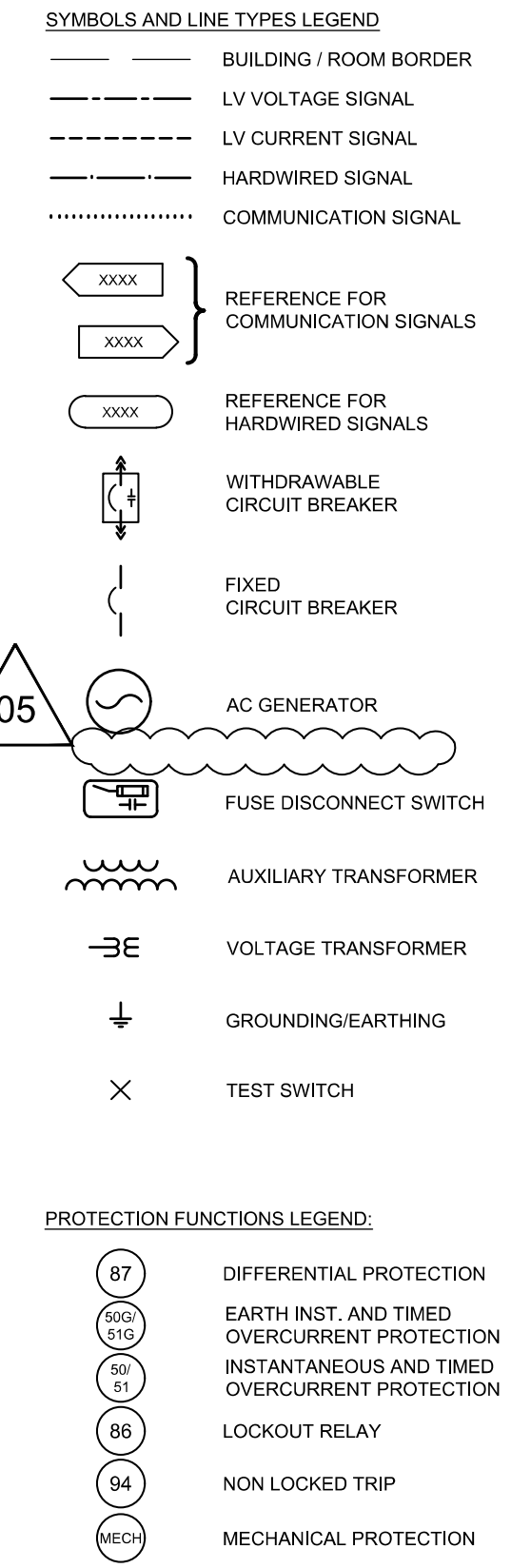
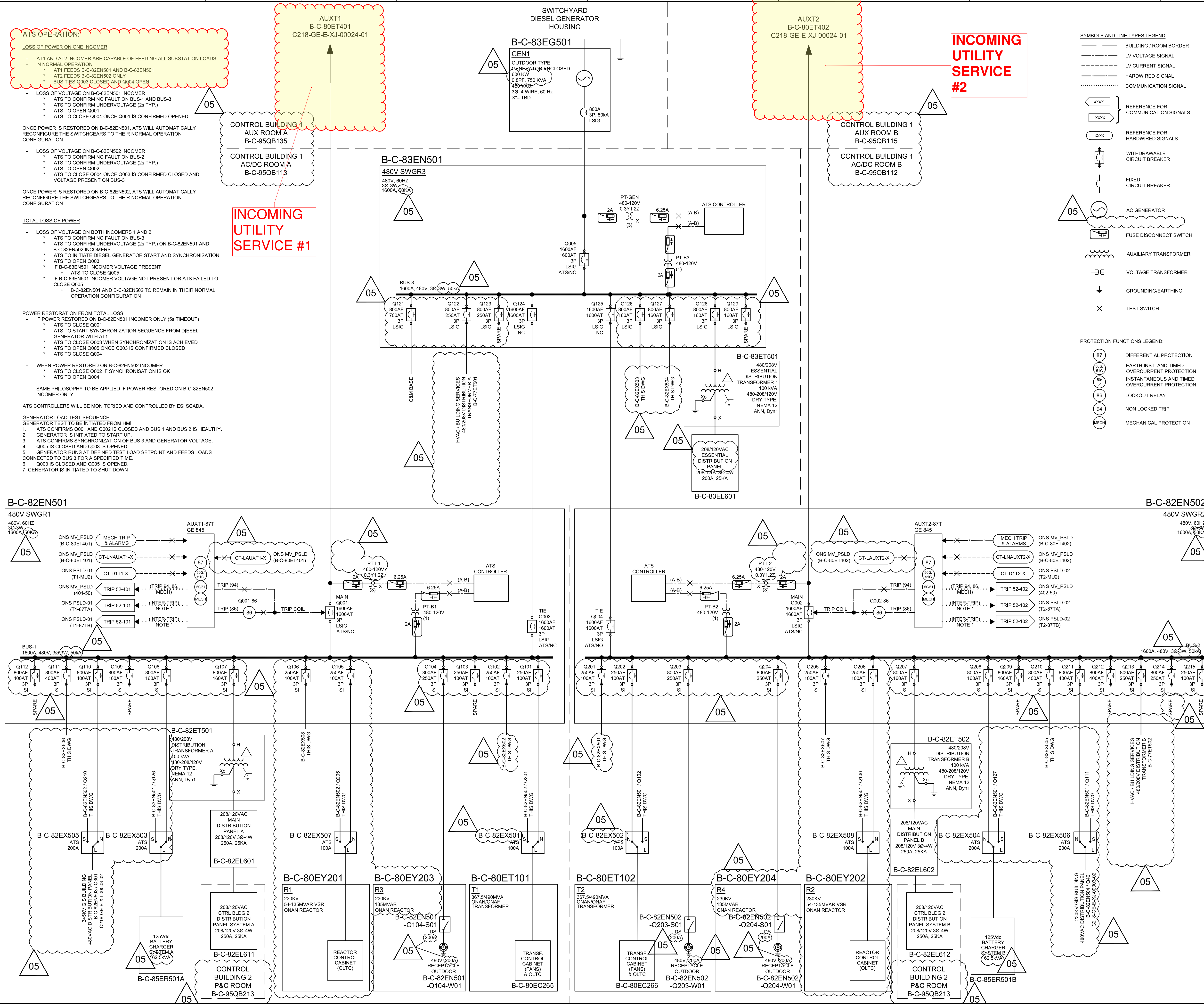


