

REF	DESCRIPTION
-E1	ANTI-CONDENSATION HEATER
-H1	UNDERVOLTS LAMP
-H2	ANTI-CONDENSATION HEATER LAMP
-K1	UNDERVOLTS MODULE
-K2	UNDERVOLTS SLAVE RELAY
-K3	COUNTER EMF MODULE
-K4	COUNTER EMF CONTACTOR
-M1	BATTERY CURRENT LIMIT MODULE
-P1	LOAD 2 VOLTMETER
-P2	BATTERY 2 AMMETER
-S1	INPUT 1 ISOLATOR (ON DIST PANEL L3A)
-S2	INPUT 2 ISOLATOR
-S3	BUS COUPLER (ON DIST PANEL L3A)
-S4	BATTERY 2 ISOLATOR
-S5	ANTI-CONDENSATION HEATER SWITCH
-S6	THERMOSTAT

SETTING	VOLTS	HIGHEST CABLE REFERENCE	TIME	OHMS
LOW VOLTS	44.4		10SEC	

- NOTES :-
- S1, 2 & 3 (INPUT 1 & 2 ISOLATORS AND BUS COUPLER RESPECTIVELY) ARE PROVIDED WITH ONE KEY REMOVABLE IN THE CLOSED POSITION ONLY. OPENING AN ISOLATOR TRAPS THE KEY, HENCE ONLY ONE ISOLATOR CAN BE OPENED AT ANY ONE TIME. S1 IS INPUT 1 ISOLATOR, S3 IS THE BUS COUPLER, BOTH FITTED IN DIST PANEL L3A. SEE CIRCUIT J2139P31.
  - ALL RELAY/MODULE CONTACTS ARE SHOWN IN THE DE-ENERGISED POSITION.
  - NORMAL STATUS - DE-ENERGISED
  - NORMAL STATUS - NORMALLY CLOSED

