

Final Draft Report
Expedited System Impact Assessment
Hydro One Networks Inc.

1.0 GENERAL DESCRIPTION

The bolted line opener at L7S Tap to St. Mary's Cement CTS is to be replaced with an air-break inline switch or mid-span opener by December 1, 2010. The existing configuration is shown in Figure 1.

Currently, St. Mary's Cement CTS is connected to the Hydro One 115kV circuit L7S (from Seaforth TS to St. Mary's TS) via a bolted line opener. Each customer planned outage requires opening this bolted line opener. This procedure involves an outage of L7S between Portland Jct and St. Mary's TS for approximately 10 hours and requires the coordination of two separate work groups. By installing a high voltage switch, the isolation procedure would be simplified to having a hold-off on L7S while the switching device is opened, thereby reducing the risk to the system.

2.0 PROPOSED MODIFICATION

The switch's specifications are given below.

L7S Tap to St. Mary's Cement CTS (78LC-902)	Replacement Switch
Type	Air-break inline switch / mid-span opener
Voltage Rating	115 kV (nominal) 127 kV (max continuous)
Continuous Current Rating	200 A (minimum)
Short Time Circuit Rating (for short circuits)	2.5 kA sym.

3.0 ASSESSMENT

The Transmission System Code (TSC) indicates that the transmission system has to be designed to sustain short circuit currents of 50 kA for the 115 kV system. This means that equipment designed to interrupt current must be able to handle short circuit currents up to 50 kA. Based on a numeric evaluation alone, the new circuit switcher does not meet this TSC requirement.

However, it should be noted that the new switch will not be used to interrupt system faults and will only be used to isolate the load when necessary. In this way, the switch need only be rated for the maximum amount of short circuit current that would be expected at St. Mary's Cement CTS. Based on Hydro One studies, system fault levels at that location do not exceed 2.5 kA.

Hydro One must ensure that the short circuit current seen by the new switch does not exceed its short time rating. If any future system enhancements in the area result in short circuit levels higher than the capability of the new switch, Hydro One is required to replace the new equipment with higher rated equipment at their expense.

The new circuit switcher will meet the market rules with respect to maximum continuous voltage. Appendix 4.1 reference 2 of the market rules states that equipment on the 115 kV grid may be exposed to voltages as high as 127 kV.

4.0 CONCLUSIONS

It can be concluded that this replacement will be an upgrade from the existing bolted line opener. The new switch will meet the market rules with respect to maximum continuous voltage and will have no material adverse effect on the IESO-controlled grid subject to the requirements in section 5.

**115 kV Switch on Tap L7S to St. Mary's Cement CTS
CAA ID # 2008-EX381**

5.0 *REQUIREMENTS*

Hydro One must notify the IESO as soon as it becomes aware of any changes to the assumptions made in the connection assessment. The IESO will determine if these changes require a reassessment.

The short time rating of the new circuit switcher is adequate for the expected fault levels at that location as confirmed by Hydro One. Should future system changes result in fault currents greater than 2.5 kA, Hydro One will be required to change the circuit switcher at their expense.

6.0 *NOTIFICATION OF APPROVAL*

It is therefore recommended that a Notification of Conditional Approval of the Connection Proposal be issued.

115 kV Switch on Tap L7S to St. Mary's Cement CTS
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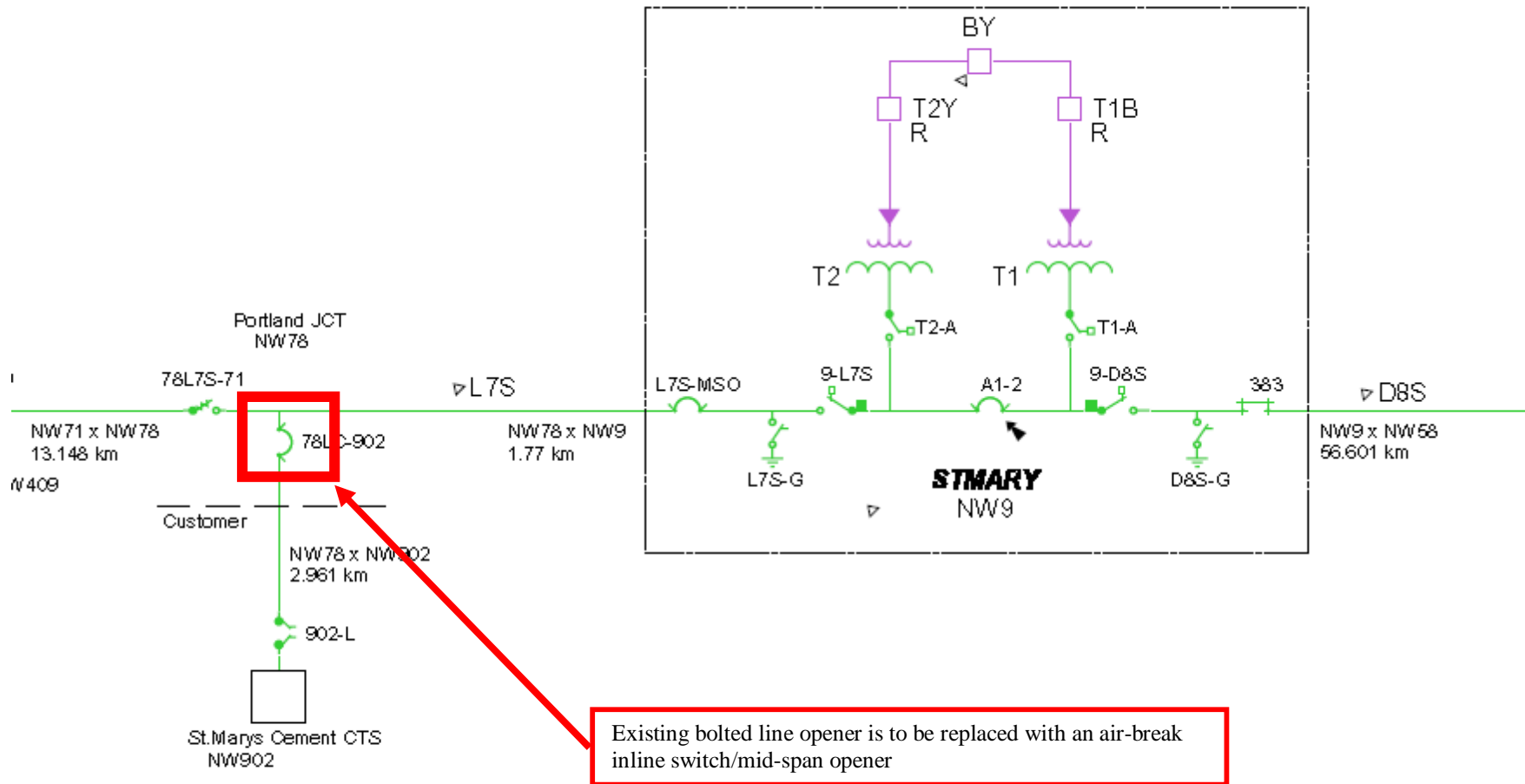


Fig. 1 - Single Line Diagram