

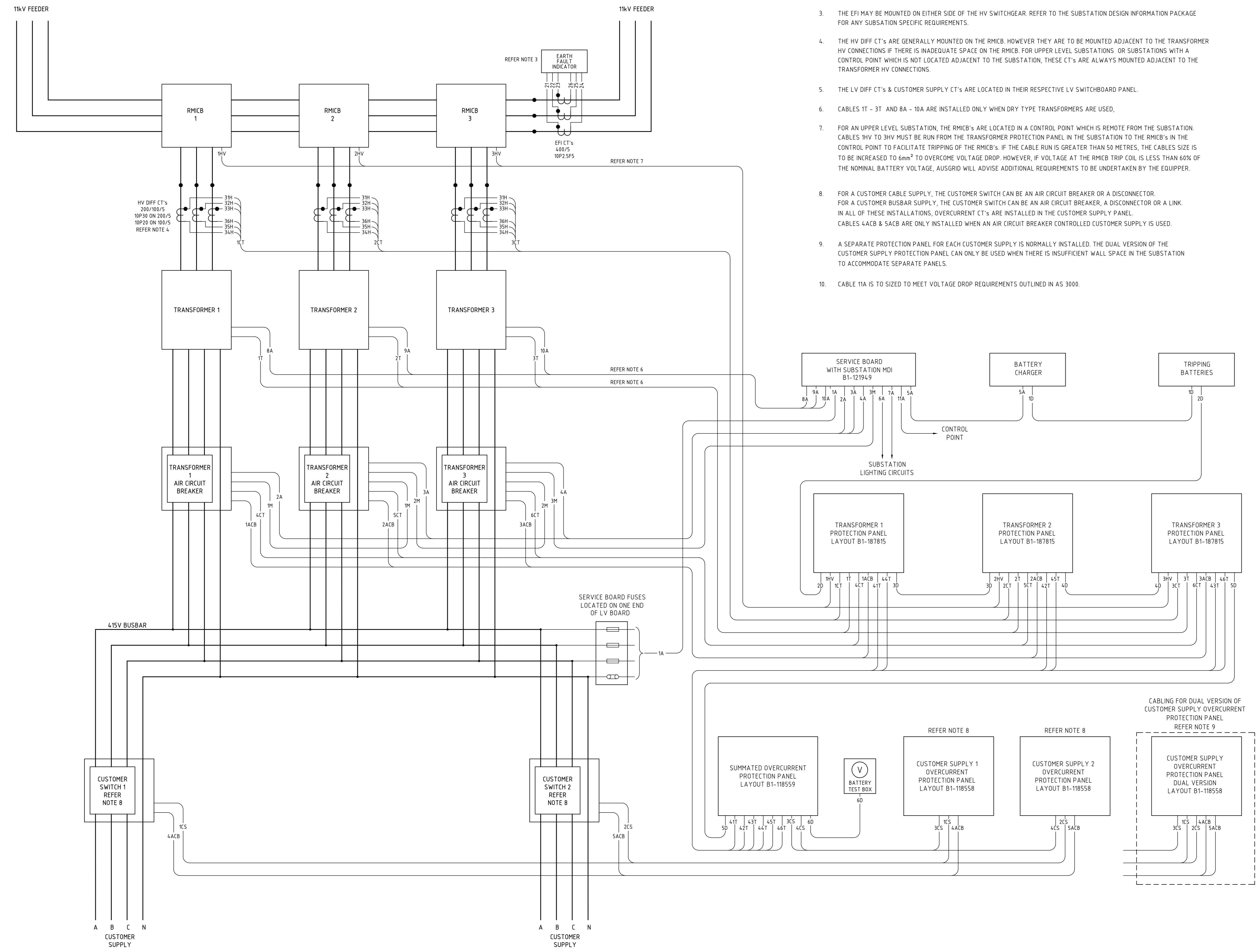
REFERENCE DRAWINGS	
RMICB SUBSTATIONS AC & DC SCHEMATICS	A0-178232
RMICB SUBSTATIONS WALL MOUNTED TRANSFORMER PROTECTION PANEL DRILLING, WIRING & CABLING	B1-187815
CITY & SUBURBAN DISTRIBUTION SUBSTATIONS WALL MOUNTED CUSTOMER OVERCURRENT PROTECTION PANEL DRILLING, WIRING & CABLING	A1-118558
CITY & SUBURBAN DISTRIBUTION SUBSTATIONS WALL MOUNTED SUMMATED OVERCURRENT PROTECTION PANEL DRILLING, WIRING & CABLING	A1-118559
E TYPE LV BOARD ACCEPTABLE COMBINATIONS	B1-178227
E TYPE LV BOARD MERLIN GERIN MASTERPAC TP AIR CIRCUIT BREAKERS EXTERNAL CONNECTIONS	A2-178237
E TYPE LV BOARD SUMMATED MDI CONNECTIONS DIAGRAM	A1-178238
SUBURBAN SUBSTATIONS WITH 1500 kVA TRANSFORMERS SERVICE BOARD	B1-121949
INDOOR TRANSFORMERS MOUNTING DETAILS OF CT'S AND EARTH BAR	A1-162655
BATTERY TEST BOX	A2-22212