A  
B  
C  
D  
E  
F  
G  
H  
J  
K  
L  
M

**ATS OPERATION:**  
LOSS OF POWER ON ONE INCOMER  
- AT1 AND AT2 INCOMER ARE CAPABLE OF FEEDING ALL SUBSTATION LOADS  
- IN NORMAL OPERATION  
\* AT1 FEEDS B-C-82EN501 AND B-C-83EN501  
\* AT2 FEEDS B-C-82EN502 ONLY  
\* BUS TIES Q003 CLOSED AND Q004 OPEN  
- LOSS OF VOLTAGE ON B-C-82EN501 INCOMER  
\* AT5 TO CONFIRM NO FAULT ON BUS-1 AND BUS-3  
\* AT5 TO CONFIRM UNDERVOLTAGE (2s TYP.)  
\* AT5 TO OPEN Q001  
\* AT5 TO CLOSE Q004 ONCE Q001 IS CONFIRMED OPENED  
ONCE POWER IS RESTORED ON B-C-82EN501, AT5 WILL AUTOMATICALLY RECONFIGURE THE SWITCHGEARS TO THEIR NORMAL OPERATION CONFIGURATION  
- LOSS OF VOLTAGE ON B-C-82EN502 INCOMER  
\* AT5 TO CONFIRM NO FAULT ON BUS-2  
\* AT5 TO CONFIRM UNDERVOLTAGE (2s TYP.)  
\* AT5 TO OPEN Q002  
\* AT5 TO CLOSE Q004 ONCE Q002 IS CONFIRMED CLOSED AND VOLTAGE PRESENT ON BUS-3  
ONCE POWER IS RESTORED ON B-C-82EN502, AT5 WILL AUTOMATICALLY RECONFIGURE THE SWITCHGEARS TO THEIR NORMAL OPERATION CONFIGURATION  
**TOTAL LOSS OF POWER**  
- LOSS OF VOLTAGE ON BOTH INCOMERS 1 AND 2  
\* AT5 TO CONFIRM NO FAULT ON BUS-3  
\* AT5 TO CONFIRM UNDERVOLTAGE (2s TYP.) ON B-C-82EN501 AND B-C-82EN502 INCOMERS  
\* AT5 TO INITIATE DIESEL GENERATOR START AND SYNCHRONISATION  
\* AT5 TO OPEN Q003  
\* IF B-C-83EN501 INCOMER VOLTAGE PRESENT  
\* AT5 TO CLOSE Q005  
\* IF B-C-83EN501 INCOMER VOLTAGE NOT PRESENT OR AT5 FAILED TO CLOSE Q005  
\* B-C-82EN501 AND B-C-82EN502 TO REMAIN IN THEIR NORMAL OPERATION CONFIGURATION  
**POWER RESTORATION FROM TOTAL LOSS**  
- IF POWER RESTORED ON B-C-82EN501 INCOMER ONLY (5s TIMEOUT)  
\* AT5 TO CLOSE Q001  
\* AT5 TO START SYNCHRONIZATION SEQUENCE FROM DIESEL GENERATOR WITH AT1  
\* AT5 TO CLOSE Q003 WHEN SYNCHRONIZATION IS ACHIEVED  
\* AT5 TO OPEN Q005 ONCE Q003 IS CONFIRMED CLOSED  
\* AT5 TO CLOSE Q004  
- WHEN POWER RESTORED ON B-C-82EN502 INCOMER  
\* AT5 TO CLOSE Q002 IF SYNCHRONIZATION IS OK  
\* AT5 TO OPEN Q004  
- SAME PHILOSOPHY TO BE APPLIED IF POWER RESTORED ON B-C-82EN502 INCOMER ONLY  
ATS CONTROLLERS WILL BE MONITORED AND CONTROLLED BY ESI SCADA.  
**GENERATOR LOAD TEST SEQUENCE**  
GENERATOR TEST TO BE INITIATED FROM HMI  
1. AT5 CONFIRMS Q001 AND Q002 IS CLOSED AND BUS 1 AND BUS 2 IS HEALTHY.  
2. GENERATOR IS INITIATED TO START UP.  
3. AT5 CONFIRMS SYNCHRONIZATION OF BUS 3 AND GENERATOR VOLTAGE.  
4. Q005 IS CLOSED AND Q003 IS OPENED.  
5. GENERATOR RUNS AT DEFINED TEST 1 LOAD SETPOINT AND FEEDS LOADS CONNECTED TO BUS 3 FOR A SPECIFIED TIME.  
6. Q003 IS CLOSED AND Q005 IS OPENED.  
7. GENERATOR IS INITIATED TO SHUT DOWN.

