMBINATION OF EXTRA-FLEXIBLE CONDUCTOR, BRAID AND/OR STANDARD CONDUCTOR OF NOT LESS THAN #20 AWG COPPER RULE 36-310.1. IN ADDITION TO RULE 36-310.1 THE TOUGH VOLTAGE SHALL BE MAINTAINED AT A TOLERABLE LEVEL AS SPECIFIED IN TABLE 52 AT THE LOCATION WHERE THE OPERATOR IS NORMALLY STANDING AND SHALL BE DONE AS FOLLOWS:
 - A) BY THE USE OF A METALLIC GRADIENT CONTROL MAT CONNECTED TO THE OPERATING HANDLE GROUNDING CONDUCTOR AS REQUIRED IN SUBRULE 1 BY TWO SEPARATE CONDUCTORS, EACH NOT LESS THAN NO. 20 AWG COPPER; AND
 - B) THE GRADIENT CONTROL MAT SHALL
 - i) BE POSITIONED SO THAT THE OPERATOR WILL NOT BE REQUIRED TO STEP FROM THE MAT DURING THE OPERATION OF THE SWITCH.
 - ii) BE PLACED ON A MINIMUM OF 150MM OF CRUSHED STONE ON THE GROUND
 - iii) HAVE DIMENSIONS APPROXIMATELY 1.2M X 1.8M, AND
 - iv) BE PERMITTED TO BE COVERED BY A LAYER OF CRUSHED STONE, ASPHALT, OR CONCRETE NOT EXCEEDING 150MM IN DEPTH. RULE 36-310.2.)

HIGH VOLTAGE POLE LINE DETAIL

5
E-101 N.T.S.



NOTES

SOLAR FLOWER EQUIPMENT MUST BE APPROVED BY ACCREDITED CERTIFICATION BODY OR ACCEPTED BY AN INSPECTOR UNDER THE PROVISIONS OF THE OESC RULE 2-022, 2-0-24. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH ANY SPECIFIC MANUFACTURER'S INSTRUCTION IN ADDITION TO RULE 2-034 MINIMUM REQUIREMENTS.

SOLAR FLOWER MOUNTING DETAIL

6
E-101 N.T.S.

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No.	Revision Description	Date
2	ISSUED FOR ADDENDUM E-01	2021-10-12
1	ISSUED FOR TENDER	2021-07-26

Do not scale drawings. Verify all dimensions and conditions on site and immediately notify the Departmental Representative of all discrepancies.

PORT WELLER SEARCH AND RESCUE STATION

ONTARIO DEPARTMENT OF FISHERIES AND OCEANS
SEARCH & RESCUE STATION ST. CATHARINES PARTIAL
DEMOLITION, ADDITION AND RESTORATION

ST. CATHARINES ONTARIO

ELECTRICAL DETAILS #2

drawn by R.E.

designed by A.O.

approved by D.S.

bid/offer KG project manager/administrateur de projets

project date/date du projet 2021-07-26

project no./no. du projet R.079827.001

drawing no./dessine no. E101