NOTES

- THIS DRAWING SHOWS THE PROTECTION CABLING WHICH IS TO BE USED IN CONJUNCTION WITH RMICB CHAMBER TYPE SUBSTATIONS AND SHOULD BE READ IN CONJUNCTION WITH NETWORK STANDARDS AND THE SUBSTATION DESIGN INFORMATION PACKAGE.
- THE CABLING AND CABLE SCHEDULE SHOWN ON THIS DRAWING IS FOR A 3 TRANSFORMER SUBSTATION. FOR SINGLE AND TWO TRANSFORMER SUBSTATIONS DELETE ANY UNREQUIRED EQUIPMENT AND CABLE CONNECTIONS AND MAKE THE FOLLOWING CHANGES TO THE CABLING.  
SINGLE TRANSFORMER SUBSTATION  
CABLE 3D IS CONNECTED TO THE BATTERY TEST BOX INSTEAD OF 6D.  
TWO TRANSFORMER SUBSTATION  
CABLE 4D IS CONNECTED TO THE SUMMATED OVERCURRENT PROTECTION PANEL INSTEAD OF 5D.  
CABLE 6D IS RENUMBERED 5D.  
CABLE 2M GOES TO THE SERVICE BOARD INSTEAD OF 3M.
- THE EFI MAY BE MOUNTED ON EITHER SIDE OF THE HV SWITCHGEAR. REFER TO THE SUBSTATION DESIGN INFORMATION PACKAGE FOR ANY SUBSTATION SPECIFIC REQUIREMENTS.
- THE HV DIFF CT'S ARE GENERALLY MOUNTED ON THE RMICB. HOWEVER THEY ARE TO BE MOUNTED ADJACENT TO THE TRANSFORMER HV CONNECTIONS IF THERE IS INADEQUATE SPACE ON THE RMICB. FOR UPPER LEVEL SUBSTATIONS OR SUBSTATIONS WITH A CONTROL POINT WHICH IS NOT LOCATED ADJACENT TO THE SUBSTATION, THESE CT'S ARE ALWAYS MOUNTED ADJACENT TO THE TRANSFORMER HV CONNECTIONS.
- THE LV DIFF CT'S & CUSTOMER SUPPLY CT'S ARE LOCATED IN THEIR RESPECTIVE LV SWITCHBOARD PANEL.
- CABLES 1T - 3T AND 8A - 10A ARE INSTALLED ONLY WHEN DRY TYPE TRANSFORMERS ARE USED.
- FOR AN UPPER LEVEL SUBSTATION, THE RMICB'S ARE LOCATED IN A CONTROL POINT WHICH IS REMOTE FROM THE SUBSTATION. CABLES 1HV TO 3HV MUST BE RUN FROM THE TRANSFORMER PROTECTION PANEL IN THE SUBSTATION TO THE RMICB'S IN THE CONTROL POINT TO FACILITATE TRIPPING OF THE RMICB'S. IF THE CABLE RUN IS GREATER THAN 50 METRES, THE CABLES SIZE IS TO BE INCREASED TO 6mm<sup>2</sup> TO OVERCOME VOLTAGE DROP. HOWEVER, IF VOLTAGE AT THE RMICB TRIP COIL IS LESS THAN 60% OF THE NOMINAL BATTERY VOLTAGE, AUSGRID WILL ADVISE ADDITIONAL REQUIREMENTS TO BE UNDERTAKEN BY THE EQUIPPER.
- FOR A CUSTOMER CABLE SUPPLY, THE CUSTOMER SWITCH CAN BE AN AIR CIRCUIT BREAKER OR A DISCONNECTOR. FOR A CUSTOMER BUSBAR SUPPLY, THE CUSTOMER SWITCH CAN BE AN AIR CIRCUIT BREAKER, A DISCONNECTOR OR A LINK. IN ALL OF THESE INSTALLATIONS, OVERCURRENT CT'S ARE INSTALLED IN THE CUSTOMER SUPPLY PANEL. CABLES 4ACB & 5ACB ARE ONLY INSTALLED WHEN AN AIR CIRCUIT BREAKER CONTROLLED CUSTOMER SUPPLY IS USED.
- A SEPARATE PROTECTION PANEL FOR EACH CUSTOMER SUPPLY IS NORMALLY INSTALLED. THE DUAL VERSION OF THE CUSTOMER SUPPLY PROTECTION PANEL CAN ONLY BE USED WHEN THERE IS INSUFFICIENT WALL SPACE IN THE SUBSTATION TO ACCOMMODATE SEPARATE PANELS.
- CABLE 11A IS TO BE SIZED TO MEET VOLTAGE DROP REQUIREMENTS OUTLINED IN AS 3000.