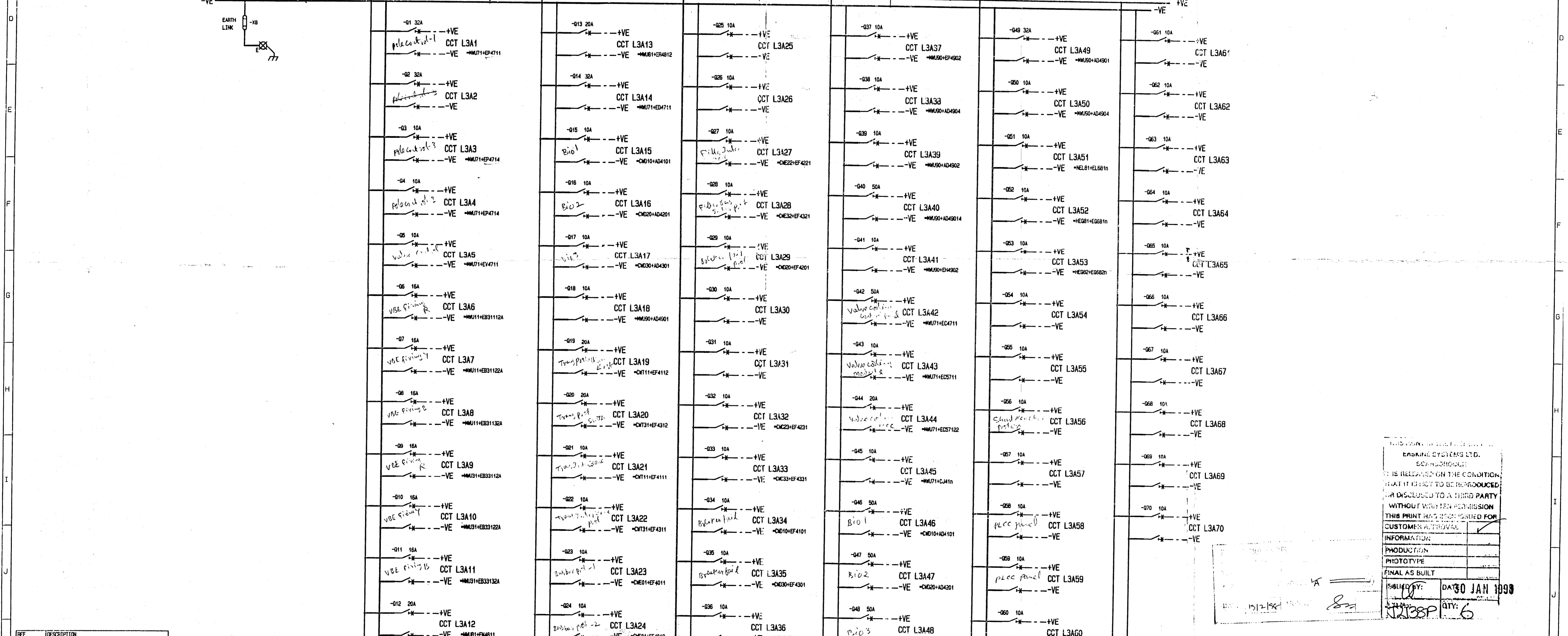
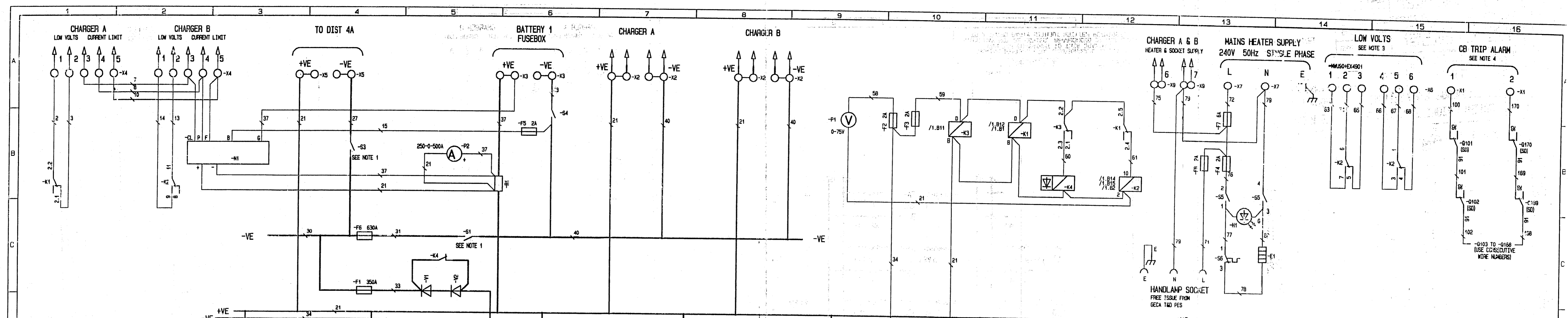
PROJECT :- POWER GRID CORPORATION OF INDIA LIMITED  
1 X 500MM HVDC BACK-TO-BACK PROJECT  
VISAKHAPATNAM

DATE: 30 JAN 1998  
DRAWN BY: [Signature]  
CHECKED BY: [Signature]

REV	MODIFICATION	BY/DATE	DESCRIPTION	CHECKED	DATE	SCALE	SHT.	OF	REV.
1	APPROVAL MODS	PVS/26/01/98	50V DC DB-II DISTRIBUTION PANEL L4A CIRCUIT DIAGRAM		16DEC97		1	1	1

ERSKINE

J2138PCD1 A1



REF	DESCRIPTION
-E1	ANTI-CONDENSATION HEATER
-H1	UNDERVOLTS LAMP
-H2	ANTI-CONDENSATION HEATER LAMP
-K1	UNDERVOLTS MODULE
-K2	UNDERVOLTS SLAVE RELAY
-K3	GENF MODULE
-K4	GENF CONTACTOR
-M1	BATTERY CURRENT LIMIT MODULE
-M2	LOAD 1 VOLTMETER
-P2	BATTERY 1 AMMETER
-S1	INPUT 1 ISOLATOR
-S2	INPUT 2 ISOLATOR (ON DIST PANEL L&A)
-S3	BUS COUPLER
-S4	BATTERY 1 ISOLATOR
-S5	ANTI-CONDENSATION HEATER SWITCH
-S6	THERMOSTAT

