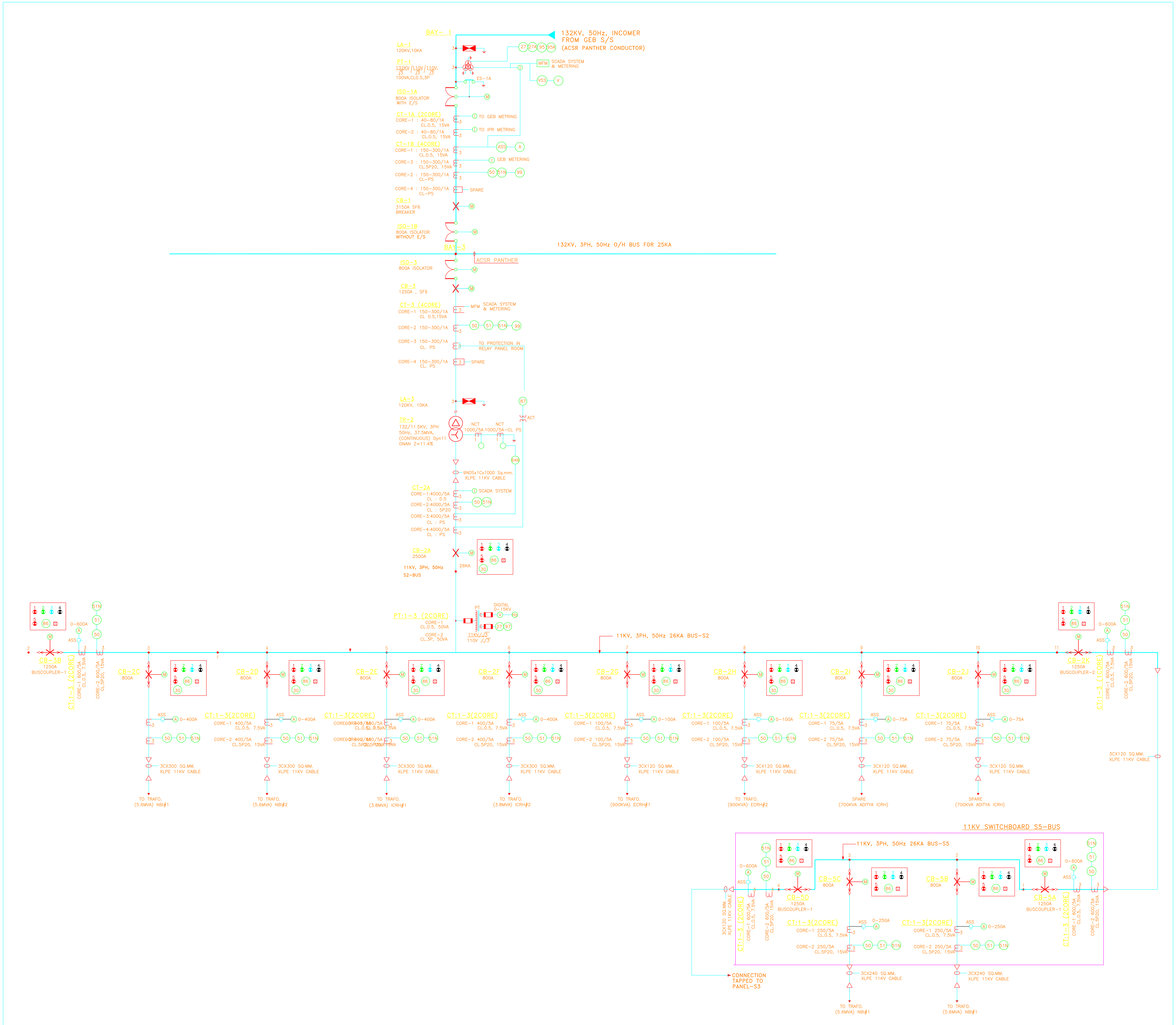
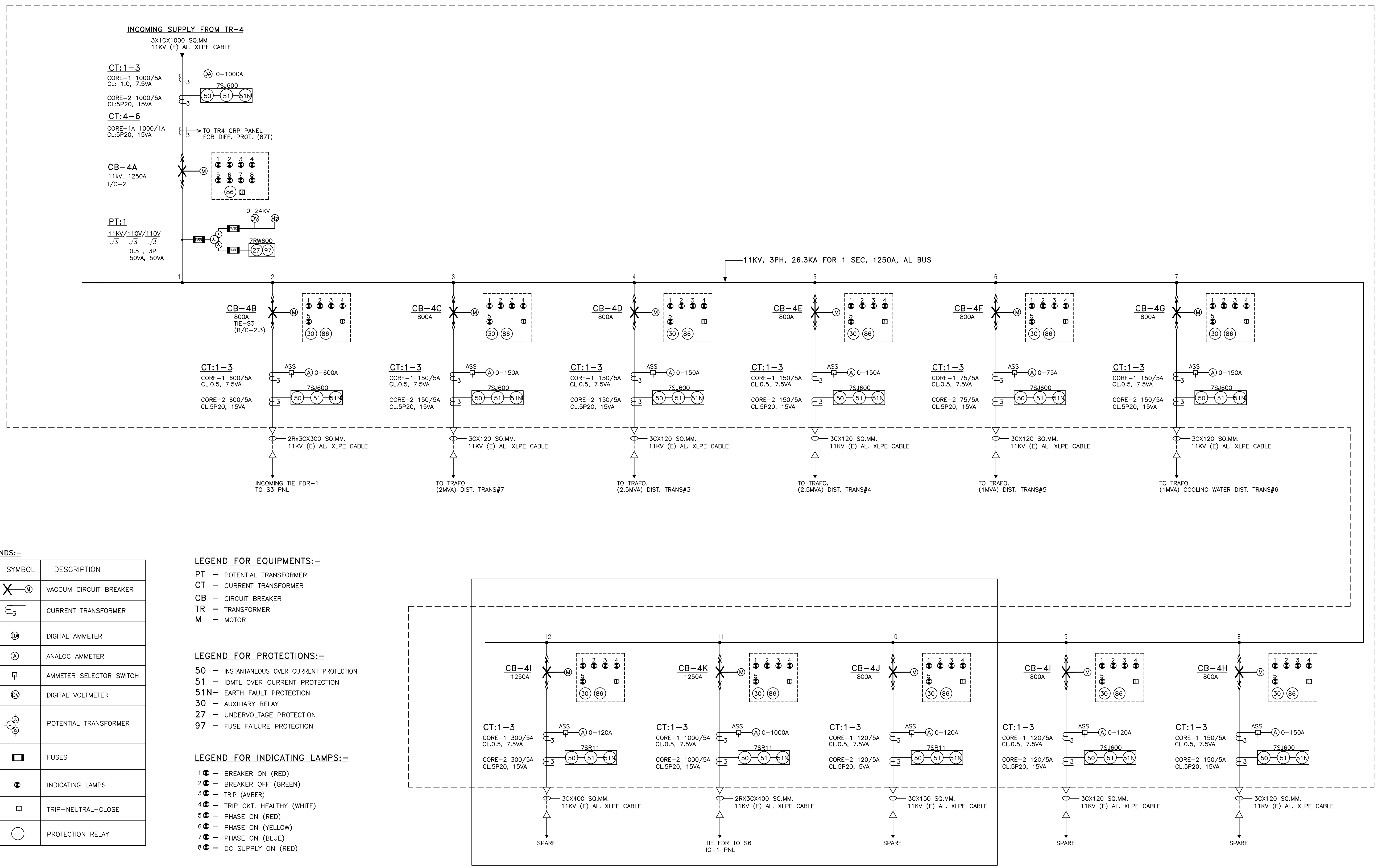
BAY- 1
132KV, 50Hz, INCOMER FROM GEB S/S (ACSR PANTHER CONDUCTOR)
LA-1
120KV,10KA
27 27A 95 95A
PT-1
132KV/√3 / 110V/√3 / 110V/√3,
100VA,CL0.5,3P
MFM SCADA SYSTEM & METERING
ES-1A
VSS V
ISO-1A
800A ISOLATOR WITH E/S
CT-1A (2CORE)
CORE-1 : 40-80/1A CL.0.5, 15VA
TO GEB METRING
CORE-2 : 40-80/1A CL.0.5, 15VA
TO IPR METRING
CT-1B (4CORE)
CORE-1 : 150-300/1A CL.0.5, 15VA
ASS A
CORE-3 : 150-300/1A CL.5P20, 15VA
GEB METERING
CORE-2 : 150-300/1A CL-PS
50 51N 99
CORE-4 : 150-300/1A CL-PS
SPARE
CB-1
3150A SF6 BREAKER
ISO-1B
800A ISOLATOR WITHOUT E/S
132KV, 3PH, 50Hz O/H BUS FOR 25KA
BAY-2
ACSR PANTHER
ISO-2
800A ISOLATOR
CB-2
1250A , SF6
CT-2 (4CORE)
CORE-1 150-300/1A CL 0.5,15VA
MFM SCADA SYSTEM & METERING
CORE-2 150-300/1A CL-5P20,15VA
50 51 51N 99
CORE-3 150-300/1A CL. PS
TO PROTECTION IN RELAY PANEL ROOM
CORE-4 150-300/1A CL. PS
SPARE
LA-2
120KV, 10KA
87
TR-1
132/11.2KV, 3 PH 50Hz, 31.5MVA (cont.)
NCT 4000/5A
NCT 4000/5A-CL PS
64N
11KV PANEL
3NOSX3CX300 Sq.mm. XLPE 11KV CABLE
CT-1A
CORE-1:4000/5A CL : 0.5
SCADA SYSTEM
CORE-2:4000/5A CL : 5P20
50 51N
CORE-3:4000/5A CL : PS
CORE-4:4000/5A CL : PS
PT
SCADA SYSTEM & METERING
27 97
CB-1A
1250A
26KA
11KV/√3 110V /√3
S1-BUS 11KV,1250A,26.2KA 3PH, 50Hz ALUMINIUM BUSBAR
VCB 11KV,1250A 26.2KA/3sec
C.T. 600/5 - 5A
CORE-1 : CL : 1.0 7.5VA
CORE-2 : CL : 5P20 15VA
RCP
DA
50/51 RYBN
86 90 95 UVR
3CX300 SQ.MM. XLPE CABLE - 1 RUN
OUTGOING-1 (PANEL-2) TF -1 11.6MVA(PEAK)
OUTGOING-2 (PANEL-2) TF -2 11.6MVA(PEAK)
HTFS
PT
LTFS
DV
PHASE INDICATION LAMP
PT 132KV/√3 / 110V/√3 / 110V/√3,
CORE-1 :0.5 CL, 100VA
CORE-2 :3P CL, 100VA
To I/C & O/G
TO PROTECTION CIRCUIT
BUS PT PANEL (PANEL-4)
OUTGOING-3 (PANEL-5) OT -1 24MVA(PEAK)
OUTGOING-4 (PANEL-6) OT - 2 24MVA(PEAK)
OUTGOING-5 (PANEL-7) VF -1 16MVA(PEAK)
OUTGOING-6 (PANEL-8) VF -2 16MVA(PEAK)
OUTGOING-7 (PANEL-9) TO CAPACITOR BUS FEEDER
OUTGOING-8 (PANEL-10) TO 1000KVAR CAPACITOR
OUTGOING-9 (PANEL-11) TO OR FROM S2-BUS(37.5MVA)



BAY-1
132KV, 50Hz, INCOMER
FROM GEB S/S
(ACSR PANTHER CONDUCTOR)
LA-1
120KV,10KA
PT-1
132KV /110V /110V
100VA,CL0.5,3P
ES-1A
ISO-1A
800A ISOLATOR
WITH E/S
MFM
SCADA SYSTEM
& METERING
CT-1A (2CORE)
CORE-1 : 40-80/1A
CL.0.5, 15VA
CORE-2 : 40-80/1A
CL.0.5, 15VA
TO GEB METRING
TO IPR METRING
CT-1B (4CORE)
CORE-1 : 150-300/1A
CL.0.5, 15VA
CORE-3 : 150-300/1A
CL.5P20, 15VA
CORE-2 : 150-300/1A
CL-PS
CORE-4 : 150-300/1A
CL-PS
GEB METERING
SPARE
CB-1
3150A SF6
BREAKER
ISO-1B
800A ISOLATOR
WITHOUT E/S
BAY-3
132KV, 3PH, 50Hz O/H BUS FOR 25KA
ACSR PANTHER
ISO-3
800A ISOLATOR
CB-3
1250A , SF6
CT-3 (4CORE)
CORE-1 150-300/1A
CL 0.5,15VA
CORE-2 150-300/1A
CORE-3 150-300/1A
CL. PS
CORE-4 150-300/1A
CL. PS
TO PROTECTION IN
RELAY PANEL ROOM
SPARE
LA-3
120KV, 10KA
TR-2
132/11.5KV, 3PH
50Hz, 37.5MVA,
(CONTINUOUS) Dyn11
ONAN Z=11.4%
NCT
1000/5A
NCT
1000/5A-CL PS
ACT
9NOSx1Cx1000 Sq.mm.
XLPE 11KV CABLE
CT-2A
CORE-1:4000/5A
CL : 0.5
CORE-2:4000/5A
CL : 5P20
CORE-3:4000/5A
CL : PS
CORE-4:4000/5A
CL : PS
SCADA SYSTEM
CB-2A
2500A
26KA
11KV, 3PH, 50Hz
S2-BUS
PT-1-3 (2CORE)
CORE-1
CL.0.5, 50VA
CORE-2
CL.3P, 50VA
11KV/√3
110V /√3
DIGITAL
0-15KV
11KV, 3PH, 50Hz 26KA BUS-S2
CB-3B
1250A
BUSCOUPLER-1
CT-1-3 (2CORE)
CORE-1 600/5A
CL.0.5, 7.5VA
CORE-2 600/5A
CL.5P20, 15VA
0-600A
CB-2C
800A
CB-2D
800A
CB-2E
800A
CB-2F
800A
CB-2G
800A
CB-2H
800A
CB-2I
800A
CB-2J
800A
CB-2K
1250A
BUSCOUPLER-2
CT-1-3(2CORE)
CORE-1 400/5A
CL.0.5, 7.5VA
CORE-2 400/5A
CL.5P20, 15VA
0-400A
CORE-1 100/5A
CL.0.5, 7.5VA
CORE-2 100/5A
CL.5P20, 15VA
0-100A
CORE-1 75/5A
CL.0.5, 7.5VA
CORE-2 75/5A
CL.5P20, 15VA
0-75A
3CX300 SQ.MM.
XLPE 11KV CABLE
3CX120 SQ.MM.
XLPE 11KV CABLE
TO TRAFO.
(5.6MVA) NB#1
TO TRAFO.
(5.6MVA) NB#2
TO TRAFO.
(3.8MVA) ICRH#1
TO TRAFO.
(3.8MVA) ICRH#2
TO TRAFO.
(900KVA) ECRH#1
TO TRAFO.
(900KVA) ECRH#2
SPARE
(700KVA ADITYA ICRH)
11KV SWITCHBOARD S5-BUS
11KV, 3PH, 50Hz 26KA BUS-S5
CB-5D
1250A
BUSCOUPLER-1
CB-5C
800A
CB-5B
800A
CB-5A
1250A
BUSCOUPLER-1
CORE-1 250/5A
CL.0.5, 7.5VA
CORE-2 250/5A
CL.5P20, 15VA
0-250A
3CX240 SQ.MM.
XLPE 11KV CABLE
CONNECTION
TAPPED TO
PANEL-S3
TO TRAFO.
(5.6MVA) NB#1

