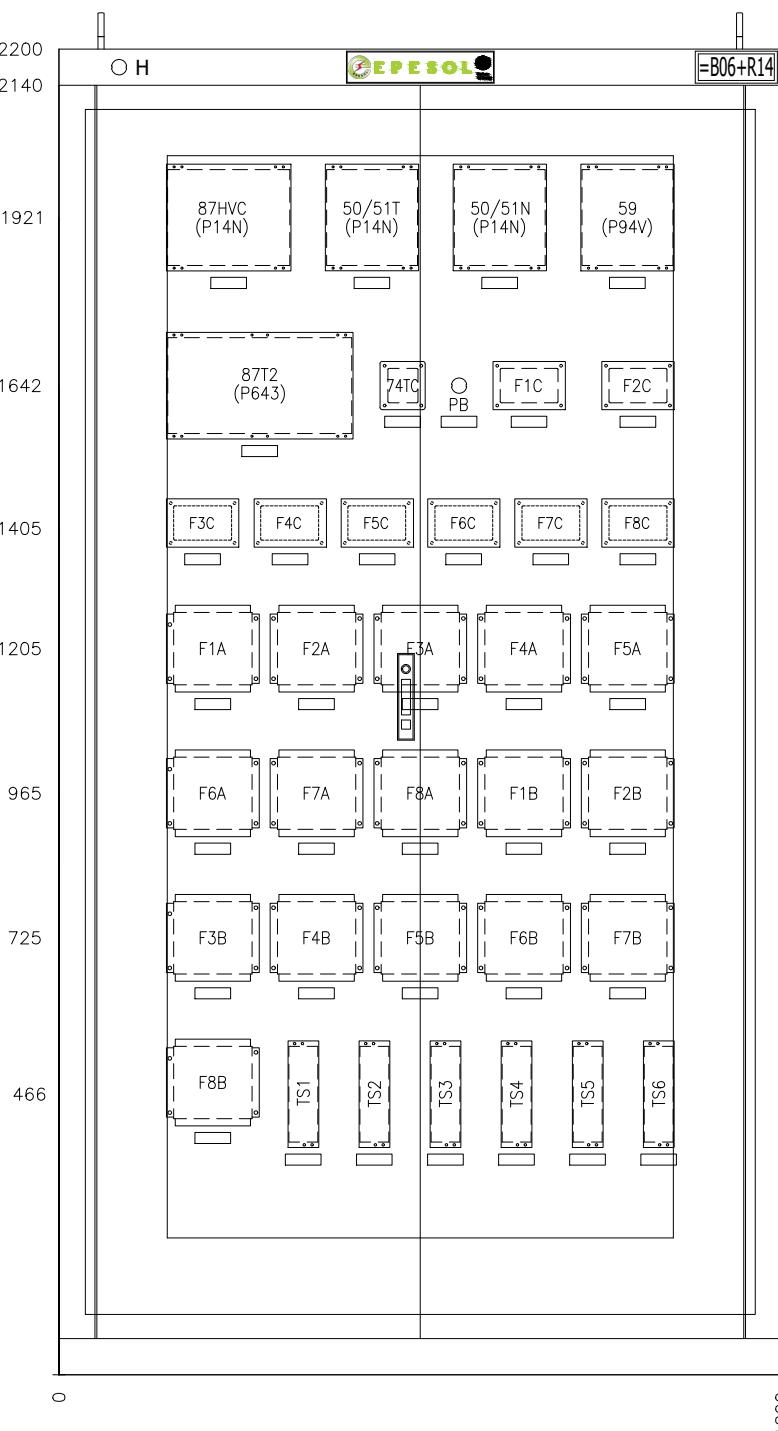
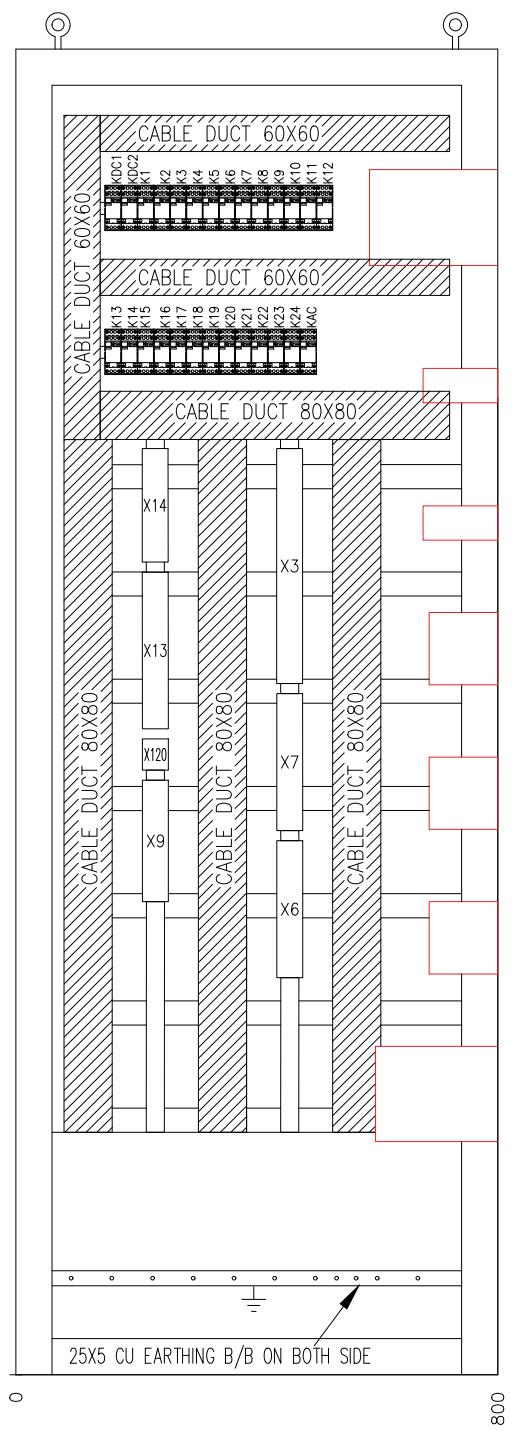


# LAYOUT DRAWING OF 500/220kV TRAFO PROTECTION PANEL TYPE =B06+R14

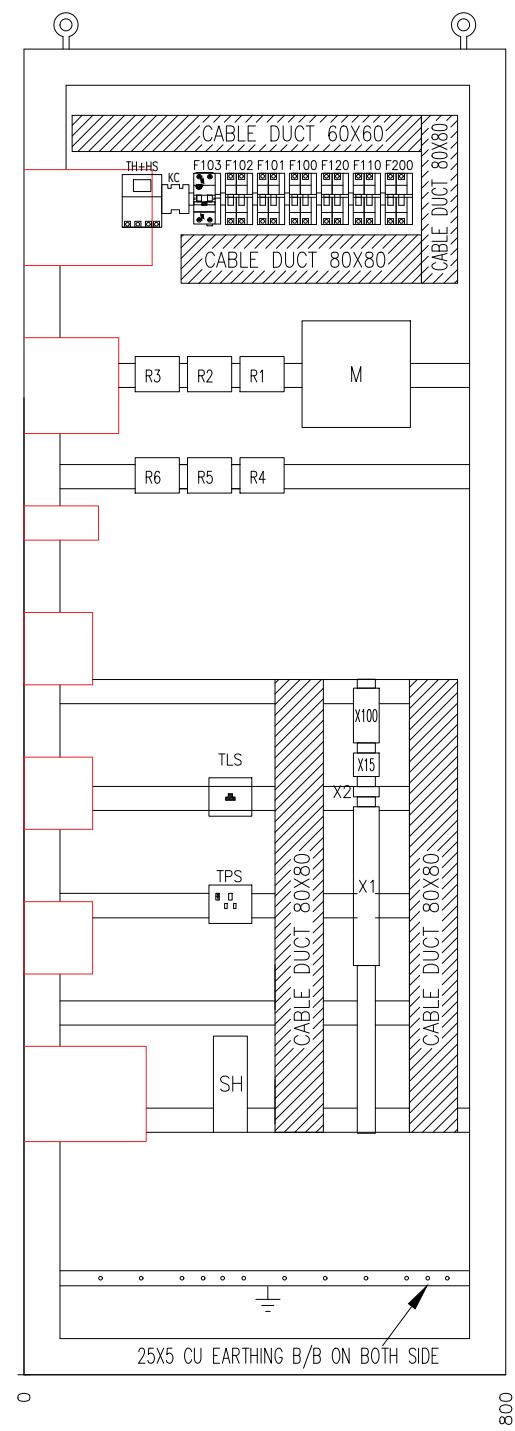
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NAH 	MSS 	MUR 		500KV TRAFO. PROTECTION PANEL TYPE =B06+R14	EPESOL Pvt Ltd 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019 <b>AS BUILT</b> REV: 0



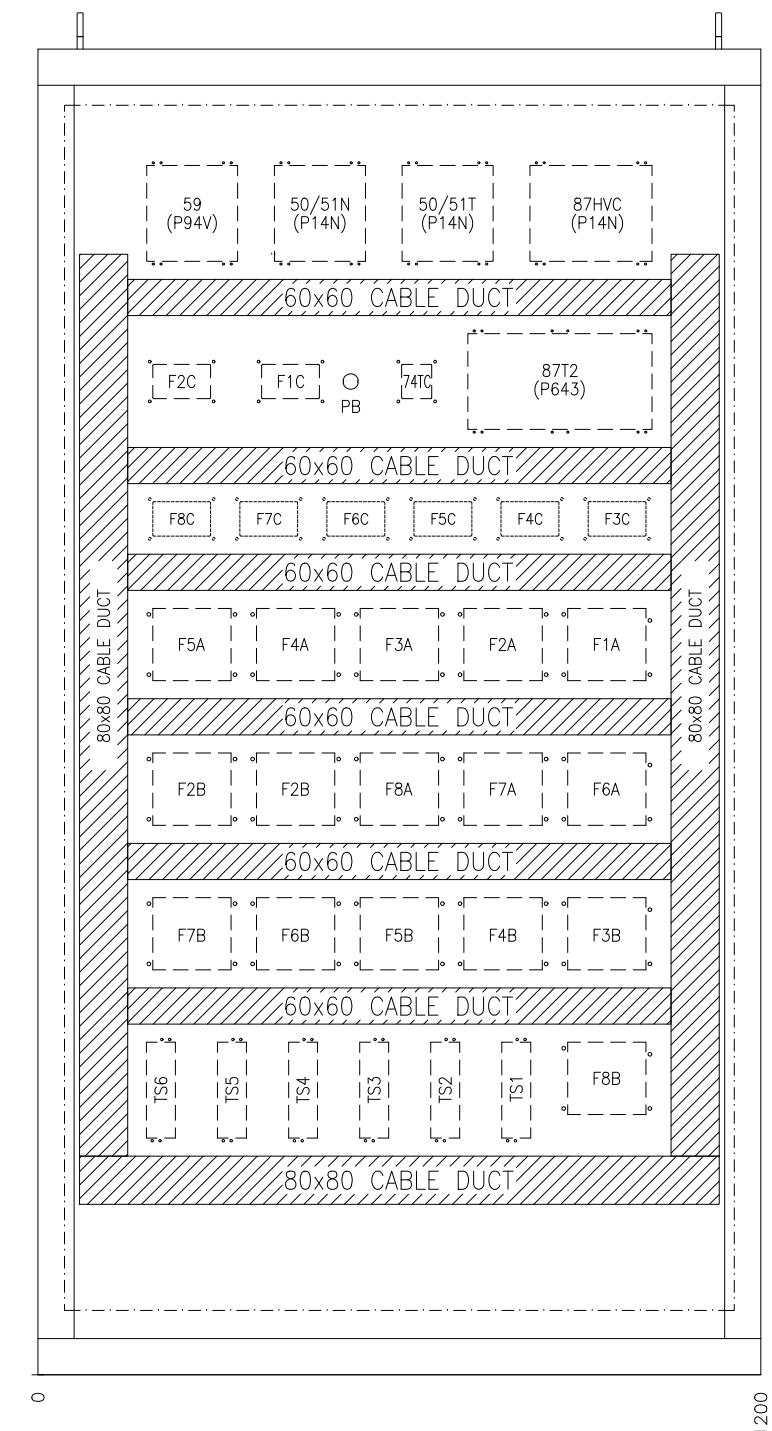
FRONT VIEW



LEFT SIDE VIEW

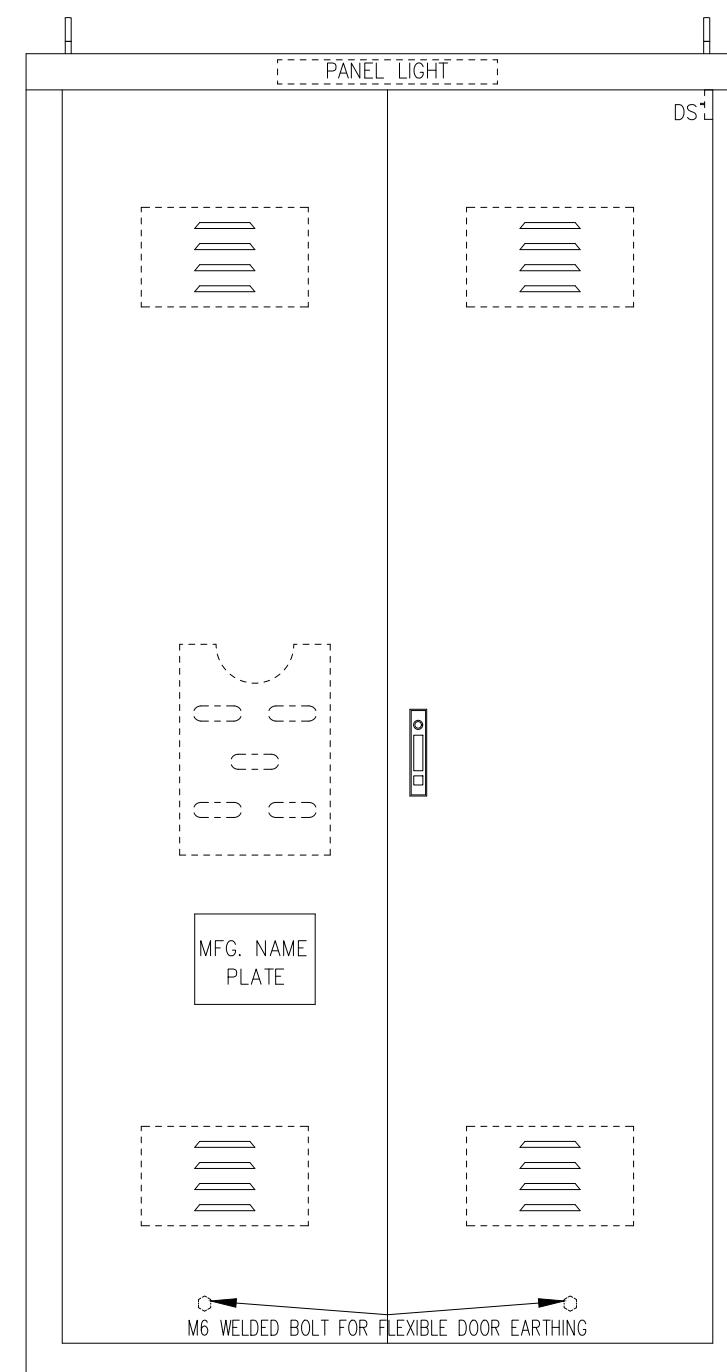


RIGHT SIDE VIEW

BACK SIDE VIEW  
FOR FIXING OF CABLE DUCT**NOTES**

1. RELAY PANEL: 1200Wx800Dx2200H mm
2. EARTHING BUSBAR 25x5 mm<sup>2</sup>
3. FLEXIBLE EARTHING STRAP 16mm<sup>2</sup>
4. COLOUR: RAL7032
5. CLASS OF PROTECTION: IP51
6. APPLICABLE SPECS: P204:2008

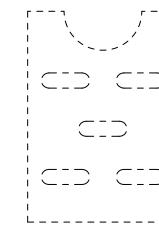
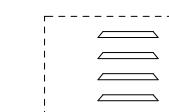
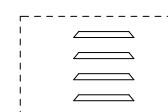
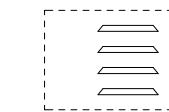
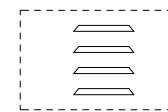
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: LAYOUT DIAGRAM 500KV TRAFO. PROTECTION PANEL TYPE =B06+R14	EPE SOL Pvt Ltd 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/B61544	SHT: 020F 03
NAH	MSS	MUR				DATE: 07.03.2019	AS BUILT



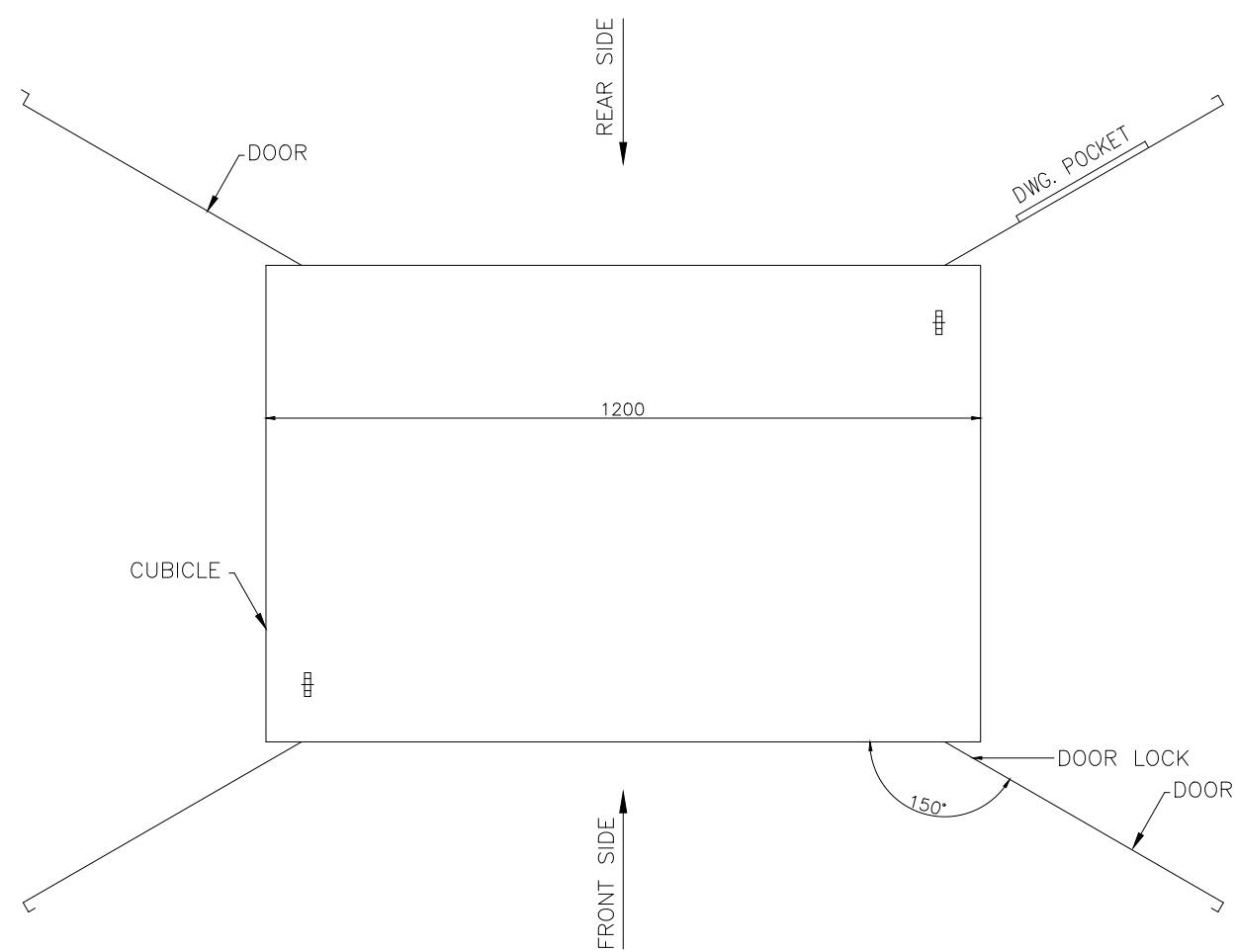
REAR VIEW

PANEL LIGHT

DS1

MFG. NAME  
PLATE

M6 WELDED BOLT FOR FLEXIBLE DOOR EARTHING



**E P E S O L** Pvt. Ltd.  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/B61544

SHT: 03 OF 03

DATE: 07.03.2019

REV: 0

AS BUILT

APPROVED	CHECKED	DRAWN
NAH [Signature]	MSS [Signature]	MUR [Signature]



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018  
FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE: LAYOUT DIAGRAM  
500KV TRAFO. PROTECTION PANEL TYPE =B06+R14

# LIST OF APPARATUS

## 500/220kV TRAFO PROTECTION PANEL

### TYPE R14

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE:	COVER SHEET	DWG# EPE/ENU-18/B61545	SHT: 01 OF 04
NAH 	MSS 	MUR 		500kV TRAFO. PROTECTION PANEL TYPE R14	 EPESOL Pvt Ltd 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

1	2	3	4	5	6	7	8			
SR.	ITEM DESIGNATION		DESCRIPTION		QTY	TYPE	MAKE	COUNTRY OF ORIGIN	ORDERING INFORMATION	SHEET NO
A	1	87T2	DIFFERENTIAL PROTECTION RELAY		1	P643	GE	UK	P64391GA6M0070M	A
A	2	87HVC	HV CONNECTION PROTECTION RELAY		1	P14N	GE	UK	P14NB1BC6D0620A	
B	3	50/51T	TERTIARY OVER CURRENT PROTECTION RELAY		1	P14N	GE	UK	P14NB1BA6C0620A	
B	4	50/51N	TRAFO NEUTRAL GROUND PROTECTION RELAY		1	P14N	GE	UK	P14NB1BA6C0620A	
B	5	59	OVER VOLTAGE PROTECTION RELAY		1	P94V	GE	UK	P94VP1BA6C0610A	B
B	6	M	METROSIL, 3 PHASE 600-A/S3/I/S1195		1	-	GE	-	ZB9411571	
B	7	R11, R12, R21, R22	RESISTOR ADJUSTABLE WIREWOUND, 1500 OHMS, 180W		6	-	GE	-	ZB9016774	
B		R31, R32								
c	8	F1A, F1B, F2A, F2B,	TRIP RELAY HAND AND ELECTRICAL RESET, 16 C/O CONTACTS, HIGH BURDEN, 220 VDC		16	BI-16R	ARTECHE	SPAIN	BI-16RP-HB-220VDC	c
c		F3A, F3B, F4A, F4B								c
c		F5A, F5B, F6A, F6B								c
c		F7A, F7B, F8A, F8B								c
c	9	F1C, F2C, F3C, F4C	TRIP RELAY HAND AND ELECTRICAL RESET, 8 C/O CONTACTS, HIGH BURDEN, 220 VDC		8	BJ-8R	ARTECHE	SPAIN	BJ-8RP-HB-220VDC	c
c		F5C, F6C, F7C, F8C								c
D	10	74DC	DC SUPERVISION RELAY 220 VDC		1	VDF-10	ARTECHE	SPAIN	VDF10-OP2-220VDC	D
D	11	PB	PUSH BUTTON (RESET)		1	YS-AP	YONGSUNG	SOUTH KOREA	YS-AP1-2-40-Y-D-W	D
E	12	TS1	TEST BLOCK (14 FINGERS)		1	soTECH TSB 14	ARTECHE	SPAIN	TSB-14-AAAB11111AAAB	E
E	13	TS2	TEST BLOCK (14 FINGERS)		1	soTECH TSB 14	ARTECHE	SPAIN	TSB-14-11111111111111	E
E	14	TS4	TEST BLOCK (14 FINGERS)		1	soTECH TSB 14	ARTECHE	SPAIN	TSB-14-11111ABABAB	E
E	15	TS3, TS5	TEST BLOCK (14 FINGERS)		2	soTECH TSB 14	ARTECHE	SPAIN	TSB-14-111111111AAAB	E
E	16	TS6	TEST BLOCK (14 FINGERS)		1	soTECH TSB 14	ARTECHE	SPAIN	TSB-14-222221111111	E
F	17	H	INDICATION LAMP GREEN		1	YS	YONGSUNG	SOUTH KOREA	YS-PL-2-AL-22-G-W	F
F	18	K1 TO K24, KDC1,	MINIATURE RELAY, 220 VDC, WITH 4 C/O CONTACTS		26	PRC	GE	HUNGARY/POLAND	PRC4M40DCML	F
F		KDC2								F
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS		TITLE:	LIST OF APPARATUS 500KV TRAFO. PROTECTION PANEL TYPE R14		EPE SOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/B61545 DATE: 07.03.2019 AS BUILT	SHT: 02 OF 04 REV: 0
NAH Q.	MSS M.	MUR B.								

1	2	3	4	5	6	7	8	
SR.	ITEM DESIGNATION	DESCRIPTION	QTY	TYPE	MAKE	COUNTRY OF ORIGIN	ORDERING INFORMATION	SHEET NO
A	19 KAC	MINIATURE RELAY, 240 VAC, WITH 4 C/O CONTACTS	1	PRC	GE	HUNGARY/POLAND	PRC4M40ANL	A
	20 KC	CONTACTOR RELAY, 16A, 220 VDC, WITH 2NO+2NC CONTACTS	1	MCR	GE	HUNGARY/POLAND	MCRC022ATWN	
	21 F110, F120	DC MCB, 2 POLE, 10A, 220 VDC WITH 1 C/O CONTACTS, 10KA	2	EP-100	GE	HUNGARY/POLAND	EP102UCC10+CAH(1)	
B	22 F100, F101	AC MCB, 2 POLE, 6A, 240 VAC WITH 1 C/O CONTACT, 10KA	2	G60	GE	HUNGARY/POLAND	G62C06+CAH(1)	B
	23 F103	RCBO, RATED 16A, 1P+N, 240V AC, WITH 1 C/O CONTACTS	1	DM100	GE	HUNGARY/POLAND	DM100C16/030+CAH(1)	
	24 F200	AC MCB, 2 POLE, 2A, 240 VAC WITH 1 C/O CONTACT, 10KA	1	G60	GE	HUNGARY/POLAND	G64C02+CAH(1)	
	25 TH+HS	THERMOSTAT AND HUMIDISTAT	1	ELH-220	E-LABS	PAKISTAN		
c	26 SH	SPACE HEATER	1	ELH-220	E-LABS	PAKISTAN		
	27 DS	DOOR SWITCH WITH COVER	1	YSP	YONGSUNG	SOUTH KOREA	YSP3315GWB+YSMS-C	c
	28 TPS	240 VAC, 16A, THREE PIN SOCKET OUTLET	1		LEAR	CHINA		
	29 TLS	TELEPHONE SOCKET	1		LOCAL	PAKISTAN		
D	30 IL	PANEL LIGHT, 5W, 220 VAC	1	YS	YONGSUNG	SOUTH KOREA	YS-T8-30-5W	D
	31 X1	DISCONNECTING TERMINAL BLOCKS FOR CT CIRCUIT WITH SHORTING ARRANGEMENT	31	SCB-6	CABUR	ITALY		
	32 X2	DISCONNECTING TERMINAL BLOCKS FOR VT CIRCUIT WITH ISOLATION ARRANGEMENT	2	SCB-6	CABUR	ITALY		
	33 X120	TERMINAL BLOCKS FOR DC SUPPLY DISTRIBUTION	8	CBD-4	CABUR	ITALY		
	34 X100	TERMINAL BLOCKS FOR AC SUPPLY DISTRIBUTION	14	CBD-4	CABUR	ITALY		
E	35 X6	TERMINAL BLOCKS FOR TRIP CIRCUIT – 1	35	CBD-4	CABUR	ITALY		E
	36 X7	TERMINAL BLOCKS FOR TRIP CIRCUIT – 2	35	CBD-4	CABUR	ITALY		
	37 X3	TERMINAL BLOCKS FOR CONTROL CIRCUIT	60	CBD-4	CABUR	ITALY		
	38 X9	TERMINAL BLOCKS FOR ANNUNCIATION CIRCUIT	31	CBD-4	CABUR	ITALY		
F	39 X13	TERMINAL BLOCKS FOR EVENT RECORDER & FAULT RECORDER CIRCUIT	40	CBD-4	CABUR	ITALY		F
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: LIST OF APPARATUS 500KV TRAFO. PROTECTION PANEL TYPE R14	E P E S O L P v t . L t d. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/B61545 DATE: 07.03.2019	SHT: 03 OF 04 AS BUILT REV: 0	
NAH Q.I.	MSS M.Sohail	MUR Ilyas						

1	2	3	4	5	6	7	8	
SR.	ITEM DESIGNATION	DESCRIPTION	QTY	TYPE	MAKE	COUNTRY OF ORIGIN	ORDERING INFORMATION	SHEET NO
A 40	X14	TERMINAL BLOCKS FOR SCADA CIRCUIT	29	CBD-4	CABUR	ITALY		A
A 41	X15	TERMINAL BLOCKS FOR COMMUNICATION CIRCUIT	6	CBD-4	CABUR	ITALY		A
B								B
C								C
D								D
E								E
F								F
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: LIST OF APPARATUS 500KV TRAFO. PROTECTION PANEL TYPE R14	EPESOL Pvt Ltd 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/B61545	SHT: 04 OF 04	
NAH Q.I.	MSS M.Sohail	MUR Ilyas				DATE: 07.03.2019	AS BUILT	REV: 0

# SCHEMATIC DIAGRAM OF 500/220kV TRAFO PROTECTION PANEL TYPE R14

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE:	COVER SHEET 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 01 OF 57
NAH Q.	MSS M. Sohail	MUR Iy		EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan		DATE: 07.03.2019	AS BUILT

DESCRIPTION	SHEET NO	DESCRIPTION	SHEET NO	DESCRIPTION	SHEET NO
COVER SHEET	01	=B06+Q2 TRIP CIRCUIT-2	22	ER SIGNALING CIRCUIT	44
LIST OF CONTANTS	02	=B06+Q3 TRIP CIRCUIT-1	23	ER SIGNALING CIRCUIT	45
LIST OF SYMBOLS	03	=B06+Q3 TRIP CIRCUIT-1	24	FR SIGNALING CIRCUIT	46
SINGLE LINE DIAGRAM	04	=B06+Q3 TRIP CIRCUIT-2	25	SCADA SIGNALING CIRCUIT	47
DC SUPPLY DISTRIBUTION	05	=B06+Q3 TRIP CIRCUIT-2	26	SCADA SIGNALING CIRCUIT	48
CB CLOSE BLOCK CIRCUIT	06	=D08+Q1 TRIP CIRCUIT-1	27	COMMUNICATION CIRCUIT	49
TRAFO DIFFERENTIAL PROTECTION CT CIRCUIT	07	=D08+Q1 TRIP CIRCUIT-1	28	AC SUPPLY DISTRIBUTION	50
HV CONNECTION PROTECTION CT CIRCUIT	08	=D08+Q1 TRIP CIRCUIT-2	29	DEVICE DETAIL FOR 87T2	51
TERTIARY OC PROTECTION CT CIRCUIT	09	=D08+Q1 TRIP CIRCUIT-2	30	DEVICE DETAIL FOR 87HVC	52
TRAFO NEUTRAL PROTECTION. CT CIRCUIT	10	=D08+Q3 TRIP CIRCUIT-1	31	DEVICE DETAIL FOR 50/51T	53
OVERVOLTAGE PROTECTION VT CIRCUIT	11	=D08+Q3 TRIP CIRCUIT-1	32	DEVICE DETAIL FOR 50/51N	54
TRAFO DIFFERENTIAL PROTECTION DC CIRCUIT	12	=D08+Q3 TRIP CIRCUIT-2	33	DEVICE DETAIL FOR 59	55
HV CONNECTION PROTECTION DC CIRCUIT	13	=D08+Q3 TRIP CIRCUIT-2	34	DEVICE DETAIL FOR TEST BLOCK	56
TERTIARY OC PROTECTION DC CIRCUIT	14	BREAKER FAILURE INITIATION FOR =B06+Q2	35	DEVICE DETAIL FOR TEST BLOCK	57
TRAFO NEUTRAL PROTECTION DC CIRCUIT	15	BREAKER FAILURE INITIATION FOR =B06+Q3	36		
OVERVOLTAGE PROTECTION DC CIRCUIT	16	BREAKER FAILURE INITIATION FOR =D08+Q1	37		
TRANSFORMER MECHANICAL PROTECTION TRIP	17	BREAKER FAILURE INITIATION FOR =D08+Q3	38		
TRANSFORMER MECHANICAL PROTECTION TRIP	17A	AR BLOCK FOR =B06+Q3	39		
TRANSFORMER PROTECTION ALARMS	18	AR BLOCK FOR =D08+Q3	40		
=B06+Q2 TRIP CIRCUIT-1	19	RELAY FAULTY SIGNAL MULTIPLICATION	41		
=B06+Q2 TRIP CIRCUIT-1	20	ANNUNCIATION CIRCUIT	42		
=B06+Q2 TRIP CIRCUIT-2	21	ANNUNCIATION CIRCUIT	43		

