

<u>DESIGN DETAILS</u>			
1.0	General		
1.1	Type Designation	Siemens Make 3AP2 FI	
1.2	Governing Standard	IEC 62271-100	
2.0	Technical Data		
Drawing approval subject to valid vendor registration			
2.1	System Parameters		
.1	Rated Voltage	kV	420 kV
.2	Frequency	Hz.	50
.3	No. of Poles		Three
.4	Ambient Temperature Range	°C	-30 to +55
3.0	Operating Data		
3.1	Type of Operating Mechanism	Spring Energy Stored	
3.2	Mechanism is electrically gang operated	Yes	
3.3	Operating Data		
.1	Rated Closing/Making Time	mSec.	70+/-10
.2	Rated Breaking Time	mSec.	40(For test duties 2,3&4)
.3	Total break time	mSec.	45
.4	Rated Opening Time	mSec.	22+/-3
.5	Rated Arcing Time	mSec.	≤25
3.4	Switching Data		
.1	Rated normal current	A	4000
.2	Rated short circuit breaking current	kA	63
.3	Rated short time current	kA	63, (3sec.)
.4	Rated short circuit making current	kAp	157.5
.5	First pole to clear factor		1.3
.6	Out-of-phase breaking current	kA	15.75
.7	Rated line charging breaking current	A	600
.8	Rated cable charging breaking current	A	400
3.5	Rated operating sequence	O – 0.3sec – CO – 3min – CO	
4.0	Basic Insulation Level		
4.1	Rated power frequency withstands voltage (1min, 50 Hz)		
.1	Phase to earth	kV	520
.2	Across the open breaker	kV	610
.3	Between phases	KV	520
4.2	Rated lightning impulse withstand voltage (1.2 / 50 micro sec.)		
.1	To earth	kVp	1425

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CLIENT: Transmission Corporation of Andhra Pradesh Limited CONTRACTOR: As Applicable PROJECT: As Applicable PO.NO.: As Applicable				Sales Ref.:	Qty:
			Date:19.02.2024	Description: - 420kV, 63kA, 4000A, SF6 CB Type: - 3AP2FI Details: - DESIGN INSTRUCTIONS	Sh No. 1 No. of Sh
			Prepared: MSR		
			Checked: SB		
			Siemens Ltd. Office		
Issue	Remarks	Date	Name		
Original/Replacement for/ Replaced by: -				(4)G71AHS-OA404-D0696	3

Ground clearance of 8000 mm shall be maintained during erection. Plinth height of 300 mm shall be maintained

.2	Across the open breaker	kVp	1425 (+240)	
.3	Between phases	kVp	1425	
4.3	Rated switching surge withstand voltage (250 / 2500 micro sec.)			Drawing approval subject to valid vendor registration
.1	To earth	kVp	1050	
.2	Across the open breaker	kVp	900 (+350)	
.3	Between phases	kVp	1050	
4.4	Creepage distance			
.1	Support	mm	13020(31 mm/kV)	
.2	Chamber	mm	13020(31 mm/kV)	
5.0	Construction			
5.1	Clearance			
.1	To earth	mm	Min 3660	
.2	Phase to phase	mm	6525	
.3	Pole to pole center distance	mm	7000	
5.2	Arc quenching Medium			
.1	Nominal pressure SF6 (@20°C)	bar	6.0 rel.	
.2	Signal loss of SF6 (@20°C)	bar	5.2 rel.	
.3	General lockout (@20°C)	bar	5.0 rel.	
.4	Quantity of SF6 gas required per pole of breaker.	Kg	13	
.5	Breaker Poles (3nos.) will be prefilled. with transport pressure of SF6 gas.	Bar	0.5	
.6	Gas being supplied per breaker	kg	39	
5.3	Installation		Outdoor	
5.4	Weight of breaker without structure	kg	4400 approx.	
6.0	Structures			Chief Engineer Projects
6.1	Material		Mild Steel	
6.2	Surface Treatment		Hot Dip Galvanized (Avg 120 micron)	
7.0	Base Frame			
7.1	Material		Mild Steel	
7.2	Surface Treatment		Hot Dip Galvanized (Avg 120 micron)	

Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings, the EPC contractors shall be instructed to supply the same in line with CT/IVT/CVT requirement and compatibility.

CLIENT: Transmission Corporation of Andhra Pradesh Limited CONTRACTOR: As Applicable PROJECT: As Applicable PO.NO.: As Applicable				Sales Ref.:	Qty:
			Date:19.02.2024	Description: - 420kV, 63kA, 4000A, SF6 CB Type: - 3AP2FI Details: - DESIGN INSTRUCTIONS	Sh No.
			Prepared: MSR		2
			Checked: SB		
			Siemens Ltd. Office		No. of Sh
Issue	Remarks	Date	Name		
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8.0	Control Cubicle		
8.1	Construction		
.1	Material of enclosure		CR Sheet Steel
.2	Thickness of sheet steel	mm	2.5
.3	Painting for control cubicle		Epoxy Paint
.4	Internal / External shade		631 IS:5
.5	Degree of protection of enclosure		IP 55
.6	Padlocking facility for cubicle		Provided
.7	Glass window to see spring status.		Provided on control cubicle.
.8	No. of trip coil per pole	Nos.	2
.9	No. of Auxiliary contact		10NO+10NC & 1 Wipe Contact
8.2	Wiring		
.1	Control wiring		
.1	Control Cabinet wire		2.5 sq. mm, flexible copper conductor
.2	Interpole cable		2.5 sq. mm, Armoured
.3	Insulation		Grey - DC & Black – AC, 1100V Grade
.2	Earth Wiring		
.1	Size		2.5 sq. mm, flexible copper conductor
.2	Insulation		Yellow Green 1100V Grade
8.3	Control Terminals	Chief Engineer Projects	
.1	Type		Stud type
.2	Make		Connectwell / Elmex /Equivalent
.3	Size	mm ²	4.0
.4	Spare unwired terminal	Nos.	10

Circuit	Rated Voltage	Source	Range	Remarks
Spring Charging Motor(500W)	240V AC	External	85 – 110%	
Closing Coil (330W)	220V DC	External	85 – 110%	
Trip Coil – 1 & 2 (1300W)	220V DC	External	70 – 115%	Two separate sources
Space Heater / Socket / Illumination	240V AC	External	--	

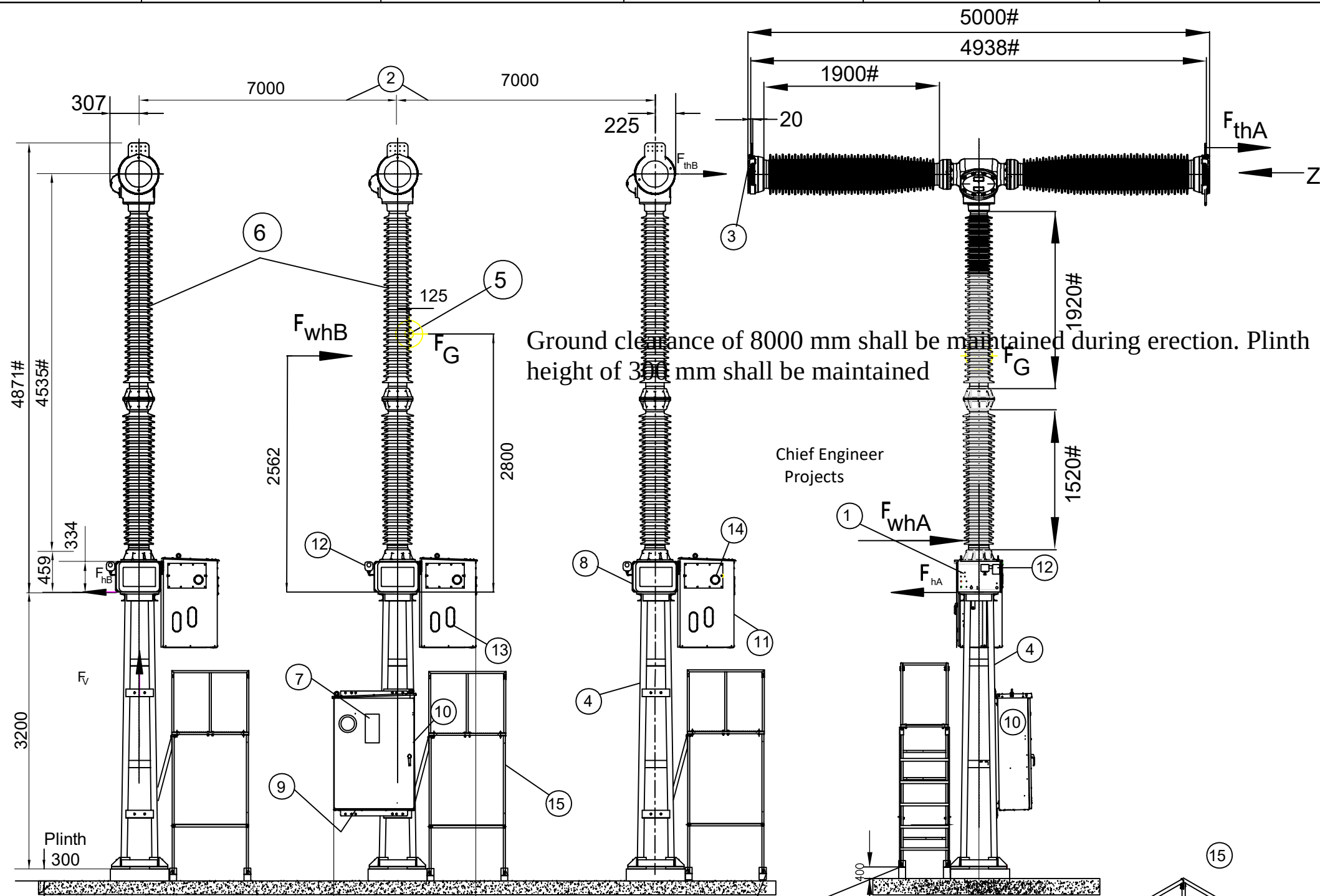
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Ground clearance of 8000 mm shall be maintained during erection. Plinth height of 300 mm shall be maintained

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Bill of Materials :-

1. Pole - 3 nos.
2. Spring Operating Mechanism+baseframe- 3 nos.
3. Marshalling Box - 1 nos.
4. Interpole cable - 2.5 sq. mm Armoured.
5. Shield cover - 6 Nos.

Legends :-

1. Holes for earthing terminals
2. Pole to pole distance
3. Aluminum Terminal pad (#thickness 20mm)
4. Support structure
5. Center of Gravity
6. Insulator creepage: 31 mm/kv*.
7. Rating plate
8. Baseframe
9. Gland plate location at bottom of panel.
10. Marshalling Box
11. Operating Mechanism Box
12. SF6 GAS Pressure gauge
13. Spring Charging Indication Window
14. CB Mechanical "on/off" indication (Close/Open)
15. Platform.

Note:

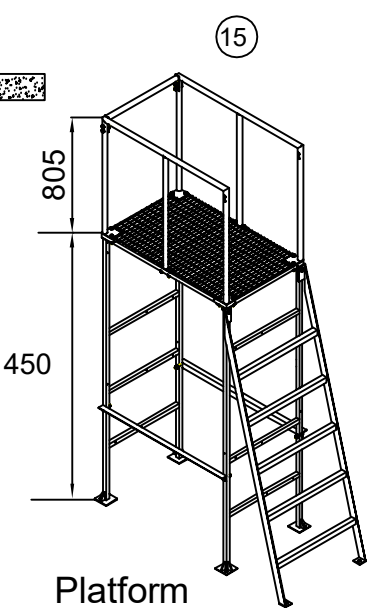
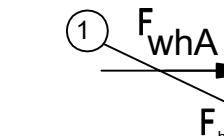
- Mass of CB (without structure) = 4400 kg approx.
- Mass of heaviest part of breaker = 1400 kg approx.
- Mass of SF6 gas per CB = 39 kg approx.
- Rated pressure of SF6 gas at 20°C= 6 bar (gauge)

Loads per pole					
F_G	F_{WhA}	F_{WhB}	F_{hA}	F_{hB}	F_V
Weight Loads	Wind Loads, at a Wind speed of 34m/s		Operating Loads Horizontal		Operating Loads Vertical
15.5 kN	2.0 kN	2.4 kN	0 kN	±6.3 kN	+19.2 kN(pull) -26.2 kN(push)

- Minor deviations from the dimensions and the data stated are permissible.
- Earth Terminals M12, DIN 46 011 and NEMA.
- '#' marked are standard design dimensions which cannot be changed
- Inspection to be witness by customer @ 10 % of the offer lot

Ground clearance of 8000 mm shall be maintained during erection. Plinth height of 300 mm shall be maintained

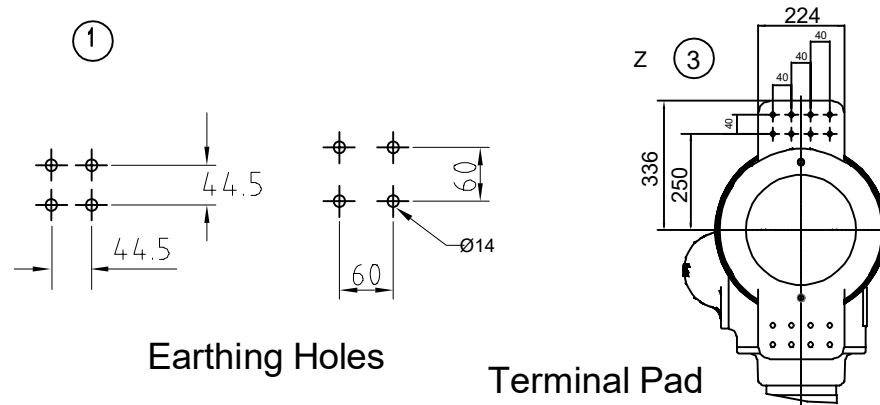
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50mm Platform leg to be grout in civil work.

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Earthing Holes

Terminal Pad

Platform

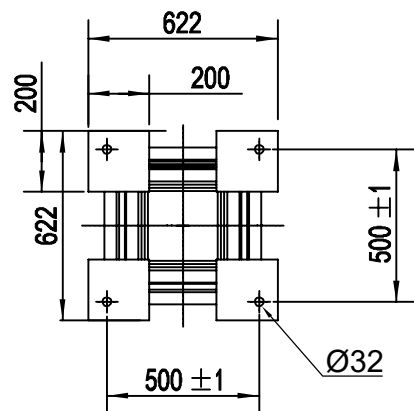
Date	19.02.2024	CLIENT: Transmission Corporation of Andhra Pradesh Limited	Siemens Ltd.	Descr : 420kV, 63kA, 4000A-SF6-CB	SO No :	Qty:	1HG-594-03542-001
Prep	MSR	CONTRACTOR: As Applicable					
Ckd.	SB	PROJECT: As Applicable		Details : GENERAL ARRANGEMENT			
Issue	Remarks	Date	Name	Norm.	Original / Replacement for /Replaced by :-		Drg. No:- (3)G71AHS-OA404-Z0696

HO/FSD-Coord/9E 03-90

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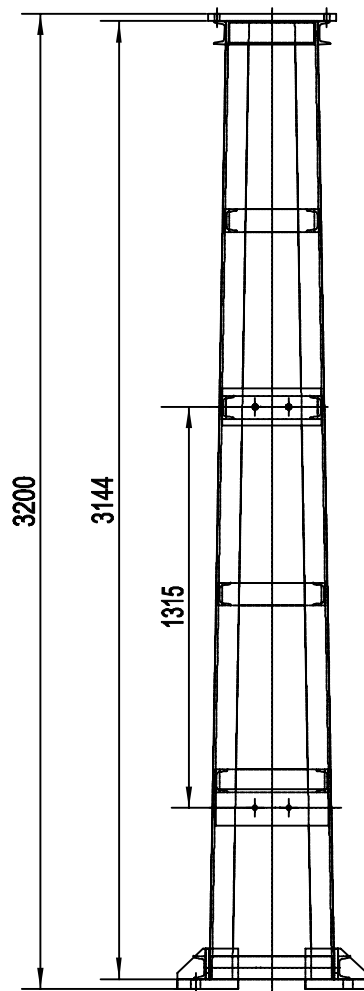
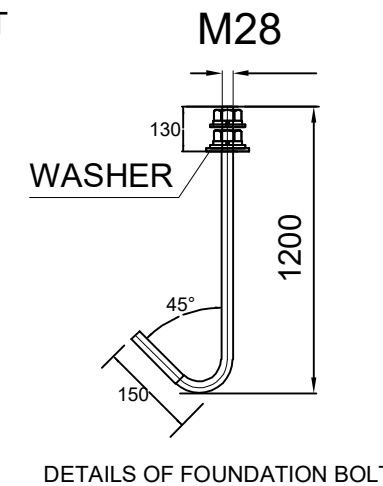
Version 001



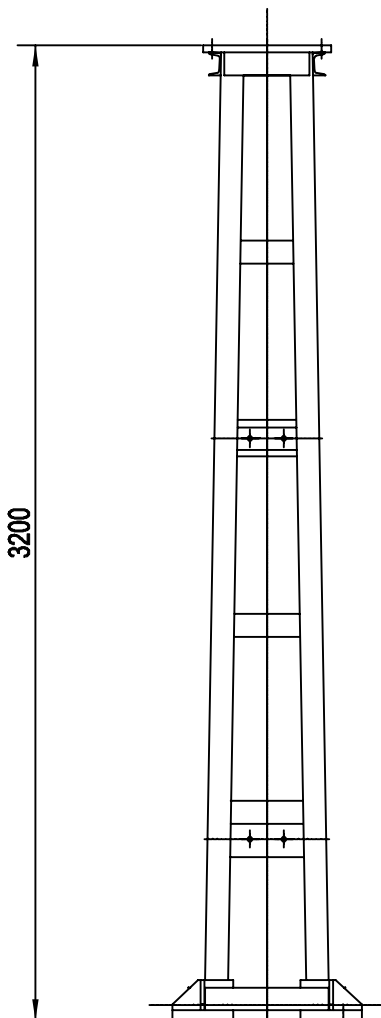
Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings, the EPC contractors shall be instructed to supply the same in line with CT/IVT/CVT requirement and compatibility.

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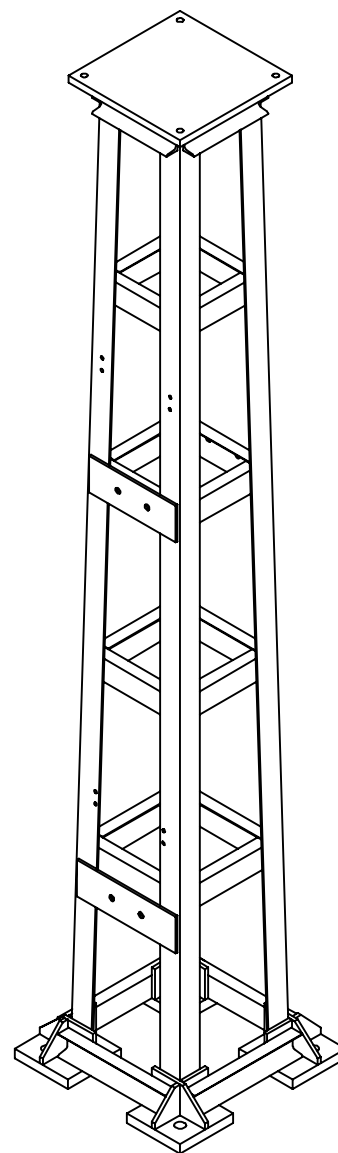
For EPC Contracts Only



Front View

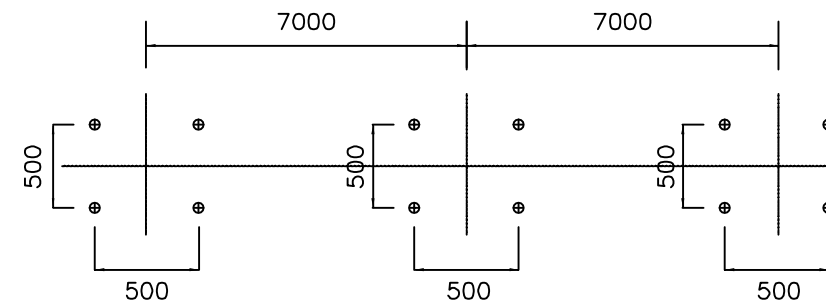


Side View

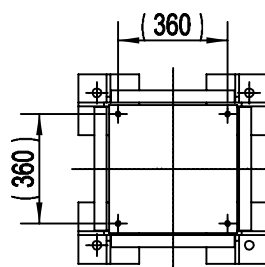


3D View

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FOUNDATION PLAN FOR 420KV CB



Drawing approval subject to valid vendor registration

Remarks:

- 1) All dimensions are in mm.
- 2) All structural steel shall conform to IS:2062
- 3) Hot dip galvanizing acc. to ISO 1461 (thickness 120µm average)