BAY - 1
132KV, 50Hz, INCOMER
FROM GEB S/S
(ACSR PANTHER CONDUCTOR)
LA-1
120KV,10KA
PT-1
100VA,CL0.5,3P
SCADA SYSTEM
& METERING
ES-1A
ISO-1A
800A ISOLATOR
WITH E/S
CT-1A (2CORE)
CORE-1 : 40-80/1A
CL.0.5, 15VA
CORE-2 : 40-80/1A
CL.0.5, 15VA
TO GEB METERING
TO IPR METERING
CT-1B (4CORE)
CORE-1 : 150-300/1A
CL.0.5, 15VA
CORE-3 : 150-300/1A
CL.5P20, 15VA
CORE-2 : 150-300/1A
CL-PS
CORE-4 : 150-300/1A
CL-PS
GEB METERING
SPARE
CB-1
3150A SF6
BREAKER
ISO-1B
800A ISOLATOR
WITHOUT E/S
BAY-4
132KV, 3PH, 50Hz O/H BUS FOR 25KA
ISO-4
800A ISOLATOR
CB-4
3150A , SF6
CT-4 (4CORE)
CORE-1 150-300/1A
CL 0.5,15VA
CORE-2 150-300/1A
CORE-3 150-300/1A
CL PS
CORE-4 150-300/1A
CL PS
MFM SCADA SYSTEM
& METERING
TO PROTECTION IN
RELAY PANEL ROOM
SPARE
LA-4
120KV, 10KA
132/11.5KV, 3PH
50Hz, 15MVA,
(CONTINUOUS) Dyn11
ONAN Z=7.5%
NCT
1000/5A-CL PS
3NOSx1Cx1000 Sq.mm.
XLPE 11KV CABLE
CT-3A
CORE-1:1000/5A
CL : 0.5
CORE-2:1000/5A
CL : 5P20
CORE-3:1000/5A
CL : PS
CORE-4:1000/5A
CL : PS
SCADA SYSTEM
LOCATED IN TRAFO.
BUS FITTING
CB-3A
1250A
PT
SCADA SYSTEM
& METERING
26KA
11KV, 3PH, 50Hz 26KA,1250A, BUS-S3
CB-3B
1250A
BUSCOUPLER-1
B/C -3
2X3CX300 SQ.MM.
CB-3C
800A
CB-3D
800A
CB-3E
800A
CB-3F
800A
CB-3G
800A
CB-3H
800A
CB-3I
800A
CB-3J
800A
CB-3K
800A
BUSCOUPLER-2
B/C - 2.2
CT:1-3(2CORE)
CORE-1 150/5A
CL.0.5, 7.5VA
CORE-2 150/5A
CL.5P20, 15VA
CORE-1 120/5A
CL.0.5, 7.5VA
CORE-2 120/5A
CL.5P20, 15VA
0-150A
0-120A
3CX120 SQ.MM.
XLPE 11KV CABLE
TO TRAFO.
(2MVA) DIST. TRANS#1
(2MVA) DIST. TRANS#2
(1.5MVA) SST1 PF3#1
(1.5MVA) SST1 PF3#2
(1.8MVA) SST1 PF6#1
(1.8MVA) SST1 PF6#2
SPARE
XLPE 11KV CABLE
2X3CX300 SQ.MM.
CONNECTION TAPPED TO
PANEL-S4

11KV MAIN SWITCHBOARD S4-BUS



LEGENDS:-

SR. NO.	SYMBOL	DESCRIPTION
1		VACCUM CIRCUIT BREAKER
2		CURRENT TRANSFORMER
3		DIGITAL AMMETER
4		ANALOG AMMETER
5		AMMETER SELECTOR SWITCH
6		DIGITAL VOLTMETER
7		POTENTIAL TRANSFORMER
8		FUSES
9		INDICATING LAMPS
10		TRIP-NEUTRAL-CLOSE
11		PROTECTION RELAY

LEGEND FOR EQUIPMENTS:-

PT – POTENTIAL TRANSFORMER
CT – CURRENT TRANSFORMER
CB – CIRCUIT BREAKER
TR – TRANSFORMER
M – MOTOR

LEGEND FOR PROTECTIONS:-

50 – INSTANTANEOUS OVER CURRENT PROTECTION
51 – IDMTL OVER CURRENT PROTECTION
51N– EARTH FAULT PROTECTION
30 – AUXILIARY RELAY
27 – UNDERVOLTAGE PROTECTION
97 – FUSE FAILURE PROTECTION

LEGEND FOR INDICATING LAMPS:-

1 – BREAKER ON (RED)
2 – BREAKER OFF (GREEN)
3 – TRIP (AMBER)
4 – TRIP CKT. HEALTHY (WHITE)
5 – PHASE ON (RED)
6 – PHASE ON (YELLOW)
7 – PHASE ON (BLUE)
8 – DC SUPPLY ON (RED)

PROPOSED PANELS – 3No'S

Issue	Remarks	Date	Name		
				Date	05.06.14
				Prep	KTH
				Ckd.	
				Norm.	

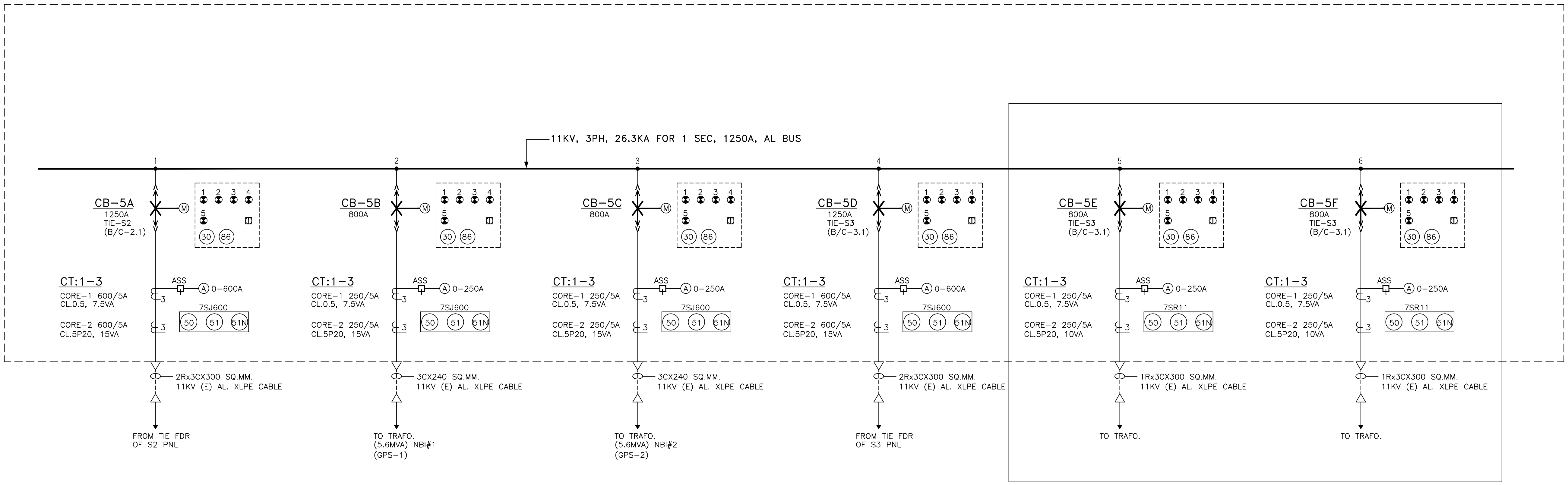
Client :- ITER-INDIA, INSTITUTE FOR PLASMA RESEARCH, GANDHINAGAR, GUJARAT
Consultant:-
Original/Replacement for/Replaced by :-

SIEMENS LTD
CHENNAI OFFICE

Project : 132 kV SUBSTATION EXPANSION'14
Work : 22kV & 11kV SWITCHBOARDS
Details : 11KV BOARD - S4 SLD

Sales Ref. :
Item No. : NA
Qty. : NA
W.O.
Drg.No.:- (3) G71470 - AB060 - 2S32 - R0
Sh. 1 + Sh.
=
+

11KV MAIN SWITCHBOARD S6-BUS



PROPOSED PANELS - 2No'S

LEGENDS:-

SR. NO.	SYMBOL	DESCRIPTION
1		VACCUM CIRCUIT BREAKER
2		CURRENT TRANSFORMER
3		ANALOG AMMETER
4		AMMETER SELECTOR SWITCH
5		INDICATING LAMPS
6		TRIP-NEUTRAL-CLOSE
7		PROTECTION RELAY

LEGEND FOR EQUIPMENTS:-

PT - POTENTIAL TRANSFORMER
CT - CURRENT TRANSFORMER
CB - CIRCUIT BREAKER
TR - TRANSFORMER
M - MOTOR

LEGEND FOR PROTECTIONS:-

50 - INSTANTANEOUS OVER CURRENT PROTECTION
51 - IDMTL OVER CURRENT PROTECTION
51N- EARTH FAULT PROTECTION
30 - AUXILIARY RELAY

LEGEND FOR INDICATING LAMPS:-

1 - BREAKER ON (RED)
2 - BREAKER OFF (GREEN)
3 - TRIP (AMBER)
4 - TRIP CKT. HEALTHY (WHITE)
5 - PHASE ON (RED)
6 - PHASE ON (YELLOW)
7 - PHASE ON (BLUE)
8 - DC SUPPLY ON (RED)

Issue	Remarks	Date	Name		
				Date	05.06.14
				Prep	KTH
				Ckd.	
				Norm.	

Client :- ITER-INDIA, INSTITUTE FOR PLASMA RESEARCH, GANDHINAGAR, GUJARAT

Consultant:-

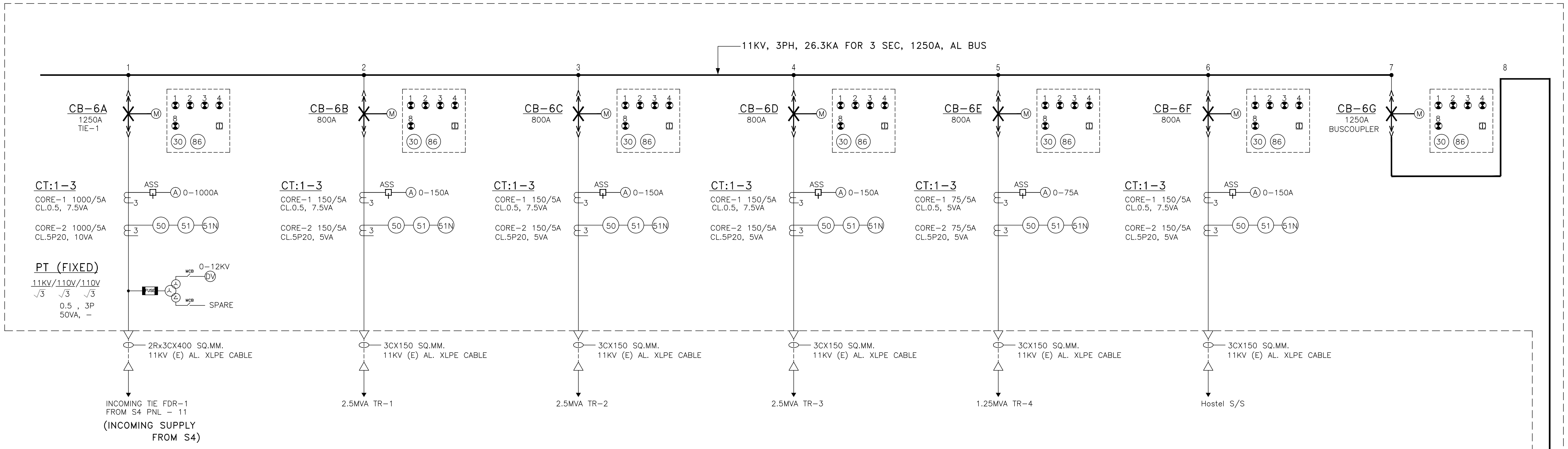
Original/Replacement for/Replaced by :-

SIEMENS LTD
CHENNAI OFFICE

Project : 132 kV SUBSTATION EXPANSION'14
Work : 22kV & 11kV SWITCHBOARDS
Details : 11KV BOARD - S5 SLD

Sales Ref. :
Item No. : NA
Qty. : NA
W.O.
=
+
Drg.No.:- (3) G71470 - AB060 - 2S32 - R0
Sh. 2
+ Sh.

11KV MAIN SWITCHBOARD S6-BUS



LEGENDS:-

SR. NO.	SYMBOL	DESCRIPTION
1		VACCUM CIRCUIT BREAKER
2		CURRENT TRANSFORMER
3		ANALOG AMMETER
4		AMMETER SELECTOR SWITCH
5		DIGITAL VOLTMETER
6		POTENTIAL TRANSFORMER
7		FUSES
8		INDICATING LAMPS
9		TRIP-NEUTRAL-CLOSE
10		PROTECTION RELAY

LEGEND FOR EQUIPMENTS:-

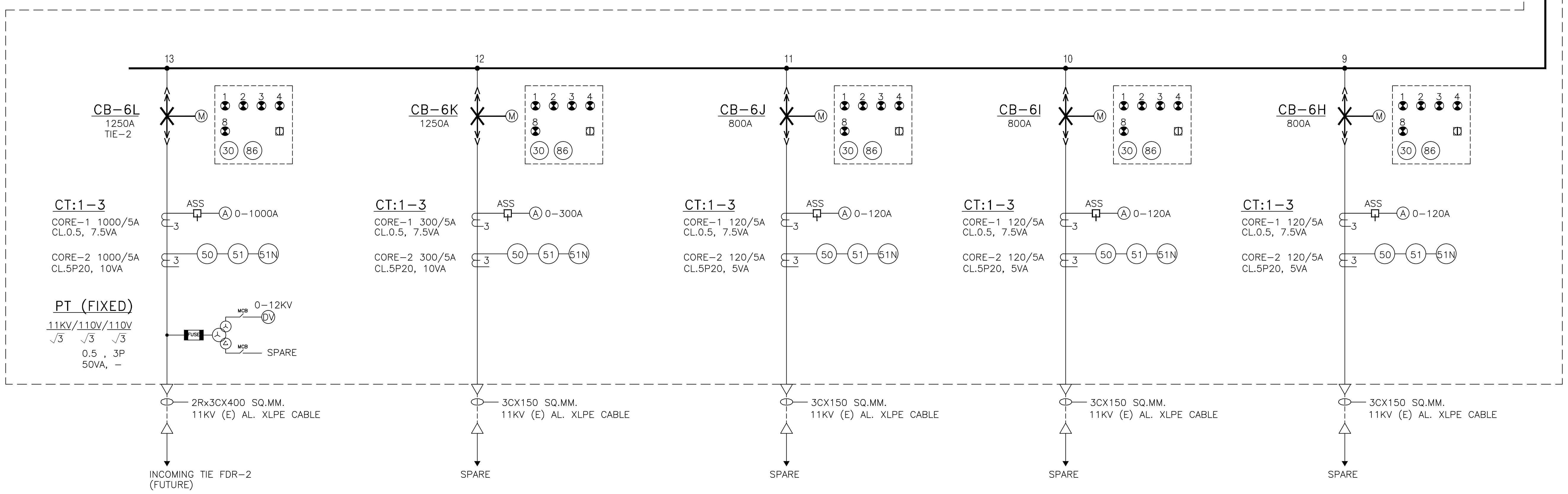
PT — POTENTIAL TRANSFORMER
CT — CURRENT TRANSFORMER
CB — CIRCUIT BREAKER
TR — TRANSFORMER
M — MOTOR

LEGEND FOR PROTECTIONS:-

50 — INSTANTANEOUS OVER CURRENT PROTECTION
51 — IDMTL OVER CURRENT PROTECTION
51N— EARTH FAULT PROTECTION
30 — AUXILIARY RELAY

LEGEND FOR INDICATING LAMPS:-

1 — BREAKER ON (RED)
2 — BREAKER OFF (GREEN)
3 — TRIP (AMBER)
4 — TRIP CKT. HEALTHY (WHITE)
5 — PHASE ON (RED)
6 — PHASE ON (YELLOW)
7 — PHASE ON (BLUE)
8 — DC SUPPLY ON (RED)



Issue	Remarks	Date	Name		
				Date	10.04.14
				Prep	KTH
				Ckd.	
				Norm.	