LIST OF SYMBOLS AND DESIGNATIONS

	MOTORIZED HV DISCONNECTOR		TRAFO DIFFERENTIAL PROTECTION RELAY
	HV CIRCUIT BREAKER		HV CONNECTION PROTECTION RELAY
	525/231/23 kV AUTO TRANSFORMER		TERTIARY OVERCURRENT PROTECTION RELAY
	CAPACITOR VOLTAGE TRANSFORMER		NEUTRAL OVERCURRENT PROTECTION RELAY
	RELAY PANEL TERMINAL BLOCK		OVERVOLTAGE PROTECTION RELAY
	CONTROL PANEL TERMINAL BLOCK	74-DC	DC CIRCUIT SUPERVISION RELAY
	EARTH CONNECTION	X	TERMINAL BLOCKS
	NORMALLY CLOSED CONTACT	K	AUXILIARY RELAY/CONTACTOR
	NORMALLY OPEN CONTACT		
	CHANGE OVER CONTACT		
	MINIATURE CIRCUIT BREAKER		
	INDICATING BULB/LED/CUBICLE LIGHT		
	220V SOCKET		
	SPACE HEATER		
	COIL		
	EQUIPMENT WITHIN PANEL		
	INDEPENDENT PANEL		
	INDEPENDENT PANEL		

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

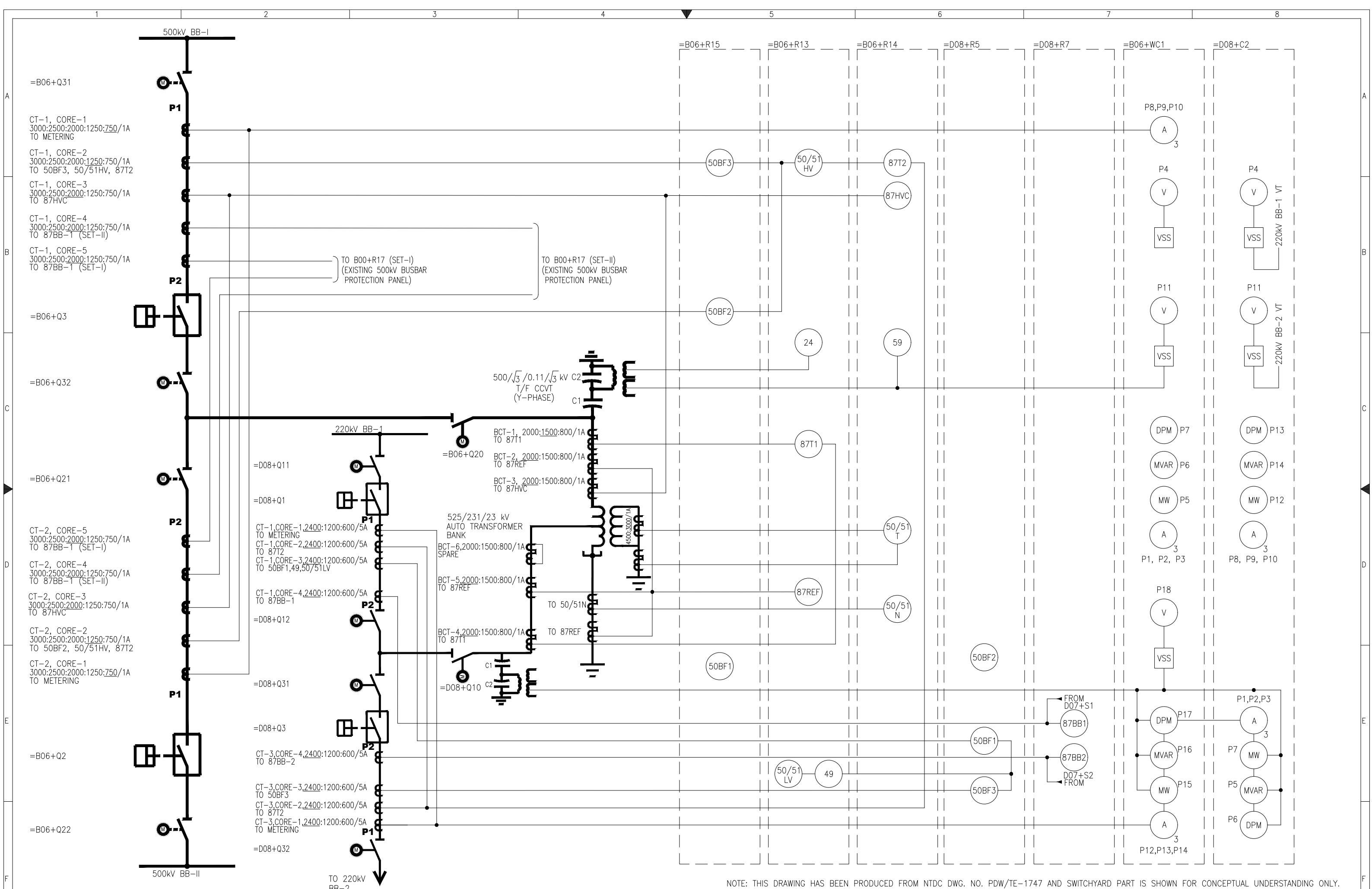


PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018  
FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE:  
LIST OF SYMBOLS  
500KV TRAFO. PROTECTION PANEL TYPE R14

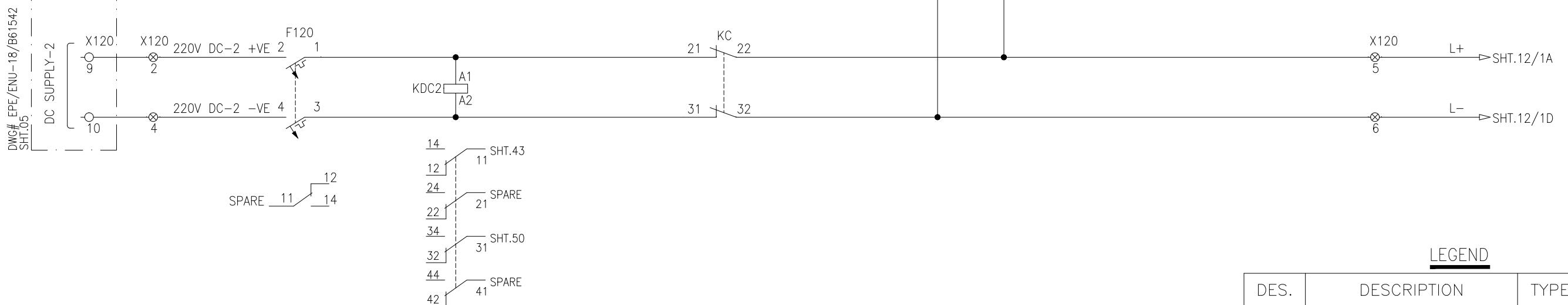
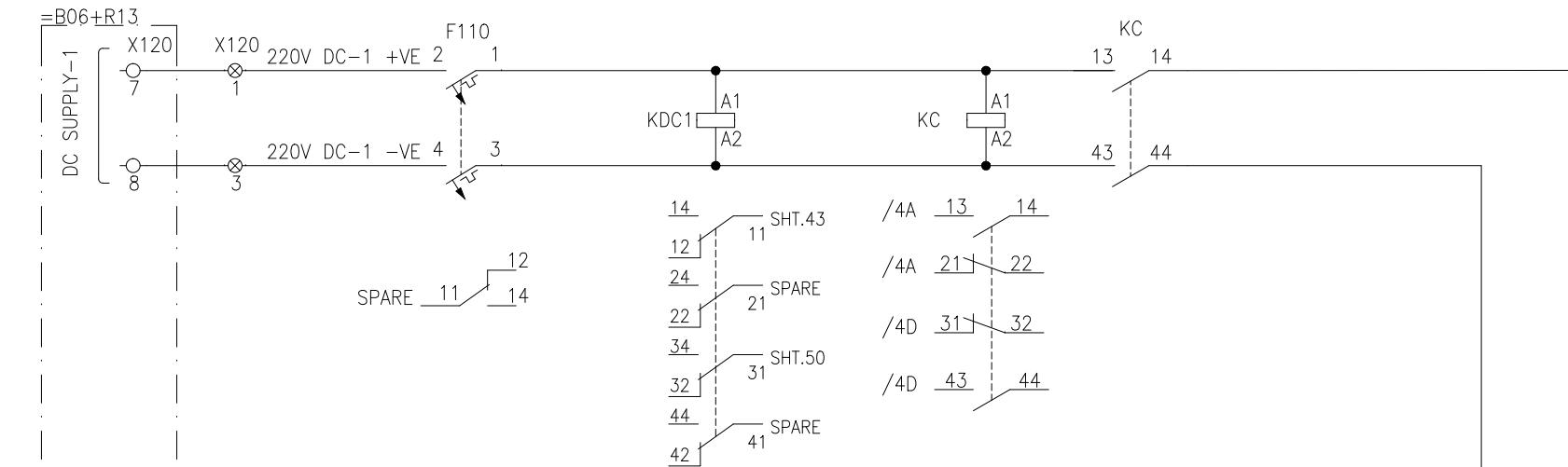


DWG# EPE/ENU-18/B61546 SHT: 03 OF 57  
DATE: 07.03.2019 AS BUILT REV: 0



NOTE: THIS DRAWING HAS BEEN PRODUCED FROM NTDC DWG. NO. PDW/TE-1747 AND SWITCHYARD PART IS SHOWN FOR CONCEPTUAL UNDERSTANDING ONLY.

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: SINGLE LINE DIAGRAM 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 04 OF 57
NAH Q.	MSS M.	MUR		<b>E P E S O L P v t . L t d .</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT REV: 0

LEGEND

DES.	DESCRIPTION	TYPE	MAKE
F110, F120	DC MCB, 2P, 10A	EP-100	GE
KC	AUX. RELAY WITH AUX. CO	MCRC	GE

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: DC SUPPLY DISTRIBUTION 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 05 OF 57
NAH	MSS	MUR		<b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT REV: 0

500kV CB  
=B06+Q2

CLOSING LOCKOUT

500kV CB  
=B06+Q3

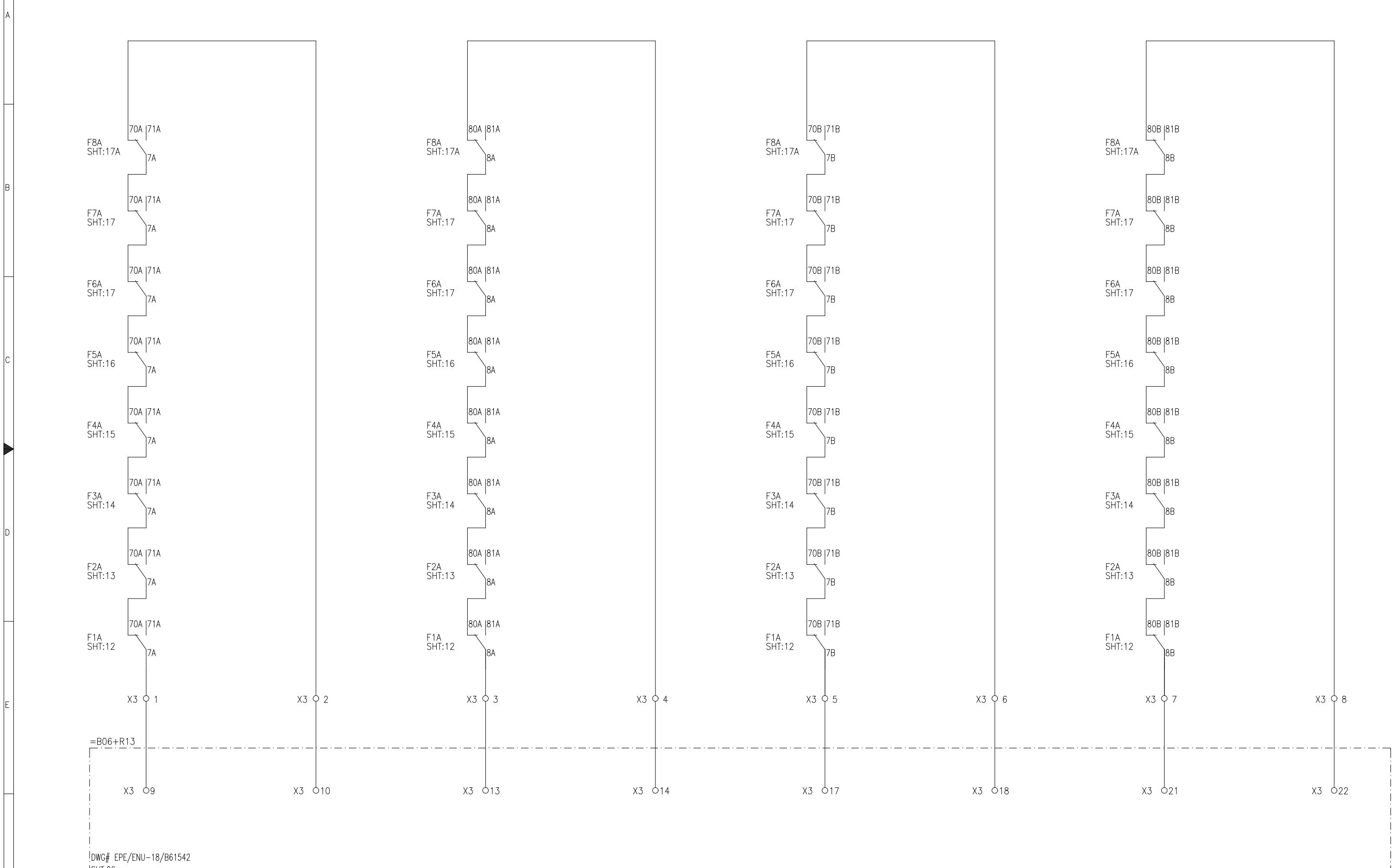
CLOSING LOCKOUT

220kV CB  
=D08+Q1

CLOSING LOCKOUT

220kV CB  
=D08+Q3

CLOSING LOCKOUT

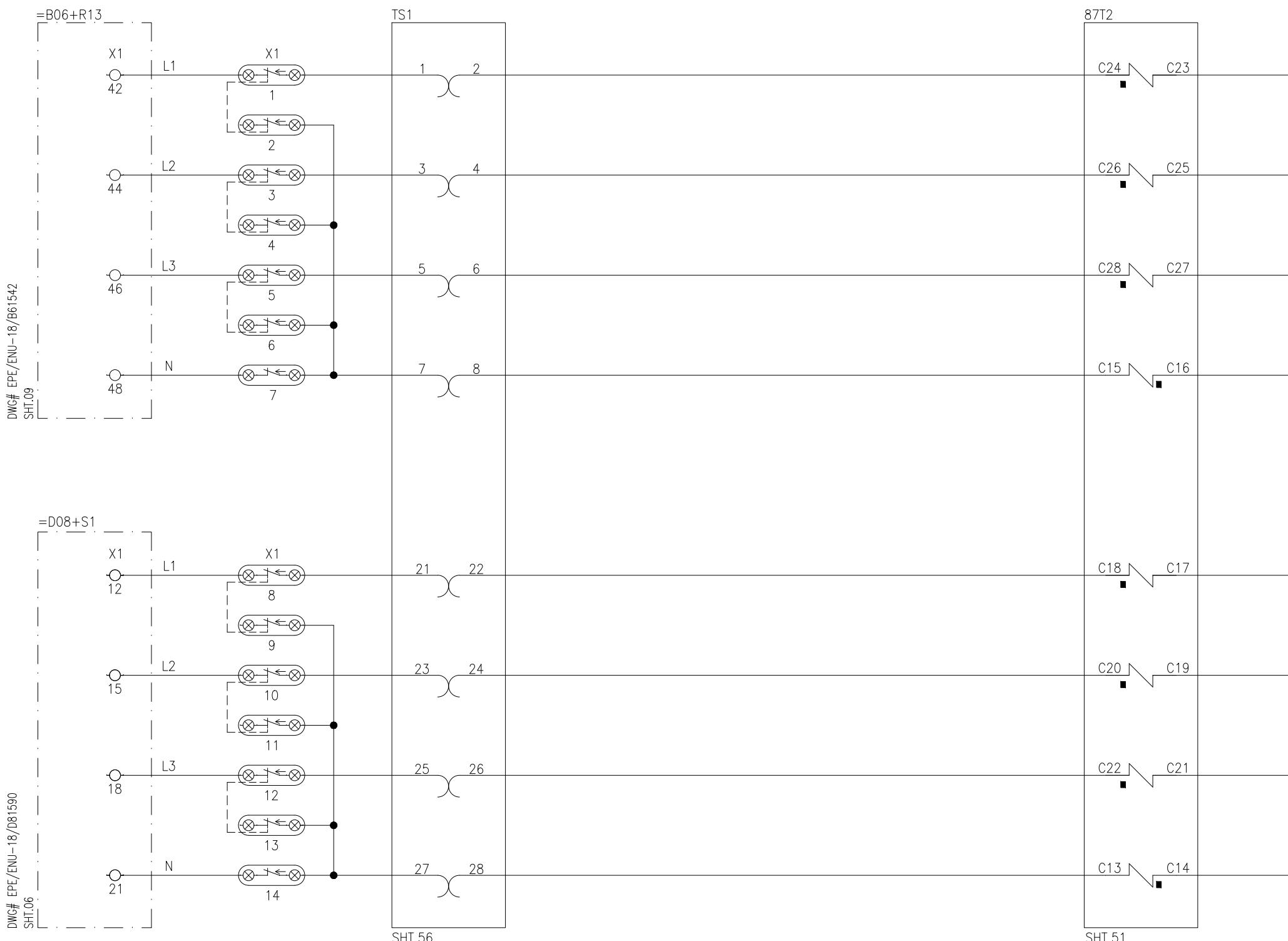


DWG# EPE/ENU-18/B61542

SHT.06

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: CB CLOSE BLOCK CIRCUIT 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 06 OF 57
NAH	MSS	MUR			DATE: 07.03.2019	AS BUILT

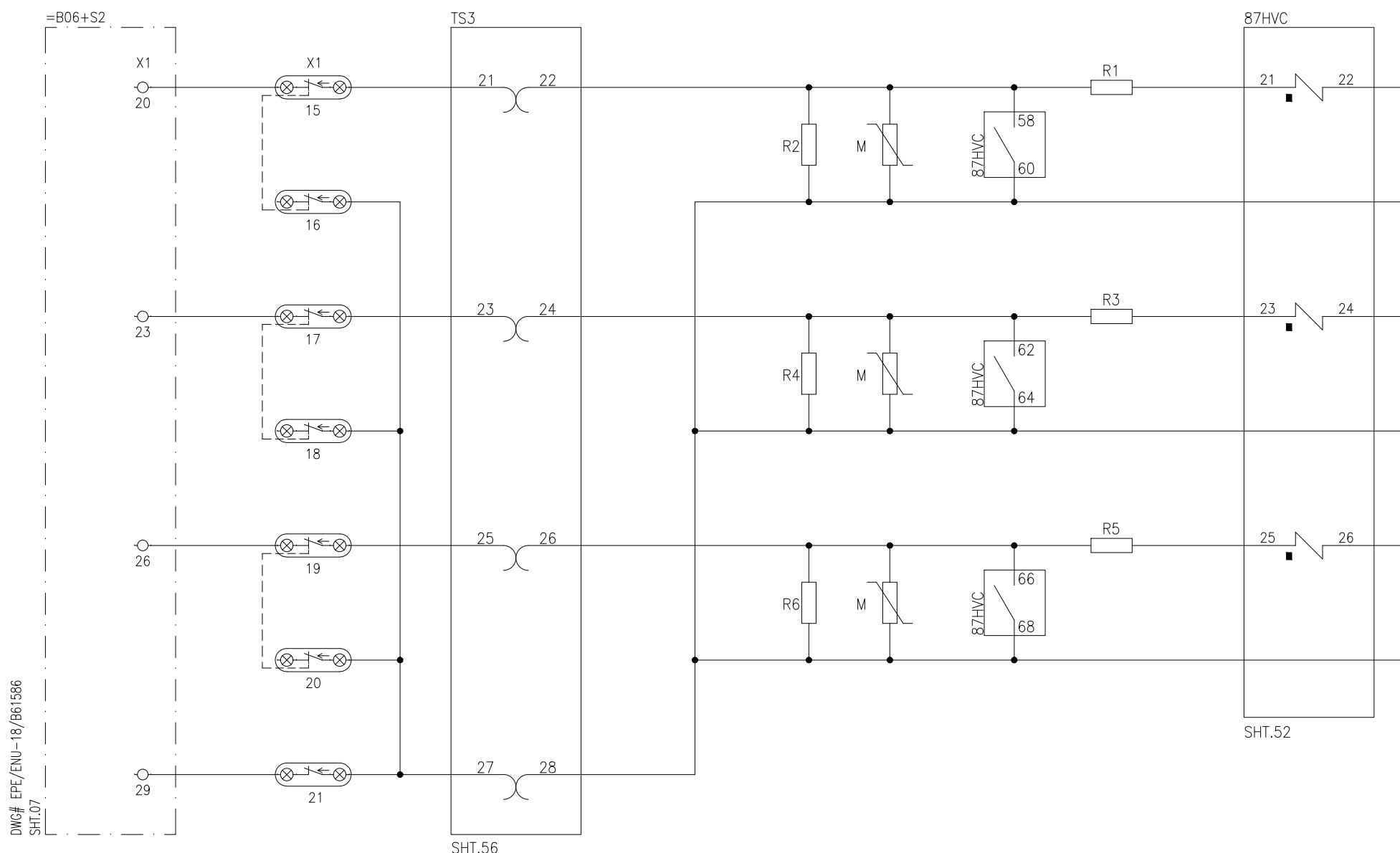
## TEST BLOCK

TRAFO. DIFF.  
SET-2LEGEND

DES.	DESCRIPTION	TYPE	MAKE
87T2	TRAFO. DIFF. PROT. RELAY	P643	GE
TSX	TEST BLOCK (14 FINGERS)	soTECH-TSB14	ARTECHE

TEST BLOCK

METROSIL

RESTABILIZING  
RESISTORHV CONNECTION  
PROTECTION RELAYA A  
B B  
C C  
D D  
E E

## LEGEND

DES.	DESCRIPTION	TYPE	MAKE
87HVC	HV CONNECTION PROTECTION RELAY	P14N	GE
RX	ADJUSTABLE RESISTOR, 1.5kΩ	ZB9016774	GE
MX	NON-LINEAR METROSIL RESISTOR	ZB9411571	GE
TSX	TEST BLOCK (14 FINGERS)	sqTECH-TSB 14	ARTECHE

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: HV DIFFERENTIAL PROTECTION CT CIRCUIT 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 08 OF 57
NAH	MSS	MUR		<b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

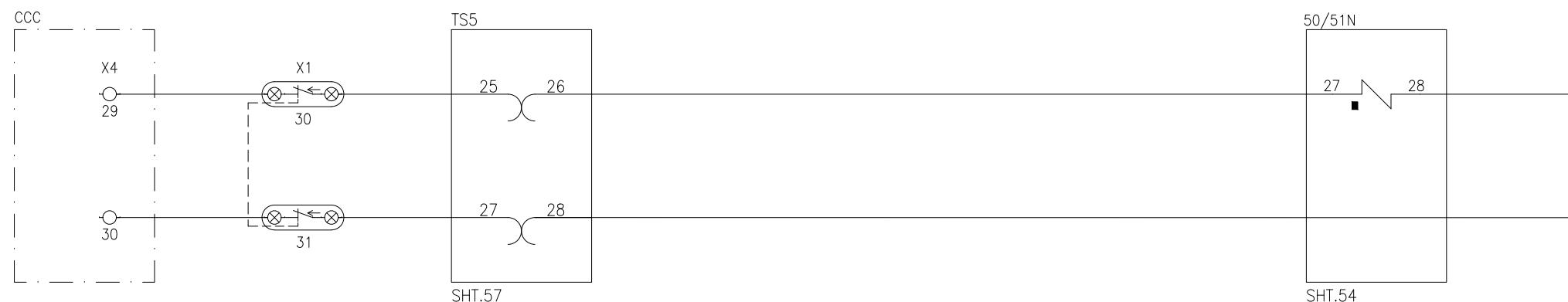
## TEST BLOCK

TERTIARY O/C & E/F  
PROTECTION RELAY

## LEGEND

DES.	DESCRIPTION	TYPE	MAKE
50/51T	TERTIARY OC PROT. RELAY	P14N	GE
TS-X	TEST BLOCK (14 FINGERS)	soTECH-TSB 14	ARTECHE

## TEST BLOCK

NEUTRAL OC  
PROTECTION RELAY

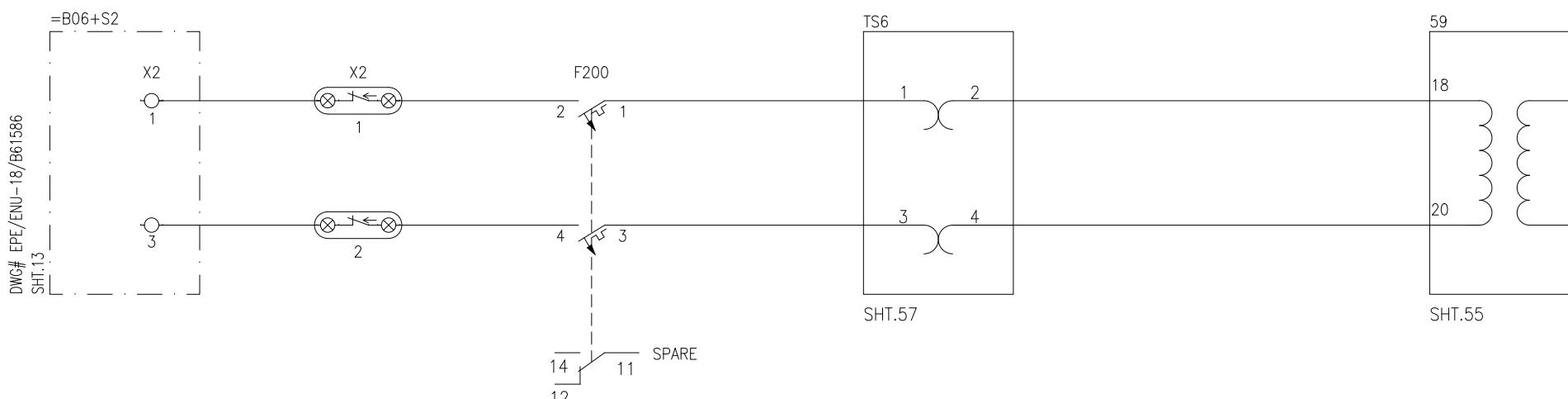
## LEGEND

DES.	DESCRIPTION	TYPE	MAKE
50/51N	NEUTRAL OVERCURRENT PROT. RELAY	P14N	GE
TS-X	TEST BLOCK (14 FINGERS)	soTECH-TSB 14	ARTECHE

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: TRAFO NEUTRAL PROTECTION. CT CIRCUIT 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 10 OF 57
NAH [Signature]	MSS [Signature]	MUR [Signature]		EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

VT MCB

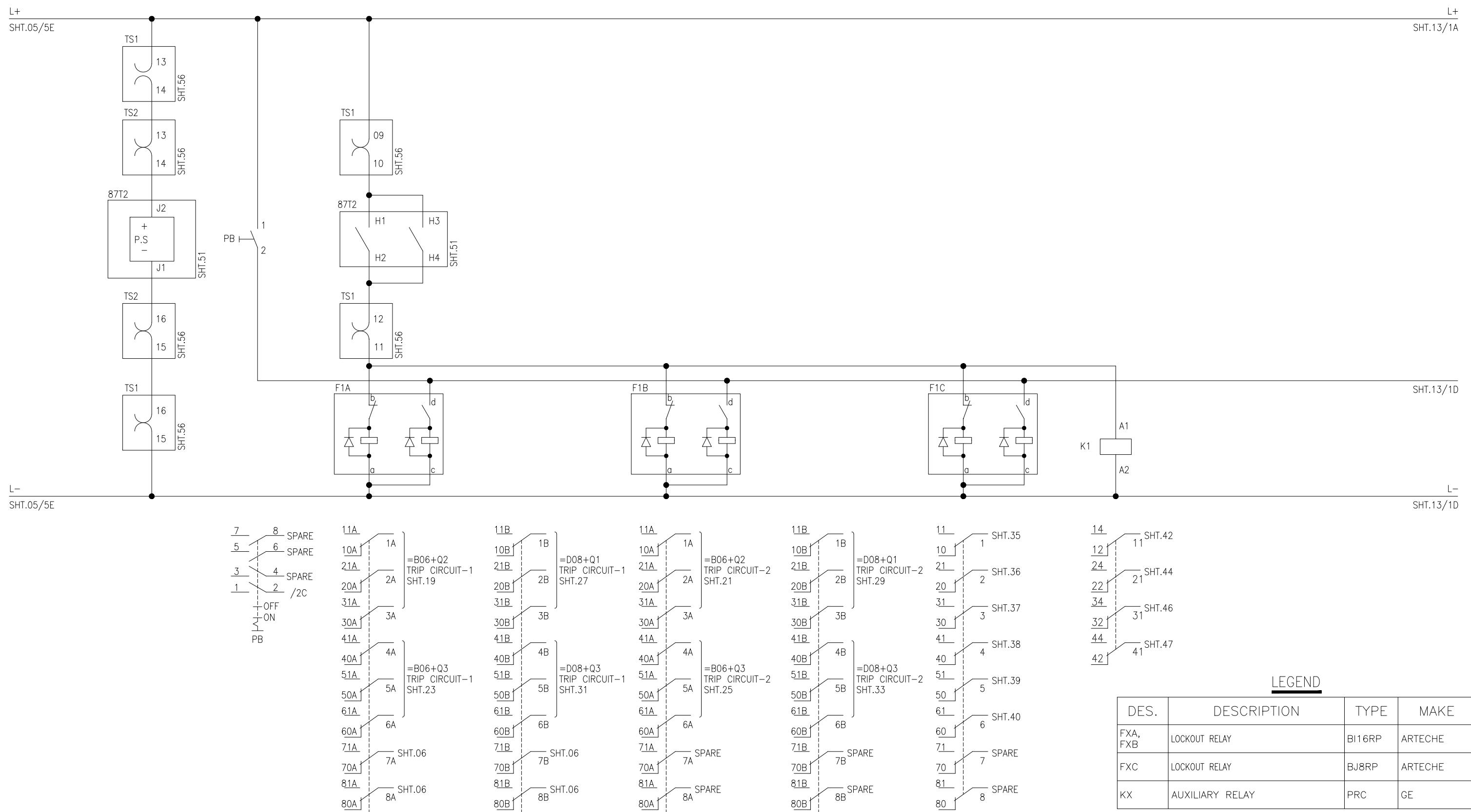
TEST BLOCK

OVERVOLTAGE  
PROTECTION RELAYLEGEND

DES.	DESCRIPTION	TYPE	MAKE
59	OVERVOLTAGE PROT. RELAY	P94V	GE
F200	AC MCB, 2P, RATED 2A	G60	GE
TS-X	TEST BLOCK (14 FINGERS)	soTECH-TSB14	ARTECHE

