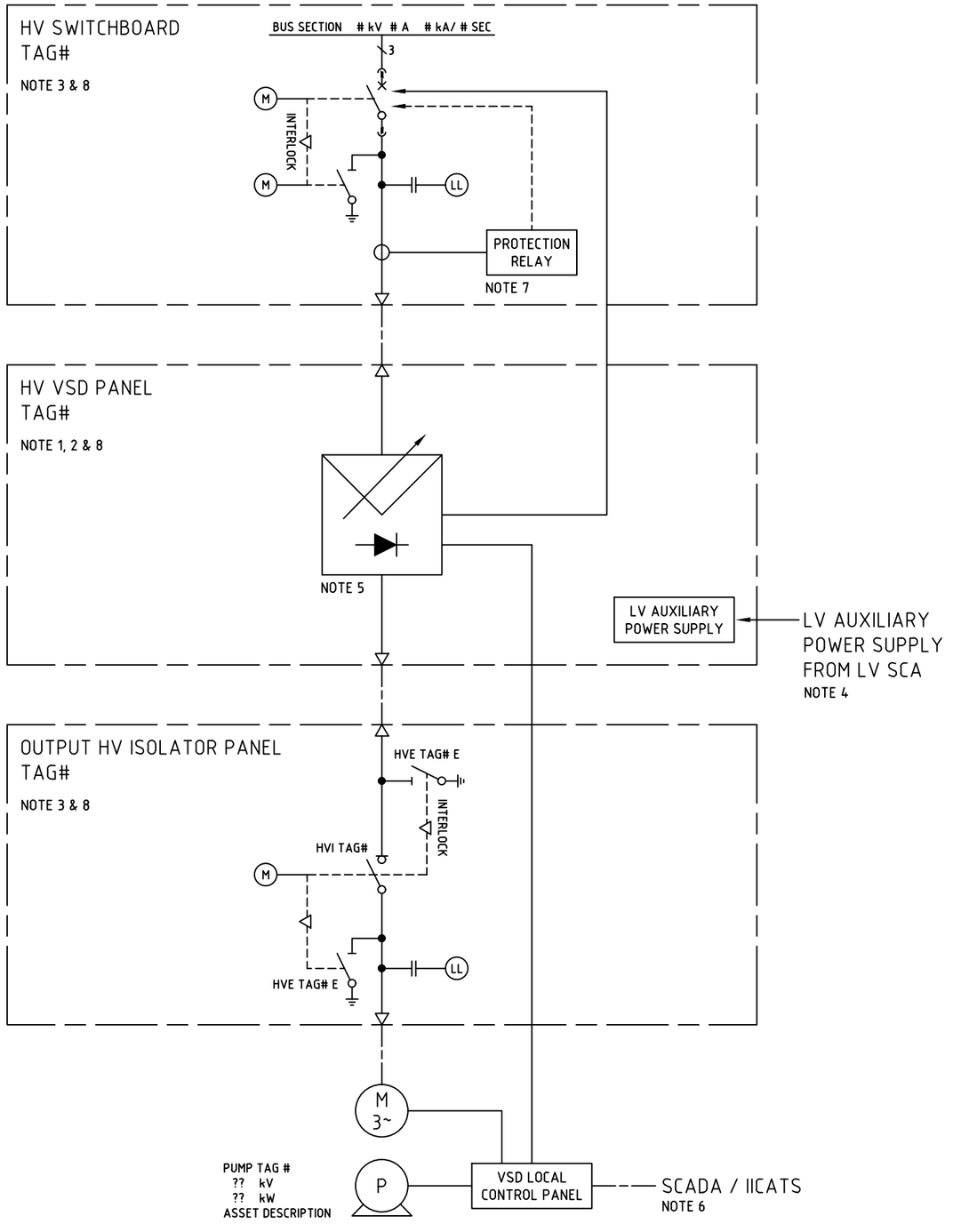
A1



PURPOSE:

1. THE PURPOSE OF THIS DRAWING IS TO PROVIDE DEEMED TO COMPLY SINGLE LINE DIAGRAM DETAILS FOR HIGH VOLTAGE(HV) VARIABLE SPEED DRIVE (VSD) UNIT.