Client :- ITER-INDIA, INSTITUTE FOR PLASMA RESEARCH, GANDHINAGAR, GUJARAT

Consultant:-

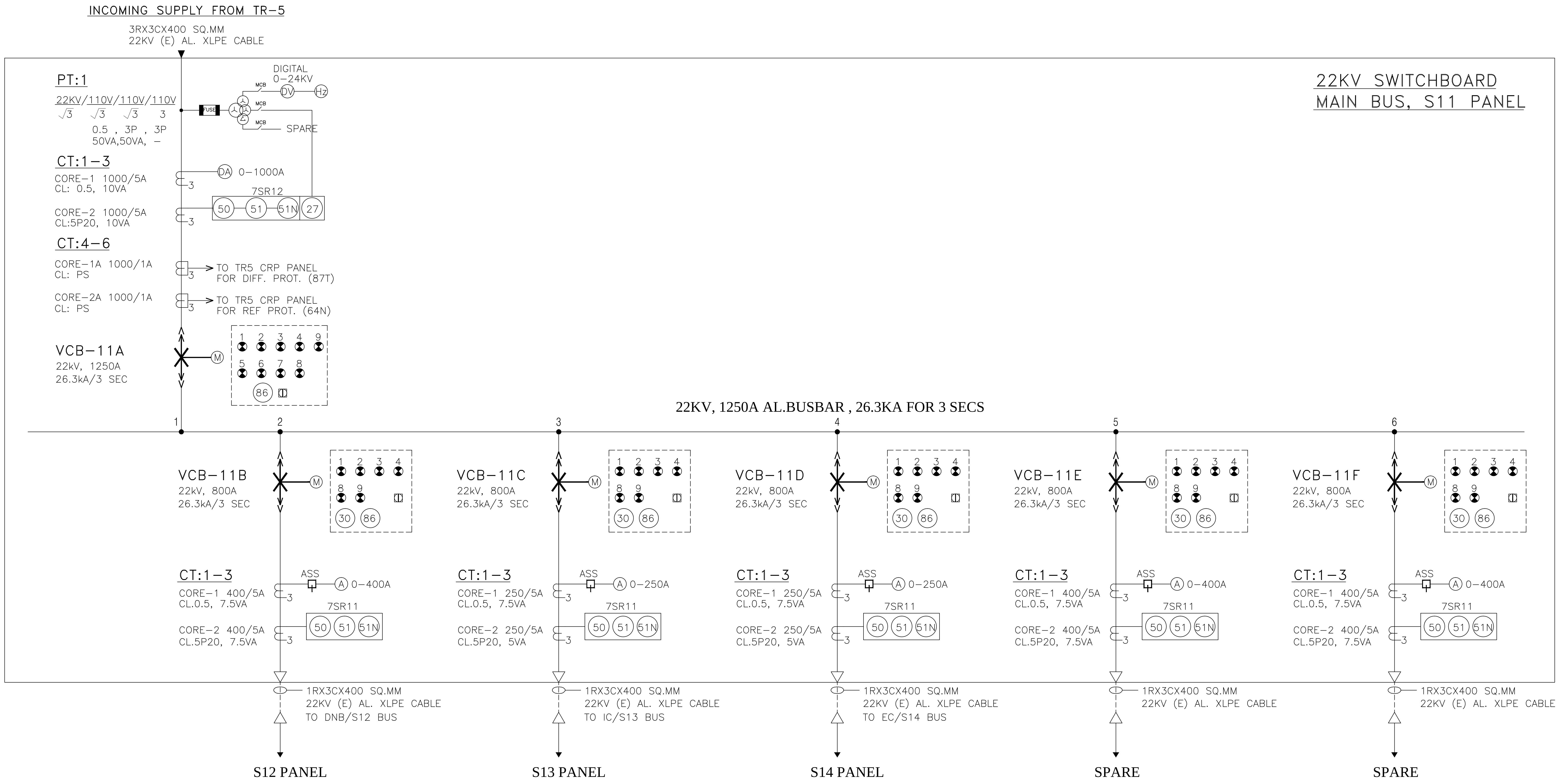
Original/Replacement for/Replaced by :-

SIEMENS LTD
CHENNAI OFFICE

Project : 132 kV SUBSTATION EXPANSION'14
Work : 22kV & 11kV SWITCHBOARDS
Details : 11KV BOARD - S6 SLD

Sales Ref. :
Item No. : NA Qty. : NA
W.O.
Drg.No.:- (3) G71470 - AB060 - 2S32 - R0
Sh. 3 + Sh.

=
+



LEGENDS:–

SR. NO.	SYMBOL	DESCRIPTION
1		VACCUM CIRCUIT BREAKER
2		CURRENT TRANSFORMER
3	DA	DIGITAL AMMETER
4	A	ANALOG AMMETER
5		AMMETER SELECTOR SWITCH
6	DV	DIGITAL VOLTMETER
7	Hz	FREQUENCY METER
8		POTENTIAL TRANSFORMER
9		FUSES
10		INDICATING LAMPS
11		TRIP–NEUTRAL–CLOSE
12		PROTECTION FUNCTION

LEGEND FOR EQUIPMENTS:–

- PT – POTENTIAL TRANSFORMER
- CT – CURRENT TRANSFORMER
- CB – CIRCUIT BREAKER
- TR – TRANSFORMER
- M – MOTOR

LEGEND FOR PROTECTIONS:–

- 27 – UNDERVOLTAGE PROTECTION
- 86 – MASTER TRIP RELAY
- 50 – INSTANTANEOUS OVER CURRENT PROTECTION
- 51 – IDMTL OVER CURRENT PROTECTION
- 51N– EARTH FAULT PROTECTION
- 87T– TRAFO. DIFFERENTIAL PROT.
- 64N– RESTRICTED PROT.
- 30 – AUXILARY RELAY

LEGEND FOR INDICATING LAMPS:–

- 1 – BREAKER ON (RED)
- 2 – BREAKER OFF (GREEN)
- 3 – TRIP (AMBER)
- 4 – TRIP CKT. HEALTHY (WHITE)
- 5 – PHASE ON (RED)
- 6 – PHASE ON (YELLOW)
- 7 – PHASE ON (BLUE)
- 8 – DC SUPPLY ON (RED)
- 9 – SPRING CHARGED (BLUE)

Issue	Remarks	Date	Name		
				Date	11.04.14
				Prep	KTH
				Ckd.	KSG
				Norm.	

Client :- ITER-INDIA, INSTITUTE FOR PLASMA RESEARCH, GANDHINAGAR, GUJARAT

Consultant:-

Original/Replacement for/Replaced by :–

SIEMENS LTD

CHENNAI OFFICE

Project : 132 kV SUBSTATION EXPANSION'14

Work : 22kV & 11kV SWITCHBOARDS

Details : 22KV BOARD - S11 SLD

Sales Ref. :

Item No. : NA Qty. : NA

W.O.

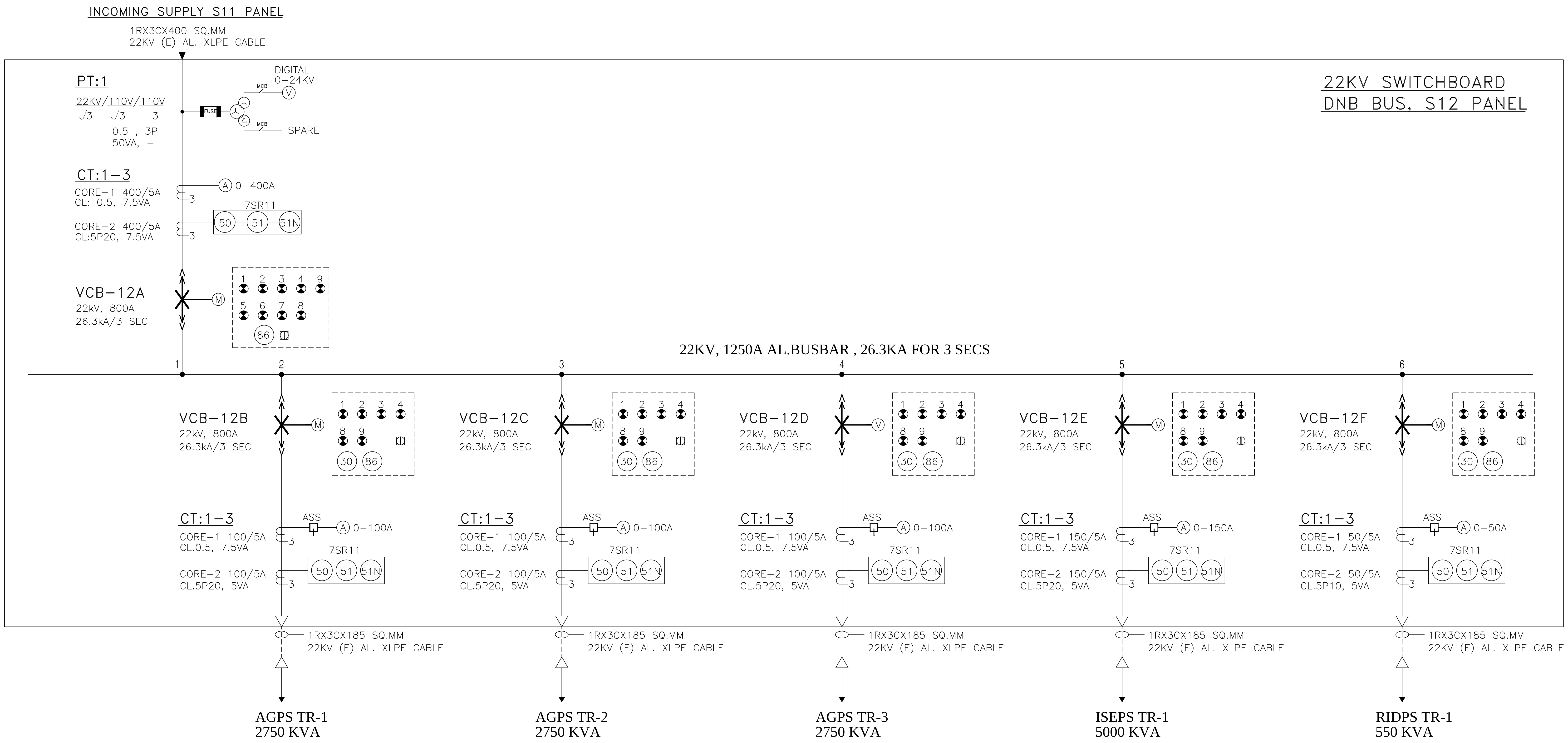
=

+

Drg.No.:- (3) G71470 - AB060 - 2S32 - R0

Sh. 4

+ Sh.



LEGENDS:–

SR. NO.	SYMBOL	DESCRIPTION
1	X—(M)	VACCUM CIRCUIT BREAKER
2	ε3	CURRENT TRANSFORMER
3	(DA)	DIGITAL AMMETER
4	(A)	ANALOG AMMETER
5		AMMETER SELECTOR SWITCH
6	(DV)	DIGITAL VOLTMETER
7		POTENTIAL TRANSFORMER
8		FUSES
9		INDICATING LAMPS
10		TRIP–NEUTRAL–CLOSE
11	○	PROTECTION FUNCTION

LEGEND FOR EQUIPMENTS:–

PT – POTENTIAL TRANSFORMER
CT – CURRENT TRANSFORMER
CB – CIRCUIT BREAKER
TR – TRANSFORMER
M – MOTOR

LEGEND FOR PROTECTIONS:–

27 – UNDERVOLTAGE PROTECTION
86 – MASTER TRIP RELAY
50 – INSTANTANEOUS OVER CURRENT PROTECTION
51 – IDMTL OVER CURRENT PROTECTION
51N– EARTH FAULT PROTECTION
30 – AUXILARY RELAY

LEGEND FOR INDICATING LAMPS:–

1 – BREAKER ON (RED)
2 – BREAKER OFF (GREEN)
3 – TRIP (AMBER)
4 – TRIP CKT. HEALTHY (WHITE)
5 – PHASE ON (RED)
6 – PHASE ON (YELLOW)
7 – PHASE ON (BLUE)
8 – DC SUPPLY ON (RED)
9 – SPRING CHARGED (BLUE)

Issue	Remarks	Date	Name	Date	11.04.14
				Prep	KTH
				Ckd.	KSG
				Norm.	

