

END CUSTOMER: APTRANSCO

PO No.: CE/Const-I/SE/PM-I/SAS/APT-e-11/2011/RC-4073/2011
DT.28.07.2011

PO No.: CE/Const-I/SE/PM-I/SAS/APT-e-21/2011/RC-4075/2011
DT.02.08.2011

PO No.: CE/Const-I/SE/PM-I/SAS/APT-e-29/2011/RC-4079/2011
DT.18.08.2011

33KV TWIN FEEDER
BAY CONTROL AND PROTECTION PANEL

SL.NO.	DESCRIPTION	DWG.NO.
1.	GENERAL ARRANGEMENT	ER1812,13&50 GA DFDCR11
2.	BILL OF MATERIAL	ER1812,13&50 BM DFDCR11
3.	SCHEMATIC DIAGRAM	ER1812,13&50 SC DFDCR11

262.7



EASUN REYROLLE LTD
HOSUR, TAMIL NADU
INDIA

END CUSTOMER: APTRANSCO

PO No.: CE/Const-I/SE/PM-I/SAS/APT-e-11/2011/RC-4073/2011

DT.28.07.2011

PO No.: CE/Const-I/SE/PM-I/SAS/APT-e-21/2011/RC-4075/2011

DT.02.08.2011

PO No.: CE/Const-I/SE/PM-I/SAS/APT-e-29/2011/RC-4079/2011

DT.18.08.2011

33KV TWIN FEEDER
BAY CONTROL AND PROTECTION PANEL

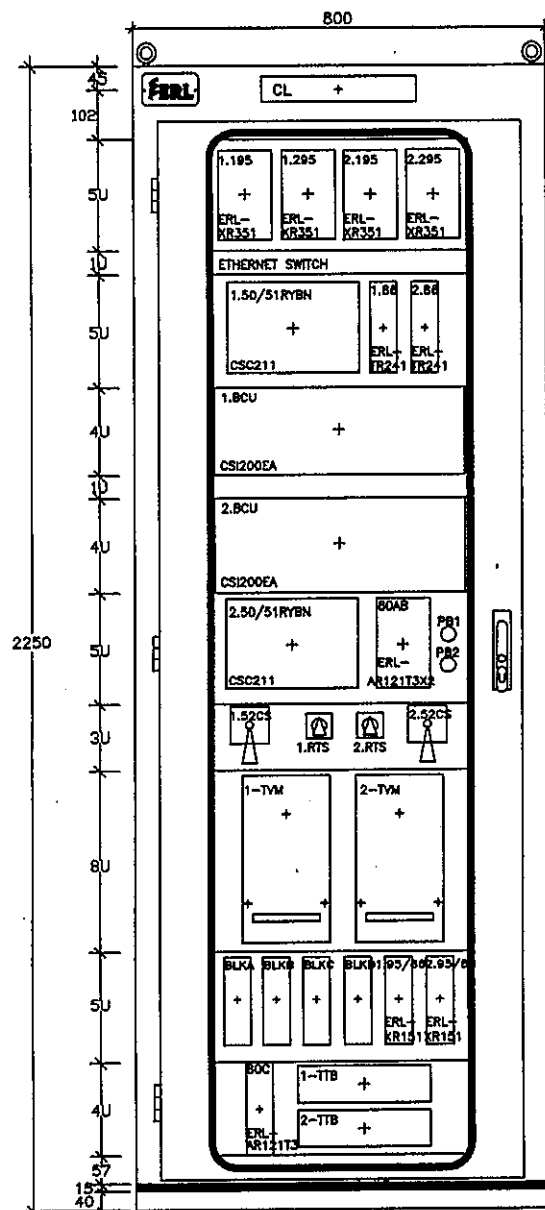
SL.NO.	DESCRIPTION	DWG.NO.
1.	GENERAL ARRANGEMENT	ER1812,13&50 GA DFDCR11
2.	BILL OF MATERIAL	ER1812,13&50 BM DFDCR11
3.	SCHEMATIC DIAGRAM	ER1812,13&50 SC DFDCR11

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.



EASUN REYROLLE LTD
HOSUR , TAMIL NADU
INDIA



FRONT VIEW
PANEL REF: 3LP

CIRCUIT LABEL : 33KV TWIN FEEDER BAY CONTROL AND PROTECTION PANEL
PANEL TYPE : SIMPLEX (SWING FRAME)
QTY : 18 Nos.

ZCP1812

S.NO	SUBSTATION NAME	QTY
1	DISINCHERLA S/S	02
2	TANGUTURIN S/S	02

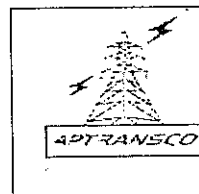
ZCP1813

3	NARASANNAPETA S/S	02
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ZCP1850

4	KALWA SRIRAMPUR	02
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APPROVED FOR TURNKEY PROJECTS
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.



Standardised Drawings for 33 kV Twin Feeder Bay Control and Protection panels with BCU (M/s. Easun Reyrolle Ltd., Hosur make) ER 1812, 13 & 50 GA DFDCR11 (1-3)

STD/DWG/Approval No. 262.7 Revision No. 0

Prepared & Approved during January - 2012

NOTE:

- 1) 1U = 44.25mm
- 2) THIS DRAWING IS APPLICABLE FOR BOTH SPEC. No APT E-11 & E-21

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	13.10.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M

ERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812,13&50 GA DFDCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : GENERAL ARRANGEMENT	CONSULTANT:
DWG. TITLE : GENERAL ARRANGEMENT FOR 33KV TWIN FEEDER BAY CONTROL&PROTN. PANEL	P.O. NO.: CE/Const-I/SE/PM-1/SAS/APT -e-11/2011/D.No.84/2011 D:23.06.2011 ERL REF.: ZCP1812&13 SCALE : NTS
	THIS SHT: 01 NEXT SHT: 02 TOT SHT: 03

WIRING :

2.5 SQ.mm MULTI STRANDS ANNEALED BARE COPPER CONDUCTOR
FOR CT, PT & EARTHING CIRCUITS

1.5 SQ.mm MULTI STRANDS ANNEALED BARE COPPER CONDUCTOR
FOR ALL OTHER CIRCUITS

2X2.5 SQ.MM MULTI STRANDS ANNEALED BARE COPPER CONDUCTOR
FOR ENERGY METER PT CIRCUITS

GASKET :

NEOPRENE GASKET

EARTH BAR :

25*6 mm TINNED COPPER BAR

COLOUR OF WIRING :

RED, YELLOW, BLUE FOR R, Y, B PHASE RESPECTIVELY - CT & PT CIRCUITS

BLACK - NEUTRAL

GREY - DC CONTROL CIRCUITS

WHITE - 1Ø AC CIRCUITS

GREEN - EARTHING

PANEL SHEET THICKNESS :

3mm - FOR BASE FRAME, FRONT SHEET

2mm - FOR SIDES, TOP & BOTTOM PORTIONS

DEGREE OF PROTECTION:

IP54

PAINTING : (POWDER COATING)

THICKNESS: MINIMUM 60 MICRONS

EXTERIOR : LIGHT GREY TO SHADE 631 OF IS:5 - SEMI GLOSSY FINISH

INTERIOR : WHITE - GLOSSY FINISH

BASE FRAME: BLACK - GLOSSY FINISH

AUX. DC SUPPLY : 220V

AUX. AC SUPPLY : 1Ø , 50Hz , 230V AC

APPROVED FOR TURNKEY PROJECTS

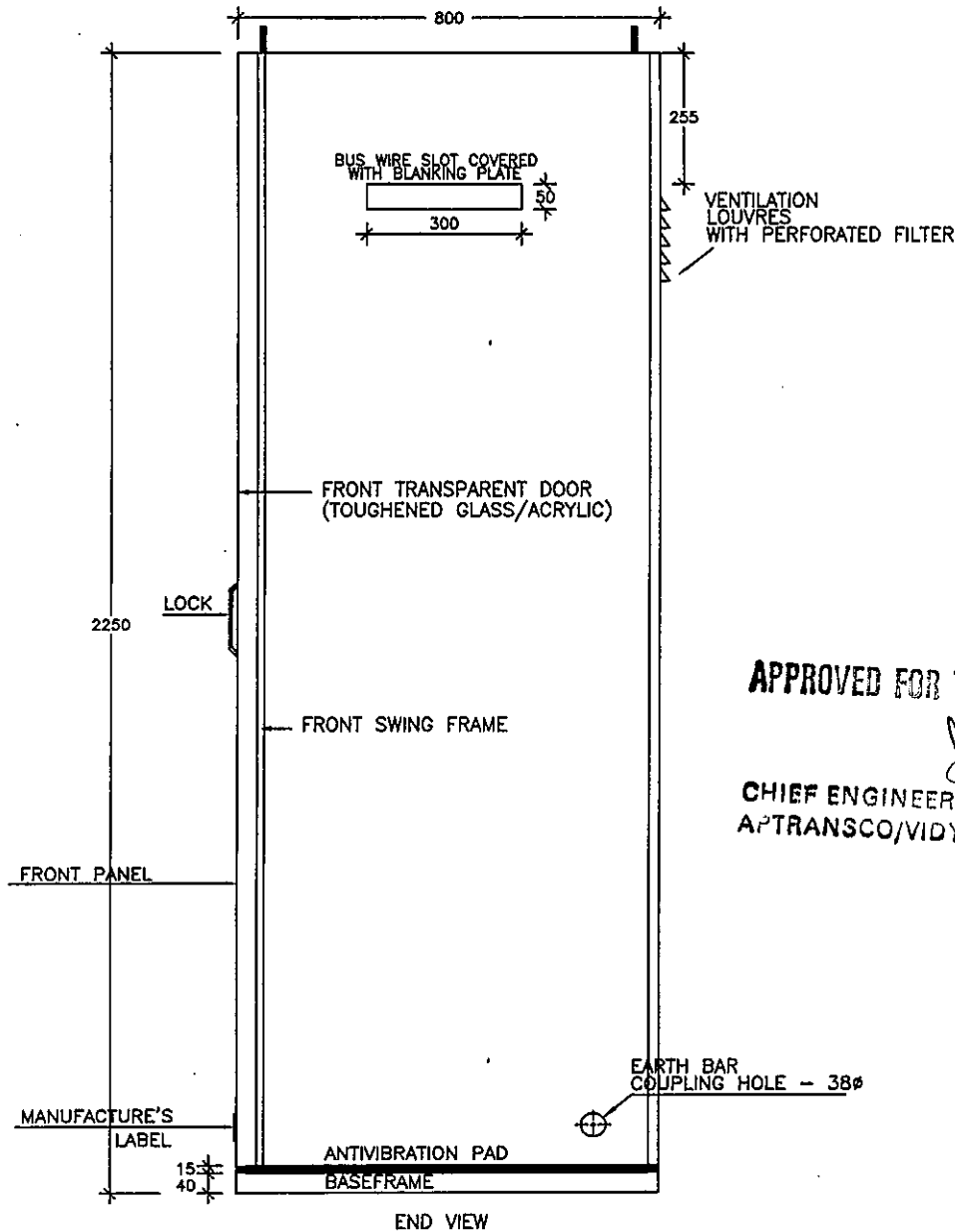
M. Didi
CHIEF ENGINEER, CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

Q	ASBUILT	13.10.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



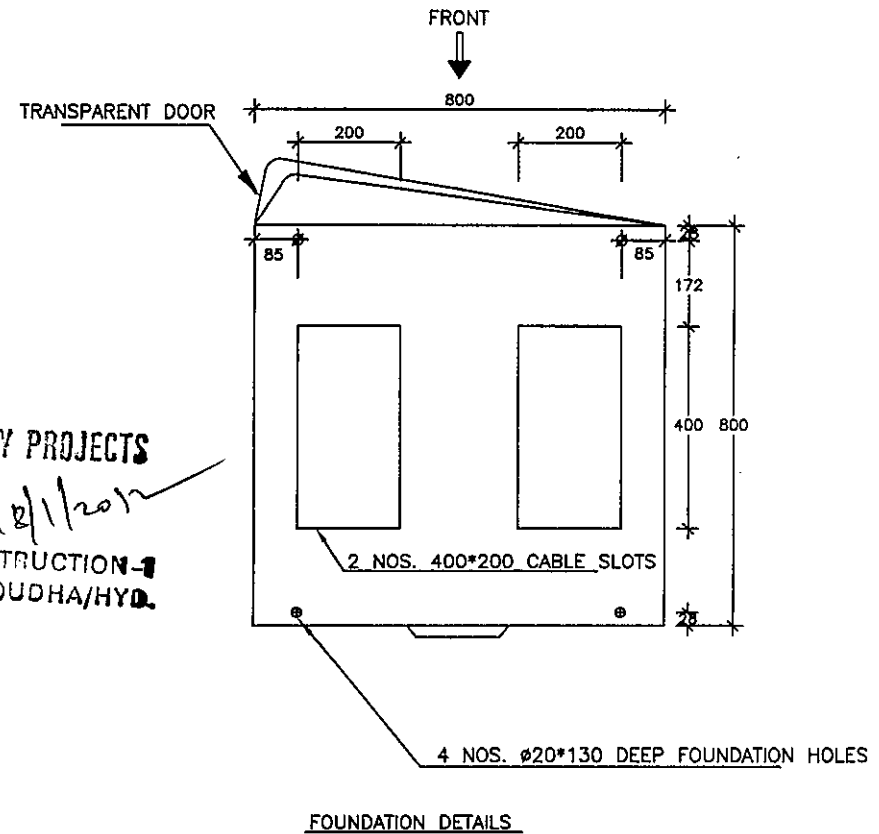
EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO :ER1812&1813 GA DFDCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :CUBICLE DETAILS	CONSULTANT:
P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT	THIS SHT: 03
-e-11/2011/D.No.84/2011 D:23.06.2011	NEXT SHT:--
DWG. TITLE :GENERAL ARRANGEMENT FOR 33KV TWIN FEEDER BAY CONTROL&PROTN. PANEL	ERL REF.:ZCP1812&13 SCALE : NTS TOT SHT: 03



APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.



C*	ASBUILT	13.10.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

ERL

EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

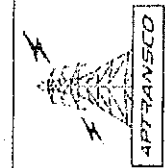
DWG.NO :ER1812&1813 GA DFDCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :END VIEW & FOUNDATION DETAILS	CONSULTANT:
DWG. TITLE :GENERAL ARRANGEMENT FOR 33KV TWIN FEEDER BAY CONTROL&PROTN. PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT -e-11/2011/D.No.84/2011 0:23.06.2011
ERL REF. :ZCP1812&13	SCALE : NTS
	TOT SHT: 03
	THIS SHT: 02
	NEXT SHT: 03

 Easun Reyrolle Limited BILL OF MATERIAL					
PANEL REF.	GA REF.	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
33KV TWIN FEEDER BAY CONTROL AND PROTECTION PANEL					
3LP	CL	CIRCUIT LABEL	PVC BLACK - 300 mm(W) X 50 mm (H)	ERL	1
	3LP	FABRICATED PANEL	TYPE : SIMPLEX - SWING FRAME DIMENSIONS : 800(W)X800(D)X2250(H) (INCLUDING AVP-15mm) COLOUR : EXTERIOR : LIGHT GREY TO SHADE 631 OF ISS. INTERIOR : GLOSSY WHITE BASE FRAME : BLACK	ERL	1
	1.50/51RYBN	NON-DIRECTIONAL OVER CURRENT AND EARTH FAULT RELAY FOR FEEDER-1	TYPE: CSC211- M1B, V2 WITH IEC 61850 COMMUNICATION PROTOCOL NUMERICAL NON DIRECTIONAL OVER CURRENT & EARTH FAULT RELAY INTERFACES SUITABLE FOR RJ 45 CONNECTION CT SEC : 1A, PT SEC : 110V AUX.SUPPLY: 220V DC HIGHSET O/C PROTECTION (FWD OR REV OR NON DIR) HIGHSET E/F PROTECTION(FWD OR REV OR NON DIR) INVERSE O/C PROTECTION (FWD OR REV OR NON DIR) INVERSE E/F PROTECTION(FWD OR REV OR NON DIR) SENSITIVE E/F PROTECTION CIRCUIT BREAKER FAILURE PROTECTION DISTURBANCE RECORDER WITH RECORDING FACILITY EVENT RECORDER WHICH STORES UP TO 1000 EVENTS	ERL	1
	1.BCU	BAY CONTROL UNIT	TYPE: CSI 200EA WITH IEC 61850-8-1 STATION COMMUNICATION PROTOCOL OPTICAL INTERFACES SUITABLE FOR SC CONNECTORS 1 AI MODULE (8U/4I), 1 DI MODULE (48DI'S), 1 DO MODULE (14 DO'S) 1 DT MODULE(5 DT'S) CT SEC : 1 AMP PT SEC : 110V AC (PH-PH) AUX. SUPPLY : 220V DC SIZE : 4U, 19" GRAPICAL HMI, PROVIDES WITH SYNCHROCHECK(RSYN,25) METERING, A, V, MW, MVAR, PF, HZ. MONITORING TRIPPING LOGIC(PTRC,94)	ERL	1

Standardised Drawings for 33 kV Twin Feeder Bay Control and Protection panels with BCU (M/s. **Easun Reyrolle Ltd., Hosur** make) ER 1812, 50 & 51 BM DFDCR11 (1-6)

STD/DWG/Approval No. 262.7 Revision No. 0

Prepared & Approved during **January - 2012**



DATE : 05.11.11
PRED. BY :V.A
CHECKED :J.V
ISSUE:ASBUILT

APPROVED FOR TURNKEY PROJECTS

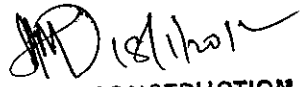
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

33KV TWIN FEEDER BAY CONTROL & PROT.N. PANEL

ER1812,50&51 BM DFDCR11
SHT 1 OF6

 Easun Reyrolle Limited BILL OF MATERIAL					
PANEL REF.	GA REF.	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
	1-TVM	TRIVECTOR METER FOR FEEDER-1	CT RATIO: 400-200/1A PT RATIO: 33kV/ $\sqrt{3}$ /110V/ $\sqrt{3}$ CLASS OF ACCURACY: 0.2 3PHASE, 4 WIRE, 3 ELEMENT, WITH IMPORT & EXPORT OF MWH, MVARH & MVAH WITH RS 485 PORT OPTICAL/RS 232 PORT - 1 NO WITH ABT FEATURE	SEMS	1
	1.86	MASTER TRIP RELAY	TYPE : TR241 CASE SIZE : E2 AUX. SUPPLY : 220V DC CONTACTS : 8M2B HR & ER WD : 8112W00138	ERL	1
	1.195 1.295	TRIP CIRCUIT SUPERVISION RELAY	TYPE : XR351 CASE SIZE : E4 AUX.SUPPLY : 220V DC CONTACT : 2M2B SR WD : 8112W00132	ERL	2
	1.52CS	CONTROL SWITCH FOR CB-52	TYPE : SPRING RETURN TO NEUTRAL WITH LMD & LOCKING FACILITY IN NEUTRAL HANDLE TYPE : PISTOL GRIP POSITION : 3 , WAYS : 8 POS. : TRIP - NEUTRAL - CLOSE (3 IN TRIP, 2 IN CLOSE, 1 IN AFTER CLOSE, 1 IN NEUTRAL, 1 IN AFTER TRIP)	SWITRON	1

APPROVED FOR TURNKEY PROJECTS


CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

DATE : 05.11.11
 PREP. BY : V.A
 CHECKED : J.V
 ISSUE: ASBUILT

33KV TWIN FEEDER BAY CONTROL & PROT.N. PANEL

ER1812,50&51 BM DFDCR11
 SHT 2 OF 6

 Easun Reyrolle Limited BILL OF MATERIAL					
PANEL REF.	GA REF.	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
	PB1	PUSH BUTTON FOR MASTER TRIP RELAY RESET(1.86)	COLOUR : BLUE ACTUATOR CONTACT : 2M DIA : 22.5 mm	SHAYADHRI	1
	1.95/86	SUPERVISION RELAY FOR 1.86 MASTER TRIP RELAY	TYPE : XR151 CASE SIZE : E2 CONTACT : 2M2B SR AUX.SUPPLY : 220V DC WD : 8112W00146	ERL	1
	1-TTB	TEST TERMINAL BLOCK	REAR CONNECTED LINK TYPE 3 PHASE, 4 WIRE	DEEPL	1
	80AB	DC SOURCE-1/AC SUPPLY SUPERVISION RELAY	TYPE : AR121T3X2 AUX. SUPPLY : 220V DC/230V AC CONTACT : 2M2B, 2M2B SR CASE : E4 WD : 8112W00122	ERL	1
	1.RTS	RELAY TEST SWITCH FOR 1.50/51RYBN RELAY (FEEDER-1)	DOUBLE POLE TYPE : STAYPUT	SWITRON	1
	2.50/51RYBN	NON-DIRECTIONAL OVER CURRENT AND EARTH FAULT RELAY FOR FEEDER-2	TYPE: CSC211- M1B, V2 WITH IEC 61850 COMMUNICATION PROTOCOL NUMERICAL NON DIRECTIONAL OVER CURRENT & EARTH FAULT RELAY INTERFACES SUITABLE FOR RJ 45 CONNECTION CT SEC : 1A, PT SEC : 110V AUX.SUPPLY: 220V DC HIGHSET O/C PROTECTION (FWD OR REV OR NON DIR) HIGHSET E/F PROTECTION(FWD OR REV OR NON DIR) INVERSE O/C PROTECTION (FWD OR REV OR NON DIR) INVERSE E/F PROTECTION(FWD OR REV OR NON DIR) SENSITIVE E/F PROTECTION CIRCUIT BREAKER FAILURE PROTECTION DISTURBANCE RECORDER WITH RECORDING FACILITY EVENT RECORDER WHICH STORES UP TO 1000 EVENTS	ERL	1

APPROVED FOR TURNKEY PROJECTS

M. D. S. / 18/11/2011
CHIEF ENGINEER, CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

DATE : 05.11.11
 PREP. BY :V.A
 CHECKED :J.V
 ISSUE:ASBUILT

33KV TWIN FEEDER BAY CONTROL & PROT.N. PANEL

ER1812,50&51 BM DFDCR11
 SHT 3 OF6

**Easun Reyrolle Limited****BILL OF MATERIAL**

PANEL REF.	GA REF.	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
	2.BCU	BAY CONTROL UNIT	TYPE : CSI 200EA WITH IEC 61850-8-1 STATION COMMUNICATION PROTOCOL OPTICAL INTERFACES SUITABLE FOR SC CONNECTORS 1 AI MODULE (8U/4I), 1 DI MODULE (48DI'S), 2 DO MODULE (28 DO'S) CT SEC : 1 AMP PT SEC : 110V AC (PH-PH) AUX. SUPPLY : 220V DC SIZE : 4U, 19" GRAPICAL HMI, PROVIDES WITH SYNCHROCHECK(RSYN,25) METERING, A, V, MW, MVAR, PF, HZ. MONITORING TRIPPING LOGIC(PTRC,34)	ERL	1
	2.TVM	TRIVECTOR METER FOR FEEDER-2	CT RATIO: 400-200/1A PT RATIO: 33kV/ $\sqrt{3}$ /110V/ $\sqrt{3}$ CLASS OF ACCURACY: 0.2 3PHASE, 4 WIRE, 3 ELEMENT, WITH IMPORT & EXPORT OF MWH, MVARH & MVAH WITH RS 485 PORT OPTICAL/RS 232 PORT - 1 NO WITH ABT FEATURE	SEMS	1
	2.86	MASTER TRIP RELAY	TYPE : TR241 CASE SIZE : E2 AUX. SUPPLY : 220V DC CONTACTS : 8M2B HR & ER WD : 8112W00138	ERL	1
	2.195 2.295	TRIP CIRCUIT SUPERVISION RELAY	TYPE : XR351 CASE SIZE : E4 AUX.SUPPLY : 220V DC CONTACT : 2M2B SR WD : 8112W00132	ERL	2
	PB2	PUSH BUTTON FOR MASTER TRIP RELAY RESET(2.86)	COLOUR : BLUE ACTUATOR CONTACT : 2M DIA : 22.5 mm	SHAYADHRI	1

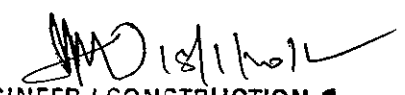
APPROVED FOR TURNKEY PROJECTS**CHIEF ENGINEER / CONSTRUCTION-1**
APTRANSCO/VIDYUTH SOU BANGALOREDATE : 05.11.11
PREP. BY : V.A
CHECKED : J.V
ISSUE: ASBUILT

33KV TWIN FEEDER BAY CONTROL & PROT.N. PANEL

ER1812,50&51 BM DFDCR11
SHT 4 OF 6

**Easun Reyrolle Limited****BILL OF MATERIAL**

PANEL REF.	GA REF.	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
	2.52CS	CONTROL SWITCH FOR CB-52	TYPE : SPRING RETURN TO NEUTRAL WITH LMD & LOCKING FACILITY IN NEUTRAL HANDLE TYPE : PISTOL GRIP POSITION : 3 , WAYS : 8 POS. : TRIP - NEUTRAL - CLOSE (3IN TRIP, 2 IN CLOSE, 1 IN AFTER CLOSE, 1 IN NEUTRAL, 1 IN AFTER TRIP)	SWITRON	1
	2.95/86	SUPERVISION RELAY FOR 2.86 MASTER TRIP RELAY	TYPE : XR151 AUX.SUPPLY : 220V DC CONTACT : 2M2B SR CASE SIZE : E2 WD : 8112W00146	ERL	1
	2.TTB	TEST TERMINAL BLOCK	REAR CONNECTED LINK TYPE 3 PHASE, 4 WIRE	DEEPL	1
	80C	DC SOURCE-2 SUPERVISION RELAY	TYPE : AR121T3 AUX. SUPPLY : 220V DC CONTACT : 2M2B SR CASE : E2 WD : 8112W00143	ERL	1
	2.RTS	RELAY TEST SWITCH FOR 50/51 RELAY (FEEDER-2)	DOUBLE POLE TYPE : STAYPUT	SWITRON	1
	ES	ETHERNET SWITCH	100MBPS	RUGGEDCOMM	1
	BLKA BLKB BLKC BLKD	TEST BLOCK FOR FDR-1 NON DIR. O/C & E/F CKT TEST BLOCK FOR FDR-2 NON DIR. O/C & E/F CKT TEST BLOCK FOR FDR-1 BCU CKT TEST BLOCK FOR FDR-2 BCU CKT	TYPE : MLG	ERL	4

APPROVED FOR TURNKEY PROJECTS
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.DATE : 05.11.11
PREP. BY : V.A
CHECKED : J.V
ISSUE: ASBUILT

33KV TWIN FEEDER BAY CONTROL & PROT.N. PANEL

ER1812,50&51 BM DFDCR11
SHT 5 OF 6

**Easun Reyrolle Limited****BILL OF MATERIAL**

PANEL REF.	GA REF.	DESCRIPTION	SPECIFICATION	MAKE	QTY/ PANEL
MOUNTED INSIDE					
3LP	1.RL1 TO 1.RL4	COMMAND RELAYS FOR BCU	CONTACTS :4M ,10A lth AUX. SUPPLY : 220V DC	C&S	4
	2.RL1 TO 2.RL4	COMMAND RELAYS FOR BCU	CONTACTS :4M ,10A lth AUX. SUPPLY : 220V DC	C&S	4
	DS/FL	FLUORESCENT LAMP WITH DOOR SWITCH	DOOR SWITCH OPERATED FLUORESCENT TUBE WITH 2" FITTING RATED VOLTAGE : 230V AC	REPUTED	1
	H, TH	SPACE HEATER WITH THERMOSTAT	60WATTS, 230V AC THERMOSTAT RANGE: 5-75 °C	SURYA TEMPTROL	1 1
	HS	ON/OFF HEATER SWITCH	1 POLE, 10A RATED VOLTAGE : 230V AC	SWITRON	1
	PS	POWER SOCKET WITH SWITCH	5/15A, 3 PIN SOCKET, 230V AC	ANCHOR	1
	ACMCB1 ACMCB2	MCB FOR AC SUPPLY	230V AC, 25A 230V AC, 20A	INDOASIAN	1
	DCMCB1,2 MCB 3,4,6,10,11,13,17 MCB 9,16 MCB 5,7,8,12,14,15	MCB FOR DC SUPPLY	220V DC, 32A 220VDC,4A 220VDC,6A 220VDC,10A	INDOASIAN	2 7 2 6
	FS, LK	FUSE, LINK	FUSE AND LINKS	INDOASIAN	AS PER SCHEME REQ.
	EB	EARTH BAR	TINNED COPPER BUS 25 X 6 mm	---	1SET
	TB	TERMINAL BLOCK	NON DISCONNECTING TYPE (WITH 20% SPARE TERMINALS)	CONNECTWELL	AS PER SCHEME REQ.
	TB	TERMINAL BLOCK	DISCONNECTING TYPE (WITH 20% SPARE TERMINALS)	CONNECTWELL	AS PER SCHEME REQ.

