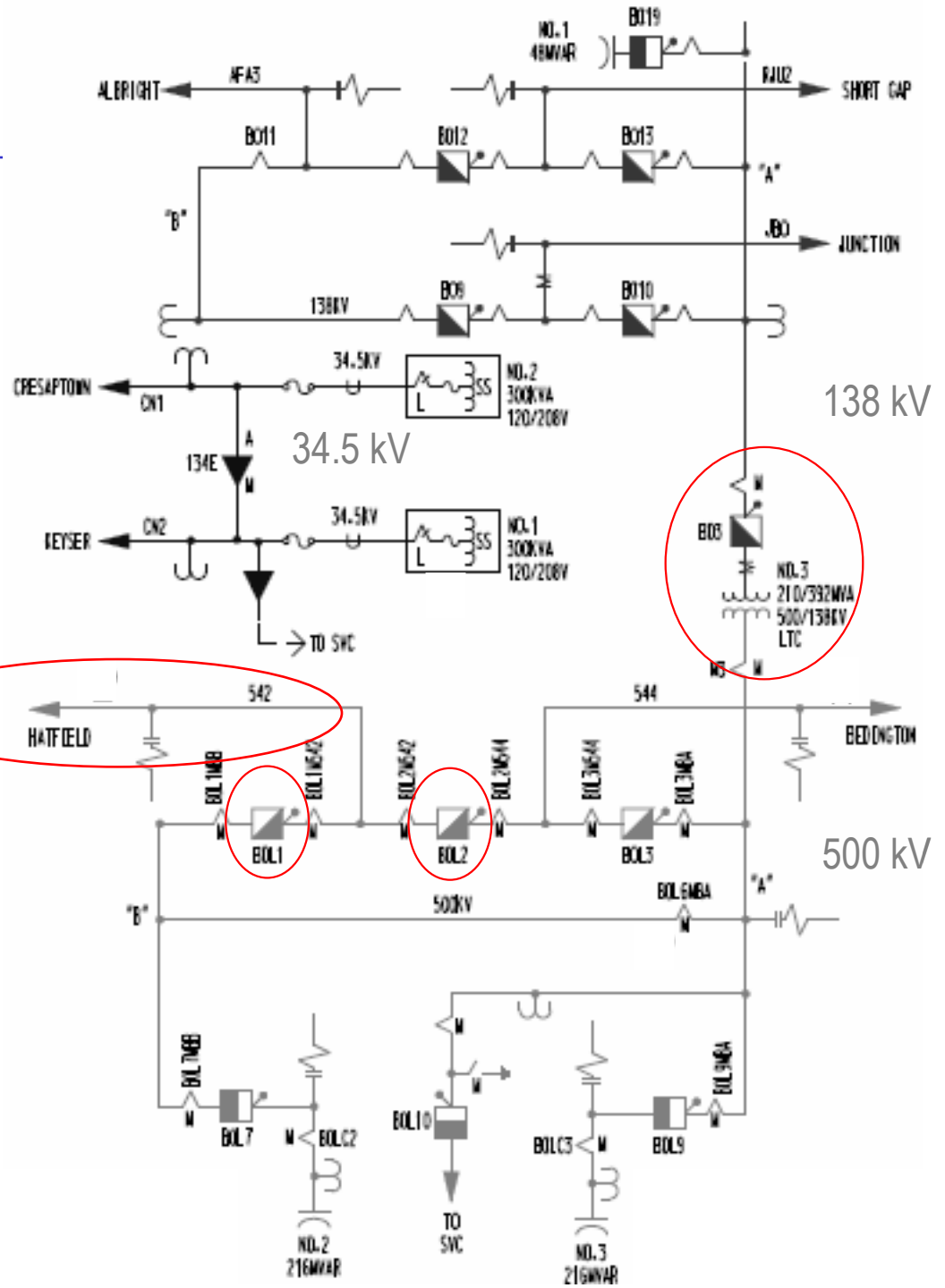


# Allegheny Power Special Protection Scheme (SPS)

## Black Oak Substation

## Black Oak 500/138 kV Transformer SPS

- Baseline Project: b0420 (6/1/2010)
- Condition:
  - Stuck breaker outage at Hatfield causing loss of the Hatfield-Black Oak 500 kV line and the Hatfield #2 Generation.
- Result:
  - The Black Oak #3 transformer overloads as power flows from the 138 kV system to the 500 kV system.
- Action:
  - Implement an SPS scheme to open the Black Oak #3 transformer for loss of the Hatfield-Black Oak 500 kV line due to tripping at either end.



**Special Protection Scheme (SPS)**

This SPS shall open the Black Oak 500/138kV transformer via breaker BO3 for the loss of the Hatfield-Black Oak 500kV line.

This SPS shall be redundant, automatic, and local to Black Oak SS.

Provision shall be made for manual control so that the SPS can be disabled for switching.