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: OVERVOLTAGE PROTECTION VT CIRCUIT 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 11 OF 57
NAH	MSS	MUR		<b>E P E S O L P v t . L t d</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

TRANSFORMER DIFFERENTIAL PROTECTION  
DC SUPPLY TRIP



APPROVED CHECKED DRAWN



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

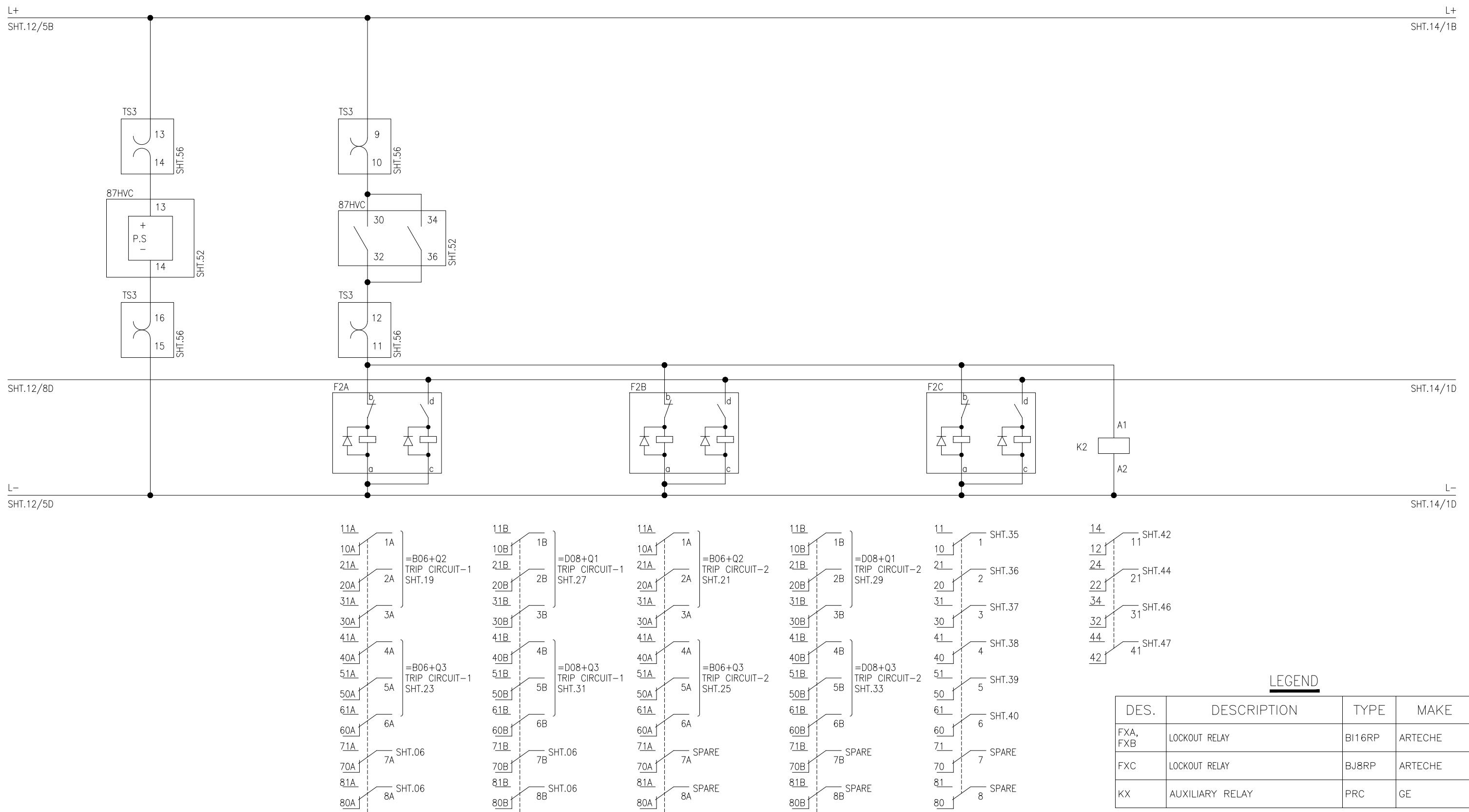
TITLE:  
TRAFO DIFFERENTIAL PROT. DC CIRCUIT  
500KV TRAFO. PROTECTION PANEL TYPE R14

**E P E S O L** Pvt. Ltd.  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/B61546 SHT: 12 OF 57  
DATE: 07.03.2019 AS BUILT REV: 0

## HV CONNECTION PROTECTION RELAY

DC SUPPLY TRIP



APPROVED	CHECKED	DRAWN
NAH	MSS	MUR



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018  
FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

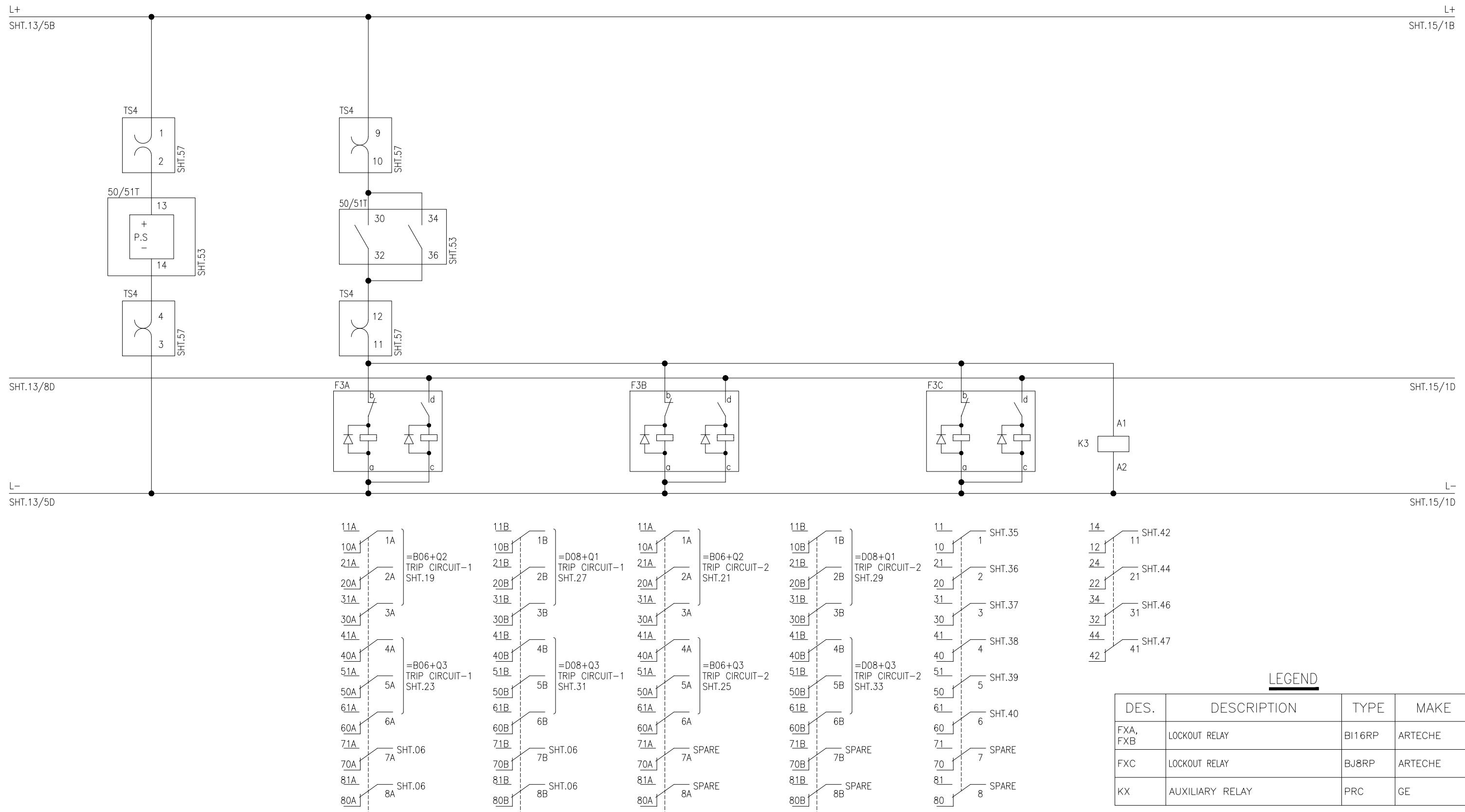
TITLE:  
HV CONNECTION PROTECTION DC CIRCUIT  
500KV TRAFO. PROTECTION PANEL TYPE R14



**EPESOL Pvt. Ltd.**  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/B61546 SHT: 13 OF 57  
DATE: 07.03.2019 AS BUILT REV: 0

TERTIARY O/C & E/F PROTECTION RELAY  
DC SUPPLY TRIP



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

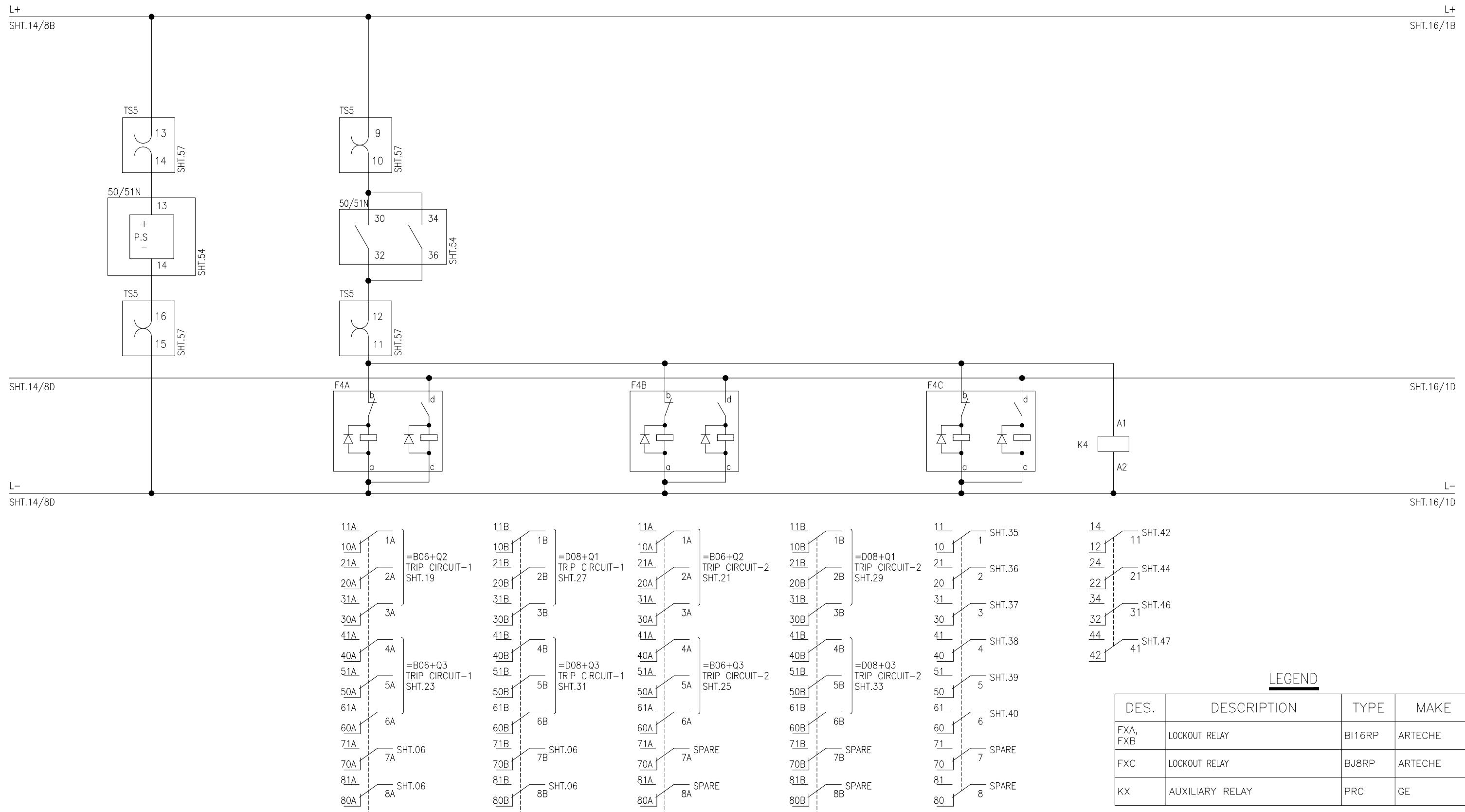
TITLE:  
TERTIARY OC PROTECTION DC CIRCUIT  
500KV TRAFO. PROTECTION PANEL TYPE R14



EPE SOL Pvt. Ltd.  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/B61546 SHT: 14 OF 57  
DATE: 07.03.2019 AS BUILT REV: 0

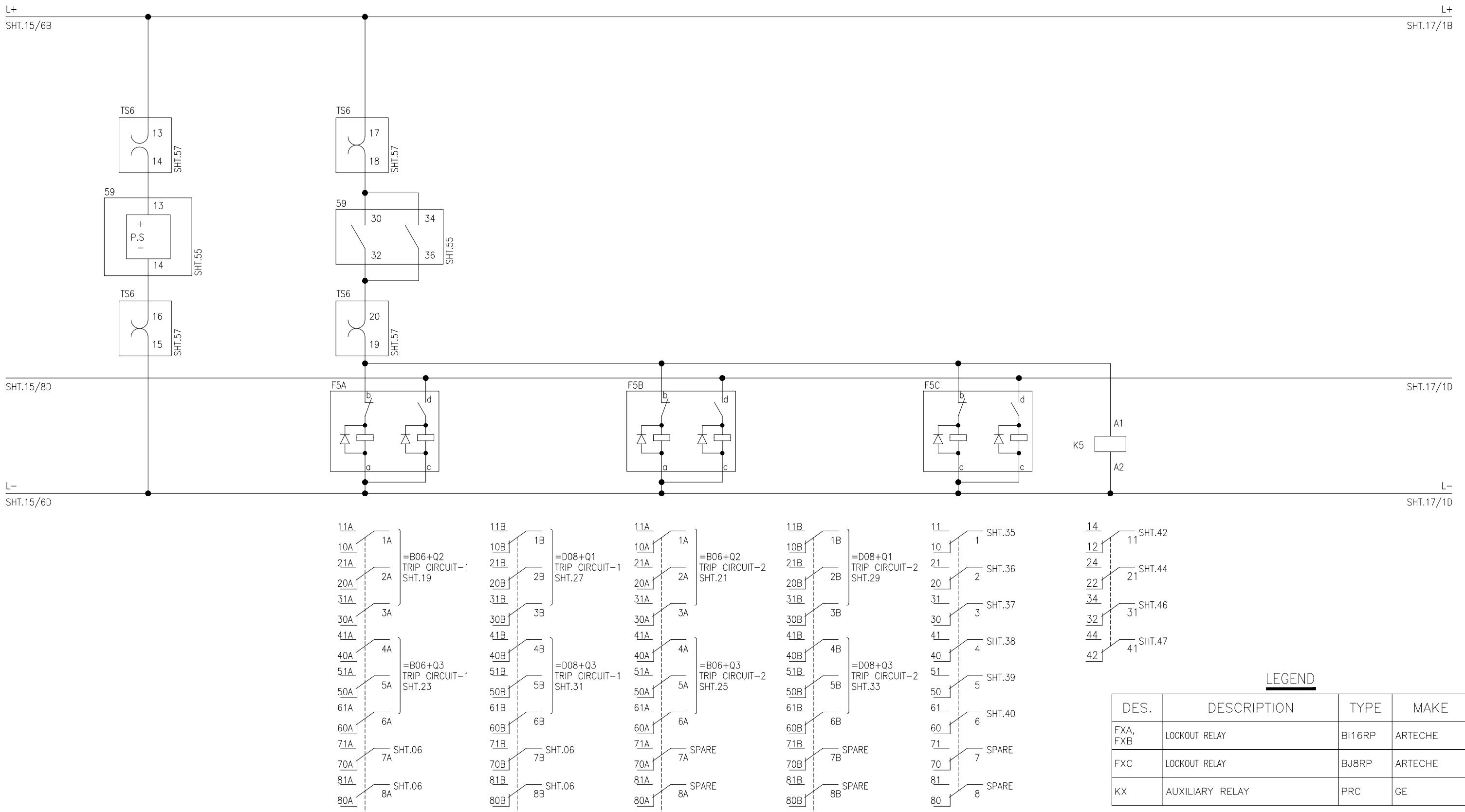
NEUTRAL OVERCURRENT PROTECTION RELAY  
DC SUPPLY TRIP



## OVERVOLTAGE PROTECTION RELAY

DC SUPPLY

TRIP

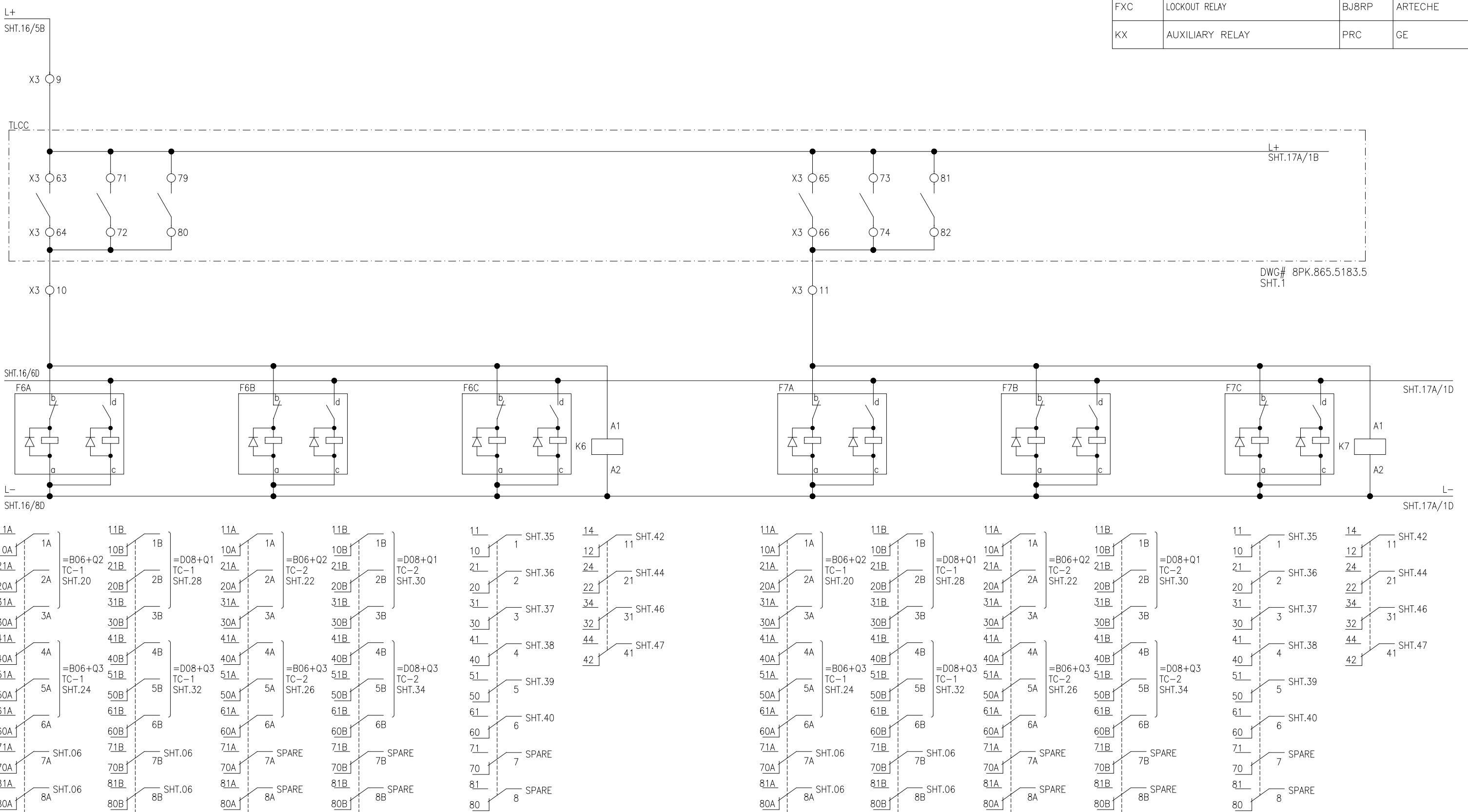


TAP CHANGER BUCHOLZ  
PROTECTION TRIP

TRANSFORMER PRESSURE RELIEF  
VALVE TRIP

LEGEND

DES.	DESCRIPTION	TYPE	MAKE
FXA, FXB	LOCKOUT RELAY	BI16RP	ARTECHE
FXC	LOCKOUT RELAY	BJ8RP	ARTECHE
KX	AUXILIARY RELAY	PRC	GE



APPROVED	CHECKED	DRAWN
NAH	MSS	MUR



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018  
FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE:  
TRANSFORMER MECHANICAL PROTECTION TRIP  
500KV TRAFO. PROTECTION PANEL TYPE R14

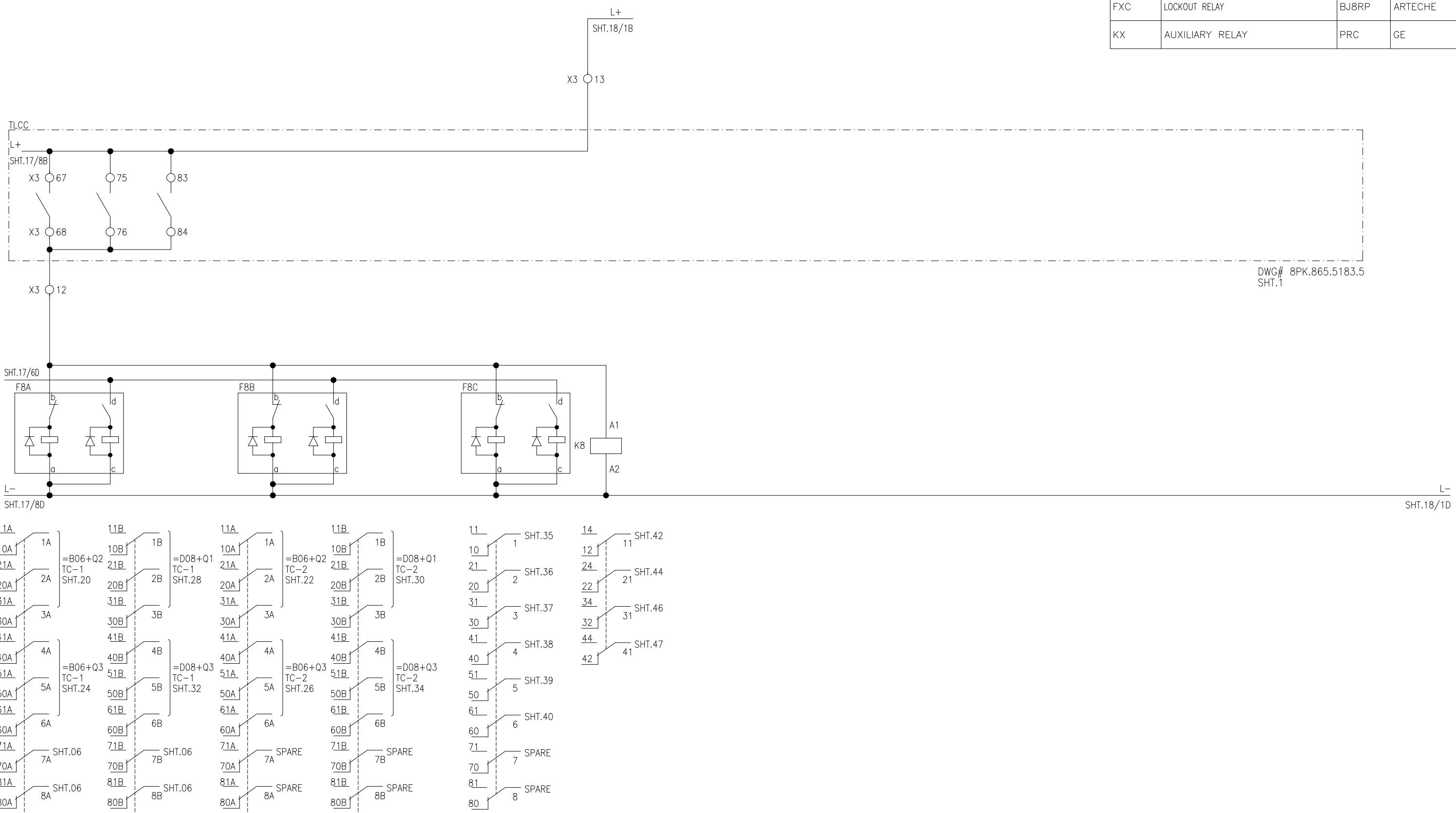


DWG# EPE/ENU-18/B61546 SHT: 17 OF 57  
DATE: 07.03.2019 AS BUILT REV: 0

## TAP CHANGER PRESSURE RELIEF VALVE TRIP

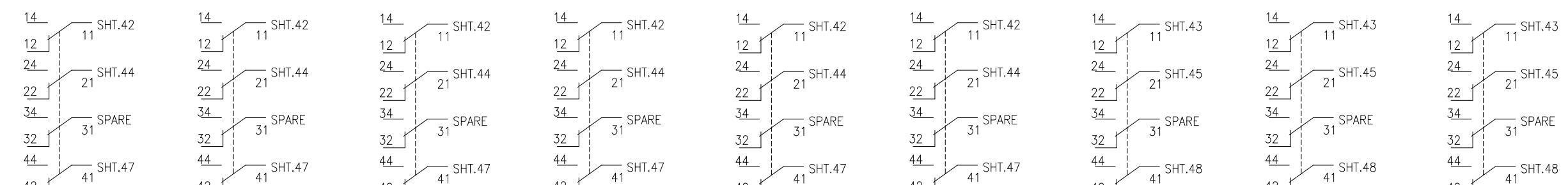
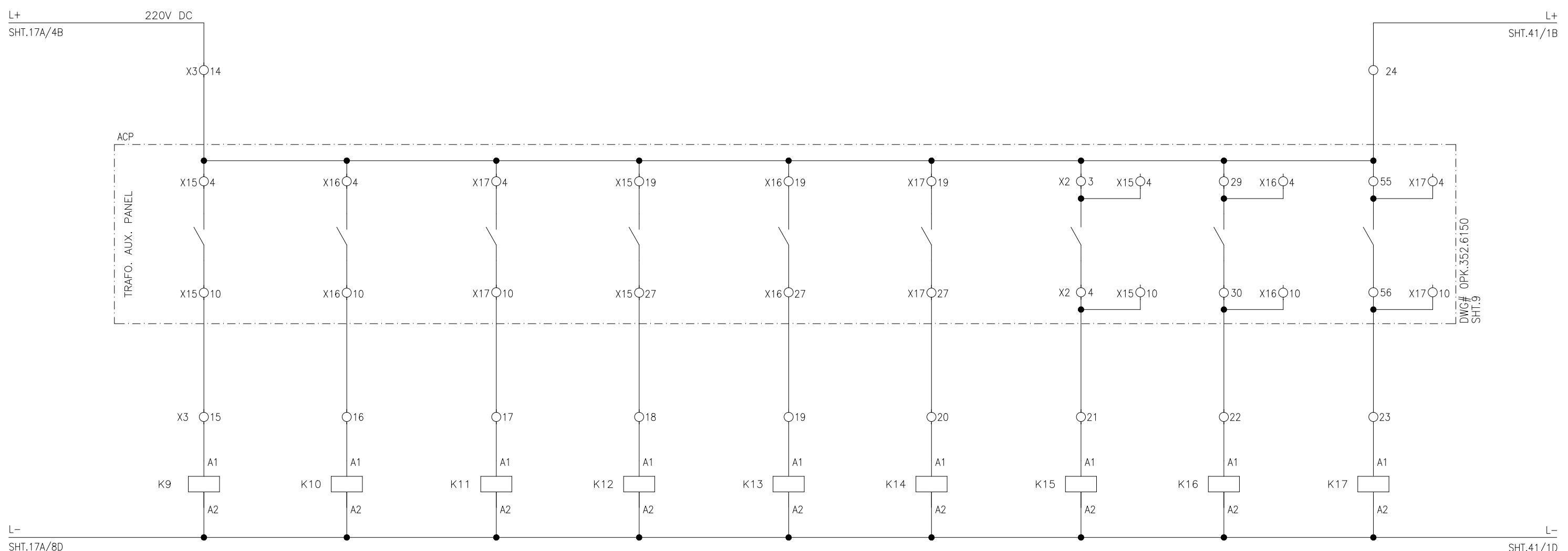
## LEGEND

DES.	DESCRIPTION	TYPE	MAKE
FXA, FXB	LOCKOUT RELAY	BI16RP	ARTECHE
FXC	LOCKOUT RELAY	BJ8RP	ARTECHE
KX	AUXILIARY RELAY	PRC	GE



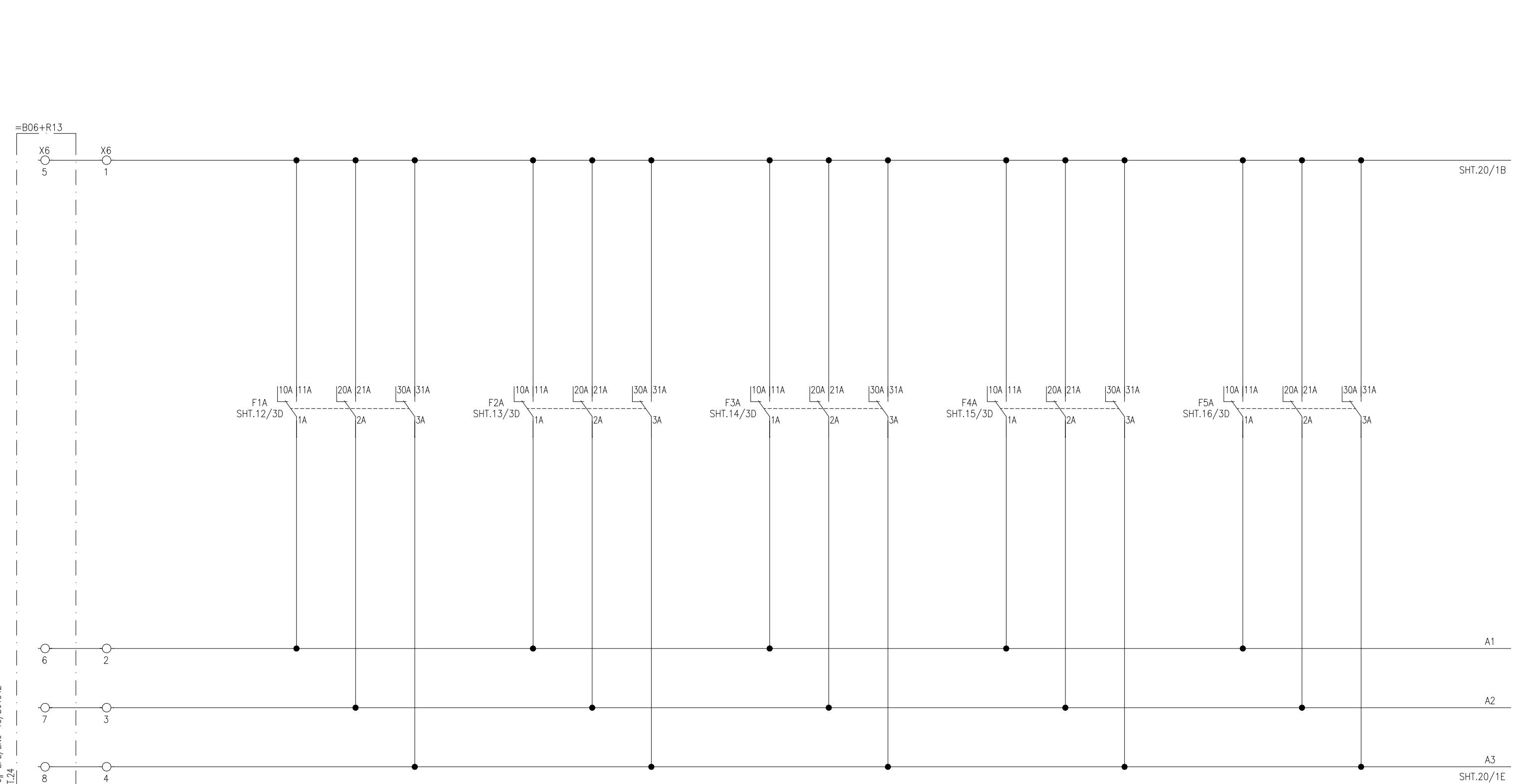
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: TRANSFORMER MECHANICAL PROTECTION TRIP 500kV TRAFO. PROTECTION PANEL TYPE R14	 <b>EPESOL Pvt Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/B61546	SHT: 17AOF 57
NAH <i>CL</i>	MSS <i>M. Sohail</i>	MUR <i>BS</i>				DATE: 07.03.2019	<b>AS BUILT</b>

