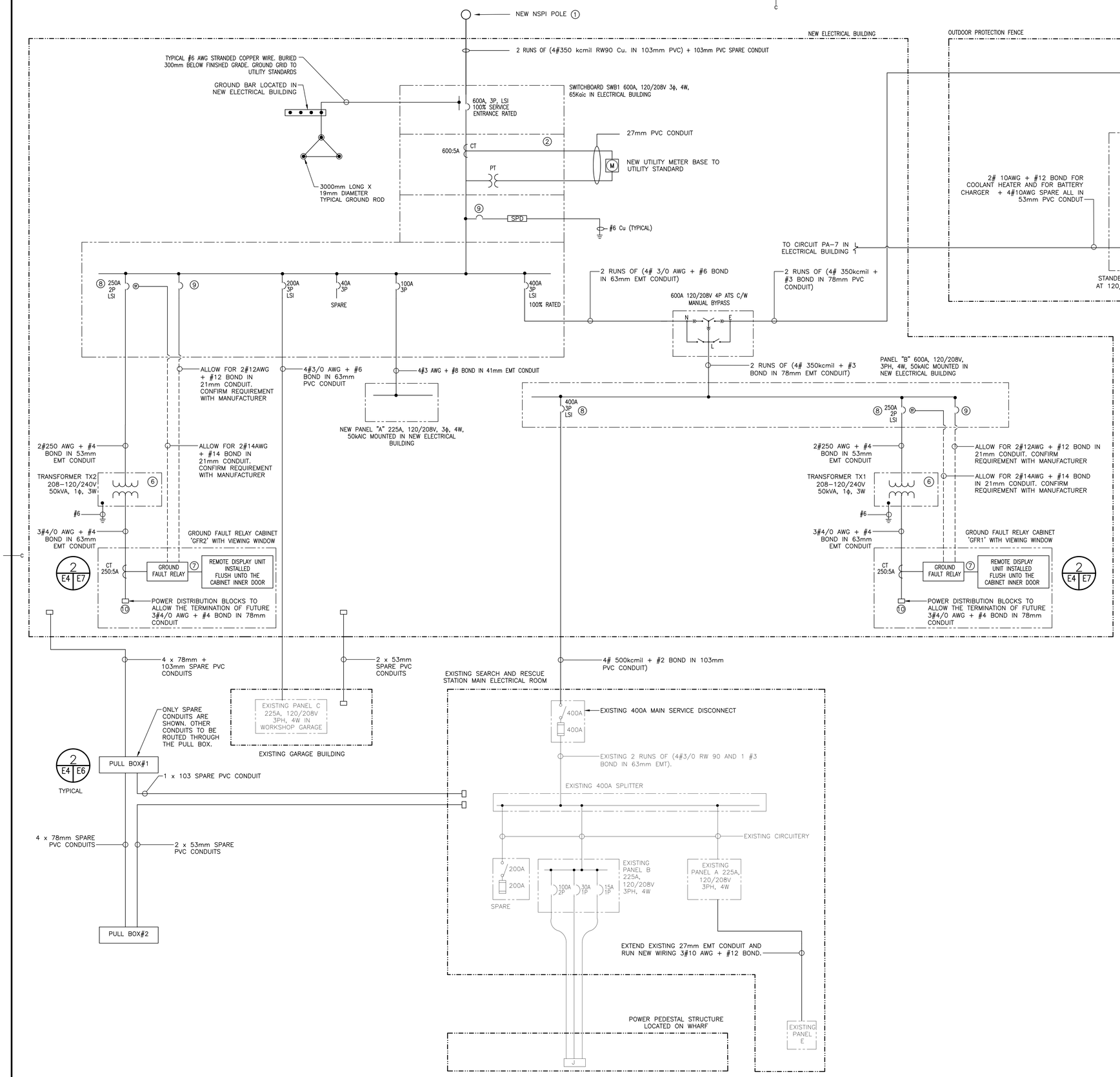


## EXISTING AND DEMOLITION SINGLE LINE DIAGRAM

SCALE : NTS

0 10 20mm 40 60 80 100 120 140 160 180 200mm

## ELECTRICAL NOTES:

NOTE 1: COORDINATE WITH NSPI FOR THE NEW SERVICE INTERCONNECTION AND PAY FOR ALL ASSOCIATED FEES.

NOTE 2: THE MANUFACTURER SHALL ENSURE PROVISIONS FOR THE UTILITY TO SEAL OR LOCK THE INSTRUMENT TRANSFORMERS.

NOTE 3: RUN NEW SOOW CABLE THROUGH THE EXISTING GANGWAY UP TO THE 30A FRC BOAT RECEPTACLE LOCATION. REDUCE WIRE SIZE TO 3C#8 FOR THE FINAL CONNECTION. INSTALLE RECEPTACLE ON A PRESSURE TREATED POWER PEDESTAL.

NOTE 4: THE PIN AND SLEEVE RECEPTACLE IS RATED 240V. DO NOT CONNECT THE NEUTRAL FOR THE FINAL CONNECTION TO THE RECEPTACLE. TERMINATE NEUTRAL AT DISCONNECT SWITCH. THIS WILL BE USED FOR FUTURE UPGRADE.

NOTE 5: INSTALL AND TERMINATE SHUNT TRIP TO PROVIDE INTERLOCK BETWEEN GENERATOR MAIN CIRCUIT BREAKER AND DOCKING PANEL CIRCUIT BREAKER. SHUNT TRIP WILL BE SUPPLIED BY DEPARTMENTAL REPRESENTATIVE.