Client :- ITER-INDIA, INSTITUTE FOR PLASMA RESEARCH, GANDHINAGAR, GUJARAT

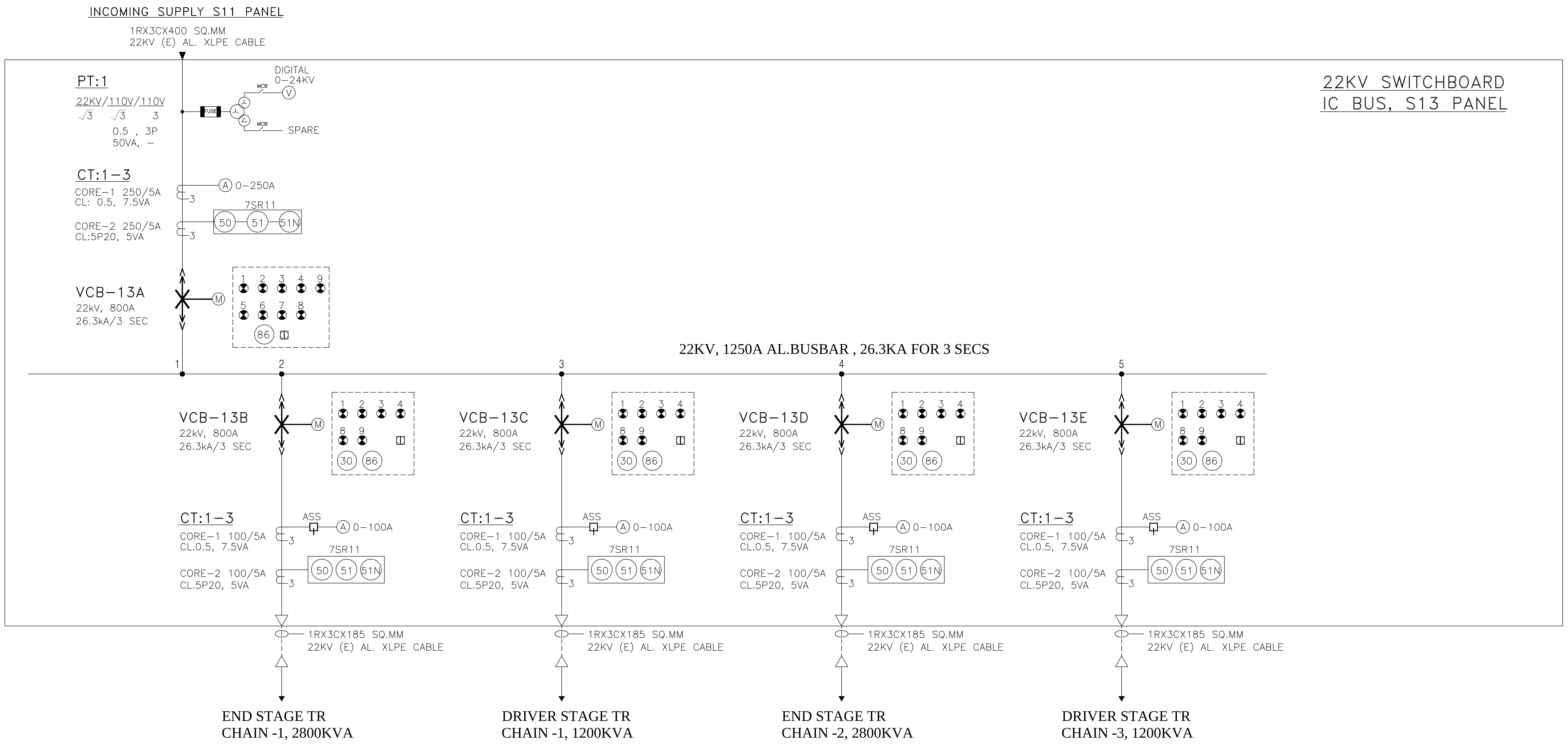
Consultant:-

Original/Replacement for/Replaced by :-

SIEMENS LTD
CHENNAI OFFICE

Project : 132 kV SUBSTATION EXPANSION'14
Work : 22kV & 11kV SWITCHBOARDS
Details : 22KV BOARD - S12 SLD

Sales Ref. :
Item No. : NA
Qty. : NA
W.O.
Drg.No.:- (3) G71470 - AB060 - 2S32 - R0
=
+
Sh. 5
+ Sh.



LEGENDS:–

SR. NO.	SYMBOL	DESCRIPTION
1		VACCUM CIRCUIT BREAKER
2		CURRENT TRANSFORMER
3	DA	DIGITAL AMMETER
4	A	ANALOG AMMETER
5		AMMETER SELECTOR SWITCH
6	DV	DIGITAL VOLTMETER
7		POTENTIAL TRANSFORMER
8		FUSES
9		INDICATING LAMPS
10		TRIP–NEUTRAL–CLOSE
11		PROTECTION FUNCTION

LEGEND FOR EQUIPMENTS:–

PT – POTENTIAL TRANSFORMER
CT – CURRENT TRANSFORMER
CB – CIRCUIT BREAKER
TR – TRANSFORMER
M – MOTOR

LEGEND FOR PROTECTIONS:–

27 – UNDERVOLTAGE PROTECTION
86 – MASTER TRIP RELAY
50 – INSTANTANEOUS OVER CURRENT PROTECTION
51 – IDMTL OVER CURRENT PROTECTION
51N – EARTH FAULT PROTECTION
30 – AUXILARY RELAY

LEGEND FOR INDICATING LAMPS:–

1 – BREAKER ON (RED)
2 – BREAKER OFF (GREEN)
3 – TRIP (AMBER)
4 – TRIP CKT. HEALTHY (WHITE)
5 – PHASE ON (RED)
6 – PHASE ON (YELLOW)
7 – PHASE ON (BLUE)
8 – DC SUPPLY ON (RED)
9 – SPRING CHARGED (BLUE)

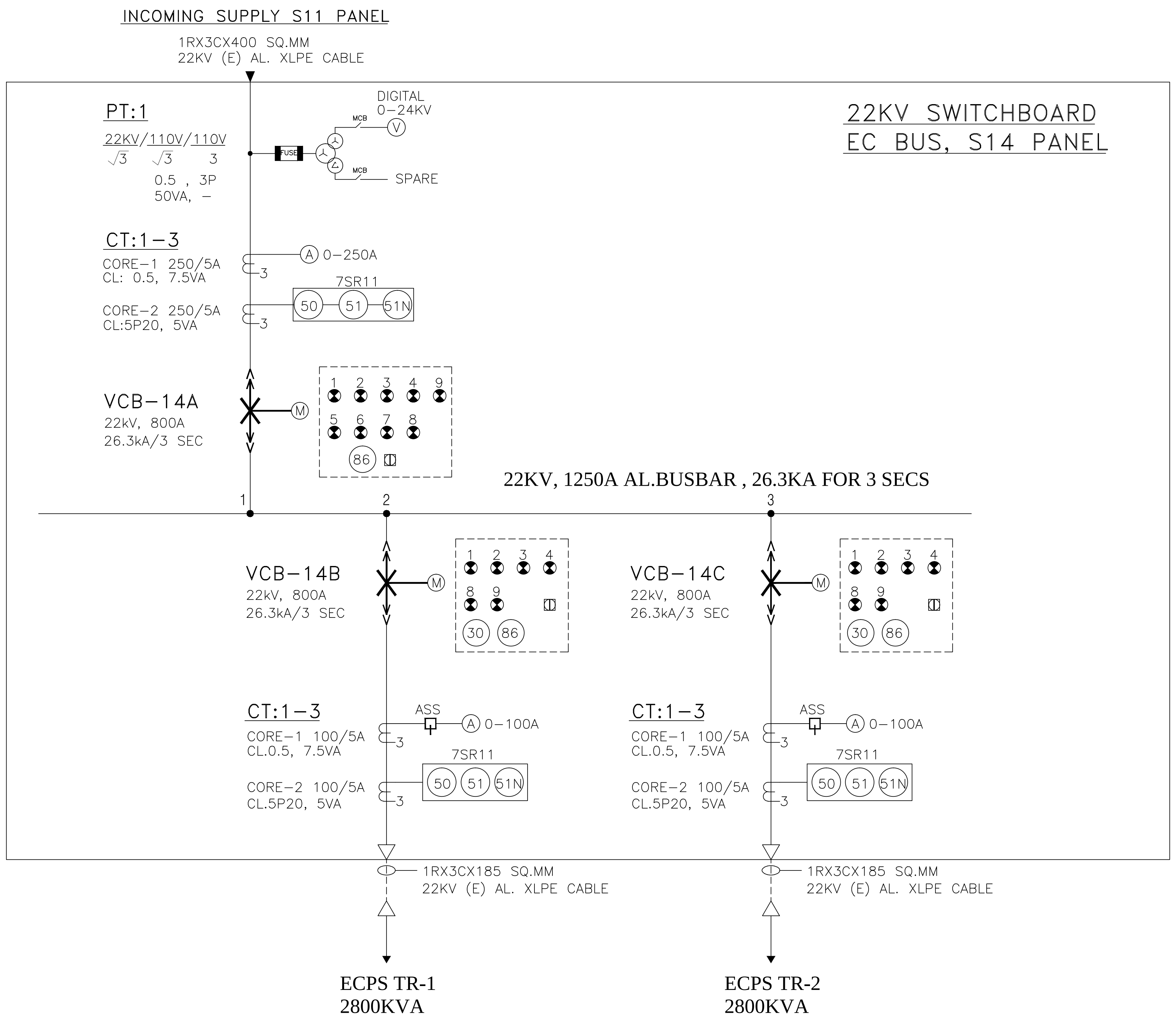
Issue	Remarks	Date	Name		
				Date	11.04.14
				Prep	KTH
				Ckd.	KSG
				Norm.	

Client :- ITER-INDIA, INSTITUTE FOR PLASMA RESEARCH, GANDHINAGAR, GUJARAT
Consultant:-
Original/Replacement for/Replaced by :-

SIEMENS LTD
CHENNAI OFFICE

Project : 132 kV SUBSTATION EXPANSION'14
Work : 22kV & 11kV SWITCHBOARDS
Details : 22KV BOARD - S13 SLD

Sales Ref. :
Item No. : NA Qty. : NA
W.O.
Drg.No.:- (3) G71470 - AB060 - 2S32 - R0
=
+
Sh. 6
+ Sh.



LEGENDS:–

SR. NO.	SYMBOL	DESCRIPTION
1		VACCUM CIRCUIT BREAKER
2		CURRENT TRANSFORMER
3	DA	DIGITAL AMMETER
4	A	ANALOG AMMETER
5		AMMETER SELECTOR SWITCH
6	DV	DIGITAL VOLTMETER
7		POTENTIAL TRANSFORMER
8		FUSES
9		INDICATING LAMPS
10		TRIP–NEUTRAL–CLOSE
11		PROTECTION FUNCTION

LEGEND FOR EQUIPMENTS:–

PT – POTENTIAL TRANSFORMER
CT – CURRENT TRANSFORMER
CB – CIRCUIT BREAKER
TR – TRANSFORMER
M – MOTOR

LEGEND FOR PROTECTIONS:–

27 – UNDERVOLTAGE PROTECTION
86 – MASTER TRIP RELAY
50 – INSTANTANEOUS OVER CURRENT PROTECTION
51 – IDMTL OVER CURRENT PROTECTION
51N– EARTH FAULT PROTECTION
30 – AUXILARY RELAY

LEGEND FOR INDICATING LAMPS:–

1 – BREAKER ON (RED)
2 – BREAKER OFF (GREEN)
3 – TRIP (AMBER)
4 – TRIP CKT. HEALTHY (WHITE)
5 – PHASE ON (RED)
6 – PHASE ON (YELLOW)
7 – PHASE ON (BLUE)
8 – DC SUPPLY ON (RED)
9 – SPRING CHARGED (BLUE)

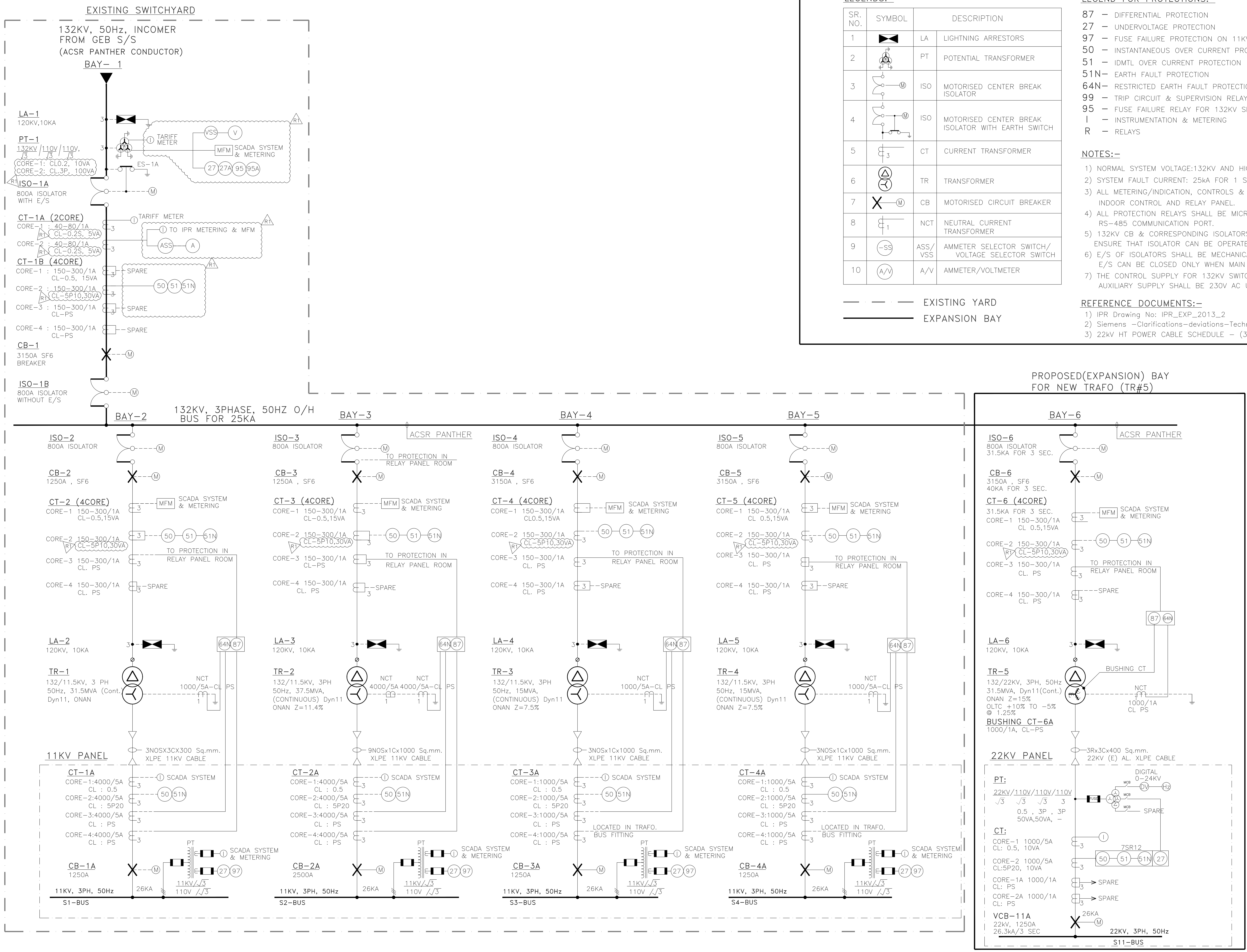
Issue	Remarks	Date	Name		
				Date	11.04.14
				Prep	KTH
				Ckd.	KSG
				Norm.	

Client :- ITER-INDIA, INSTITUTE FOR PLASMA RESEARCH, GANDHINAGAR, GUJARAT
Consultant:-
Original/Replacement for/Replaced by :-

SIEMENS LTD
CHENNAI OFFICE

Project : 132 kV SUBSTATION EXPANSION'14
Work : 22kV & 11kV SWITCHBOARDS
Details : 22KV BOARD - S14 SLD

Sales Ref. :
Item No. : NA Qty. : NA
W.O.
Drg.No.:- (3) G71470 - AB060 - 2S32 - R0
=
+
Sh. 7
- Sh.