CABLE SCHEDULE

CABLE N°	ORIGIN	DESTINATION	SIZE	CORE			CABLE FUNCTION
				FERRULE	NUMBER	COLOUR	
1A	SERVICE BOARD FUSES	SERVICE BOARD	4 CABLES 1C x 16mm <sup>2</sup>	-	-	R W B Bk NEUTRAL	SERVICE BOARD SUPPLY
2A 3A 4A	TRANSFORMER AIR CIRCUIT BREAKER	SERVICE BOARD	3 CABLES 1C x 16mm <sup>2</sup>	-	-	W	B PHASE ALT SUPPLY
5A	SERVICE BOARD	BATTERY CHARGER	2C 2.5mm <sup>2</sup>	A	1	R	ACTIVE NEUTRAL BATTERY CHARGER AC SUPPLY
6A 7A	SERVICE BOARD	SUBSTATION LIGHT CIRCUITS	2C 2.5mm <sup>2</sup>	A	1	R	ACTIVE NEUTRAL SUBSTATION LIGHTING
8A 9A 10A	SERVICE BOARD	TRANSFORMER	2C 2.5mm <sup>2</sup>	A	1	R	ACTIVE NEUTRAL DRY TYPE TRANSFORMER FAN SUPPLY
11A	SERVICE BOARD	CONTROL POINT SERVICE BOARD	SEE NOTE 10	A	1	R	ACTIVE NEUTRAL CONTROL POINT SUPPLY
1ACB 2ACB 3ACB	TRANSFORMER AIR CIRCUIT BREAKER	TRANSFORMER PROTECTION PANEL	4C 7/0.67	1	1	R	NEG TRIP TRIP
4ACB	CUSTOMER SUPPLY 1 AIR CIRCUIT BREAKER	CUSTOMER SUPPLY 1 OC PROTECTION PANEL	2C 2.5mm <sup>2</sup>	1	1	R	NEG TRIP TRIP
5ACB	CUSTOMER SUPPLY 2 AIR CIRCUIT BREAKER	CUSTOMER SUPPLY 2 OC PROTECTION PANEL	2C 2.5mm <sup>2</sup>	1	1	R	NEG TRIP TRIP
1CS 2CS	CUSTOMER SUPPLY OC CT'S	CUSTOMER SUPPLY OC PROTECTION PANEL	8C 7/0.67	21 22 23 24 25 26 27 28	1 2 3 4 5 6 7 8	R W B GR A NON POL B NON POL C NON POL SPARE SPARE	CUSTOMER SUPPLY OC PROTECTION
3CS	CUSTOMER SUPPLY OC PROTECTION PANEL	SUMMATED OC PROTECTION PANEL	2C 7/0.67	2/OC 10	1	R	TRIP PROT -VE
4CS	CUSTOMER SUPPLY OC PROTECTION PANEL	SUMMATED OC PROTECTION PANEL	2C 7/0.67	2/OC 10	1	R	TRIP PROT -VE
1CT 2CT 3CT	HV DIFF CT'S	TRANSFORMER PROTECTION PANEL	8C 7/0.67	31H 32H 33H 34H 35H 36H SP SP	1 2 3 4 5 6 7 8	R W B GR A NON POL B NON POL C NON POL SPARE SPARE	TRANSFORMER DIFFERENTIAL PROTECTION
4CT 5CT 6CT	LV DIFF CT'S	TRANSFORMER PROTECTION PANEL	8C 7/0.67	31 32 33 34 35 36 37 38	1 2 3 4 5 6 7 8	R W B GR A NON POL B NON POL C NON POL SPARE SPARE	TRANSFORMER DIFFERENTIAL PROTECTION
1D	BATTERY CHARGER	TRIPPING BATTERIES	2C 7/0.67	10u	1	R	PROT -VE PROT -VE