APPROVED FOR TURNKEY PROJECTS**CHIEF ENGINEER / CONSTRUCTION-1**
APTRANSCO/VIDYUTH SOUDHA/HYD.

33KV TWIN FEEDER BAY CONTROL & PROTN. PANEL

ER1812,50&51 BM DFD CR11
SHT 6 OF 6DATE : 05.11.11
PREP. BY : V.A
CHECKED : J.V
ISSUE: ASBUILT

SHT. NO	TITLE
01	LIST OF CONTENTS
02	LIST OF SYMBOLS
03	SINGLE LINE DIAGRAM
04	TRIP LOGIC
05	AC DISTRIBUTION CIRCUIT
06	AUXILIARY AC CIRCUIT
07	DC DISTRIBUTION CIRCUIT
08	DC DISTRIBUTION CIRCUIT
09	CT CIRCUIT
10	PT CIRCUIT
11	FDR-1 METERING CIRCUIT
12	FDR-2 METERING CIRCUIT
13	FDR-2 NON DIR. O/C & E/F PROTECTION CIRCUIT
14	FDR-2 NON DIR. O/C & E/F PROTECTION CIRCUIT
15	FDR-2 NON DIR. O/C & E/F PROTECTION CIRCUIT
16	FDR-2 NON DIR. O/C & E/F PROTECTION CIRCUIT
17	FDR-1 INTERLOCKING LOGIC
18	FDR-1 BCU CIRCUIT
19	FDR-1 BCU CIRCUIT
20	FDR-1 BCU CIRCUIT
21	FDR-1 BCU CIRCUIT
22	FDR-1 BCU CIRCUIT
23	FDR-1 BCU CIRCUIT
24	FDR-1 BCU CIRCUIT
25	FDR-1 BCU COMMAND RELAY CIRCUIT
26	FDR-2 INTERLOCKING LOGIC
27	FDR-2 BCU CIRCUIT
28	FDR-2 BCU CIRCUIT
29	FDR-2 BCU CIRCUIT
30	FDR-2 BCU CIRCUIT

SHT. NO	TITLE
31	FDR-2 BCU CIRCUIT
32	FDR-2 BCU CIRCUIT
33	FDR-2 BCU CIRCUIT
34	FDR-2 BCU COMMAND RELAY CIRCUIT
35	FDR-1 MASTER TRIP RELAY CIRCUIT
36	FDR-2 MASTER TRIP RELAY CIRCUIT
37	FDR-1 BREAKER CONTROL CIRCUIT
38	FDR-1 BREAKER CONTROL CIRCUIT
39	FDR-2 BREAKER CONTROL CIRCUIT
40	FDR-2 BREAKER CONTROL CIRCUIT
41	FDR-1 ISOL. CONTROL CIRCUIT
42	FDR-2 ISOL. CONTROL CIRCUIT
43	SPARE CONTACTS
44	EQUIPMENT REFERENCES
45	EQUIPMENT REFERENCES
46	EQUIPMENT REFERENCES
47	EQUIPMENT REFERENCES
48	EQUIPMENT REFERENCES
49	EQUIPMENT REFERENCES
50	EQUIPMENT REFERENCES
51	TB SCHEDULE
52	TB SCHEDULE
53	TB SCHEDULE
54	LED DETAILS

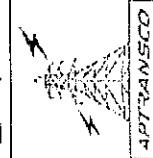
APPROVED FOR TURNKEY PROJECTS

[Signature]
 CHIEF ENGINEER / CONSTRUCTION-1
 APTRANSCO/VIDYUTH SOUDHA/HYD

Standardised Drawings for 33 kV Twin Feeder Bay Control and Protection panels with BCU (M/s. Easun Reyrolle Ltd., Hosur make) ER 1812, 50 & 51 SC DFDCR11 (1-54)

STD/DWG/Approval No. 262.7 Revision No. 0

Prepared & Approved during January - 2012



REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M



EASUN REYROLLE LTD
 HOSUR, TAMILNADU
 INDIA - 635126

DWG.NO : ER1812,50&51 SC DFDCR11	CUSTOMER : APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :LIST OF CONTENTS	CONSULTANT:
DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT THIS SHT: 01
	e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT:02
	ERL REF.:ZCP1812,50 SCALE : NTS TOT SHT: 54

SYMBOL	DESCRIPTION
	TERMINAL BLOCK
	DISCONNECTING TYPE TERMINAL BLOCK
	CIRCUIT BREAKER
	ISOLATOR
	EARTH SWITCH
	N/O CONTACT
	N/C CONTACT
	FUSE
	LINK
	DOOR SWITCH
	ON/OFF SWITCH
	THERMOSTAT
	VARIABLE RESISTOR
	ILLUMINATION LAMP
	INDICATING LAMP
	CONTROL/SELECTOR SWITCH
	HEATER
	SEMAPHORE
	CT
	TRANSFORMER WINDING
	POWER SOCKET
	N/C PUSH BUTTON

SYMBOL	DESCRIPTION
	N/O PUSH BUTTON
	RELAY COIL WITH FORWARD FLAG
	RELAY COIL WITH REVERSE FLAG
	RELAY COIL WITHOUT FLAG
	SLOW RELEASE COIL WITH FORWARD FLAG
	SLOW RELEASE COIL WITH REVERSE FLAG
	RELAY TEST SOCKET- NORMALLY CLOSED
	RELAY TEST SOCKET- NORMALLY OPEN
	OPTO INPUT
	MCB
	SOLENOID
	RESISTOR
	NON LINEAR VARIABLE RESISTOR
	REACTOR
	ANALOG METERS

SYMBOL	DESCRIPTION
	SURGE ARRESTER
	DIODE
	LED
	BUZZER
	BELL
	AUTO TRANSFORMER
	CVT
	3 PHASE AC GENERATOR

- BB - TERMINAL BLOCK DESIGNATION FOR INTER PANEL BUS WIRING
- TB - TERMINAL BLOCK DESIGNATION FOR ALL CONNECTIONS EXCEPT INTER PANEL BUS WIRING
- CROSS REFERENCE DETAILS START WITH * MARK (eg.*10/D6 MEANS THE DETAILS ARE AVAILABLE IN SHEET 10 ZONE D6)
- TB₈/FERRULE ARE SUBJECT TO CHANGE DURING MANUFACTURING

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 CHIEF ENGINEER / CONSTRUCTION-1
 APTRANSCO/VIDYUTH SOUDHA/HYD.

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M

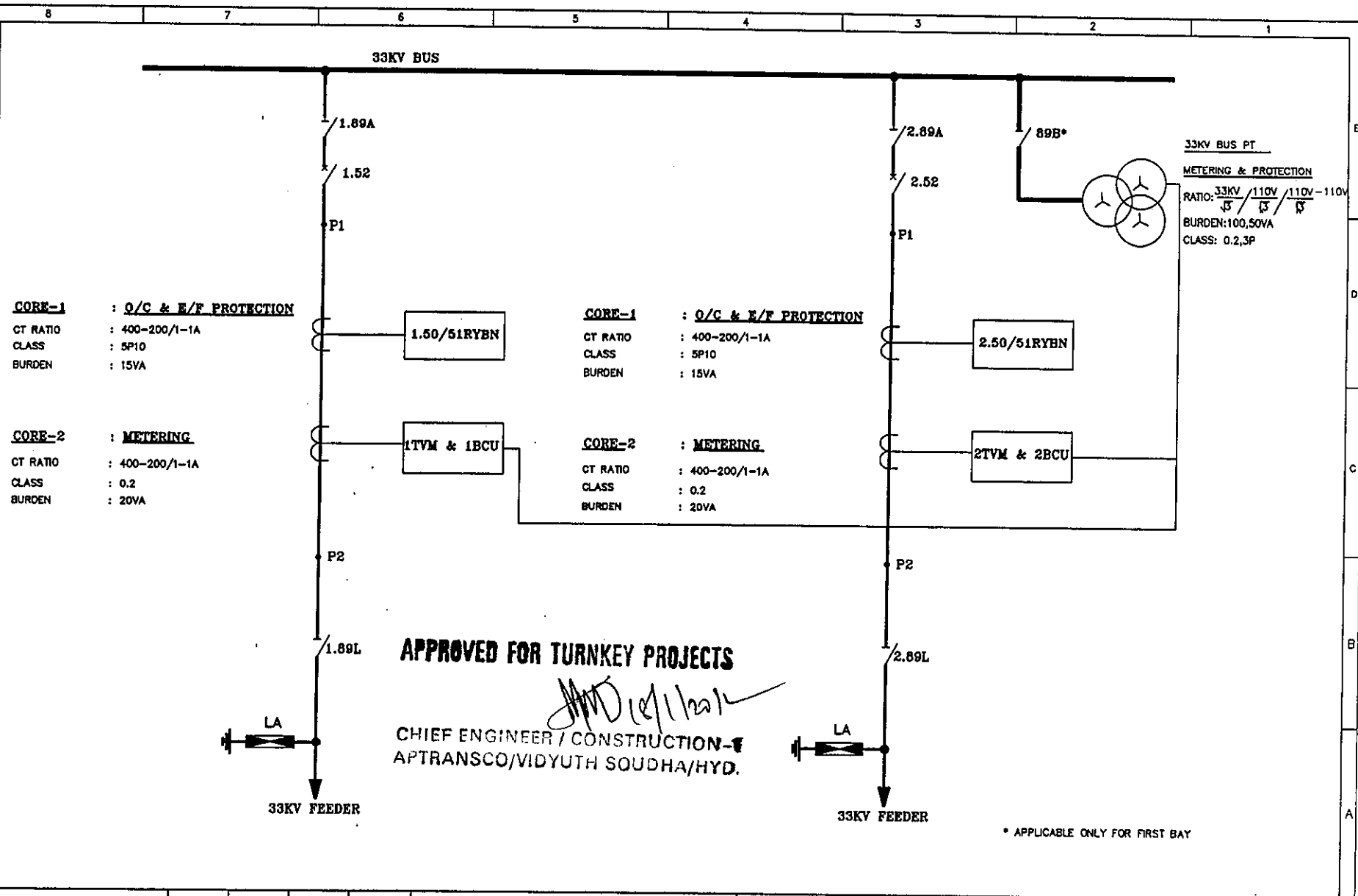


EASUN REYROLLE LTD
 HOSUR, TAMILNADU
 INDIA - 635126

DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :LIST OF SYMBOLS	CONSULTANT:
DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT
	e-11/2011/RC-4073/2011 D:28.07.2011
	ERL REF. :ZCP1812,50
	SCALE : NTS
	TOT SHT: 54

THIS SHT: 02
 NEXT SHT: 03

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C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

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 HOSUR, TAMILNADU
 INDIA - 635126

DWG.NO : ER1812,50&51 SC DFDCR11		CUSTOMER : APTRANSCO	
SUBSTATION: 132/33KV SS		CONTRACTOR:	
SHT. TITLE : SINGLE LINE DIAGRAM		CONSULTANT:	
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL		P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	
ERL REF. : ZCP1812,50		SCALE : NTS TOT SHT: 54	

PROTECTION FUNCTION	OUTPUT	FEEDER - 1				FEEDER - 2			
		MASTER TRIP RELAY	TO CB TRIP COIL-1	TO CB TRIP COIL-2	CLOSE CB	3PH MASTER TRIP RELAY	TO CB TRIP COIL-1	TO CB TRIP COIL-2	CLOSE CB
O/C & E/F PROTECTION-FEEDER 1	3 Ph	(IP)							
MASTER TRIP RELAY-FEEDER 1	3 Ph		(TP)	(TP)	(RS)				
MANUAL TRIP(BCU/CS)- FEEDER 1	3 Ph		(TP)	(TP)					
O/C & E/F PROTECTION-FEEDER 2	3 Ph					(IP)			
MASTER TRIP RELAY-FEEDER 2	3 Ph						(TP)	(TP)	(RS)
MANUAL TRIP(BCU/CS)- FEEDER 2	3 Ph						(TP)	(TP)	

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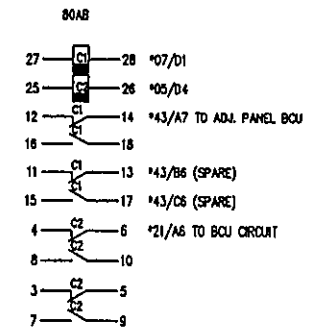
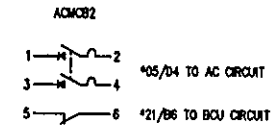
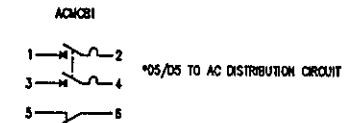
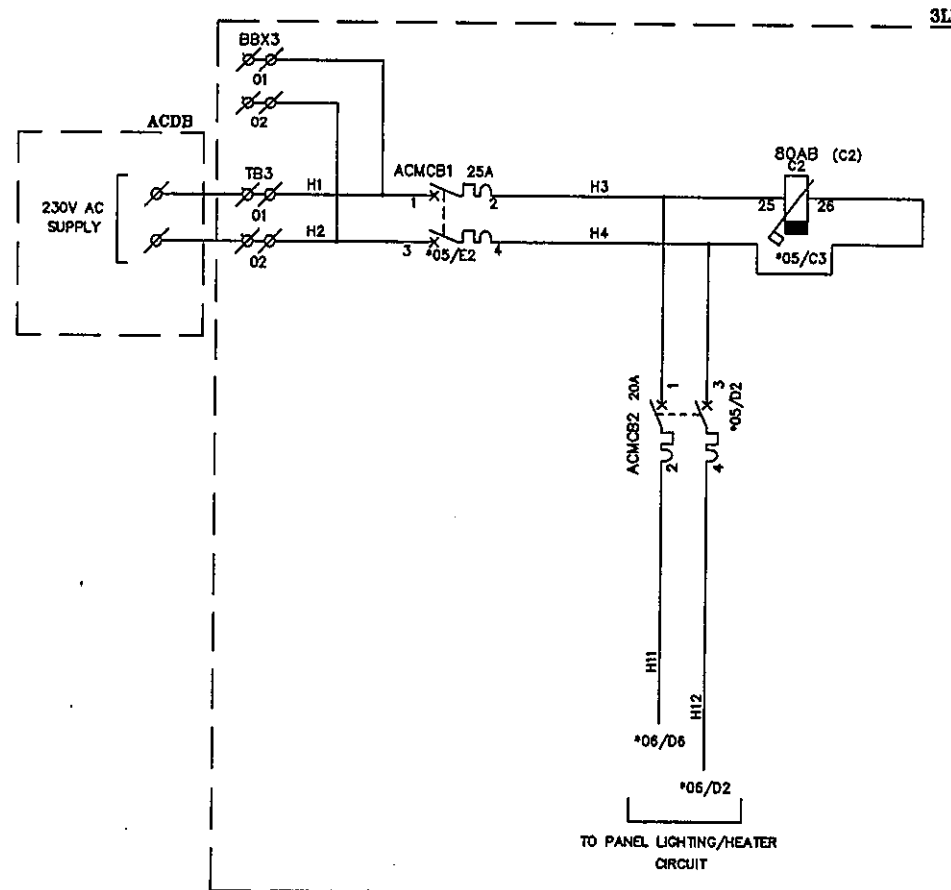
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LEGEND:

TP-TRIP SIGNAL
IP-INPUT SIGNAL
RS-RESET SIGNAL

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.O	J.V	G.M		SHT. TITLE :TRIP LOGIC	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 04 NEXT SHT: 05 ERL REF. :ZCP1812,50 SCALE : NTS TOT SHT: 54

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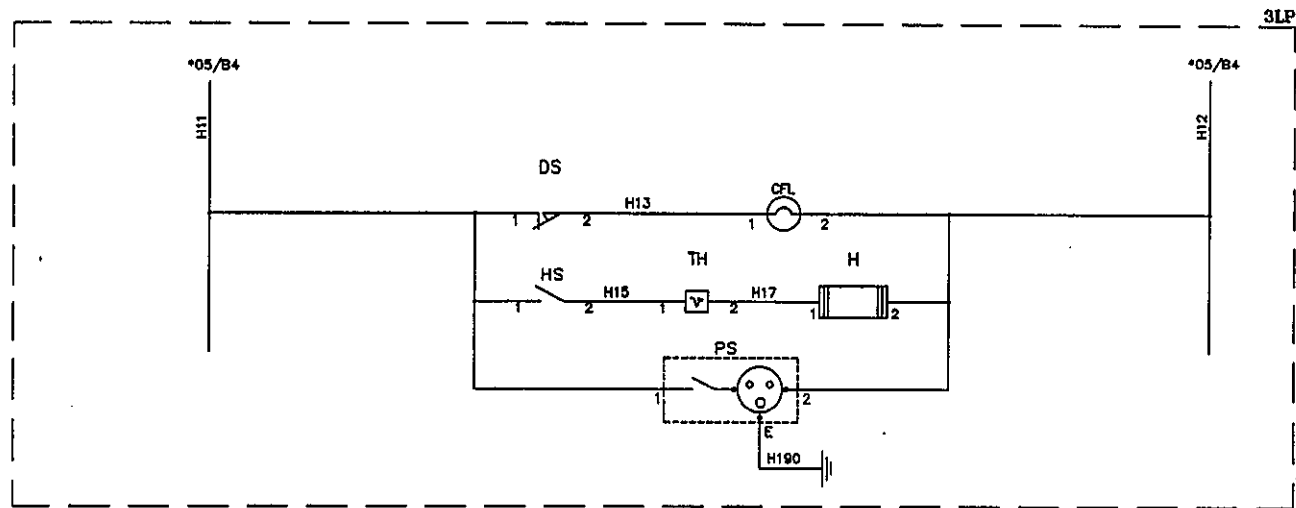
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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

ERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE :AC DISTRIBUTION CIRCUIT	CONSULTANT:
DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT THIS SHT: 05
	e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT:06
	ERL REF.:ZCP1812,50 SCALE : NTS TOT SHT: 54

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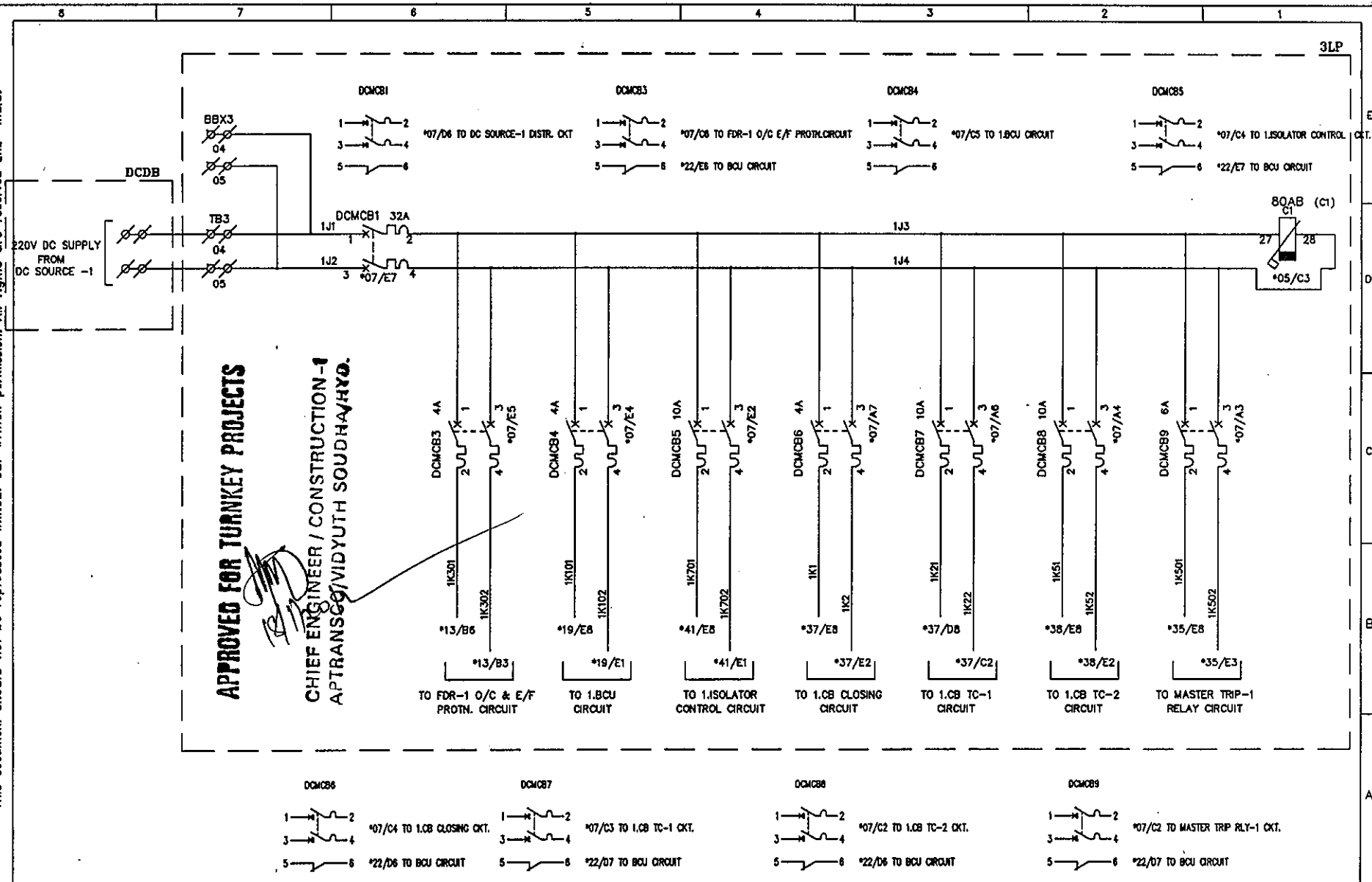
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C	ASBUILT	05.11.11	V.A	J.V	G.M	ERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :AUXILLARY AC CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812.50 SCALE : NTS

THIS SHT: 06
NEXT SHT: 07
TOT SHT: 54

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APTRANSCO/VIDYUTH SODHA/HYO.**

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	AS BUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M

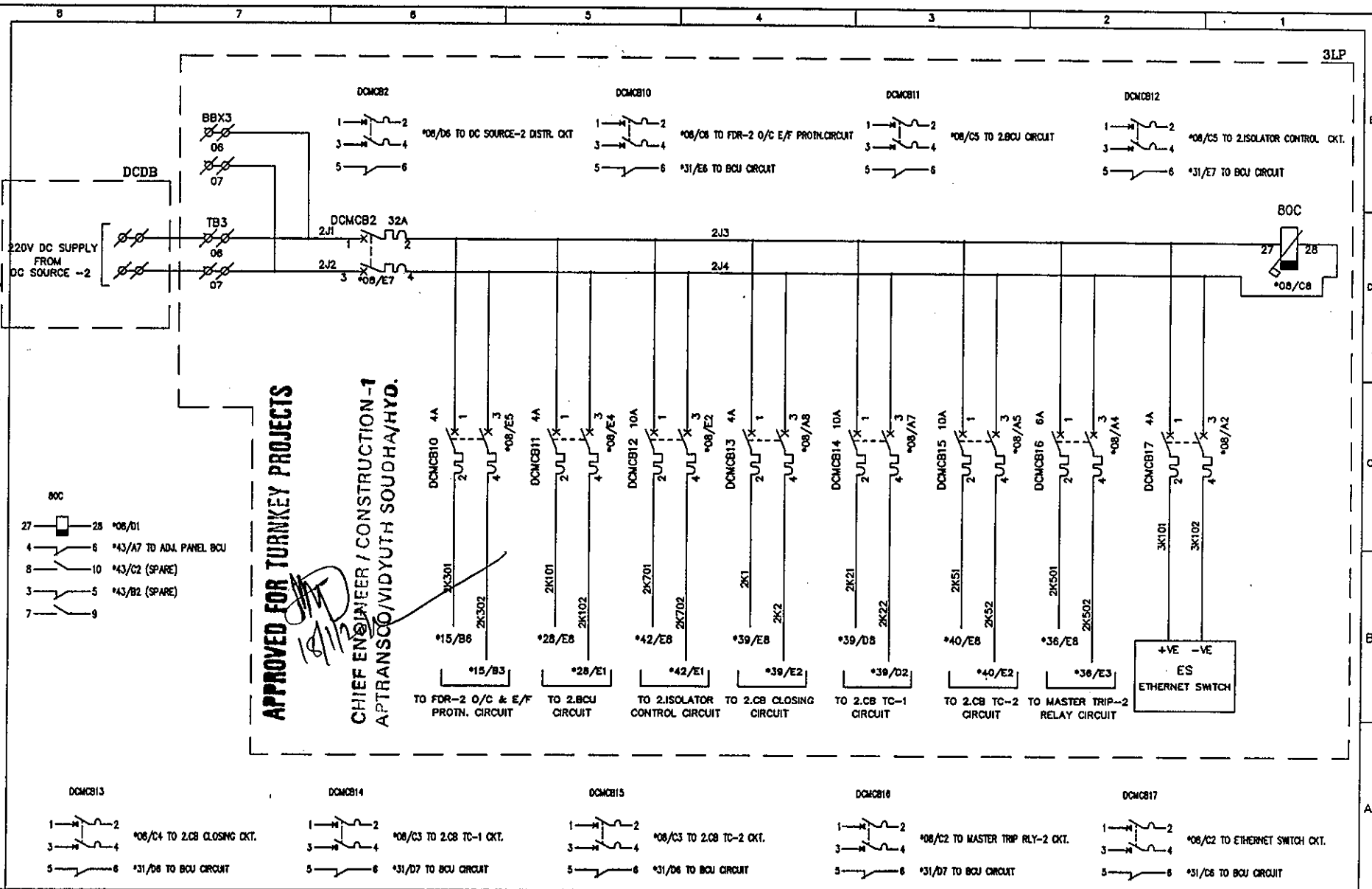


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INDIA - 635126

DWG.NO : ER1812.50&51 SC DFDCR11
SUBSTATION: 132/33KV SS
SHT. TITLE : FDR-1 DC DISTRIBUTION CIRCUIT
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL

CUSTOMER : APTRANSCO
CONTRACTOR:
CONSULTANT:
P.O. NO.: CE/Const-I/SE/PM-1/SAS/APT
e-11/2011/RC-4073/2011 D:28.07.2011
ERL REF.: ZCP1812.50 SCALE : NTS
THIS SHT: 07
NEXT SHT: 08
TOT SHT: 54

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CHIEF ENGINEER / CONSTRUCTION -1
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C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

EASUN REYROLLE LTD

HOSUR, TAMILNADU

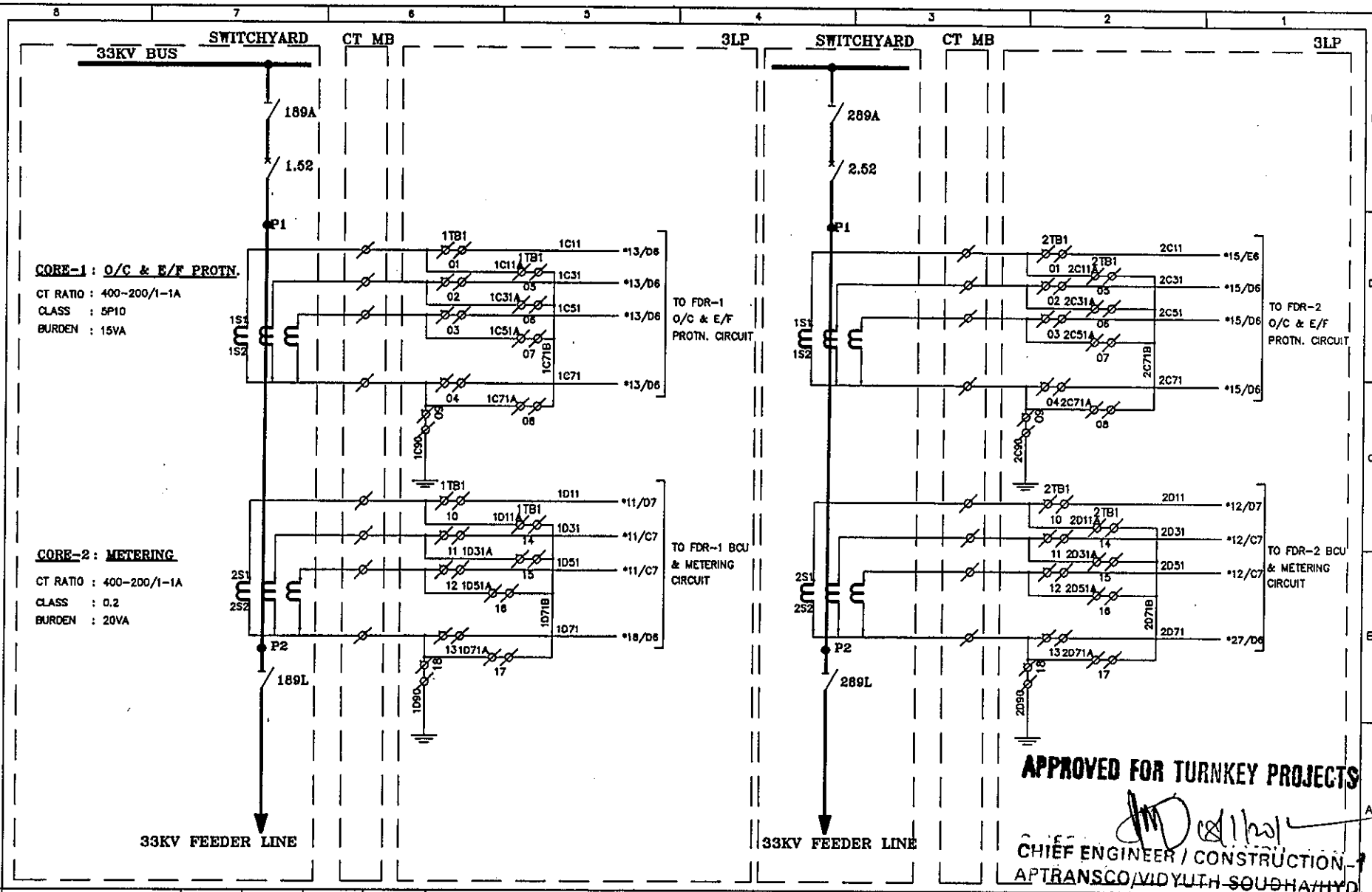
INDIA - 635126

DWG.NO : ER1812,50&51 SC DFDCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : FDR-2 DC DISTRIBUTION CIRCUIT	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011
ERL REF. : ZCP1812,50	SCALE : NTS

THIS SHT: 08

NEXT SHT: 09

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C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



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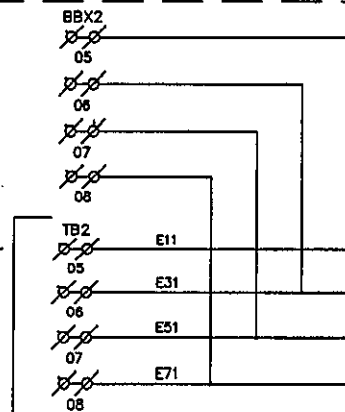
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SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : CT CIRCUIT	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT THIS SHT: 09
	e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT: 10
	ERL REF. : ZCP1812,50 [SCALE : NTS] TOT SHT: 54

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33KV BUS PT SUPPLY

PT-SEC.WDG -1
METERING

RATIO: $\frac{33KV}{\sqrt{3}} / \frac{110V}{\sqrt{3}}$
BURDEN: 50VA
CLASS: 0.2



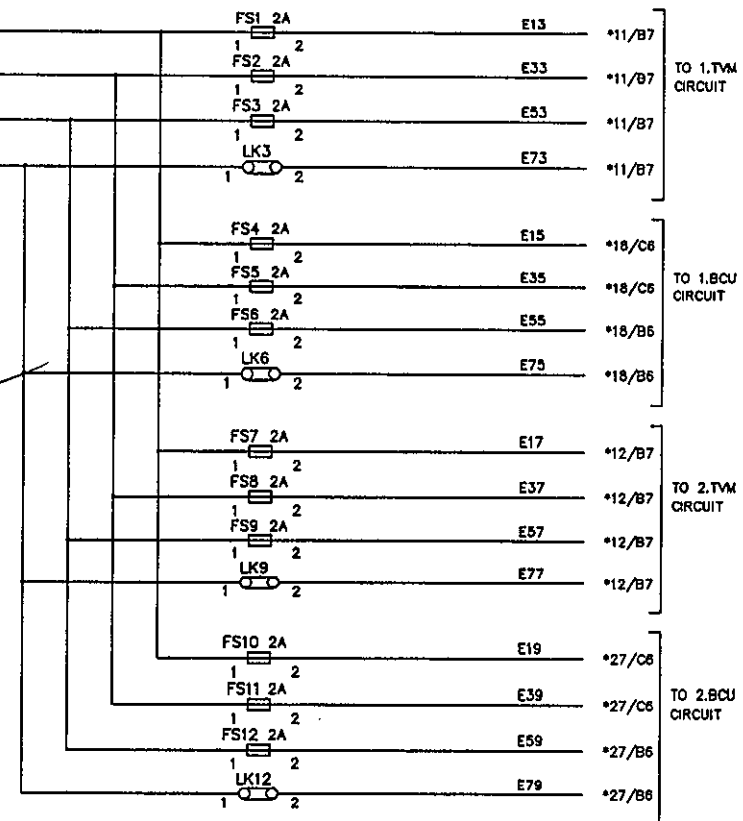
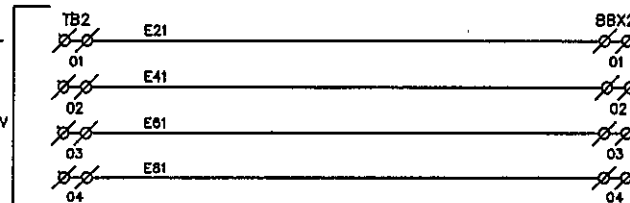
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33KV BUS PT SUPPLY

PT-SEC.WDG -2
PROTECTION

RATIO: $\frac{33KV}{\sqrt{3}} / \frac{110V-110V}{\sqrt{3}}$
BURDEN: 50VA
CLASS: 3P



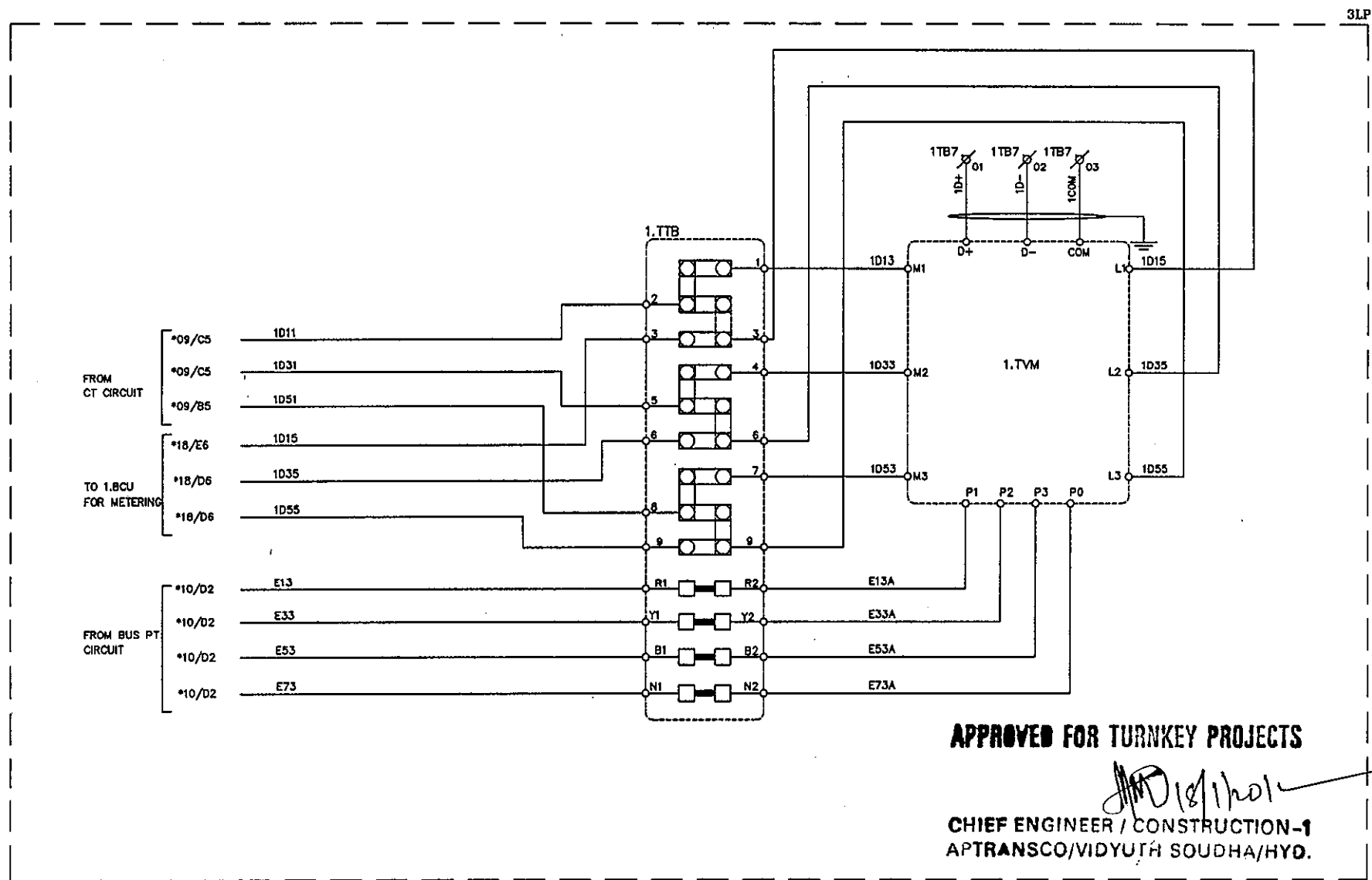
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M



EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51 SC DFDCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : PT CIRCUIT	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011
ERL REF.: ZCP1812.50	SCALE : NTS
	THIS SHT: 10 NEXT SHT: 11 TOT SHT: 54

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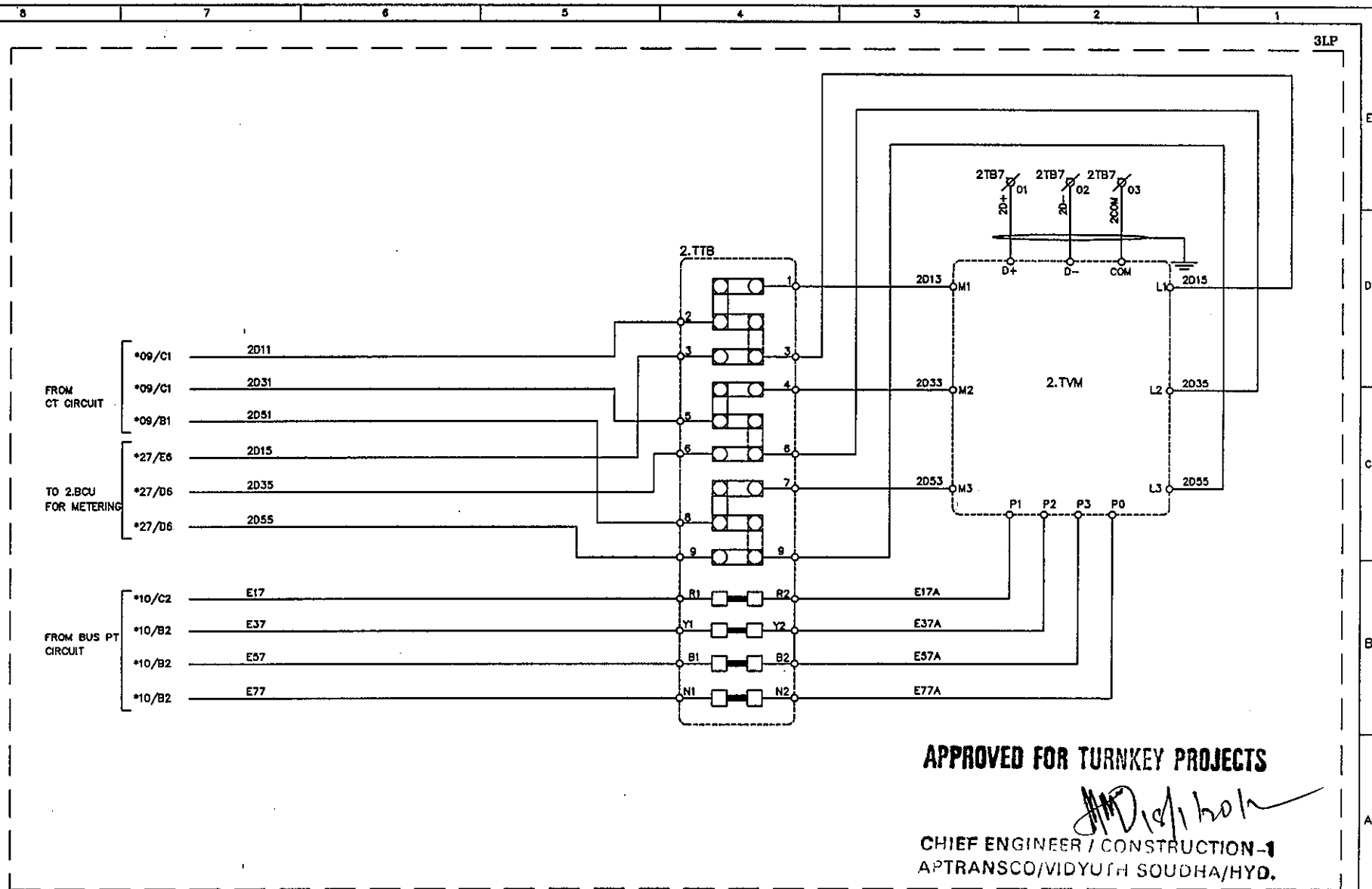
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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYO.

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO : ER1812,50&51 SC DFDCR11	CUSTOMER : APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION: 132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE : FDR-1 METERING CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.: ZCP1812,50 SCALE : NTS

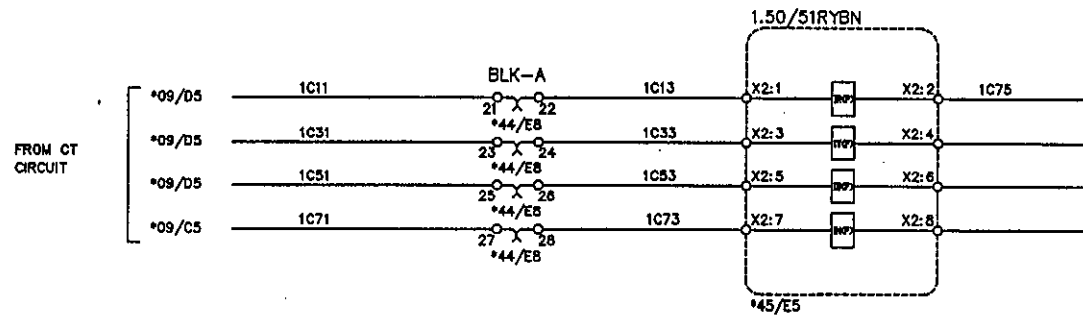
THIS SHT: 11
NEXT SHT: 12
TOT SHT: 54

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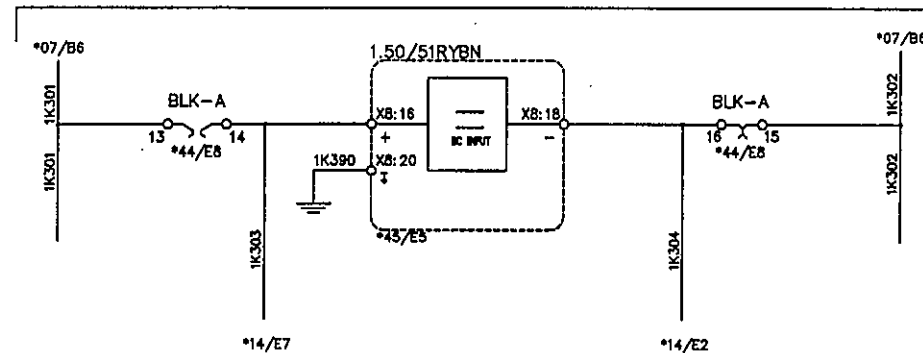


C	ASBUILT	05.11.11	V.A	J.V	G.M	EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :FDR-2 METERING CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50	THIS SHT: 12 NEXT SHT: 13 SCALE : NTS TOT SHT: 54

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FROM SOURCE-1 DC DISTRIBUTION CIRCUIT



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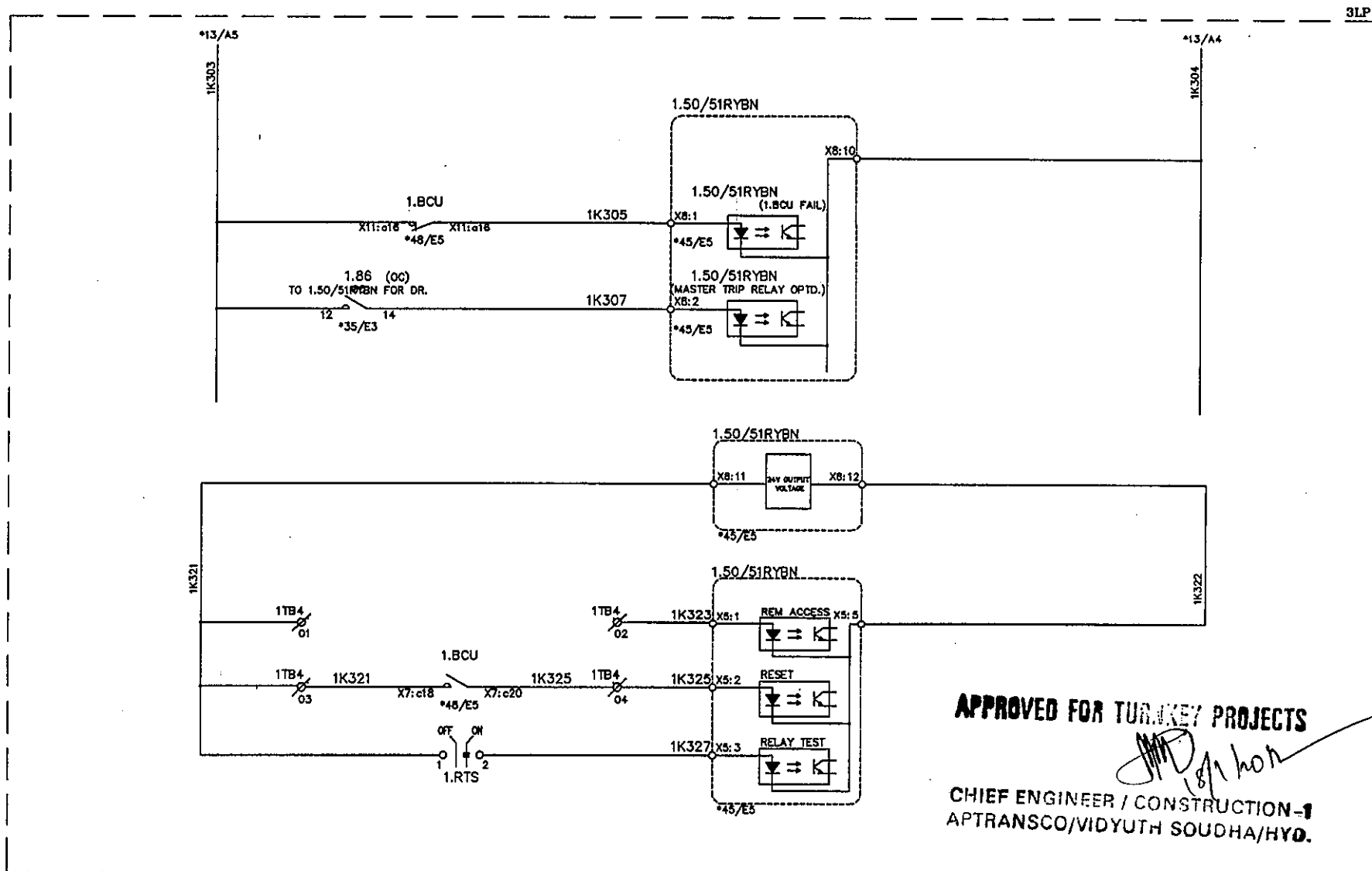
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO :ER1812.50&51 SC DFDCR11	CUSTOMER :APTRANSCO
SUBSTATION:132/33kv SS	CONTRACTOR:
SHT. TITLE :FDR-1 NON DIR. O/C & E/F PROTECTION CIRCUIT	CONSULTANT:
DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PW-1/SAS/APT
	e-11/2011/RC-4073/2011 D:28.07.2011
	ERL REF. :ZCP1812.50
	SCALE : NTS
	TOT SHT: 54
	THIS SHT: 13
	NEXT SHT: 14

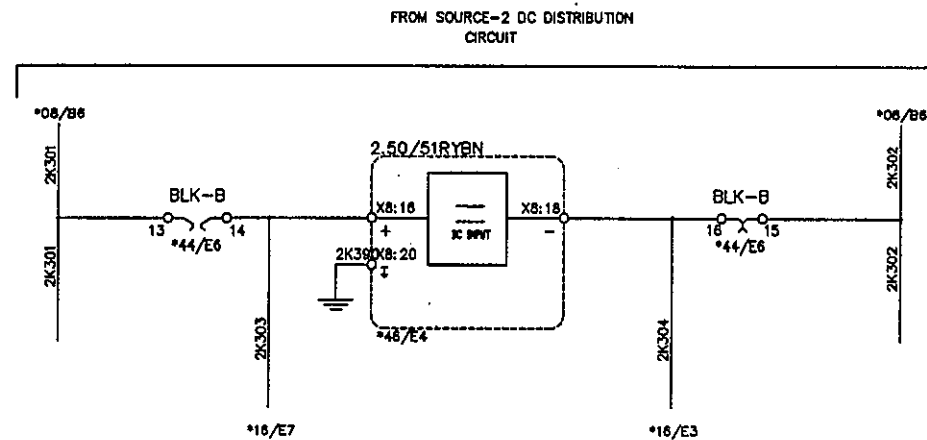
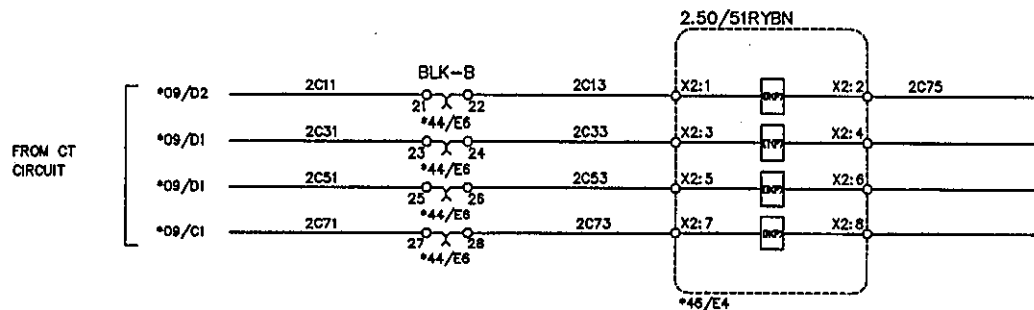


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[Signature]

CHIEF ENGINEER / CONSTRUCTION-1
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C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO : ER1812,50&51 SC DFDCR11	CUSTOMER : APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION: 132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE : FDR-1 NON DIR. O/C & E/F PROTECTION CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 14 NEXT SHT: 15 ERL REF.: ZCP1812,50 SCALE : NTS/TOT SHT: 54



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CHIEF ENGINEER / CONSTRUCTION -1
A TRANSCO/VIDYUTH SOUDHA/HYD.