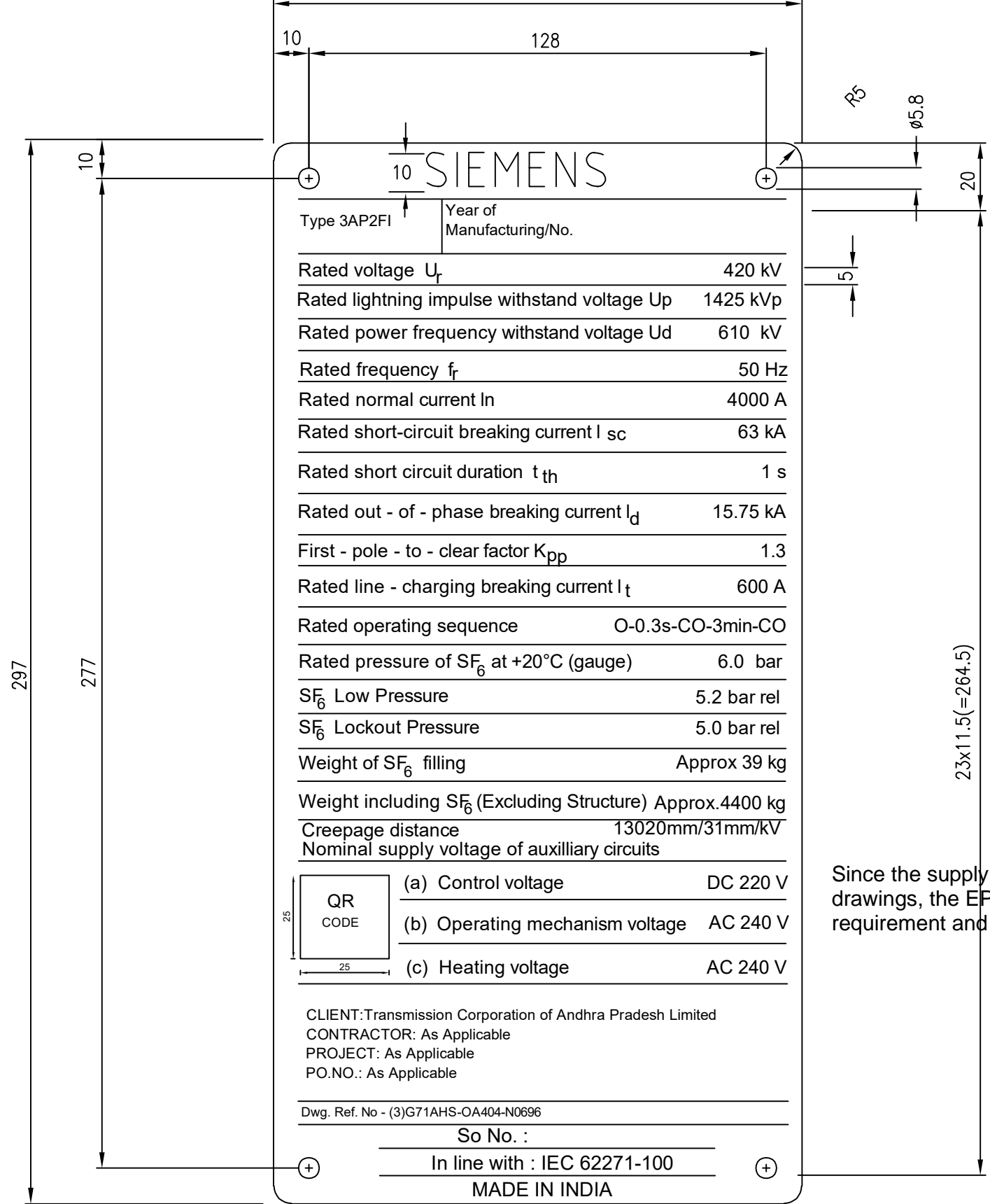
HO/ESD-Coord/9E 03-90

Date	19.02.2024	CLIENT: Transmission Corporation of Andhra Pradesh Limited	Siemens Ltd.	Descr : 420kV, 63kA, 4000A-SF6-CB	SO No :	Qty:	2HG 594-01323-001
Prep	MSR	CONTRACTOR: As Applicable	AURANGABAD	Type : 3AP2FI			
Ckd.	SB	PROJECT: As Applicable		Details : SUPPORT STRUCTURE	Drg. No:- (3)G71AHS-OA404-Z0696		Sh. 2
Issue	Remarks	Date	Name	Norm.	Original / Replacement for /Replaced by :-		2 Sh.

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Type 3AP2FI		Year of Manufacturing/No.	
Rated voltage U_r	420 kV		
Rated lightning impulse withstand voltage U_p	1425 kVp		
Rated power frequency withstand voltage U_d	610 kV		
Rated frequency f_r	50 Hz		
Rated normal current I_n	4000 A		
Rated short-circuit breaking current I_{sc}	63 kA		
Rated short circuit duration t_{th}	1 s		
Rated out - of - phase breaking current I_d	15.75 kA		
First - pole - to - clear factor K_{pp}	1.3		
Rated line - charging breaking current I_t	600 A		
Rated operating sequence	O-0.3s-CO-3min-CO		
Rated pressure of SF ₆ at +20°C (gauge)	6.0 bar		
SF ₆ Low Pressure	5.2 bar rel		
SF ₆ Lockout Pressure	5.0 bar rel		
Weight of SF ₆ filling	Approx 39 kg		
Weight including SF ₆ (Excluding Structure)	Approx.4400 kg		
Creepage distance	13020mm/31mm/kV		
Nominal supply voltage of auxilliary circuits			
QR CODE	(a) Control voltage	DC 220 V	
	(b) Operating mechanism voltage	AC 240 V	
	(c) Heating voltage	AC 240 V	
CLIENT: Transmission Corporation of Andhra Pradesh Limited			
CONTRACTOR: As Applicable			
PROJECT: As Applicable			
PO.NO.: As Applicable			
Dwg. Ref. No - (3)G71AHS-OA404-N0696			
So No. :			
In line with : IEC 62271-100			
MADE IN INDIA			

Pole A

Client: M/s. Transmission Corporation of Andhra Pradesh Limited

Sr No -

Pole B

Client: M/s. Transmission Corporation of Andhra Pradesh Limited

Sr No -

Pole C

Client: M/s. Transmission Corporation of Andhra Pradesh Limited

Sr No -

Rating Plate on respective operating mechanism

Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings, the EPC contractors shall be instructed to supply the same in line with CT/IVT/CVT requirement and compatibility.

Drawing approval subject to valid vendor registration

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NOTE :- NAME PLATE MADE UP OF ALUMINIUM COMPOSITE
LETTERS ARE IN WHITE COLOR IN BLACK BACKGROUND

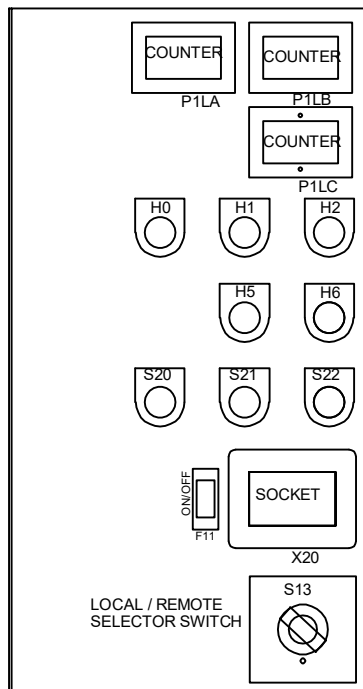
Date	19.02.2024	CLIENT: Transmission Corporation of Andhra Pradesh Limited	Siemens Ltd.	Descr : 420kV,63kA,4000A SF6 CB.	SO No :	Qty:
Prep	MSR	CONTRACTOR: As Applicable	AURANGABAD.	Type : 3AP2FI		
Ckd.	SB	PROJECT: As Applicable		Details : Name Plate	Drg. No:- (3)G71AHS-OA404-N0696	
Issue	Remarks	Date	Name	Norm.	Original / Replacement for /Replaced by :-	Sh. 1 1 Sh.

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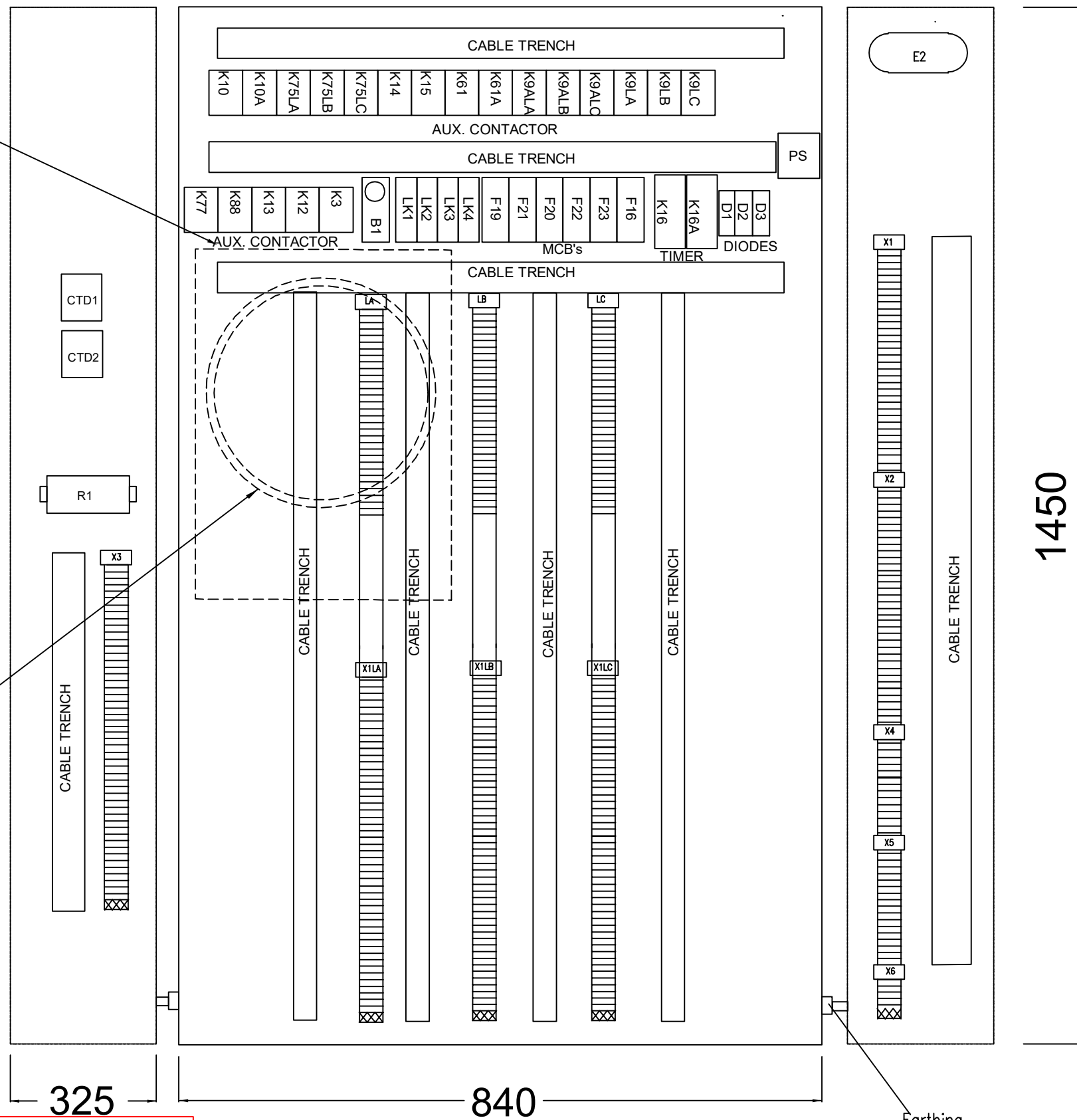
PAGES 2 TO 9 WITH LAMINATED SHALL BE KEPT INSIDE THE MAR.BOX.

MARSHALLING BOX

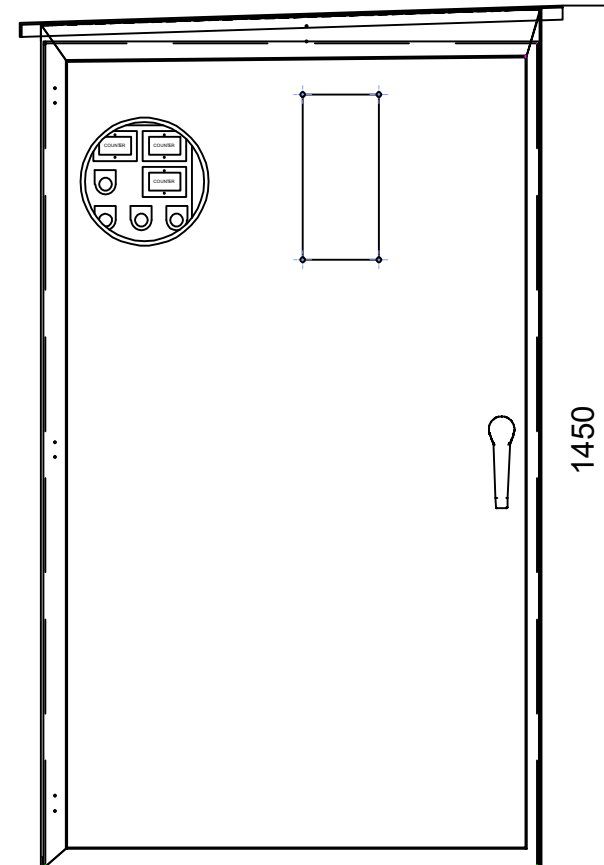
Equipment Mounting Plate



Viewing Window



1450



FRONT VIEW

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***NOTE:**
 1.POSITION OF EQUIPMENTS MAY CHANGE DURING DETAILED ENGINEERING.
 2.Control Terminals are STUD type
 3.Degree of protection - IP55

Drawing approval subject to valid vendor registration

Earthing Terminal

Paint Shade (Interior & Exterior) : 631 IS:5

NO/ISSD-Coord/9E 05-90	Date	19.02.2024	CLIENT: Transmission Corporation of Andhra Pradesh Limited	SIEMENS	Descr : 420kV, 63kA, 4000A-SF6-CB	SO No :	Qty:			
	Prep	MSR	CONTRACTOR: As Applicable					AURANGABAD	Type : 3AP2FI	Drg. No:- (3)G71AHS-OA404-L0696
	Ckd.	SB	PROJECT: As Applicable							
Issue	Remarks	Date	Name	Norm.						

OPERATING MECHANISM COMPARTMENT POLE LA, LB, LC

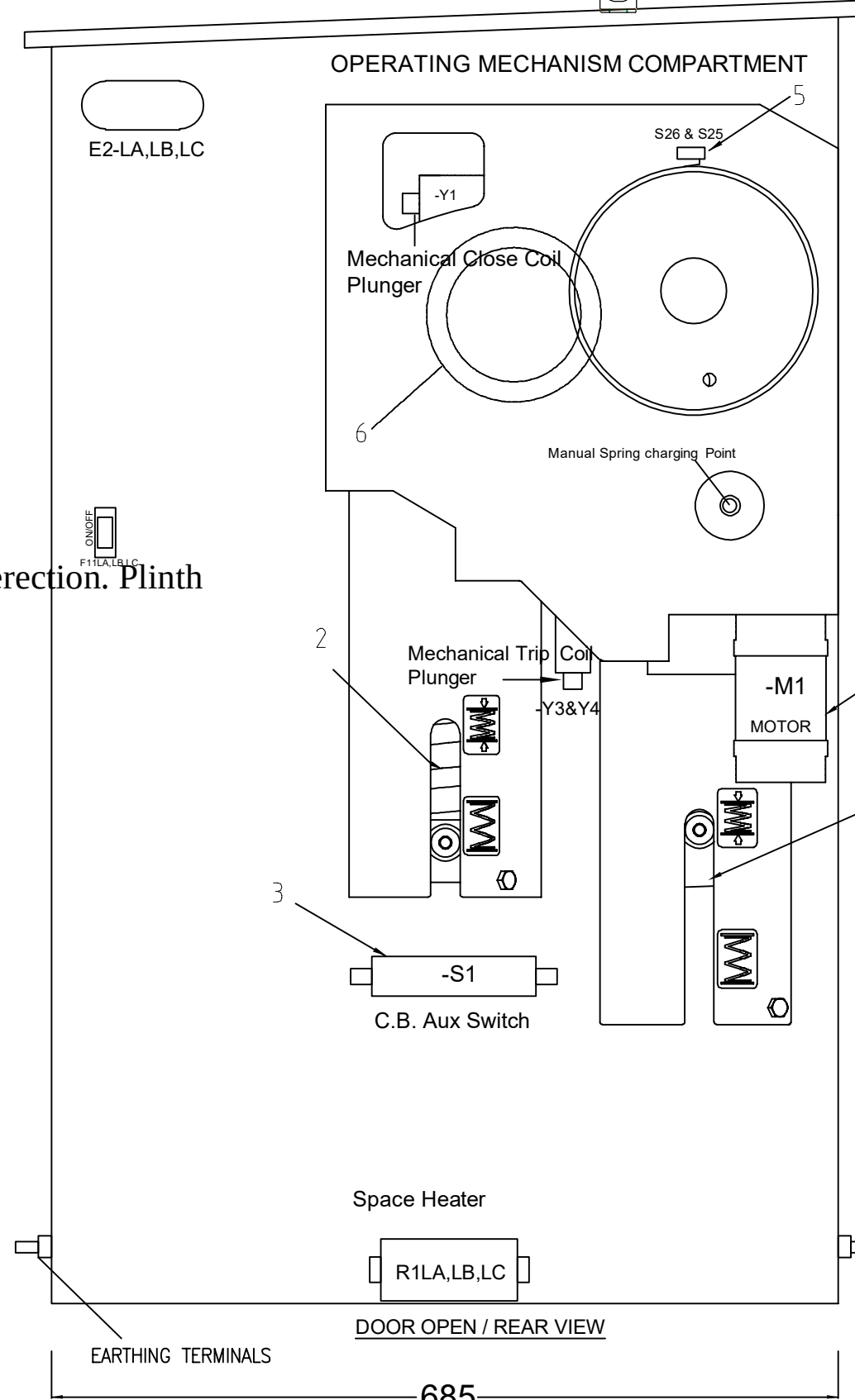
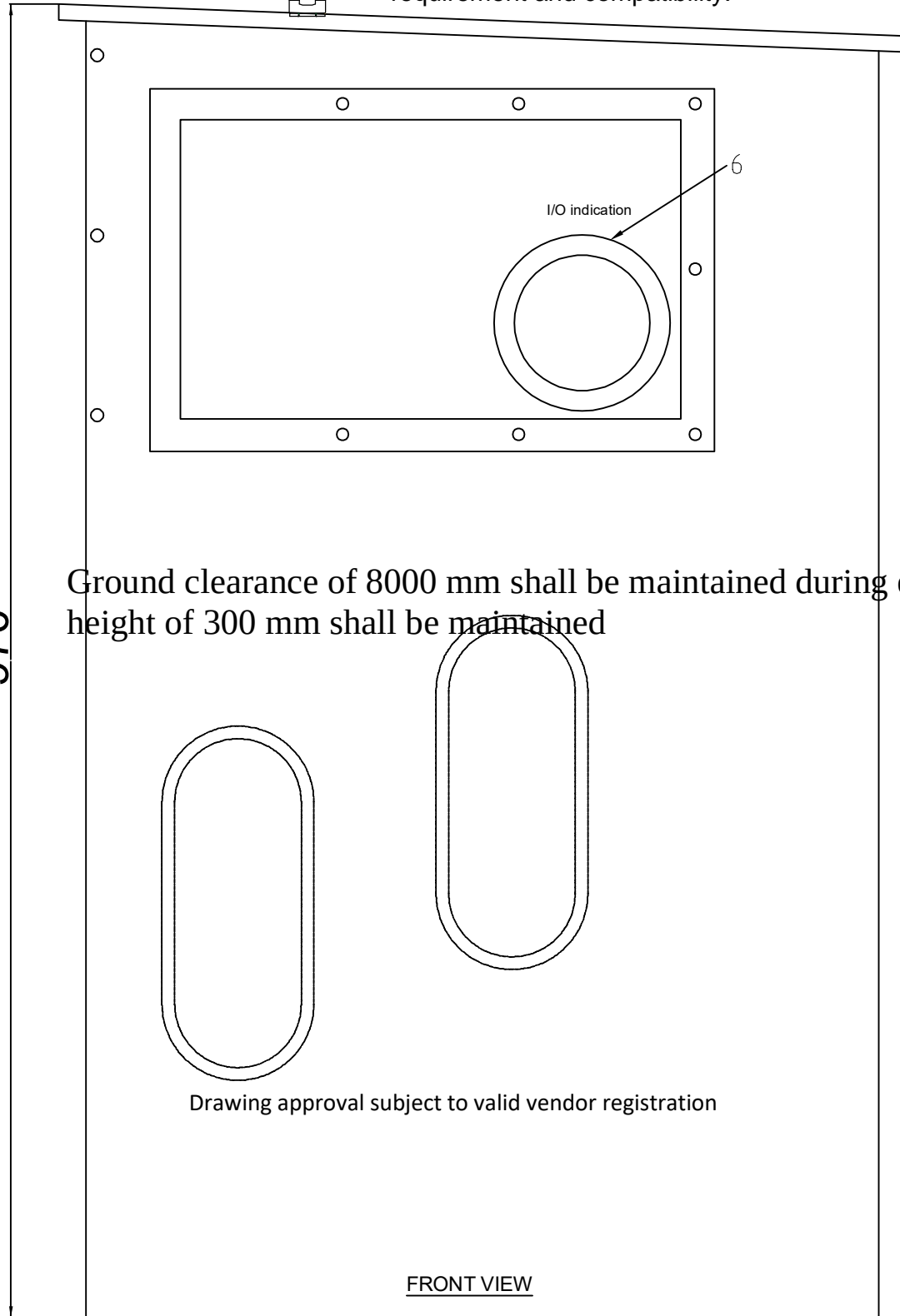
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Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings, the EPC contractors shall be instructed to supply the same in line with CT/IVT/CVT requirement and compatibility.