OLTC BUCHHLOZ ALARM (R-PHASE)	OLTC BUCHHLOZ ALARM (Y-PHASE)	OLTC BUCHHLOZ ALARM (B-PHASE)	PRESSURE RELIEF (R-PHASE)	PRESSURE RELIEF (Y-PHASE)	PRESSURE RELIEF (B-PHASE)	OIL LEVEL LOW ALARM (R-PHASE)	OIL LEVEL LOW ALARM (B-PHASE)	OIL LEVEL LOW ALARM (B-PHASE)
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APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: TRANSFORMER PROTECTION ALARMS 500KV TRAFO. PROTECTION PANEL TYPE R14	EPE SOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/B61546	SHT: 18 OF 57
NAH	MSS	MUR				DATE: 07.03.2019	AS BUILT

## 500kV CB =B06+Q2 TC-1

TRAFO. DIFFERENTIAL  
PROTECTION TRIPHV CONNECTION  
PROTECTION TRIPTERTIARY OVERCURRENT  
PROTECTION TRIPTRAFO. NEUTRAL OVERCURRENT  
PROTECTION TRIPOVERVOLTAGE  
PROTECTION TRIP

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: =B06+Q2 TRIP CIRCUIT-1 500kV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 19 OF 57
NAH	MSS	MUR		 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

500kV CB =B06+Q2 TC-1

TAP CHANGER BUCHOLZ  
TRIPTRAFO PRESSURE RELIEF  
VALVE TRIPTAP CHANGER PRESSURE  
RELIEF VALVE TRIP

SHT.19/8B

F6A SHT.17/1D 10A 11A 20A 21A 30A 31A  
1A 2A 3AF7A SHT.17/5D 10A 11A 20A 21A 30A 31A  
1A 2A 3AF8A SHT.17A/1D 10A 11A 20A 21A 30A 31A  
1A 2A 3A

A1

X6 X6  
5 9

A2

6 10  
7 11A3  
SHT.19/8E

8 12

DWG# EPE/ENU-18/B61550  
SHT.19/8E

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR



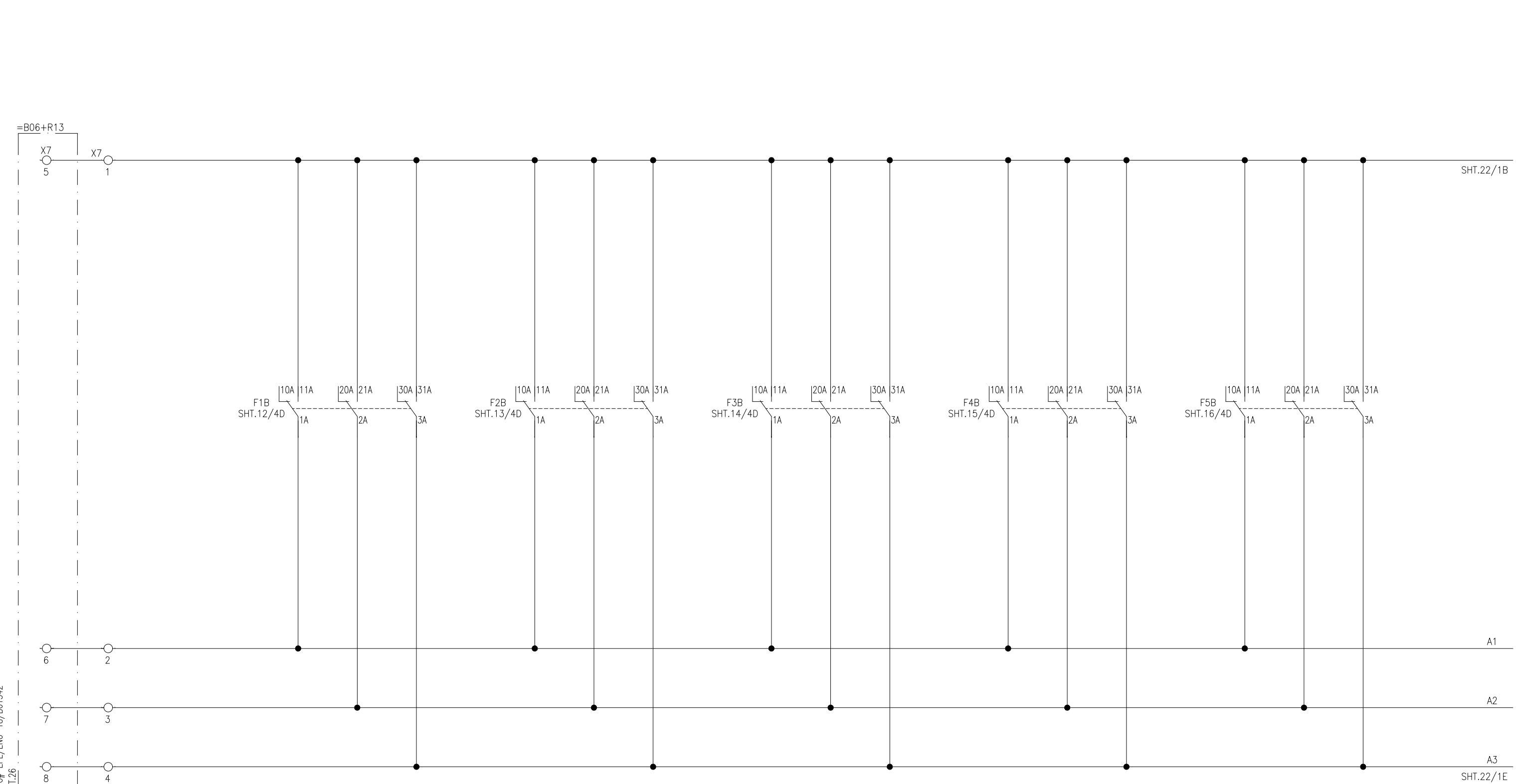
PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018  
FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE:  
=B06+Q2 TRIP CIRCUIT-1  
500kV TRAFO. PROTECTION PANEL TYPE R14

 EPESOL Pvt. Ltd.  
71-B Garden Block, New Garden Town, Lahore, Pakistan

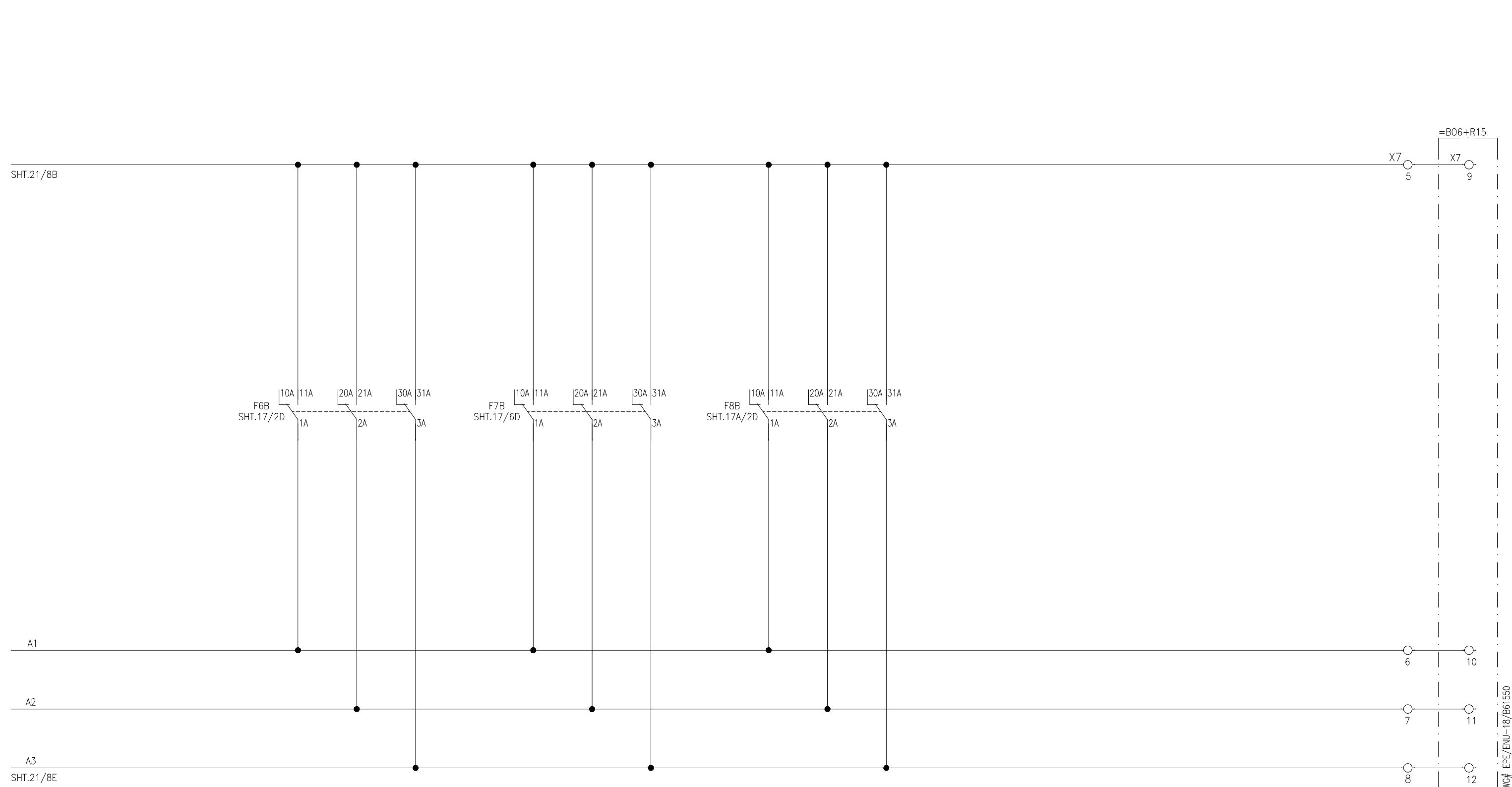
DWG# EPE/ENU-18/B61546 SHT: 20 OF 57  
DATE: 07.03.2019 AS BUILT REV: 0

500kV CB =B06+Q2 TC-2

TRAFO. DIFFERENTIAL  
PROTECTION TRIPHV CONNECTION  
PROTECTION TRIPTERTIARY OVERCURRENT  
PROTECTION TRIPTRAFO. NEUTRAL OVERCURRENT  
PROTECTION TRIPOVERVOLTAGE  
PROTECTION TRIP

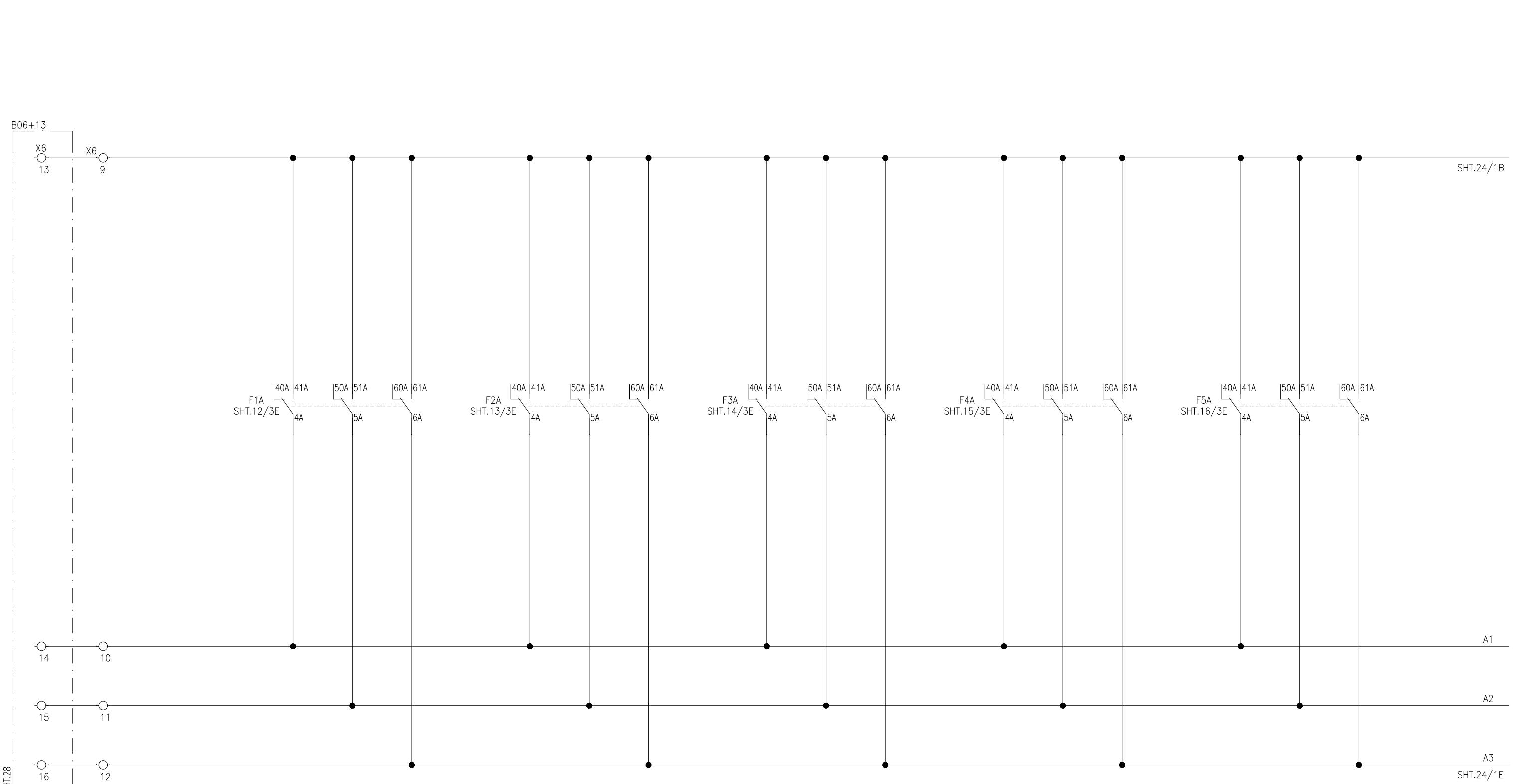
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: =B06+Q2 TRIP CIRCUIT-2 500kV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 21 OF 57
NAH [Signature]	MSS [Signature]	MUR [Signature]		<b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT REV: 0

500kV CB =B06+Q2 TC-2

TAP CHANGER BUCHOLZ  
TRIPTRAFO PRESSURE RELIEF  
VALVE TRIPTAP CHANGER PRESSURE  
RELIEF VALVE TRIP

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: =B06+Q2 TRIP CIRCUIT-2 500kV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 22 OF 57
NAH Q.	MSS M. Sohail	MUR Iy		<b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

## 500kV CB =B06+Q3 TC-1

TRAFO. DIFFERENTIAL  
PROTECTION TRIPHV CONNECTION  
PROTECTION TRIPTERTIARY OVERCURRENT  
PROTECTION TRIPTRAFO. NEUTRAL OVERCURRENT  
PROTECTION TRIPOVERVOLTAGE  
PROTECTION TRIP

DWG# EPE/ENU-18/B61542

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

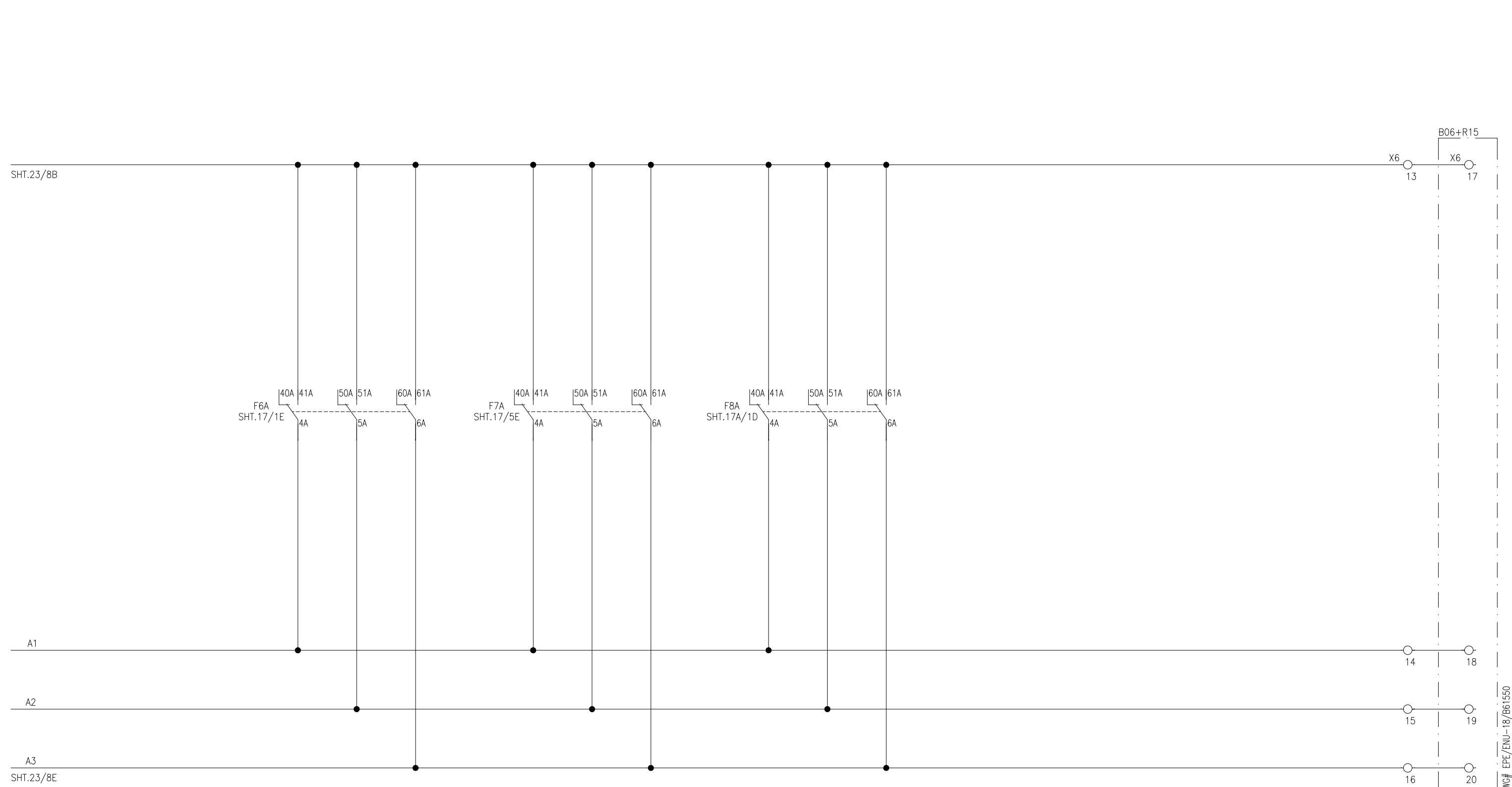
TITLE:  
=B06+Q3 TRIP CIRCUIT-1  
500kV TRAFO. PROTECTION PANEL TYPE R14



**EPESOL Pvt. Ltd.**  
71-B Garden Block, New Garden Town, Lahore, Pakistan

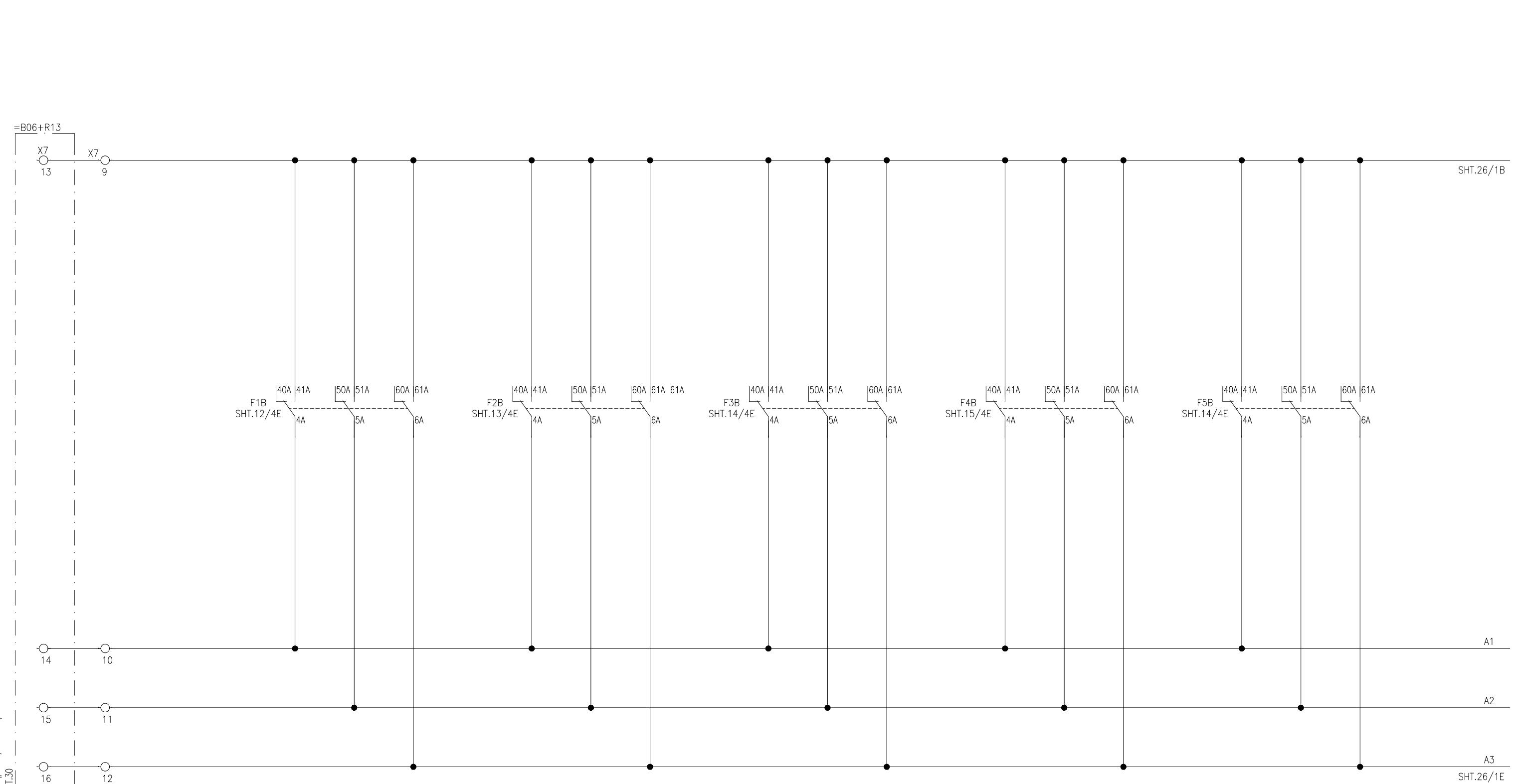
DWG# EPE/ENU-18/B61546 SHT: 23 OF 57  
DATE: 07.03.2019 AS BUILT REV: 0

500kV CB =B06+Q1 TC-1

TAP CHANGER BUCHOLZ  
TRIPTRAFO PRESSURE RELIEF  
VALVE TRIPTAP CHANGER PRESSURE  
RELIEF VALVE TRIP

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: =B06+Q3 TRIP CIRCUIT-1 500kV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 24 OF 57
NAH Q.	MSS M. Sohail	MUR Iy		<b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

## 500kV CB =B06+Q3 TC-2

TRAFO. DIFFERENTIAL  
PROTECTION TRIPHV CONNECTION  
PROTECTION TRIPTERTIARY OVERCURRENT  
PROTECTION TRIPTRAFO. NEUTRAL OVERCURRENT  
PROTECTION TRIPOVERVOLTAGE  
PROTECTION TRIP

DWG#

EPE/ENU-18/B61542

APPROVED

CHECKED

DRAWN



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&amp;M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV &amp; 500KV RELAY&amp; CONTROL PANELS

TITLE:  
=B06+Q3 TRIP CIRCUIT-2  
500kV TRAFO. PROTECTION PANEL TYPE R14E P E S O L P v t . L t d.  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/B61546

SHT: 25 OF 57

NAH [Signature]

MSS [Signature]

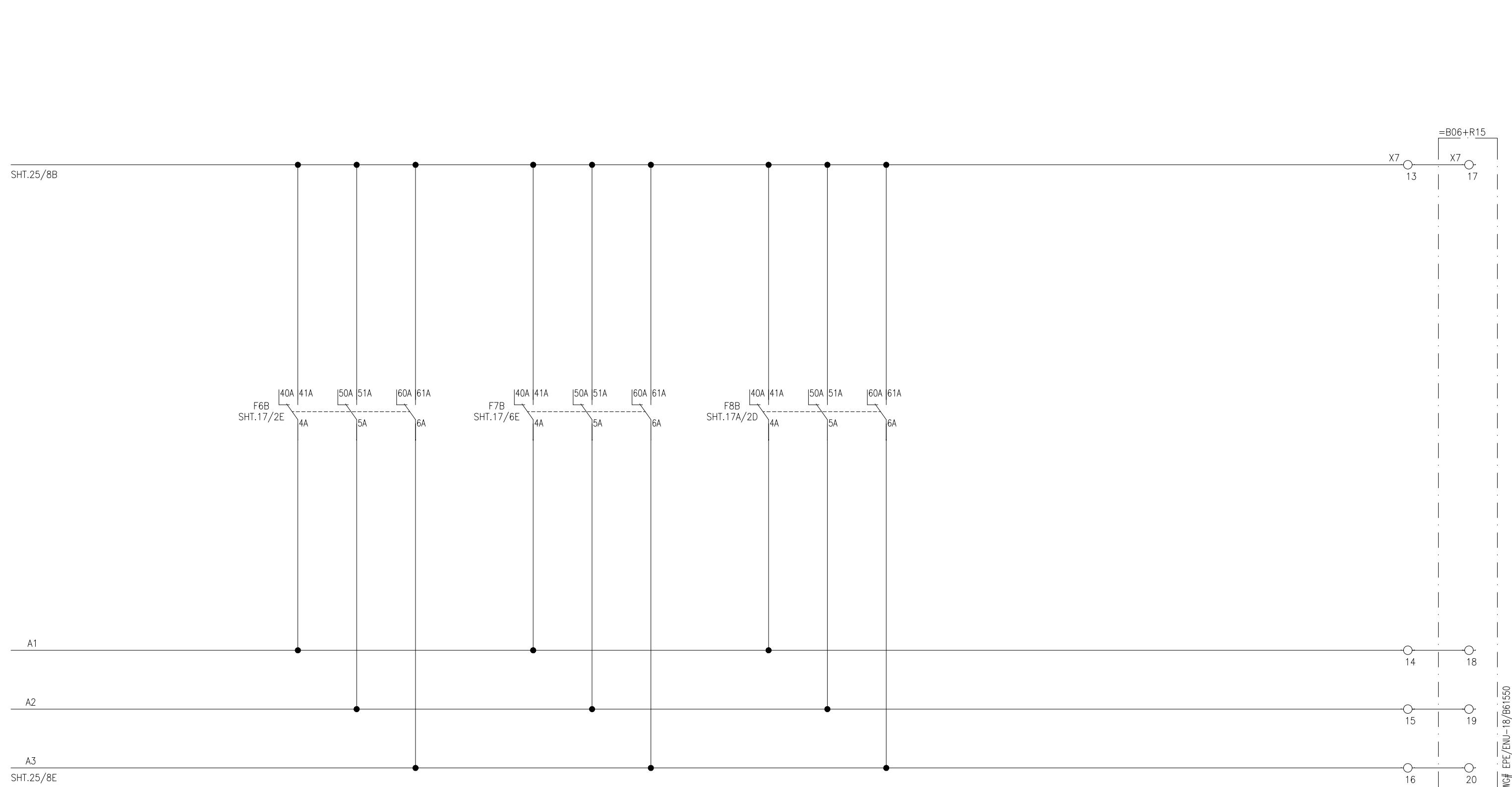
MUR [Signature]

DATE: 07.03.2019

AS BUILT

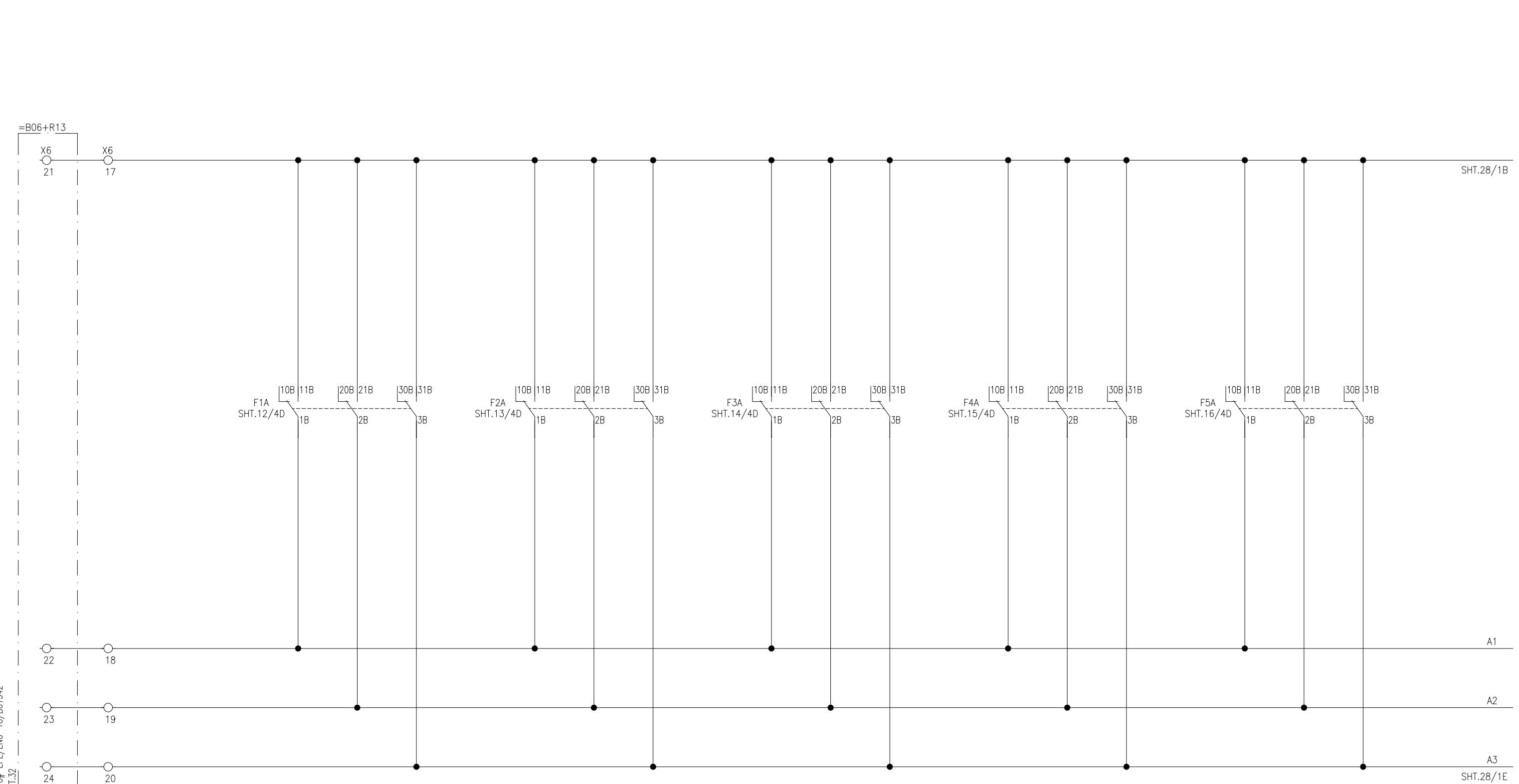
REV: 0

500kV CB =B06+Q3 TC-2

TAP CHANGER BUCHOLZ  
TRIPTRAFO PRESSURE RELIEF  
VALVE TRIPTAP CHANGER PRESSURE  
RELIEF VALVE TRIP

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: =B06+Q3 TRIP CIRCUIT-2 500kV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 26 OF 57
NAH Q.	MSS M. Sohail	MUR Iy		EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