LEGENDS:-

SR. NO.	SYMBOL		DESCRIPTION
1		LA	LIGHTNING ARRESTORS
2		PT	POTENTIAL TRANSFORMER
3		ISO	MOTORISED CENTER BREAK ISOLATOR
4		ISO	MOTORISED CENTER BREAK ISOLATOR WITH EARTH SWITCH
5		CT	CURRENT TRANSFORMER
6		TR	TRANSFORMER
7		CB	MOTORISED CIRCUIT BREAKER
8		NCT	NEUTRAL CURRENT TRANSFORMER
9	SS	ASS/VSS	AMMETER SELECTOR SWITCH/ VOLTAGE SELECTOR SWITCH
10	A/V	A/V	AMMETER/VOLTMETER

— — — EXISTING YARD
——— EXPANSION BAY

LEGEND FOR PROTECTIONS:-

87 – DIFFERENTIAL PROTECTION
27 – UNDERVOLTAGE PROTECTION
97 – FUSE FAILURE PROTECTION ON 11KV SIDE
50 – INSTANTANEOUS OVER CURRENT PROTECTION
51 – IDMTL OVER CURRENT PROTECTION
51N– EARTH FAULT PROTECTION
64N– RESTRICTED EARTH FAULT PROTECTION
99 – TRIP CIRCUIT & SUPERVISION RELAY
95 – FUSE FAILURE RELAY FOR 132KV SIDE
I – INSTRUMENTATION & METERING
R – RELAYS

NOTES:-

1) NORMAL SYSTEM VOLTAGE:132KV AND HIGHEST SYSTEM VOLTAGE: 145KV
2) SYSTEM FAULT CURRENT: 25kA FOR 1 SEC.
3) ALL METERING/INDICATION, CONTROLS & PROTECTION ARE ON INDOOR CONTROL AND RELAY PANEL.
4) ALL PROTECTION RELAYS SHALL BE MICROPROCESSOR BASED WITH RS-485 COMMUNICATION PORT.
5) 132KV CB & CORRESPONDING ISOLATORS SHALL BE INTERLOCKED TO ENSURE THAT ISOLATOR CAN BE OPERATED ONLY WHEN BREAKER IS OPEN.
6) E/S OF ISOLATORS SHALL BE MECHANICALLY INTERLOCKED SUCH THAT E/S CAN BE CLOSED ONLY WHEN MAIN SWITCH IS OPEN.
7) THE CONTROL SUPPLY FOR 132KV SWITCHYARD SHALL BE 220V DC AND AUXILIARY SUPPLY SHALL BE 230V AC UNLESS OTHERWISE SPECIFIED.

REFERENCE DOCUMENTS:-

1) IPR Drawing No: IPR_EXP_2013_2
2) Siemens -Clarifications-deviations-Technical
3) 22kV HT POWER CABLE SCHEDULE - (3) G71470-AB060-2C09-R0

Issue	Remarks	Date	Name	Norm.	
R1	AS PER CLIENT COMMENTS/REVIEW DT.15.04.14	15.04.14	KTH	Ckd.	KSG
				Prep.	KTH
				Date	14.03.14

Client:- ITER-INDIA, INSTITUTE FOR PLASMA RESEARCH GANDHINAGAR, GUJARAT
Consultant:-
Original / Replacement for / Replaced by:-

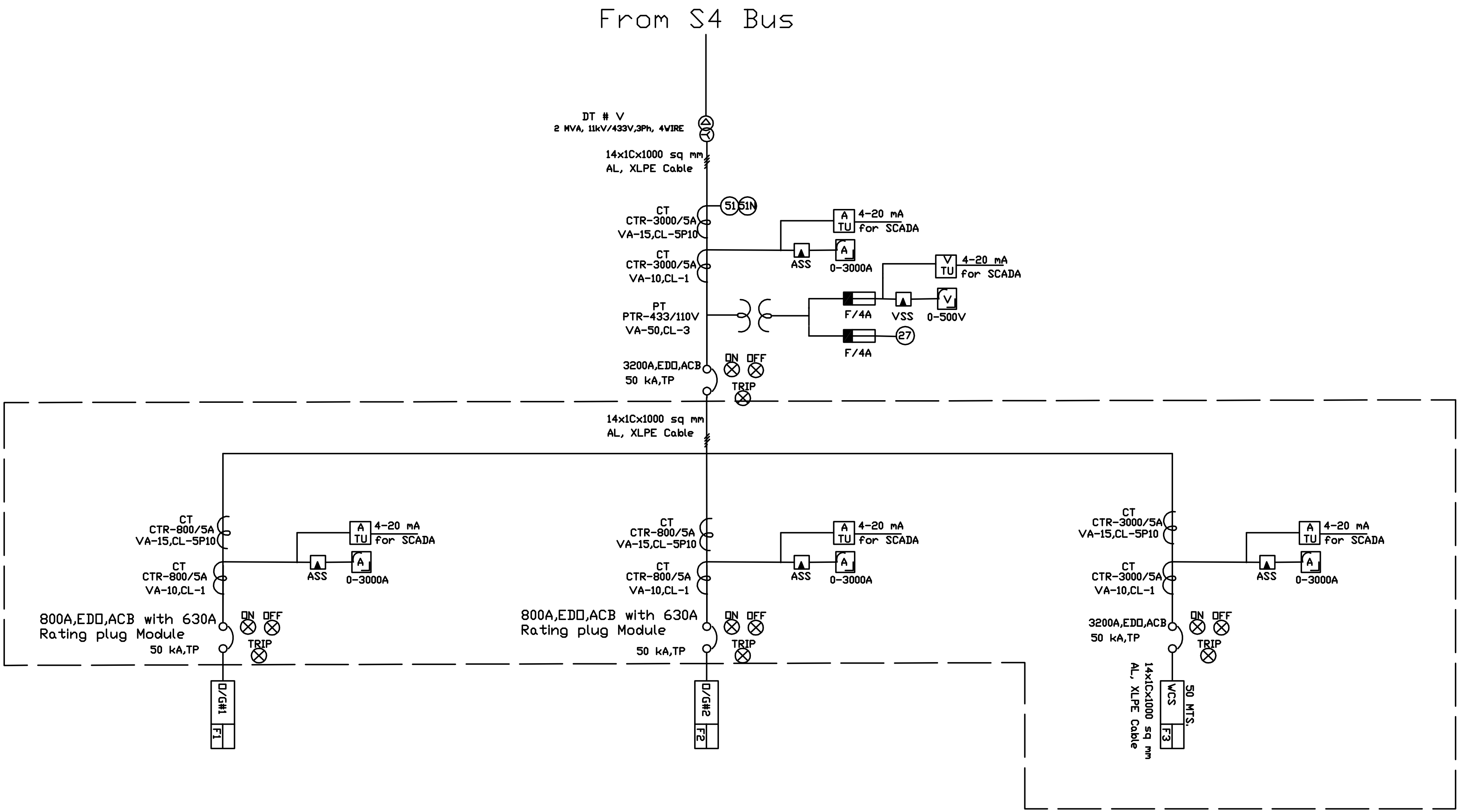
SIEMENS LTD
CHENNAI OFFICE

Project :- 132 kV SUBSTATION EXPANSION - 2014
Work:- NEW 132KV/22KV BAY EXPANSION
Details:- SINGLE LINE DIAGRAM

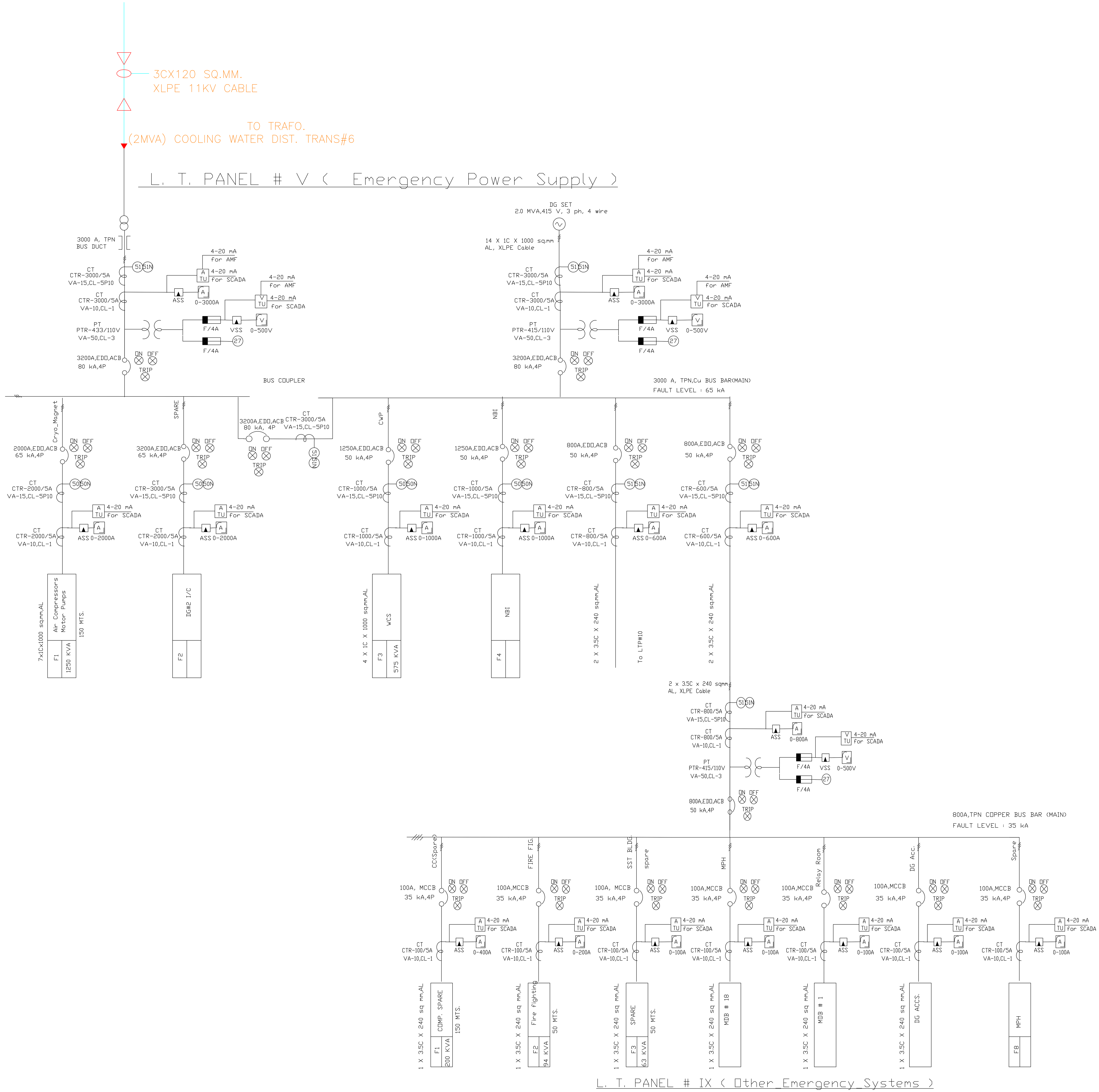
Sales Ref. :- 3003777357
Item No. :- NA Qty. :- NA
W.O.:- NA
Drg.No.:- (2) G71470-AB060-2S02-R1
Sh. 1
1 Sh.

L. T. PANEL # I (MAGNET POWER SUPPLY)
3CX120 SQ.MM. XLPE 11KV CABLE TO TRAFO. (2MVA) DIST. TRANS#1
3CX120 SQ.MM. XLPE 11KV CABLE TO TRAFO. (2MVA) DIST. TRANS#2
3000 A, TPN BUS DUCT
CT CTR-3000/5A VA-15,CL-5P10
CT CTR-3000/5A VA-10,CL-1
PT PTR-433/110V VA-50,CL-3
3200A,EDO,ACB 80 kA,TP
4-20 mA for SCADA
ASS
0-3000A
VSS
0-500V
F/4A
27
ON OFF TRIP
BUS COUPLER
3200A,EDO,ACB 80 kA, TP
CT CTR-3000/5A VA-15,CL-5P10
3000A,TPN COPPER BUS BAR (MAIN)
FAULT LEVEL : 50 kA
TF
PF1
PF4-U
PF4-D
APC
SPARE
PF2_U&D
PF5-U
PF5-D
630A,EDO,ACB 50kA, TP
200A,MCCB 50kA, TP
800A,EDO,ACB 50kA, TP
1250A,EDO,ACB 50kA, TP
CT CTR-400/5A VA-15,CL-5P10
CT CTR-600/5A VA-15,CL-5P10
CT CTR-500/5A VA-15,CL-5P10
CT CTR-800/5A VA-15,CL-5P10
CT CTR-1000/5A VA-15,CL-5P10
CT CTR-400/5A VA-10,CL-1
CT CTR-600/5A VA-10,CL-1
CT CTR-500/5A VA-10,CL-1
CT CTR-200/5A VA-10,CL-1
CT CTR-800/5A VA-10,CL-1
CT CTR-1000/5A VA-10,CL-1
0-400A
0-600A
0-500A
0-200A
0-800A
50 50N
51 51N
1 X 3.5C X 300 sq.mm.AL
2 X 3.5C X 240 sq.mm.AL
CONV. TRANS.
50 MTS.
F1 220 KVA
F2 380 KVA
F3 370 KVA
F4 370 KVA
F5 300 KVA
SPARE F6
F7 100 KVA
F8 432KVA
F9 432KVA
F10 432KVA
F11 432KVA
ITER LAB(TEMP.) F12