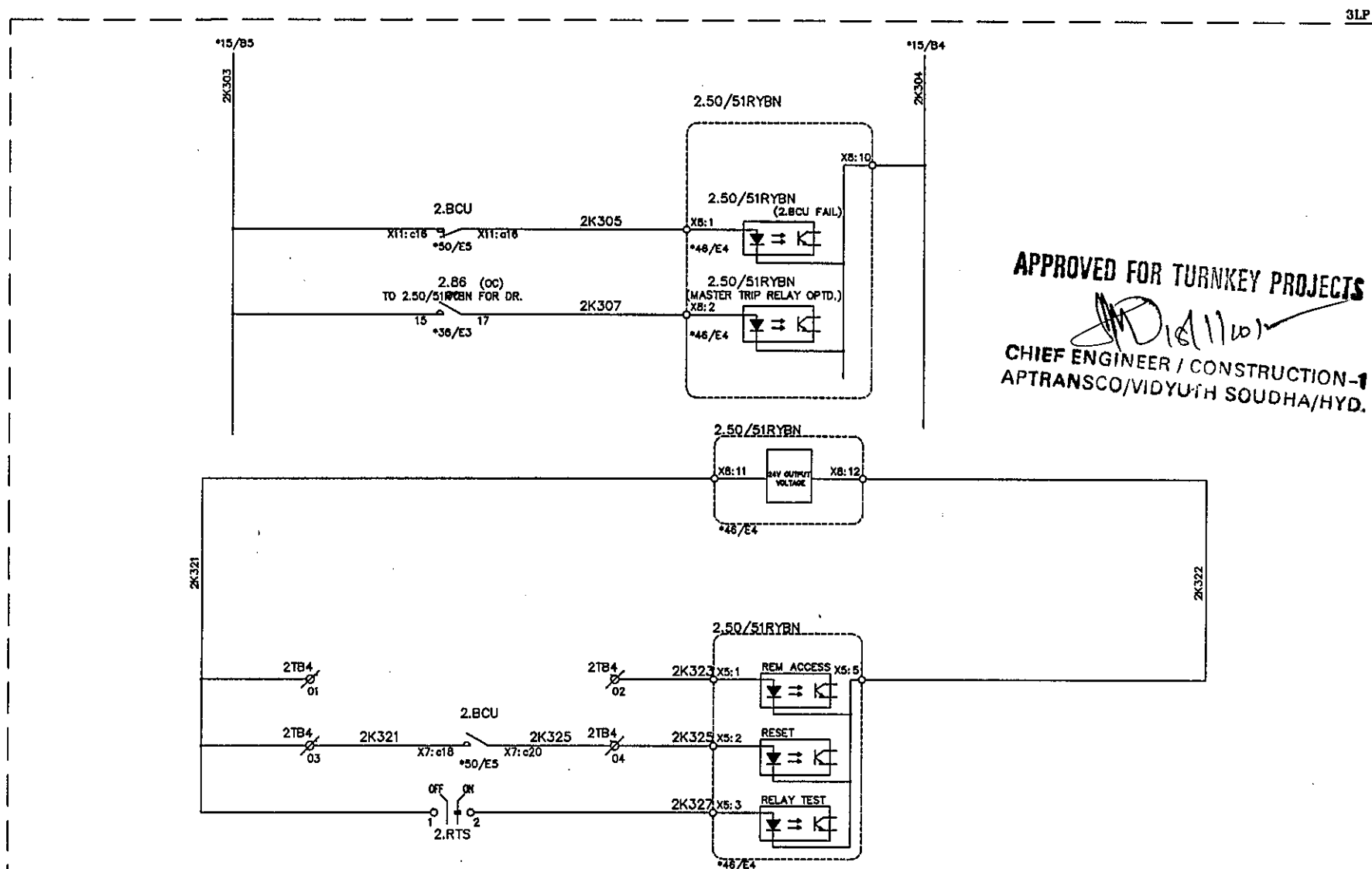
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B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

EASUN REYROLLE LTD

HOSUR, TAMILNADU

INDIA - 635126

DWG.NO : ER1812.50&51 SC OFDCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : FDR-2 NON DIR. O/C & E/F PROTECTION CIRCUIT	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D: 28.07.2011 ERL REF.: ZCP1812.50 THIS SHT: 15 NEXT SHT: 16 SCALE : NTS TOT SHT: 54



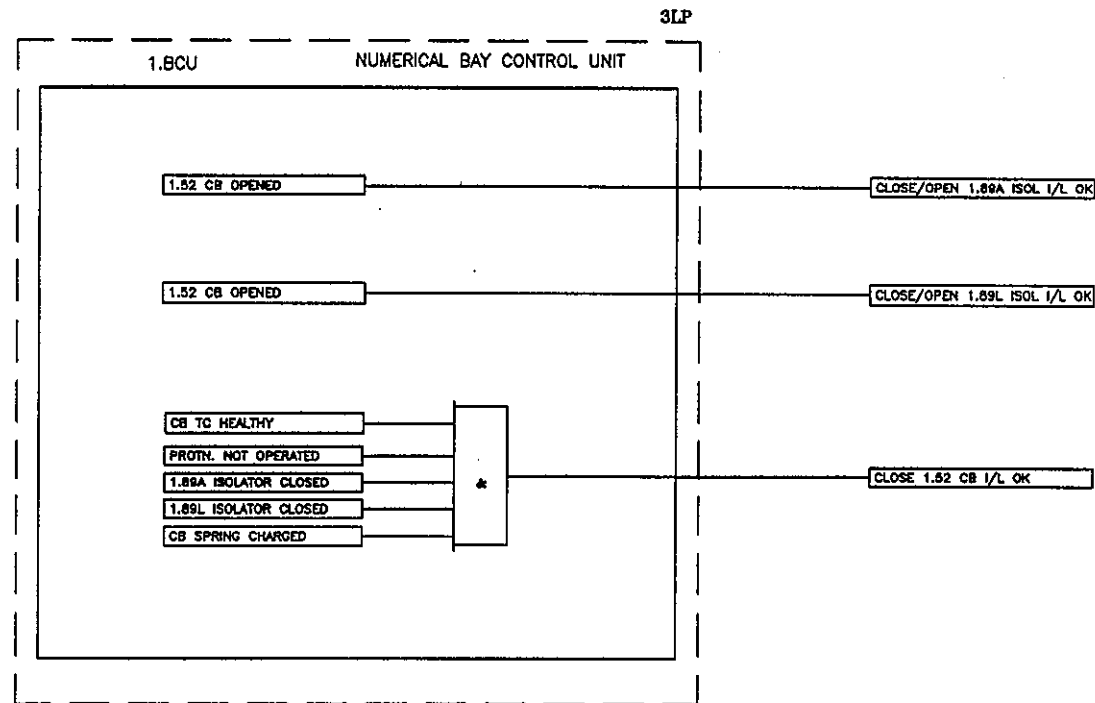
APPROVED FOR TURNKEY PROJECTS

(Signature)

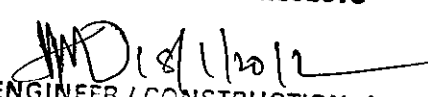
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO : ER1812.50&51 SC OFDCR11	CUSTOMER : APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION: 132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE : FDR-2 NON DIR. O/C & E/F PROTECTION CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011 ERL REF.: ZCP1812.50 SCALE : NTS

THIS SHT: 16
NEXT SHT: 17
TOT SHT: 54



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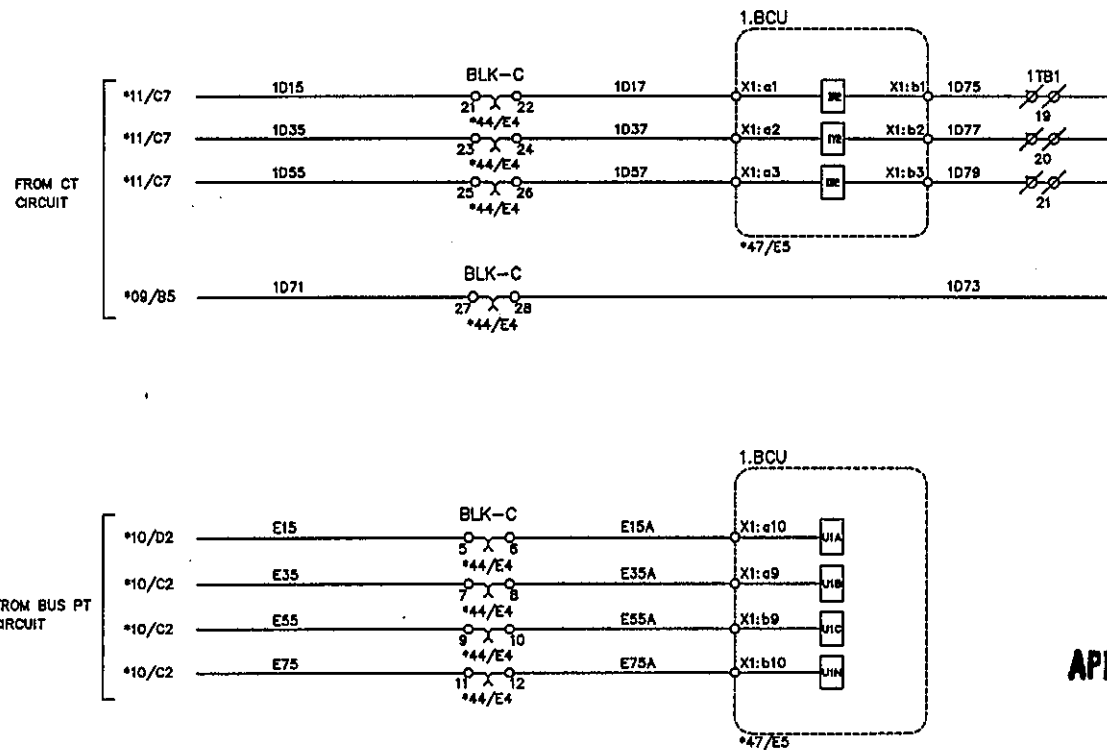

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M



EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812,50&51 SC DFDCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : FDR-1 INTERLOCKING LOGIC	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011
ERL REF. : ZCP1812,50	SCALE : NTS
	THIS SHT: 17 NEXT SHT: 18 TOT SHT: 54



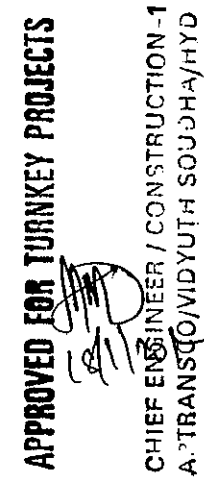
APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :FDR-1 BCU CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50 SCALE : NTS

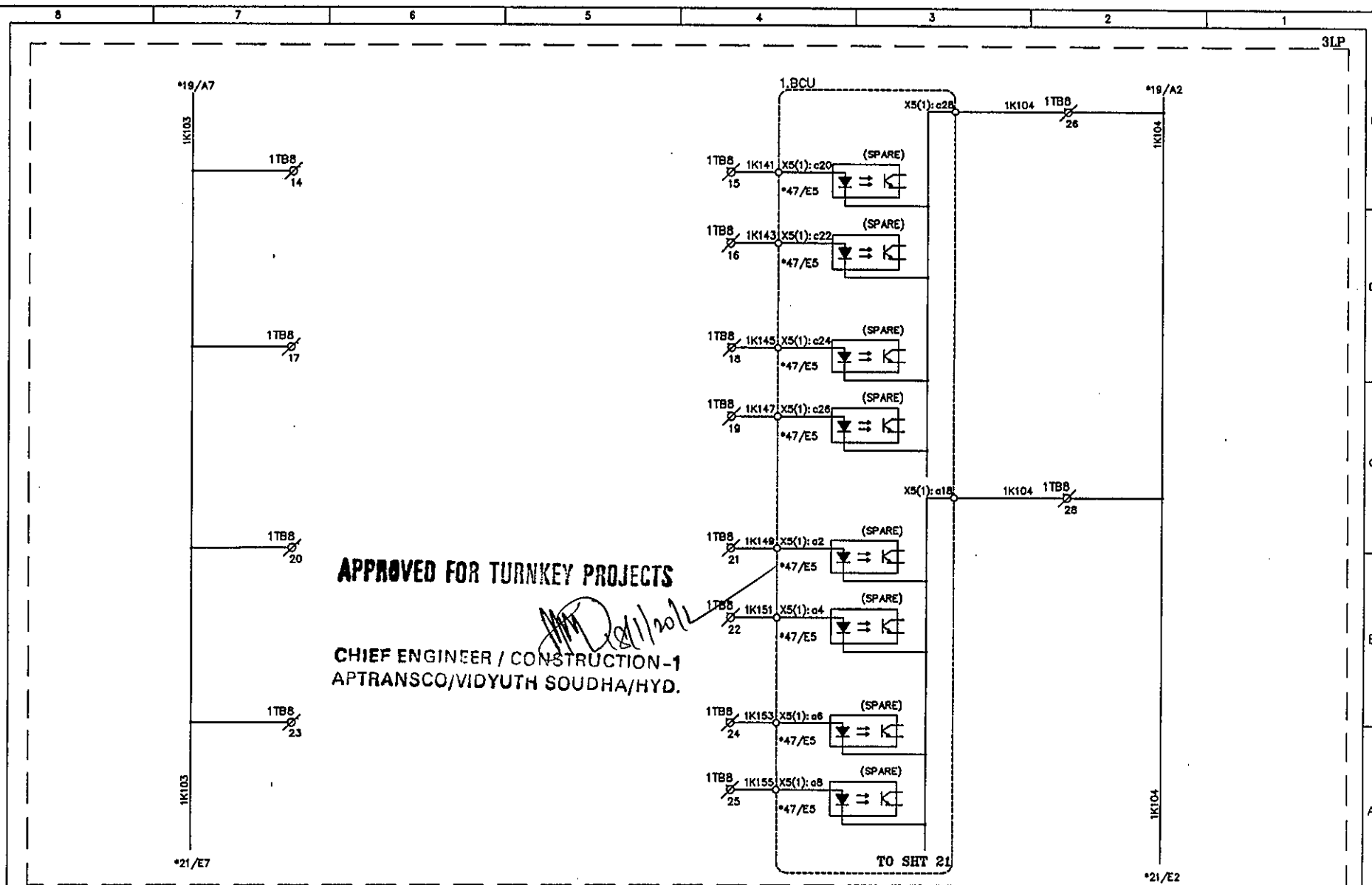
THIS SHT: 18
NEXT SHT: 19
TOT SHT: 54

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



C	ASBUILT	05.11.11	V.A	J.V	G.M	 EERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :FDR-1 BCU CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011	THIS SHT: 19 NEXT SHT: 20
							ERL REF. :ZCP1812,50	SCALE : NTS	TOT SHT: 54

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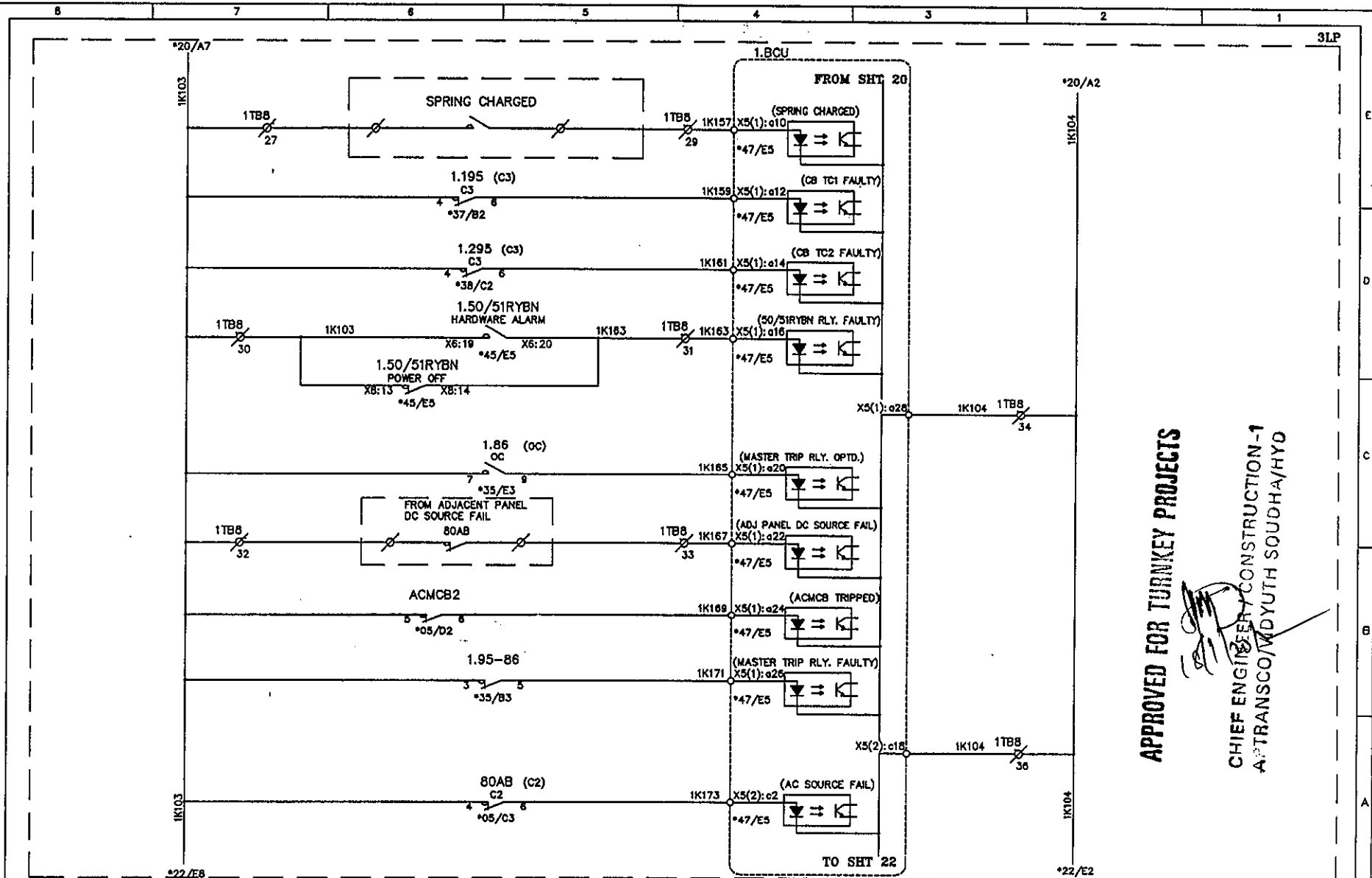
**CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.**

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



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HOSUR, TAMILNADU
INDIA - 635126

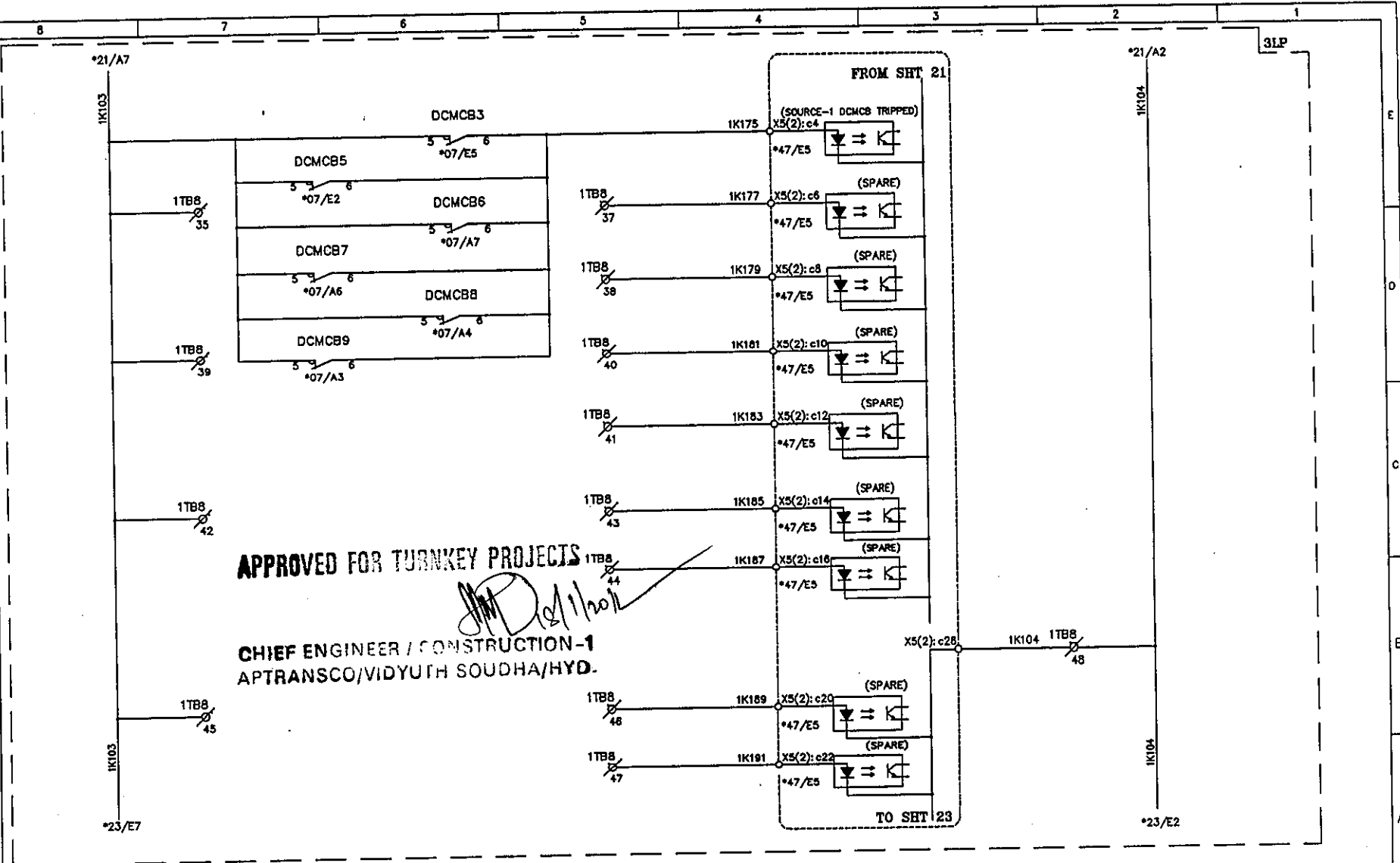
DWG.NO : ER1812,50&51 SC DFDCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : FDR-1 BCU CIRCUIT	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R. PANEL	P.O. NO.: CE/Const-I/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF. : ZCP1812,50 SCALE : NTS
	THIS SHT: 20 NEXT SHT: 21 TOT SHT: 54



APPROVED FOR TURNKEY PROJECTS

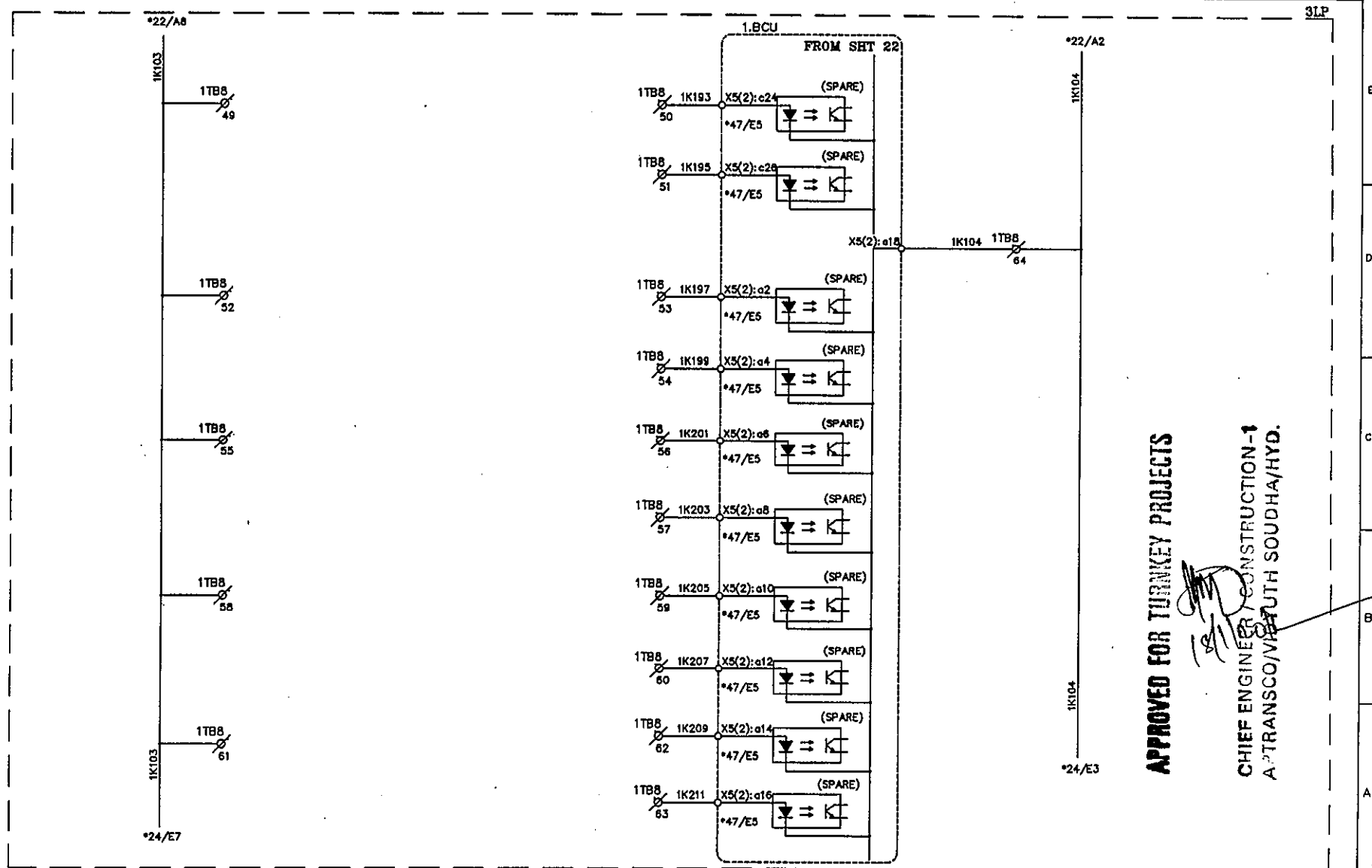
CHIEF ENGINEER/CONSTRUCTION-1
APTRANSCO/MDYUTH SUDHA/HYO

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO : ER1812.50&51 SC DFDCR11	CUSTOMER : APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION: 132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE : FDR-1 BCU CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.: ZCP1812.50	THIS SHT: 21 NEXT SHT: 22 SCALE : NTS TOT SHT: 54



REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED	EASUN REYROLLE LTD INDIA - 635126	DWG. NO : ER1812.50&51 SC DFDCR11	CUSTOMER : APTRANSCO
C	ASBUILT	05.11.11	V.A	J.V	G.M		SUBSTATION: 132/33KV SS	CONTRACTOR:
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SHT. TITLE : FDR-1 BCU CIRCUIT	CONSULTANT:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011 THIS SHT: 22 NEXT SHT: 23
								ERL REF. : ZCP1812.50 SCALE : NTS TOT SHT: 54

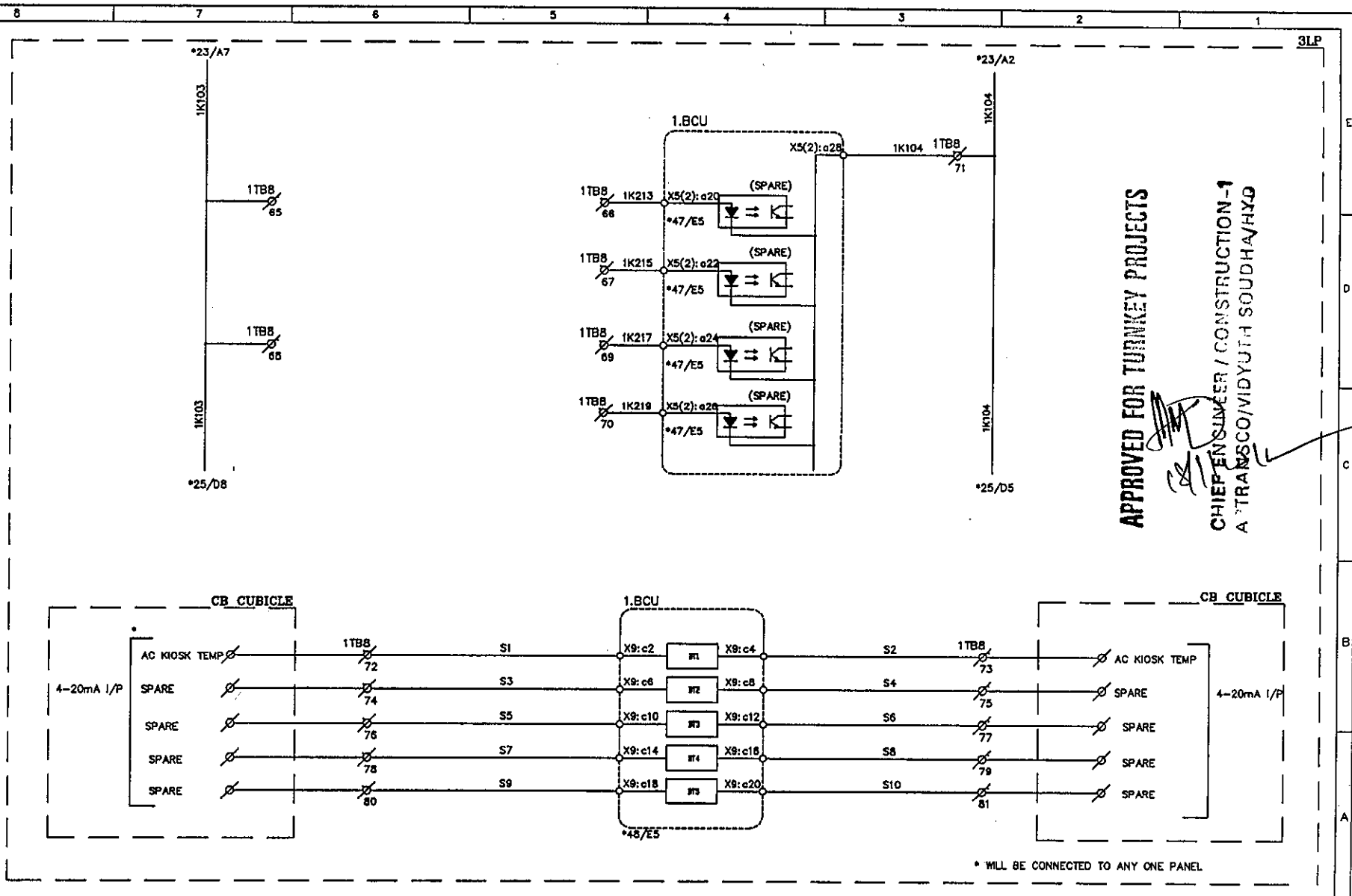
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CHIEF ENGINEER, CONSTRUCTION-1
A.P. TRANSCO/VIRATH SODHA/HYD.

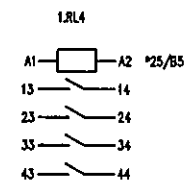
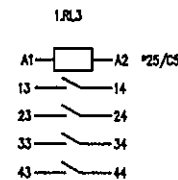
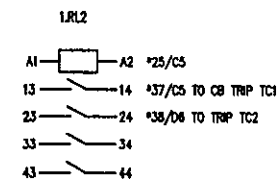
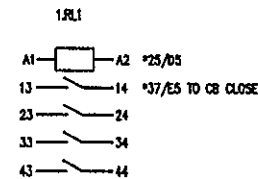
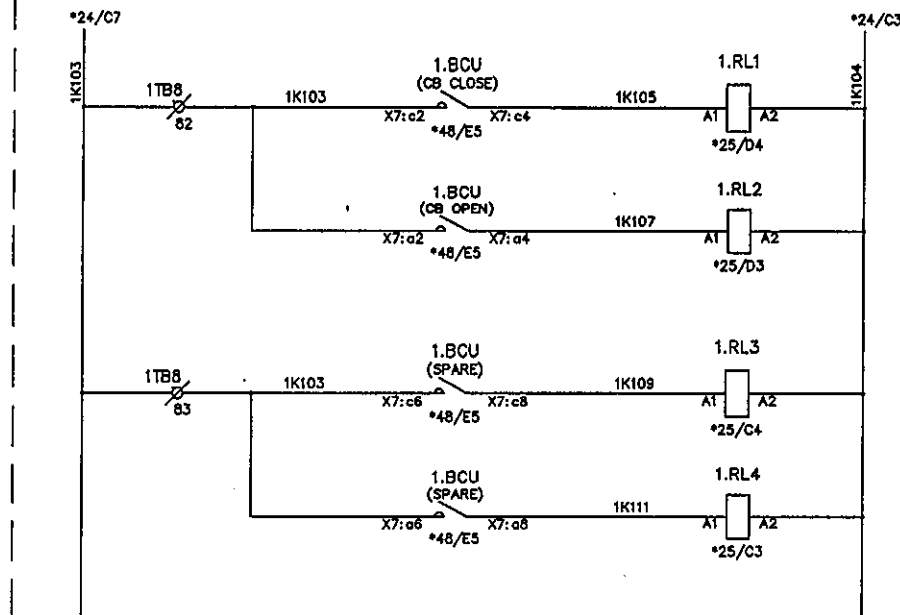
C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :FDR-1 BCU CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 23 NEXT SHT: 24
							ERL REF. :ZCP1812,50	SCALE : NTS	TOT SHT: 54

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CHIEF ENGINEER / CONSTRUCTION - I
A TRANSCO/VIDYUTH SOUDHA/HYD

C	ASBUILT	05.11.11	V.A	J.V	G.M	EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS SHT. TITLE :FDR-1 BCU CIRCUIT	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50	THIS SHT: 24 NEXT SHT:25 SCALE :NTS TOT SHT: 54

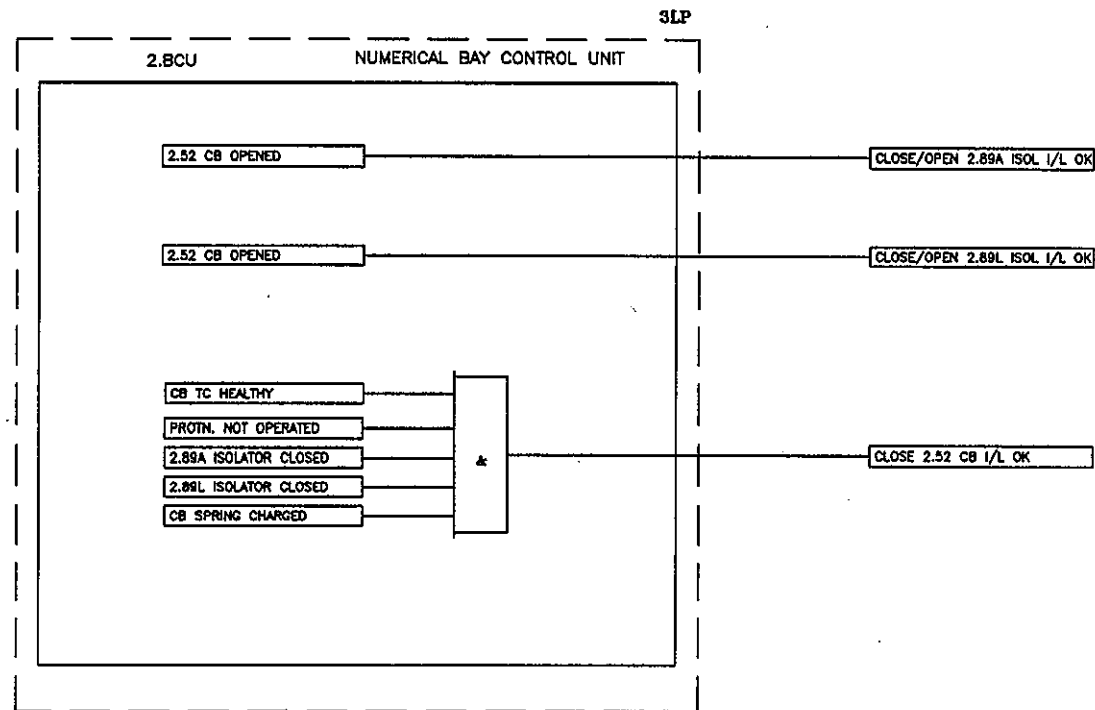


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[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYO.

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :FDR-1 BCU COMMAND RELAY CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PW-1/SAS/APT 6-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCPT1812,50 SCALE :NTS

THIS SHT: 25
 NEXT SHT: 26
 TOT SHT: 54



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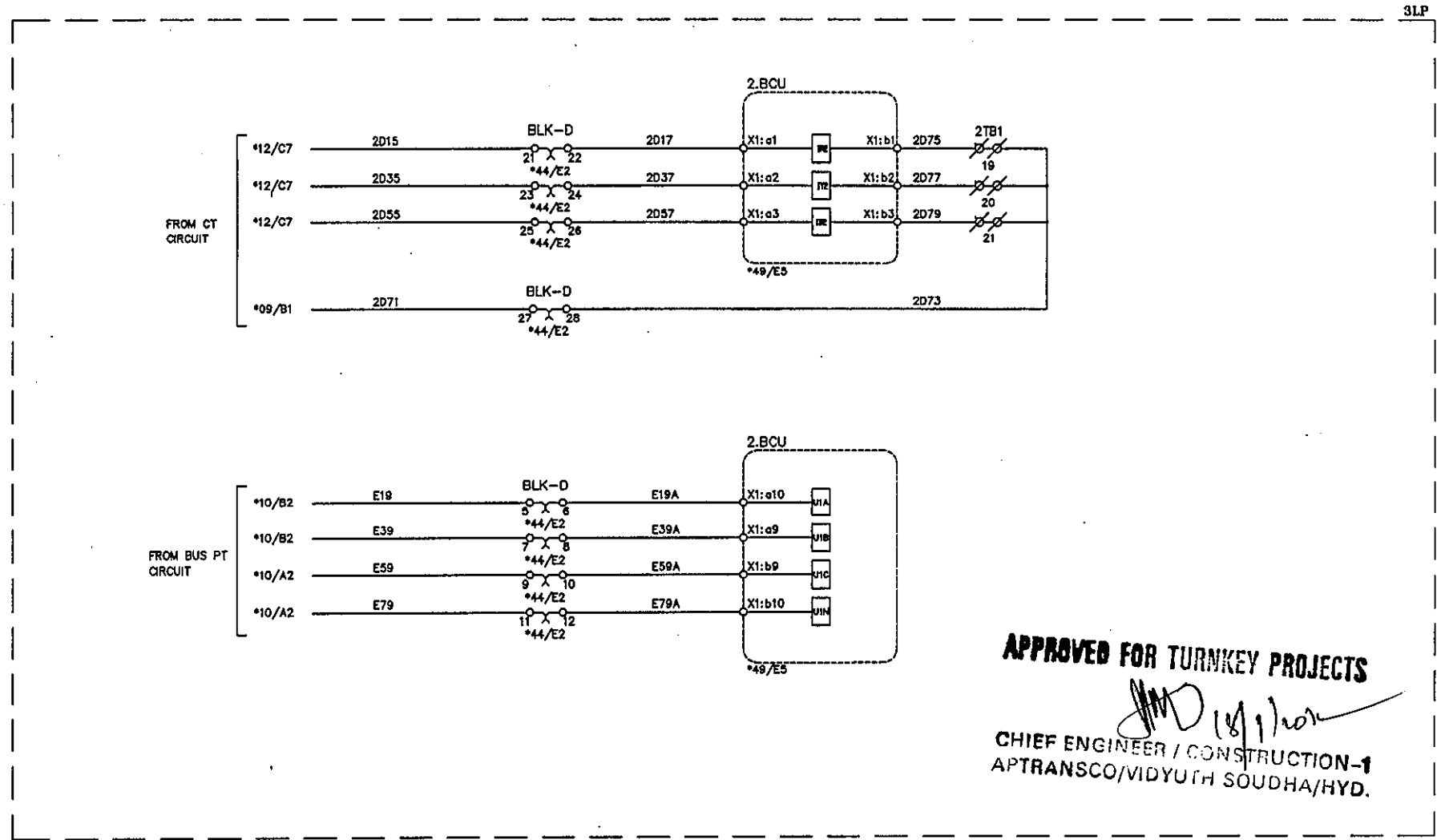
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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYO.

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG.NO : ER1812,50&51 SC DFDCR11	CUSTOMER : APTRANSCO
C	ASBUILT	05.11.11	V.A	J.V	G.M		SUBSTATION: 132/33KV SS	CONTRACTOR:
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SHT. TITLE : FDR-2 INTERLOCKING LOGIC	CONSULTANT:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT THIS SHT: 26 e-11/2011/RC-4073/2011 0:28.07.2011 NEXT SHT: 27 ERL REF.: ZCP1812,50 SCALE: NTS TOT SHT: 54



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HOSUR, TAMILNADU
INDIA - 635126

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[Signature]

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	EERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :FDR-2 BCU CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-I/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812.50

THIS SHT: 27
 NEXT SHT: 28
 SCALE : NTS
 TOT SHT: 54

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



CHIEF ENGINEER / CONSTRUCTION - 1
A.P. TRANSCO/VIDYUTH SOUDHA/HYD.

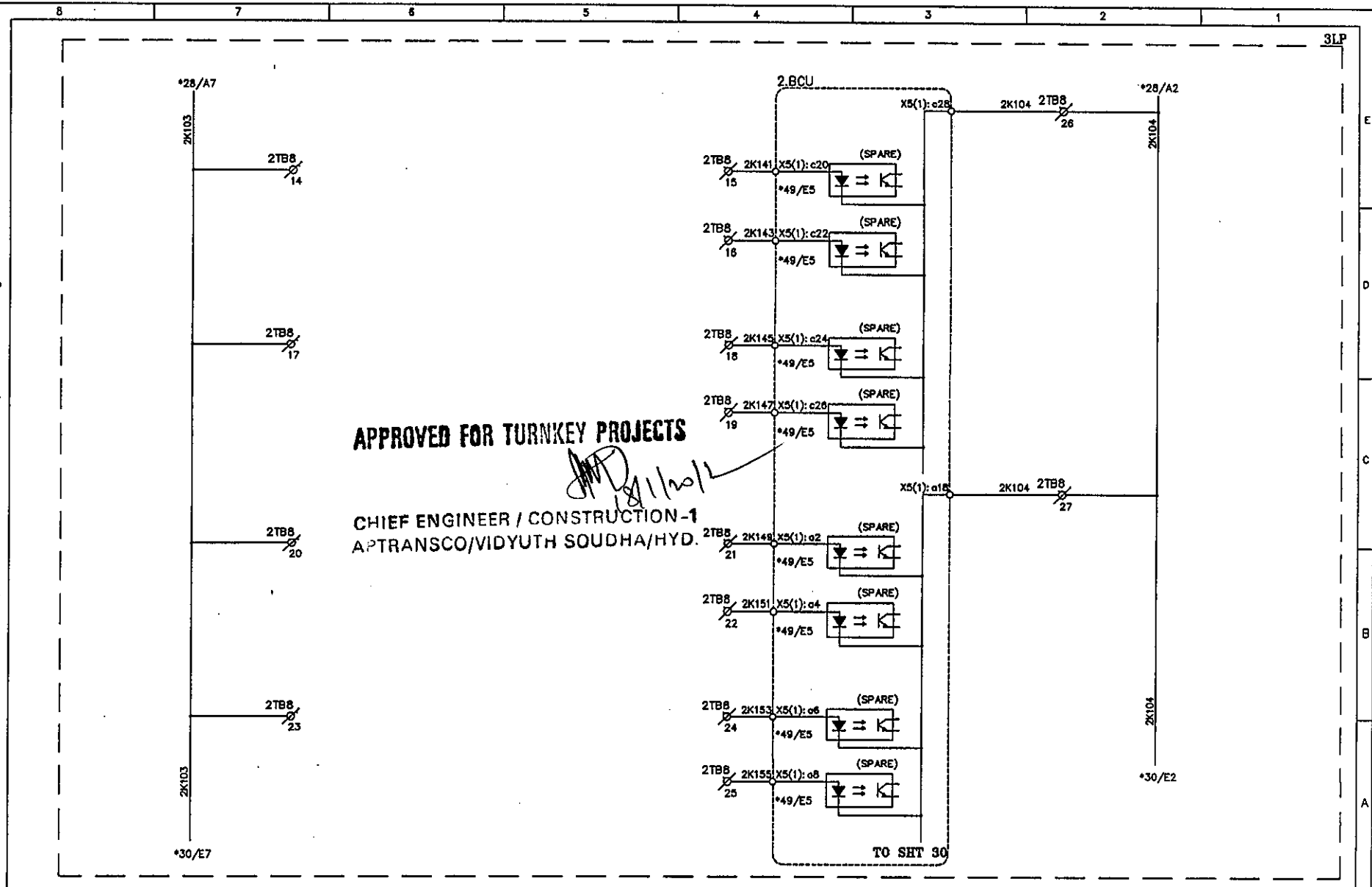
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B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

ERL

EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO :ER1812,50&51 SC OFDCR11	CUSTOMER :APTRANSCO	
SUBSTATION:132/33KV SS	CONTRACTOR:	
SHT. TITLE :FDR-2 BCU CIRCUIT	CONSULTANT:	
	P.O. NO.:CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 28 NEXT SHT: 29
DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	ERL REF. :ZCP1812,50 SCALE : NTS	TOT SHT: 54

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C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812,50&51 SC DFDCR11
SUBSTATION: 132/33KV SS
SHT. TITLE : FDR-2 BCU CIRCUIT

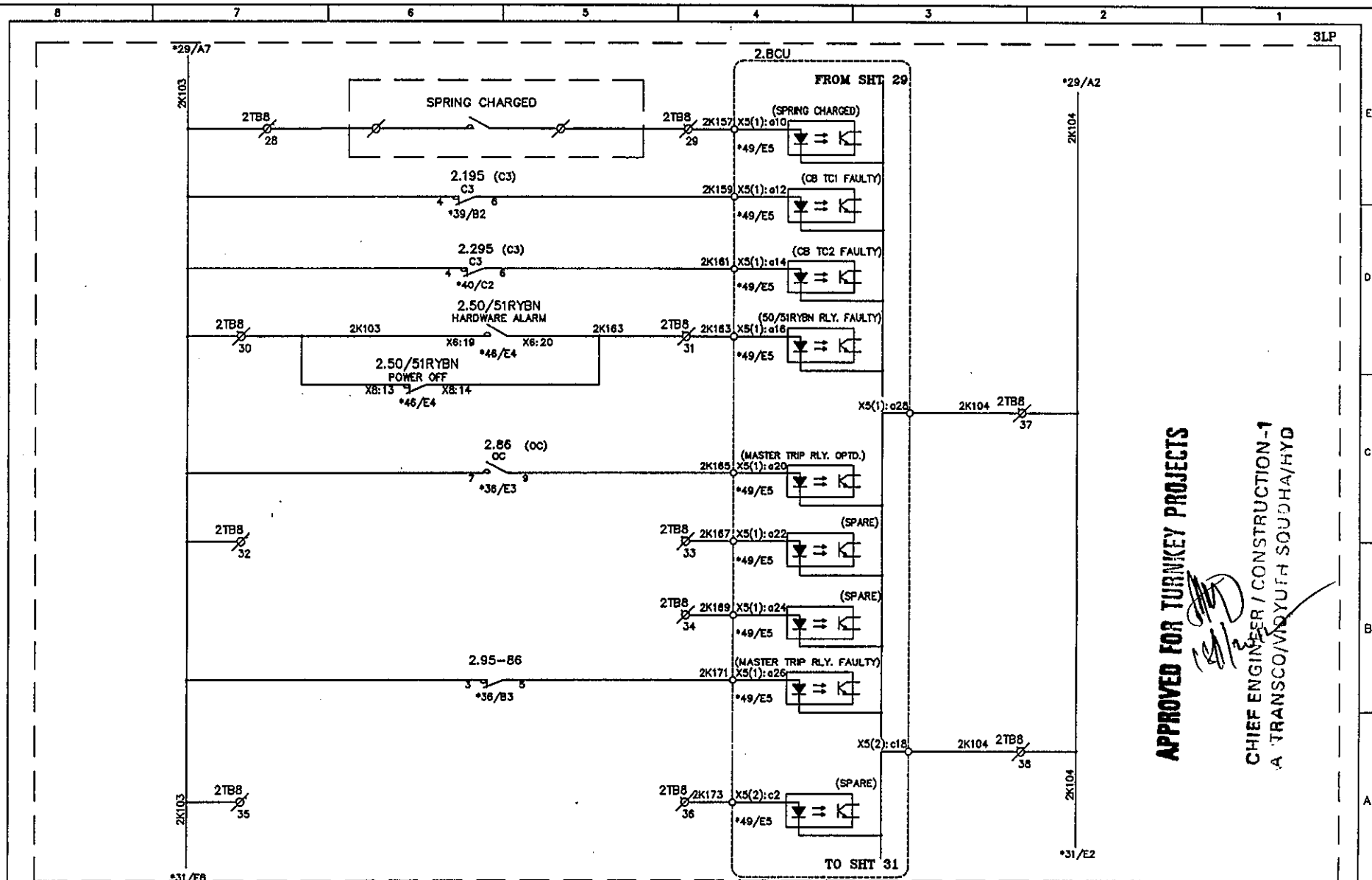
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV
TWIN FEEDER BAY C & R PANEL

CUSTOMER : APTRANSCO
CONTRACTOR:
CONSULTANT:

P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT
e-11/2011/RC-4073/2011 D:28.07.2011

ERL REF.: ZCP1812,50 SCALE : NTS

THIS SHT: 29
NEXT SHT: 30
TOT SHT: 54



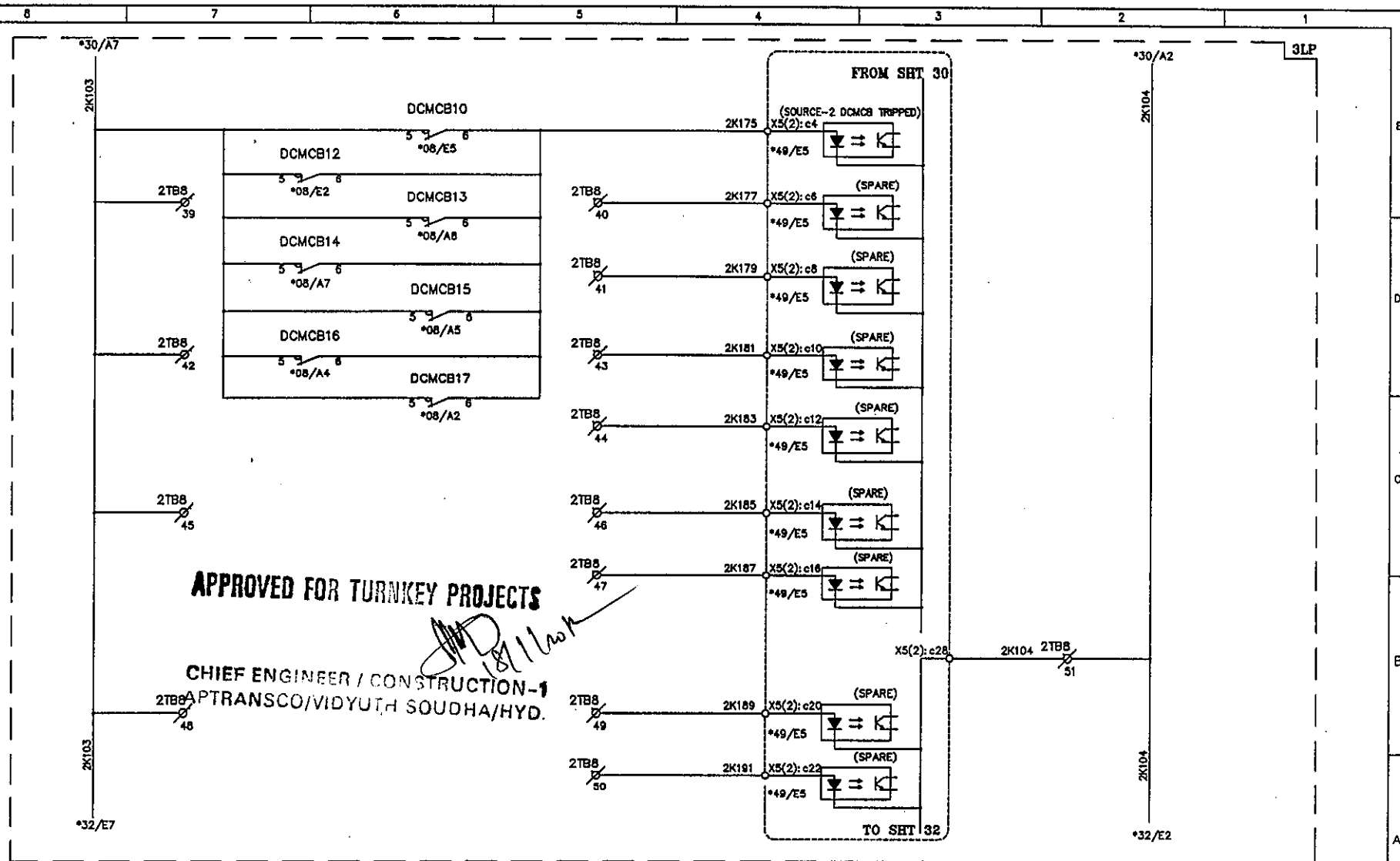
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CHIEF ENGINEER / CONSTRUCTION -1
A. TRANSCO/VIOYUTH SODHA/HYD