Lifting Lug

Details of operating mechanism box

1.	Closing Spring
2.	Opening Spring
3.	Circuit breaker auxiliary switch
4.	Spring Charging Motor
5.	Limit Switch for motor
6.	Glass Window- CB ON/OFF



Ground clearance of 8000 mm shall be maintained during erection. Plinth height of 300 mm shall be maintained

970

685

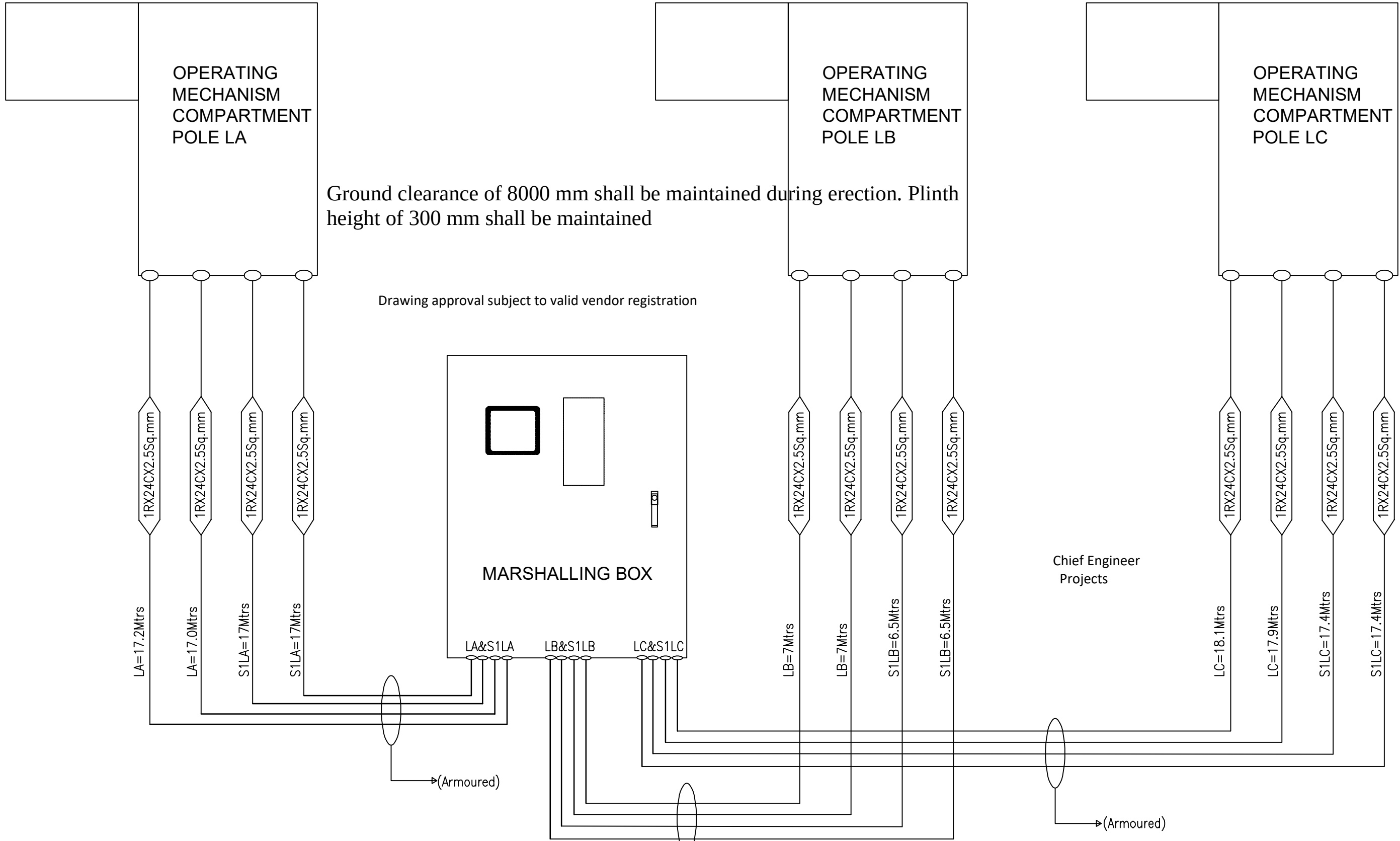
*NOTE:
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 2. Degree of protection - IP55

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Date	19.02.2024	CLIENT: Transmission Corporation of Andhra Pradesh Limited	SIEMENS	Descr :	420kV, 63kA, 4000A-SF6-CB	SO No :	Qty:
Prep	MSR	CONTRACTOR: As Applicable	AURANGABAD	Type :	3AP2FI		
Ckd.	SB	PROJECT: As Applicable		Details :	CONTROL PANEL LAYOUT		
Issue		PO.NO.: As Applicable				Drg. No:- (3)G71AHS-OA404-L0696	Sh. 2
		Original / Replacement for /Replaced by :-					3 Sh.

INTER POLE CABLING LAYOUT

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Legened: 1RX24CX2.5Sq.mm
 ↳ Cores
 ↳ Runs

NOTE: INTERPOLE CONNECTION BETWEEN POLE PANEL TO MARSHALLING BOX TO BE DONE AT SITE & SUPPLY OF INTERPOLE CABLE IS IN SIEMENS SCOPE
 Interpole cable - Armoured, 2.5 sq mm 24 core 4nos for AC/DC current

Date: 19.02.2024		CLIENT: Transmission Corporation of Andhra Pradesh Limited		Siemens Ltd.		Descr : 420kV, 63kA, 4000A-SF6-CB		SO No :		Qty:	
Prep: MSR		CONTRACTOR: As Applicable		AURANGABAD		Type: 3AP2FI					
MSR Ckd. SB		PROJECT: As Applicable				Details: INTERPOLE_CABLE_DETAILS		Drg. No:- (3)G71AHS-OA404-L0696		Sh. 3	
Issue		Date		Original/Replacement For/Replaced by :-						3 Sh.	

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NOTES :-

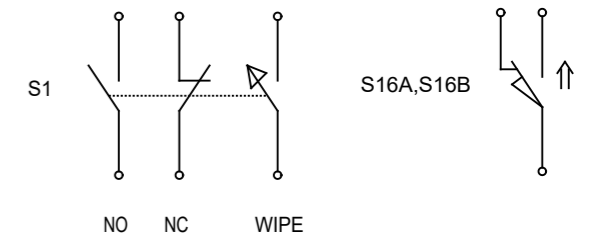
1. ALL AUXILLIARY CONTACTS SHOWN WITH CIRCUIT DE-ENERGISED.
2. ALL CONTACTS OF DENSITY MONITOR SHOWN WITH THE LOW PRESSURE CONDITION.
3. CONTACTS OF LIMIT SWITCH OF SPRING CHARGING MOTOR SHOWN WITH SPRING DISCHARGED.
4. MANUFACTURING TOLERANCE APPLICABLE, EQUIPMENT POSITION MAY CHANGE DURING MANUFACTURING.
5. WIRING IN THE DOTTED LINES INDICATE THE WIRING CIRCUIT INSIDE THE CONTROL CUBICLE (LA,LB,LC)
6. INTERPOLE CONNECTION BETWEEN POLE PANEL TO MARSHALLING BOX TO BE DONE AT SITE & SUPPLY OF INTERPOLE CABLE IS IN SIEMENS SCOPE
7. PAGES 2 TO 9 WITH LAMINATED SHALL BE KEPT INSIDE THE MAR.BOX.

NOTE : DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS.
TO BE CHECKED DURING ACCEPTANCE TESTS.

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PSD NOTES :

1. PSD DEVICE SHALL BE MOUNTED IN CONTROL RELAY PANEL.
2. PSD BYPASS EQUIPMENT (K0,K1&S14) SHALL BE SUPPLIED BY RESPECTIVE EPC CONTRACTOR .(NOT IN SIEMENS SCOPE)
3. PSD BYPASS SWITCH SHALL BE MOUNTED AND WIRED UP IN CRP.
4. TWISTED PAIR SHIELDED CABLE (1000 mt PER CIRCUIT BREAKER) FOR REFERENCE CONTACT AND TEMPERATURE TRANSDUCER SHALL BE SUPPLIED BY SIEMENS LTD. LAYING OF SHIELDED CABLE WILL BE IN SCOPE OF EPC CONTRACTOR.
5. OTHER THAN SHIELDED CABLES, FOR BALANCE WIRING CAN BE DONE BY USING 1.5 SQ.MM CABLE.
6. WIRING BETWEEN PSD AND CIRCUIT BREAKER WILL BE IN SCOPE OF EPC CONTACTOR.
7. TERMINAL SHOWN FOR PSD IN ABOVE DRAWING IS SHOWN FOR IDENTIFICATION. POSITION OF TERMINAL MAY VARY.



Drawing approval subject to valid vendor registration

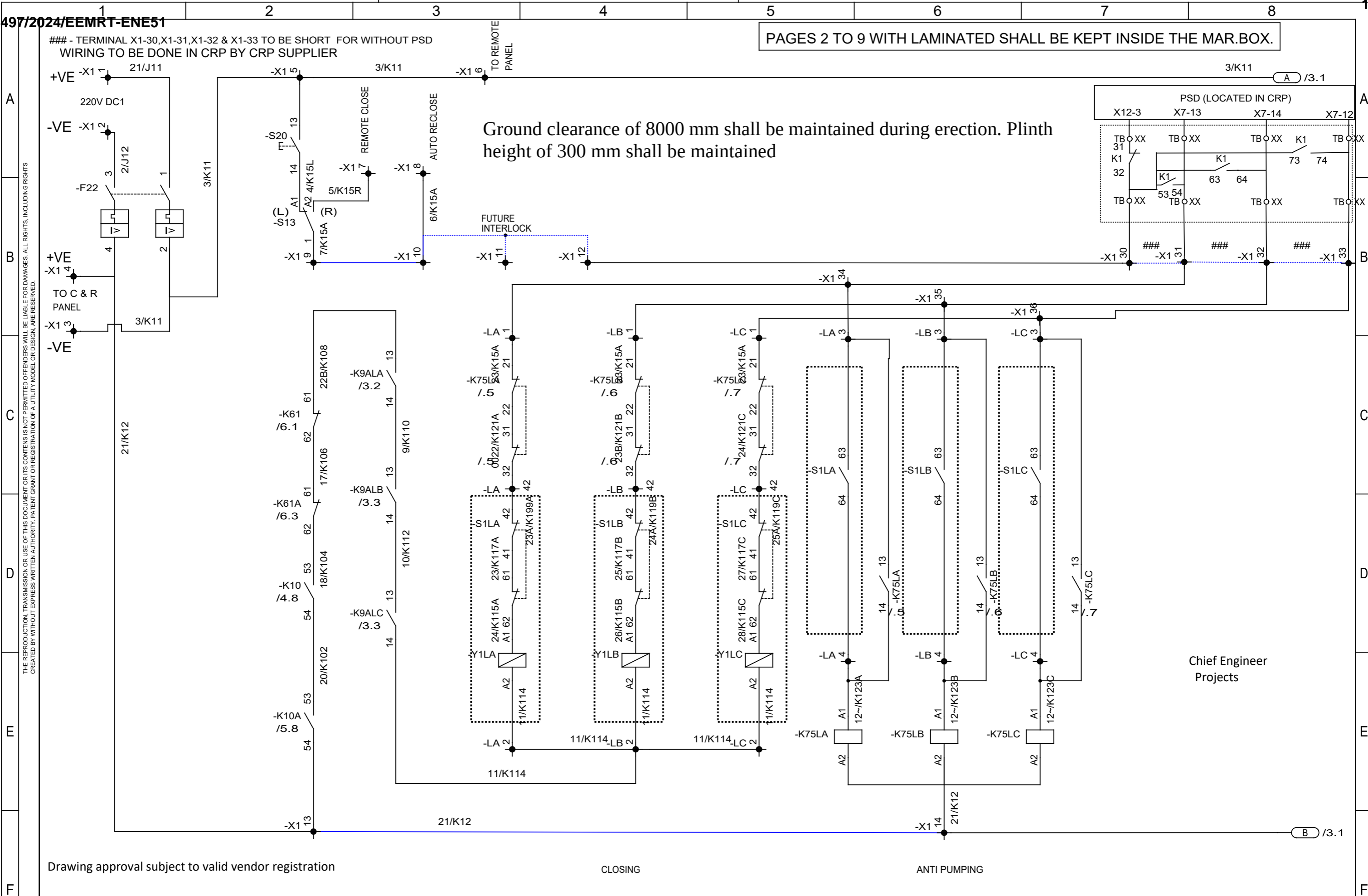
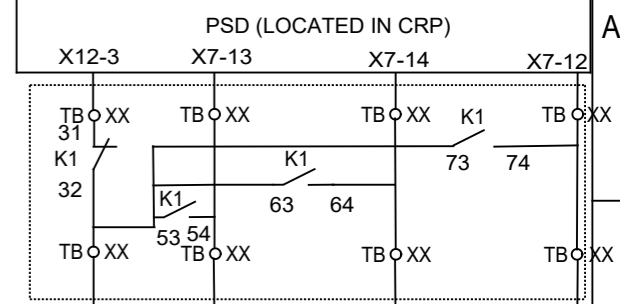
CONTACT GEOMETRY OF S1 AND S16A, S16B SWITCH

Date		19.02.2024		Customer: Transmission Corporation of Andhra Pradesh Limited		SIEMENS LTD.		Descp:420kV, 63kA, 4000A-SF6-CB		SO NO:		Qty:		=ZZA	
Prep.		MSR		CONTRACTOR:As Applicable		Aurangabad		Type:3AP2FI						++	
Ckd.		SB		PROJECT:As Applicable				Dwg. Name:Schematic drawing						Sh. 1	
Issue		Remarks		Date		Name		ORIGINAL/REPLACEMENT FOR/REPLACED BY:		Drg No: (3)G71AHS-OA404-W0696		14		Sh.	

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- TERMINAL X1-30,X1-31,X1-32 & X1-33 TO BE SHORT FOR WITHOUT PSD
 WIRING TO BE DONE IN CRP BY CRP SUPPLIER

Ground clearance of 8000 mm shall be maintained during erection. Plinth height of 300 mm shall be maintained



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Drawing approval subject to valid vendor registration

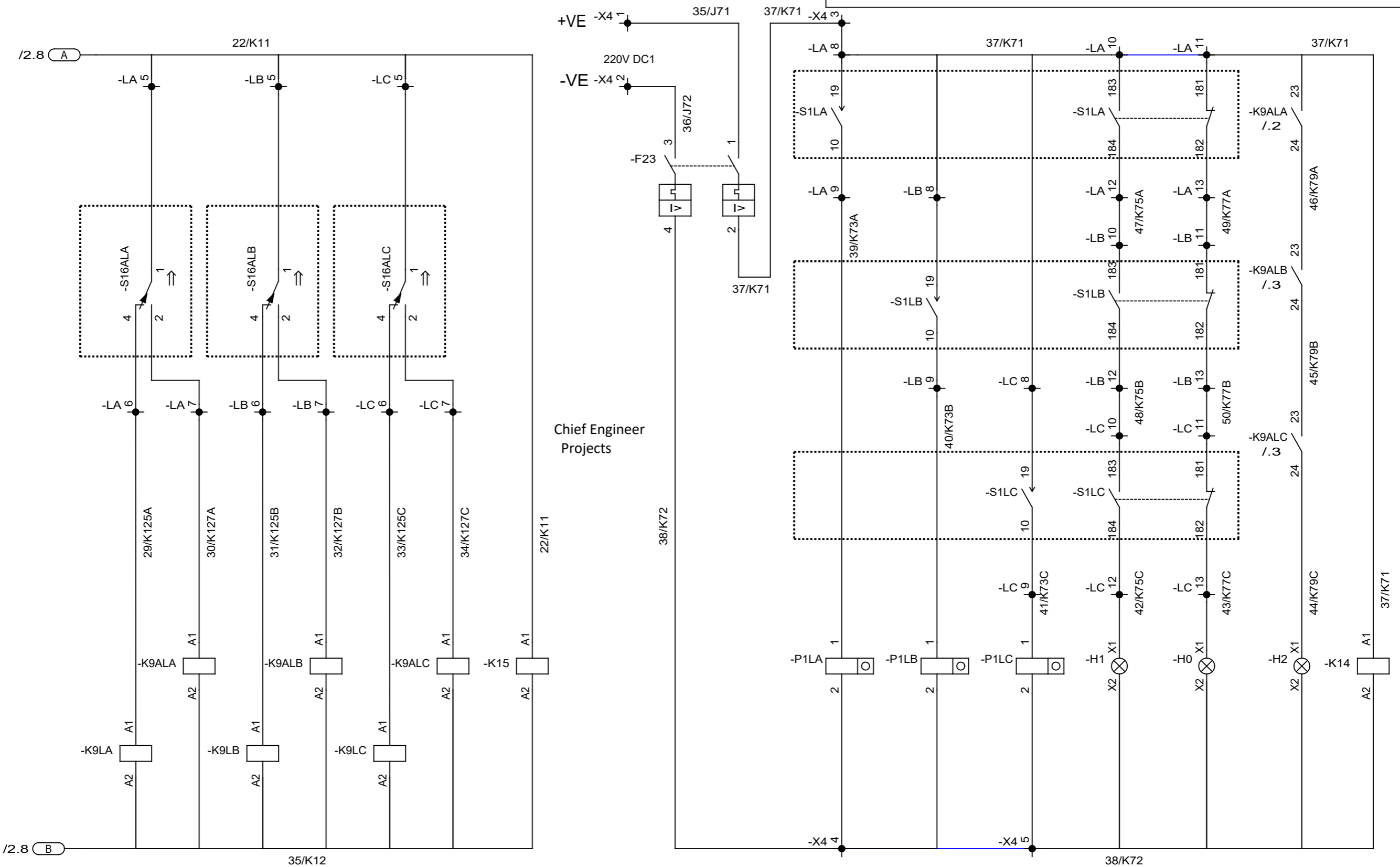
CLOSING

ANTI PUMPING

Date: 19.02.2024		Customer: Transmission Corporation of Andhra Pradesh Limited		SIEMENS LTD.		Descp: 420kV, 63kA, 4000A-SF6-CB		SO NO:		Qty:		=ZZA	
Prep: MSR		CONTRACTOR: As Applicable		Aurangabad		Type: 3AP2FI						++	
Ckd: SB		PROJECT: As Applicable				Dwg. Name: Schematic drawing						Sh. 2	
Issue		Remarks		Date		Name		ORIGINAL/REPLACEMENT FOR/REPLACED BY:		Drg No: (3)G71AHS-OA404-W0696		14 Sh.	