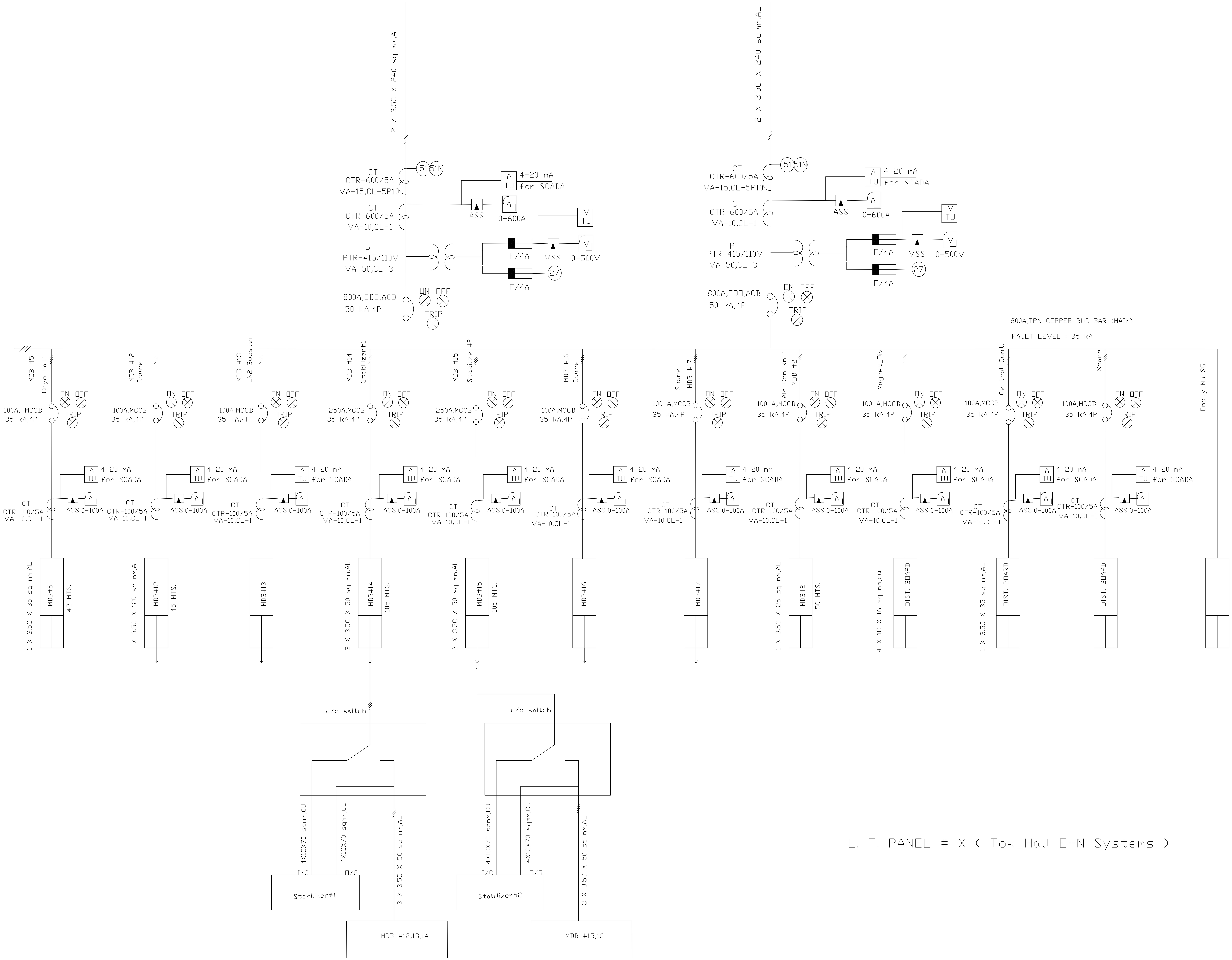
3CX120 SQ.MM.
XLPE 11KV CABLE
TO TRAFO.
(2 MVA) DIST. TRANS#3
3CX120 SQ.MM.
XLPE 11KV CABLE
TO TRAFO.
(2 MVA) DIST. TRANS#4
3000 A, TPN BUS DUCT
L. T. PANEL # II (AUXILIARY POWER SUPPLY)
3000A,TPN COPPER BUS BAR (MAIN)
FAULT LEVEL : 50 kA
BUS COUPLER
L. T. PANEL # III(DC POWER SUPPLY)
L. T. PANEL # VIII (NBI SYSTEM)
800A,TPN COPPER BUS BAR (MAIN)
FAULT LEVEL : 35 kA

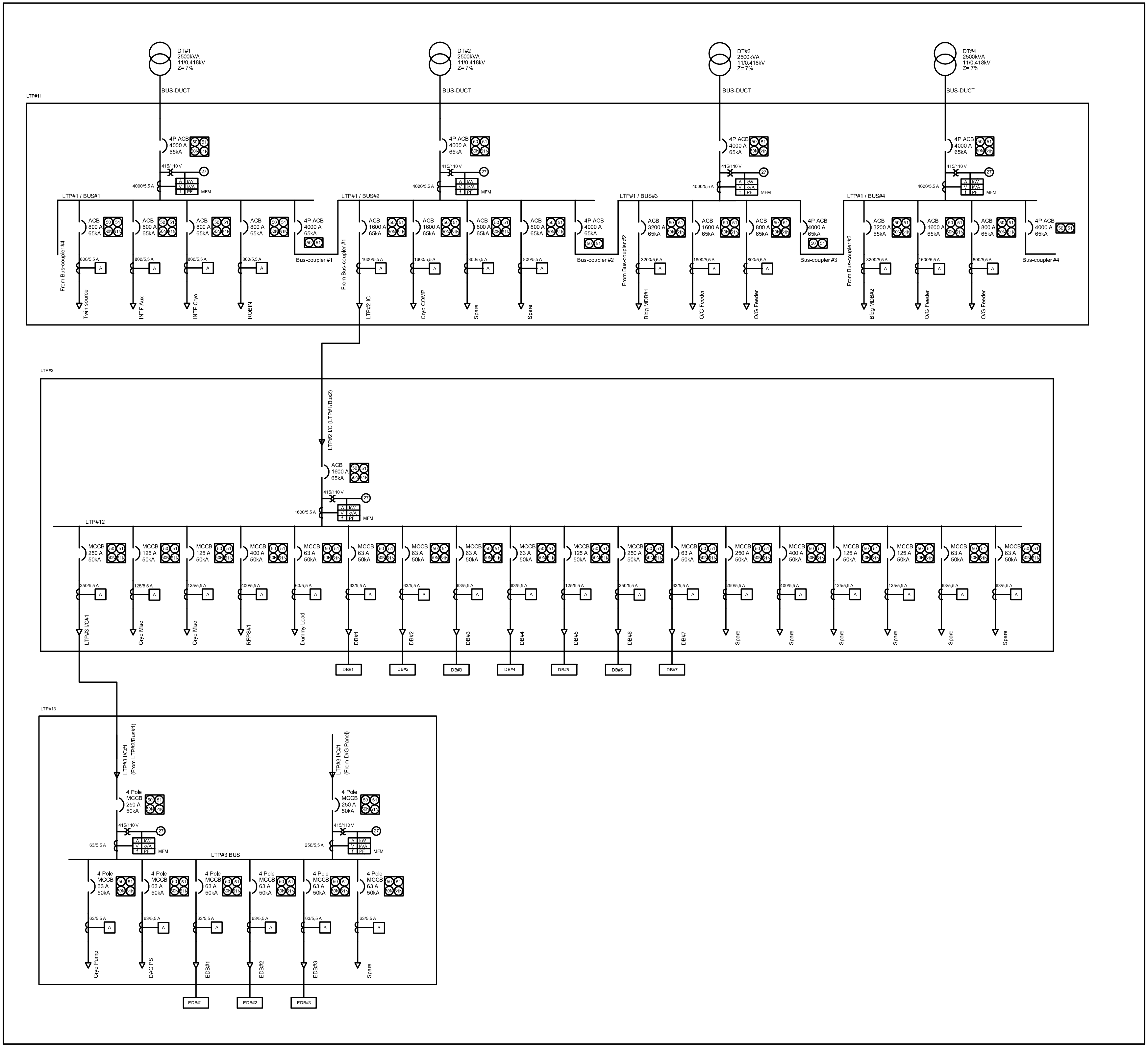


SLD_New Scheme after integration


3CX120 SQ.MM.
XLPE 11KV CABLE
TO TRAFO.
(2MVA) COOLING WATER DIST. TRANS#6
L. T. PANEL # V (Emergency Power Supply)
DG SET
2.0 MVA,415 V, 3 ph, 4 wire
14 X 1C X 1000 sq.mm
AL, XLPE Cable
3000 A, TPN
BUS DUCT
CT
CTR-3000/5A
VA-15,CL-5P10
CT
CTR-3000/5A
VA-10,CL-1
PT
PTR-433/110V
VA-50,CL-3
PT
PTR-415/110V
VA-50,CL-3
4-20 mA
For AMF
4-20 mA
For SCADA
ASS
0-3000A
F/4A
VSS
0-500V
3200A,EDO,ACB
80 kA,4P
ON OFF
TRIP
BUS COUPLER
3000 A, TPN,Cu BUS BAR(MAIN)
FAULT LEVEL : 65 kA
3200A,EDO,ACB
80 kA, 4P
Cryo_Magnet
SPARE
CWP
NBI
2000A,EDO,ACB
65 kA,4P
3200A,EDO,ACB
65 kA,4P
1250A,EDO,ACB
50 kA,4P
800A,EDO,ACB
50 kA,4P
CTR-2000/5A
CTR-1000/5A
CTR-800/5A
CTR-600/5A
ASS 0-2000A
ASS 0-1000A
ASS 0-600A
Air Compressors
Motor Pumps
7x1Cx1000 sq.mm.AL
150 MTS.
F1
1250 KVA
DG#2 I/C
F2
4 X 1C X 1000 sq.mm.AL
WCS
F3
575 KVA
F4
2 X 3.5C X 240 sq.mm.AL
To LTP#10
2 x 3.5C x 240 sqmm
AL, XLPE Cable
CTR-800/5A
0-800A
800A,EDO,ACB
50 kA,4P
800A,TPN COPPER BUS BAR (MAIN)
FAULT LEVEL : 35 kA
CC(Spare)
FIRE FIG.
SST BLDG
spare
MPH
Relay Room
DG Acc.
Spare
100A, MCCB
35 kA,4P
CTR-100/5A
VA-10,CL-1
0-400A
0-200A
0-100A
1 X 3.5C X 240 sq mm.AL
COMP. SPARE
F1
200 KVA
150 MTS.
Fire fighting
F2
94 KVA
50 MTS.
SPARE
F3
63 KVA
MDB # 1B
MDB # 1
DG ACCS.
MPH
F8
L. T. PANEL # IX (Other_Emergency_Systems)


11 X 1C X 1000 sq.mm.AL
LTP # 6
CT
CTR-2500/5A
VA-15,CL-5P10
51
51N
4-20 mA
for SCADA
A
TU
CT
CTR-2500/5A
VA-10,CL-1
ASS
0-2500A
V
TU
PT
PTR-415/110V
VA-50,CL-3
F/4A
VSS
0-500V
27
2500A,EDO,ACB
80 kA,TP
ON
OFF
TRIP
LTP#6
3000A,TPN COPPER BUS BAR (MAIN)
FAULT LEVEL : 35 kA
MDB # 6
MDB # 7
MDB # 8
MDB # 9
MDB # 10
MDB # 11
NBI CRYO HALL
SPARE
ROOM No. 5,6
SPARE
SPARE
SPARE
DIAG_FF
ltp # 10
200A, MCCB
35 kA,TP
200A,MCCB
35 kA,TP
200 A,MCCB
35 kA,TP
250A,MCCB
35 kA,TP
125A,MCCB
35 kA,TP
100 A,MCCB
35 kA,TP
125 A,MCCB
35 kA,TP
800 A,EDO,ACB
50 kA,TP
CT
CTR-800/5A
VA-15,CL-5P10
50
50N
CT
CTR-600/5A
VA-15,CL-5P10
CT
CTR-200/5A
VA-10,CL-1
ASS 0-200A
CT
CTR-250/5A
VA-10,CL-1
ASS 0-250A
CT
CTR-125/5A
VA-10,CL-1
ASS 0-125A
CT
CTR-100/5A
VA-10,CL-1
ASS 0-100A
CT
CTR-800/5A
VA-10,CL-1
ASS 0-800A
CT
CTR-600/5A
VA-10,CL-1
ASS 0-600A
1 X 3.5C X 240 sq mm,AL
DIST. BOARD
25 MTS.
50 MTS.
F1
F2
F3
F4
F5
F6
F7
F8
F9
F10
F11
100 KVA
157 KVA
70 KVA
13 KVA
SPARE
DIAG_FF
2 X 3.5C X 240 sq mm,AL
To LTP#10


2 X 3.5C X 240 sq mm,AL
2 X 3.5C X 240 sq.mm,AL
CT
CTR-600/5A
VA-15,CL-5P10
CT
CTR-600/5A
VA-10,CL-1
PT
PTR-415/110V
VA-50,CL-3
51 51N
A TU 4-20 mA for SCADA
ASS
0-600A
V TU
F/4A
VSS
0-500V
27
800A,EDO,ACB
50 kA,4P
ON OFF
TRIP
800A,TPN COPPER BUS BAR (MAIN)
FAULT LEVEL : 35 kA
MDB #5 Cryo Hall1
MDB #12 Spare
MDB #13 LN2 Booster
MDB #14 Stabilizer#1
MDB #15 Stabilizer#2
MDB #16 Spare
Spare MDB #17
Air Com_Rm_1 MDB #2
Magnet_Div
Central Cont.
Spare
Empty_No SG
100A, MCCB
35 kA,4P
250A,MCCB
100 A,MCCB
CT
CTR-100/5A
VA-10,CL-1
ASS 0-100A
1 X 3.5C X 35 sq mm,AL
MDB#5
42 MTS.
1 X 3.5C X 120 sq mm,AL
MDB#12
45 MTS.
MDB#13
2 X 3.5C X 50 sq mm,AL
MDB#14
105 MTS.
MDB#15
MDB#16
MDB#17
1 X 3.5C X 25 sq mm,AL
MDB#2
150 MTS.
4 X 1C X 16 sq mm,cu
DIST. BOARD
c/o switch
4X1CX70 sqmm,CU
I/C
O/G
3 X 3.5C X 50 sq mm,AL
Stabilizer#1
Stabilizer#2
MDB #12,13,14
MDB #15,16
L. T. PANEL # X (Tok_Hall E+N Systems)



