



Substation Condition Assessment Project - North Rutland Substation

Operating Committee
June 17, 2021

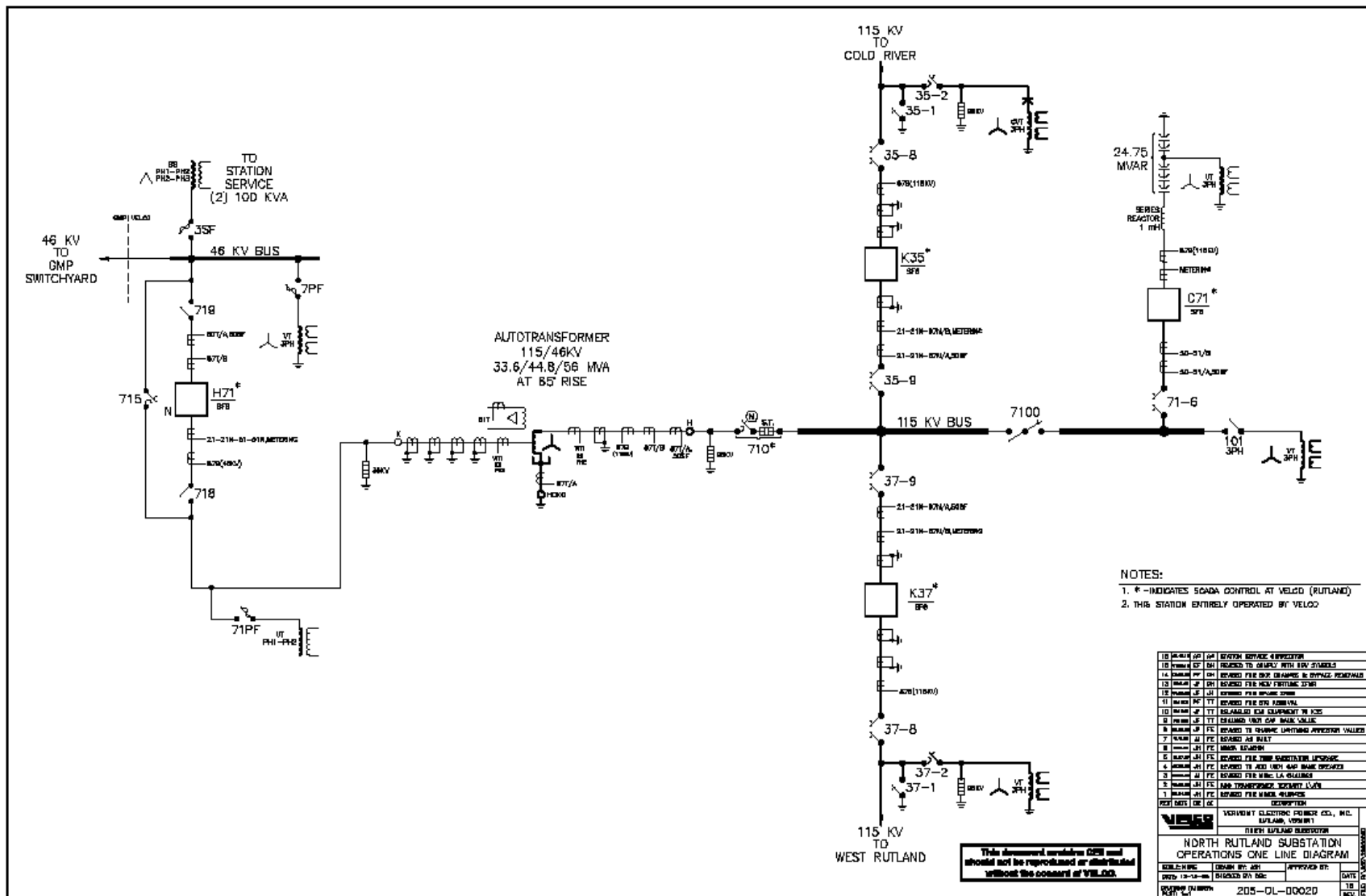
vermont electric power company



Aerial photograph



Existing one line diagram



4



POOL TRANSMISSION FACILITIES (PTF) ARE THE TRANSMISSION FACILITIES OWNED BY PARTICIPATING TRANSMISSION OWNERS (PTO), OVER WHICH THE ISO SHALL EXERCISE OPERATING AUTHORITY IN ACCORDANCE WITH THE TERMS SET FORTH IN THE TRANSMISSION OPERATING AGREEMENT (TOA), RATED 50KV OR ABOVE REQUIRED TO ALLOW ENERGY FROM SIGNIFICANT POOL TRANSMISSION OWNERS TO FLOW FREELY ON THE NEW ENGLAND TRANSMISSION SYSTEM. (JOATT, 11.469)