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :FDR-2 BCU CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCPT1812,50 SCALE :NTS

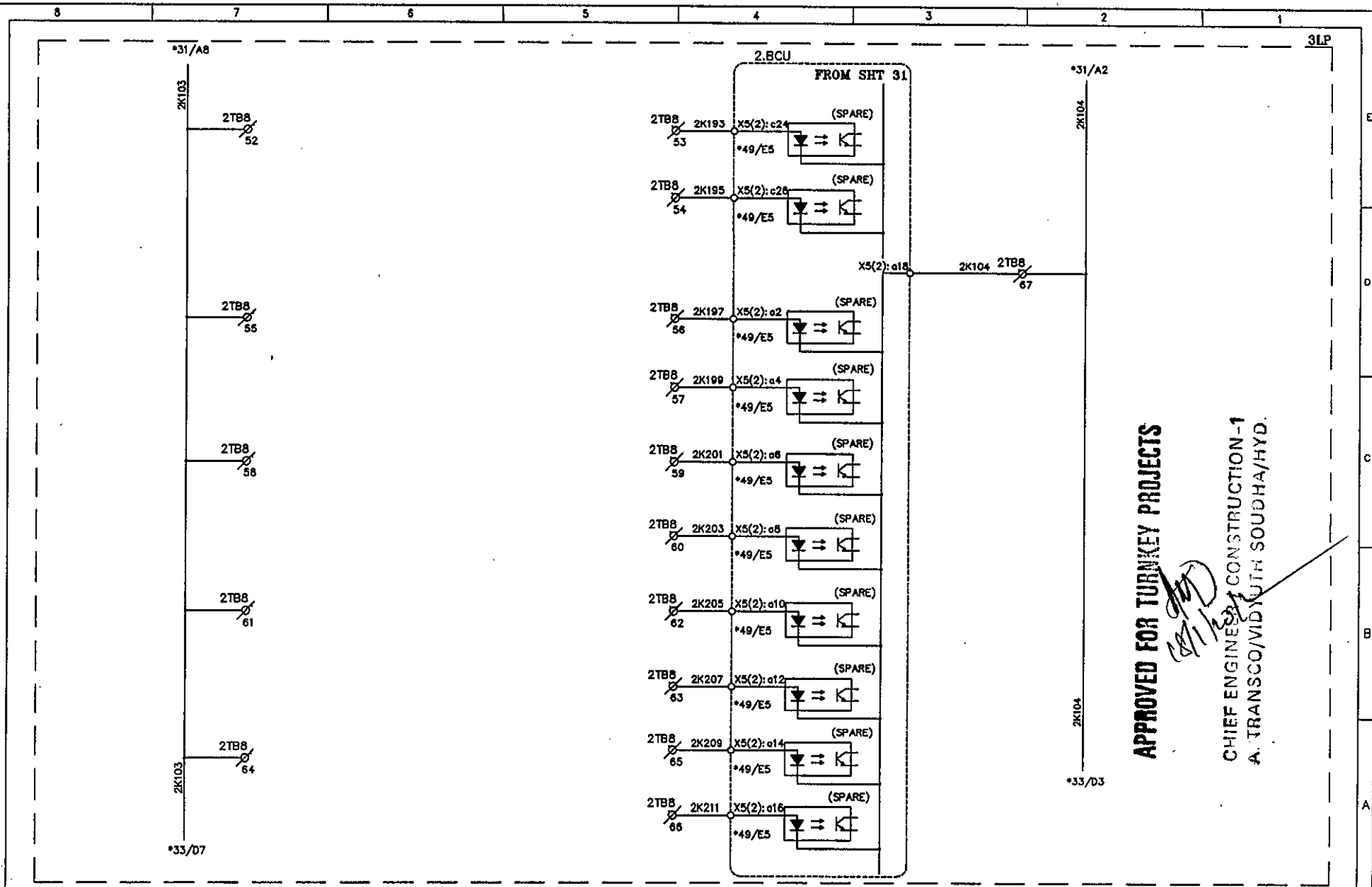
THIS SHT: 30
NEXT SHT: 31
TOT SHT: 54

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C	ASBUILT	05.11.11	V.A	J.V	G.M	EERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO : ER1812,50&51 SC DFDCR11	CUSTOMER : APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SHT. TITLE : FOR-2 BCU CIRCUIT	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M			CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.: ZCP1812,50 SCALE : NTS

THIS SHT: 31
NEXT SHT: 32
TOT SHT: 54



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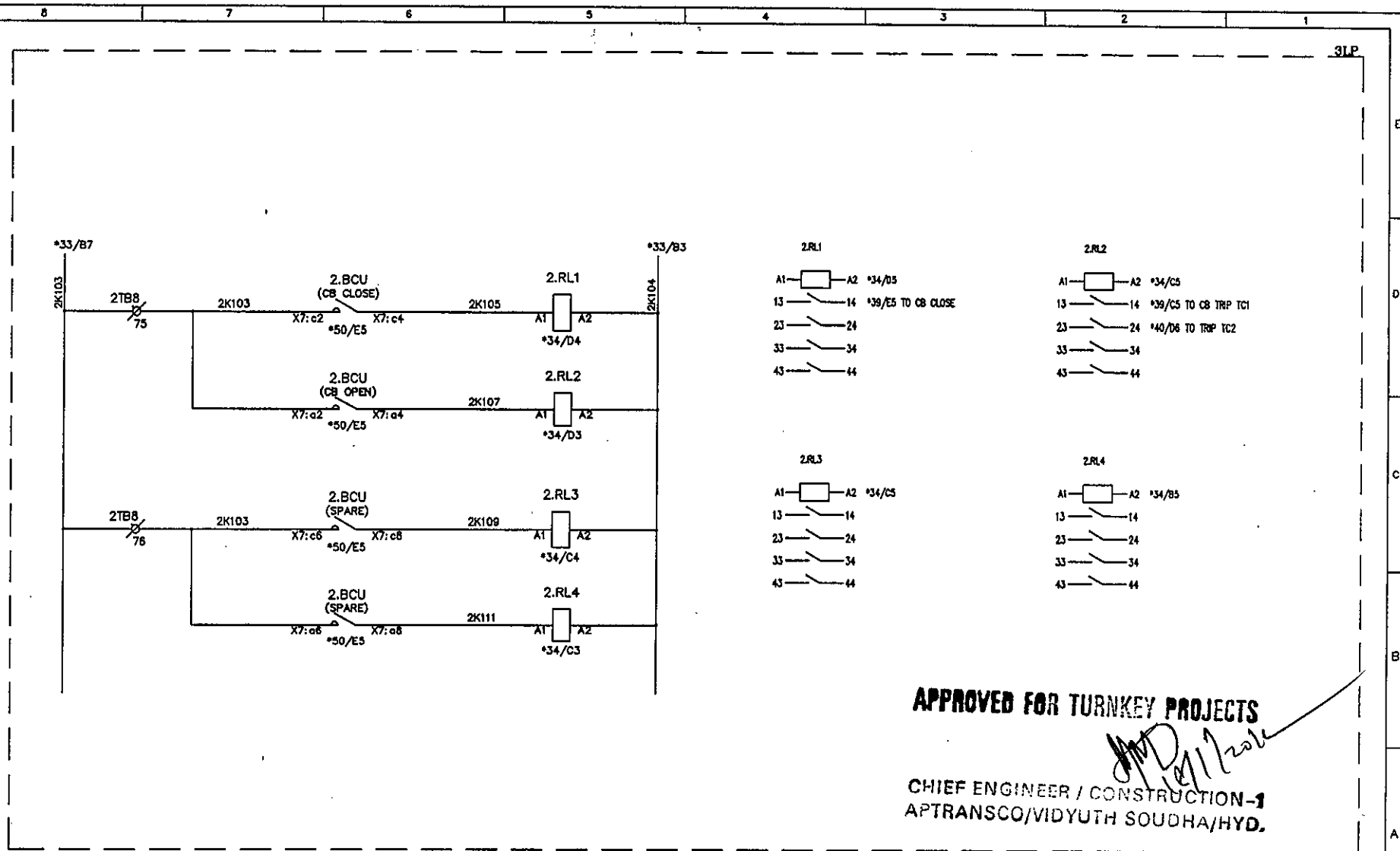
CHIEF ENGINEER CONSTRUCTION-1
A. TRANSCO/VIDUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	ERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :FDR-2 BCU CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50 SCALE :NTS TOT SHT: 54

THIS SHT: 32
NEXT SHT: 33

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812.50&51 SC DFDCR11	CUSTOMER :APRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :FDR-2 BCU CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 33 NEXT SHT: 34
							ERL REF.:ZCP1812.50	SCALE : NTS	TOT SHT: 54

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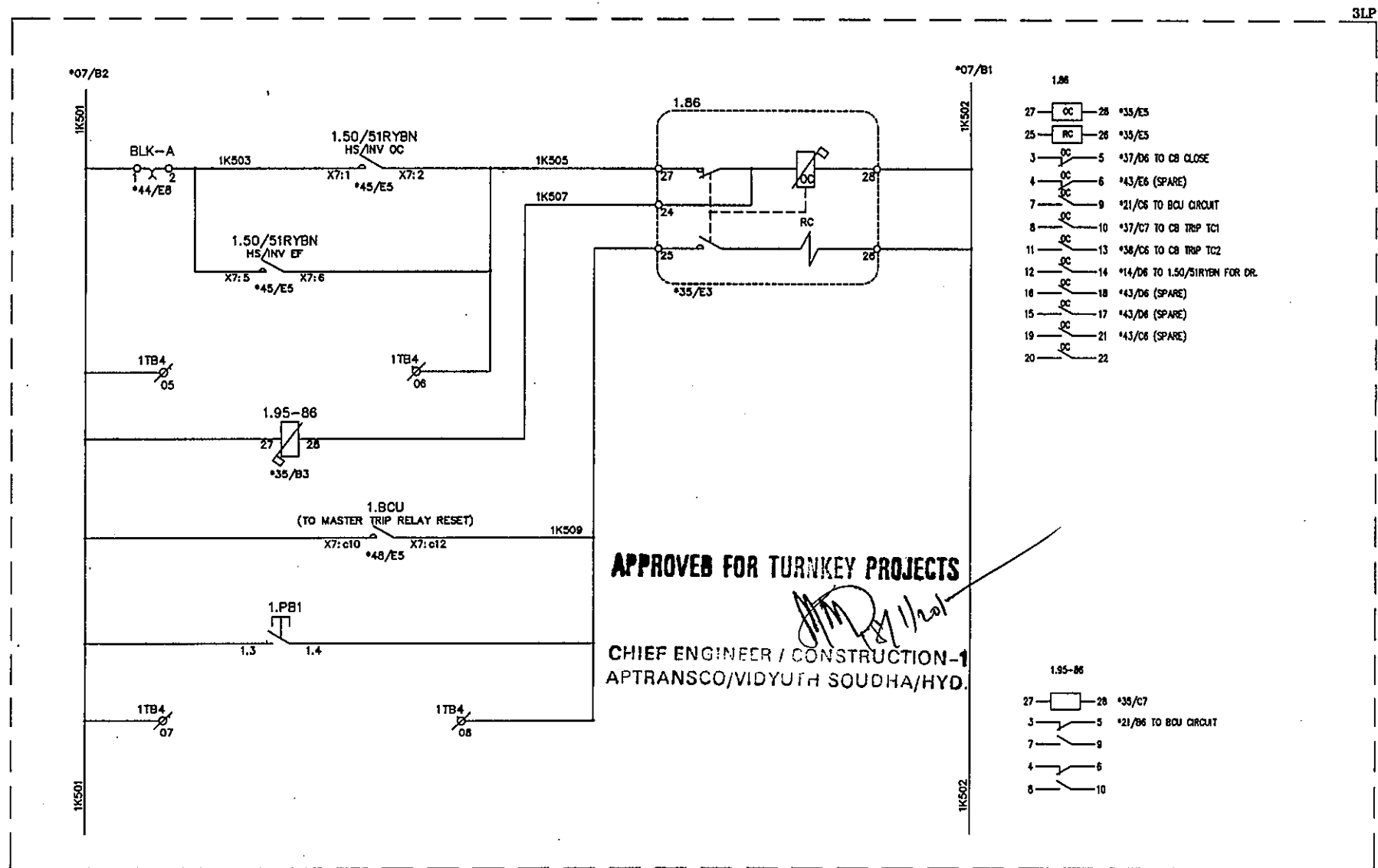


C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51 SC DFDCR11	CUSTOMER : APTRANSCO				
SUBSTATION: 132/33KV SS	CONTRACTOR:				
SHT. TITLE : FDR-2 BCU COMMAND RELAY CIRCUIT	CONSULTANT:				
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011</td> <td style="width: 50%;">THIS SHT: 34 NEXT SHT: 35</td> </tr> <tr> <td>ERL REF. : ZCP1812.50</td> <td>SCALE : NTS TOT SHT: 54</td> </tr> </table>	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 34 NEXT SHT: 35	ERL REF. : ZCP1812.50	SCALE : NTS TOT SHT: 54
P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 34 NEXT SHT: 35				
ERL REF. : ZCP1812.50	SCALE : NTS TOT SHT: 54				

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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO : ER1812.50&51 SC DFDCR11	CUSTOMER : APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION: 132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE : FDR-1 MASTER TRIP RELAY CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 35 NEXT SHT: 36
							ERL REF.: ZCP1812.50	SCALE : NTS	TOT SHT: 54

3LP

*08/B2

2K501

BLK-B
*44/E6

2K503

X7:1 X7:2
*46/E4

2.50/51RYBN HS/INV OC

X7:5 X7:6
*46/E4

2.50/51RYBN HS/INV EF

2TB4 / 05

2TB4 / 06

2.95-86
27 28
*36/B3

2.BCU
(TO MASTER TRIP RELAY RESET)

X7:c10 X7:c12
*50/E5

2.PB1
1.3 1.4

2TB4 / 07

2TB4 / 08

2K509

2.86

27 28
RC

*36/E3

*08/B2

2K502

2.86

27 28 *36/E5

25 26 *36/E5

3 5 *38/D6 TO CB CLOSE

4 6 *43/E2 (SPARE)

7 9 *30/C6 TO BCU CIRCUIT

8 10 *38/C7 TO CB TRIP TC1

11 13 *40/C6 TO CB TRIP TC2

12 14 *43/D2 (SPARE)

16 18 *43/C2 (SPARE)

15 17 *16/D6 TO 2.50/51RYBN FOR DR.

19 21 *43/D2 (SPARE)

20 22

2.95-86

27 28 *36/C7

3 5 *30/B6 TO BCU CIRCUIT

7 9

4 6

8 10

2K501

2K502

APPROVED FOR TURNKEY PROJECTS

[Signature]

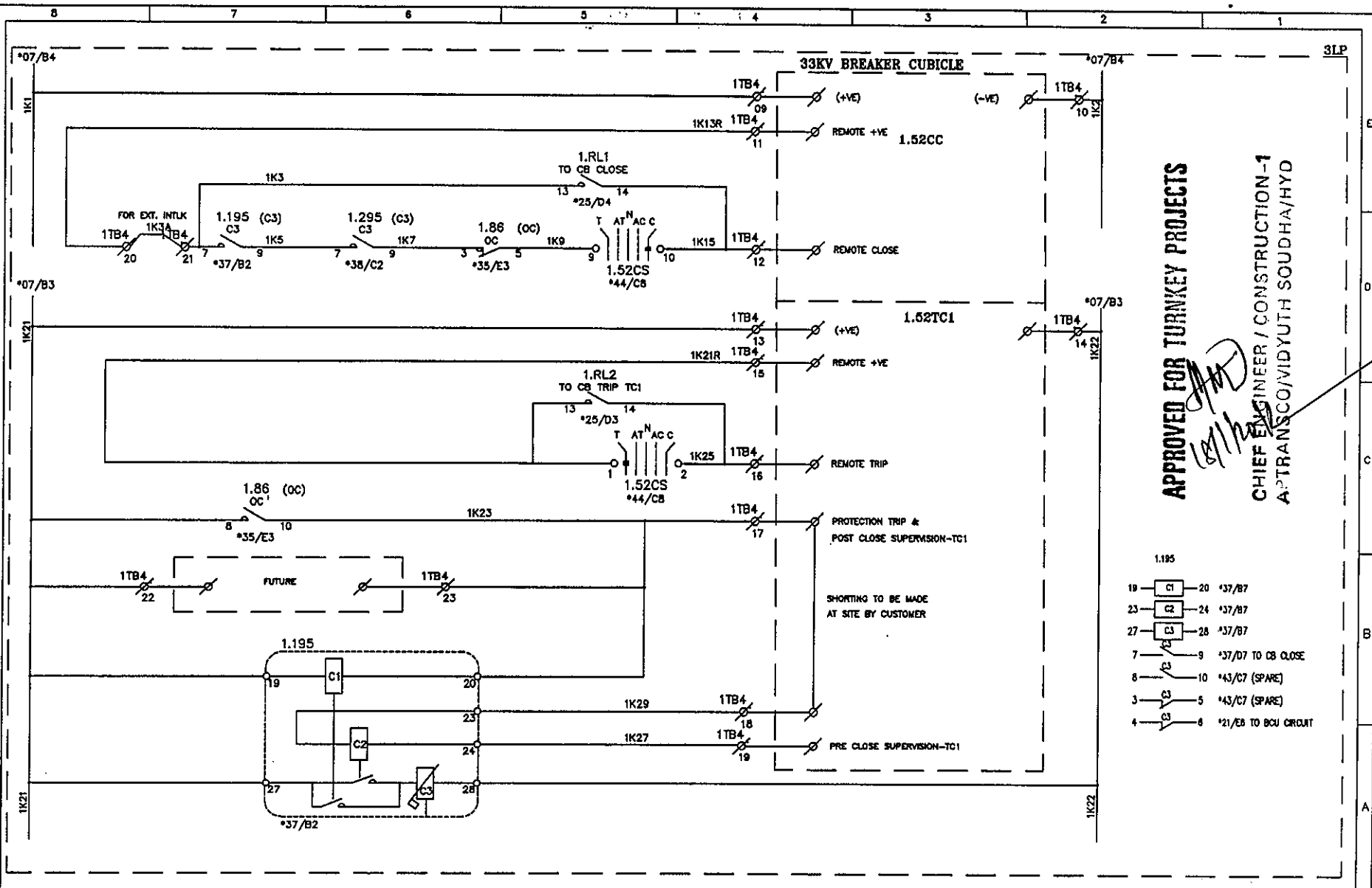
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED


EASUN REYROLLE LTD
 HOSUR, TAMILNADU
 INDIA - 635126

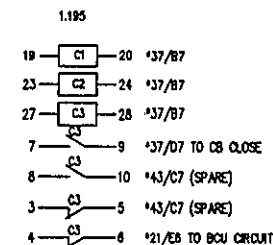
DWG.NO : ER1812,50&51 SC DFDCR11	CUSTOMER : APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE : FDR-2 MASTER TRIP RELAY CIRCUIT	CONSULTANT:
P.O. NO.:CE/Const-I/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 36 NEXT SHT: 37
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	ERL REF. : ZCP1812.50 SCALE : NTS TOT SHT: 54

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APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SODHA/HYD



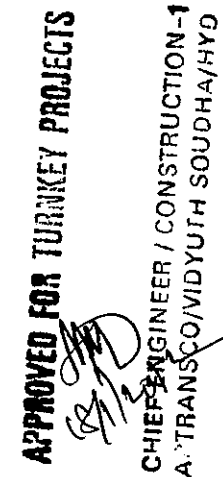
C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :FDR-1 BREAKER CONTROL CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 37 NEXT SHT: 38
							ERL REF.:ZCP1812.50	SCALE : NTS	TOT SHT: 54

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO		
SUBSTATION:132/33KV SS	CONTRACTOR:		
SHT. TITLE :FDR-1 BREAKER CONTROL CIRCUIT	CONSULTANT:		
DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT	THIS SHT: 38	
	e-11/2011/RC-4073/2011	28.07.2011	NEXT SHT: 39
	ERL REF. :ZCP1812,50	SCALE : NTS	TOT SHT: 54

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



2.195

19 — C1 — 20 *39/87
23 — C2 — 24 *39/87
27 — C3 — 28 *39/87

7 — C3 — 9 *39/87 TO CS CLOSE
8 — C3 — 10 *43/C4 (SPARE)
3 — C3 — 5 *43/C4 (SPARE)
4 — C3 — 6 *30/E8 TO BCU CIRCUIT

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CHIEF ENGINEER / CONSTRUCTION - 1
A. TRANSCO/VIDYUTH SOUDHA/HYD

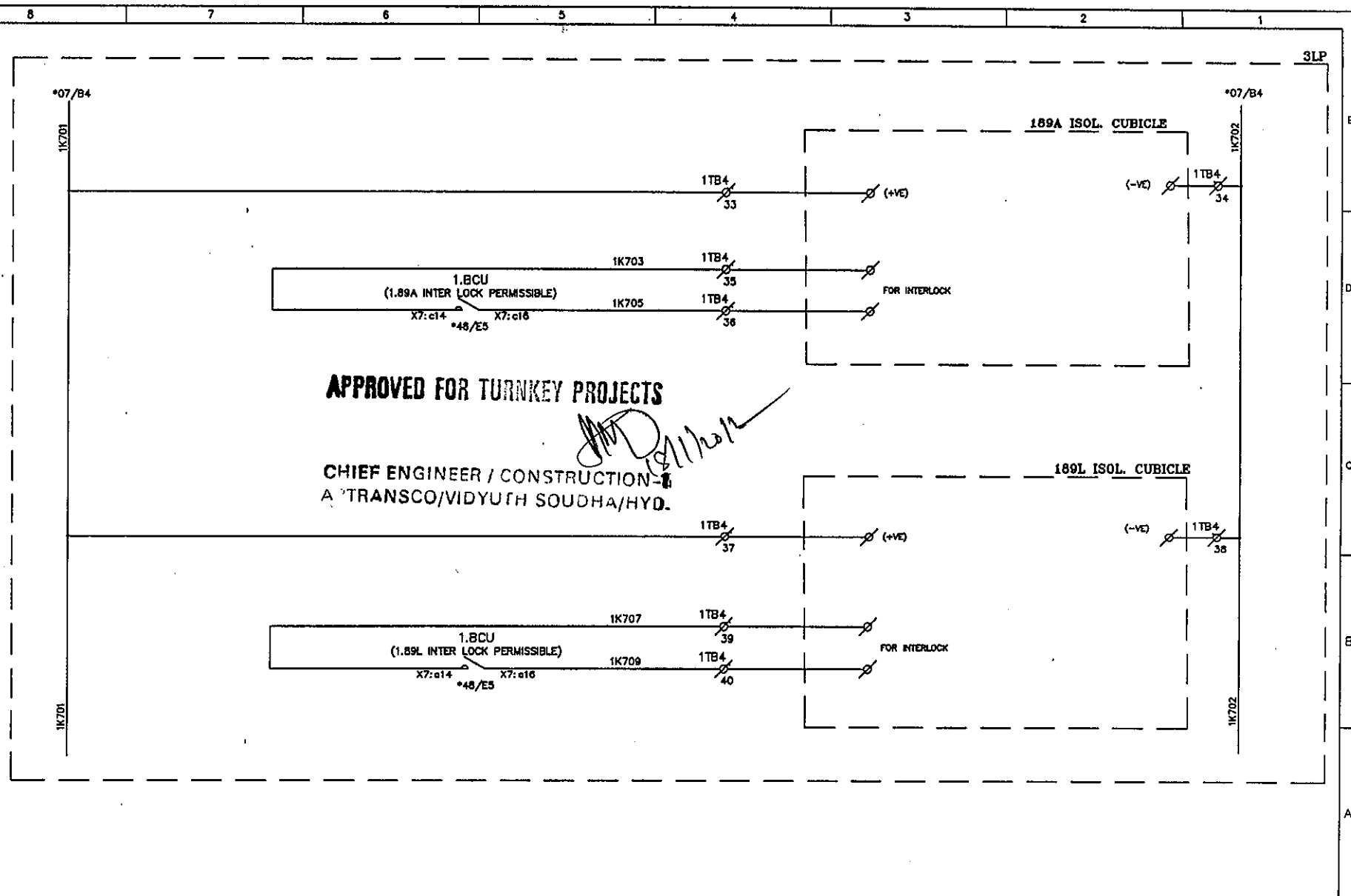
ERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG. TITLE : SCHEMATIC DRAWING FOR 33KV
TWIN FEEDER BAY C & R PANEL

e-11/2011/RC-4073/2011 0:28.07.2011	NEXT SHT:40
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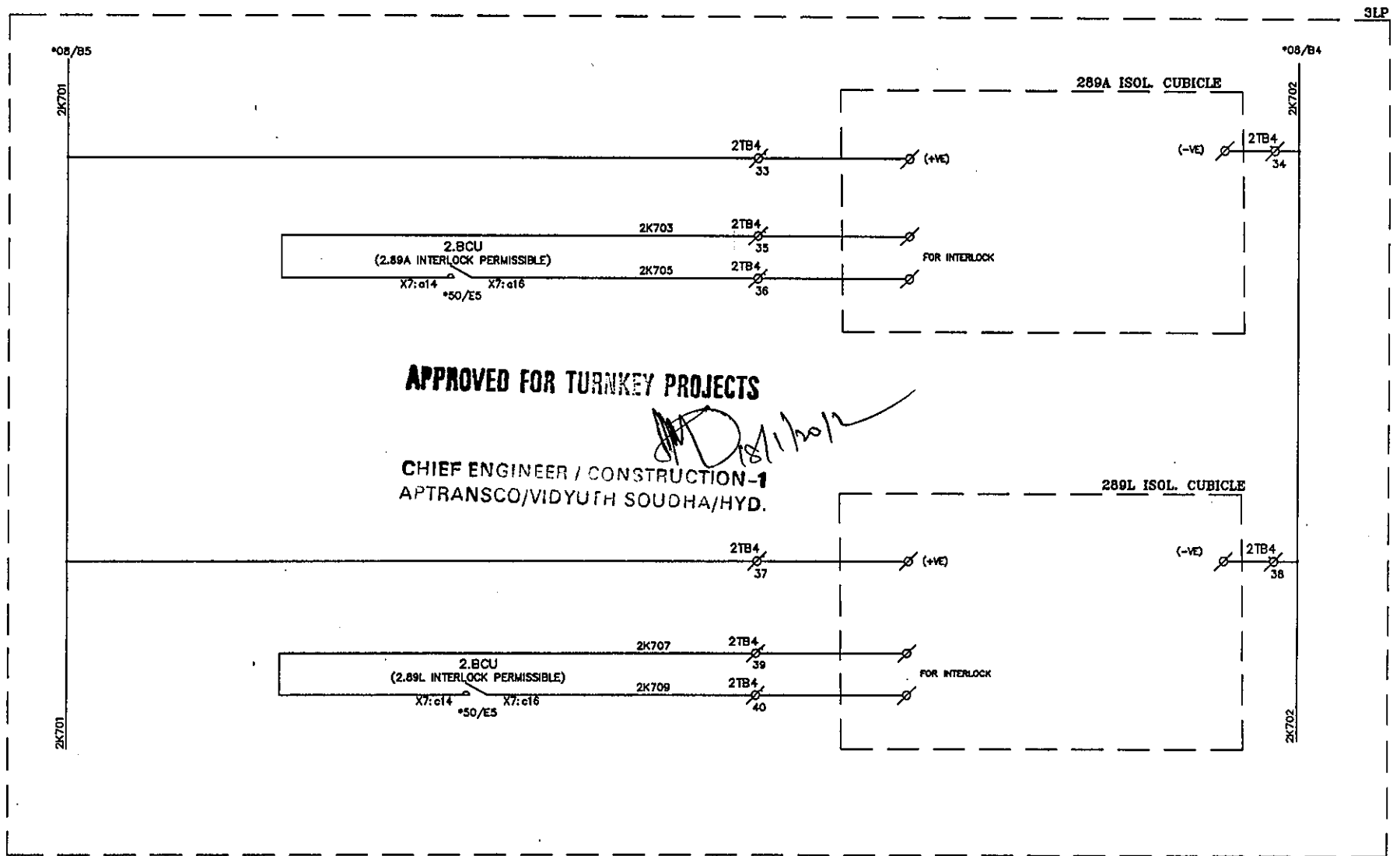
THIS SHT: 39
NEXT SHT: 40
TOT SHT: 54