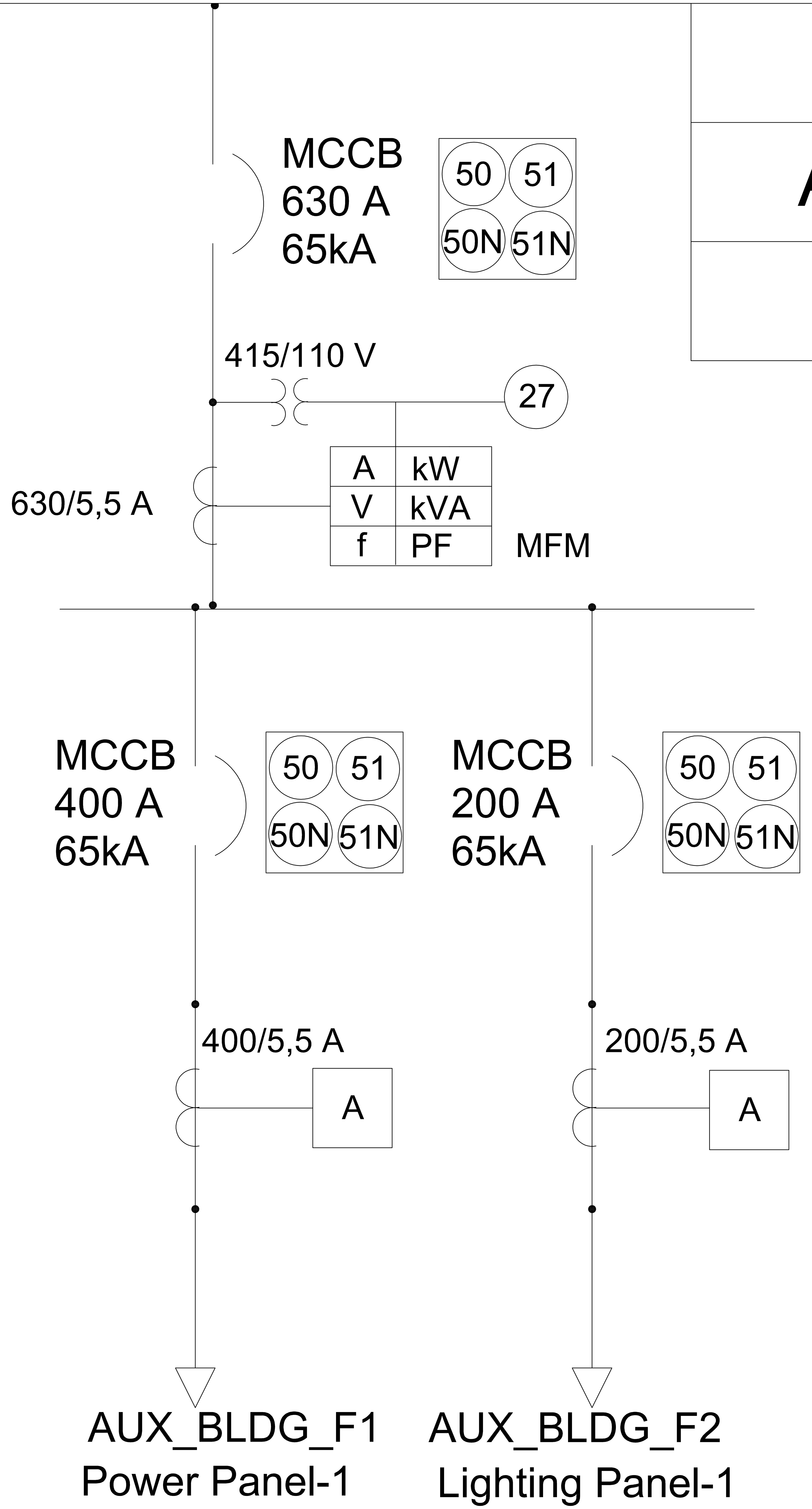
DT#1
2500kVA
11/0.418kV
Z= 7%
DT#2
2500kVA
11/0.418kV
Z= 7%
DT#3
2500kVA
11/0.418kV
Z= 7%
DT#4
2500kVA
11/0.418kV
Z= 7%
BUS-DUCT
LTP#11
4P ACB
4000 A
65kA
415/110 V
27
4000/5,5 A
A kW
V kVA
f PF
MFM
LTP#1 / BUS#1
LTP#1 / BUS#2
LTP#1 / BUS#3
LTP#1 / BUS#4
ACB
800 A
65kA
ACB
1600 A
65kA
ACB
3200 A
65kA
50 51
50N 51N
800/5,5 A
1600/5,5 A
3200/5,5 A
Bus-coupler #1
Bus-coupler #2
Bus-coupler #3
Bus-coupler #4
From Bus-coupler #4
From Bus-coupler #1
From Bus-coupler #2
From Bus-coupler #3
Twin source
INTF Aux
INTF Cryo
ROBIN
LTP#2 I/C
Cryo COMP
Spare
Bldg MDB#1
O/G Feeder
Bldg MDB#2
LTP#2
LTP#2 I/C (LTP#1/Bus2)
ACB
1600 A
65kA
1600/5,5 A
LTP#12
MCCB
250 A
125 A
400 A
63 A
50kA
250/5,5 A
125/5,5 A
400/5,5 A
63/5,5 A
LTP#3 I/C#1
Cryo Misc
RFPS#1
Dummy Load
DB#1
DB#2
DB#3
DB#4
DB#5
DB#6
DB#7
Spare
LTP#13
LTP#3 I/C#1 (From LTP#2/Bus#1)
LTP#3 I/C#1 (From D/G Panel)
4 Pole
MCCB
250 A
50kA
63/5,5 A
250/5,5 A
LTP#3 BUS
4 Pole
MCCB
63 A
50kA
Cryo Pump
DAC PS
EDB#1
EDB#2
EDB#3
Spare

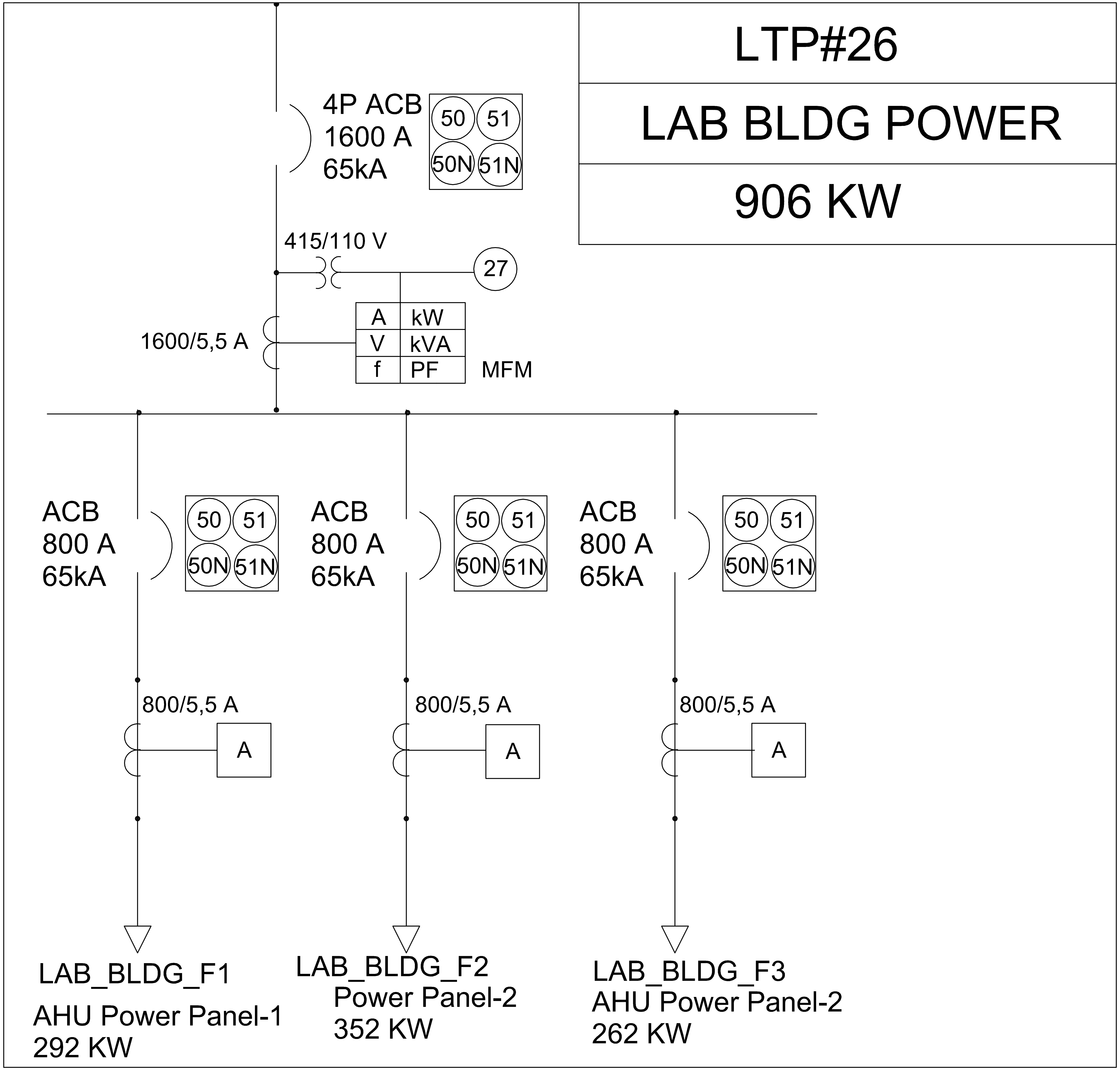
DT#1 (Existing DT#5)
2000kVA
11/0.415kV
Z= 7%
11 Runs, 1000sqmm x 1C
DT#2
2500kVA
11/0.415kV
Z= 7%
BUS-DUCT
LTP#21
4P ACB
4000 A
65kA
50 51 50N 51N
4P ACB
4000 A
65kA
50 51 50N 51N
415/110 V
27
415/110 V
27
4000/5,5 A
A kW V kVA f PF
MFM
4000/5,5 A
A kW V kVA f PF
MFM
LTP#1 / BUS#1
LTP#1 / BUS#2
ACB
3200 A
65kA
ACB
2500 A
65kA
ACB
1600 A
65kA
ACB
800 A
65kA
4P ACB
4000 A
65kA
50 51
ACB
3200 A
65kA
ACB
2500 A
65kA
ACB
1600 A
65kA
ACB
800 A
65kA
4P ACB
4000 A
65kA
50 51
3200/5,5 A
2500/5,5 A
1600/5,5 A
800/5,5 A
3200/5,5 A
2500/5,5 A
1600/5,5 A
800/5,5 A
A
From Bus-coupler #2
Bus-coupler #1
From Bus-coupler #1
Bus-coupler #2
HVAC
BUS-DUCT
2000 KW
WCS PLANT I/C#1
AUX BLDG
1400 KW
LTP#27
AUX BLDG POWER
195 KW
LTP#4 (Existing)
WCS
2000KVA
WCS PLANT I/C#2
AUX BLDG
1400 KW
AHU PANEL#1
LAB BLDG
292 KW