SETTING	HIGHEST CABLE REFERENCE		170
	VOLTS	AMPS	
LOW VOLTS	44.4		10SEC

- NOTES :-
- S1, 2 & 3 (INPUT 1 & 2 ISOLATORS AND BUS COUPLER RESPECTIVELY) ARE PROVIDED WITH ONE KEY REMOVABLE IN THE CLOSED POSITION ONLY. OPENING AN ISOLATOR TRAPS THE KEY. HENCE ONLY ONE ISOLATOR CAN BE OPENED AT ANY ONE TIME. S2 IS INPUT 2 ISOLATOR FITTED IN DIST PANEL L&A. SEE CIRCUIT J2138PCD1
  - ALL RELAY/MODULE CONTACTS ARE SHOWN IN THE DE-ENERGISED POSITION
  - NORMAL STATUS - DE-ENERGISED
  - NORMAL STATUS - NORMALLY CLOSED

THIS DRAWING IS THE PROPERTY OF ERSKINE SYSTEMS LTD. SCARBOROUGH. IT IS RELEASED ON THE CONDITION THAT IT IS NOT TO BE REPRODUCED OR DISCLOSED TO A THIRD PARTY WITHOUT WRITTEN PERMISSION. THIS PRINT HAS BEEN ISSUED FOR CUSTOMER APPROVAL.