220kV CB =D8+Q1 TC-1

TRAFO. DIFFERENTIAL  
PROTECTION TRIPHV CONNECTION  
PROTECTION TRIPTERTIARY OVERCURRENT  
PROTECTION TRIPTRAFO. NEUTRAL OVERCURRENT  
PROTECTION TRIPOVERVOLTAGE  
PROTECTION TRIP

DWG# EPE/ENU-18/B61542

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE:  
=D08+Q1 TRIP CIRCUIT-1  
500kV TRAFO. PROTECTION PANEL TYPE R14

 **EPESOL Pvt. Ltd.**  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/B61546	SHT: 27 OF 57
DATE: 07.03.2019	AS BUILT
REV: 0	

220kV CB =D8+Q1 TC-1

TAP CHANGER BUCHOLZ  
TRIPTRAFO PRESSURE RELIEF  
VALVE TRIPTAP CHANGER PRESSURE  
RELIEF VALVE TRIP

SHT.27/8B

F6A SHT.17/2D 10B 11B 20B 21B 30B 31B  
1B 2B 3BF7A SHT.17/6D 10B 11B 20B 21B 30B 31B  
1B 2B 3BF8A SHT.17A/1D 10B 11B 20B 21B 30B 31B  
1B 2B 3B

A1

=B08+R15

X6 21 25

SHT.27/8E

22 26

A2

23 27

A3

24 28

DWG# EPE/ENU-18/B61550

SH120

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018  
FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

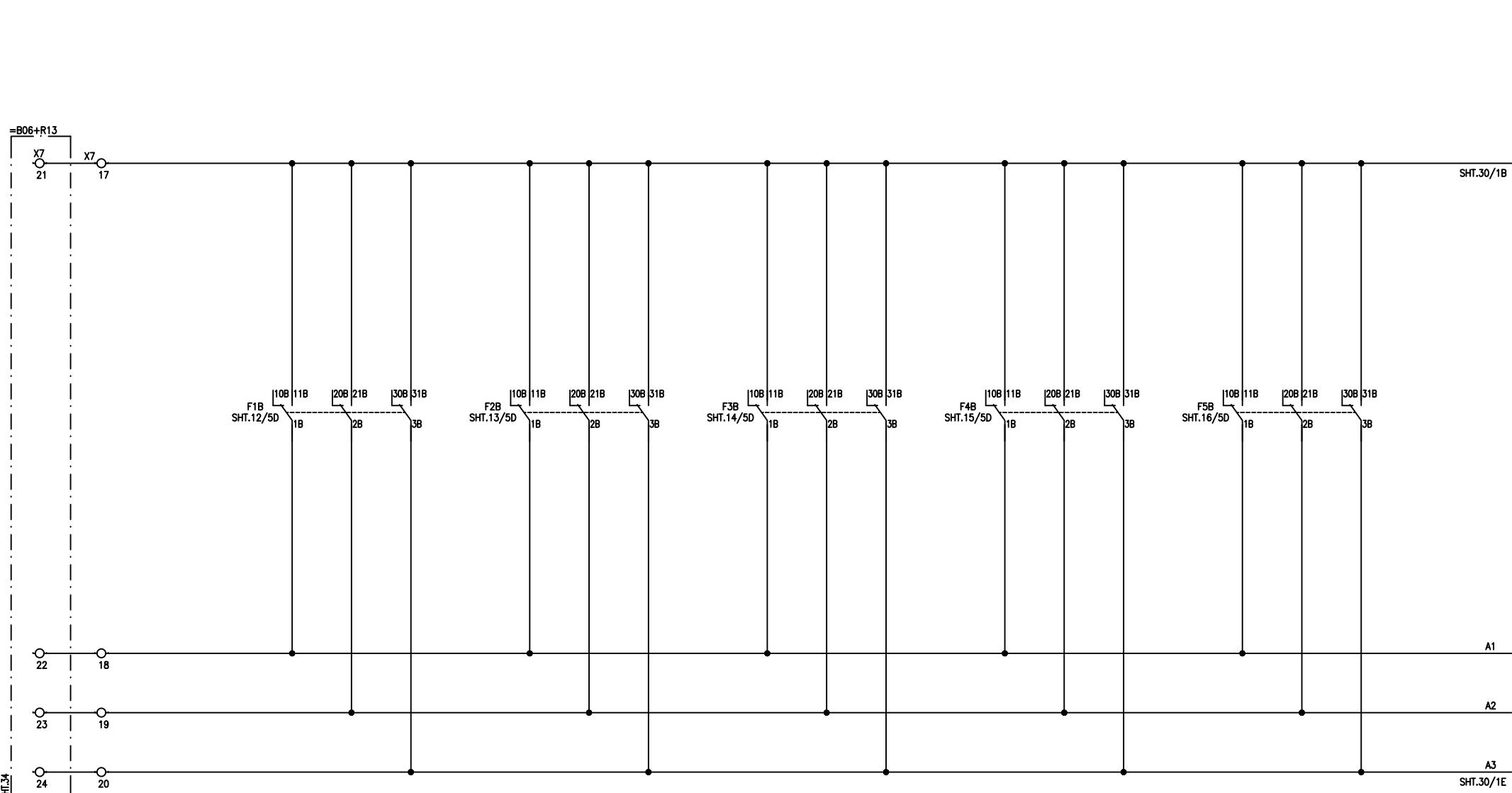
TITLE:  
=D08+Q1 TRIP CIRCUIT-1  
500KV TRAFO. PROTECTION PANEL TYPE R14

 EPESOL Pvt. Ltd.  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/B61546 SHT: 28 OF 57  
DATE: 07.03.2019 AS BUILT REV: 0

1 2 3 4 5 6 7 8

220KV CB =D8+Q1 TC-2

TRAFO. DIFFERENTIAL  
PROTECTION TRIPHV CONNECTION  
PROTECTION TRIPTERTIARY OVERCURRENT  
PROTECTION TRIPTRAFO. NEUTRAL OVERCURRENT  
PROTECTION TRIPOVERVOLTAGE  
PROTECTION TRIP

DWG# EPE/ENU-18/B61542

APPROVED CHECKED DRAWN



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M  
/M(P)/AM-VI/EO/9417-29 DATED 14.11.2018  
FOR THE PROCUREMENT OF 220KV &  
500KV RELAY& CONTROL PANELS

TITLE:  
=D08+Q1 TRIP CIRCUIT-2  
500KV TRAFO. PROTECTION PANEL TYPE R14



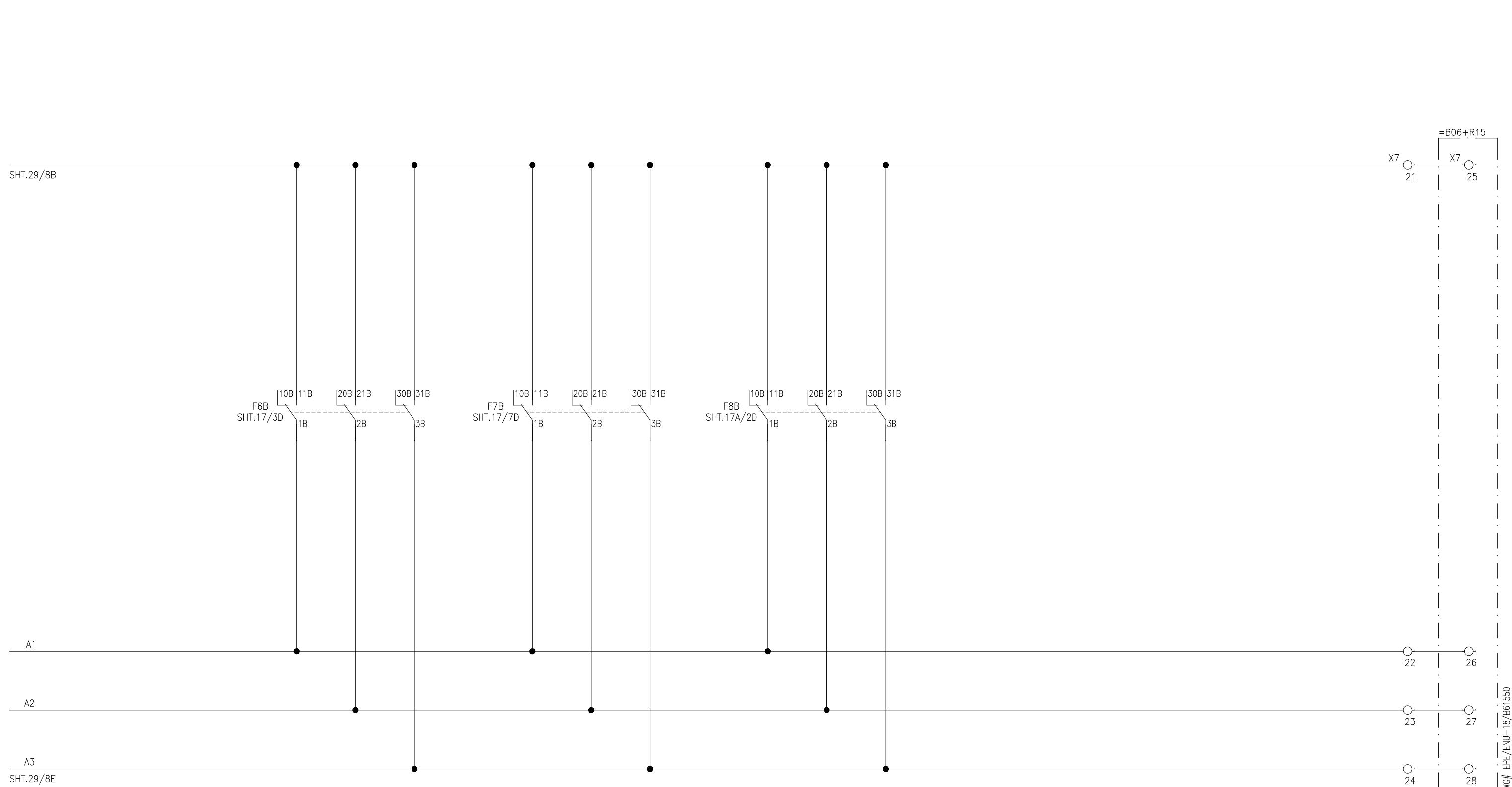
**EPESOL Pvt. Ltd.**  
7-E Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/B61542 SHT: 29 OF 57

DATE: 07.03.2019 AS BUILT REV: 0

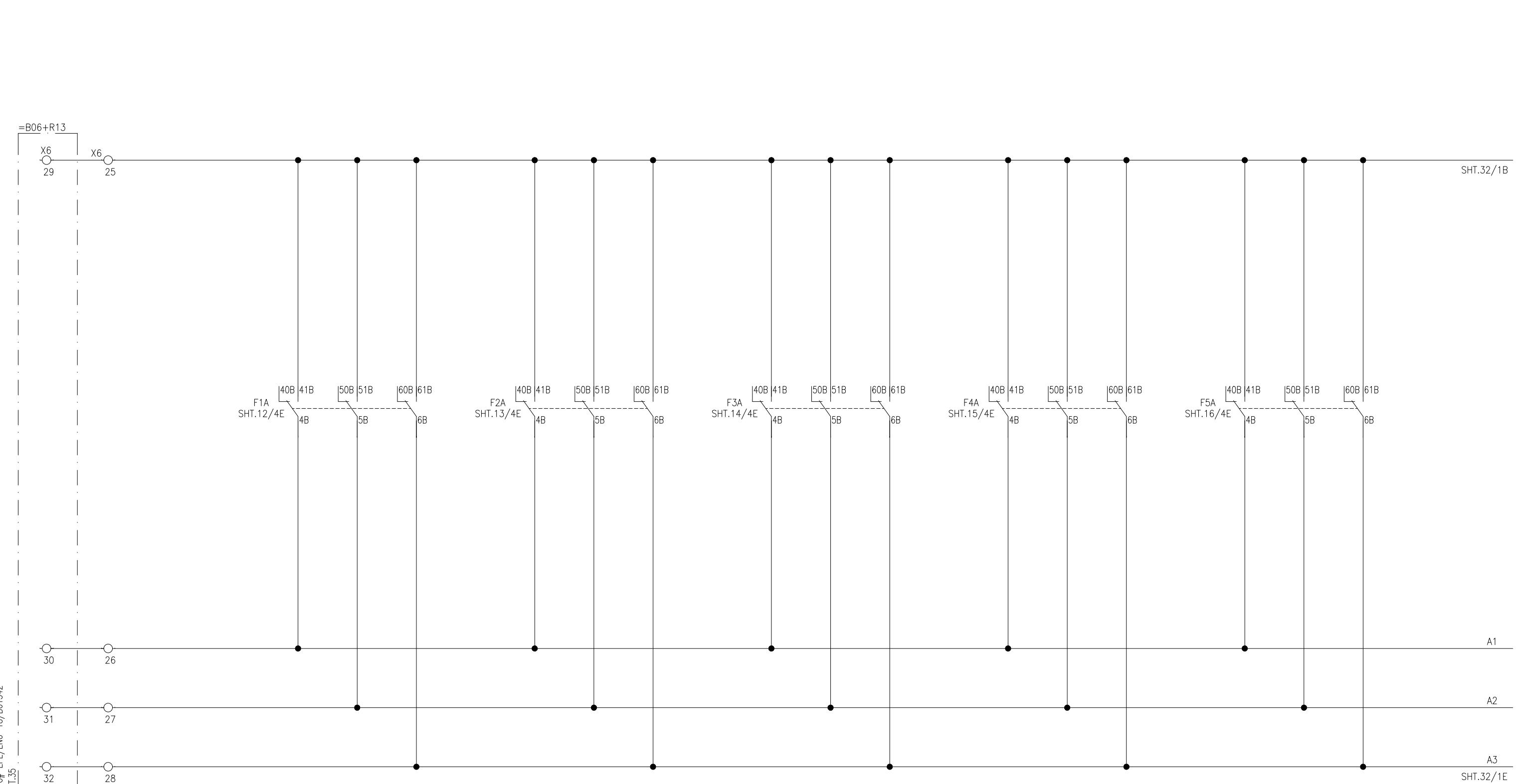
1 2 3 4 5 6 7 8

220kV CB =D08+Q1 TC-2

TAP CHANGER BUCHOLZ  
TRIPTRAFO PRESSURE RELIEF  
VALVE TRIPTAP CHANGER PRESSURE  
RELIEF VALVE TRIP

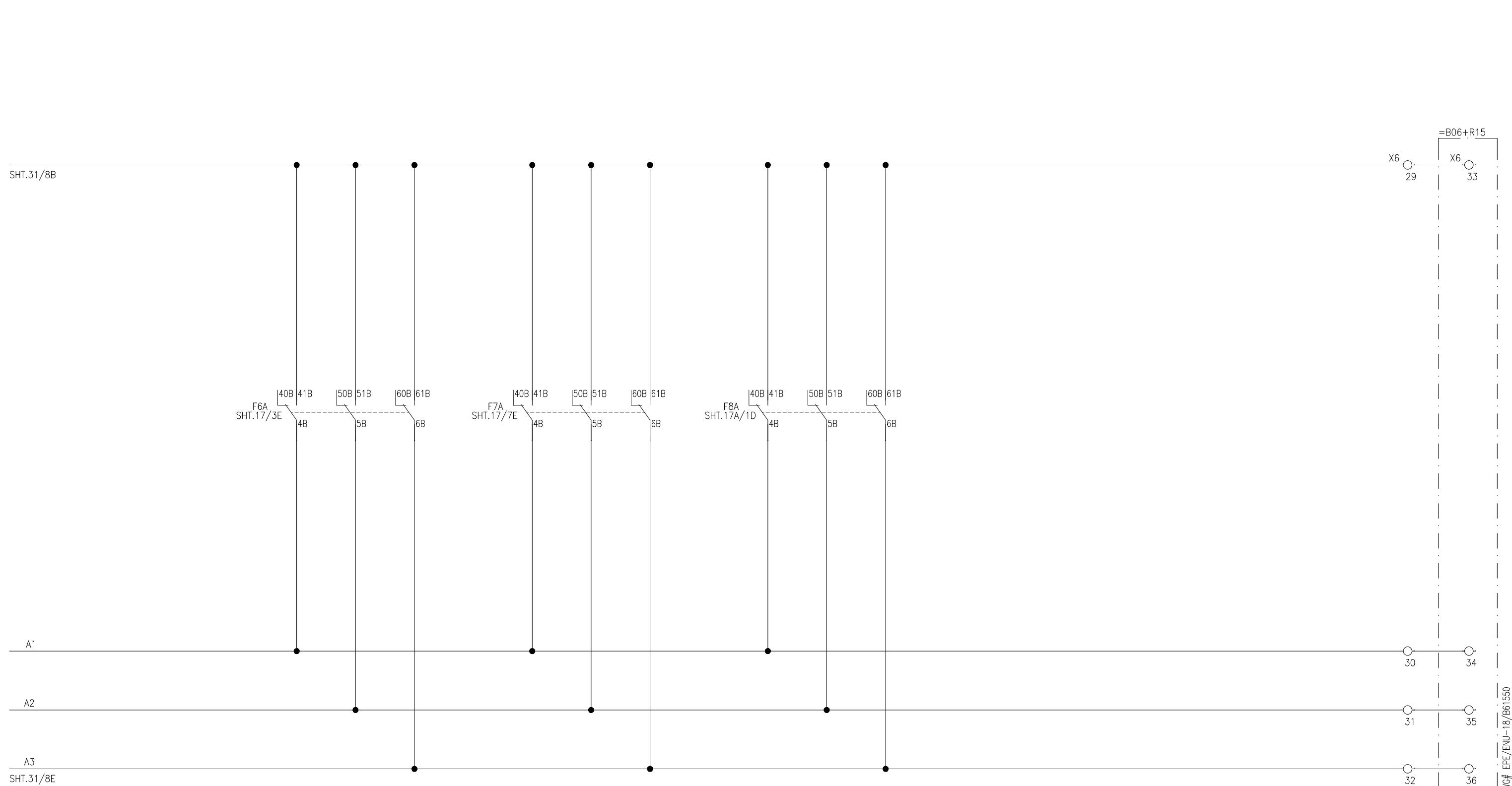
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: =D08+Q1 TRIP CIRCUIT-2 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 30 OF 57
NAH Q.	MSS M. Sohail	MUR Iy		<b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

220kV CB =D08+Q3 TC-1

TRAFO. DIFFERENTIAL  
PROTECTION TRIPHV CONNECTION  
PROTECTION TRIPTERTIARY OVERCURRENT  
PROTECTION TRIPTRAFO. NEUTRAL OVERCURRENT  
PROTECTION TRIPOVERVOLTAGE  
PROTECTION TRIP

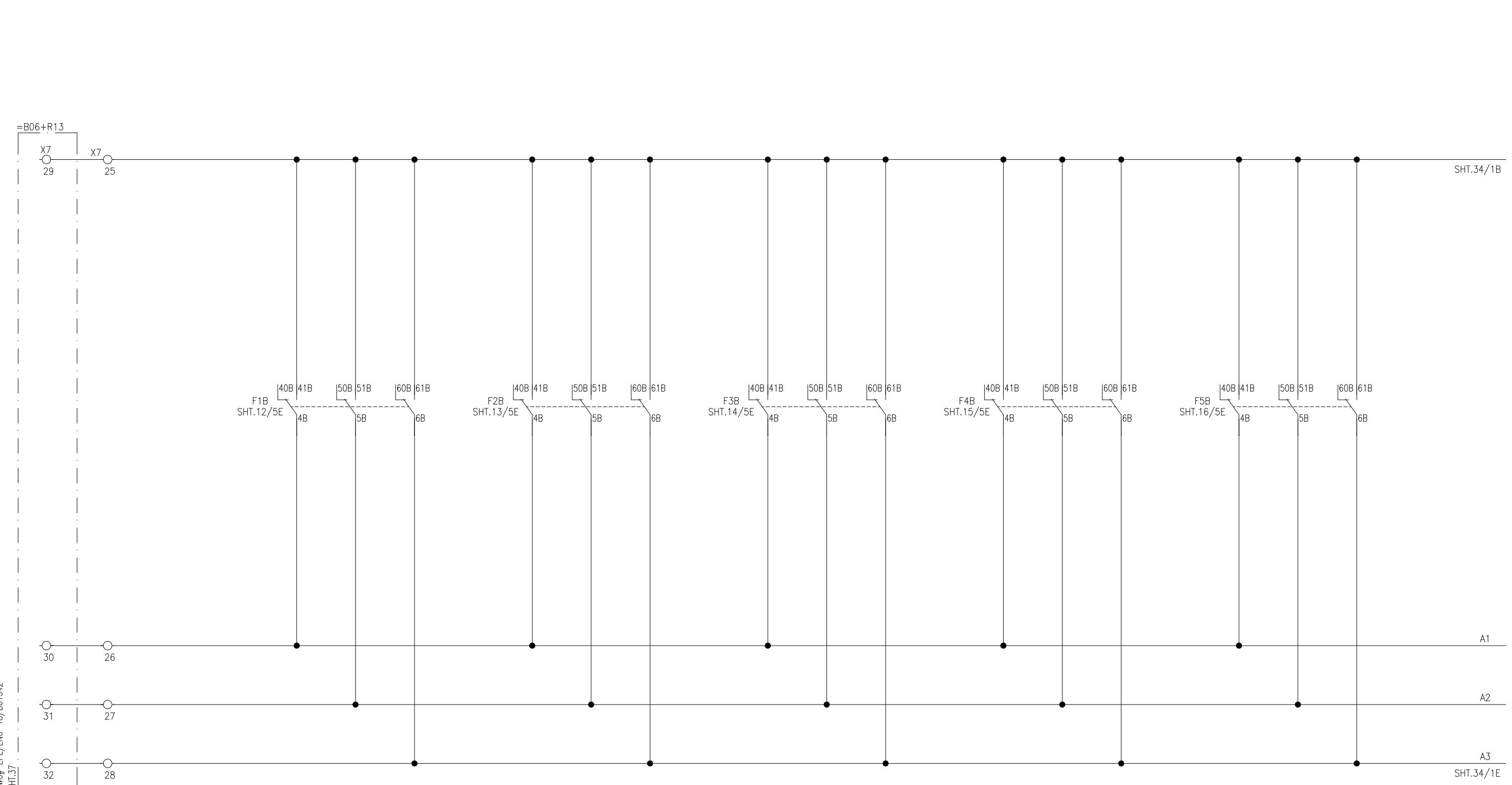
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: =D08+Q3 TRIP CIRCUIT-1 500kV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 31 OF 57
NAH [Signature]	MSS [Signature]	MUR [Signature]		 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

220kV CB =D8+Q3 TC-1

TAP CHANGER BUCHOLZ  
TRIPTRAFO PRESSURE RELIEF  
VALVE TRIPTAP CHANGER PRESSURE  
RELIEF VALVE TRIP

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: =D08+Q3 TRIP CIRCUIT-1 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 32 OF 57
NAH	MSS	MUR		 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

## 220KV CB =D8+Q3 TC-2

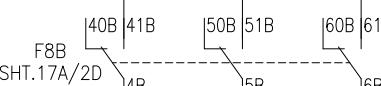
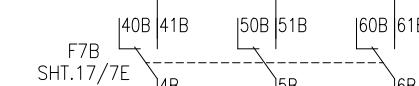
TRAFO. DIFFERENTIAL  
PROTECTION TRIPHV CONNECTION  
PROTECTION TRIPTERTIARY OVERCURRENT  
PROTECTION TRIPTRAFO. NEUTRAL OVERCURRENT  
PROTECTION TRIPOVERVOLTAGE  
PROTECTION TRIP

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: =D08+Q3 TRIP CIRCUIT-2 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 33 OF 57
NAH [Signature]	MSS [Signature]	MUR [Signature]		 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT REV: 0

220KV CB =D8+Q3 TC-2

TAP CHANGER BUCHOLZ  
TRIPTRAFO PRESSURE RELIEF  
VALVE TRIPTAP CHANGER PRESSURE  
RELIEF VALVE TRIP

SHT.33/8B



A1

30 34

A2

31 35

A3

32 36

SHT.33/8E

DWG# EPE/ENU-18/B61550  
DWG# EPE/ENU-18/B61550

SH121

APPROVED	CHECKED	DRAWN
NAH	MSS	MUR



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018  
FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE:  
=D08+Q3 TRIP CIRCUIT-2  
500KV TRAFO. PROTECTION PANEL TYPE R14

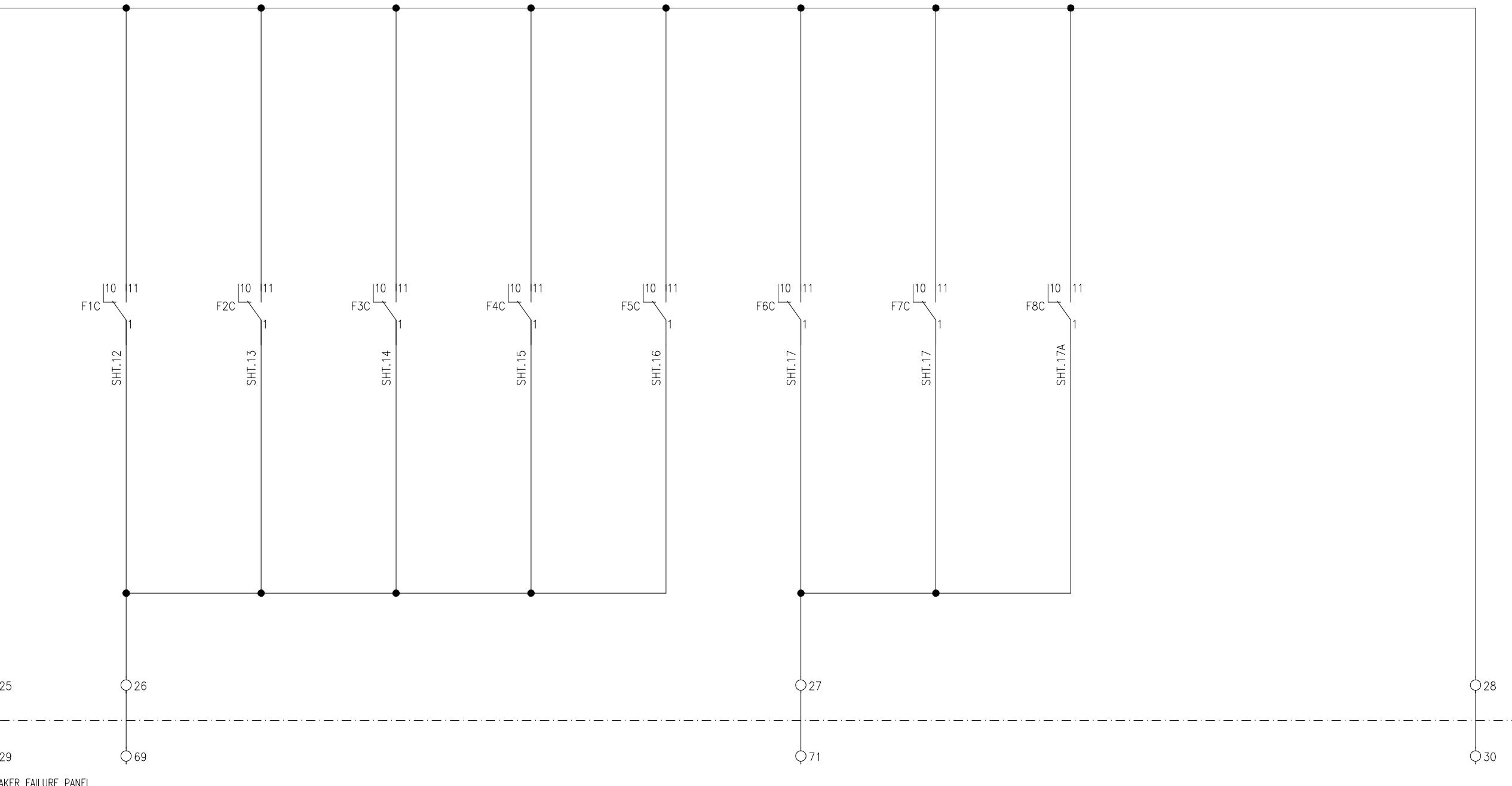
 EPESOL Pvt. Ltd.  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/B61546 SHT: 34 OF 57  
DATE: 07.03.2019 AS BUILT REV: 0

## TRAFO. NEUTRAL

## PRESSURE RELIEF

TRAFO. DIFFERENTIAL PROTECTION TRIP	HV CONNECTION PROTECTION TRIP	TERTIARY OVERCURRENT PROTECTION TRIP	OVERCURRENT PROTECTION TRIP	OVERVOLTAGE PROTECTION TRIP	TAP CHANGER BUCHOLZ TRIP	VALVE TRIP
					TRAFO	TAP CHANGER