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Chief Engineer
Projects

MOTOR CONTROL	SPRING CHARGED STATUS	MOTOR CONTROL	SPRING CHARGED STATUS	MOTOR CONTROL	SPRING CHARGED STATUS	CLOSING CKT SPRING CHARGE SUPPLY MONITOR	OPERATIONAL COUNTER POLE A	OPERATIONAL COUNTER POLE B	OPERATIONAL COUNTER POLE C	CB ON	CB OFF	SPRING CHARGED INDICATION	INDICATION SUPPLY MONITOR
---------------	-----------------------	---------------	-----------------------	---------------	-----------------------	--	----------------------------	----------------------------	----------------------------	-------	--------	---------------------------	---------------------------

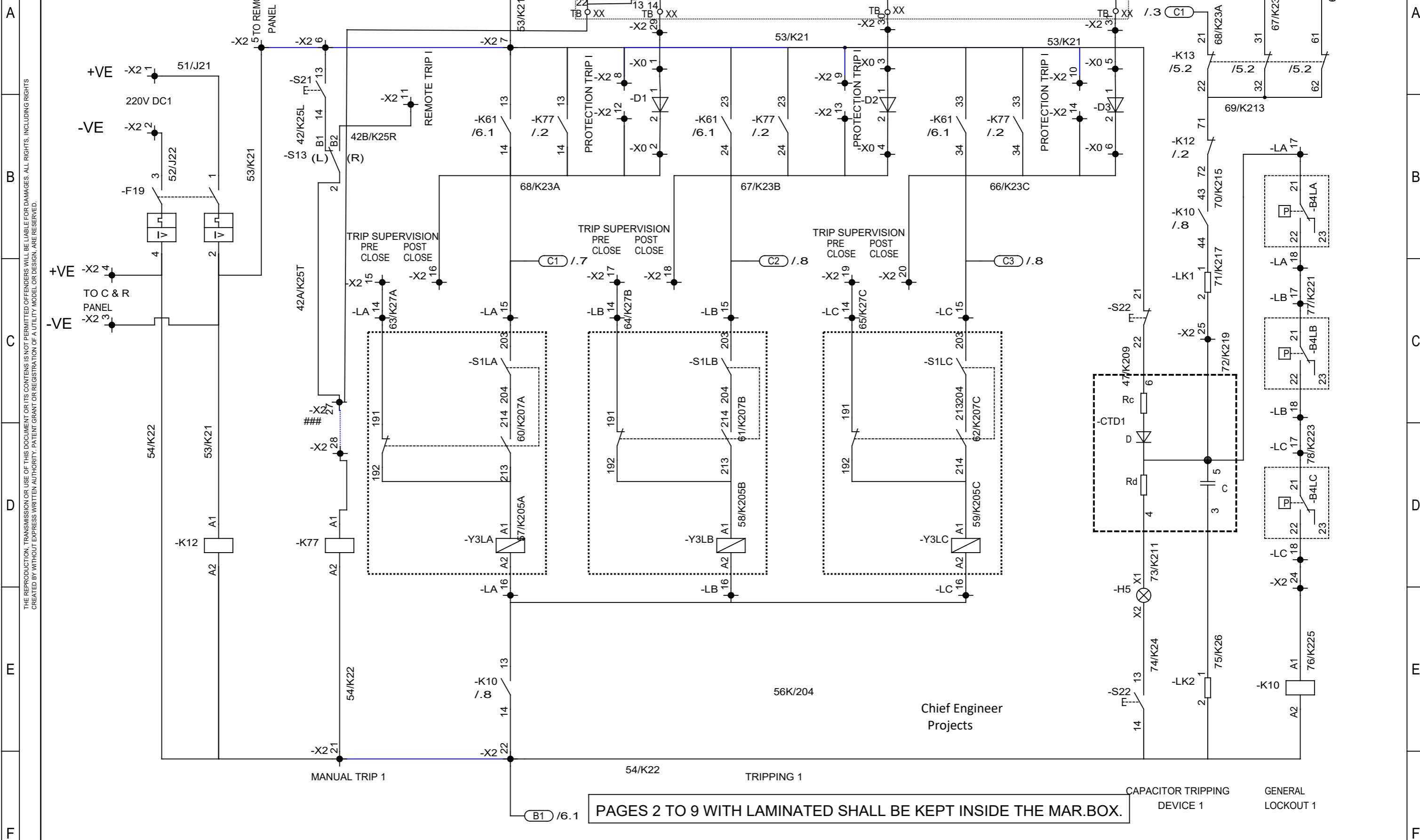
Drawing approval subject to valid vendor registration

				Date	19.02.2024	Customer: Transmission Corporation of Andhra Pradesh Limited		SIEMENS LTD. Aurangabad	Descp:420kV, 63kA, 4000A-SF6-CB Type:3AP2FI Dwg. Name:Schematic drawing	SO NO:	Qty:	=ZZA	
				Prep.	MSR	CONTRACTOR:As Applicable PROJECT:As Applicable PO.NO.:As Applicable						++	
				Ckd.	SB	ORIGINAL/REPLACEMENT FOR/REPLACED BY:						Drg No: (3)G71AHS-OA404-W0696	
Issue	Remarks	Date	Name							Drg No: (3)G71AHS-OA404-W0696		Sh.	14

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- TERMINAL X2-27 & X2-28 TO BE SHORT FOR WITHOUT PSD
 WIRING TO BE DONE IN CRP BY CRP SUPPLIER

PSD (LOCATED IN CRP)



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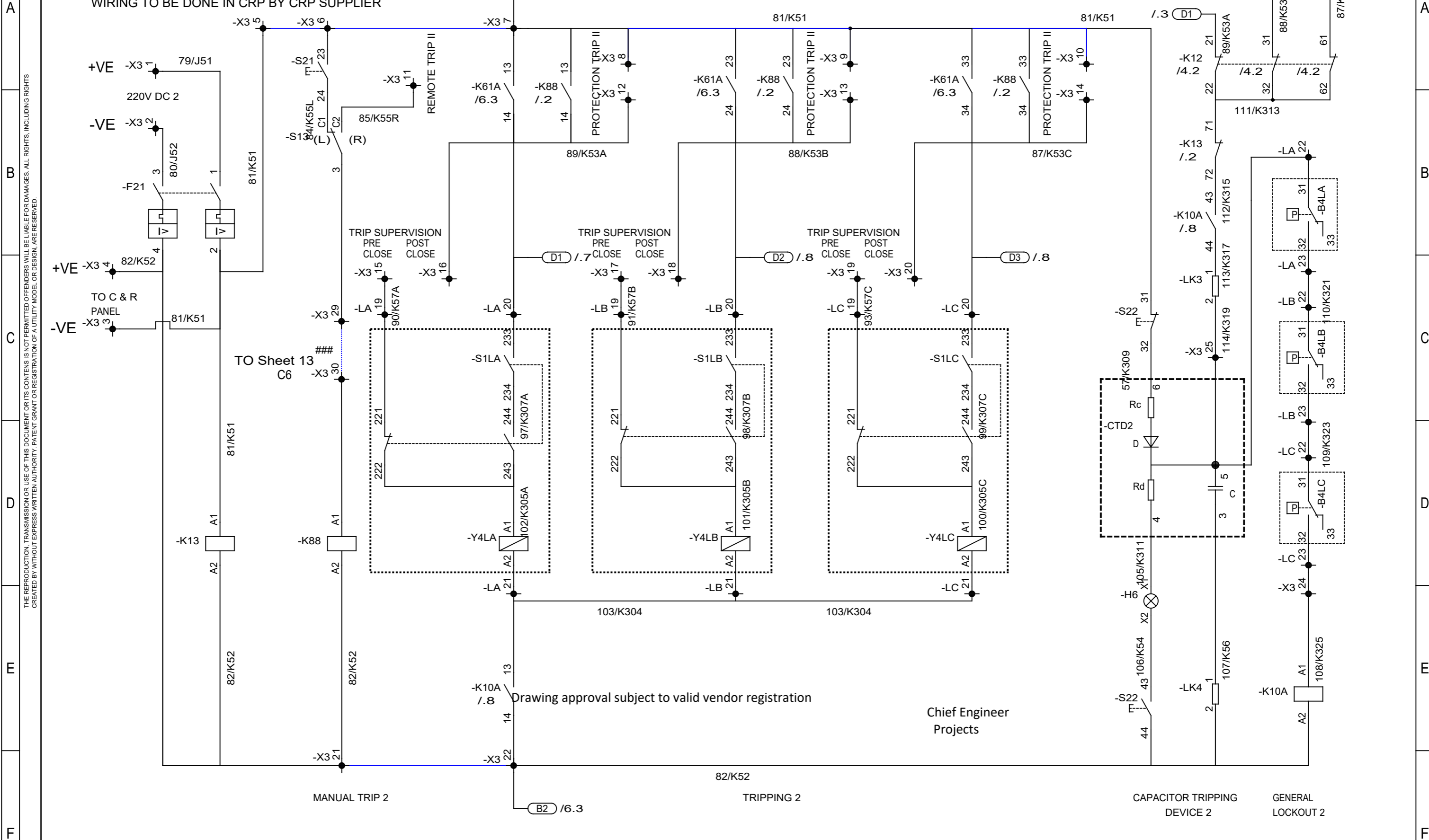
Chief Engineer
Projects

Date		19.02.2024		Customer: Transmission Corporation of Andhra Pradesh Limited		SIEMENS LTD.		Descp:420kV, 63kA, 4000A-SF6-CB		SO NO:		Qty:		=ZZA	
Prep.		MSR		CONTRACTOR:As Applicable		Aurangabad		Type:3AP2FI						++	
Ckd.		SB		PROJECT:As Applicable				Dwg. Name:Schematic drawing						Sh. 4	
Issue				PO.NO.:As Applicable								Drg No: (3)G71AHS-OA404-W0696		14 Sh.	
				ORIGINAL/REPLACEMENT FOR/REPLACED BY:											

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- TERMINAL X3-29 & X3-30 TO BE SHORT FOR WITHOUT PSD WIRING TO BE DONE IN CRP BY CRP SUPPLIER



Drawing approval subject to valid vendor registration

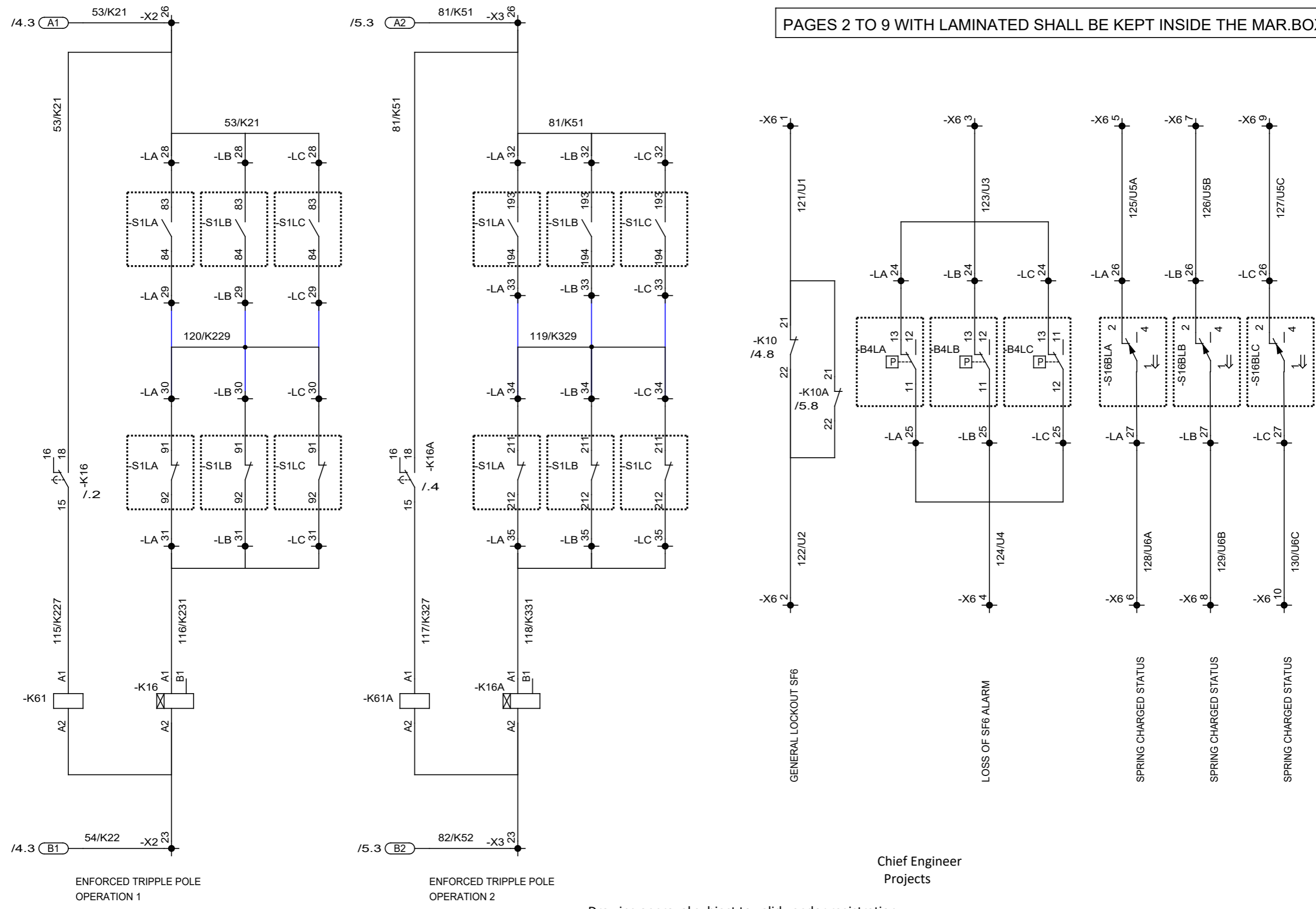
Chief Engineer Projects

Date		19.02.2024		Customer: Transmission Corporation of Andhra Pradesh Limited		SIEMENS LTD.		Descp:420kV, 63kA, 4000A-SF6-CB		SO NO:		Qty:		=ZZA	
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Ckd.		SB		PROJECT:As Applicable				Dwg. Name:Schematic drawing						Sh. 5	
Issue				PO.NO.:As Applicable								Drg No: (3)G71AHS-OA404-W0696		14 Sh.	
				ORIGINAL/REPLACEMENT FOR/REPLACED BY:											

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Date: 19.02.2024				Customer: Transmission Corporation of Andhra Pradesh Limited		Descp: 420kV, 63kA, 4000A-SF6-CB		SO NO:		Qty:		=ZZA	
Prep: MSR				CONTRACTOR: As Applicable		Type: 3AP2FI						++	
Ckd: SB				PROJECT: As Applicable		Dwg. Name: Schematic drawing						Sh. 6	
Issue				Remarks		Date		Name		DRG No: (3)G71AHS-OA404-W0696		14 Sh.	
				ORIGINAL/REPLACEMENT FOR/REPLACED BY:									

Chief Engineer
Projects

Drawing approval subject to valid vendor registration

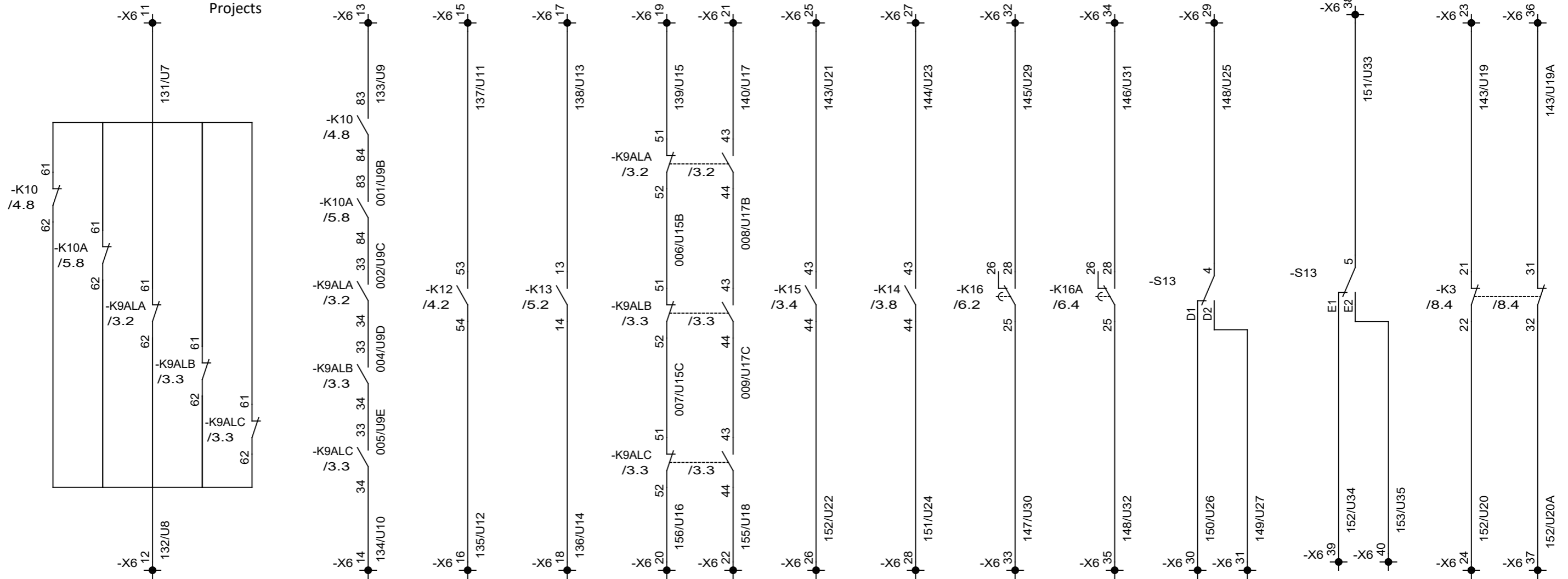
PAGES 2 TO 9 WITH LAMINATED SHALL BE KEPT INSIDE THE MAR.BOX.

Ground clearance of 8000 mm shall be maintained during erection. Plinth height of 300 mm shall be maintained

Chief Engineer Projects

Chief Engineer Projects

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CONDITIONS TO BE VERIFIED FOR AUTO RECLOSER AUTO RECLOSE I

CONDITIONS TO BE VERIFIED FOR AUTO RECLOSER AUTO RECLOSE II

DC SUPPLY 1 MONITORING

DC SUPPLY 2 MONITORING

SPRING STATUS SUPERVISORY SYSTEM

CLOSING, SPRING CHARGE SUPPLY MONITORING

INDICATION SUPPLY MONITORING

POLE DISCREPANCY ALARM 1

POLE DISCREPANCY ALARM 2

CB STATUS LOCAL

CB STATUS REMOTE

CB STATUS LOCAL

CB STATUS REMOTE

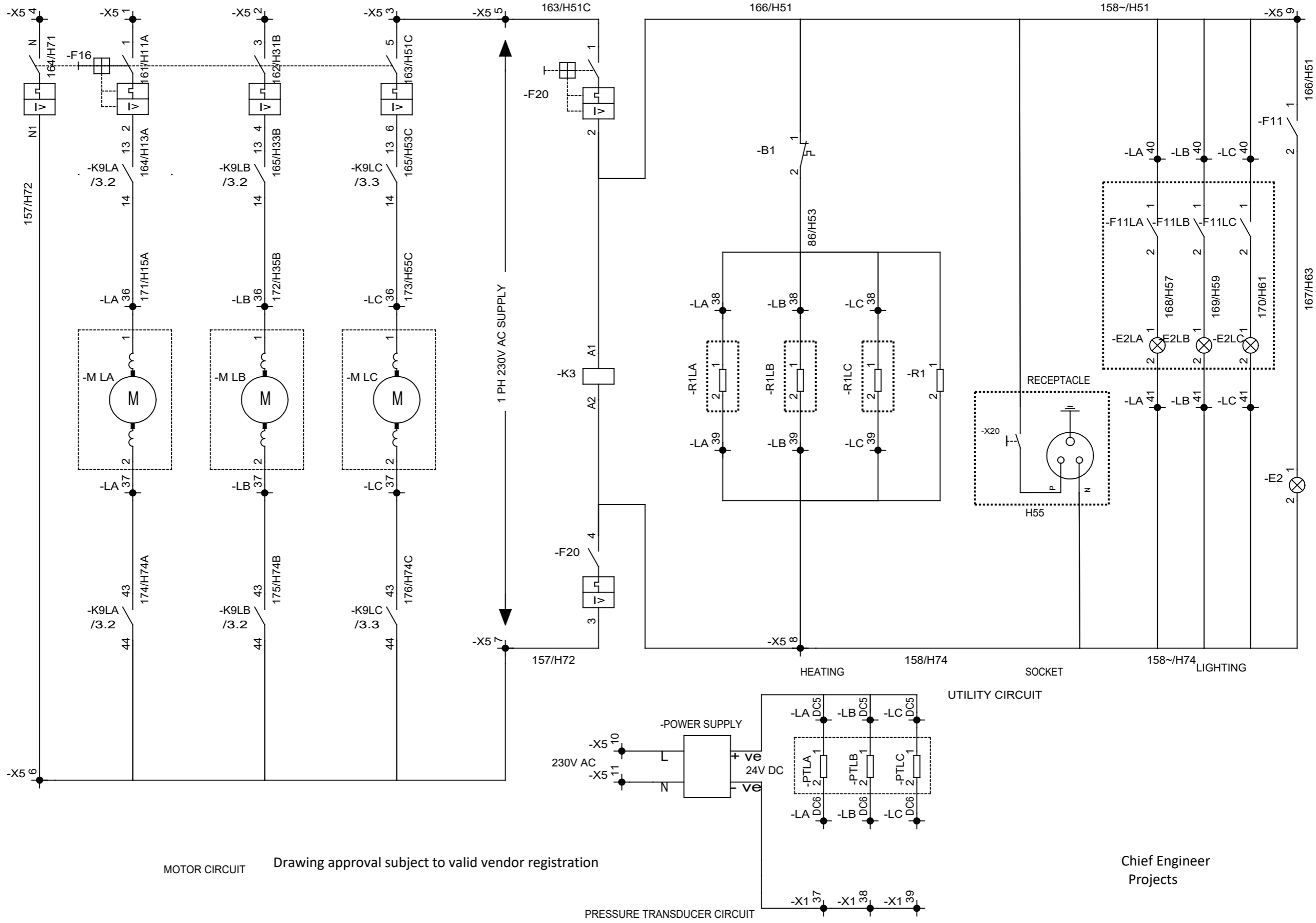
AC SUPPLY SUPERVISION

Drawing approval subject to valid vendor registration

		Date	19.02.2024	Customer: Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD. Aurangabad	Descp:420kV, 63kA, 4000A-SF6-CB Type:3AP2FI Dwg. Name:Schematic drawing	SO NO:	Qty:	=ZZA ++	
		Prep.	MSR	CONTRACTOR:As Applicable PROJECT:As Applicable PO.NO.:As Applicable						
		Ckd.	SB							
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:			Drg No: (3)G71AHS-OA404-W0696		Sh. 7	
								14		Sh.