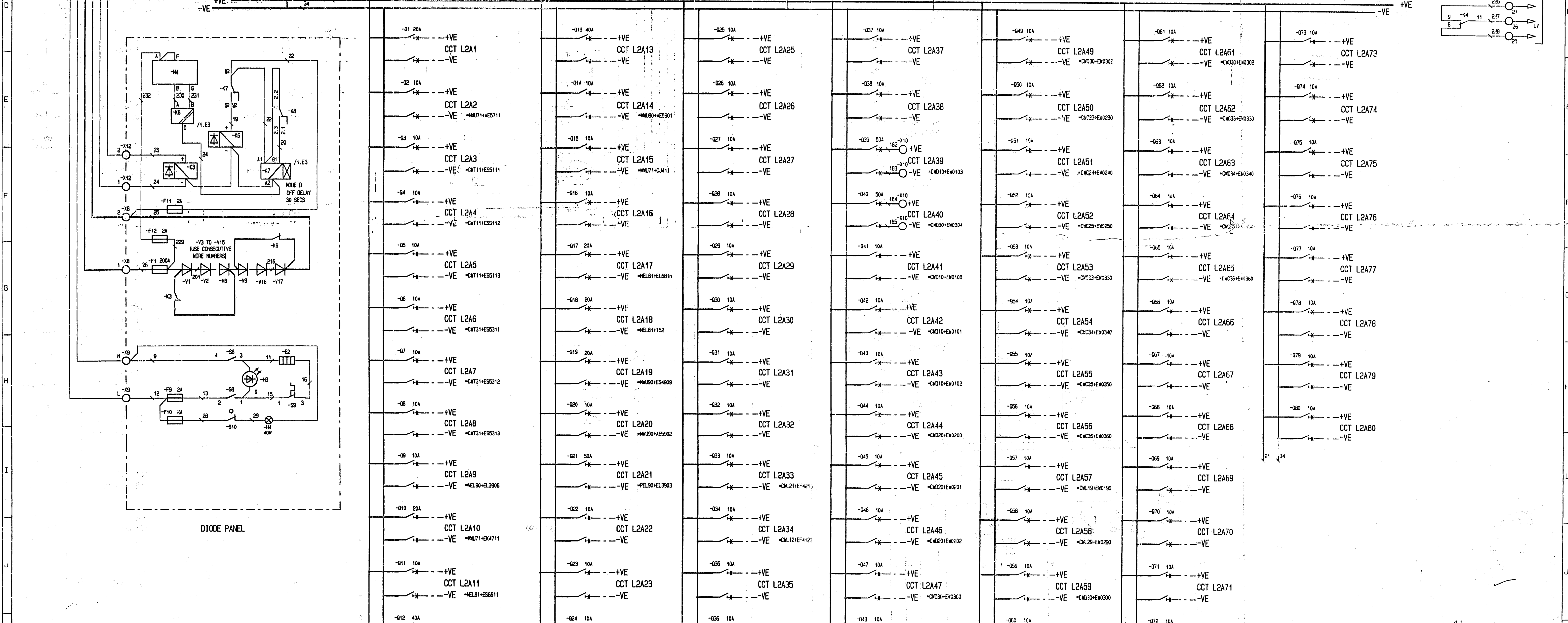
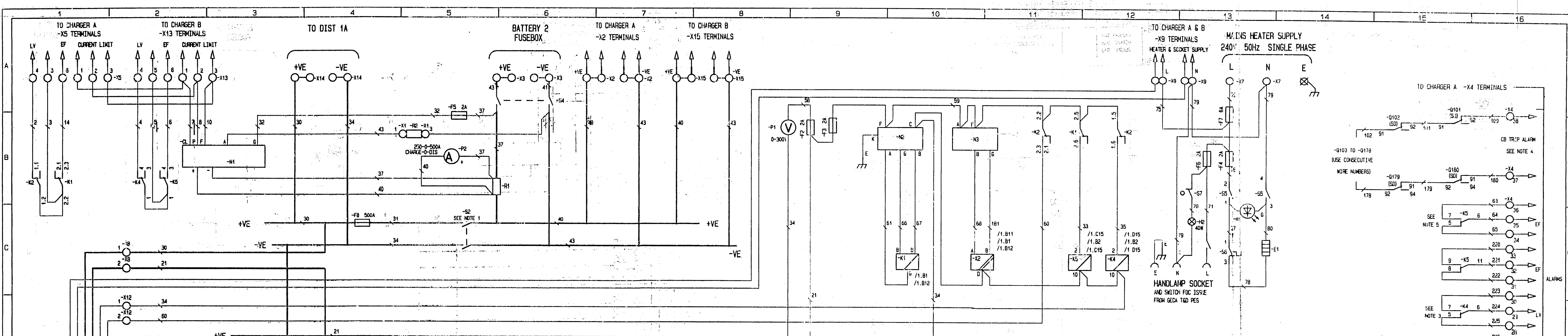
PRODUCTION	
PHOTO TYPE	
FINAL AS BUILT	
ISSUED BY: <i>[Signature]</i>	DATE: 30 JAN 1998
BY: <i>[Signature]</i>	QTY: 6

PROJECT :- POWER GRID CORPORATION OF INDIA LIMITED  
1 X 500MW HVDC BACK-TO-BACK PROJECT  
VISAKHAPATNAM

1	APPROVAL NOOS	PVS/26/01/98	DESCRIPTION	50V DCDB-I
REV	MODIFICATION	BY/DATE	EQUIPMENT TYPE	DISTRIBUTION PANEL L3A
			ALL CIRCUIT SYMBOLS DRAWN TO IEC617	CIRCUIT DIAGRAM
ERSKINE SYSTEMS LTD, SCARBOROUGH, ENGLAND			CUSTOMER (SEE ALSO ITO PSL)	H.L.A.
WHICH MAY NOT BE COPIED, REPRODUCED OR DISCLOSED TO A THIRD PARTY WITHOUT WRITTEN PERMISSION			ORDER No: REC03427	LOCATION
DATE	16/02/97	CHECKED	EXT	DRAWING No.
DATE	16/02/97	DATE	16/02/97	J2138PCB1
SCALE	SHT. 1	OF	1	REV. 1



(FILE 3403)