2. THIS DRAWING COVERS THE POWER CIRCUIT CONFIGURATION , PROTECTION (EXCLUDING MOTOR PROTECTION), INTERLOCK REQUIREMENTS AND LV AUXILIARY POWER SUPPLY REQUIREMENTS FOR HV VSD.

3. THIS DRAWING DOES NOT COVER THE FULL EXTENT OF TECHNICAL REQUIREMENTS, OTHER SYDNEY WATER TECHNICAL SPECIFICATION DOCUMENTS AND PROJECT SPECIFICATIONS DOCUMENTS MUST BE FOLLOWED TO ACHIEVE A COMPLETE DESIGN.

NOTES:

1. VARIABLE SPEED DRIVE (VSD) VENDOR MUST PROVIDE INTERLOCK MECHANISM TO ENSURE UPSTREAM HV BREAKER IS OPEN AND EARTH SWITCH IS CLOSED BEFORE ACCESSING VSD INCOMING PANEL IS PERMITTED.

2. VSD VENDOR MUST PROVIDE A POSITIVE VISUAL INDICATION WHEN THE DC LINK(S) IS DISCHARGED, AN INTERLOCK MECHANISM MUST BEEN IMPLEMENTED TO ENSURE NO CONVERTER PANEL DOOR(S) IS ABLE TO BE OPENED TILL THE DC LINK(S) DISCHARGED.

3. HV SWITCHGEAR & OUTPUT ISOLATOR MUST COMPLY WITH HV SWITCHGEAR SPECIFICATION "DOC0012". THE REPRESENTATION OF THIS DRAWING DOES NOT IMPLY PREFERENCES FOR SWITCHGEAR SELECTION.

4. LV AUXILIARY POWER SUPPLY TO VSD UNIT MUST BE PROVIDED FROM THE NEAREST LV SWITCHBOARD AND THE FOLLOWING CONDITIONS MUST BE MET,
   I. A MINIMUM "N-1" REDUNDANCY MUST BE PROVIDED FROM LV SWITCHBOARD WITH ATS EQUIPPED ON THE INCOMERS.
   II. TO DIVERSIFY LV AUXILIARY POWER SUPPLY IN LV SWITCHBOARD A CONSIDERATION MUST BE GIVEN TO DUTY/STANDBY PUMPS. FURTHERMORE, EACH SECTION OF LV SWITCHBOARD BUS MUST NOT HAVE MORE THAN 50% OF DUTY AUXILIARY SUPPLY FOR HV VSDs.
   III. DISTRIBUTION BOARDS MUST NOT BE UTILIZED FOR LV AUXILIARY POWER SUPPLY TO HV VSDs.

5. EMERGENCY E-STOP & LATCH STOP REQUIREMENTS MUST BE IN ACCORDANCE WITH SYDNEY WATER E-STOP POLICY &AS4024.

6. FOR NETWORK DETAILS REFER TO NETWORK ARCHITECTURE DRAWINGS.

7. PROTECTION RELAY DESIGN MUST BE ACCORDING TO SWC PROTECTION SPECIFICATION " D0C0014".

8. ARC FLASH PROTECTION DESIGN MUST BE IN ACCORDANCE WITH SWC ARC FLASH SPECIFICATION, " D0002263".

Sydney WATER

APPROVED MAY 2024

NORBERT SCHAEPER
ENGINEERING MANAGER

ENGINEERING & TECHNICAL SUPPORT

LETTER	DETAILS OF AMENDMENT	APP'D	DATE
A	ORIGINAL ISSUE	NS	17/05/24

DEEMED TO COMPLY DRAWINGS

HV VSD SINGLE LINE DIAGRAM

DTC
3200