MOTOR SUPPLY
3 Ph, 415 V AC

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MOTOR CIRCUIT Drawing approval subject to valid vendor registration

Chief Engineer
Projects

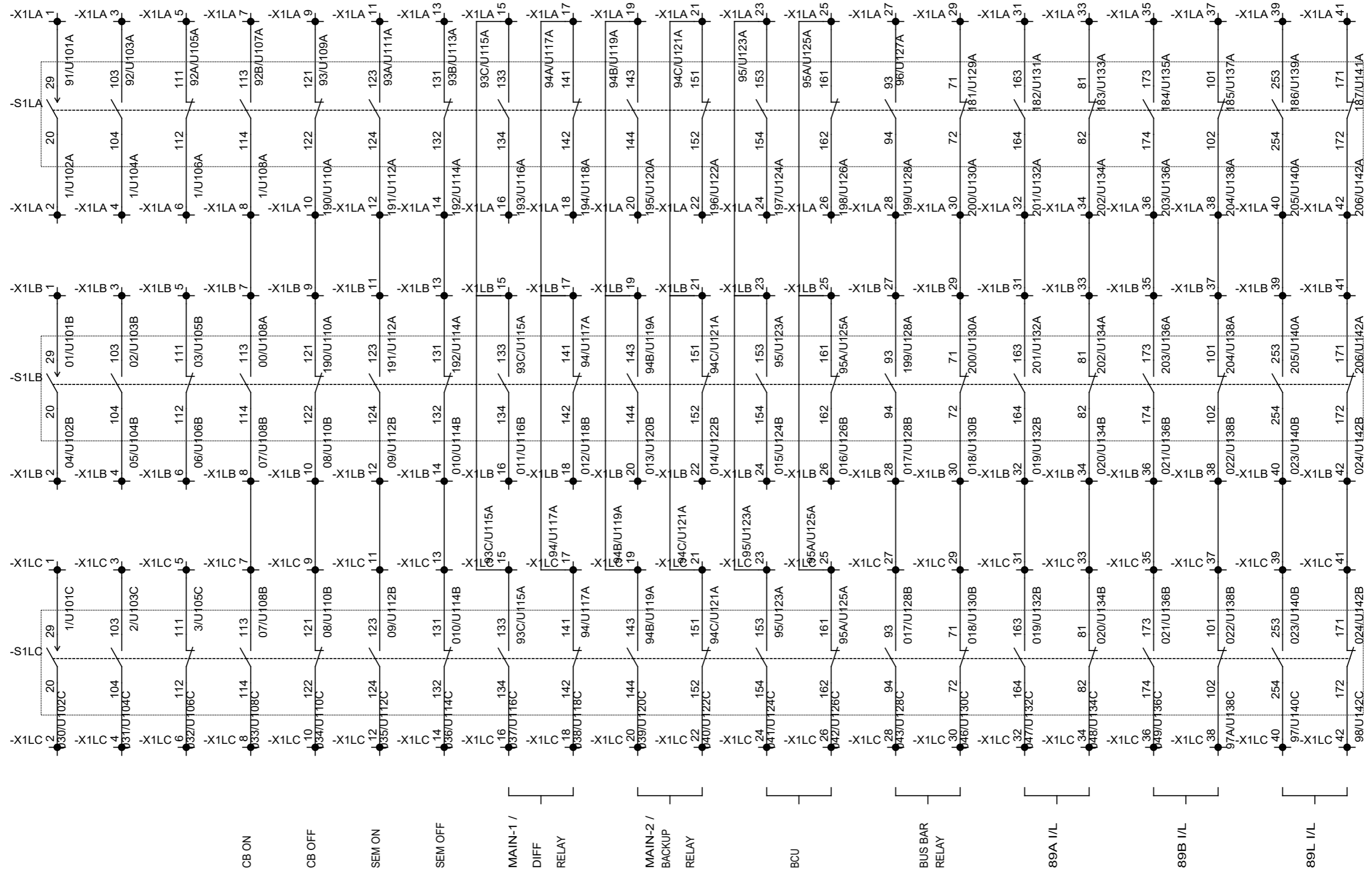
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Date		19.02.2024		Customer: Transmission Corporation of Andhra Pradesh Limited		SIEMENS LTD.		Descp: 420kV, 63kA, 4000A-SF6-CB		SO NO:		Qty:		=ZZA	
Prep.		MSR		CONTRACTOR: As Applicable		Aurangabad		Type: 3AP2FI							
Ckd.		SB		PROJECT: As Applicable				Dwg. Name: Schematic drawing						Sh. 8	
Issue		Remarks		Date		Name		ORIGINAL/REPLACEMENT FOR/REPLACED BY:				Drg No: (3)G71AHS-OA404-W0696		14 Sh.	

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Chief Engineer
Projects

Drawing approval subject to valid vendor registration

10NO + 10NC + 1Wi SPARE CONTACTS OF CB AUXILIARY SWITCH

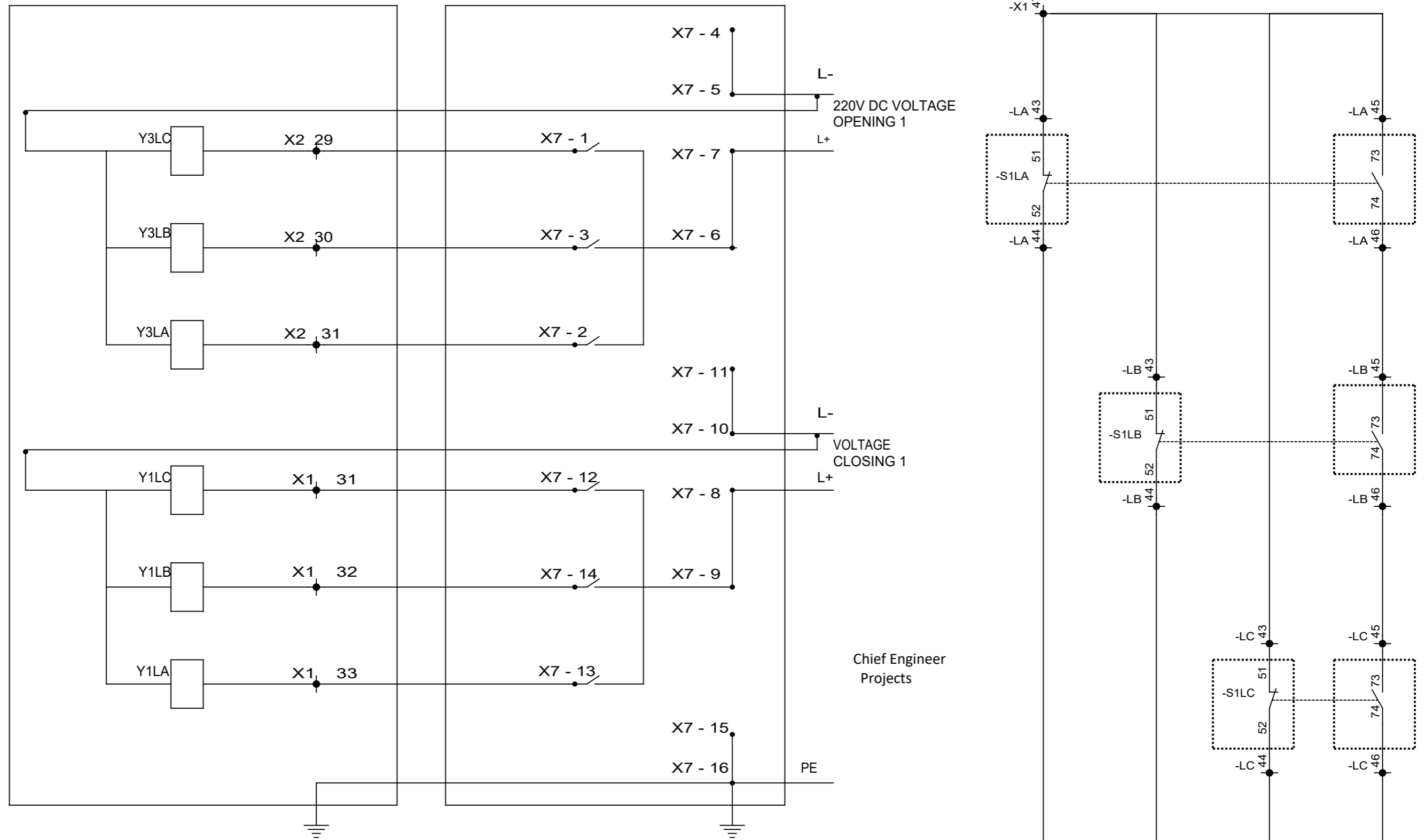
Date		19.02.2024		Customer: Transmission Corporation of Andhra Pradesh Limited		SIEMENS LTD.		Descp:420kV, 63kA, 4000A-SF6-CB		SO NO:		Qty:		=ZZA	
Prep.		MSR		CONTRACTOR:As Applicable		Aurangabad		Type:3AP2FI						++	
Ckd.		SB		PROJECT:As Applicable				Dwg. Name:Schematic drawing						Sh. 9	
Issue		Remarks		Date		Name		ORIGINAL/REPLACEMENT FOR/REPLACED BY:				Drg No: (3)G71AHS-OA404-W0696		14 Sh.	

TERMINAL DIAGRAM

CONTROL UNIT / MECHANISM BOX

PSD02

PSD 02



220V DC VOLTAGE
OPENING 1

VOLTAGE
CLOSING 1

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Projects

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Date		19.02.2024		Customer: Transmission Corporation of Andhra Pradesh Limited		SIEMENS LTD.		Descp:420kV, 63kA, 4000A-SF6-CB		SO NO:		Qty:		=ZZA	
Prep.		MSR		CONTRACTOR:As Applicable		Aurangabad		Type:3AP2FI						++	
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Issue		Remarks		Date		Name		ORIGINAL/REPLACEMENT FOR/REPLACED BY:		Drg No: (3)G71AHS-OA404-W0696				14 Sh.	

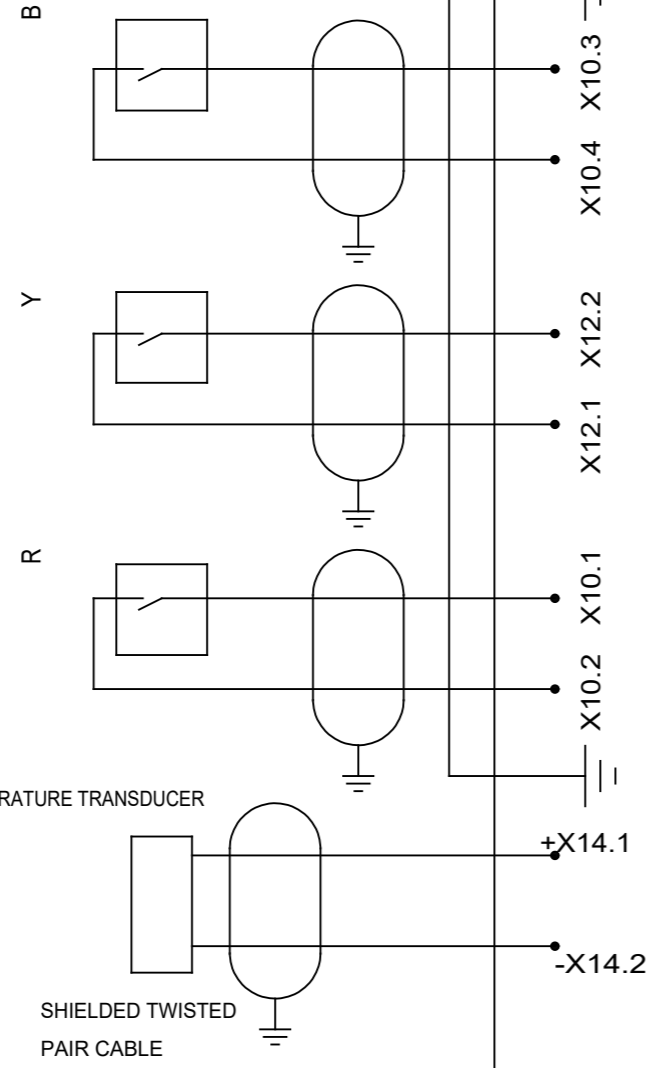
SWITCHING DEVICE INPUT CIRCUIT

NOTE : DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS.
TO BE CHECKED DURING ACCEPTANCE TESTS.

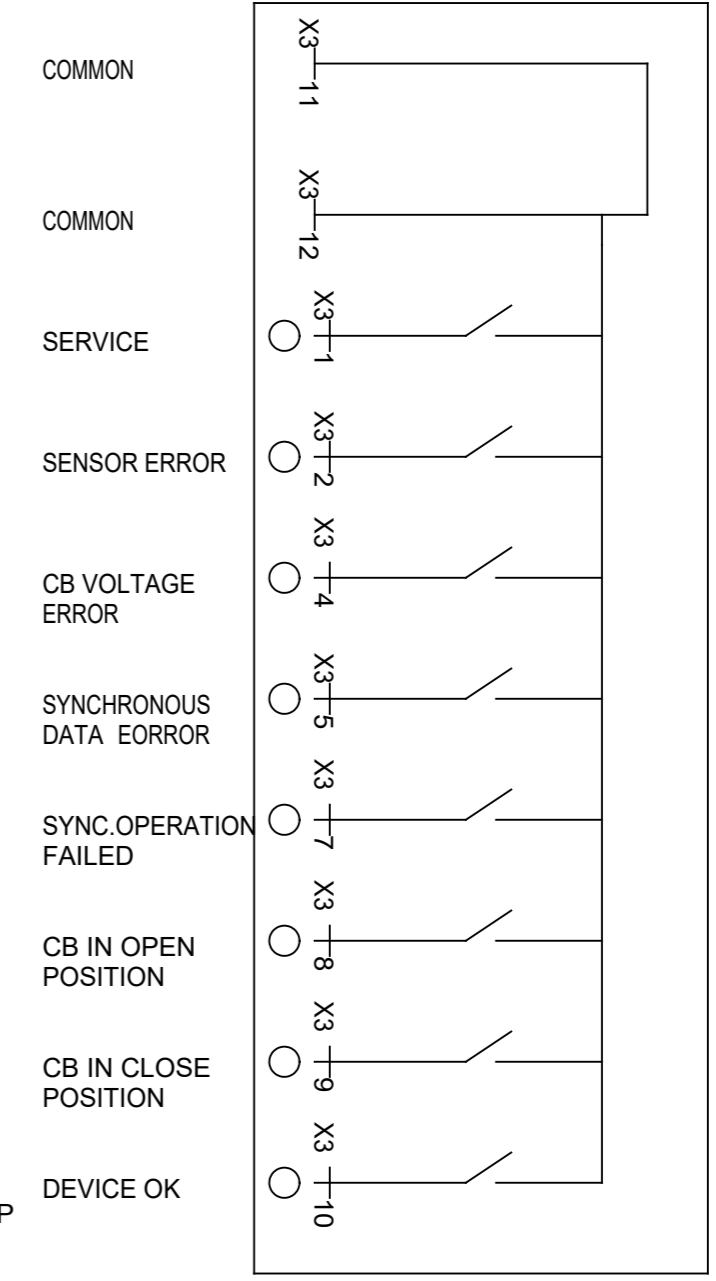
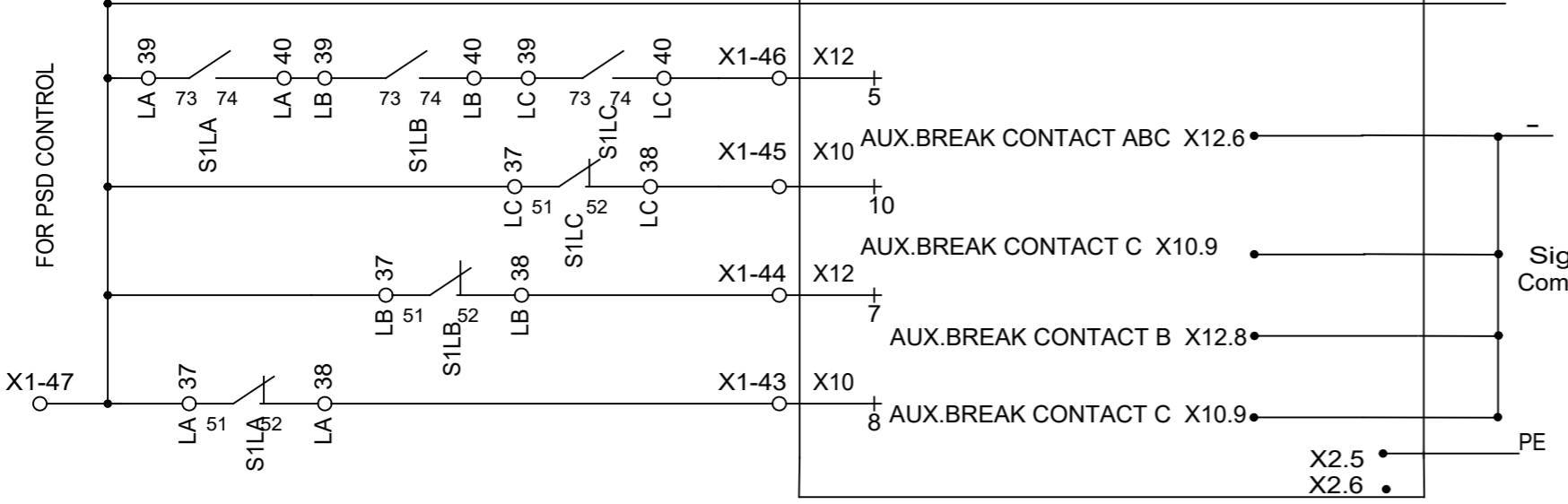
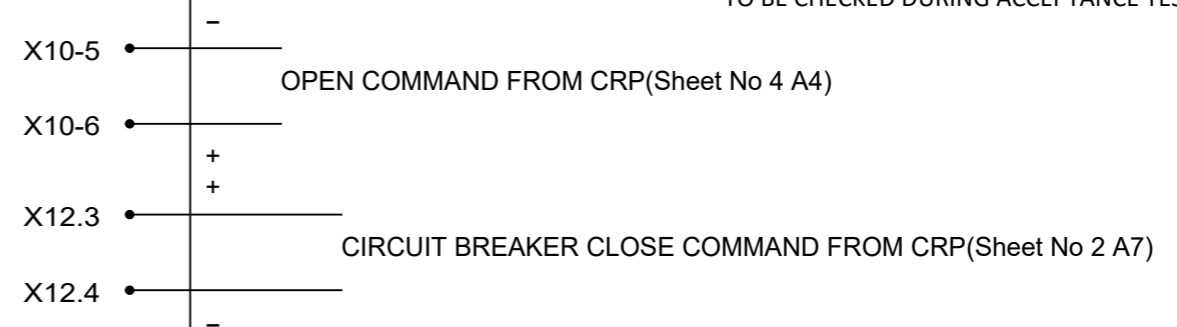
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REFERENCE CONTACTS / SENSOR MOUNTED ON INDIVIDUAL MECHANISM BOX FOR INDICATION OF CB ON / OFF POSITION



Chief Engineer Projects



MODE INPUT: A mode input automatically selects between the two tasks (Transformer and shunt reactor) during Operation.

TEMPERATURE TRANSDUCER-01 No.

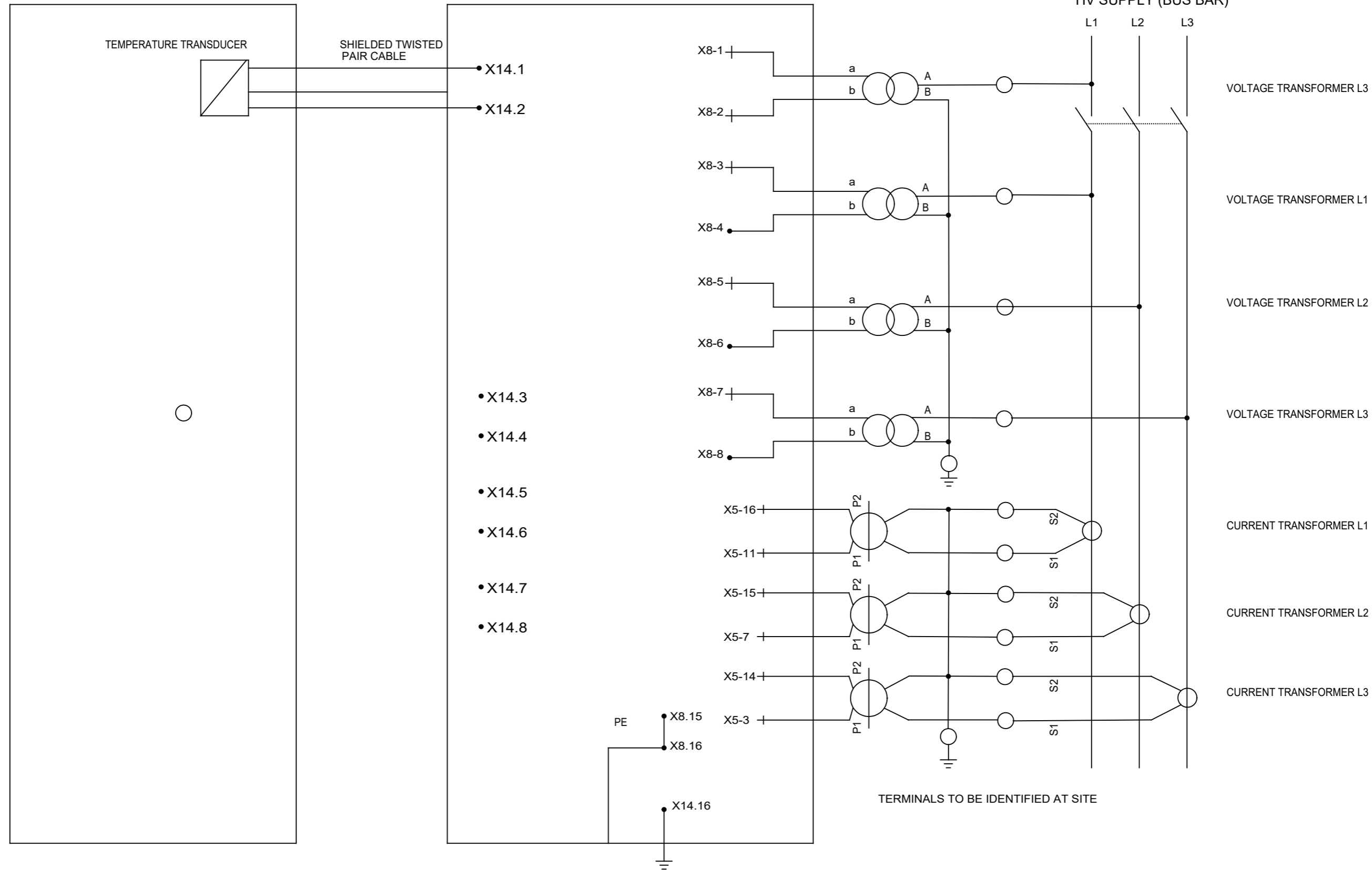
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				Ckd.	SB	PROJECT:As Applicable			Dwg. Name:Schematic drawing			
				ORIGINAL/REPLACEMENT FOR/REPLACED BY:						Drg No: (3)G71AHS-OA404-W0696		Sh. 11
Issue	Remarks	Date	Name									14 Sh.