REF	DESCRIPTION
-E1/2	ANTI-CONDENSATION HEATER
-H1/3	HEATER SUPPLY ON LED
-P2/4	PANEL LAMP
-R1	EARTH FAULT MODULE
-S2/8	INVERTER TO HEATER MODULE
-X/6	TEMP CONTACTOR
-K4	LOW VOLTS SLAVE RELAY
-K5	EARTH FAULT SLAVE RELAY
-K7	DELAY OFF TIMER
-M1	BATTERY CURRENT LIMIT MODULE
-M2	EARTH FAULT POWER SUPPLY MODULE
-M3/4	PANEL LAMP MODULE
-P1	LONG VOLTAGE RELAY
-P2	BATTERY AMMETER

REF	DESCRIPTION
-S1	DOORING RESISTOR
-S2	INPUT 1 ISOLATOR (IN DIST PANEL L1A)
-S3	INPUT 2 ISOLATOR
-S4	BUS COUPLER (IN DIST PANEL L1A)
-S5/8	BATTERY ISOLATOR
-S6/9	HEATER SUPPLY SWITCH
-S7/10	THERMOSTAT
-S8	PANEL LAMP DOOR SWITCH

SETTING	VOLTS	HIGHEST CABLE REFERENCE	232
		AMPS	DAYS
LOW VOLTS	199.0		10SEC
BATTERY CURRENT LIMIT		184.0	
EARTH FAULT			100K

- NOTES :-
- S1, 2 & 3 (INPUT 1 & 2 ISOLATORS AND BUS COUPLER RESPECTIVELY) ARE PROVIDED WITH ONE KEY REMOVABLE IN THE CLOSED POSITION ONLY. OPENING AN ISOLATOR/COUPLER TRIPS THE KEY. REMOVE ONLY ONE ISOLATOR/COUPLER CAN BE OPENED AT A TIME. S1 IS INPUT 1 ISOLATOR. S3 IS THE BUS COUPLER. BOTH FITTED IN DIST PANEL L1A
  - ALL RELAY/MODULE CONTACTS ARE SHOWN IN THE DE-ENERGISED POSITION
  - NORMAL STATUS - ENERGISED
  - NORMAL STATUS - NORMALLY CLOSED
  - NORMAL STATUS - DE-ENERGISED

PROJECT :-

**POWER GRID CORPORATION OF INDIA LIMITED**  
**1 X 500MM HVDC BACK-TO-BACK PROJECT**  
**VISAKHAPATNAM**

23 OCT 1999

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REV	DESCRIPTION	BY/DATE	DESCRIPTION	DRAWN	P/S
3	FINAL BUILD MODS	P/S 4N698	DISTRIBUTION PANEL L2A/DIODE PANEL		
2	DIODE ENCLOSURE/CONTROLS ADDED	P/S 5M198	CIRCUIT DIAGRAM	DATE	31M199
1	APPROVAL MODS - K4,5 ADDED	P/S 1M198		CHECKED	ENT