NOTE 6: THE FOLLOWING SHALL BE PROVIDED TO TEST TRANSFORMER TX1 AND TX2:

- NORMAL POWER TESTING: PROVIDE 2 SEPARATE LOAD BANKS AND TEST TRANSFORMERS TX1 AND TX2 FOR A PERIOD OF 4H. LOAD BANK SHALL BE SET TO PROVIDE 170A OF LOAD AT 240V. CONNECT THE LOAD BANK TO THE OUTPUT OF THE GROUND FAULT RELAY CABINET. PROVIDE ALL REQUIRED TEMPORARY WIRING FOR THE TESTING. CARRY ALL REQUIRED COST.
- EMERGENCY POWER TESTING: PROVIDE 1 SEPARATE LOAD BANKS AND TEST TRANSFORMERS TX1 FOR A PERIOD OF 8H DURING THE FINAL TESTING OF THE COMPLETE EMERGENCY POWER SYSTEM. LOAD BANK SHALL BE SET TO PROVIDE 170A OF LOAD AT 240V. CONNECT THE LOAD BANK TO THE OUTPUT OF THE GROUND FAULT RELAY CABINET. ALLOW FOR ALL REQUIRED TEMPORARY WIRING FOR THE TESTING. CARRY ALL REQUIRED COST.
- AFTER COMPLETION OF REQUIRED TESTING, LOCKOUT CIRCUIT BREAKER PROTECTING THE PRIMARY SIDE OF THE TRANSFORMER "OFF POSITION".

NOTE 7: GROUND FAULT RELAY CABINET SHALL BE PROVIDED WITH AN INTEGRAL GROUND FAULT RELAY WITH ADJUSTABLE TRIP CURRENT RANGE FROM 30mA TO 9A AND TRIP TIME DELAY RANGE FROM 20ms TO 5s AS WELL AS A REMOTE DISPLAY AND CURRENT TRANSFORMERS. SET RELAY TRIP CURRENT AT 30mA. THE GROUND FAULT RELAY SHALL TRIP THE CIRCUIT BREAKER PROTECTING THE TRANSFORMER PRIMARY SIDE UPON DETECTION OF GROUND FAULT CURRENT OF 30mA. ALL INDICATIONS AND DISPLAY SHALL BE VISIBLE THROUGH THE VIEWING WINDOW ON THE CABINET OUTER DOOR. REFER TO SPEC SECTION 26 24 16.02 FOR REQUIREMENT.

NOTE 8: CIRCUIT BREAKER TRIP UNIT SHALL BE PROVIDED C/W LCD SCREEN TO DISPLAY CURRENT MEASUREMENT.

NOTE 9: CIRCUIT BREAKER SIZE AS PER MANUFACTURER RECOMMENDATION.

NOTE 10: CONDUCTORS TO BE CONNECTED TO THE OUTPUT OF THE GROUND FAULT RELAY CABINET WILL BE PROVIDED AS PART OF A SEPARATE PHASE. MAINTAIN SUFFICIENT CLEARANCE TO ALLOW THE INSTALLATION OF 78mm CONDUIT TO FEED FUTURE SHORE POWER OUTDOOR ELECTRICAL PANELS TO BE INSTALLED ON THE WHARF AS PART OF A SEPARATE PROJECT.

LOAD CALCULATION (DEMAND) (INCLUDES FUTURE PHASE 2 LOADS TO BE IMPLEMENTED IN 2021 AS PART OF PHASE 2 UPGRADE PROJECT)

2. EXISTING DEMAND BASED ON NSPI BILLS = 70KW.
3. NEW PANEL 'A' LOAD FEEDING ELECTRICAL BUILDING LOAD = 4.85kW
4. NEW SHORE POWER RECEPTACLE LOAD (CEC 78-054) AS PART OF PHASE 2 WHICH WILL BE IMPLEMENTED IN 2021.
   - (1 x 150A x 240, 80% CONTINUOUS LOAD) 100% (TO BE FED FROM TX1) = 28.8kW
   - (1 x 100A x 240, 80% CONTINUOUS LOAD) 100% (TO BE FED FROM TX2) = 19.2kW

   SUBTOTAL (PHASE 2) = 48kW

4. 25% FUTURE LOAD FOR FUTURE WHARF ADDITION

   TOTAL LOAD EXISTING DEMAND = 70kW
   NEW PANEL A = 4.35kW
   NEW RECEPTACLES (PHASE 2) = 48kW
   TOTAL = 122.35kW

   TOTAL = 122.35kW x 1.25 (25% FUTURE) = 152.93 kVA

TOTAL SERVICE LOADING = 152.93kVA/(208V X 1.73) = 425 AMPS

Public Works and Government Services Canada / Travaux Publics et Services gouvernementaux Canada

07 OCT 2020 — H.M. BATTIKH — 9961 — PROVINCE OF NOVA SCOTIA

| revisions | | date |
|---|---|---|
| 1 | ISSUED FOR TENDER | 07 OCT. 2020 |

project / projet

# SEARCH AND RESCUE STATION EMERGENCY POWER ADDITION

LOUISBOURG, NS.

drawing / dessin

## SINGLE LINE DIAGRAM AND LOAD CALCULATION

designed H. BATTIKH / conçu
date AUGUST 2020
drawn K. WOLFE / dessiné
date AUGUST 2020
approved H. BATTIKH / approuvé
date
Tender / Soumission
PWGSC Project Manager / Administrateur de projets TPSGC
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