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Marshalling Box

PSD 02

HV SUPPLY (BUS BAR)



NOTE :

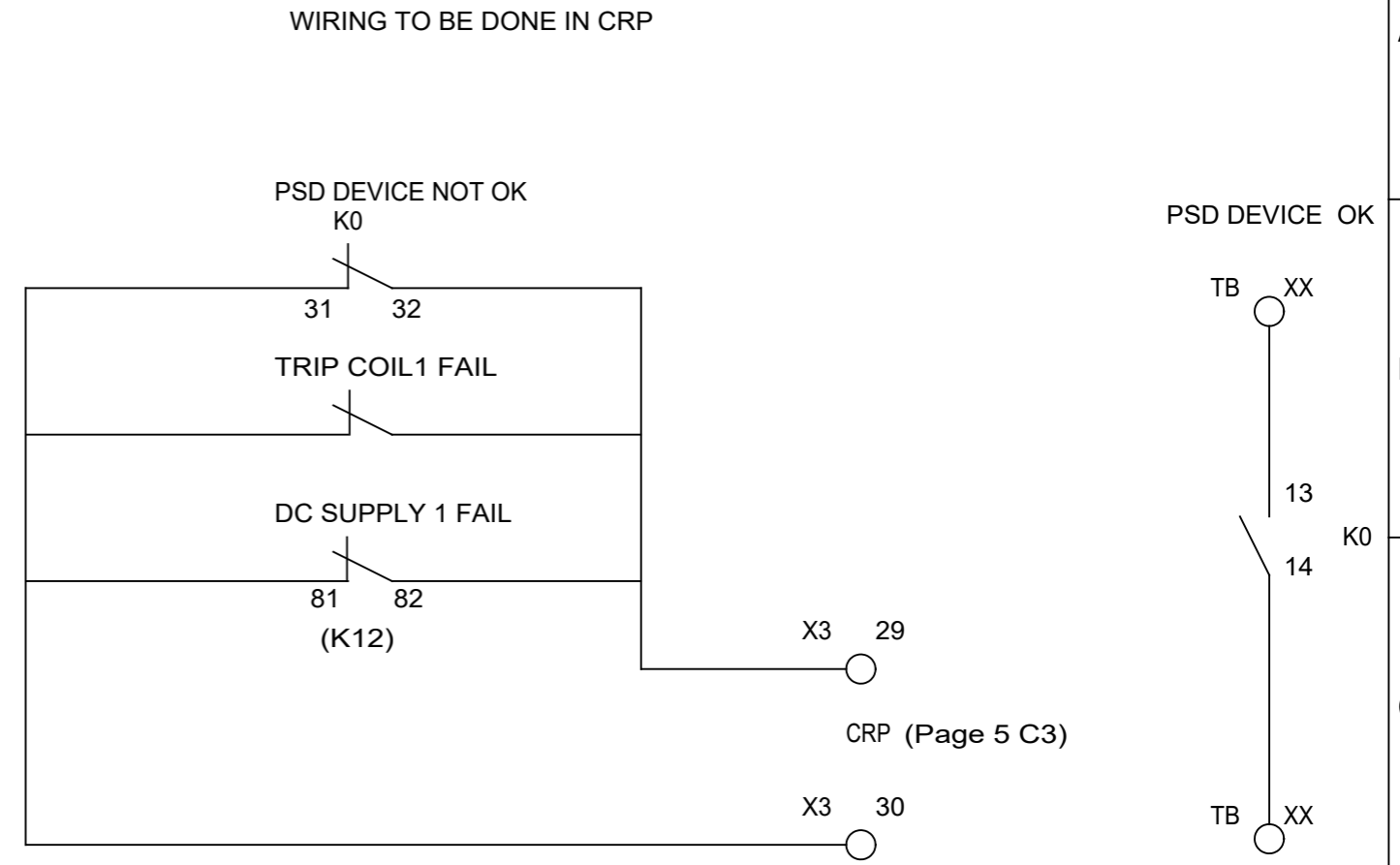
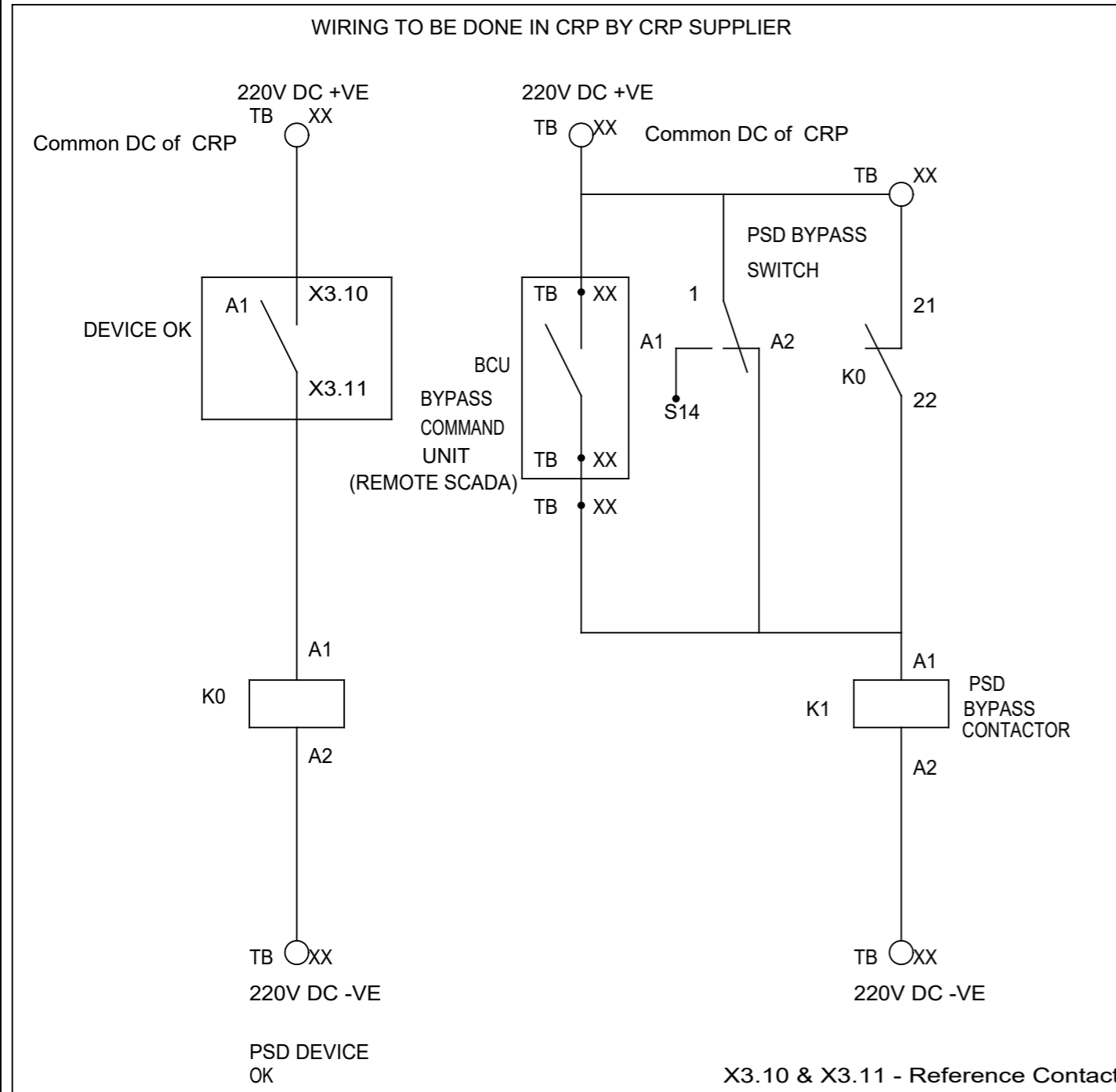
1. INPUT TO PSD CT SHALL BE FROM METERING CORE OF BAY CURRENT TRANSFORMER.
2. INPUT TO VT TERMINAL OF PSD SHALL BE FROM METERING CORE OF BAY VOLTAGE TRANSFORMER
3. PSD IS SUITABLE FOR REACTOR & TRANSFORMER SWITCHING / SYNCHRONISING

Drawing approval subject to valid vendor registration

Chief Engineer
Projects

Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD.	Descp:	420kV, 63kA, 4000A-SF6-CB	SO NO:	Qty:	=ZZA
Prep.	MSR	CONTRACTOR:	As Applicable	Aurangabad	Type:	3AP2FI			++
Ckd.	SB	PROJECT:	As Applicable		Dwg. Name:	Schematic drawing			Sh. 12
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:			Drg No:	(3)G71AHS-OA404-W0696	14 Sh.

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SR NO.	EQUIPMENT	MAKE	QTY
1	K0 (2NO + 2NC) 220V DC	SIEMENS, C&S MAKE	1
2	K1 (6NO + 2NC) 220V DC	SIEMENS, C&S MAKE	1
3	S14, 10 POLE		1

Chief Engineer
Projects

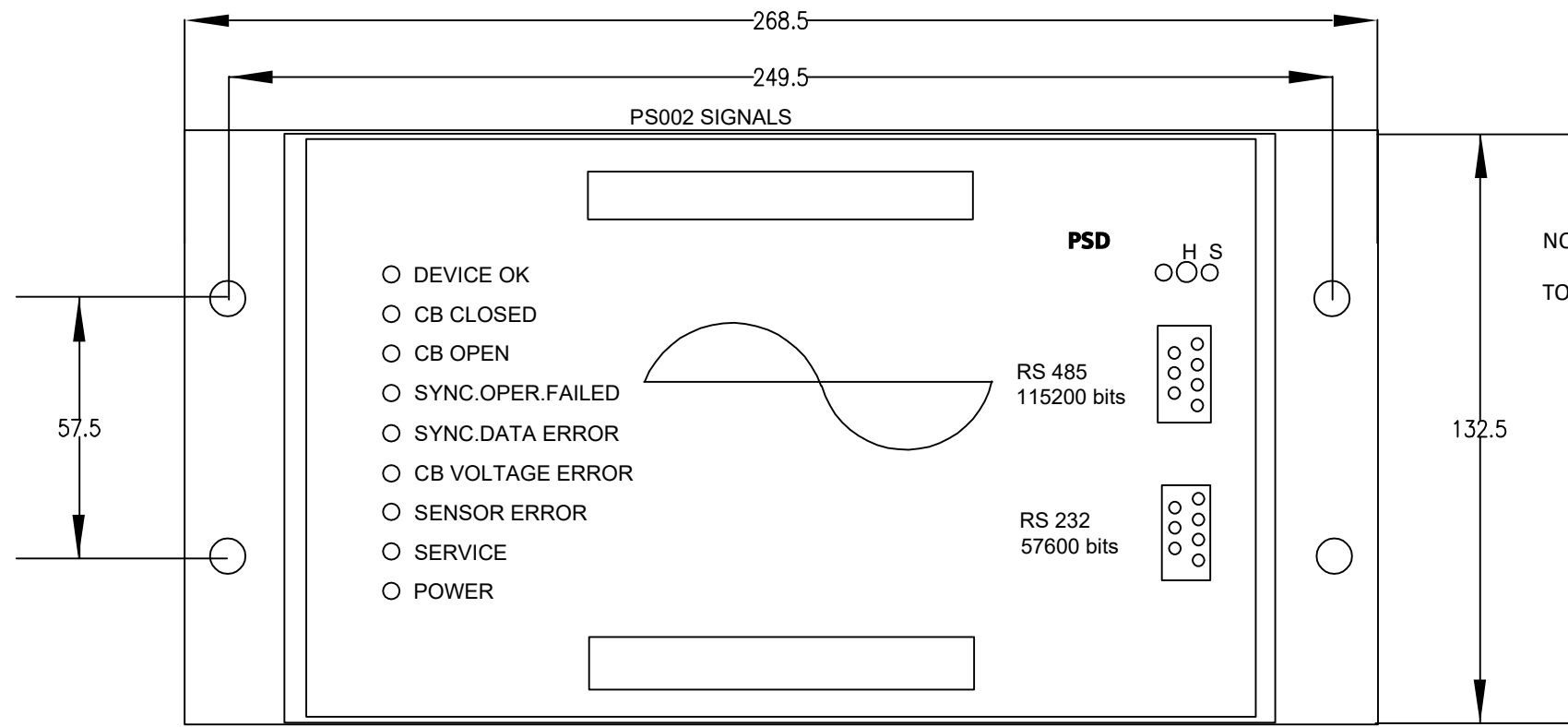
- NOTE :**
- PSD DEVICE SHALL BE MOUNTED IN CONTROL RELAY PANEL.
 - PSD BYPASS EQUIPMENT (K0,K1 & S14) SHALL BE SUPPLIED BY RESPECTIVE EPC CONTACTOR. (NOT IN SIEMENS SCOPE)
 - PSD BYPASS SWITCH SHALL BE MOUNTED & WIRED UP IN CRP.
 - TWISTED PAIR SHIELDED CABLE (1000 mt PER CIRCUIT BREAKER) FOR REFERENCE CONTACT AND TEMPERATURE TRANSDUCER SHALL BE SUPPLIED BY SIEMENS LTD. LAYING OF SHIELDED CABLE WILL BE IN SCOPE OF EPC CONTACTOR.
 - OTHER THAN SHIELDED CABLES, FOR BALANCE WIRING CAN BE DONE BY USING 1.5 SQ.MM CABLE.
 - WIRING BETWEEN PSD AND CIRCUIT BREAKER WILL BE IN SCOPE OF EPC CONTACTOR.
 - TERMINAL SHOWN FOR PSD IN ABOVE DRAWINGS IS SHOWN FOR IDENTIFICATION. POSITION OF TERMINAL MAY VARY.
 - Terminal numbers are shown as "XX" for CRP " TB Numbers to be decided by customer"

Drawing approval subject to valid vendor registration

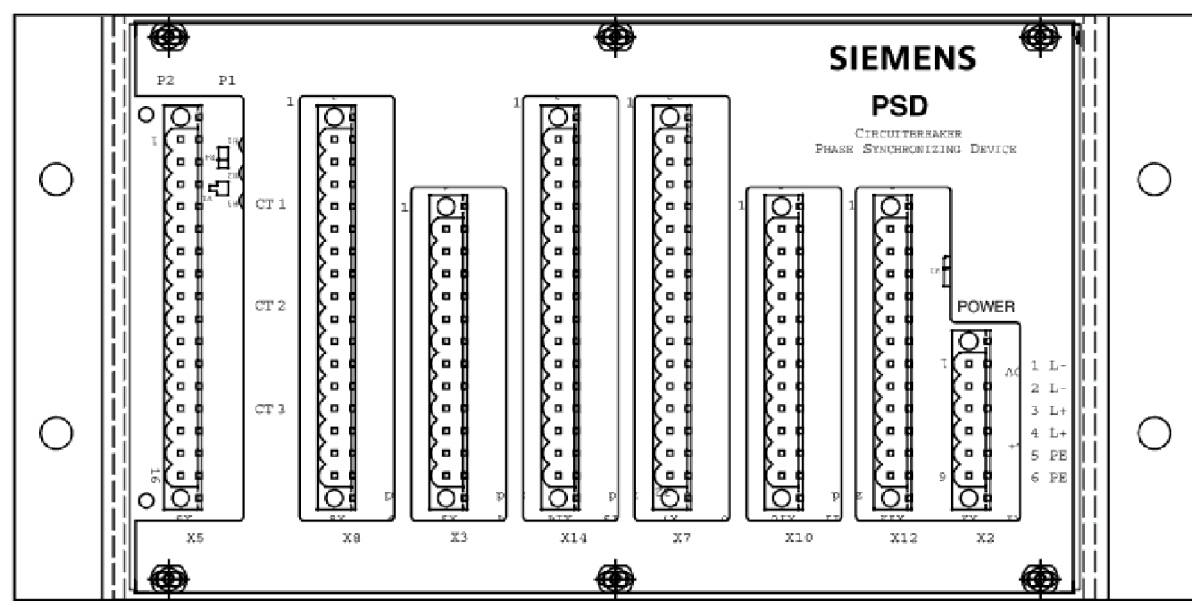
Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD. Aurangabad	Descp:420kV, 63kA, 4000A-SF6-CB Type:3AP2FI Dwg. Name:Schematic drawing	SO NO:	Qty:	=ZZA ++
Prep.	MSR	CONTRACTOR:	As Applicable					
Ckd.	SB	PROJECT:	As Applicable					
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:		Drg No: (3)G71AHS-OA404-W0696		Sh. 13 14 Sh.

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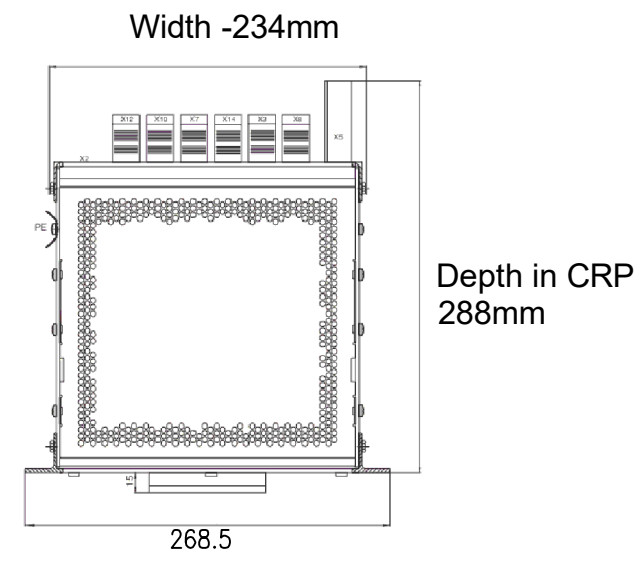
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PSD General & mounting arrangement in CRP



Rear View for actual termination PSD.



Plan View

Note :

1. Since our offered Controlled Switching Device type PSD 02 operates on SIEMENS own proprietary protocol, conformity to IEC 61850 will be achieved through a converter, which will get MODBUS input from PSD port of RS 485 and same will be converted to IEC 61850. One no converter will be supplied with each PSD.

Drawing approval subject to valid vendor registration

Chief Engineer
Projects

HO/ESD-Coord/9E-03-90-T

Date	19.02.2024	CLIENT: Transmission Corporation of Andhra Pradesh Limited	Siemens Ltd.	Descr : 420kV, 63kA, 4000A-SF6-CB	SO No :	Qty:	
Prep	MSR	CONTRACTOR: As Applicable	AURANGABAD.	Work : 3AP2FI			
Ckd.	SB	PROJECT: As Applicable		Details : WIRING DRAWING			
Issue	Remarks	Date	Name	Norm.	Original / Replacement for /Replaced by :-		Drg. No:- (3)G71AHS-OA404-W0696
							Sh. 14 14 Sh.

