

1. GENERAL

1.1 Description

- .1 Provide a coordination/protective study and short circuit study of all equipment specified herein and submit for review.
- .2 Include the following:
 - .1 5 kV cable thermal damage curves (15KV Rated).
 - .2 5 kV and 600V air circuit breaker overcurrent, overload, and ground fault devices.
 - .3 347/600 and 120/208V panelboards, MCCs, emergency generator and switchgear, connecting feeder cables and bus duct.
 - .4 5 kV and 600V transformer damage curves, magnetizing currents for all transformers 150 kVA and larger.
 - .5 Locked rotor currents, acceleration times and damage curves for motors 75 kW and larger.
 - .6 Generator overcurrent device, generator short circuit curves.
 - .7 Any additional data necessary for successful completion of the coordination and short circuit study.
 - .8 Study to be inclusive for existing and new distribution equipment.
- .3 Data shall clearly state the operating time in cycles of each breaker and indicate whether the time current curves for relays are inclusive of breaker tripping times or otherwise.
- .4 Prepare a summation chart showing all ratings and settings with easy reference to the appropriate curve.
- .5 Symmetrical and asymmetrical fault current calculations shall be submitted to verify the correct choice of the protective elements of the system.
- .6 Prepare a systems single line diagram on which the resultant short circuit values, device numbers and equipment ratings are shown.
- .7 Include a list of recommended settings for each relay.

1.2 Related Work

- .1 Service Entrance Board: Existing
- .2 Primary and Secondary Switchgear: New & Existing

1.3 Qualifications

- .1 This study shall be provided by the supplier of the main switchgear.
- .2 This study shall be performed by and bear the stamp of a Professional Engineer registered in the Province of Manitoba.

1.4 Submittals

- .1 Submit the complete study for review prior to carrying out calibration and verification.
- .2 Submit typed results of coordination and short circuit study in maintenance manuals.

2. PRODUCTS

2.1 Tripping Devices

- .1 Relay style, CT ratios and fuse sizes have been selected on a preliminary basis for design purposes. Final selection shall be based on the results of this study and shall be included at no extra cost.
- .2 Existing relay style, CT ratios and fuse sizes shall be confirmed on site.

3. EXECUTION

3.1 Data

- .1 Provide the main switchboard supplier with all relevant data for equipment not provided by that supplier.

END OF SECTION