ERSKINE SYSTEMS LTD. SCARBOROUGH, ENGLAND  
 CUSTOMER: SEC ALSTHOM T&D P&L  
 ORDER NO: HED03434

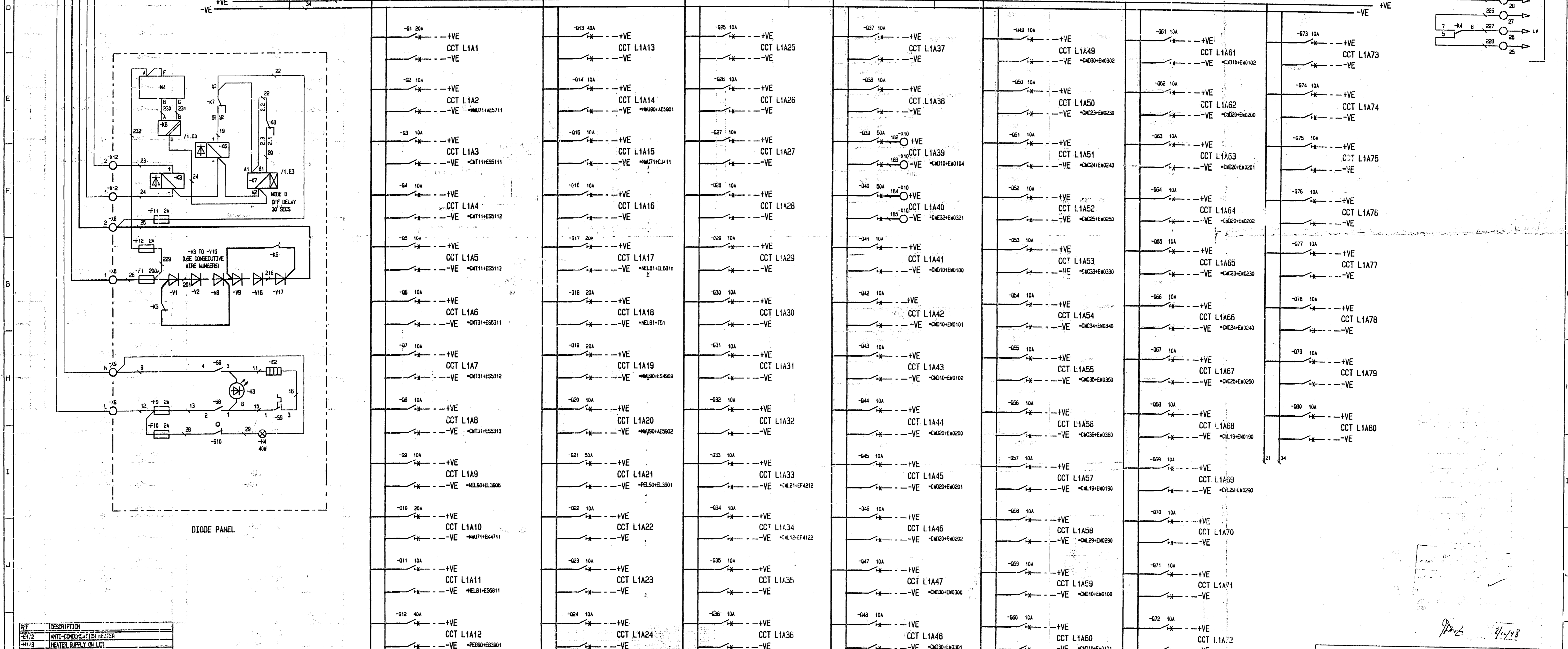
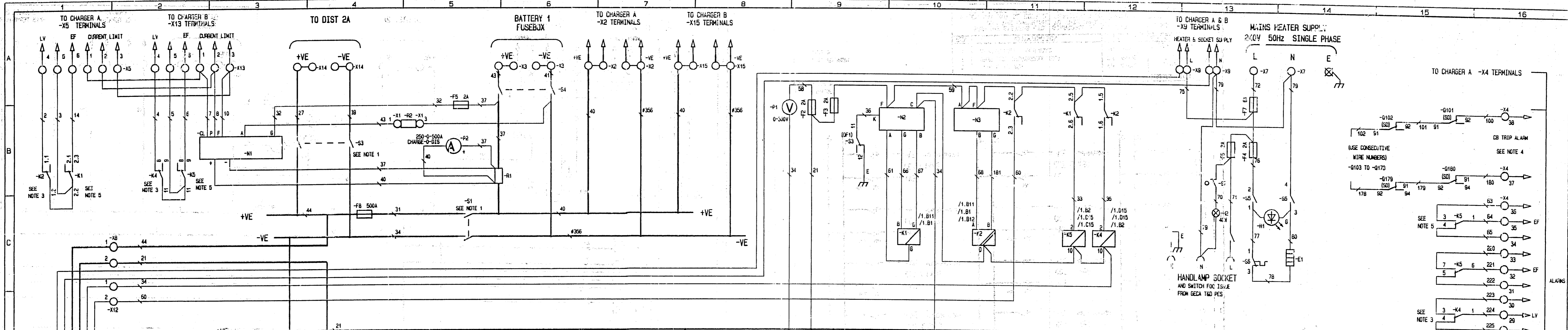
H.L.A. LOCATION