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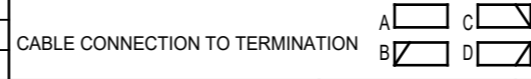
E

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1	2		3		4		5		6		7		8									
	CABLE DESTINATION	TYPE, CORE NO., CROSS SECTION		DEST./ITEM DES.	LEVEL	<table border="1"> <tr> <td>A</td><td>C</td><td>D</td><td>B</td> </tr> <tr> <td>○</td><td>○</td><td>○</td><td>○</td> </tr> </table>		A	C	D	B	○	○	○	○	TERMINAL	LINE-UP TERMINAL TYPE		TYPE OF WIRING			
A	C	D	B																			
○	○	○	○																			
1									45xSTH3		1) EQUIPMENT WIRING											
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						



										TERMINATION A/C				TERMINAL STRIP			TYPE	TERMINATION B/D			
										DESTINATION/ITEM DESIGNATION				-LA				DESTINATION/ITEM DESIGNATION			
1	2	3	4	5	6	7	8	9	10				LINK	NO.							
										K15A	-X1	34	A	○		1	STH3	K15A	-K75LA	21	
										K114	-Y1LA	A2		○		2	STH3	K114	-LB	2	A
										K15A	-X1	34	A	○		3	STH3	K15A	-S1LA	63	
											-K75LA	13									
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										K11	-LB	5	A	○		5	STH3	K11	-S16ALA	1	
											-X1	6									
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										K133A	-S16ALA	2		○		7	STH3	K127A	-K9ALA	A1	
										K71	-X4	3	B	○		8	STH3	K71	-S1LA	19	
																		K71	-LB	8	A
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										K219	-CTD1	5		○		17	STH3	K219	-B4LA	21	
										K221	-B4LA	22		○		18	STH3	K221	-LB	17	A
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											-K61A	14									
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											-B4LA	11		○		25	STH3		-LB	25	B
										U5A	-X6	5	A	○		26	STH3	U5A	-S16BLA	2	
										U6A	-S16BLA	1		○		27	STH3	U6A	-X6	6	A
										K21	-LB	28	A	○		28	STH3	K21	-S1LA	83	
											-X2	26									
										K229	-S1LA	84		○	●	29	STH3				
										K229	-LB	30	A	○	●	30	STH3	K229	-S1LA	91	

										SCREEN BUS	↓ FIXED LINK	┌ INSERTABLE JUMPER	✕ INSULATING WASHER
										N-BUS	↓ SHORT CIRCUIT LINK	— SECTION INSULATING WASHER	✕✕ COVER
										PE-BUS			
										USED CORES TOTAL			
										CONTINUED ON SHEET			

Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD.	Descp:	420kV, 63kA, 4000A-SF6-CB	SO NO:		Qty:		=ZZA
Prep.	MSR	CONTRACTOR:	As Applicable	Aurangabad	Type:	3AP2FI					++
Ckd.	SB	PROJECT:	As Applicable		Dwg. Name:	Terminal Plan					Sh. 1
Issue		PO.NO.:	As Applicable								21 Sh.
		ORIGINAL/REPLACEMENT FOR/REPLACED BY:									

1	CABLE DESTINATION	2	TYPE, CORE NO., CROSS SECTION	3	DEST./ITEM DES.	LEVEL	A C D B		6	TERMINAL	7	LINE-UP TERMINAL TYPE	8	TYPE OF WIRING
							<input type="checkbox"/>	<input type="checkbox"/>						
1							<input type="checkbox"/>	<input type="checkbox"/>			45xSTH3	1)	EQUIPMENT WIRING	
2							<input type="checkbox"/>	<input type="checkbox"/>						
3							<input type="checkbox"/>	<input type="checkbox"/>						
4							<input type="checkbox"/>	<input type="checkbox"/>						
5							<input type="checkbox"/>	<input type="checkbox"/>						
6							<input type="checkbox"/>	<input type="checkbox"/>						
7							<input type="checkbox"/>	<input type="checkbox"/>						
8							<input type="checkbox"/>	<input type="checkbox"/>						
9							<input type="checkbox"/>	<input type="checkbox"/>						
10							<input type="checkbox"/>	<input type="checkbox"/>						

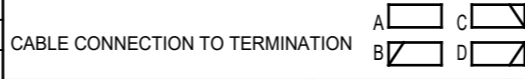


1	2	3	4	5	6	7	8	9	10	TERMINATION A/C			TERMINAL STRIP			TYPE	TERMINATION B/D				
										DESTINATION/ITEM DESIGNATION			-LA				DESTINATION/ITEM DESIGNATION				
													LINK	NO.							
										K231	-S1LA	92	<input type="checkbox"/>			31	STH3	K231	-K16	A1	
										K51	-LB	32 A	<input type="checkbox"/>			32	STH3	K231	-LB	31 B	
											-X3	26						K51	-S1LA	193	
										K329	-S1LA	194	<input type="checkbox"/>			33	STH3				
										K329	-LB	34 A	<input type="checkbox"/>			34	STH3	K329	-S1LA	211	
										K331	-S1LA	212	<input type="checkbox"/>			35	STH3	K331	-K16A	A1	
																		K331	-LB	35 B	
										H15A	-K9LA	14	<input type="checkbox"/>			36	STH3	H15A	-M LA	1	
										H16A	-M LA	2	<input type="checkbox"/>			37	STH3	H74A	-K9LA	43	
													<input type="checkbox"/>			38	STH3	H19	-R1LA	1	
																		H19	-LB	38 B	
										H13	-R1LA	2	<input type="checkbox"/>			39	STH3				
											-LB	39									
										H13	-LB	40 A	<input type="checkbox"/>			40	STH3	H13	-F11LA	1	
											-X20	P									
										H13	-E2LA	2	<input type="checkbox"/>			41	STH3	H74	-LB	41 B	
																		H13	-X20	N	
										K199A	-K75LA	32	<input type="checkbox"/>			42		K199A	-S1LA	42	
											-X1	47 B	<input type="checkbox"/>			43	STH3		-S1LA	51	
											-S1LA	52	<input type="checkbox"/>			44	STH3		-X1	43 A	
											-LC	43 A	<input type="checkbox"/>			45	STH3		-S1LA	73	
											-X1	47 A									
											-S1LA	74	<input type="checkbox"/>			46	STH3		-LB	45 A	
											-LB	DC5 A	<input type="checkbox"/>			DC5			-PTLA	1	
											-POWER SUPPLY										
											-PTLA	2	<input type="checkbox"/>			DC6					

SCREEN BUS	<input type="checkbox"/>	FIXED LINK	<input type="checkbox"/>	INSERTABLE JUMPER	<input type="checkbox"/>	INSULATING WASHER
N-BUS	<input type="checkbox"/>	SHORT CIRCUIT LINK	<input type="checkbox"/>	SECTION INSULATING WASHER	<input type="checkbox"/>	COVER
PE-BUS	<input type="checkbox"/>					
USED CORES TOTAL						
CONTINUED ON SHEET						

Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD.	Descp:	420kV, 63kA, 4000A-SF6-CB	SO NO:	Qty:	=ZZA
Prep.	MSR	CONTRACTOR:	As Applicable	Aurangabad	Type:	3AP2FI			++
Ckd.	SB	PROJECT:	As Applicable		Dwg. Name:	Terminal Plan			Sh. 2
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:			Drg No:	(3)G71AHS-OA404-T0696	21 Sh.

1	2	3	4	5	6	7	8	
CABLE DESTINATION	TYPE, CORE NO., CROSS SECTION	DEST./ITEM DES.	LEVEL	A C D B O O O O		TERMINAL	LINE-UP TERMINAL TYPE	TYPE OF WIRING
1							45xSTH3	1) EQUIPMENTWIRING
2								
3								
4								
5								
6								
7								
8								
9								
10								

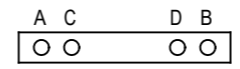


										TERMINATION A/C DESTINATION/ITEM DESIGNATION				TERMINAL STRIP -LC			TYPE	TERMINATION B/D DESTINATION/ITEM DESIGNATION			
1	2	3	4	5	6	7	8	9	10			LINK	NO.								
										K15A	-X1	36	A	O	1	STH3	K15A	-K75LC	21		
										K114	-Y1LC	A2		O	2	STH3	K114	-LB	2 B		
										K15A	-X1	36	A	O	3	STH3	K15A	-S1LC	63		
											-K75LC	13									
										K125	-S1LC	64		O	4	STH3	K123C	-K75LC	A1		
										K11	-LB	5	A	O	5	STH3	K11	-S16ALC	1		
											-K15	A1									
										K131C	-S16ALC	4		O	6	STH3	K125C	-K9LC	A1		
										K133C	-S16ALC	2		O	7	STH3	K127C	-K9ALC	A1		
										K71	-LB	8	A	O	8	STH3	K71	-S1LC	19		
											-LA	10									
										K73C	-S1LC	10		O	9	STH3	K73C	-P1LC	1		
										K75B	-LB	12	B	O	10	STH3	K75B	-S1LC	183		
										K77B	-LB	13	B	O	11	STH3	K77B	-S1LC	181		
										K75C	-S1LC	184		O	12	STH3	K75C	-H1	X1		
										K77C	-S1LC	182		O	13	STH3	K77C	-H0	X1		
										K27C	-X2	19	A	O	14	STH3	K27C	-S1LC	191		
										K23C	-K61	34		O	15	STH3	K23C	-S1LC	203		
											-K13	61									
										K204	-Y3LC	A2		O	16	STH3	K204	-LB	16 B		
										K223	-LB	18	B	O	17	STH3	K223	-B4LC	21		
										K225	-B4LC	22		O	18	STH3	K225	-X2	24 A		
										K57C	-X3	19	A	O	19	STH3	K57C	-S1LC	221		
										K53C	-K12	61		O	20	STH3	K53C	-S1LC	233		
											-K61A	34									
										K304	-Y4LC	A2		O	21	STH3	K304	-LB	21 B		
										K323	-LB	23	B	O	22	STH3	K323	-B4LC	31		
										K325	-B4LC	32		O	23	STH3	K325	-X3	24 A		
										U3	-X6	3	B	O	24	STH3	U3	-B4LC	13		
										U4	-B4LC	12		O	25	STH3	U4	-X6	4 A		
										U5C	-X6	9	A	O	26	STH3	U5C	-S16BLC	2		
										U6C	-S16BLC	1		O	27	STH3	U6C	-X6	10 A		
										K21	-LB	28	A	O	28	STH3	K21	-S1LC	83		
										K229	-S1LC	84		O	29	STH3					
										K229	-LB	30	A	O	30	STH3	K229	-S1LC	91		
										K231	-S1LC	92		O	31	STH3	K231	-LB	31 B		
										K51	-LB	32	A	O	32	STH3	K51	-S1LC	193		

SCREEN BUS	↓ FIXED LINK	┌ INSERTABLE JUMPER	✕ INSULATING WASHER
N-BUS	┆ SHORT CIRCUIT LINK	— SECTION INSULATING WASHER	✕✕ COVER
PE-BUS			
USED CORES TOTAL			
CONTINUED ON SHEET			

Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD.	Descp:	420kV, 63kA, 4000A-SF6-CB	SO NO:		Qty:		=ZZA
Prep.	MSR	CONTRACTOR:	As Applicable	Aurangabad	Type:	3AP2FI					++
Ckd.	SB	PROJECT:	As Applicable		Dwg. Name:	Terminal Plan					Sh. 5
Issue		PO.NO.:	As Applicable								21 Sh.
Remarks		ORIGINAL/REPLACEMENT FOR/REPLACED BY:									
Date											
Name											

1	CABLE DESTINATION	2	TYPE, CORE NO., CROSS SECTION	3	DEST./ITEM DES.	LEVEL	4		5	6	7	8
							A C	D B				
1							<input type="radio"/>	<input type="radio"/>				
2							<input type="radio"/>	<input type="radio"/>				
3							<input type="radio"/>	<input type="radio"/>				
4							<input type="radio"/>	<input type="radio"/>				
5							<input type="radio"/>	<input type="radio"/>				
6							<input type="radio"/>	<input type="radio"/>				
7							<input type="radio"/>	<input type="radio"/>				
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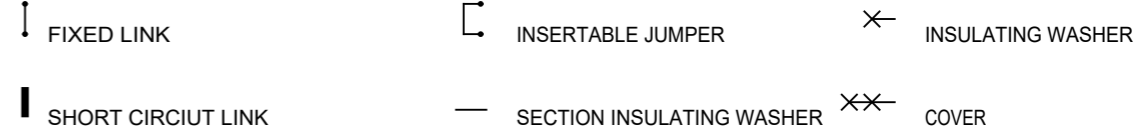


TERMINAL	LINE-UP TERMINAL TYPE	TYPE OF WIRING
	42xSTH3	1) EQUIPMENT WIRING

CABLE CONNECTION TO TERMINATION
 A C B D

										TERMINATION A/C			TERMINAL STRIP			TYPE	TERMINATION B/D			
										DESTINATION/ITEM DESIGNATION			-X1LA				DESTINATION/ITEM DESIGNATION			
1	2	3	4	5	6	7	8	9	10		LINK	NO.								
										U101A	-S1LA	29				1	STH3			
										U102A	-S1LA	20				2	STH3			
										U103A	-S1LA	103				3	STH3			
										U104A	-S1LA	104				4	STH3			
										U105A	-S1LA	111				5	STH3			
										U106A	-S1LA	112				6	STH3			
										U107A	-S1LA	113				7	STH3			
										U108A	-S1LA	114				8	STH3	U108A -X1LB 7 B		
										U109A	-S1LA	121				9	STH3			
										U110A	-S1LA	122				10	STH3	U110A -X1LB 9 B		
										U111A	-S1LA	123				11	STH3			
										U112A	-S1LA	124				12	STH3	U112A -X1LB 11 B		
										U113A	-S1LA	131				13	STH3			
										U114A	-S1LA	132				14	STH3	U114A -X1LB 13 B		
										U115A	-S1LA	133				15	STH3	U115A -X1LB 15 B		
										U116A	-S1LA	134				16	STH3			
										U117A	-S1LA	141				17	STH3	U117A -X1LB 17 B		
										U118A	-S1LA	142				18	STH3			
										U119A	-S1LA	143				19	STH3	U119A -X1LB 19 B		
										U120A	-S1LA	144				20	STH3			
										U121A	-S1LA	151				21	STH3	U121A -X1LB 21 B		
										U122A	-S1LA	152				22	STH3			
										U123A	-S1LA	153				23	STH3	U123A -X1LB 23 B		
										U124A	-S1LA	154				24	STH3			
										U125A	-S1LA	161				25	STH3	U125A -X1LB 25 B		
										U126A	-S1LA	162				26	STH3			
										U127A	-S1LA	93				27	STH3			
										U128A	-S1LA	94				28	STH3	U128A -X1LB 27 B		
										U129A	-S1LA	71				29	STH3			
										U130A	-S1LA	72				30	STH3	U130A -X1LB 29 B		
										U131A	-S1LA	163				31	STH3			
										U132A	-S1LA	164				32	STH3	U132A -X1LB 31 B		
										U133A	-S1LA	81				33	STH3			
										U134A	-S1LA	82				34	STH3	U134A -X1LB 33 B		
										U135A	-S1LA	173				35	STH3			
										U136A	-S1LA	174				36	STH3	U136A -X1LB 35 B		
										U137A	-S1LA	101				37	STH3			
										U138A	-S1LA	102				38	STH3	U138A -X1LB 37 B		
										U139A	-S1LA	253				39	STH3			
										U140A	-S1LA	254				40	STH3	U140A -X1LB 39 B		

SCREEN BUS
 N-BUS
 PE-BUS
 USED CORES TOTAL
 CONTINUED ON SHEET



Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD.	Descp:	420kV, 63kA, 4000A-SF6-CB	SO NO:	Qty:	=ZZA
Prep.	MSR	CONTRACTOR:	As Applicable	Aurangabad	Type:	3AP2FI			++
Ckd.	SB	PROJECT:	As Applicable		Dwg. Name:	Terminal Plan			
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:			Drg No:	(3)G71AHS-OA404-T0696	Sh. 10
									21 Sh.

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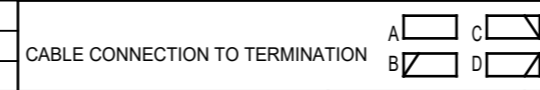
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1	2	3	4	5	6	7	8	
CABLE DESTINATION	TYPE, CORE NO., CROSS SECTION	DEST./ITEM DES.	LEVEL	A C D B O O O O		TERMINAL	LINE-UP TERMINAL TYPE	TYPE OF WIRING
1							42xSTH3	1) EQUIPMENTWIRING
2								
3								
4								
5								
6								
7								
8								
9								
10								

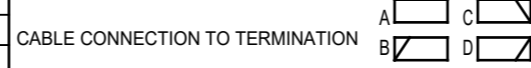
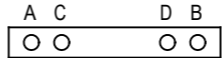


										TERMINATION A/C DESTINATION/ITEM DESIGNATION		TERMINAL STRIP -X1LA	TYPE	TERMINATION B/D DESTINATION/ITEM DESIGNATION	
1	2	3	4	5	6	7	8	9	10			LINK	NO.		
										U141A	-S1LA	171		41	STH3
										U142A	-S1LA	172		42	STH3
															U142A
															-X1LB
															41
															B

SCREEN BUS	↓ FIXED LINK	┌ INSERTABLE JUMPER	⊗ INSULATING WASHER
N-BUS	┆ SHORT CIRCUIT LINK	— SECTION INSULATING WASHER	⊗⊗ COVER
PE-BUS			
USED CORES TOTAL			
CONTINUED ON SHEET			

Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD.	Descp:	420kV, 63kA, 4000A-SF6-CB	SO NO:	Qty:	=ZZA
Prep.	MSR	CONTRACTOR:	As Applicable	Aurangabad	Type:	3AP2FI			++
Ckd.	SB	PROJECT:	As Applicable		Dwg. Name:	Terminal Plan			
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:			Drg No:	(3)G71AHS-OA404-T0696	Sh. 11
									21 Sh.

1	2	3	4	5	6	7	8
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							



										TERMINATION A/C			TERMINAL STRIP			TYPE	TERMINATION B/D				
										DESTINATION/ITEM DESIGNATION			-X1LC				DESTINATION/ITEM DESIGNATION				
1	2	3	4	5	6	7	8	9	10		LINK	NO.									
										U101C	-S1LC	29				1	STH3				
										U102C	-S1LC	20				2	STH3				
										U103C	-S1LC	103				3	STH3				
										U104C	-S1LC	104				4	STH3				
										U105C	-S1LC	111				5	STH3				
										U106C	-S1LC	112				6	STH3				
										U108B	-S1LC	113				7	STH3	U108B	-X1LB	8	B
										U108C	-S1LC	114				8	STH3				
										U110B	-S1LC	121				9	STH3	U110B	-X1LB	10	B
										U110C	-S1LC	122				10	STH3				
										U112B	-S1LC	123				11	STH3	U112B	-X1LB	12	B
										U112C	-S1LC	124				12	STH3				
										U114B	-S1LC	131				13	STH3	U114B	-X1LB	14	B
										U114C	-S1LC	132				14	STH3				
										U115A	-S1LC	133				15	STH3	U115A	-X1LB	15	B
										U116C	-S1LC	134				16	STH3				
										U117A	-S1LC	141				17	STH3	U117A	-X1LB	17	B
										U118C	-S1LC	142				18	STH3				
										U119A	-S1LC	143				19	STH3	U119A	-X1LB	19	B
										U120C	-S1LC	144				20	STH3				
										U121A	-S1LC	151				21	STH3	U121A	-X1LB	21	B
										U122C	-S1LC	152				22	STH3				
										U123A	-S1LC	153				23	STH3	U123A	-X1LB	23	B
										U124C	-S1LC	154				24	STH3				
										U125A	-S1LC	161				25	STH3	U125A	-X1LB	25	B
										U126C	-S1LC	162				26	STH3				
										U128B	-S1LC	93				27	STH3	U128B	-X1LB	28	B
										U128C	-S1LC	94				28	STH3				
										U130B	-S1LC	71				29	STH3	U130B	-X1LB	30	B
										U130C	-S1LC	72				30	STH3				
										U132B	-S1LC	163				31	STH3	U132B	-X1LB	32	B
										U132C	-S1LC	164				32	STH3				
										U134B	-S1LC	81				33	STH3	U134B	-X1LB	34	B
										U134C	-S1LC	82				34	STH3				
										U136B	-S1LC	173				35	STH3	U136B	-X1LB	36	B
										U136C	-S1LC	174				36	STH3				
										U138B	-S1LC	101				37	STH3	U138B	-X1LB	38	B
										U138C	-S1LC	102				38	STH3				
										U140B	-S1LC	253				39	STH3	U140B	-X1LB	40	B
										U140C	-S1LC	254				40	STH3				

SCREEN BUS										FIXED LINK			INSERTABLE JUMPER			INSULATING WASHER			
N-BUS										SHORT CIRCUIT LINK			SECTION INSULATING WASHER			COVER			
PE-BUS																			
USED CORES TOTAL																			
CONTINUED ON SHEET																			

Date		19.02.2024		Customer: Transmission Corporation of Andhra Pradesh Limited		SIEMENS LTD.		Descp:420kV, 63kA, 4000A-SF6-CB		SO NO:		Qty:		=ZZA	
Prep.		MSR		CONTRACTOR:As Applicable		Aurangabad		Type:3AP2FI						++	
Ckd.		SB		PROJECT:As Applicable				Dwg. Name:Terminal Plan						Sh. 14	
Issue		Remarks		Date		Name		ORIGINAL/REPLACEMENT FOR/REPLACED BY:				Drg No: (3)G71AHS-OA404-T0696		21 Sh.	

A

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C

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A

B

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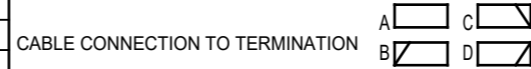
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1	2	3	4	5	6	7	8	
CABLE DESTINATION	TYPE, CORE NO., CROSS SECTION	DEST./ITEM DES.	LEVEL	A C D B O O O O		TERMINAL	LINE-UP TERMINAL TYPE	TYPE OF WIRING
1							2xCSTSN5U	1)
2							13xSTH3	EQUIPMENTWIRING
3								
4								
5								
6								
7								
8								
9								
10								



										TERMINATION A/C DESTINATION/ITEM DESIGNATION		TERMINAL STRIP -X4	TYPE	TERMINATION B/D DESTINATION/ITEM DESIGNATION					
1	2	3	4	5	6	7	8	9	10		LINK	NO.							
										J71	-F23	1	O	1	CSTSN5U				
										J72	-F23	3	O	2	CSTSN5U				
										K71	-F23	2	O	3	STH3	K71	-LA	8	A
										K72	-P1LA	2	O	4	STH3	K72	-F23	4	
										K72	-P1LC	2	O	5	STH3	K72	-P1LB	2	
													O	6	STH3				
													O	7	STH3				
													O	8	STH3				
													O	9	STH3				
													O	10	STH3				
													O	11	STH3				
													O	12	STH3				
													O	13	STH3				
													O	14	STH3				
													O	15	STH3				

SCREEN BUS	↓ FIXED LINK	┌ INSERTABLE JUMPER	⊗ INSULATING WASHER
N-BUS	┆ SHORT CIRCUIT LINK	— SECTION INSULATING WASHER	⊗⊗ COVER
PE-BUS			
USED CORES TOTAL			
CONTINUED ON SHEET			

Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD.	Descp:	420kV, 63kA, 4000A-SF6-CB	SO NO:	Qty:	=ZZA
Prep.	MSR	CONTRACTOR:	As Applicable	Aurangabad	Type:	3AP2FI			++
Ckd.	SB	PROJECT:	As Applicable		Dwg. Name:	Terminal Plan			
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:			Drg No:	(3)G71AHS-OA404-T0696	Sh. 19
									21 Sh.

