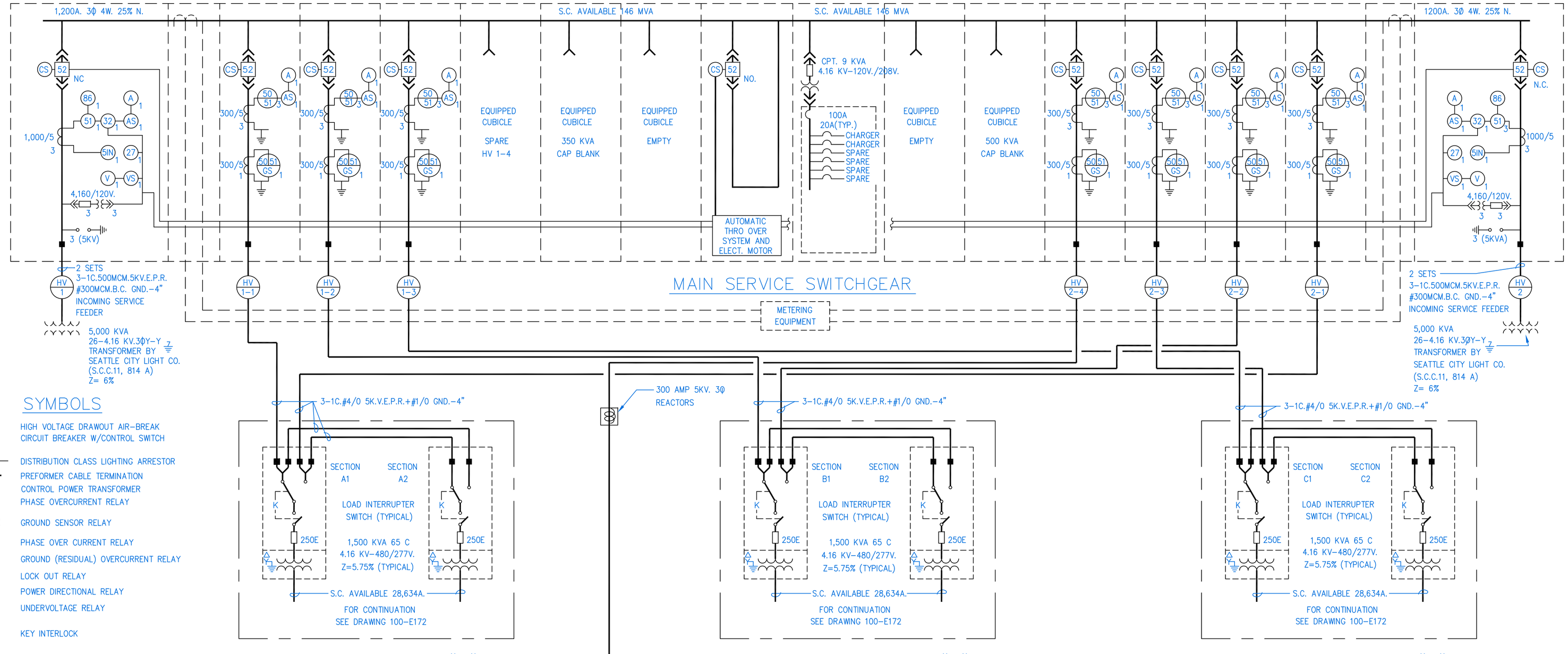

SYMBOLS

- HIGH VOLTAGE DRAWOUT AIR-BREAK CIRCUIT BREAKER W/CONTROL SWITCH
- DISTRIBUTION CLASS LIGHTING ARRESTOR
- PREFORMER CABLE TERMINATION
- CPT — CONTROL POWER TRANSFORMER
- 50/51 — PHASE OVERCURRENT RELAY
- 50/51 GS — GROUND SENSOR RELAY
- 51 — PHASE OVER CURRENT RELAY
- 51N — GROUND (RESIDUAL) OVERCURRENT RELAY
- 86 — LOCK OUT RELAY
- 32 — POWER DIRECTIONAL RELAY
- 27 — UNDERVOLTAGE RELAY
- K — KEY INTERLOCK

AUTOMATIC THROW OVER SYSTEM OPERATIONS OUTLINE

THE AUTOMATIC THROWOVER (TRANSFER) SYSTEM SHALL CONTROL THE TWO (2) MAIN BREAKERS AND THE BUS TIE BREAKER IN CASE OF LOSS OF VOLTAGE AT THE SERVICE FEEDER CONNECTION. WHEN IN THE AUTOMATIC MODE, THE SYSTEM SHALL ALLOW ONLY TWO (2) BREAKERS TO BE CLOSED AT ANY ONE TIME.