VELOC FACILITIES THAT COMPRISE THE STATEWIDE, HIGH VOLTAGE TRANSMISSION GRID, INTERCONNECTING AND SERVING THE LOAD CENTERS OF THE STATE, AND ARE USED IN COMMON BY ALL PURCHASERS OF ELECTRICITY IN THE STATEWIDE MARKET. STATEWIDE FACILITIES CONSTRUCTED PRIOR TO 7-1-80, OR ANY SPECIFIC FACILITIES CONSTRUCTED AFTER 7-1-80 THAT HAVE BEEN RECLASSIFIED AS COMMON FACILITIES AS A RESULT OF BEING IN SERVICE FOR A PERIOD OF TEN YEARS.

HIGH VOLTAGE LINES, SUBSTATIONS AND OTHER APPURTENANCES CONSTITUTING A DIRECT PHYSICAL CONNECTION TO THE VOLTAGE COMMON TRANSMISSION SYSTEM AND ARE NOT PART OF THE LOOPED TRANSMISSION GRID. THESE FACILITIES ARE USED AND INSTALLED TO BENEFIT A REQUESTING PURCHASER OF TRANSMISSION SERVICE. IN THE CASE OF A SUBSTATION (STEPPING DOWN TO A LOWER VOLTAGE) THIS INCLUDES THE TRANSFORMER, HIGH VOLTAGE BREAKERS, DISCONNECTS, ACCESSORY DEVICES, CONTROLS AND CONTROL CIRCUITRY (REFER TO COMMON FACILITIES DEFINITION FOR CRITERIA OF RECLASSIFICATION).

EQUIPMENT CONNECTED TO THE LOW VOLTAGE BUS, INCLUDING ANY ASSOCIATED PROTECTIVE CONTROL AND METERING SYSTEMS, MAY HAVE BEEN CONSTRUCTED UNDER A VEPCO WORK ORDER, AND ARE TO BE FULLY OWNED AND FUNDED BY THE PURCHASER OF TRANSMISSION SERVICE UPON COMMISSIONING. THIS TYPICALLY INCLUDES FOUNDATIONS AND STRUCTURES, BREAKERS AND SWITCHES, INSULATORS, LINE POTENTIAL TRANSFORMERS, CONDUIT, CABLES AND GROUNDING. ONGOING MAINTENANCE AND TESTING OF THE SYSTEM ARE TO BE THE RESPONSIBILITY OF THE PURCHASER OF VEPCO SUBSTATION PARTICIPATION AGREEMENT.

TYPICALLY CONSISTING OF EQUIPMENT LOCATED WITHIN SUBSTATIONS AND ARE SHARED IN SOME MANNER FOR THE BENEFIT OF BOTH VELD AND THE OTHER FACILITY. THESE FACILITIES INCLUDE BUT ARE NOT LIMITED TO: BUILDINGS AND IMPROVEMENTS, FENCING AND GATES, LOW VOLTAGE DISTRIBUTION SYSTEMS, TRANSMISSION LINES, OVERHEAD POWER LINES, STATION SERVICE AND BUS POTS, COMPLETE STATION GROUNDING SYSTEMS, SUPPORTS AND CABLE TRAYS, BATTERIES AND CHARGERS, SWITCHES AND DISCONNECTS, AND OTHER ELECTRICAL EQUIPMENT. THE FACILITIES ARE SUBJECT TO THE SAME MAINTENANCE AND REPAIR SCHEDULES AS THE EQUIPMENT.

Project scope of work

- Replace the existing control building with a larger control building
- Replace transformer high-side circuit switcher with a circuit breaker or circuit switcher
- Replace and expand the existing substation fence
- Maintenance related improvements
 - Replace the protection and control system
 - Replace AC and DC station service
 - Install power transformer and circuit breaker monitoring systems
 - PCB cleanup and disposal
 - Install transformer passive secondary oil containment system
- Project will require a temporary substation arrangement in order to perform the construction activities

Temporary substation options considered

- Option#1 – Installation of full temporary substation and perform in-kind replacements
- Option#2 – Utilization of existing 46kV for the temporary substation and relocate power transformer, C71 & K35
- Option#3 – Utilization of existing 46kV for the temporary substation and relocate power transformer & K37
- Option#4 (Chosen) – Utilization of existing 46kV for the temporary substation and relocate power transformer