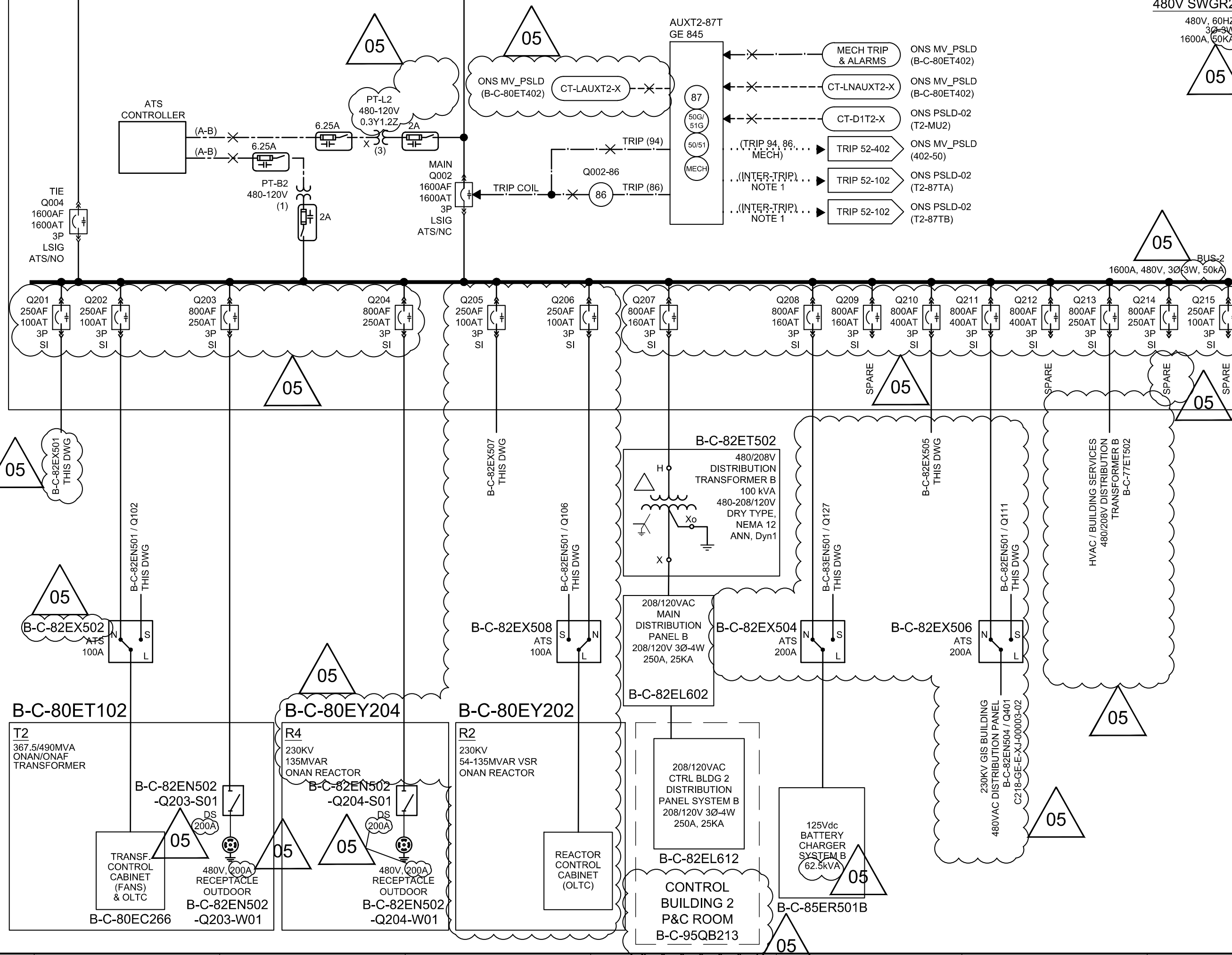
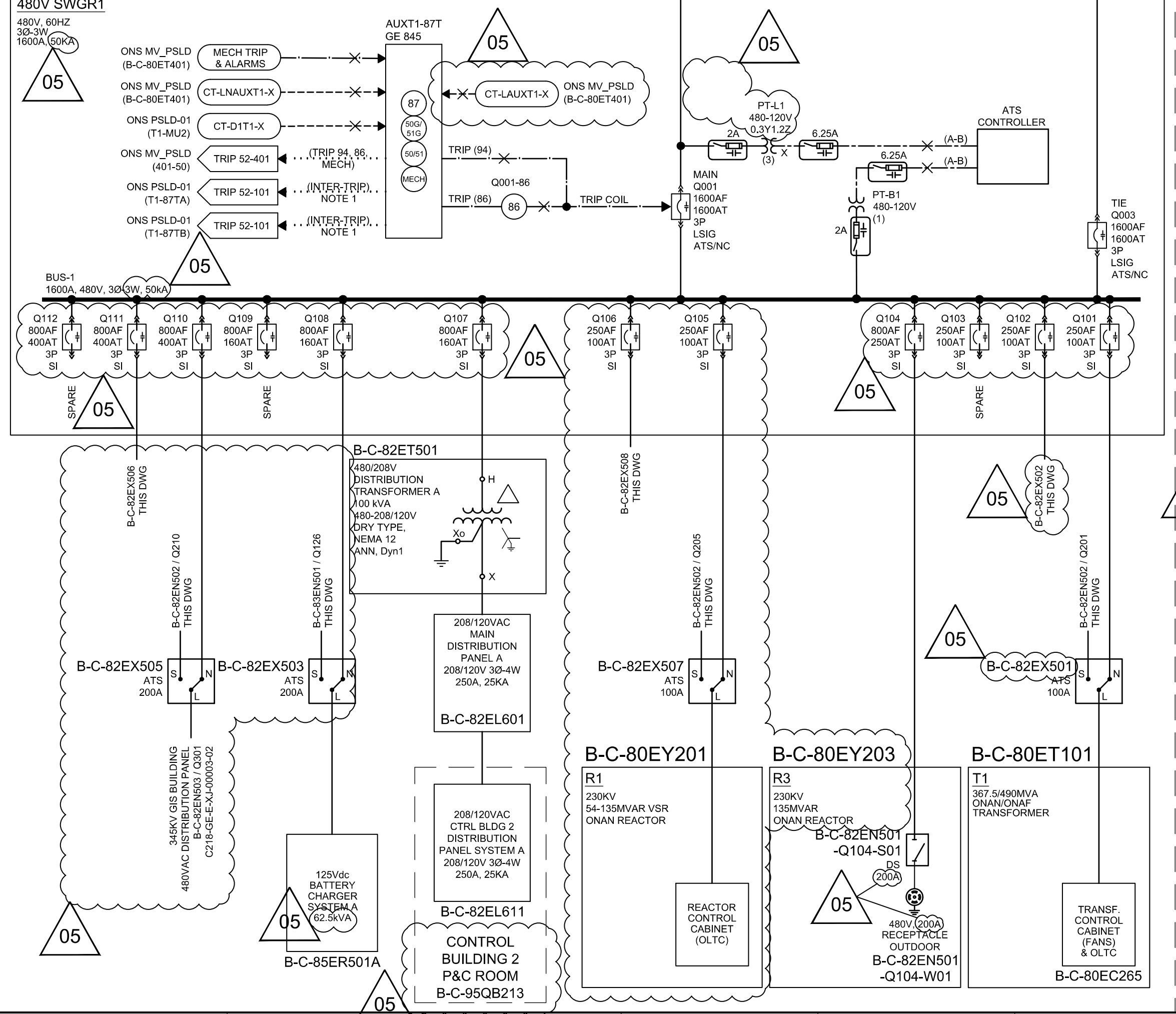
**INCOMING UTILITY SERVICE #1**

**INCOMING UTILITY SERVICE #2**



**B-C-82EN501**

**B-C-82EN502**



**BOND Civil & Utility**