THE SYSTEM SHALL OPERATE AS FOLLOWS:

1. NORMAL VOLTAGE ON BOTH SERVICE FEEDERS.
   - A. BOTH MAIN BREAKERS CLOSED.
   - B. BUS TIE BREAKER OPEN.
2. NORMAL VOLTAGE ON ONE (1) SERVICE FEEDER, LOSS OF VOLTAGE ON OTHER.
   - A. BREAKER ON SERVICE FEEDER WHERE THERE HAS BEEN LOSS OF VOLTAGE, SHALL TRIP AFTER AN ADJUSTABLE TIME DELAY OF 0 TO 10 SECONDS SET INITIALLY AT 2 SECONDS.
   - B. BUS TIE BREAKER SHALL CLOSE IMMEDIATELY THEREAFTER.
3. LOSS OF VOLTAGE ON ONE (1) SERVICE FEEDER, AND VOLTAGE IS NOT NORMAL ON OTHER.
   - A. BREAKER ON THE SERVICE FEEDER IN WHICH THERE HAS BEEN LOSS OF VOLTAGE SHALL TRIP AND BUS TIE BREAKER SHALL NOT CLOSE.
   - B. SHOULD VOLTAGE BECOME NORMAL ON THE SERVICE FEEDER TO WHICH LOAD COULD HAVE BEEN TRANSFERRED, THEN THE OPERATION SHALL BE IN ACCORDANCE WITH PARAGRAPH 2 ABOVE.
4. LOSS OF VOLTAGE ON BOTH SERVICE FEEDERS SIMULTANEOUSLY.
   - A. THE MAIN BREAKERS SHALL TRIP AND THE BUS TIE SHALL NOT CLOSE.
5. FOLLOWING RESTORATION OF NORMAL VOLTAGE ON SERVICE FEEDER FROM WHICH LOAD HAS BEEN TRANSFERRED AND SUBSEQUENT LOSS OF VOLTAGE ON THE OTHER SERVICE FEEDER.
   - A. THE BREAKER ON THE SERVICE FEEDER ON WHICH THERE HAS BEEN LOSS OF VOLTAGE SHALL TRIP AFTER A PRE-DETERMINED ADJUSTABLE TIME RELAY.
   - B. THE BREAKER ON THE SERVICE FEEDER WHICH IS AVAILABLE FOR SERVICE, SHALL CLOSE IMMEDIATELY THEREAFTER.
   - C. EMERGENCY GENERATORS SHALL BE DISCONNECTED. ENGINES SHALL RUN FOR AN ADJUSTABLE PERIOD OF TIME, UP TO 15 MINUTES MAXIMUM FOR COOLDOWN AND THEN SHUTDOWN.
6. IF EITHER MAIN BREAKER IS TRIPPED BY ITS OVER-CURRENT RELAYS, THE AUTOMATIC TRANSFER OPERATION SHALL BE AUTOMATICALLY BLOCKED TO PREVENT THE BUS TIE BREAKER FROM CLOSING.
7. FOLLOWING AN AUTOMATIC TRANSFER OPERATION AND SUBSEQUENT RESTORATION OF VOLTAGE ON THE SERVICE FEEDER FROM WHICH THE LOAD HAD BEEN TRANSFERRED, RETRANSFER TO NORMAL OPERATION BY CLOSING THE MAIN BREAKER AND OPENING THE TIE BREAKER AUTOMATICALLY, AFTER A DELAY. MEANS SHALL BE PROVIDED TO EFFECT A DELAY, ADJUSTABLE BETWEEN 5-30 MINUTES.
8. INTERLOCKS SHALL ALWAYS PREVENT PARALLELING THE TWO INCOMING SERVICE FEEDERS.
9. SEE SPECIFICATIONS SECTION 802C-7 FOR ADDITIONAL REQUIREMENTS OF THE AUTOMATIC THROWOVER SYSTEM.

SCALE: NONE

Revisions	Date

Approved For:	Name	Initials	Date
	Director		
	Assoc. Dir.		
	Ch. of Staff		
Construction ☐	Ch. of Eng.		
Submittal ☐			

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