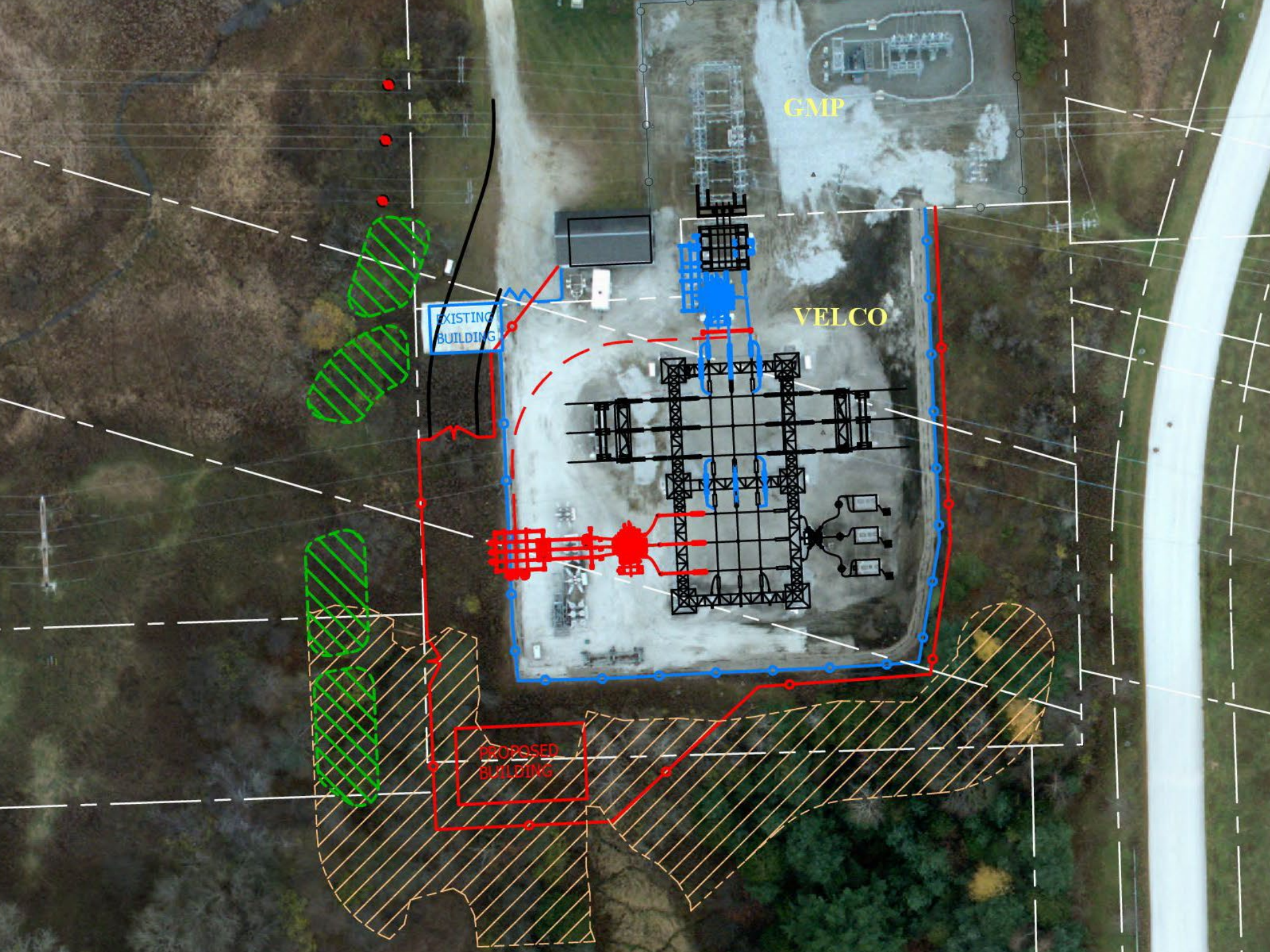
Additional land purchase

- Two lots: 26.4 ac and 5.4 ac
- Purchase price of \$175k



45 Day Notice Ortho





GMP

VELCO

EXISTING
BUILDING

PROPOSED
BUILDING

Schedule & cost estimate

- Schedule
 - May 3, 2021 – 45 Day Notice Filing
 - July 2021 – 248 Filing
 - February 2022 – Start of construction
 - November 2022 – Commission
- Cost estimate
 - Class B, \$13M, assumes 25% contingency