2D	TRIPPING BATTERIES	TRANSFORMER 1 PROTECTION PANEL	2C 7/0.67	10u	1	R	PROT -VE PROT -VE
3D	TRANSFORMER 1 PROTECTION PANEL	TRANSFORMER 2 PROTECTION PANEL	2C 7/0.67	10u	1	R	PROT -VE PROT -VE
4D	TRANSFORMER 2 PROTECTION PANEL	TRANSFORMER 3 PROTECTION PANEL	2C 7/0.67	10u	1	R	PROT -VE PROT -VE
5D	TRANSFORMER 3 PROTECTION PANEL	SUMMATED OC PROTECTION PANEL	2C 7/0.67	10u	1	R	PROT -VE PROT -VE
6D	SUMMATED OC PROTECTION PANEL	BATTERY TEST BOX	2C 7/0.67	10u	1	R	PROT -VE PROT -VE
EFI	EFI CT	EFI	CT LEADS	21 22 23 24 25 26	-	-	A PHASE B PHASE C PHASE A NON POL B NON POL C NON POL
1HV 2HV 3HV	TRANSFORMER PROTECTION PANEL	RMICB	2C 7/0.67	1	1	R	NEG TRIP RMICB TRIP
1M	TRANSFORMER 1 AIR CIRCUIT BREAKER	TRANSFORMER 2 AIR CIRCUIT BREAKER	2C 7/0.67	28	1	R	B PHASE B NON POL
2M	TRANSFORMER 2 AIR CIRCUIT BREAKER	TRANSFORMER 3 AIR CIRCUIT BREAKER	2C 7/0.67	28	1	R	B PHASE B NON POL
3M	TRANSFORMER 3 AIR CIRCUIT BREAKER	SUBSTATION MDI ON SERVICE BOARD	2C 7/0.67	28	1	R	B PHASE B NON POL
1T 2T 3T	TRANSFORMER PROTECTION PANEL	TRANSFORMER PROTECTION PANEL	2C 7/0.67	10Th 2Th	1	R	THERMAL TRIP THERMAL TRIP
41T 42T 43T	TRANSFORMER PROTECTION PANEL	SUMMATED OC PROT PANEL	4C 7/0.67	21 22 23 24	1 2 3 4	R W B Bk	A PHASE B PHASE C PHASE NEUTRAL
44T 45T 46T	TRANSFORMER PROTECTION PANEL	SUMMATED OC PROT PANEL	2C 7/0.67	2/1 SP	1	R	TRIP SPARE



REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR TENDERS
2	REVISED TO REFLECT COMMENTS
3	REVISED TO REFLECT COMMENTS
4	REVISED TO REFLECT COMMENTS
5	REVISED TO REFLECT COMMENTS
6	REVISED TO REFLECT COMMENTS
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14	REVISED TO REFLECT COMMENTS
15	REVISED TO REFLECT COMMENTS
16	REVISED TO REFLECT COMMENTS

**NETWORK STANDARD**  
**Ausgrid**  
 DESIGN SERVICES  
 24 CAMPBELL ST SYDNEY NSW 2000

SCALE	NTS
DESIGNED	-
DRAWN	PWJ
CHECKED	PIE
APPROVED	PBH
DATE	10/09/07
PROJECT No.	-
PROJECT NUMBER	208/6/9/4

**RMICB SUBSTATIONS WITH E TYPE LV BOARD CABLING DIAGRAM AND SCHEDULE**

DRAWING No **178231** SHEET - AMD 5 SIZE A0