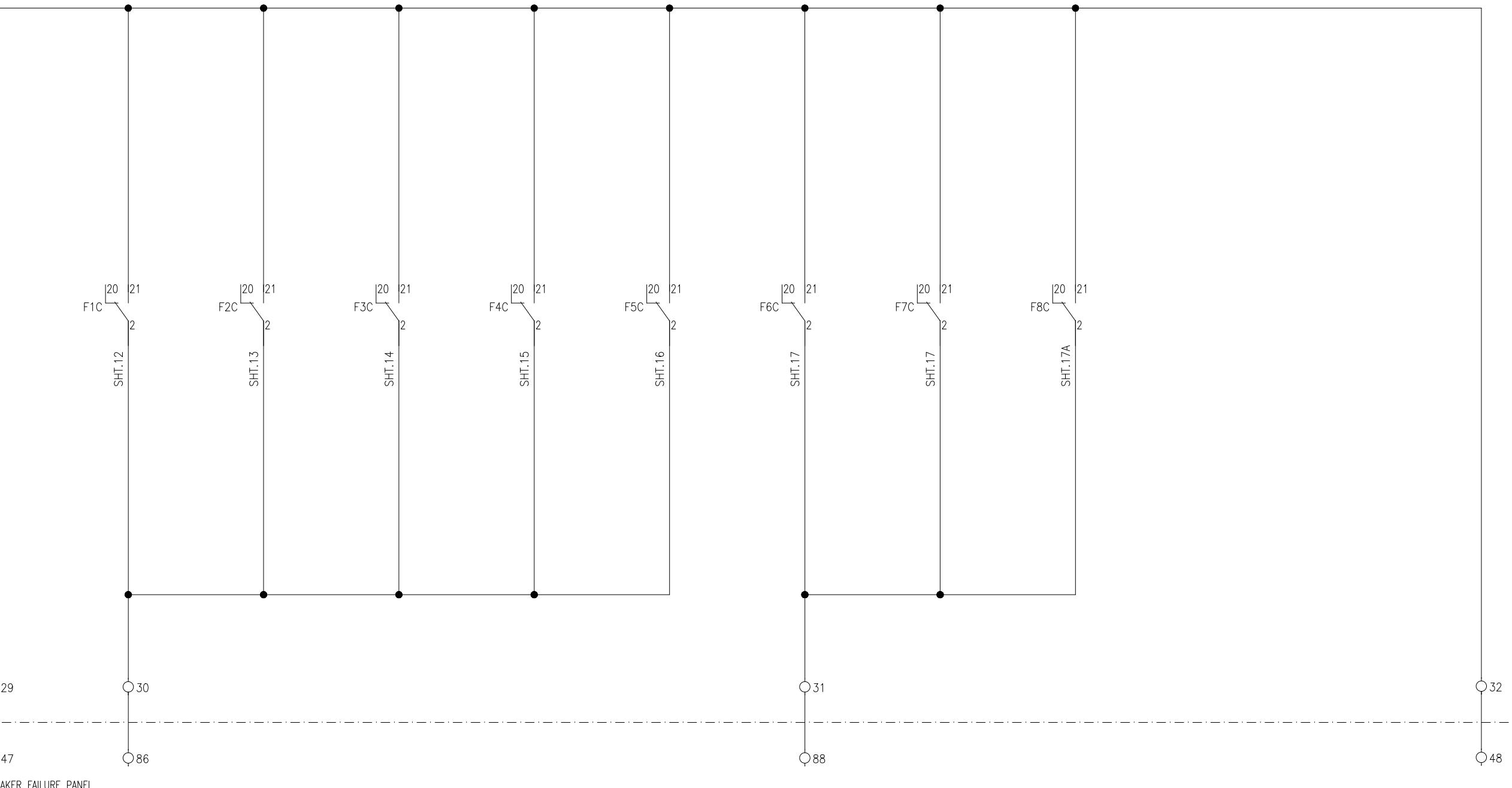


APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: BREAKER FAILURE INITIATION FOR =B06+Q2 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 35 OF 57
NAH	MSS	MUR		<b>EPE SOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

## TRAFO. NEUTRAL

## PRESSURE RELIEF

TRAFO. DIFFERENTIAL PROTECTION TRIP	HV CONNECTION PROTECTION TRIP	TERTIARY OVERCURRENT PROTECTION TRIP	OVERCURRENT PROTECTION TRIP	OVERVOLTAGE PROTECTION TRIP	TAP CHANGER BUCHOLZ TRIP	VALVE TRIP
					TRAFO	TAP CHANGER

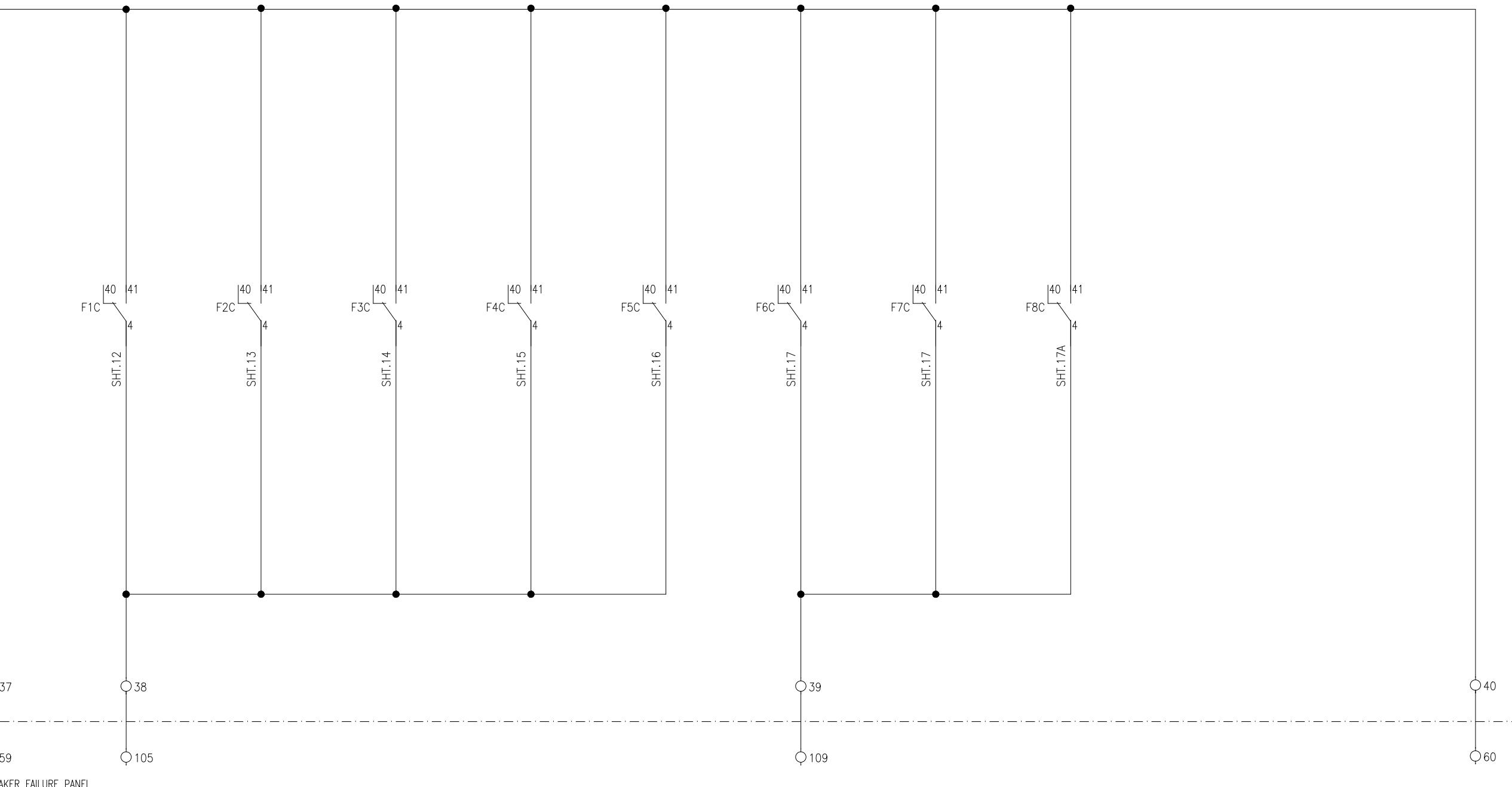


APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: BREAKER FAILURE INITIATION FOR =B06+Q3 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 36 OF 57
NAH	MSS	MUR		 EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT REV: 0

## TRAFO. NEUTRAL

## PRESSURE RELIEF

TRAFO. DIFFERENTIAL PROTECTION TRIP	HV CONNECTION PROTECTION TRIP	TERTIARY OVERCURRENT PROTECTION TRIP	OVERCURRENT PROTECTION TRIP	OVERVOLTAGE PROTECTION TRIP	TAP CHANGER BUCHOLZ TRIP	VALVE TRIP	TRAFO TAP CHANGER
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APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: BREAKER FAILURE INITIATION FOR =D08+Q2 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 38 OF 57
NAH Q.	MSS M. Sohail	MUR Iy		<b>E P E S O L P v t . L t d</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

## TRAFO. NEUTRAL

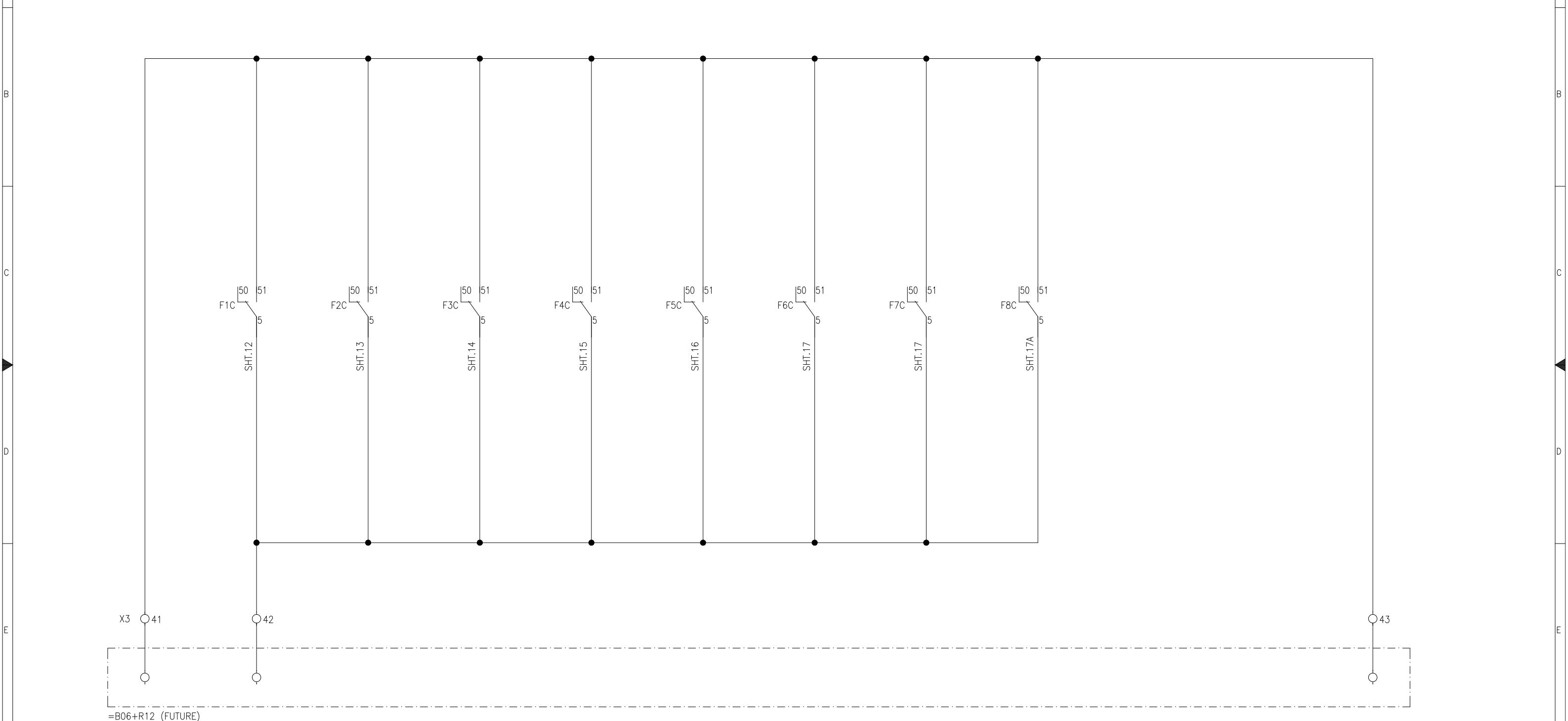
## PRESSURE RELIEF

TRAFO. DIFFERENTIAL PROTECTION TRIP	HV CONNECTION PROTECTION TRIP	TERTIARY OVERCURRENT PROTECTION TRIP	OVERCURRENT PROTECTION TRIP	OVERVOLTAGE PROTECTION TRIP	TAP CHANGER BUCHOLZ TRIP	VALVE TRIP
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TRAFO	TAP CHANGER
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A

A



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: AR BLOCK FOR =B06+Q3 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 39 OF 57
NAH	MSS	MUR			71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019

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## TRAFO. NEUTRAL

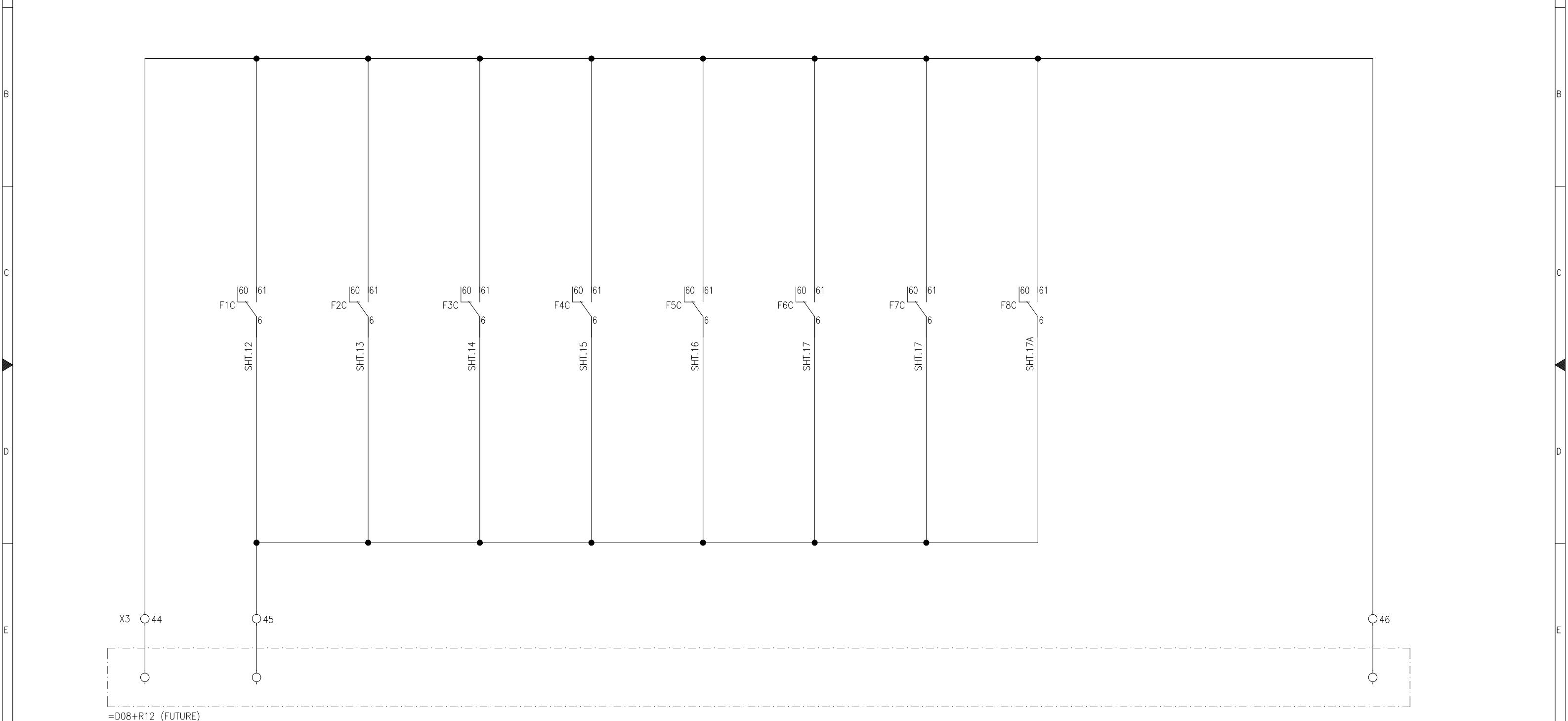
## PRESSURE RELIEF

TRAFO. DIFFERENTIAL PROTECTION TRIP	HV CONNECTION PROTECTION TRIP	TERTIARY OVERCURRENT PROTECTION TRIP	OVERCURRENT PROTECTION TRIP	OVERVOLTAGE PROTECTION TRIP	TAP CHANGER BUCHOLZ TRIP	VALVE TRIP
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TRAFO	TAP CHANGER
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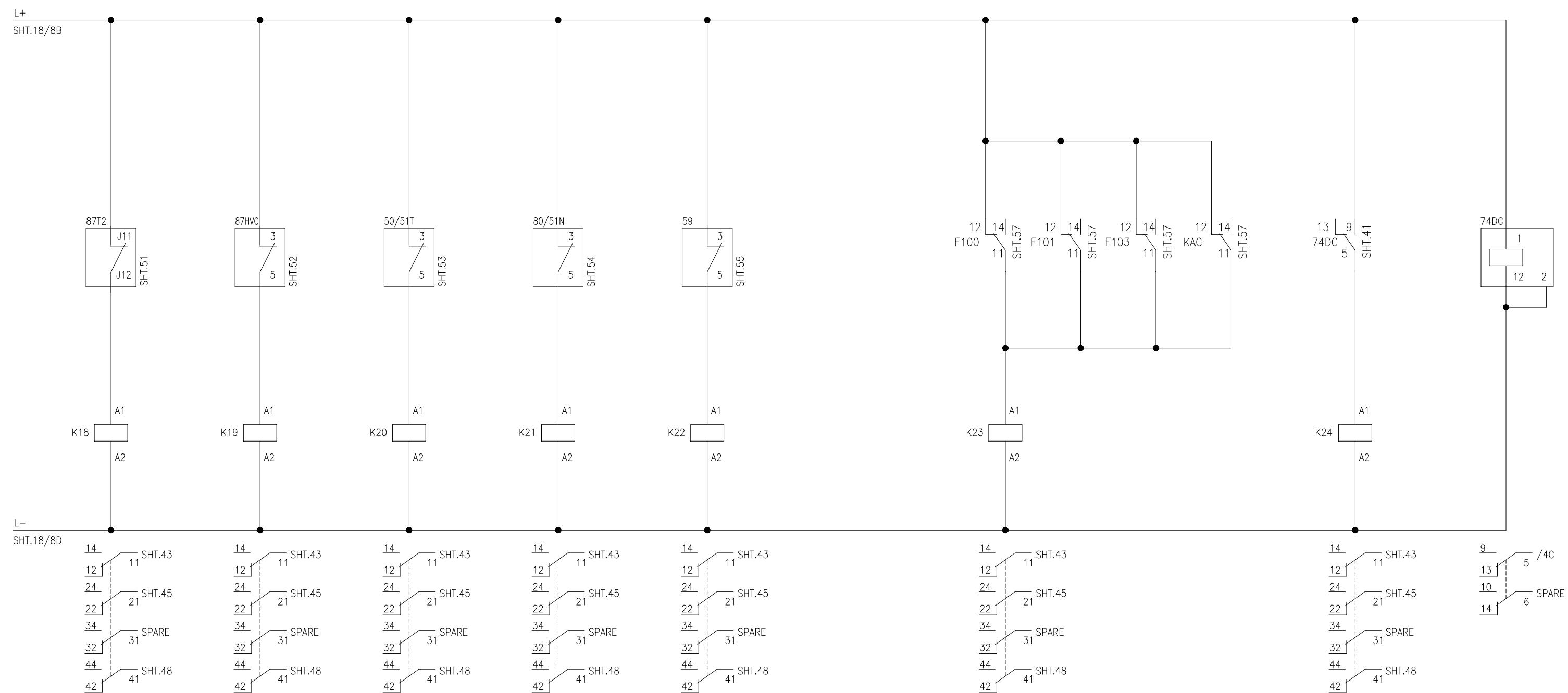
A

A



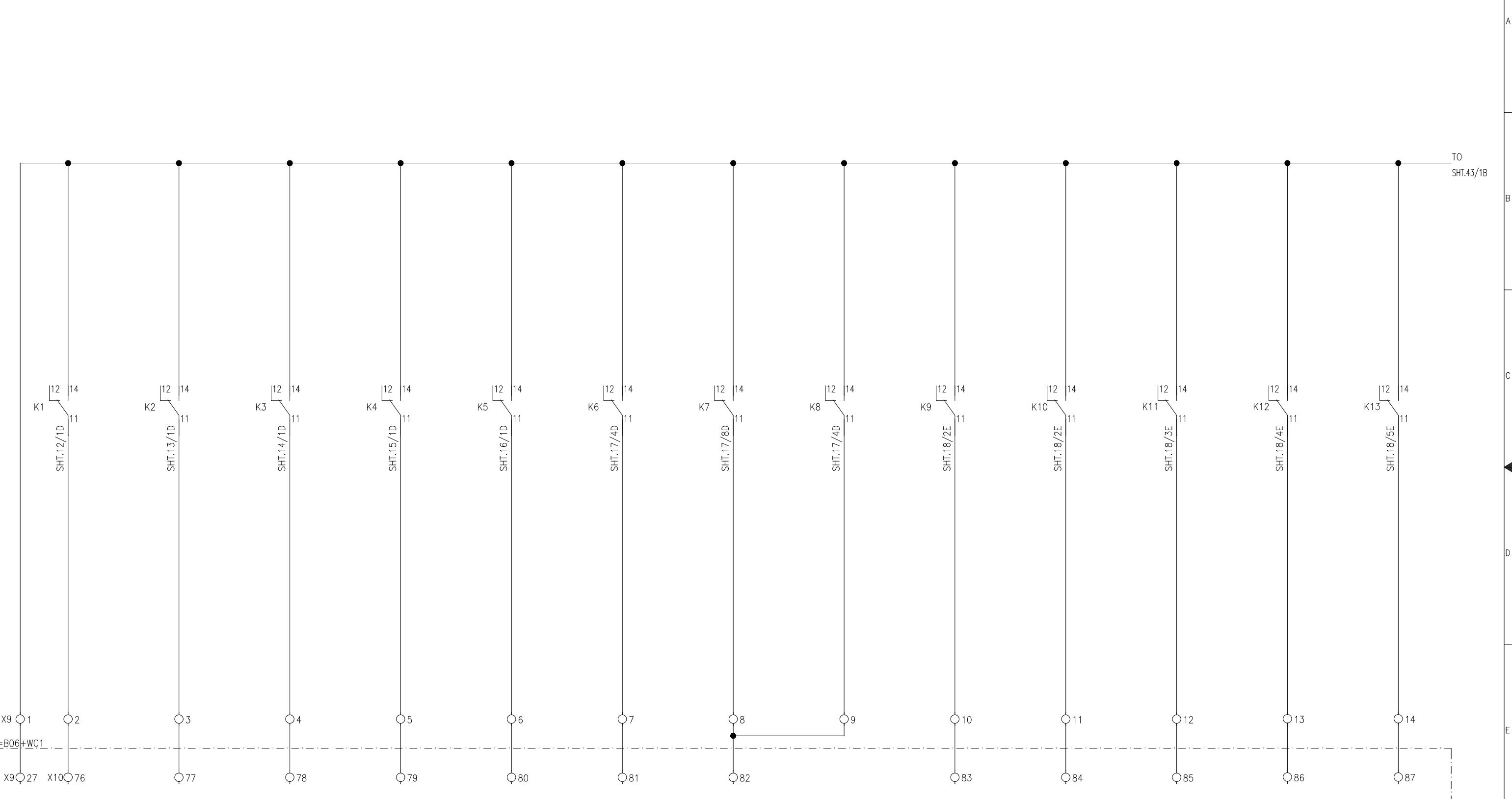
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NAH	MSS	MUR		<b>EPE SOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

TRAFO. DIFF. PROT. FAULTY	HV CONNECTION PROT. FAULTY	TERTIARY OC PROT. FAULTY	TRAFO NEUTRAL PROT. FAULTY	OVERTVOLAGE PROT. FAULTY	PANEL AC SUPPLY FAIL	PANEL DC SUPPLY HEALTHY	DC SUPPLY SUPERVISION
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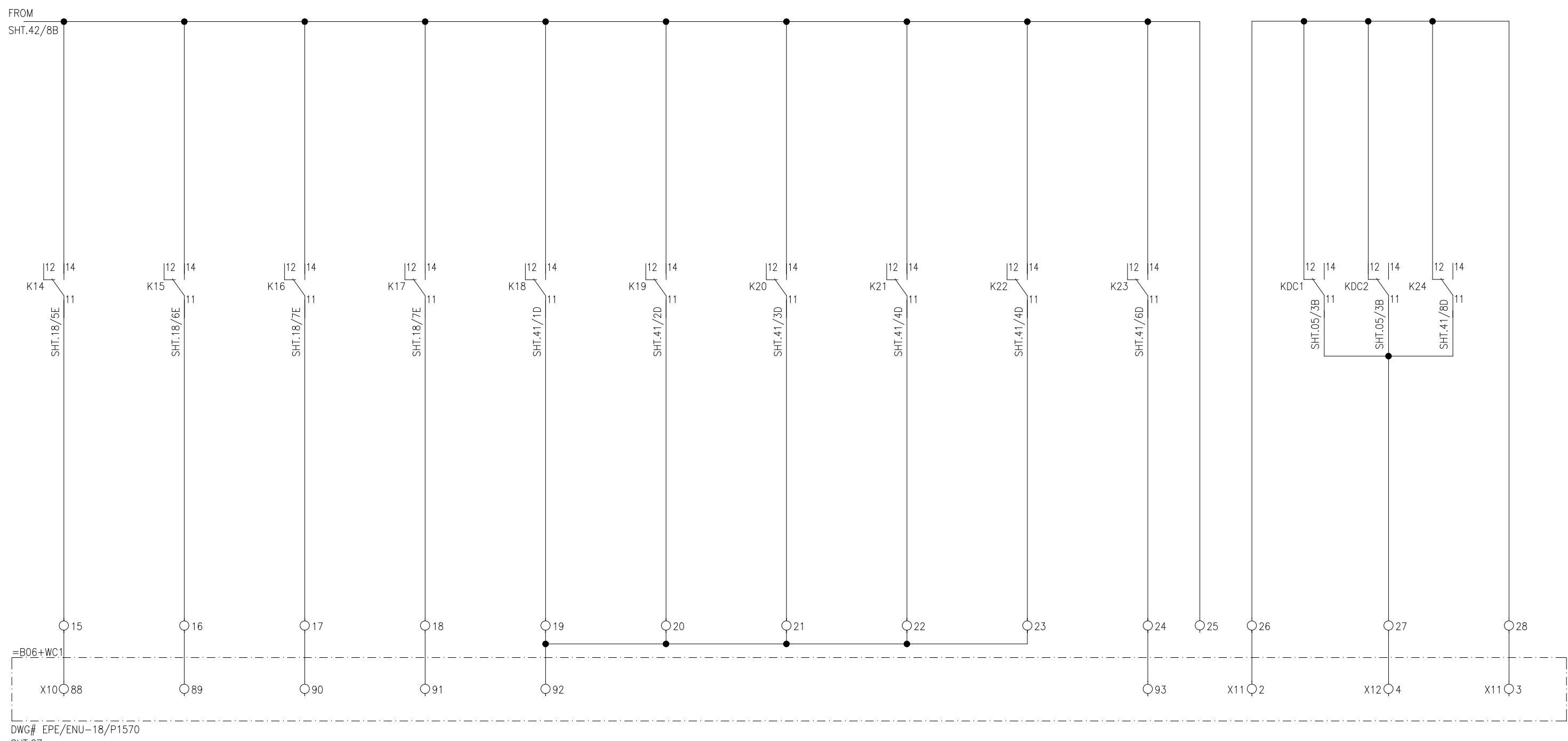