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :FDR-2 BREAKER CONTROL CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011	THIS SHT: 40 NEXT SHT: 41
							ERL REF. :ZCPI1812.50	SCALE : NTS	TOT SHT: 54



C	ASBUILT	05.11.11	V.A	J.V	G.M	ERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFOCR11	CUSTOMER :APTRANSCO	
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:	
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :FDR-1 ISOL. CONTROL CIRCUIT	CONSULTANT:	
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812,50	THIS SHT: 41 NEXT SHT:42 TOT SHT: 54

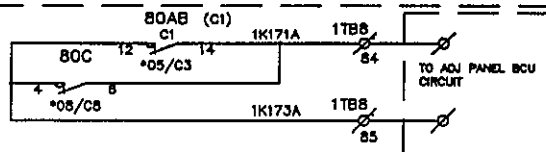
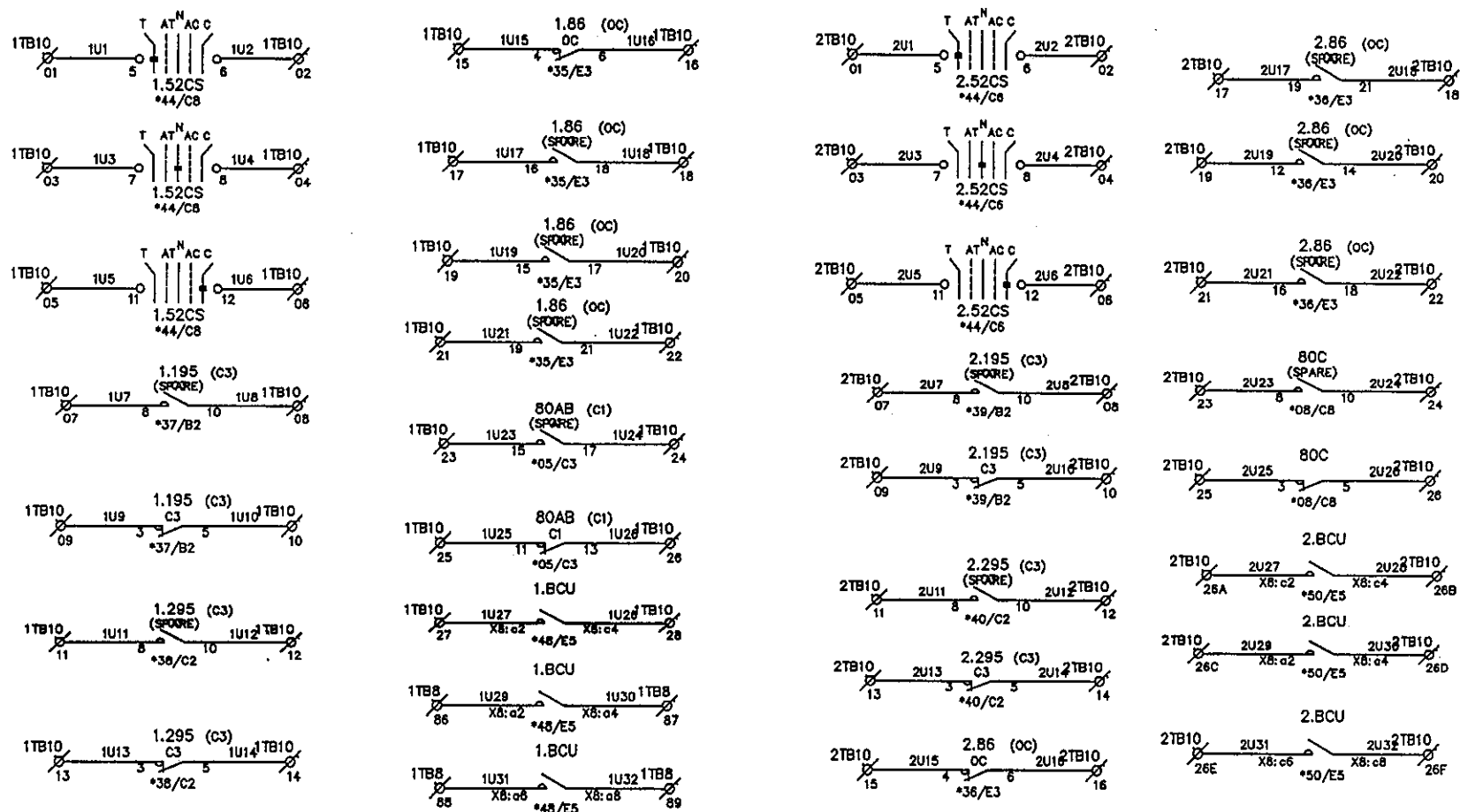
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C	ASBUILT	05.11.11	V.A	J.V	G.M	ERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO : ER1812,50&51 SC DFDCR11	CUSTOMER : APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION: 132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE : FDR-2 ISOL. CONTROL CIRCUIT	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011 ERL REF.: ZCP1812,50 SCALE: NTS/TOT SHT: 54

THIS SHT: 42
NEXT SHT: 43

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



APPROVED FOR TURNKEY PROJECTS

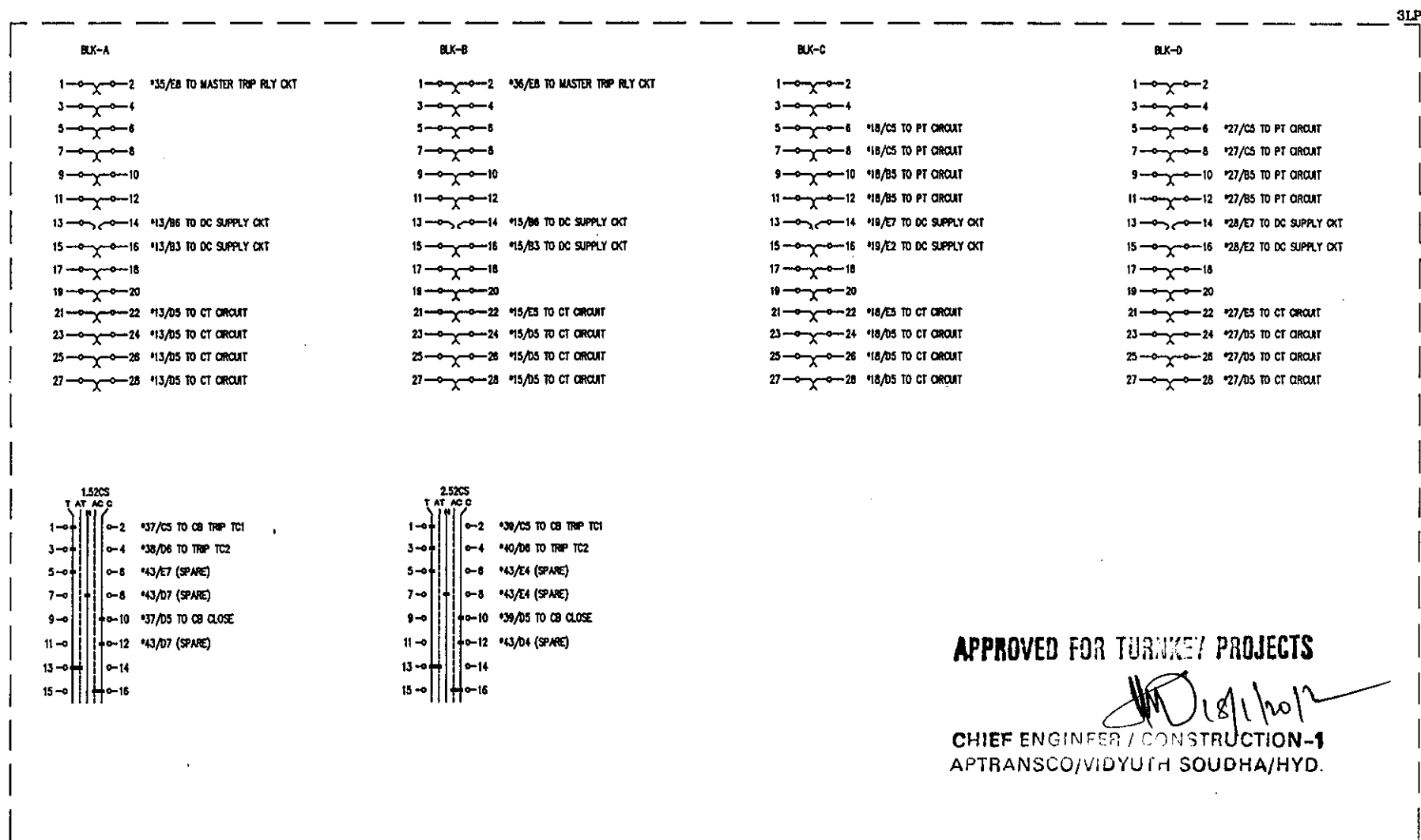
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



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HOSUR, TAMILNADU
INDIA - 635126

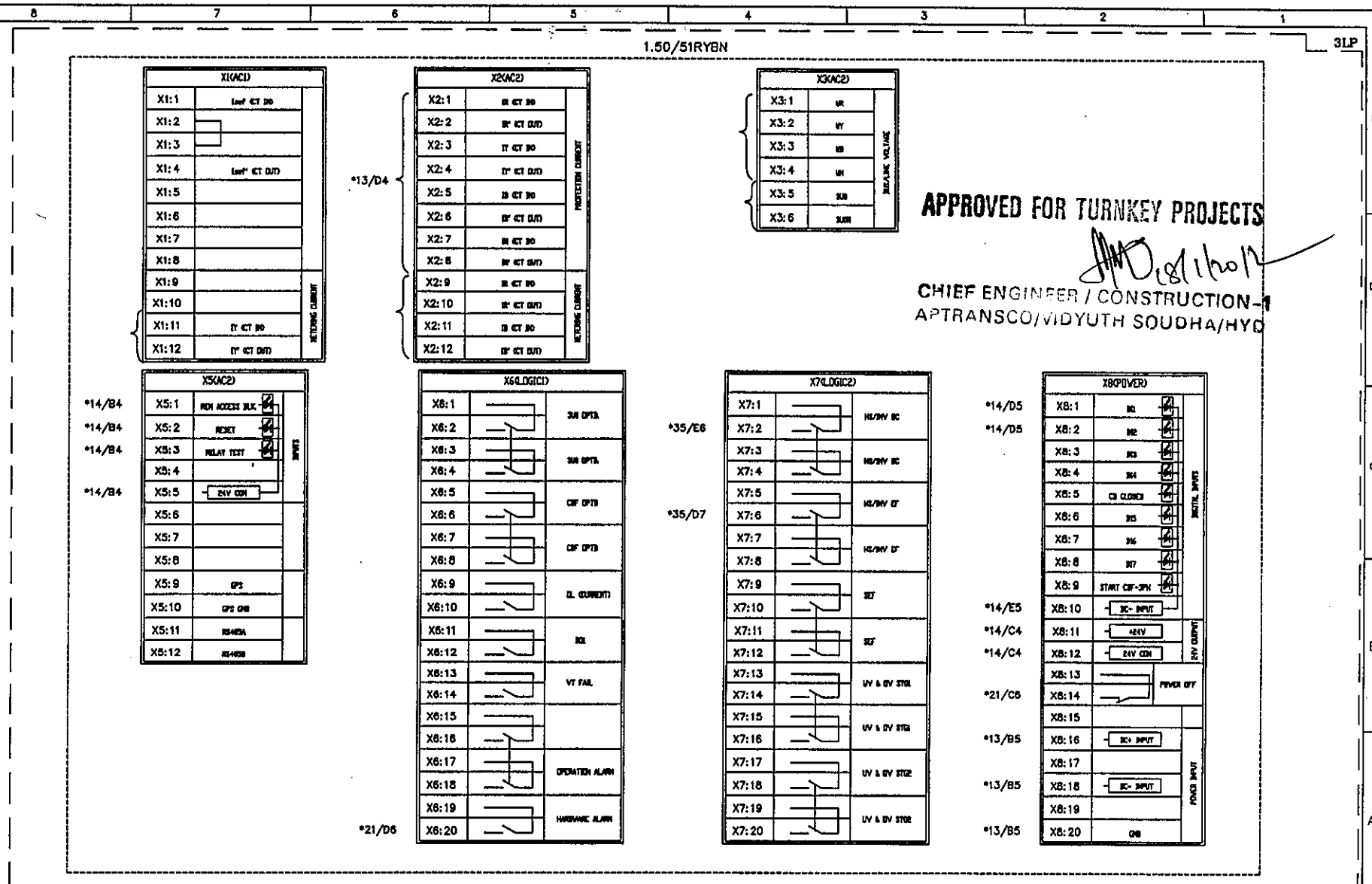
DWG.NO :ER1812.50&51 SC DFDCR11	CUSTOMER :APTRANSCO	
SUBSTATION:132/33KV SS	CONTRACTOR:	
SHT. TITLE :SPARE CONTACTS	CONSULTANT:	
DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011	THIS SHT: 43 NEXT SHT: 44
	ERL REF. :ZCP1812.50	SCALE : NTS TOT SHT: 54



APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	EERL EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :EQUIPMENT REFERENCES	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PM-1/SAS/APT THIS SHT: 44 e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT:45 ERL REF.:ZCP1812,50 SCALE : NTS TOT SHT: 54



C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51 SC DFCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : EQUIPMENT REFERENCES	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PN-1/SAS/APT THIS SHT: 45
	e-11/2011/RC-4073/2011 D:28.07.2011 NEXT SHT: 46
	ERL REF. : ZCP1812.50 SCALE : NTS TOT SHT: 54

2.50/51RYBN

3LP

X1(ACD)	
X1:1	INT CT 30
X1:2	
X1:3	
X1:4	INT CT 30
X1:5	
X1:6	
X1:7	
X1:8	
X1:9	
X1:10	
X1:11	IT CT 30
X1:12	IT CT 30

*15/E4

X2(ACD)	
X2:1	IT CT 30
X2:2	IT CT 30
X2:3	IT CT 30
X2:4	IT CT 30
X2:5	IT CT 30
X2:6	IT CT 30
X2:7	IT CT 30
X2:8	IT CT 30
X2:9	IT CT 30
X2:10	IT CT 30
X2:11	IT CT 30
X2:12	IT CT 30

X3(ACD)	
X3:1	IT
X3:2	IT
X3:3	IT
X3:4	IT
X3:5	IT
X3:6	IT

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CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD

*16/B4
*16/B4
*16/B4
*16/B4

X5(ACD)	
X5:1	NON ACCESS BLK
X5:2	RESET
X5:3	RELAY TEST
X5:4	
X5:5	ENV CON
X5:6	
X5:7	
X5:8	
X5:9	OPC
X5:10	OPC 2
X5:11	OPC 3
X5:12	OPC 4

*30/D8

X6(ACD)	
X6:1	3A OPTA
X6:2	3A OPTA
X6:3	3A OPTA
X6:4	3A OPTA
X6:5	CF OPTA
X6:6	CF OPTA
X6:7	CF OPTA
X6:8	CF OPTA
X6:9	CF OPTA
X6:10	CF OPTA
X6:11	CF OPTA
X6:12	CF OPTA
X6:13	CF OPTA
X6:14	CF OPTA
X6:15	CF OPTA
X6:16	CF OPTA
X6:17	CF OPTA
X6:18	CF OPTA
X6:19	CF OPTA
X6:20	CF OPTA

*36/E6

*36/D7

X7(ACD)	
X7:1	3A OPTA
X7:2	3A OPTA
X7:3	3A OPTA
X7:4	3A OPTA
X7:5	3A OPTA
X7:6	3A OPTA
X7:7	3A OPTA
X7:8	3A OPTA
X7:9	3A OPTA
X7:10	3A OPTA
X7:11	3A OPTA
X7:12	3A OPTA
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X7:15	3A OPTA
X7:16	3A OPTA
X7:17	3A OPTA
X7:18	3A OPTA
X7:19	3A OPTA
X7:20	3A OPTA

*16/D5
*16/D5

*16/E5
*16/C4
*16/C4

*30/C6

*15/B5

*15/B5

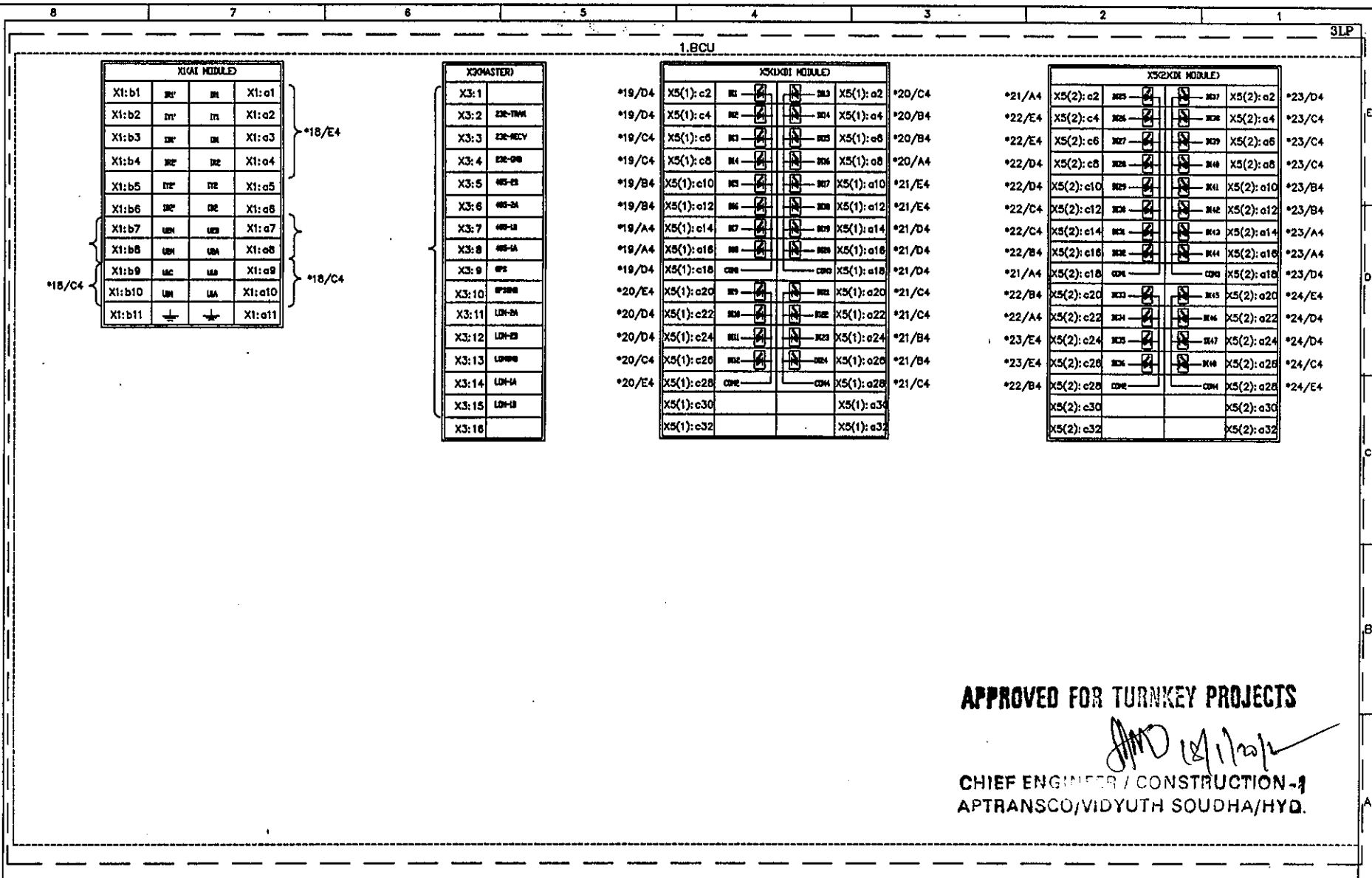
*15/B5

X8(ACD)	
X8:1	3A OPTA
X8:2	3A OPTA
X8:3	3A OPTA
X8:4	3A OPTA
X8:5	3A OPTA
X8:6	3A OPTA
X8:7	3A OPTA
X8:8	3A OPTA
X8:9	3A OPTA
X8:10	3A OPTA
X8:11	3A OPTA
X8:12	3A OPTA
X8:13	3A OPTA
X8:14	3A OPTA
X8:15	3A OPTA
X8:16	3A OPTA
X8:17	3A OPTA
X8:18	3A OPTA
X8:19	3A OPTA
X8:20	3A OPTA

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

ERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51 SC DFDCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : EQUIPMENT REFERENCES	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PN-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011
ERL REF.: ZCP1812.50	SCALE : NTS
TOT SHT: 54	THIS SHT: 46
	NEXT SHT: 47



APPROVED FOR TURNKEY PROJECTS

[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO : ER1812.50&51 SC DFDCR11	CUSTOMER : APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION: 132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE : EQUIPMENT REFERENCES	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF. : ZCP1812.50 SCALE : NTS

THIS SHT: 47
 NEXT SHT: 48
 TOT SHT: 54

1.BCU

X7(CD) MODULE				
*25/D7	X7: c2			X7: a2
	X7: c4			X7: a4
*25/C7	X7: c6			X7: a6
	X7: c8			X7: a8
*35/B6	X7: c10			X7: a10
	X7: c12			X7: a12
*41/D6	X7: c14			X7: a14
	X7: c16			X7: a16
*14/B6	X7: c18			X7: a18
	X7: c20			X7: a20
	X7: c22			X7: a22
	X7: c24			X7: a24
	X7: c26			X7: a26
	X7: c28			X7: a28
	X7: c30			X7: a30
	X7: c32			X7: a32

*25/C7

*25/B7

*41/B6

X8(CD) MODULE				
X8: c2			X8: a2	X8: a4
	X8: c4			
X8: c6			X8: a6	X8: a8
	X8: c8			
X8: c10			X8: a10	X8: a12
	X8: c12			
X8: c14			X8: a14	X8: a16
	X8: c16			
X8: c18			X8: a18	X8: a20
	X8: c20			
X8: c22			X8: a22	X8: a24
	X8: c24			
X8: c26			X8: a26	X8: a28
	X8: c28			
X8: c30			X8: a30	
X8: c32			X8: a32	

*24/B5

*24/B5

*24/B5

*24/B5

*24/B5

*24/B5

*24/B5

*24/B5

*24/B5

*24/B5

*24/B5

*24/B5

*24/B5

*24/B5

*24/B5

*24/B5

X9(CD) MODULE				
X9: c2			X9: a2	X9: a4
	X9: c4			
X9: c6			X9: a6	X9: a8
	X9: c8			
X9: c10			X9: a10	X9: a12
	X9: c12			
X9: c14			X9: a14	X9: a16
	X9: c16			
X9: c18			X9: a18	X9: a20
	X9: c20			
X9: c22			X9: a22	X9: a24
	X9: c24			
X9: c26			X9: a26	X9: a28
	X9: c28			
X9: c30			X9: a30	
X9: c32			X9: a32	

X11(PV) MODULE				
X11: c2			X11: a2	X11: a4
	X11: c4	INV- OUTPUT		
X11: c6			X11: a6	X11: a8
	X11: c8			
X11: c10		INV- OUTPUT	X11: a10	X11: a12
	X11: c12			
X11: c14			X11: a14	X11: a16
	X11: c16	DC FAILURE		
X11: c18			X11: a18	X11: a20
	X11: c20			
X11: c22		DC- INPUT	X11: a22	X11: a24
	X11: c24			
X11: c26		DC- INPUT	X11: a26	X11: a28
	X11: c28			
X11: c30			X11: a30	
X11: c32			X11: a32	

*14/D6

*19/E4

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / INSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

EERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812&1813 SC DFDCR11

SUBSTATION: 132/33KV SS

SHT. TITLE : EQUIPMENT REFERENCES

DWG. TITLE : SCHEMATIC DRAWING FOR 33KV
TWIN FEEDER BAY C & R PANEL

CUSTOMER : APTRANSCO

CONTRACTOR:

CONSULTANT:

P.O. NO.: CE/Const-I/SE/PM-1/SAS/APT

e-11/2011/D.No.84/2011 D:23.06.2011

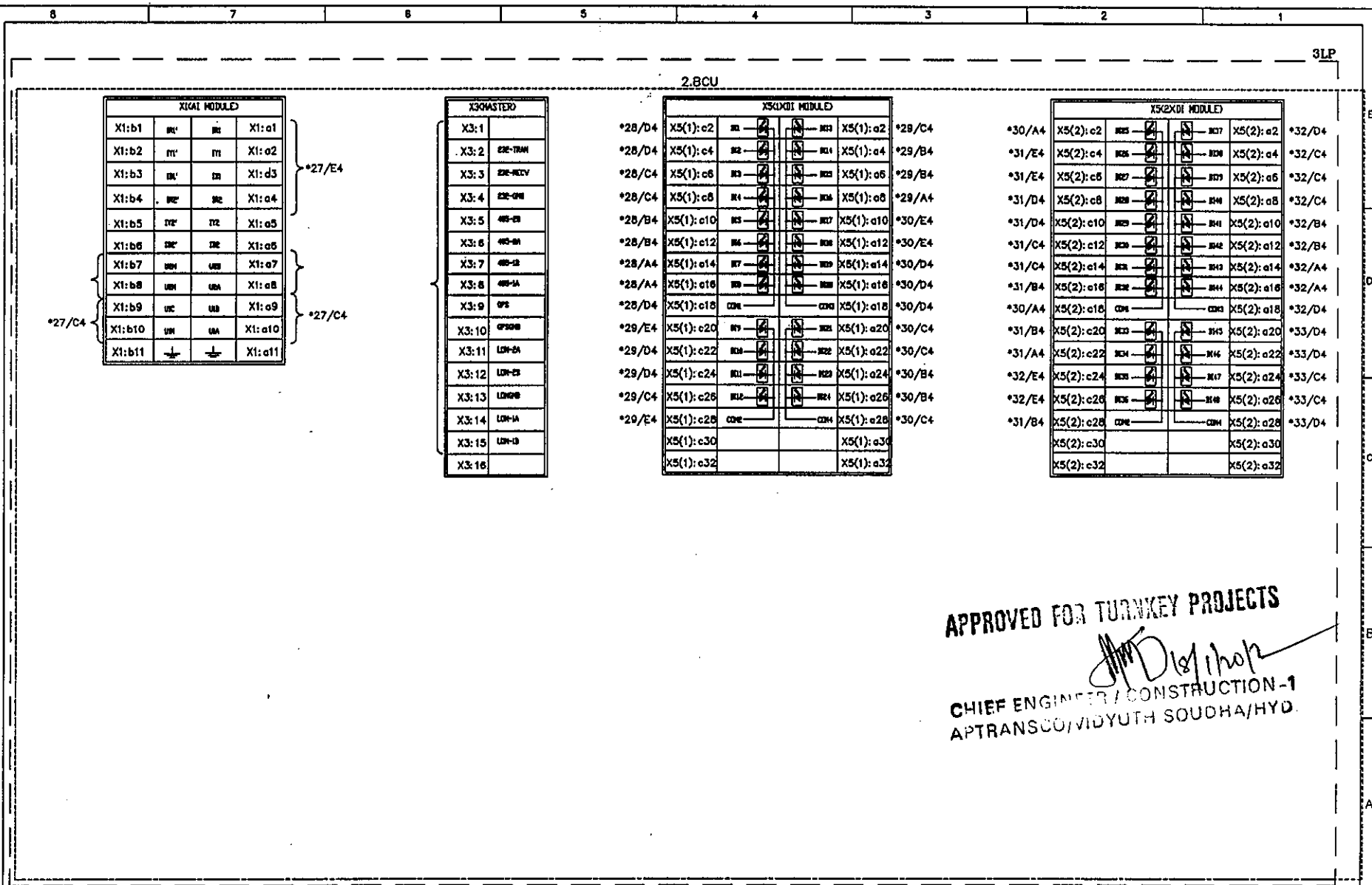
ERL REF.: ZCP1812&13 SCALE: NTS

THIS SHT: 48

NEXT SHT: 49

TOT SHT: 54

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M



APPROVED FOR TURNKEY PROJECTS

[Signature]

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED

EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51 SC DFDCR11	CUSTOMER : APTRANSCO						
SUBSTATION: 132/33KV SS	CONTRACTOR:						
SHT. TITLE : EQUIPMENT REFERENCES	CONSULTANT:						
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT</td> <td>THIS SHT: 49</td> </tr> <tr> <td>e-11/2011/RC-4073/2011 D:28.07.2011</td> <td>NEXT SHT: 50</td> </tr> <tr> <td>ERL REF.: ZCP1812.50</td> <td>SCALE : NTS TOT SHT: 54</td> </tr> </table>	P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT	THIS SHT: 49	e-11/2011/RC-4073/2011 D:28.07.2011	NEXT SHT: 50	ERL REF.: ZCP1812.50	SCALE : NTS TOT SHT: 54
P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT	THIS SHT: 49						
e-11/2011/RC-4073/2011 D:28.07.2011	NEXT SHT: 50						
ERL REF.: ZCP1812.50	SCALE : NTS TOT SHT: 54						

2.BCU

X7(DO) MODULE			
X7: c2	X01	X02	X7: a2
X7: c4			X7: a4
X7: c6	X03	X04	X7: a6
X7: c8			X7: a8
X7: c10	X05	X06	X7: a10
X7: c12			X7: a12
X7: c14	X07	X08	X7: a14
X7: c16			X7: a16
X7: c18	X09	X10	X7: a18
X7: c20			X7: a20
X7: c22	X11	X12	X7: a22
X7: c24			X7: a24
X7: c26	X13	X14	X7: a26
X7: c28			X7: a28
X7: c30			X7: a30
X7: c32			X7: a32

*34/C7

*34/B7

*42/D6

X8(DO) MODULE			
X8: c2	X05	X06	X8: a2
X8: c4			X8: a4
X8: c6	X07	X08	X8: a6
X8: c8			X8: a8
X8: c10	X09	X10	X8: a10
X8: c12			X8: a12
X8: c14	X11	X12	X8: a14
X8: c16			X8: a16
X8: c18	X13	X14	X8: a18
X8: c20			X8: a20
X8: c22	X15	X16	X8: a22
X8: c24			X8: a24
X8: c26	X17	X18	X8: a26
X8: c28			X8: a28
X8: c30			X8: a30
X8: c32			X8: a32

X10(DO) MODULE			
X9: c2	X11+		X9: a2
X9: c4	X11-		X9: a4
X9: c6	X12+		X9: a6
X9: c8	X12-		X9: a8
X9: c10	X13+		X9: a10
X9: c12	X13-		X9: a12
X9: c14	X14+		X9: a14
X9: c16	X14-		X9: a16
X9: c18	X15+		X9: a18
X9: c20	X15-		X9: a20
X9: c22			X9: a22
X9: c24			X9: a24
X9: c26			X9: a26
X9: c28			X9: a28
X9: c30			X9: a30
X9: c32			X9: a32

X11(POWER)		
X11: c2		
X11: c4	24V+ OUTPUT	
X11: c6		
X11: c8		
X11: c10	24V- OUTPUT	
X11: c12		
X11: c14		X11: a14
X11: c16	DC FAILURE	X11: a16
X11: c18		
X11: c20	DC+ INPUT	
X11: c22		
X11: c24		
X11: c26	DC- INPUT	
X11: c28		
X11: c30		
X11: c32		

*16/D6

*28/E4

APPROVED FOR TURNKEY PROJECTS

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

EERL EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812&1813 SC DFDCR11

SUBSTATION: 132/33KV SS

SHT. TITLE : EQUIPMENT REFERENCES

DWG. TITLE : SCHEMATIC DRAWING FOR 33KV
TWIN FEEDER BAY C & R PANEL

CUSTOMER : APTRANSCO

CONTRACTOR:

CONSULTANT:

P.O. NO.: CE/Const-1/SE/PM-1/SAS/APT
e-11/2011/D.No.84/2011 D:23.06.2011
ERL REF.: ZCP1812&13 ISCALE : NTS

THIS SHT: 50

NEXT SHT: 51

TOT SHT: 54

REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M

CHIEF ENGINEER/ CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

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1TB1	REF	1TB4	REF	1TB4	REF	1TB8	REF	1TB8	REF	1TB8	REF	1TB8	REF
1TB1:01	*09/D6	1TB4:01	*14/B7	1TB4:29	*38/B5	1TB8:01	*19/D6	1TB8:29	*20/C2	1TB8:57	*23/E7	1TB8:85	*24/C5
1TB1:02	*09/D6	1TB4:02	*14/B5	1TB4:30	*38/B5	1TB8:02	*19/D4	1TB8:30	*21/E7	1TB8:58	*23/E5	1TB8:86	*24/E3
1TB1:03	*09/D6	1TB4:03	*14/B7	1TB4:31	*38/C7	1TB8:03	*19/D4	1TB8:31	*21/E4	1TB8:59	*23/E7	1TB8:87	*24/B6
1TB1:04	*09/C6	1TB4:04	*14/B5	1TB4:32	*38/C6	1TB8:04	*19/C6	1TB8:32	*21/D7	1TB8:60	*23/E5	1TB8:88	*24/B3
1TB1:05	*09/D5	1TB4:05	*35/C7	1TB4:33	*41/E4	1TB8:05	*19/C4	1TB8:33	*21/D4	1TB8:61	*23/D7	1TB8:89	*24/B6
1TB1:06	*09/D5	1TB4:06	*35/C6	1TB4:34	*41/E1	1TB8:06	*19/C4	1TB8:34	*21/C7	1TB8:62	*23/D5	1TB8:90	*24/B3
1TB1:07	*09/D5	1TB4:07	*35/A7	1TB4:35	*41/D4	1TB8:07	*19/B6	1TB8:35	*21/C4	1TB8:63	*23/C7	1TB8:91	*24/B6
1TB1:08	*09/C5	1TB4:08	*35/A6	1TB4:36	*41/D4	1TB8:08	*19/B4	1TB8:36	SPARE	1TB8:64	*23/C5	1TB8:92	*24/B3
1TB1:09	*09/C6	1TB4:09	*37/E4	1TB4:37	*41/C4	1TB8:09	*19/B4	1TB8:37	SPARE	1TB8:65	*23/C7	1TB8:93	*24/A6
1TB1:10	*09/C6	1TB4:10	*37/E2	1TB4:38	*41/C1	1TB8:10	*19/A6	1TB8:38	*21/C3	1TB8:66	*23/C5	1TB8:94	*24/A3
1TB1:11	*09/C6	1TB4:11	*37/E4	1TB4:39	*41/B4	1TB8:11	*19/A4	1TB8:39	*21/A3	1TB8:67	*23/C7	1TB8:95	*24/A6
1TB1:12	*09/B6	1TB4:12	*37/D4	1TB4:40	*41/B4	1TB8:12	*19/A4	1TB8:40	*22/E7	1TB8:68	*23/C5	1TB8:96	*24/A3
1TB1:13	*09/B6	1TB4:13	*37/D4	1TB4:41	SPARE	1TB8:13	*19/D3	1TB8:41	*22/E5	1TB8:69	*23/B7	1TB8:97	*25/D8
1TB1:14	*09/C5	1TB4:14	*37/D2	1TB4:42	SPARE	1TB8:14	*20/E7	1TB8:42	*22/D7	1TB8:70	*23/B5	1TB8:98	*25/C8
1TB1:15	*09/B5	1TB4:15	*37/D4	1TB4:43	SPARE	1TB8:15	*20/E4	1TB8:43	*22/D5	1TB8:71	*23/B7	1TB8:99	*43/A6
1TB1:16	*09/B6	1TB4:16	*37/C4	1TB4:44	SPARE	1TB8:16	*20/D4	1TB8:44	*22/D7	1TB8:72	*23/B5	1TB8:100	*43/A6
1TB1:17	*09/B6	1TB4:17	*37/C4	1TB4:45	SPARE	1TB8:17	*20/D7	1TB8:45	*22/D5	1TB8:73	*23/A7	1TB8:101	SPARE
1TB1:18	*09/B6	1TB4:18	*37/B4	1TB4:46	SPARE	1TB8:18	*20/D4	1TB8:46	*22/C7	1TB8:74	*23/A5	1TB8:102	SPARE
1TB1:19	*18/E3	1TB4:19	*37/A4	1TB4:47	SPARE	1TB8:19	*20/C4	1TB8:47	*22/C5	1TB8:75	*23/A7	1TB8:103	SPARE
1TB1:20	*18/D3	1TB4:20	*37/D8	1TB4:48	SPARE	1TB8:20	*20/C7	1TB8:48	*22/C7	1TB8:76	*23/A5	1TB8:104	SPARE
1TB1:21	*18/D3	1TB4:21	*37/D7			1TB8:21	*20/C4	1TB8:49	*22/C5	1TB8:77	*23/D3	1TB8:105	SPARE
1TB1:22	SPARE	1TB4:22	*37/B8			1TB8:22	*20/B7	1TB8:50	*22/B7	1TB8:78	*24/E7	1TB8:106	SPARE
1TB1:23	SPARE	1TB4:23	*37/B6	1TB7	REF	1TB8:23	*20/B4	1TB8:51	*22/B5	1TB8:79	*24/E5	1TB8:107	SPARE
1TB1:24	SPARE	1TB4:24	*38/E5			1TB8:24	*20/B7	1TB8:52	*22/B7	1TB8:80	*24/D7	1TB8:108	SPARE
1TB1:25	SPARE	1TB4:25	*38/E3	1TB7:01	*11/E3	1TB8:25	*20/B4	1TB8:53	*22/B5	1TB8:81	*24/D5	1TB8:109	SPARE
1TB1:26	SPARE	1TB4:26	*38/E5	1TB7:02	*11/E3	1TB8:26	*20/A7	1TB8:54	*22/A7	1TB8:82	*24/D7	1TB8:110	SPARE
		1TB4:27	*38/D5	1TB7:03	*11/E2	1TB8:27	*20/A4	1TB8:55	*22/A5	1TB8:83	*24/D5	1TB8:111	SPARE
		1TB4:28	*38/C5	1TB7:04	SPARE	1TB8:28	*20/E2	1TB8:56	*22/B2	1TB8:84	*24/C7	1TB8:112	SPARE

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51 SC DFDCR11

SUBSTATION: 132/33KV SS

SHT. TITLE : TB SCHEDULE

DWG. TITLE : SCHEMATIC DRAWING FOR 33KV
TWIN FEEDER BAY C & R PANEL

CUSTOMER : APTRANSCO

CONTRACTOR:

CONSULTANT:

P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT

e-11/2011/RC-4073/2011 D:28.07.2011

ERL REF.: ZCP1812.50

SCALE : NTS

THIS SHT: 51

NEXT SHT: 52

TOT SHT: 54

APPROVED FOR TURNKEY PROJECTS

28/11/2011

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

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1TB8	REF	1TB10	REF	2TB1	REF	2TB4	REF	2TB4	REF	2TB8	REF	2TB8	REF
1TB8:113	SPARE	1TB10:01	*43/E8	2TB1:01	*09/D2	2TB4:01	*16/B7	2TB4:29	*40/B5	2TB8:01	*28/D6	2TB8:29	*29/C2
1TB8:114	SPARE	1TB10:02	*43/E7	2TB1:02	*09/D2	2TB4:02	*16/B5	2TB4:30	*40/B5	2TB8:02	*28/D4	2TB8:30	*30/E7
1TB8:115	SPARE	1TB10:03	*43/D8	2TB1:03	*09/D2	2TB4:03	*16/A7	2TB4:31	*40/C7	2TB8:03	*28/D4	2TB8:31	*30/E4
1TB8:116	SPARE	1TB10:04	*43/D7	2TB1:04	*09/C2	2TB4:04	*16/A5	2TB4:32	*40/C6	2TB8:04	*28/C6	2TB8:32	*30/D7
1TB8:117	SPARE	1TB10:05	*43/D8	2TB1:05	*09/D2	2TB4:05	*36/C7	2TB4:33	*42/E4	2TB8:05	*28/C4	2TB8:33	*30/D4
1TB8:118	SPARE	1TB10:06	*43/D7	2TB1:06	*09/D2	2TB4:06	*36/C6	2TB4:34	*42/E1	2TB8:06	*28/C4	2TB8:34	*30/C7
1TB8:119	SPARE	1TB10:07	*43/C8	2TB1:07	*09/D2	2TB4:07	*36/A7	2TB4:35	*42/D4	2TB8:07	*28/B6	2TB8:35	*30/C4
1TB8:120	SPARE	1TB10:08	*43/C7	2TB1:08	*09/C2	2TB4:08	*36/A6	2TB4:36	*42/D4	2TB8:08	*28/B4	2TB8:36	*30/B7
		1TB10:09	*43/C8	2TB1:09	*09/C3	2TB4:09	*39/E4	2TB4:37	*42/B4	2TB8:09	*28/B4	2TB8:37	*30/B4
		1TB10:10	*43/C7	2TB1:10	*09/C2	2TB4:10	*39/E2	2TB4:38	*42/B1	2TB8:10	*28/A6	2TB8:38	*30/A7
		1TB10:11	*43/B8	2TB1:11	*09/C2	2TB4:11	*39/E4	2TB4:39	*42/B4	2TB8:11	*28/A4	2TB8:39	*30/A4
		1TB10:12	*43/B7	2TB1:12	*09/B2	2TB4:12	*39/D4	2TB4:40	*42/B4	2TB8:12	*28/A4	2TB8:40	*30/C3
		1TB10:13	*43/B8	2TB1:13	*09/B2	2TB4:13	*39/D4	2TB4:41	SPARE	2TB8:13	*28/D3	2TB8:41	*30/A3
		1TB10:14	*43/B7	2TB1:14	*09/C2	2TB4:14	*39/D2	2TB4:42	SPARE	2TB8:14	*29/E7	2TB8:42	*31/E7
		1TB10:15	*43/E6	2TB1:15	*09/B2	2TB4:15	*39/D4	2TB4:43	SPARE	2TB8:15	*29/E4	2TB8:43	*31/E5
		1TB10:16	*43/E5	2TB1:16	*09/B2	2TB4:16	*39/C4	2TB4:44	SPARE	2TB8:16	*29/D4	2TB8:44	*31/D7
		1TB10:17	*43/D6	2TB1:17	*09/B2	2TB4:17	*39/C4	2TB4:45	SPARE	2TB8:17	*29/D7	2TB8:45	*31/D5
		1TB10:18	*43/D5	2TB1:18	*09/B2	2TB4:18	*39/B4	2TB4:46	SPARE	2TB8:18	*29/D4	2TB8:46	*31/D7
1TB10	REF	1TB10:19	*43/D6	2TB1:19	*27/E3	2TB4:19	*39/A4	2TB4:47	SPARE	2TB8:19	*29/C4	2TB8:47	*31/D5
		1TB10:20	*43/D5	2TB1:20	*27/D3	2TB4:20	*39/D8	2TB4:48	SPARE	2TB8:20	*29/C7	2TB8:48	*31/C7
1TB10:29	SPARE	1TB10:21	*43/C6	2TB1:21	*27/D3	2TB4:21	*39/D7			2TB8:21	*29/C4	2TB8:49	*31/C5
1TB10:30	SPARE	1TB10:22	*43/C5	2TB1:22	SPARE	2TB4:22	*39/B8	2TB7	REF	2TB8:22	*29/B7	2TB8:50	*31/C7
1TB10:31	SPARE	1TB10:23	*43/C6	2TB1:23	SPARE	2TB4:23	*39/B6			2TB8:23	*29/B4	2TB8:51	*31/C5
1TB10:32	SPARE	1TB10:24	*43/C5	2TB1:24	SPARE	2TB4:24	*40/E5	2TB7:01	*12/E3	2TB8:24	*29/B7	2TB8:52	*31/B7
		1TB10:25	*43/B6	2TB1:25	SPARE	2TB4:25	*40/E3	2TB7:02	*12/E2	2TB8:25	*29/B4	2TB8:53	*31/B5
		1TB10:26	*43/B5	2TB1:26	SPARE	2TB4:26	*40/E5	2TB7:03	*12/E2	2TB8:26	*29/A7	2TB8:54	*31/B7
		1TB10:27	SPARE			2TB4:27	*40/D5	2TB7:4	SPARE	2TB8:27	*29/A4	2TB8:55	*31/B5
		1TB10:28	SPARE			2TB4:28	*40/C5			2TB8:28	*29/E2	2TB8:56	*31/A7

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51 SC OFDCR11	CUSTOMER : APTRANSCO
SUBSTATION:132/33KV SS	CONTRACTOR:
SHT. TITLE : TB SCHEDULE	CONSULTANT:
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-1/SE/PW-1/SAS/APT e-11/2011/RC-4073/2011 D:28.07.2011 ERL REF.:ZCP1812.50 SCALE : NTS
	THIS SHT: 52 NEXT SHT: 53 TOT SHT: 54

CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

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2TB8	REF	2TB8	REF	2TB10	REF	2TB10	REF	BBX2	REF	TB2	REF	TB3	REF
2TB8: 57	*31/A5	2TB8: 85	*33/C5	2TB10: 01	*43/E4	2TB10: 29	SPARE	BBX2: 01	*10/B5	TB2: 01	*10/B7	TB3: 01	*05/D6
2TB8: 58	*31/B2	2TB8: 86	*33/C7	2TB10: 02	*43/E3	2TB10: 30	SPARE	BBX2: 02	*10/B5	TB2: 02	*10/B7	TB3: 02	*05/D6
2TB8: 59	*32/E7	2TB8: 87	*33/C5	2TB10: 03	*43/E4	2TB10: 31	SPARE	BBX2: 03	*10/A5	TB2: 03	*10/A7	TB3: 04	*07/D7
2TB8: 60	*32/E5	2TB8: 88	*33/D3	2TB10: 04	*43/E3	2TB10: 32	SPARE	BBX2: 04	*10/A5	TB2: 04	*10/A7	TB3: 05	*07/D7
2TB8: 61	*32/E7	2TB8: 89	*34/D8	2TB10: 05	*43/D4			BBX2: 05	*10/E7	TB2: 05	*10/D7	TB3: 06	*08/D7
2TB8: 62	*32/E5	2TB8: 90	*34/C8	2TB10: 06	*43/D3			BBX2: 06	*10/E7	TB2: 06	*10/D7	TB3: 07	*08/D7
2TB8: 63	*32/D7	2TB8: 91	SPARE	2TB10: 07	*43/C4			BBX2: 07	*10/E7	TB2: 07	*10/D7	TB3: 3	SPARE
2TB8: 64	*32/D5	2TB8: 92	SPARE	2TB10: 08	*43/C3			BBX2: 08	*10/E7	TB2: 08	*10/D7	TB3: 8	SPARE
2TB8: 65	*32/C7	2TB8: 93	SPARE	2TB10: 09	*43/C4			BBX2: 9	SPARE	TB2: 9	SPARE		
2TB8: 66	*32/C5	2TB8: 94	SPARE	2TB10: 10	*43/C3			BBX2: 10	SPARE	TB2: 10	SPARE		
2TB8: 67	*32/C7	2TB8: 95	SPARE	2TB10: 11	*43/B4								
2TB8: 68	*32/C5	2TB8: 96	SPARE	2TB10: 12	*43/B3								
2TB8: 69	*32/C7	2TB8: 97	SPARE	2TB10: 13	*43/B4								
2TB8: 70	*32/C5	2TB8: 98	SPARE	2TB10: 14	*43/B3								
2TB8: 71	*32/B7	2TB8: 99	SPARE	2TB10: 15	*43/E2								
2TB8: 72	*32/B5	2TB8: 100	SPARE	2TB10: 16	*43/E1			BBX3	REF				
2TB8: 73	*32/B7	2TB8: 101	SPARE	2TB10: 17	*43/D2								
2TB8: 74	*32/B5	2TB8: 102	SPARE	2TB10: 18	*43/D1			BBX3: 01	*05/E6				
2TB8: 75	*32/A7	2TB8: 103	SPARE	2TB10: 19	*43/D2			BBX3: 02	*05/E6				
2TB8: 76	*32/A5	2TB8: 104	SPARE	2TB10: 20	*43/D1			BBX3: 04	*07/E7				
2TB8: 77	*32/A7	2TB8: 105	SPARE	2TB10: 21	*43/C2			BBX3: 05	*07/E7				
2TB8: 78	*32/A5	2TB8: 106	SPARE	2TB10: 22	*43/C1			BBX3: 06	*08/E7				
2TB8: 79	*32/D3	2TB8: 107	SPARE	2TB10: 23	*43/C2			BBX3: 07	*08/E7				
2TB8: 80	*33/D7	2TB8: 108	SPARE	2TB10: 24	*43/C1			BBX3: 3	SPARE				
2TB8: 81	*33/D5			2TB10: 25	*43/B2			BBX3: 8	SPARE				
2TB8: 82	*33/D7			2TB10: 26	*43/B1								
2TB8: 83	*33/D5			2TB10: 27	SPARE								
2TB8: 84	*33/C7			2TB10: 28	SPARE								

C	ASBUILT	05.11.11	V.A	J.V	G.M
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED



EASUN REYROLLE LTD
HOSUR, TAMILNADU
INDIA - 635126

DWG.NO : ER1812.50&51 SC DFDCR11	CUSTOMER : APTRANSCO
SUBSTATION: 132/33KV SS	CONTRACTOR:
SHT. TITLE : TB SCHEDULE	CONSULTANT:
P.O. NO.: CE/Const-1/SE/PW-1/SAS/APT	THIS SHT: 53
e-11/2011/RC-4073/2011 D:28.07.2011	NEXT SHT: 54
DWG. TITLE : SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	ERL REF. : ZCP1812.50 SCALE : NTS TOT SHT: 54

60/51RYBN-(CSC211M1b)

LED REF	FUNCTION
⊗ 1	RUN/ALARM
⊗ 2	INV/HS OC
⊗ 3	INV/HS EF
⊗ 4	SEF/REF/NUB
⊗ 5	CBF OPTD.
⊗ 6	U/V & O/V STG1.
⊗ 7	U/V & O/V STG2.
⊗ 8	3Vo OPTD.
⊗ 9	OL(CURRENT)
⊗ 10	DI
⊗ 11	VT FAIL

BCU-(CSI200EA)

LED REF	FUNCTION
⊗ 1	RUN
⊗ 2	ALARM
⊗ 3	UNLOCK
⊗ 4	REMOTE
⊗ 5	LOCAL
⊗ 6	BACKUP
⊗ 7	BACKUP
⊗ 8	BACKUP

APPROVED FOR TURNKEY PROJECTS

[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
 APTRANSCO/VIDYUTH SOUDHA/HYD.

C	ASBUILT	05.11.11	V.A	J.V	G.M	 EASUN REYROLLE LTD HOSUR, TAMILNADU INDIA - 635126	DWG.NO :ER1812,50&51 SC DFDCR11	CUSTOMER :APTRANSCO
B	AS PER CUST. COMMENTS	20.07.11	G.D	J.V	G.M		SUBSTATION:132/33KV SS	CONTRACTOR:
A	FOR APPROVAL	29.06.11	G.D	J.V	G.M		SHT. TITLE :LED DETAILS	CONSULTANT:
REV	DESCRIPTION	DATE	DESIGNED	CHECKED	APPROVED		DWG. TITLE :SCHEMATIC DRAWING FOR 33KV TWIN FEEDER BAY C & R PANEL	P.O. NO.:CE/Const-I/SE/PM-1/SAS/APT e-11/2011/RC-4073/2011 0:28.07.2011 ERL REF.:ZCP1812,50 SCALE :NTS TOT SHT: 54