SCALE: 1 OF 1

DRAWING NO: **J2503RCD1**

ORIGINAL SIZE: **A1**

REV: 3



REF	DESCRIPTION
-E1/2	ANTI-CORROSION HEATER
-H1/3	HEATER SUPPLY ON LEFT
-H2/4	PANEL LAMP
-E1	EARTH FAULT MODULE
-E2/5	UNGROUNDING MODULE
-C1/6	DEF CONTACTOR
-K4	LOW VOLTS SLAVE RELAY
-K5	EARTH FAULT SLAVE RELAY
-T1	RELAY OFF TIMER
-N1	BATTERY CURRENT LIMIT MODULE
-E1	EARTH FAULT POWER SUPPLY MODULE
-H1/4	POWER SUPPLY MODULE
-S1	LOAD VOLTMETER
-S2/5	HEATER SUPPLY SWITCH
-S3/6	THERMISTAT
-S7/10	PANEL LAMP DOOR SWITCH

REF	DESCRIPTION	HIGHEST CABLE REFERENCE	232
-R2	DROPPING RESISTOR		
-S1	INPUT 1 ISOLATOR		
-S3	BUS COUPLER		
-S4	BATTERY ISOLATOR		
-S5/5	HEATER SUPPLY SWITCH		
-S7/10	PANEL LAMP DOOR SWITCH		

SETTING	VOLTS	AMPS	TIME	DWG
LOW VOLTS	198.0		10SEC	
BATTERY CURRENT LIMIT		184.0		
EARTH FAULT			100K	

- NOTES:-
- S1, 2 & 3 (INPUT 1 & 2 AND BUS COUPLER RESPECTIVELY) ARE PROVIDED WITH ONE KEY ONLY, WHICH IS REMOVABLE IN THE CLOSED POSITION ONLY. OPENING AN ISOLATOR TRAPS THE KEY. HENCE ONLY ONE ISOLATOR CAN BE OPENED AT ANY ONE TIME. S2 IS INPUT 2 ISOLATOR FITTED IN DIST PANEL 2A. SEE CIRCUIT 26230001.
  - ALL RELAY/MODULE CONTACTS ARE SHOWN IN THE DE-ENERGISED POSITION.
  - NORMAL STATUS - ENERGISED
  - NORMAL STATUS - NORMALLY CLOSED
  - NORMAL STATUS - DE-ENERGISED

POWER GRID CORPORATION OF INDIA LIMITED  
 PROJECT :- 1 X 500MM HVDC BACK-TO-BACK PROJECT  
 VISAKHAPATNAM  
 23 OCT 1993

3	FINAL BUILD NOS	PVS 44638	DESCRIPTION	220V DCB-I	CRRAWN	PVS
2	DIODE ENCLOSURE/CONTROLS ADDED	PVS 44638	DISTRIBUTION PANEL L1A/DIODE PANEL		DATE	20MAR98
1	APPROVAL NOS. -K4,5 ADDED	PVS 144958	CIRCUIT DIAGRAM		CHECKED	ENT
REV		MODIFICATION	BY/DATE	EQUIPMENT TYPE	DRAWING NO.	
				ALL CIRCUIT SYMBOLS DRAWN TO IEC617	J2503RCC1	
				ERKINSKINE SYSTEMS LTD, SCARBOROUGH, ENGLAND	DATE	20MAR98
				CUSTOMER GED ALTHAM T&J PES.	SCALE	SHT. 1 OF 1
				ORDER No RED33434	LOCATION	REV. 5



2

1

### SINGLE LINE DIAGRAM OF HVAC / POLE-1 / POLE-2 AUXILIARY AC SUPPLY