## TRAFO. NEUTRAL

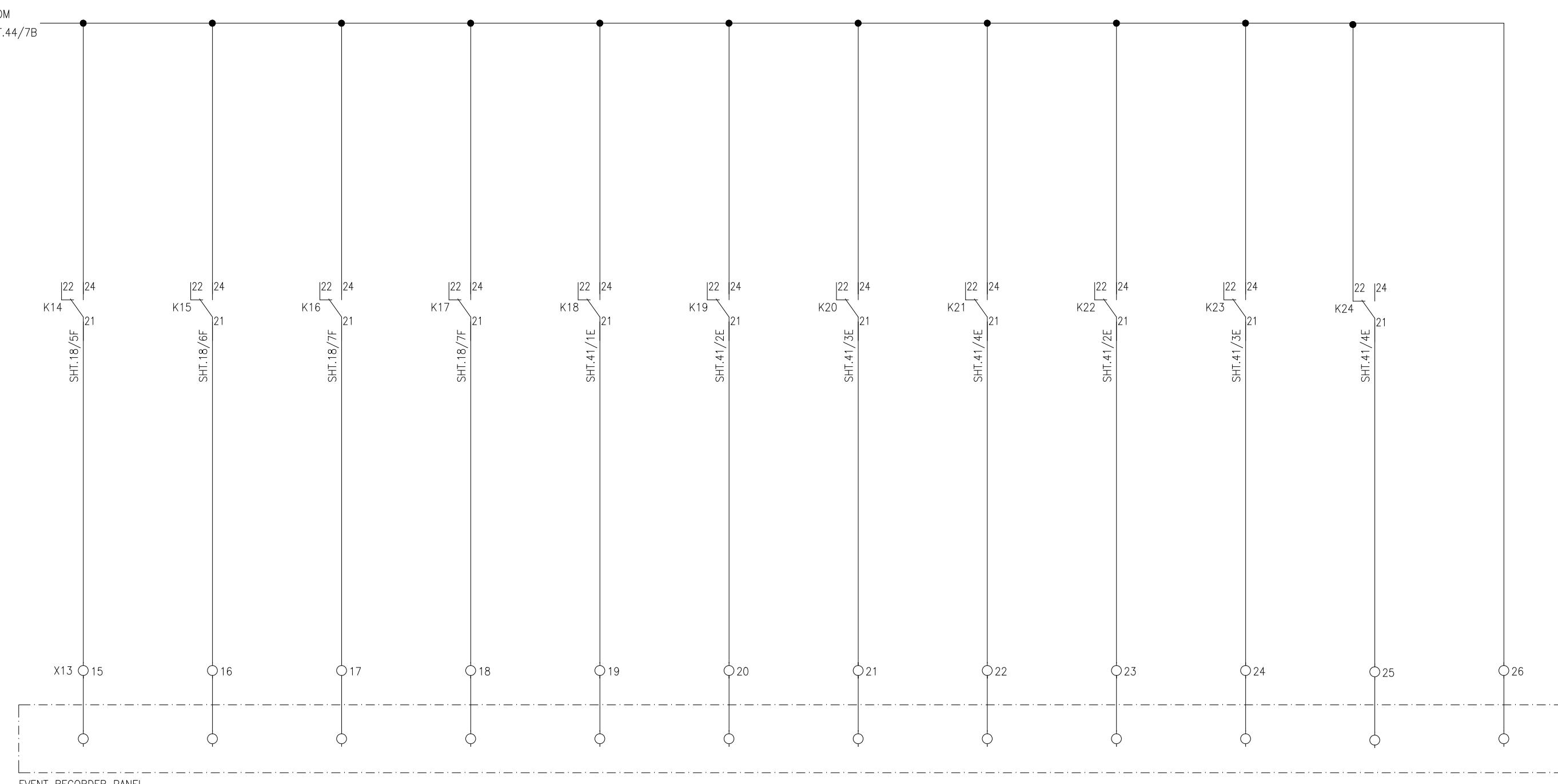
TRAFO. DIFFERENTIAL PROTECTION TRIP	HV CONNECTION PROTECTION TRIP	TERtiARY OVERCURRENT PROTECTION TRIP	OVERCURRENT PROTECTION TRIP	OVERVOLTAGE PROTECTION TRIP	TAP CHANGER BUCHOLZ TRIP		PRESSURE RELIEF VALVE TRIP	OLTC BUCHOLZ ALARM (R-PHASE)	OLTC BUCHOLZ ALARM (Y-PHASE)	OLTC BUCHOLZ ALARM (B-PHASE)	PRESSURE RELIEF (R-PHASE)	PRESSURE RELIEF (Y-PHASE)
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OIL LEVEL PRESSURE RELIEF (B-PHASE)	OIL LEVEL LOW ALARM (R-PHASE)	OIL LEVEL LOW ALARM (Y-PHASE)	TRAFO. DIFFERENTIAL PROT. FAULTY	HV CONNECTION PROT. FAULTY	TERTIARY OVERCURRENT PROT. FAULTY	TRAFO. NEUTRAL PROT. FAULTY	OVERTVOLAGE PROTECTION FAULTY	PANEL AC SUPPLY FAIL	PANEL DC SUPPLY FAIL
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	OIL LEVEL PRESSURE RELIEF (B-PHASE)	OIL LEVEL LOW ALARM (R-PHASE)	OIL LEVEL LOW ALARM (Y-PHASE)	TRAFO. DIFFERENTIAL PROT. FAULTY	HV CONNECTION PROT. FAULTY	TERTIARY OVERCURRENT PROT. FAULTY	TRAFO. NEUTRAL PROT. FAULTY	PANEL OVERVOLTAGE PROT. FAULTY	PANEL AC SUPPLY FAIL	PANEL DC SUPPLY FAIL
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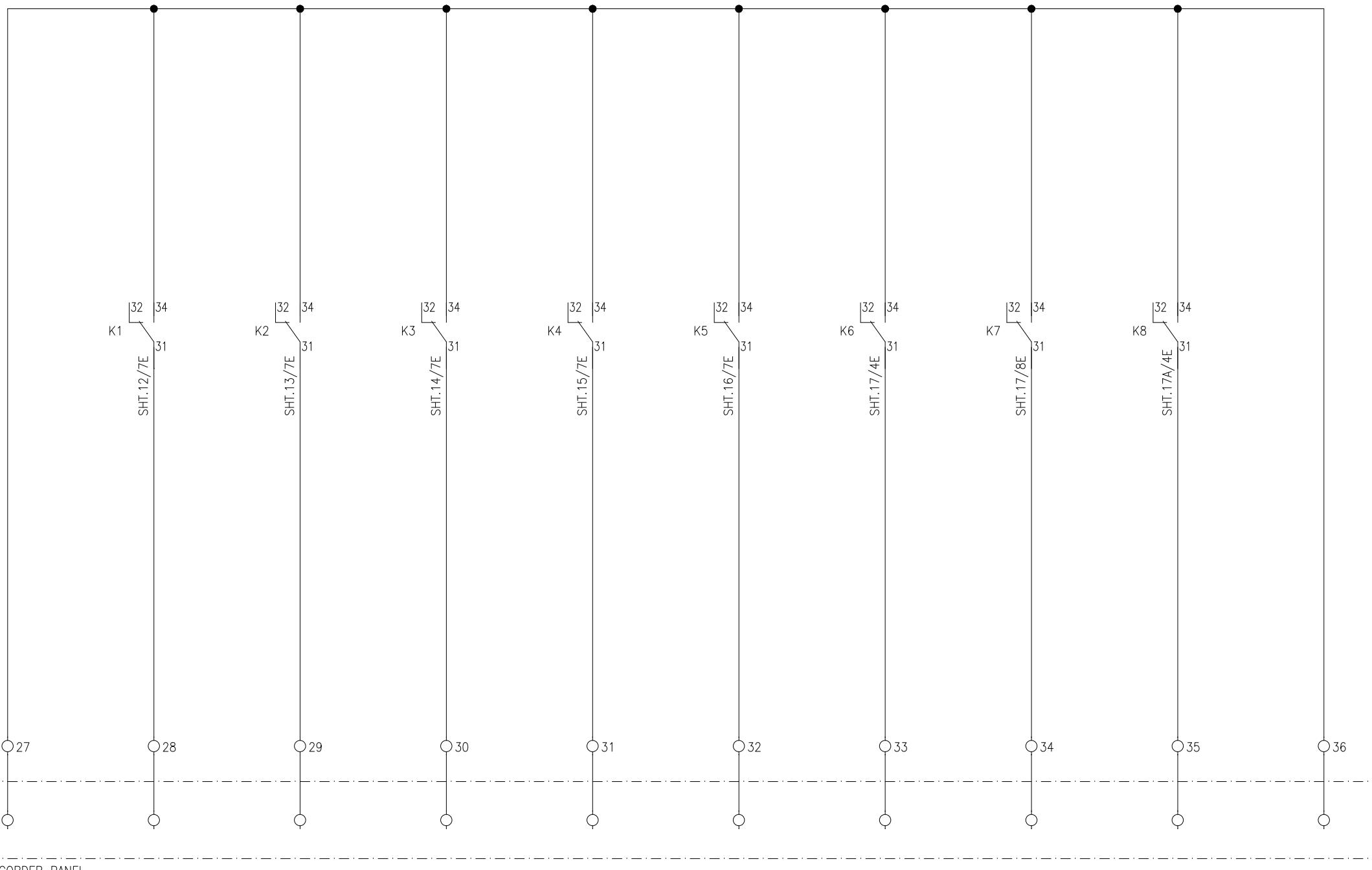


APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: ER SIGNALING CIRCUIT 500kV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 45 OF 57
NAH	MSS	MUR		<b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

## TRAFO. NEUTRAL

## PRESSURE RELIEF

TRAFO. DIFFERENTIAL PROTECTION TRIP	HV CONNECTION PROTECTION TRIP	TERTIARY OVERCURRENT PROTECTION TRIP	OVERCURRENT PROTECTION TRIP	OVERVOLTAGE PROTECTION TRIP	TAP CHANGER BUCHOLZ TRIP	VALVE TRIP TRAFO	TAP CHANGER
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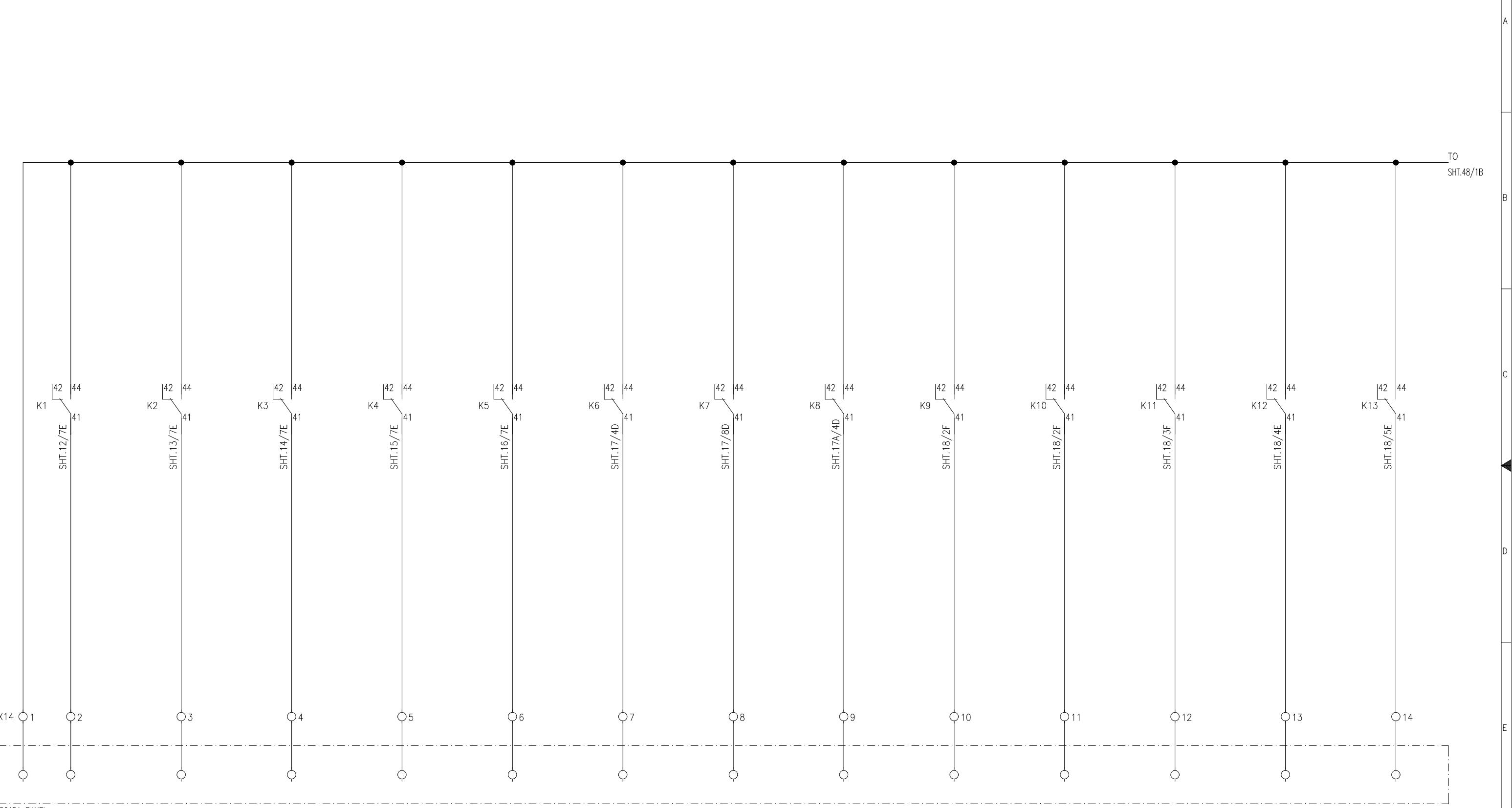


FAULT RECORDER PANEL

APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: FR SIGNALING CIRCUIT 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 46 OF 57
NAH	MSS	MUR		<b>E P E S O L P v t . L t d</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

## TRAFO. NEUTRAL

TRAFO. DIFFERENTIAL PROTECTION TRIP	HV CONNECTION PROTECTION TRIP	TERTIARY OVERCURRENT PROTECTION TRIP	OVERCURRENT PROTECTION TRIP	OVERTOLAGE PROTECTION TRIP	TAP CHANGER BUCHOLZ TRIP		PRESSURE RELIEF VALVE TRIP	OLTC BUCHOLZ ALARM (R-PHASE)	OLTC BUCHOLZ ALARM (Y-PHASE)	OLTC BUCHOLZ ALARM (B-PHASE)	PRESSURE RELIEF (R-PHASE)	PRESSURE RELIEF (Y-PHASE)
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APPROVED	CHECKED	DRAWN
NAH	MSS	MUR



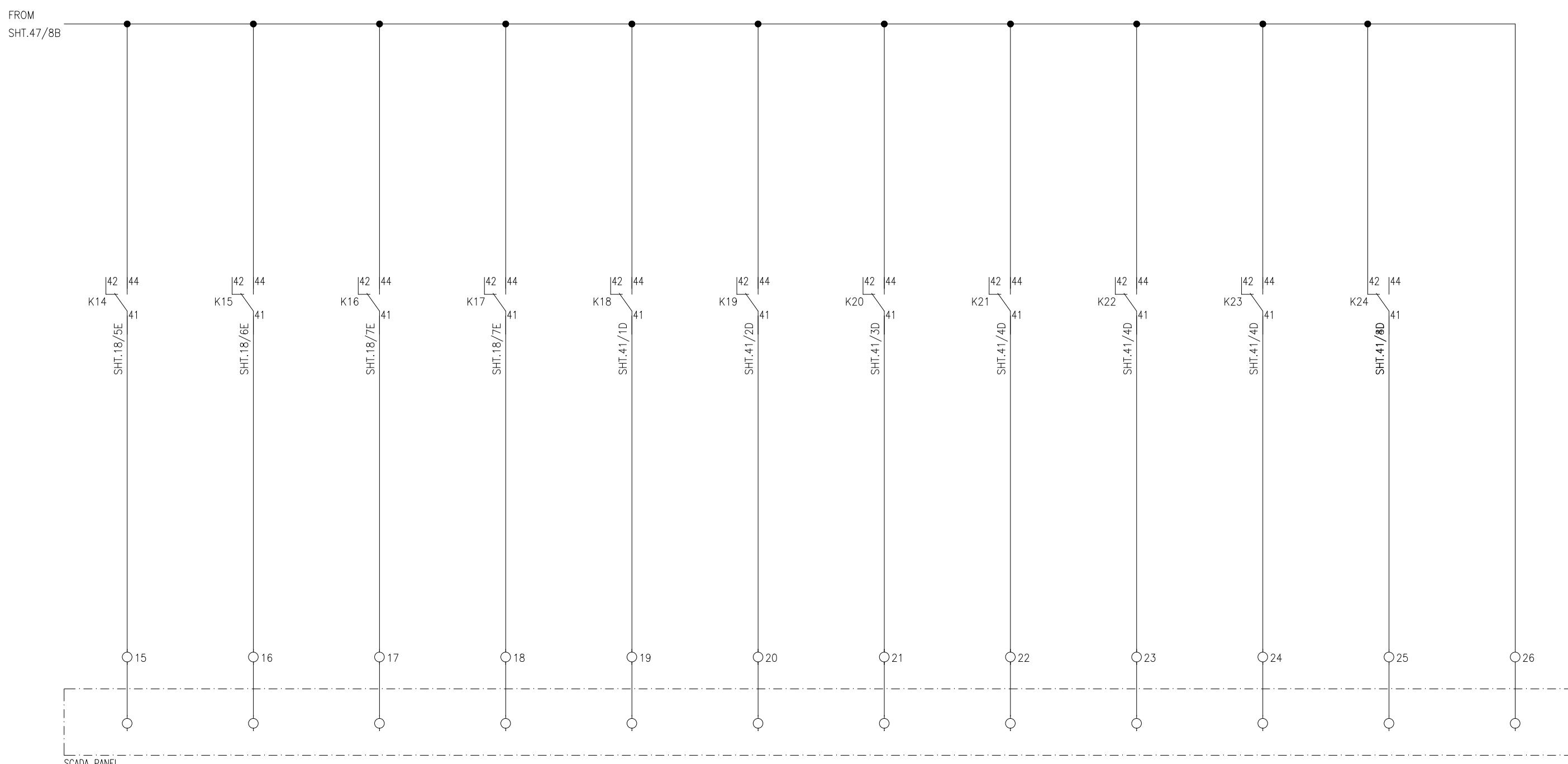
PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE:  
SCADA SIGNALING CIRCUIT  
500kV TRAFO. PROTECTION PANEL TYPE R14

 EPESOL Pvt. Ltd.  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/B61546	SHT: 47 OF 57
DATE: 07.03.2019	AS BUILT
REV: 0	

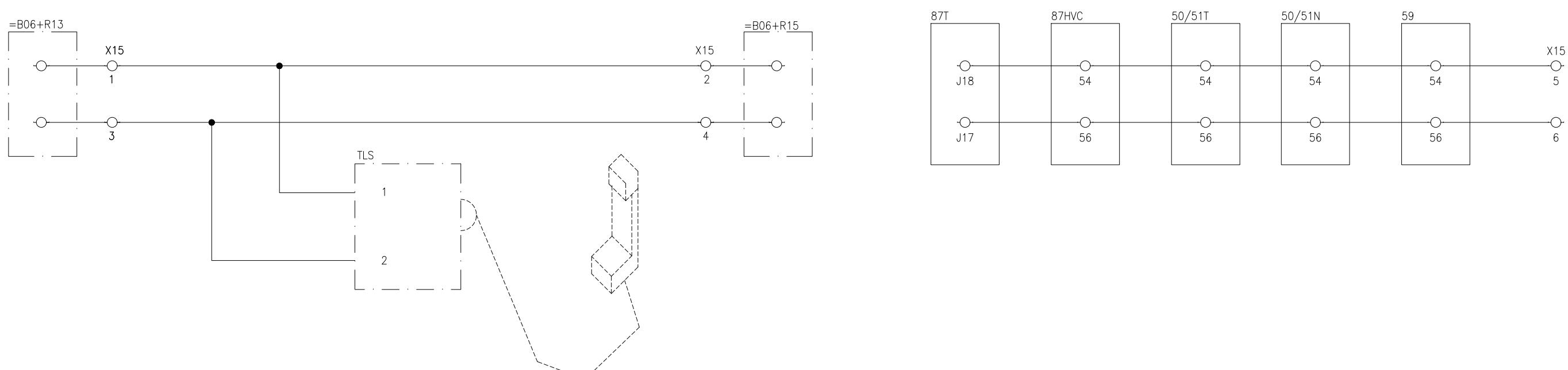
	OIL LEVEL PRESSURE RELIEF (B-PHASE)	OIL LEVEL LOW ALARM (R-PHASE)	OIL LEVEL LOW ALARM (Y-PHASE)	TRAFO. DIFFERENTIAL PROT. FAULTY	HV CONNECTION PROT. FAULTY	TERTIARY OVERCURRENT PROT. FAULTY	TRAFO. NEUTRAL PROT. FAULTY	PANEL OVERVOLTAGE PROT. FAULTY	PANEL AC SUPPLY FAIL	PANEL DC SUPPLY FAIL
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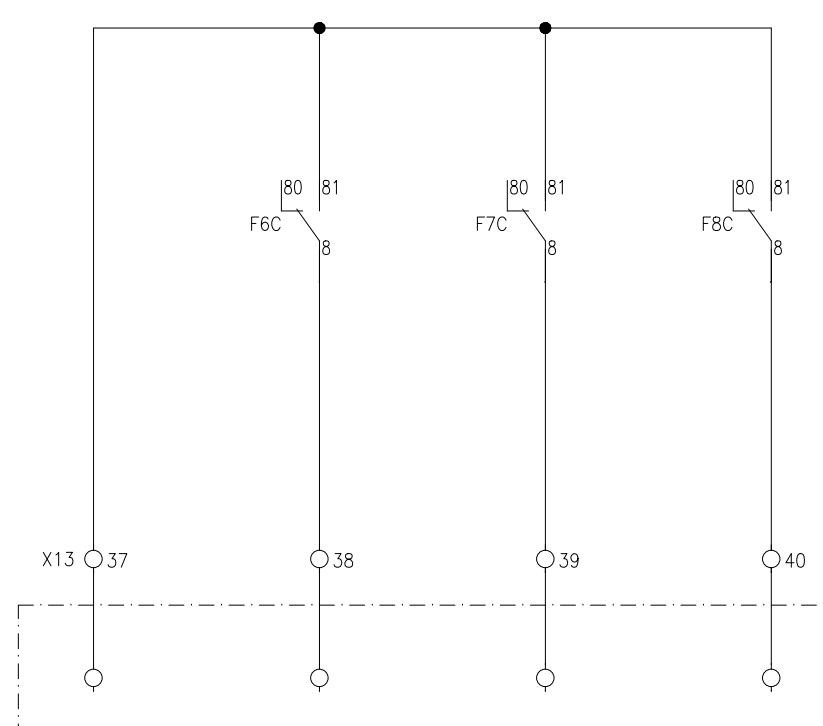
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NAH	MSS	MUR		 <b>E P E S O L</b> Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

TELEPHONE  
SOCKET

RS-485 COMMUNICATION LOOP



TAP CHANGER    TRAFO. PRESSURE    TAP CHANGER PRESSURE  
BUCHOLZ PROT. TRIP    RELIEF VALVE TRIP    RELIEF VALVE TRIP



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: COMMUNICATION CIRCUIT 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 49 OF 57
NAH	MSS	MUR		EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT

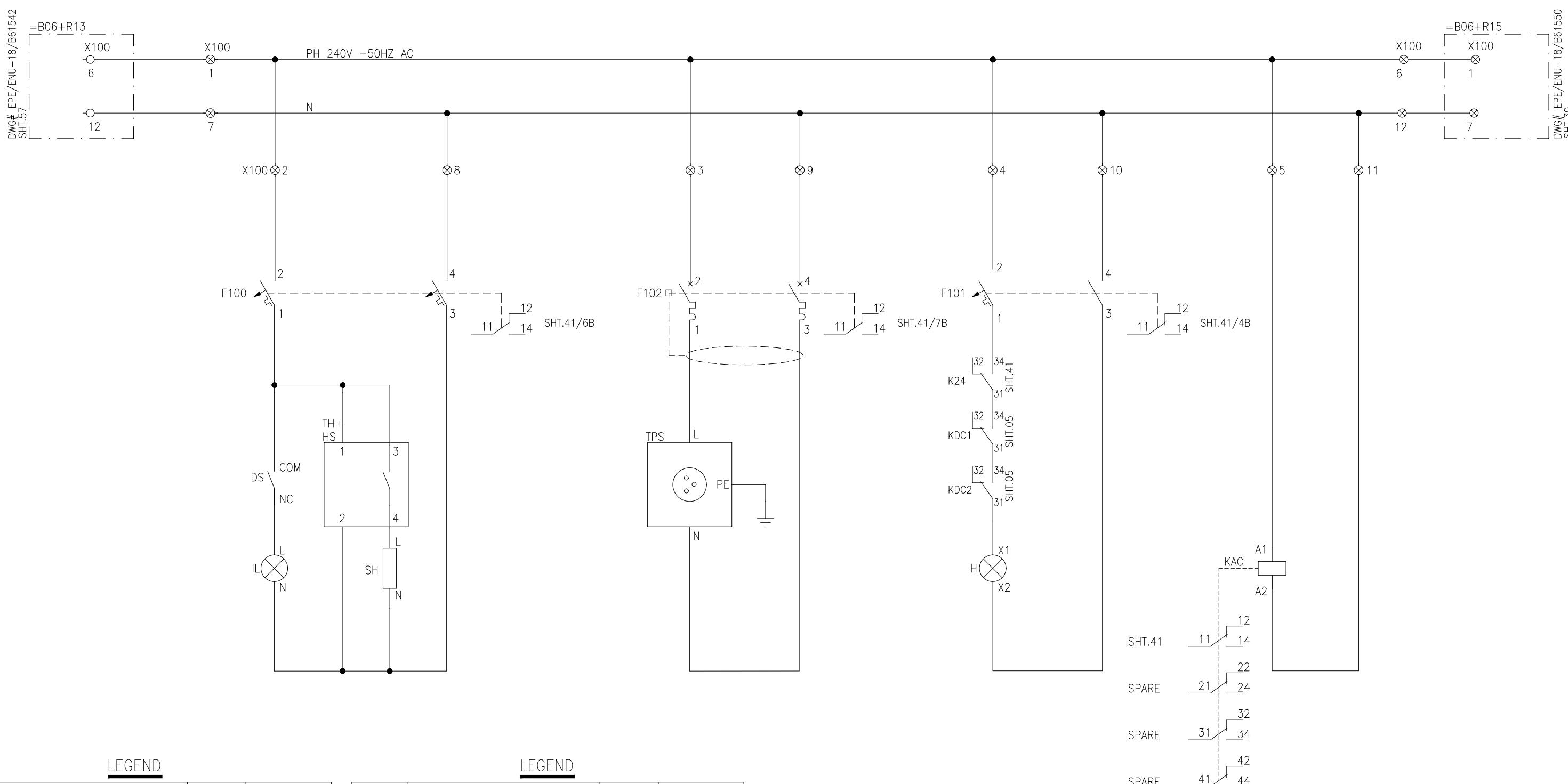
DOOR SWITCH & SPACE HEATER  
CUBICLE LIGHT THERMOSTAT

AC SUPPLY DISTRIBUTION

PANEL DC SUPPLY

THREE PIN SOCKET

HEALTHY

PANEL AC SUPPLY  
SUPERVISIONLEGEND

DES.	DESCRIPTION	TYPE	MAKE
F100, F101	TWO POLE AC MCB	G60	GE
F102	ELCB	DM100	GE
KAC,KDC	AUX. RELAY 240VAC	PRC	GE
H	INDICATION LAMP	YSPL	YONGSUNG

LEGEND

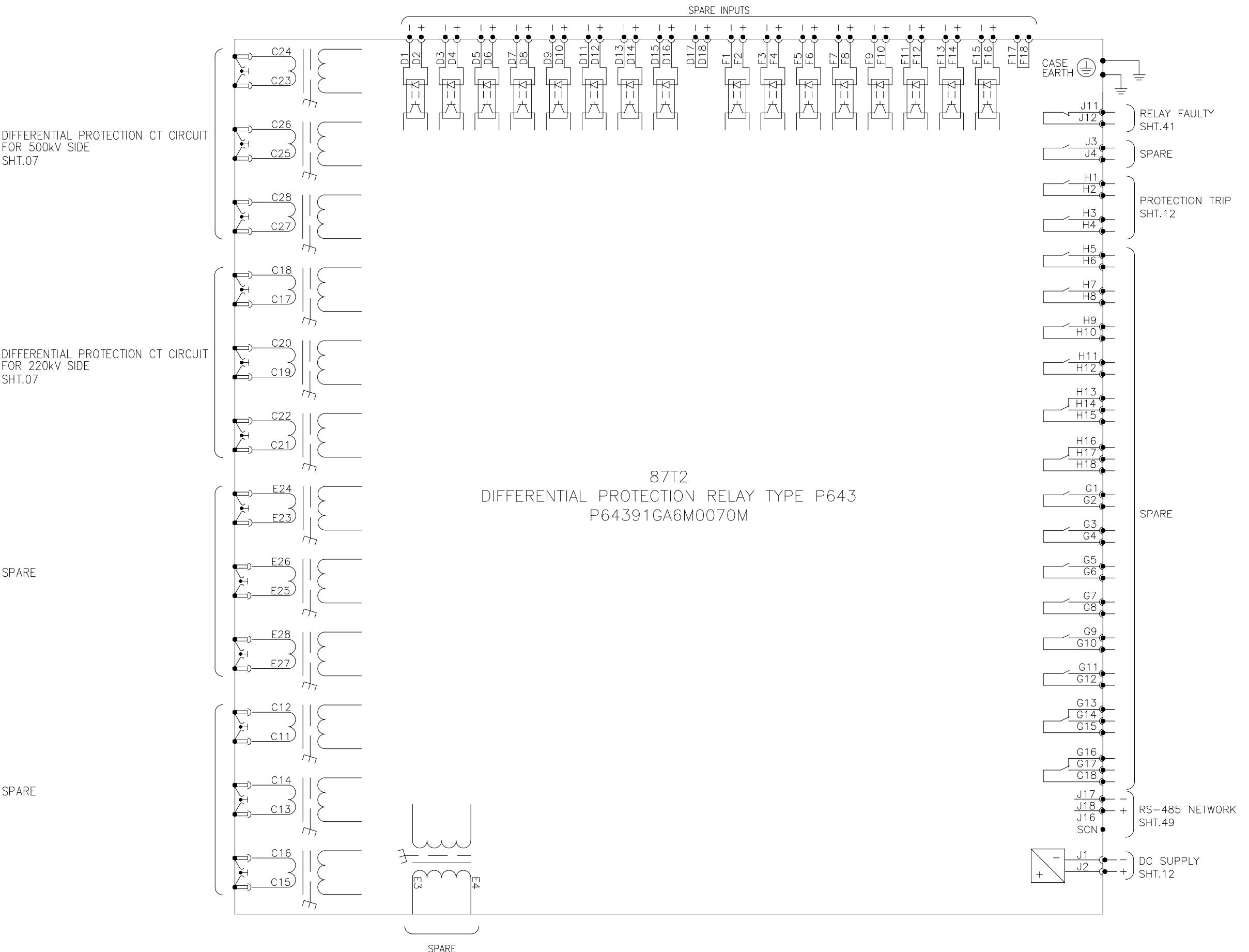
DES.	DESCRIPTION	TYPE	MAKE
TPS	THREE PIN SOCKET	220V SOCKET	GE
SH	SPACE HEATER	ELH220	GE
TH+HS	THERMOSTAT	ELH220	GE
IL	CUBICLE LIGHT	YST8	YONGSUNG

APPROVED: NAH [Signature]  
CHECKED: MSS [Signature]  
DRAWN: MUR [Signature]

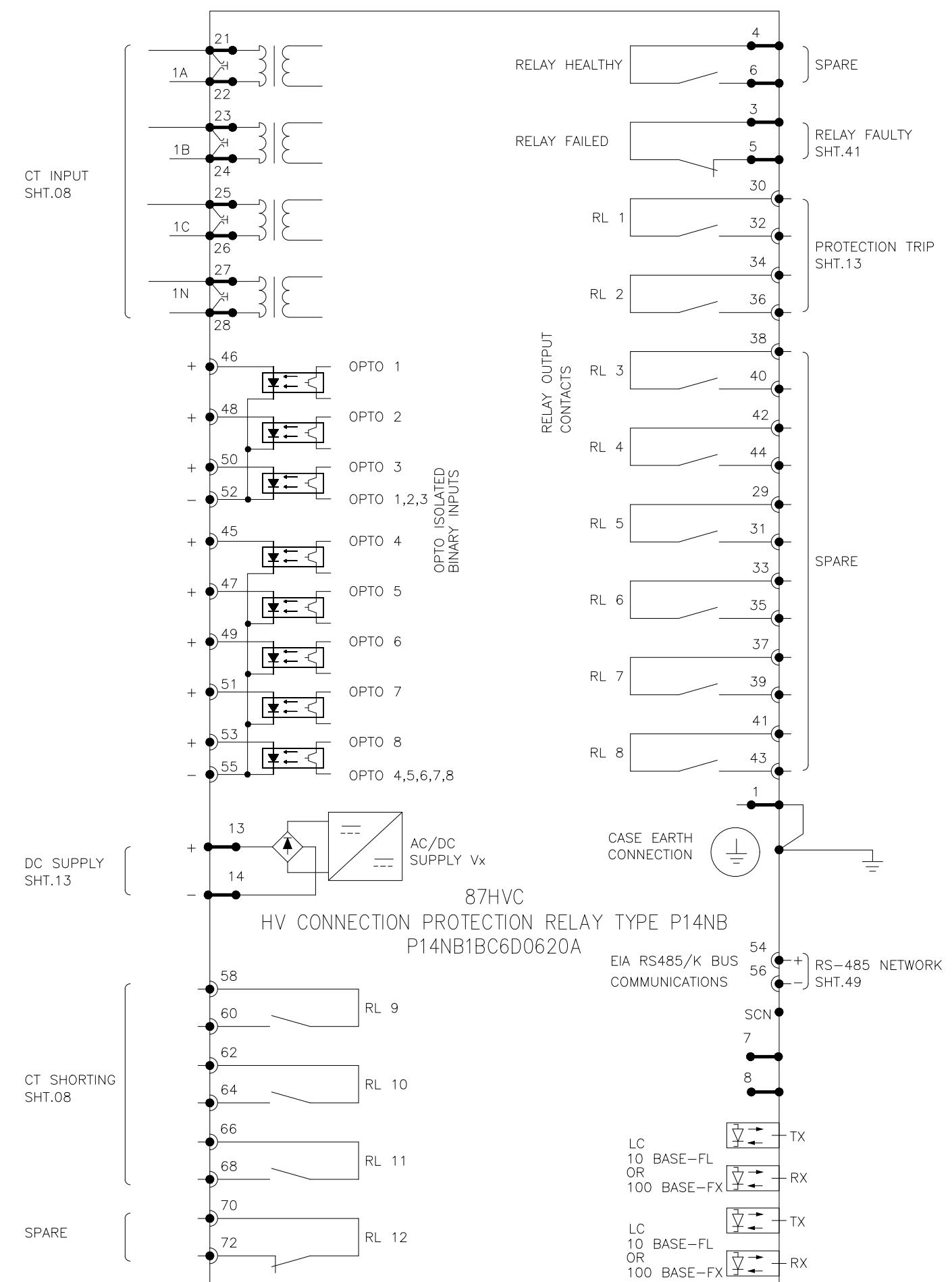
PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&amp;M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV &amp; 500KV RELAY&amp; CONTROL PANELS