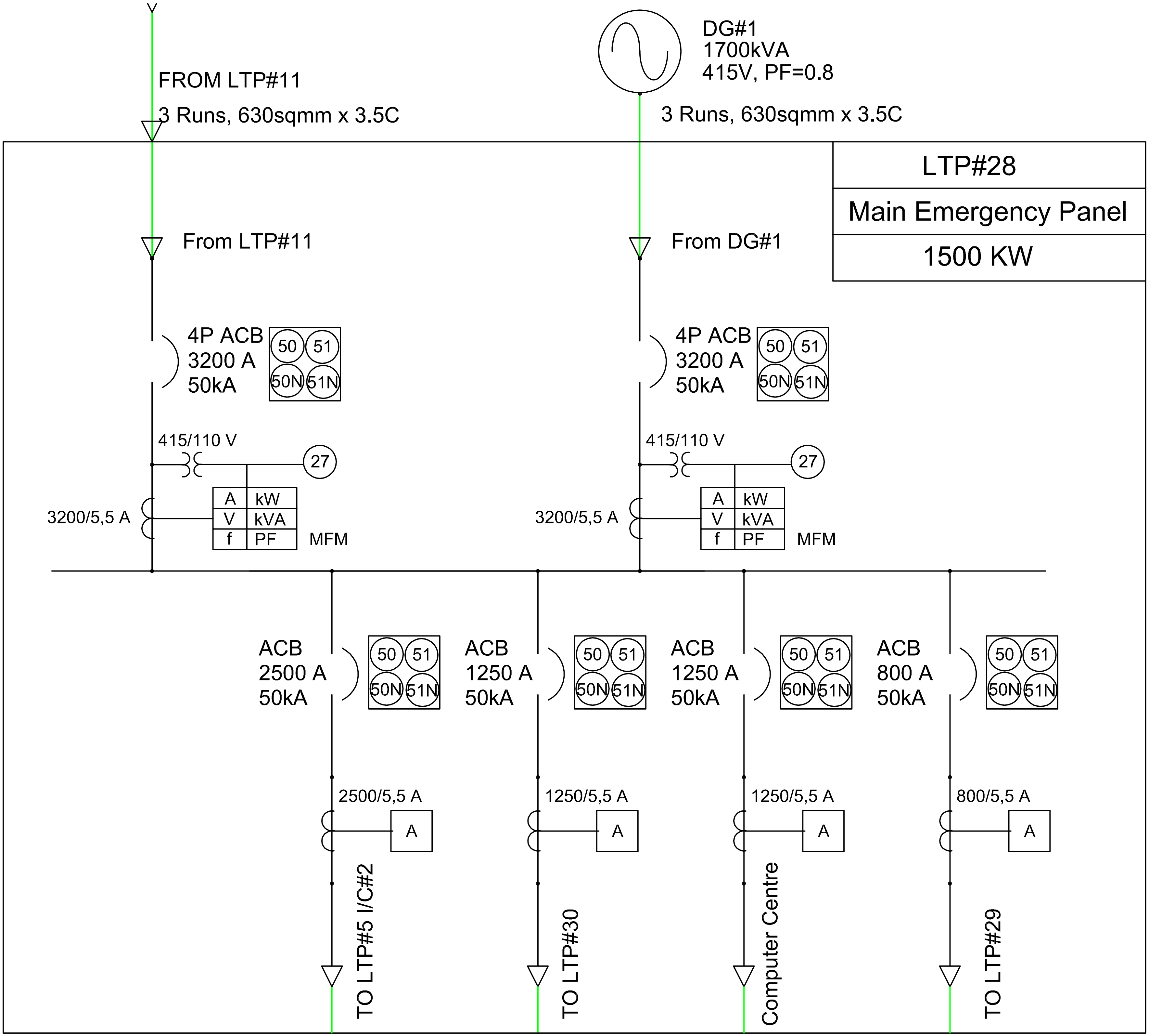
LTP#25

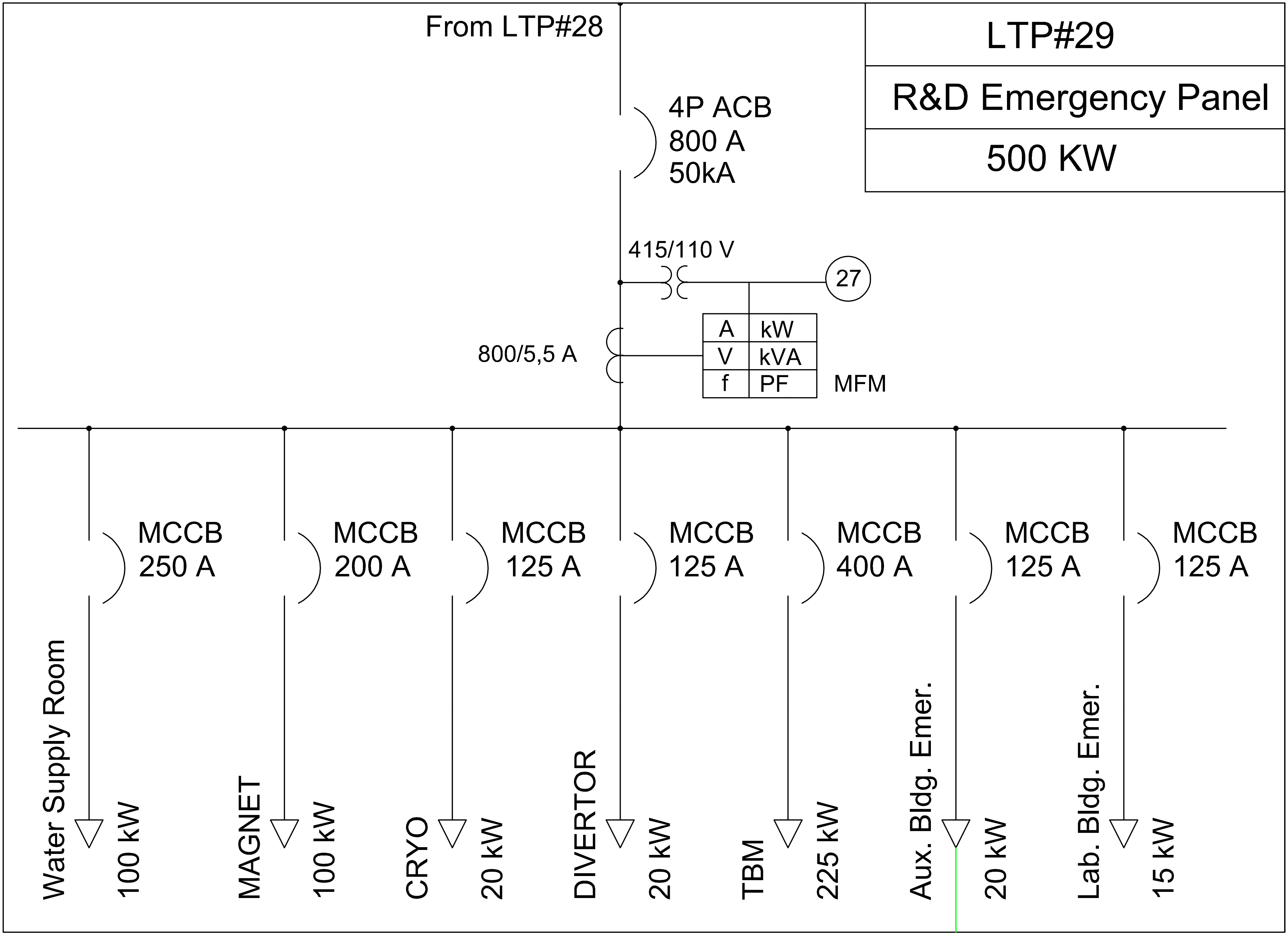
AUX BLDG POWER

195 KW

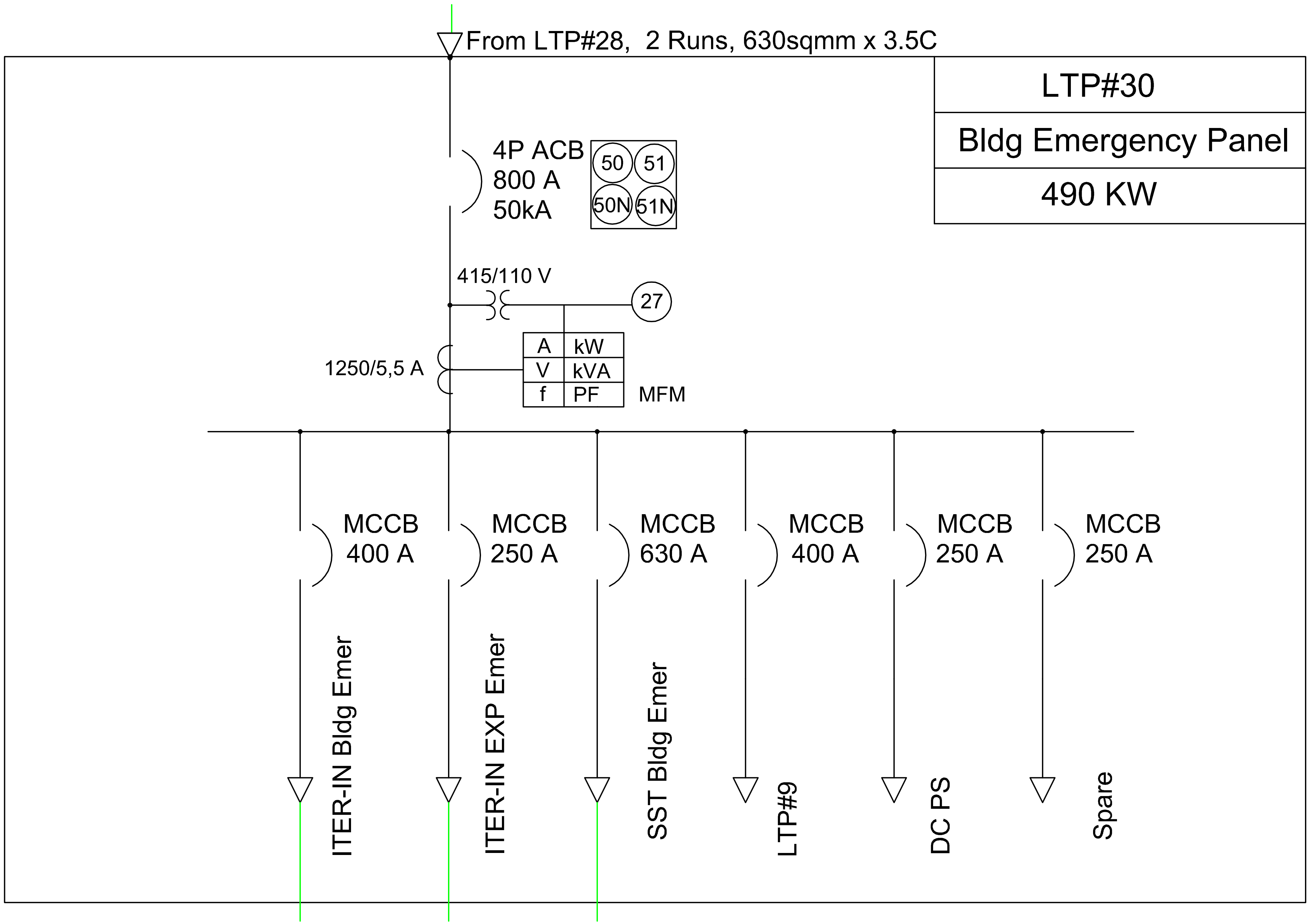


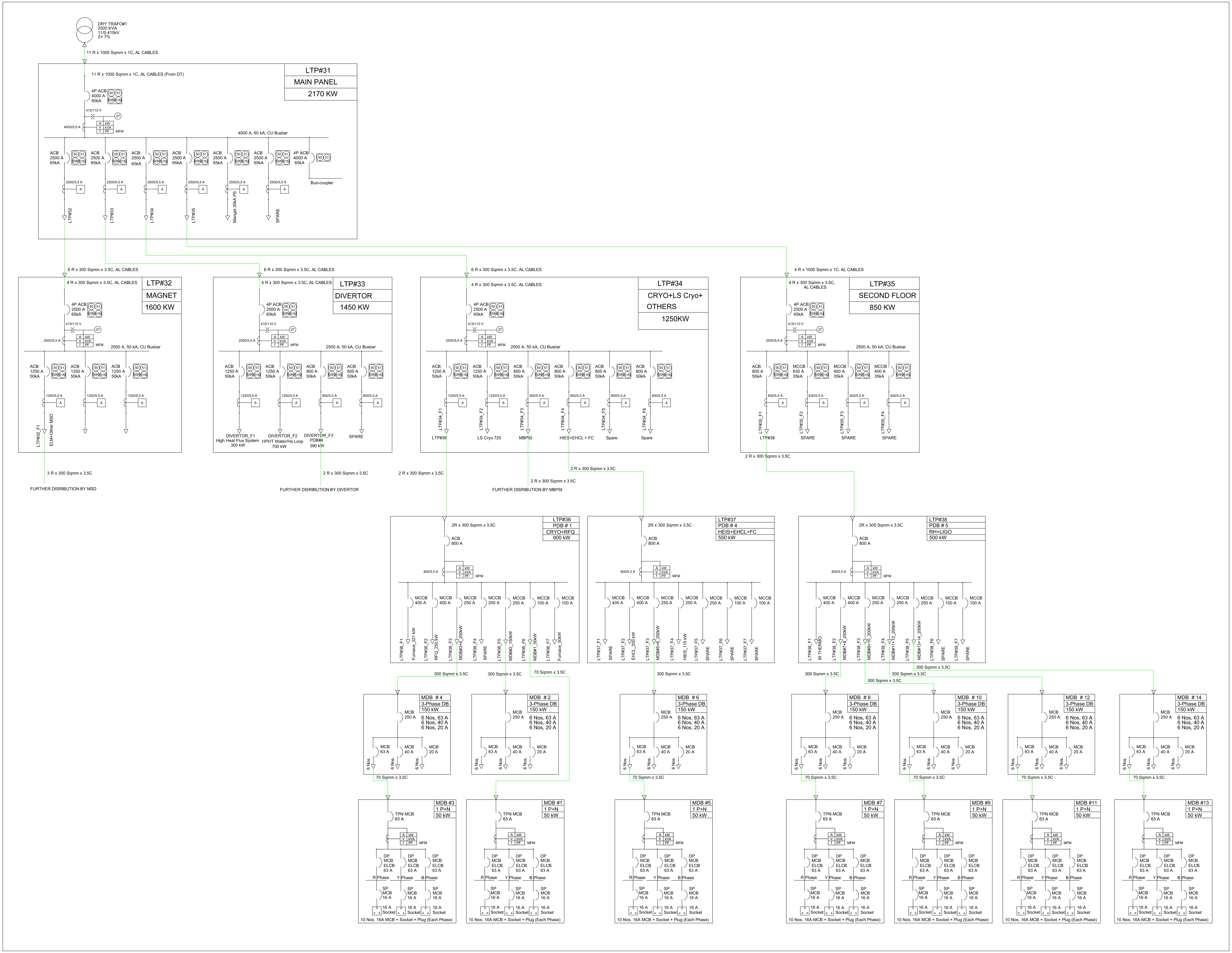

LTP#26
LAB BLDG POWER
906 KW
4P ACB
1600 A
65kA
50
51
50N
51N
415/110 V
27
1600/5,5 A
A
kW
V
kVA
f
PF
MFM
ACB
800 A
65kA
50
51
50N
51N
ACB
800 A
65kA
50
51
50N
51N
ACB
800 A
65kA
50
51
50N
51N
800/5,5 A
A
800/5,5 A
A
800/5,5 A
A
LAB_BLDG_F1
AHU Power Panel-1
292 KW
LAB_BLDG_F2
Power Panel-2
352 KW
LAB_BLDG_F3
AHU Power Panel-2
262 KW


FROM LTP#11
3 Runs, 630sqmm x 3.5C
DG#1
1700kVA
415V, PF=0.8
3 Runs, 630sqmm x 3.5C
LTP#28
Main Emergency Panel
1500 KW
From LTP#11
From DG#1
4P ACB
3200 A
50kA
50 51 50N 51N
4P ACB
3200 A
50kA
50 51 50N 51N
415/110 V
27
415/110 V
27
3200/5,5 A
A kW V kVA f PF
MFM
3200/5,5 A
A kW V kVA f PF
MFM
ACB
2500 A
50kA
50 51 50N 51N
ACB
1250 A
50kA
50 51 50N 51N
ACB
1250 A
50kA
50 51 50N 51N
ACB
800 A
50kA
50 51 50N 51N
2500/5,5 A
A
1250/5,5 A
A
1250/5,5 A
A
800/5,5 A
A
TO LTP#5 I/C#2
TO LTP#30
Computer Centre
TO LTP#29



LTP#29
R&D Emergency Panel
500 KW
From LTP#28
4P ACB
800 A
50kA
415/110 V
27
800/5,5 A
A
kW
V
kVA
f
PF
MFM
MCCB
250 A
MCCB
200 A
MCCB
125 A
MCCB
125 A
MCCB
400 A
MCCB
125 A
MCCB
125 A
Water Supply Room
100 kW
MAGNET
100 kW
CRYO
20 kW
DIVERTOR
20 kW
TBM
225 kW
Aux. Bldg. Emer.
20 kW
Lab. Bldg. Emer.
15 kW


From LTP#28, 2 Runs, 630sqmm x 3.5C
LTP#30
Bldg Emergency Panel
490 KW
4P ACB
800 A
50kA
50
51
50N
51N
415/110 V
27
1250/5,5 A
A
kW
V
kVA
f
PF
MFM
MCCB
400 A
MCCB
250 A
MCCB
630 A
MCCB
400 A
MCCB
250 A
MCCB
250 A
ITER-IN Bldg Emer
ITER-IN EXP Emer
SST Bldg Emer
LTP#9
DC PS
Spare



DRY TRAFO#1
2500 KVA
11/0.415kV
Z= 7%
11 R x 1000 Sqmm x 1C, AL CABLES
LTP#31
MAIN PANEL
2170 KW
11 R x 1000 Sqmm x 1C, AL CABLES (From DT)
4P ACB
4000 A
65kA
415/110 V
4000/5,5 A
MFM
4000 A, 65 kA, CU Busbar
ACB
2500 A
65kA
4P ACB
4000 A
65kA
Bus-coupler
LTP#32
LTP#33
LTP#34
LTP#35
Manget 30kA PS
SPARE
6 R x 300 Sqmm x 3.5C, AL CABLES
4 R x 1000 Sqmm x 1C, AL CABLES
LTP#32
MAGNET
1600 KW
4 R x 300 Sqmm x 3.5C, AL CABLES
2500 A, 50 kA, CU Busbar
ACB
1250 A
50kA
LTP#32_F1
ELM+Other MSD
3 R x 300 Sqmm x 3.5C
FURTHER DISRIBUTION BY MSD
LTP#33
DIVERTOR
1450 KW
DIVERTOR_F1
High Heat Flux System
300 kW
DIVERTOR_F2
HPHT Water/He Loop
700 kW
DIVERTOR_F3
PDB#4
390 kW
SPARE
2 R x 300 Sqmm x 3.5C
FURTHER DISRIBUTION BY DIVERTOR
LTP#34
CRYO+LS Cryo+
OTHERS
1250KW
LTP#34_F1
LTP#34_F2
LTP#34_F3
LTP#34_F4
LTP#34_F5
LTP#34_F6
LTP#36
LS Cryo 725
MBPSI
HIES+EHCL + FC
Spare
2 R x 300 Sqmm x 3.5C
FURTHER DISRIBUTION BY MBPSI
LTP#35
SECOND FLOOR
850 KW
4 R x 300 Sqmm x 3.5C,
AL CABLES
MCCB
630 A
35kA
400 A
LTP#35_F1
LTP#35_F2
LTP#35_F3
LTP#35_F4
LTP#38
SPARE
LTP#36
PDB # 1
CRYO+RFQ
900 kW
2R x 300 Sqmm x 3.5C
ACB
800 A
800/5,5 A
LTP#36_F1
Furnace_221 kW
LTP#36_F2
RFQ_250 kW
LTP#36_F3
MDB#3+4_200kW
LTP#36_F4
SPARE
LTP#36_F5
MDB#2_150kW
LTP#36_F6
MDB#1_50kW
LTP#36_F7
Furnace_50kW
LTP#37
PDB # 4
HEIS+EHCL+FC
550 kW
LTP#37_F1
SPARE
LTP#37_F2
EHCL_200 kW
LTP#37_F3
MDB#5+6_200kW
LTP#37_F4
HIES_115 kW
LTP#37_F5
SPARE
LTP#37_F6
SPARE
LTP#37_F7
SPARE
LTP#38
PDB # 5
RH+LIGO
500 kW
LTP#38_F1
IR THERMO
LTP#38_F2
MDB#7+8_200kW
LTP#38_F3
MDB#9+10_200kW
LTP#38_F4
MDB#11+12_200kW
LTP#38_F5
MDB#13+14_200kW
LTP#38_F6
SPARE
LTP#39_F7
SPARE
300 Sqmm x 3.5C
70 Sqmm x 3.5C
MDB # 4
MDB # 2
MDB # 6
MDB # 8
MDB # 10
MDB # 12
MDB # 14
3-Phase DB
150 kW
MCB
250 A
6 Nos, 63 A
6 Nos, 40 A
6 Nos, 20 A
MCB
63 A
40 A
20 A
6 Nos.
MDB #3
MDB #1
MDB #5
MDB #7
MDB #9
MDB #11
MDB #13
1 P+N
50 kW
TPN MCB
63 A
DP
MCB
ELCB
63 A
R Phase
Y Phase
B Phase
SP
MCB
16 A
Socket
10 Nos. 16A MCB + Socket + Plug (Each Phase)