TITLE: AC SUPPLY DISTRIBUTION  
500KV TRAFO. PROTECTION PANEL TYPE R14

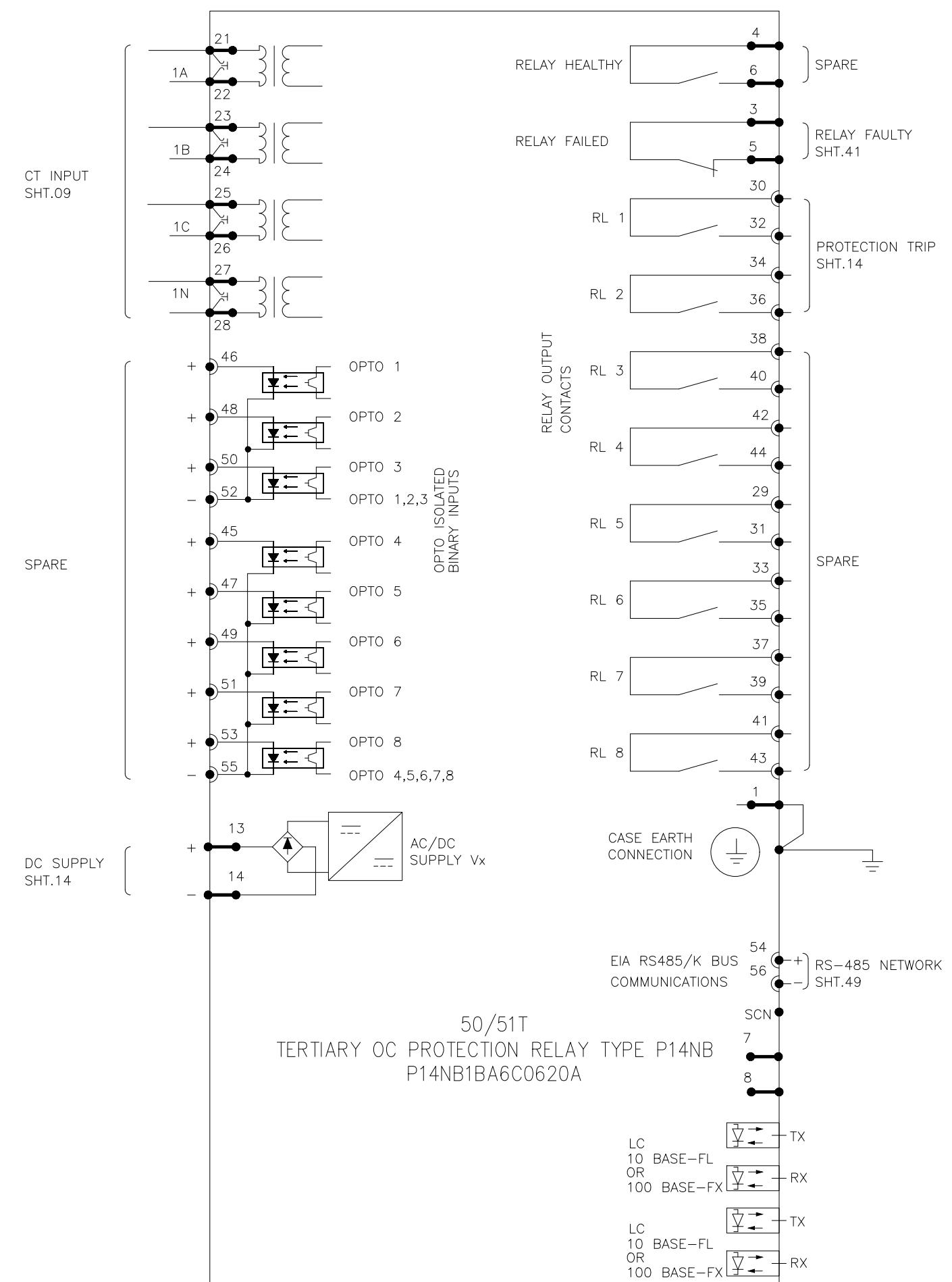
**EPESOL Pvt. Ltd.**  
 71-B Garden Block, New Garden Town, Lahore, Pakistan
DWG# EPE/ENU-18/B61546 SHT: 50 OF 57  
DATE: 07.03.2019 AS BUILT REV: 0



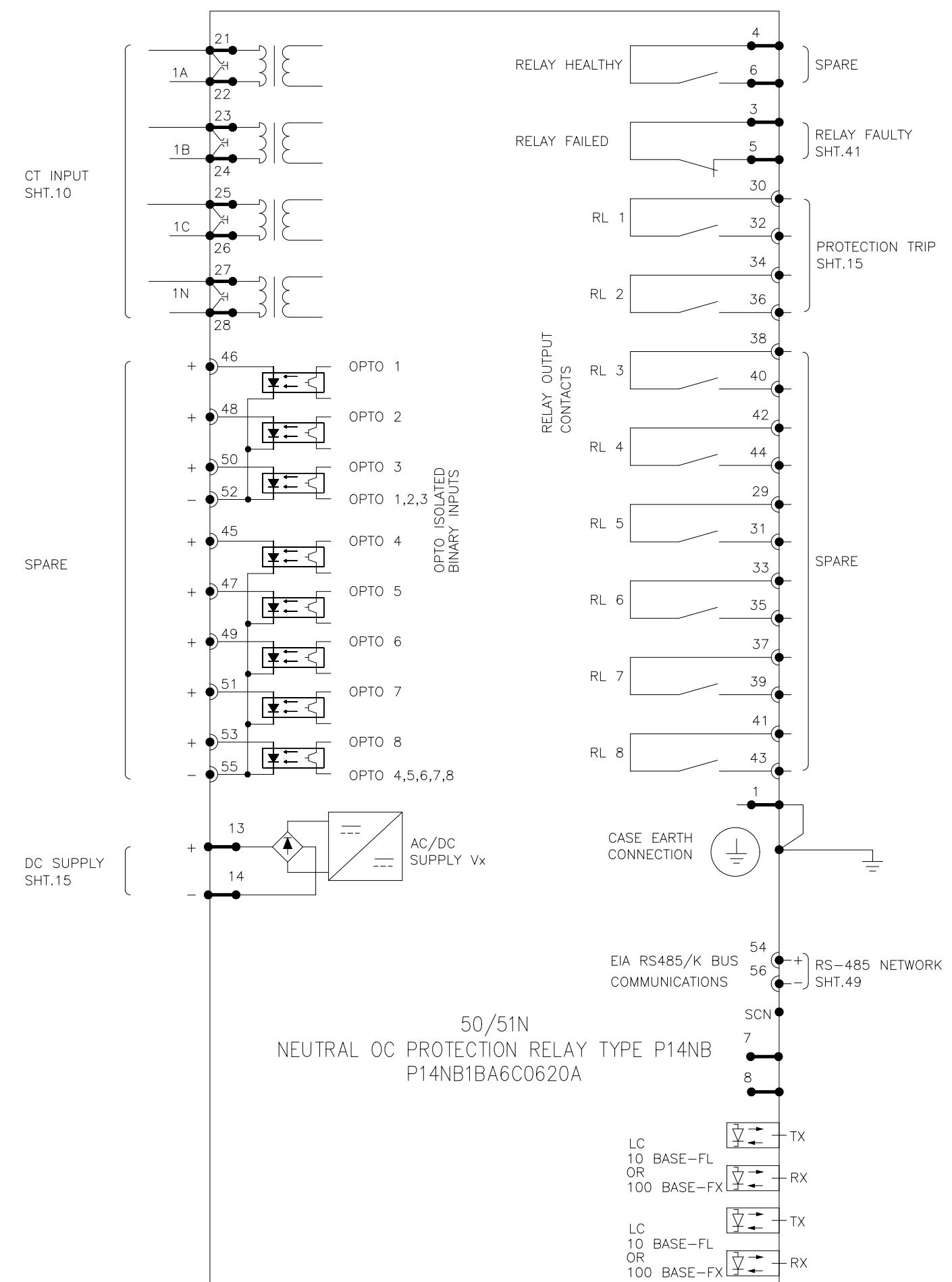
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: DEVICE DETAIL FOR 87T2 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 51 OF 57
NAH	MSS	MUR		<b>E P E S O L P v t . L t d</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT



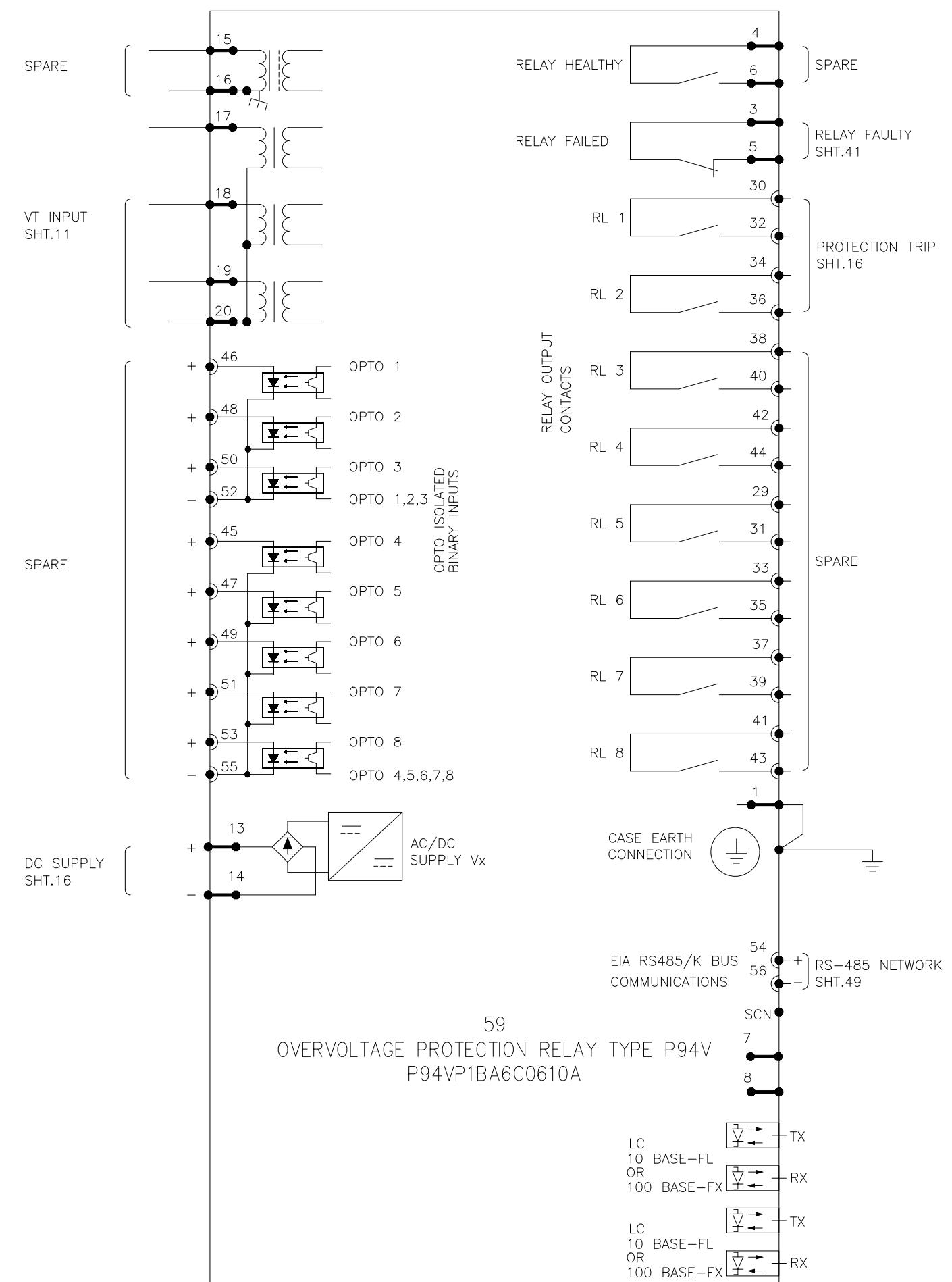
APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: DEVICE DETAIL FOR 87HVC 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 52 OF 57
NAH	MSS	MUR		EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: DEVICE DETAIL FOR 50/51T 500KV TRFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 53 OF 57
NAH [Signature]	MSS [Signature]	MUR [Signature]		 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT REV: 0



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: DEVICE DETAIL FOR 50/51N 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 54 OF 57
NAH	MSS	MUR		<b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DATE: 07.03.2019	AS BUILT REV: 0

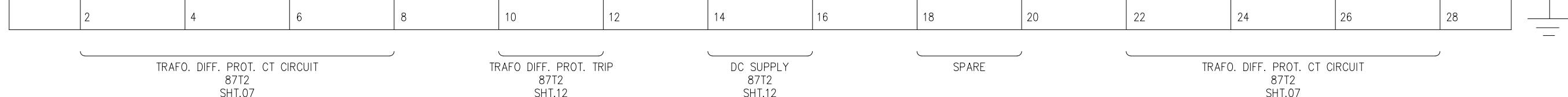


APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: DEVICE DETAIL FOR 59 500KV TRAFO. PROTECTION PANEL TYPE R14	DWG# EPE/ENU-18/B61546	SHT: 55 OF 57
NAH [Signature]	MSS [Signature]	MUR [Signature]	 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan		DATE: 07.03.2019	<b>AS BUILT</b>

A

## TEST BLOCK TYPE TSB-14

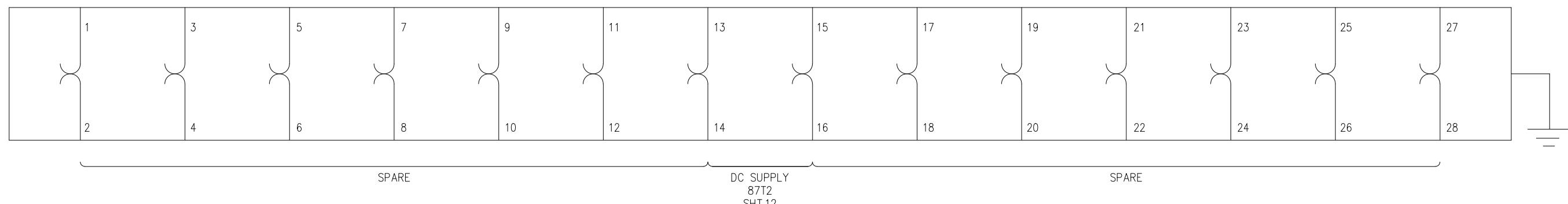
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B

## TEST BLOCK TYPE TSB-14

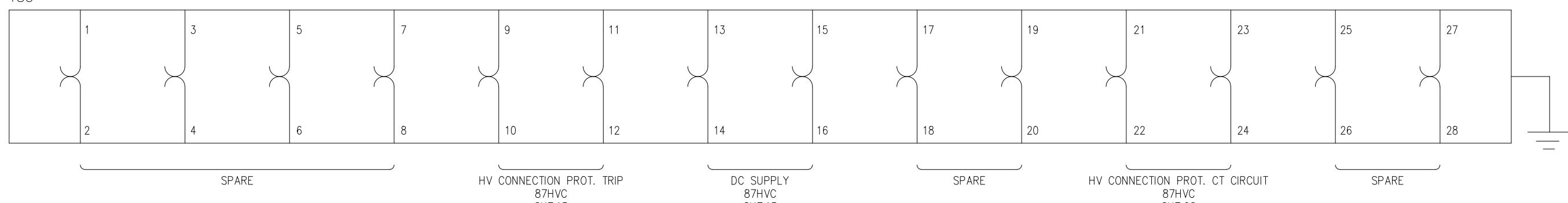
ORDERING CODE: TSB-14-11111111111111



C

## TEST BLOCK TYPE TSB-14

ORDERING CODE: TSB-14-1111111111AAAB



D

E

F



PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018  
FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS

TITLE:  
DEVICE DETAIL FOR TEST BLOCK  
500KV TRAFO. PROTECTION PANEL TYPE R14

**EPE SOL Pvt. Ltd.**  
71-B Garden Block, New Garden Town, Lahore, Pakistan

DWG# EPE/ENU-18/B61546 SHT: 56 OF 57  
DATE: 07.03.2019 AS BUILT REV: 0

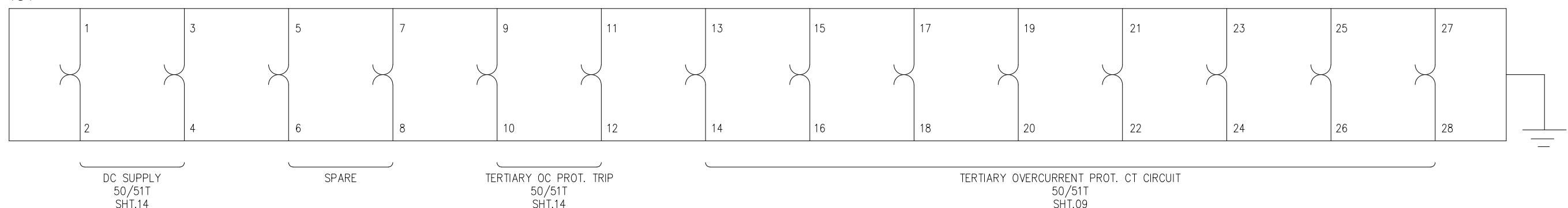
APPROVED	CHECKED	DRAWN
NAH	MSS	MUR

1 2 3 4 5 6 7 8

TS4

## TEST BLOCK TYPE TSB-14

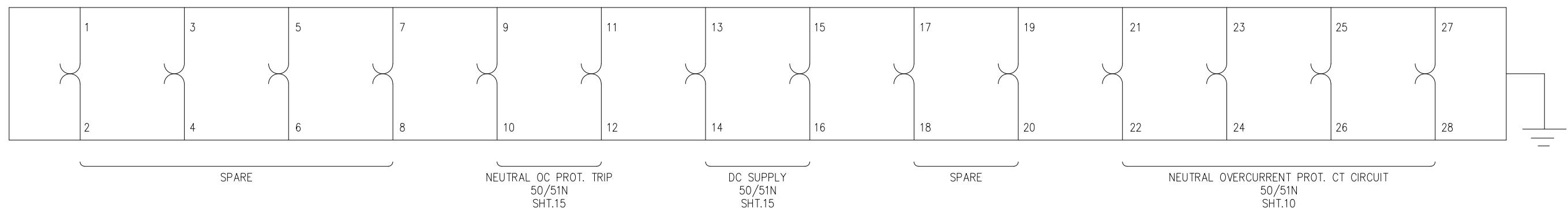
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TS5

## TEST BLOCK TYPE TSB-14

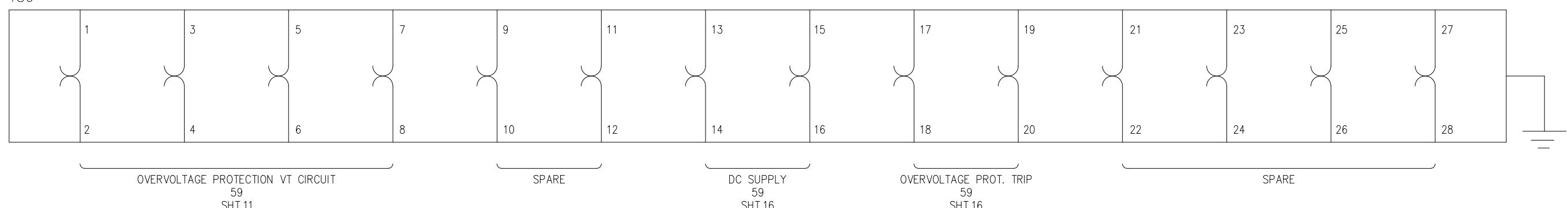
ORDERING CODE: TSB-14-11111111AAAB



TS6

## TEST BLOCK TYPE TSB-14

ORDERING CODE: TSB-14-22222211111111



APPROVED	CHECKED	DRAWN	PROJECT: EDUCATIONAL ORDER NTDC PO# CE/MP&M /M(P)/AM-VI/E0/9417-29 DATED 14.11.2018 FOR THE PROCUREMENT OF 220KV & 500KV RELAY& CONTROL PANELS	TITLE: DEVICE DETAIL FOR TEST BLOCK 500KV TRAFO. PROTECTION PANEL TYPE R14	EPE SOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/B61546	SHT: 57 OF 57
NAH	MSS	MUR				DATE: 07.03.2019	AS BUILT

## LEGENDS



## TEMPORARY SHORTENING LINK

PERMANENT LINK



END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO	TERMINAL STRIP X1				
			LINK		REFERENCE		TERMINAL NO
			SHT	/	REF		
			●		07 /	2B	1
			●	●	07 /	2B	2
			●		07 /	2B	3
			●	●	07 /	2B	4
			●		07 /	2C	5
			●	●	07 /	2C	6
			●		07 /	2C	7
			●		07 /	2D	8
			●	●	07 /	2D	9
			●		07 /	2D	10
			●	●	07 /	2E	11
			●		07 /	2E	12
			●	●	07 /	2E	13
			●		07 /	2E	14
			●		08 /	2B	15
			●	●	08 /	2B	16
			●		08 /	2C	17
			●	●	08 /	2C	18
			●		08 /	2C	19
			●	●	08 /	2D	20
			●		08 /	2D	21
			●		09 /	2B	22
			●		09 /	2B	23
			●		09 /	2C	24
			●		09 /	2C	25
			●		09 /	2D	26
			●		09 /	2D	27
			●		09 /	2D	28
			●		09 /	2E	29
			●		10 /	2B	30
D-			●		10 /	2B	31

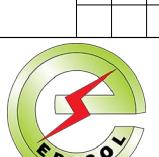
TERMINATION B	
ITEM DESIGNATION	TERMINAL NO
TS1	1
TS1	3
TS1	5
TS1	7
TS1	21
TS1	23
TS1	25
TS1	27
TS3	21
TS3	23
TS3	25
TS3	27
TS4	13
TS4	15
TS4	17
TS4	19
TS4	21
TS4	23
TS4	25
TS4	27
TS5	25
TS5	27

APPROVED	CHECKED	DRAWN	PROJECT:
NAH <i>[Signature]</i>	MSS M <i>Sohat</i>	MUR <i>[Signature]</i>	 NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREM OF 220KV & 500KV PROTECTION & CONTROL PA



PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/  
9417-29 DATED 14.11.2018 FOR PROCUREMENT  
OF 220KV & 500KV PROTECTION & CONTROL PANELLING

TITLE:	TERMINAL DETAIL	S 500KV TRAFO. PROTECTION PANEL TYPE R14



**E P E S O L** Pvt. Ltd.

DWG# EPE/ENU-18/B61547	SHT: 01 OF 12
DATE: 07.03.2019	<b>AS BUILT</b> REV: 0



# **E P E S O L** Pvt. Ltd.

DWG# EPE/ENU-18/B61547	SHT: 02 OF 12
DATE: 07.03.2019	<b>AS BUILT</b>
	REV: 0

APPROVED	CHECKED	DRAWN	PROJECT:
NAH 	MSS M. Sohail 	MUR 	NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PA

TITLE: TERMINAL DETAIL  
IS 500KV TRAFO. PROTECTION PANEL TYPE R14

Sr.	CABLE DESIGNATION	CORE CROSS SECTION	DESTINATION														
A	1																
B	2																
C	3																
D	4																
E	5																
F	6																
G	7																
H	8																
I	9																
J	10																
K	11																
L	12																
M	1	2	3	4	5	6	7	8	9	10	11	12					
N																	
O																	
P																	
Q																	
R																	
S																	
T																	
U																	
V																	
W																	
X																	
Y																	
Z																	

**LEGEND:**

TEMPORARY SHORTENING LINK



PERMANENT LINK



END COVER

REMOTE DESTINATION

TERMINAL BLOCK

TERMINAL NO

TERMINAL STRIP X120

LINK	REFERENCE		TERMINAL NO
	SHT	/	
	05	/	2A
	05	/	2E
	05	/	2B
	05	/	2E
	05	/	7E
	05	/	7E
			7
			8

LINK	REFERENCE	TERMINAL NO
	05 / 2A	1
	05 / 2E	2
	05 / 2B	3
	05 / 2E	4
	05 / 7E	5
	05 / 7E	6
		7
		8

TERMINATION B

ITEM DESIGNATION

TERMINAL NO

F110

2

F120

2

F110

4

F120

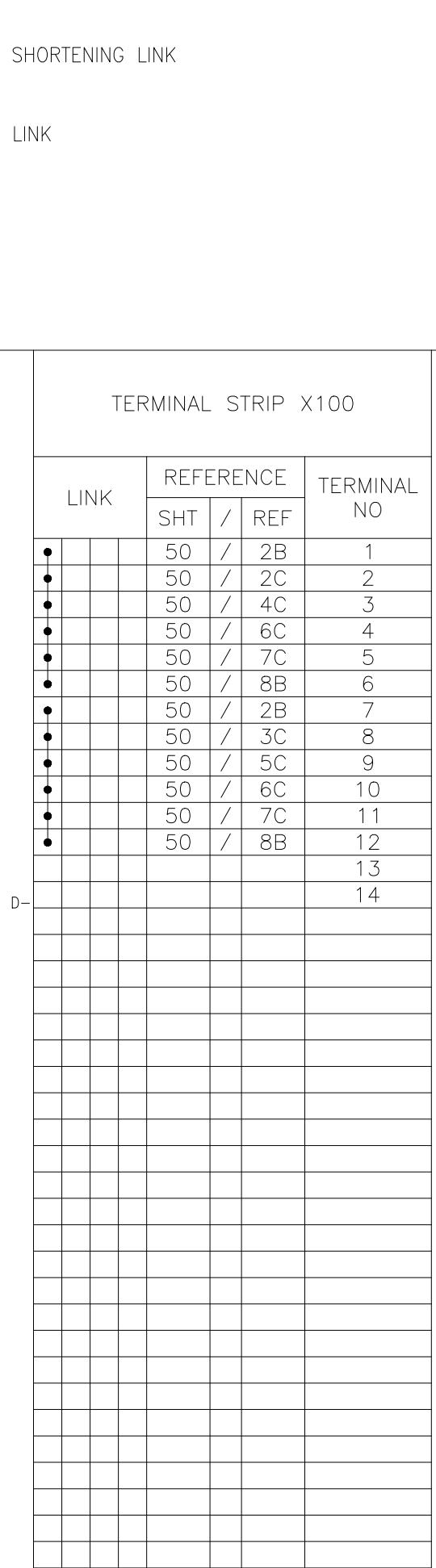
4

KC

22

KC

32



SCHEME DWG. REF: EPE/ENU-18/B61546



**E P E S O L** Pvt. Ltd.

DWG# EPE/ENU-18/B61547	SHT: 04 OF 12
DATE: 07.03.2019	<b>AS BUILT</b> REV: 0

SCHEME DWG. REF: EPE/ENU-18/B61546

APPROVED	CHECKED	DRAWN	P
NAH <i>O</i>	MSS <i>n. Schat</i>	MUR <i>ky</i>	



PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/  
9417-29 DATED 14.11.2018 FOR PROCUREMENT  
OF 220KV & 500KV PROTECTION & CONTROL PANEL

TITLE: NT TIS 500KV TRAFO. PROTECTION PANEL TYPE R14 TERMINAL DETAIL



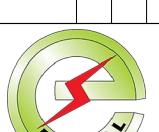
# **E P E S O L** Pvt. Ltd.

DWG# EPE/ENU-18/B61547	SHT: 05 OF 12
DATE: 07.03.2019	AS BUILT REV: 0



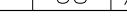
PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/  
9417-29 DATED 14.11.2018 FOR PROCUREMENT  
OF 220KV & 500KV PROTECTION & CONTROL PANEL

TITLE:	
TERMINAL DETAIL S5001W TRAFQ PROTECTION PANEL TYPE R14	



# **E P E S O L Pvt. Ltd.**

DWG# EPE/ENU-18/B61547	SHT: 06 OF 12
DATE: 07.03.2010	AS-BUILT REV. 0

APPROVED	CHECKED	DRAWN	PROJECT:  NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS	TITLE: TERMINAL DETAIL 500KV TRAFO. PROTECTION PANEL TYPE R14	 <b>EPESOL Pvt Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/B61547	SHT: 07 OF 12
NAH <i>(Signature)</i>	MSS <i>(Signature)</i>	MUR <i>(Signature)</i>				DATE: 07.03.2019	AS BUILT REV: 0

Sr.	CABLE DESIGNATION	CORE CROSS SECTION		DESTINATION			
A	1						
	2						
	3						
	4						
	5						
	6						
	7						
B	8						
	9						
	10						
	11						
	12						
	1	2	3	4	5	6	7
C							
D							
E							
F							

## LEGEND



## TEMPORARY SHORTENING LIN



PERMANENT LINK



END COVER

REMOTE DESTINATION	TERMINAL BLOCK	TERMINAL NO	TERMINAL STRIP X9			
			LINK		REFERENCE	
			SHT	/	REF	TERMINAL NO
			42	/	1E	1
			42	/	1E	2
			42	/	2E	3
			42	/	2E	4
			42	/	3E	5
			42	/	3E	6
			42	/	4E	7
			42	/	4E	8
			42	/	5E	9
			42	/	6E	10
			42	/	6E	11
			42	/	7E	12
			42	/	7E	13
			42	/	8E	14
			43	/	1E	15
			43	/	2E	16
			43	/	2E	17
			43	/	3E	18
			43	/	3E	19
			43	/	4E	20
			43	/	4E	21
			43	/	5E	22
			43	/	6E	23
			43	/	6E	24
			43	/	6E	25
			43	/	7E	26
			43	/	7E	27
			43	/	8E	28
						29
						30
						31

APPROVED	CHECKED	DRAWN	PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS	TITLE: TERMINAL DETAIL 500KV TRAFO. PROTECTION PANEL TYPE R14	 <b>EPESOL Pvt. Ltd.</b> 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/B61547	SHT: 09 OF 12
NAH <i>[Signature]</i>	MSS <i>[Signature]</i>	MUR <i>[Signature]</i>				DATE: 07.03.2019	AS BUILT

Sr.	CABLE DESIGNATION		CORE CROSS SECTION		DESTINATION		LEGEND:												SCHEME DWG. REF: EPE/ENU-18/B61546		
A	1																				
A	2																				
A	3																				
A	4																				
A	5																				
A	6																				
B	7																				
B	8																				
B	9																				
B	10																				
B	11																				
B	12																				
C	1	2	3	4	5	6	7	8	9	10	11	12									
D																					
E																					
F																					
APPROVED		CHECKED		DRAWN		PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/E0/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS						TITLE: TERMINAL DETAIL 500KV TRAFO. PROTECTION PANEL TYPE R14		E P E S O L P v t . L t d . 71-B Garden Block, New Garden Town, Lahore, Pakistan				DWG# EPE/ENU-18/B61547		SHT: 10 OF 12	
NAH		MSS		MUR																	
1		2		3		4		5		6		7		8		9		10		11	
A-		B-		C-		D-		E-		F-		G-		H-		I-		J-		K-	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B		C		D		E		F		G		H		I		J		K	
A		B																			

SCHEME DWG. REF: EPE/ENU-18/B61546

APPROVED	CHECKED	DRAWN	PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/EO/ 9417-29 DATED 14.11.2018 FOR PROCUREMENT OF 220KV & 500KV PROTECTION & CONTROL PANELS	TITLE: TERMINAL DETAIL 500KV TRAFO. PROTECTION PANEL TYPE R14	 EPESOL Pvt. Ltd. 71-B Garden Block, New Garden Town, Lahore, Pakistan	DWG# EPE/ENU-18/B61547	SHT: 11 OF 12
NAH Q.	MSS M. Sohail	MUR B.				DATE: 07.03.2019	AS BUILT



PROJECT: NTDC PO# CE/MP&M/M(P)/AM-VI/E0/  
9417-29 DATED 14.11.2018 FOR PROCUREMENT  
OF 220KV & 500KV PROTECTION & CONTROL PANEL

TITLE: TERMINAL DETAIL  
SCHOOL TRAFFIC PROTECTION PANEL TYPE B14



# **E P E S O L Pvt. Ltd.**

DWG# EPE/ENU-18/B61547 SHT: 12 OF 12  
DATE: 07.03.2019 AS BUILT REV: 0