1	2	3	4	5	6	7	8	
CABLE DESTINATION	TYPE, CORE NO., CROSS SECTION	DEST./ITEM DES.	LEVEL	A C D B O O O O		TERMINAL	LINE-UP TERMINAL TYPE	TYPE OF WIRING
1							5xCSTSN5U	1)
2							6xSTH3	EQUIPMENTWIRING
3								
4								
5								
6								
7								
8								
9								
10								

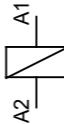
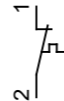




										TERMINATION A/C DESTINATION/ITEM DESIGNATION	TERMINAL STRIP -X5	TYPE	TERMINATION B/D DESTINATION/ITEM DESIGNATION	
1	2	3	4	5	6	7	8	9	10		LINK	NO.		
												1	CSTSN5U	H11A -F16 1
										H3 -X5 5 B		2	CSTSN5U	H31B -F16 3
												3	CSTSN5U	H51C -F16 5
										H51C -F20 1		4	CSTSN5U	H71 -F16 N
										H12 -K9LA 44		5	CSTSN5U	H3 -X5 3 A
										H72 -F16 N1		6	STH3	
												7	STH3	H72 -F20 3
												8	STH3	H12 -K9LC 44
										H13 -X20 N		9	STH3	H74 -F20 4
										H13 -LB 39 B		10	STH3	H13 -R1 2
										H51 -F11 1		11	STH3	H13 -LC 40 A
										-POWER SUPPLY				
										-POWER SUPPLY				

SCREEN BUS	↓ FIXED LINK	┌ INSERTABLE JUMPER	⊗ INSULATING WASHER
N-BUS	┆ SHORT CIRCUIT LINK	— SECTION INSULATING WASHER	⊗⊗ COVER
PE-BUS			
USED CORES TOTAL			
CONTINUED ON SHEET			


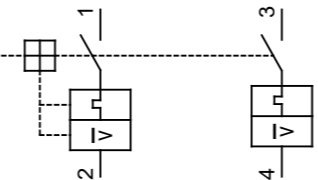
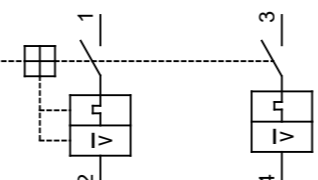

Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD.	Descp:	420kV, 63kA, 4000A-SF6-CB	SO NO:	Qty:	=ZZA
Prep.	MSR	CONTRACTOR:	As Applicable	Aurangabad	Type:	3AP2FI			++
Ckd.	SB	PROJECT:	As Applicable		Dwg. Name:	Terminal Plan			
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:			Drg No:	(3)G71AHS-OA404-T0696	Sh. 20
									21 Sh.

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1	2	3	4	5	6	7	8		
DESIGNATION / TECHNICAL DATA	QTY.	ITEM DESIGNATION	FUNCTIONS	TOTAL ITEM REPRESENTATION AND OTHER TECHNICAL DATA					
COIL 220VDC 330W INSPROSS/SUBHNEEL/Eq	3.00	=ZZA++-Y1LA	CLOSE COIL FOR POLE A		NOTE : DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS. TO BE CHECKED DURING ACCEPTANCE TESTS.				
		=ZZA++-Y1LB	CLOSE COIL FOR POLE B						=WD&EFS/2.3
		=ZZA++-Y1LC	CLOSE COIL FOR POLE C						=WD&EFS/2.4
									=WD&EFS/2.5
THERMOSTAT 0-60 deg C Xexagon / Girish Ego/ APT/Eq	1.00								
		=ZZA++-B1	THERMOSTATE						=WD&EFS/8.6
10 A SIEMENS/Eq	4.00				Chief Engineer Projects				
		=ZZA++-LK1	LINK						=WD&EFS/4.7
		=ZZA++-LK2	LINK						=WD&EFS/4.7
		=ZZA++-LK3	LINK						=WD&EFS/5.7
		=ZZA++-LK4	LINK						=WD&EFS/5.7
RESISTOR 100WATT 230VAC GIRISH EGO/VELICO/Eq	4.00				Drawing approval subject to valid vendor registration				
		=ZZA++-R1	SPACE HEATER						=WD&EFS/8.6
		=ZZA++-R1LA	SPACE HEATER FOR POLE A						=WD&EFS/8.5
		=ZZA++-R1LB	SPACE HEATER FOR POLE B						=WD&EFS/8.6
		=ZZA++-R1LC	SPACE HEATER FOR POLE C						=WD&EFS/8.6




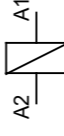
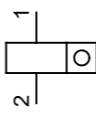
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Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	Descp:	420kV, 63kA, 4000A-SF6-CB	SO NO:		Qty:		
Prep.	MSR	CONTRACTOR:	As Applicable	Type:	3AP2FI					
Ckd.	SB	PROJECT:	As Applicable	Dwg. Name:	Equipment List					
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:					Sh.	1
								Drg No:	(3)G71AHS-OA404-E0696	10 Sh.

1	2	3	4	5	6	7	8
DESIGNATION / TECHNICAL DATA	QTY.	ITEM DESIGNATION	FUNCTIONS	TOTAL ITEM REPRESENTATION AND OTHER TECHNICAL DATA			
PRESSURE TRANSDUCER 12719260 SIGNAL RANGE 4-20mA WIKA/Eq	3.00			 NOTE : DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS. TO BE CHECKED DURING ACCEPTANCE TESTS.			
		=ZZA++-PTLA	PRESSURE TRANSDUCER	=WD&EFS/8.6			
		=ZZA++-PTLB	PRESSURE TRANSDUCER	=WD&EFS/8.6			
		=ZZA++-PTLC	PRESSURE TRANSDUCER	=WD&EFS/8.6			
MCB 2 POLE 16A 440VDC SIEMENS/C&S/Eq	4.00			 Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings, the EPC contractors shall be instructed to supply the same in line with CT/IVT/CVT requirement and compatibility.			
		=ZZA++-F19	MCB FOR DC SUPPLY - 1	=WD&EFS/4.2	=WD&EFS/4.1	Chief Engineer Projects	
		=ZZA++-F21	MCB FOR DC SUPPLY - 2	=WD&EFS/5.2	=WD&EFS/5.1		
		=ZZA++-F22	MCB FOR CLOSING CKT	=WD&EFS/2.2	=WD&EFS/2.1		
		=ZZA++-F23	MCB FOR INDICATION CKT	=WD&EFS/3.5	=WD&EFS/3.5		
MCB 2 POLE 10A 400VAC SIEMENS/C&S/Eq	1.00						
		=ZZA++-F20	MCB FOR UTILITY CIRCUIT	=WD&EFS/8.4	=WD&EFS/8.4		
INDICATING LAMP 220 VDC AMBER SIEMENS/TEKNIC/LAPTRON/Eq	2.00						
		=ZZA++-H5	CTD 1 HEALTHY INDICATION	=WD&EFS/4.7			
		=ZZA++-H6	CTD 2 HEALTHY INDICATION	=WD&EFS/5.7			
Drawing approval subject to valid vendor registration							

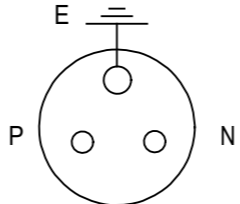
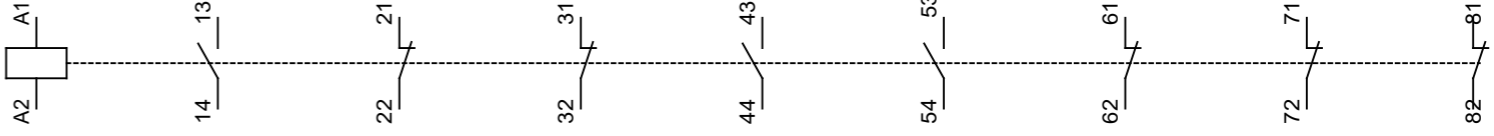
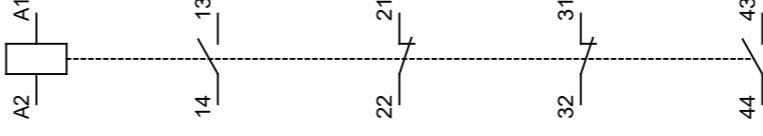
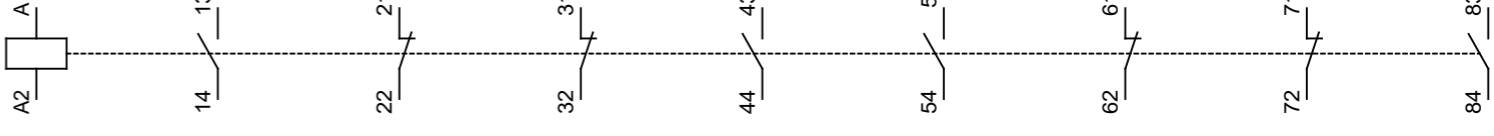
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Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD.	Descp:	420kV, 63kA, 4000A-SF6-CB	SO NO:	Qty:	
Prep.	MSR	CONTRACTOR:	As Applicable	Aurangabad	Type:	3AP2FI			
Ckd.	SB	PROJECT:	As Applicable		Dwg. Name:	Equipment List			
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:			Drg No:	(3)G71AHS-OA404-E0696	Sh. 2 10 Sh.

1	2	3	4	5	6	7	8
DESIGNATION / TECHNICAL DATA	QTY.	ITEM DESIGNATION	FUNCTIONS	TOTAL ITEM REPRESENTATION AND OTHER TECHNICAL DATA			
INDICATING LAMP 220 VDC BLUE SIEMENS/TEKNIC/LAPTRON/Eq	1.00	=ZZA+++H2	SPRING CHARGED INDICATION		NOTE : DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS. TO BE CHECKED DURING ACCEPTANCE TESTS.		
				=WD&EFS/3.8			
INDICATING LAMP 220 VDC GREEN SIEMENS/TEKNIC/LAPTRON/Eq	1.00	=ZZA+++H0	BREAKER OFF INDICATION				
				=WD&EFS/3.7			
INDICATING LAMP 220 VDC RED SIEMENS/TEKNIC/LAPTRON/Eq	1.00	=ZZA+++H1	BREAKER ON INDICATION				
				=WD&EFS/3.7			
COIL 220VDC 1300W INSPROSS/SUBHNEEL/Eq	6.00				Chief Engineer Projects		
		=ZZA+++Y3LA	TRIP COIL - 1 FOR POLE A	=WD&EFS/4.3			
		=ZZA+++Y3LB	TRIP COIL - 1 FOR POLE B	=WD&EFS/4.5			
		=ZZA+++Y3LC	TRIP COIL - 1 FOR POLE C	=WD&EFS/4.6			
		=ZZA+++Y4LA	TRIP COIL - 2 FOR POLE A	=WD&EFS/5.3			
		=ZZA+++Y4LB	TRIP COIL - 2 FOR POLE B	=WD&EFS/5.5			
		=ZZA+++Y4LC	TRIP COIL - 2 FOR POLE C	=WD&EFS/5.6			
IMPULSE COUNTER 220VDC GIC/Eq	3.00				Drawing approval subject to valid vendor registration		
		=ZZA+++P1LA	COUNTER FOR POLE A	=WD&EFS/3.5			
		=ZZA+++P1LB	COUNTER FOR POLE B	=WD&EFS/3.6			
		=ZZA+++P1LC	COUNTER FOR POLE C	=WD&EFS/3.6			

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Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD.	Descp:	420kV, 63kA, 4000A-SF6-CB	SO NO:	Qty:	
Prep.	MSR	CONTRACTOR:	As Applicable	Aurangabad	Type:	3AP2FI			
Ckd.	SB	PROJECT:	As Applicable		Dwg. Name:	Equipment List			
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:			Drg No:	(3)G71AHS-OA404-E0696	Sh. 3 10 Sh.

1	2	3	4	5	6	7	8							
DESIGNATION / TECHNICAL DATA	QTY.	ITEM DESIGNATION	FUNCTIONS	TOTAL ITEM REPRESENTATION AND OTHER TECHNICAL DATA										
SOCKET 240V 5A ANCHOR/MDS//Eq	1.00													
		=ZZA++-X20	SOCKET					=WD&EFS/8.7	Chief Engineer Projects					
AUXILIARY CONTACTOR 2NO+2NC & add on 1NO+3NC 220V DC SIEMENS/C&S//Eq	2.00													
		=ZZA++-K12	DC SUPPLY 1 MONITORING					=WD&EFS/4.2	=WD&EFS/5.7	=WD&EFS/5.8	=WD&EFS/7.3	=WD&EFS/5.8	=WD&EFS/4.7	
		=ZZA++-K13	DC SUPPLY -2 MONITORING					=WD&EFS/5.2	=WD&EFS/7.3	=WD&EFS/4.7	=WD&EFS/4.8	=WD&EFS/4.8	=WD&EFS/5.7	
AUXILIARY CONTACTOR 2NO+2NC 230V AC SIEMENS/C&S//Eq	1.00													
		=ZZA++-K3	UTILITY SUPPLY MONITORING					=WD&EFS/8.4	=WD&EFS/7.8	=WD&EFS/7.8				
AUXILIARY CONTACTOR 2NO+2NC & ADD ON 2NO+2NC 220V DC SIEMENS/C&S//Eq	5.00													
		=ZZA++-K10	GENERAL LOCKOUT					=WD&EFS/4.8	=WD&EFS/4.3	=WD&EFS/6.5	=WD&EFS/4.7	=WD&EFS/2.2	=WD&EFS/7.1	=WD&EFS/7.2
		=ZZA++-K10A	GENERAL LOCKOUT					=WD&EFS/5.8	=WD&EFS/5.3	=WD&EFS/6.5	=WD&EFS/5.7	=WD&EFS/2.2	=WD&EFS/7.1	=WD&EFS/7.2
		=ZZA++-K75LA	ANTI PUMPING DEVICE					=WD&EFS/2.5	=WD&EFS/2.6	=WD&EFS/2.3	=WD&EFS/2.3			
		=ZZA++-K75LB	ANTI PUMPING DEVICE					=WD&EFS/2.6	=WD&EFS/2.6	=WD&EFS/2.4	=WD&EFS/2.4			
=ZZA++-K75LC	ANTI PUMPING DEVICE	=WD&EFS/2.7	=WD&EFS/2.7	=WD&EFS/2.5	=WD&EFS/2.5									

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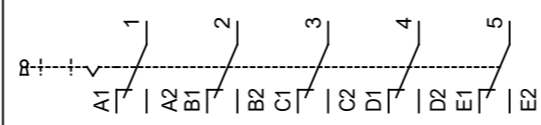
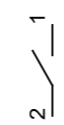
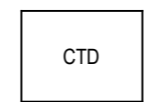
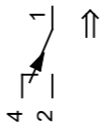
Drawing approval subject to valid vendor registration

Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD. Aurangabad	Descp:420kV, 63kA, 4000A-SF6-CB Type:3AP2FI Dwg. Name:Equipment List	SO NO:	Qty:	Sh. 4
Prep.	MSR	CONTRACTOR:	As Applicable					
Ckd.	SB	PROJECT:	As Applicable					
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:		Drg No: (3)G71AHS-OA404-E0696		Sh. 10

1	2	3	4	5	6	7	8
DESIGNATION / TECHNICAL DATA	QTY.	ITEM DESIGNATION	FUNCTIONS	TOTAL ITEM REPRESENTATION AND OTHER TECHNICAL DATA			
ON-DELAY 3RP1525-1BW30 24-240VAC/DC SIEMENS/GIC/Eq	2.00						
		=ZZA++-K16	ON DELAY TIMER	=WD&EFS/6.2	=WD&EFS/6.1	=WD&EFS/7.5	
		=ZZA++-K16A	ON DELAY TIMER	=WD&EFS/6.4	=WD&EFS/6.3	=WD&EFS/7.6	
PUSH BUTTON RED 2NO SIEMENS/TEKNIC/LAPTRON	1.00						
		=ZZA++-S20	CLOSING	=WD&EFS/2.2	Chief Engineer Projects		
PUSH BUTTON GREEN 4NO SIEMENS/TEKNIC/LAPTRON/Eq	1.00						
		=ZZA++-S21	OPENING	=WD&EFS/4.2	=WD&EFS/5.2		
PUSH BUTTON YELLOW 2NO+2NC SIEMENS/TEKNIC/LAPTRON/Eq	1.00						
		=ZZA++-S22	CTD CHECK	=WD&EFS/4.7	=WD&EFS/5.7	=WD&EFS/4.7	=WD&EFS/5.7
MCB FOR MOTOR 4 P, 10A 400VAC SIEMENS/C&S/Eq	1.00						
		=ZZA++-F16	MCB FOR MOTOR SUPPLY	=WD&EFS/8.2	=WD&EFS/8.3	=WD&EFS/8.3	=WD&EFS/8.1
Drawing approval subject to valid vendor registration							

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Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	Descp:	420kV, 63kA, 4000A-SF6-CB	SO NO:	Qty:	
Prep.	MSR	CONTRACTOR:	As Applicable	SIEMENS LTD.	Type:	3AP2FI		
Ckd.	SB	PROJECT:	As Applicable	Aurangabad	Dwg. Name:	Equipment List		
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:			Drg No: (3)G71AHS-OA404-E0696	Sh. 6 10 Sh.

1	2	3	4	5	6	7	8	
DESIGNATION / TECHNICAL DATA	QTY.	ITEM DESIGNATION	FUNCTIONS	TOTAL ITEM REPRESENTATION AND OTHER TECHNICAL DATA				
SWITCH (LOCAL/REMOTE CONTROL) 5 POLE 2 WAY NON-LOCKABLE 16A 440VAC/DC Switron/Eq	1.00	=ZZA++-S13	LOCAL REMOTE SELECTOR SWITCH					
				=WD&EFS/2.2 =WD&EFS/4.2	=WD&EFS/5.2 =WD&EFS/7.7	=WD&EFS/7.7 =WD&EFS/7.7		
ON/OFF SWITCH 5A, 240VAC ANCHOR/GREAT WHITE/Eq	4.00	=ZZA++-F11	ON/OFF SWITCH					
			=ZZA++-F11LA	ON/OFF SWITCH	=WD&EFS/8.8			
			=ZZA++-F11LB	ON/OFF SWITCH	=WD&EFS/8.7			
			=ZZA++-F11LC	ON/OFF SWITCH	=WD&EFS/8.7			
			=ZZA++-F11LC	ON/OFF SWITCH	=WD&EFS/8.8			
CAPACITOR TRIPPING DEVICE CTD MULTITECH 25W	2.00	=ZZA++-CTD1	CB TRIP IF DC FAILURE					
			=ZZA++-CTD2	CB TRIP IF DC FAILURE	=WD&EFS/4.7			
			=ZZA++-CTD2	CB TRIP IF DC FAILURE	=WD&EFS/5.7			
LIMIT SWITCH FOR SPRING CHARGING 1NO+1NC TECHNIQ MAKE/Eq	6.00	=ZZA++-S16ALA	MOTOR LIMIT SWITCH					
			=ZZA++-S16ALB	MOTOR LIMIT SWITCH	=WD&EFS/3.2			
			=ZZA++-S16ALC	MOTOR LIMIT SWITCH	=WD&EFS/3.2			
			=ZZA++-S16BLA	MOTOR LIMIT SWITCH	=WD&EFS/3.3			
			=ZZA++-S16BLA	MOTOR LIMIT SWITCH	=WD&EFS/6.7			
			=ZZA++-S16BLB	MOTOR LIMIT SWITCH	=WD&EFS/6.8			
			=ZZA++-S16BLC	MOTOR LIMIT SWITCH	=WD&EFS/6.8			

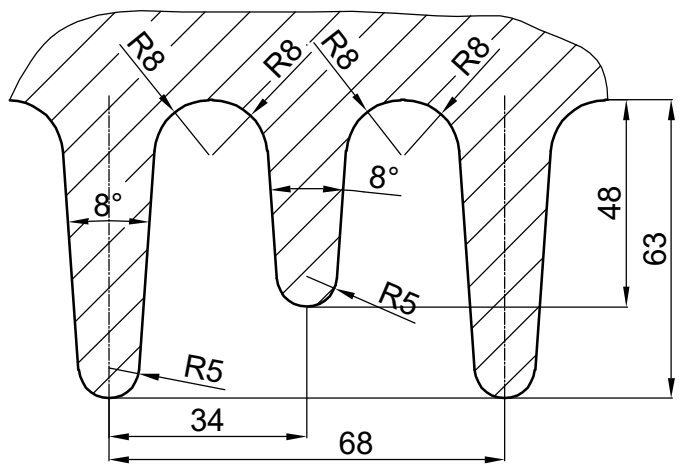
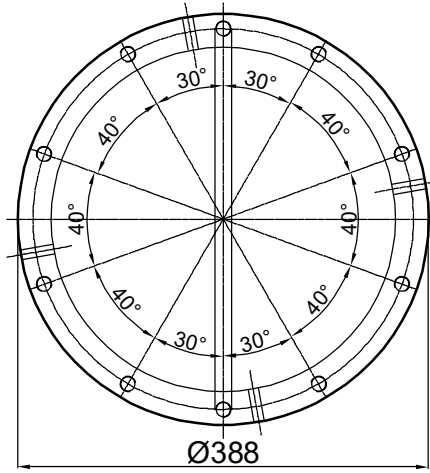
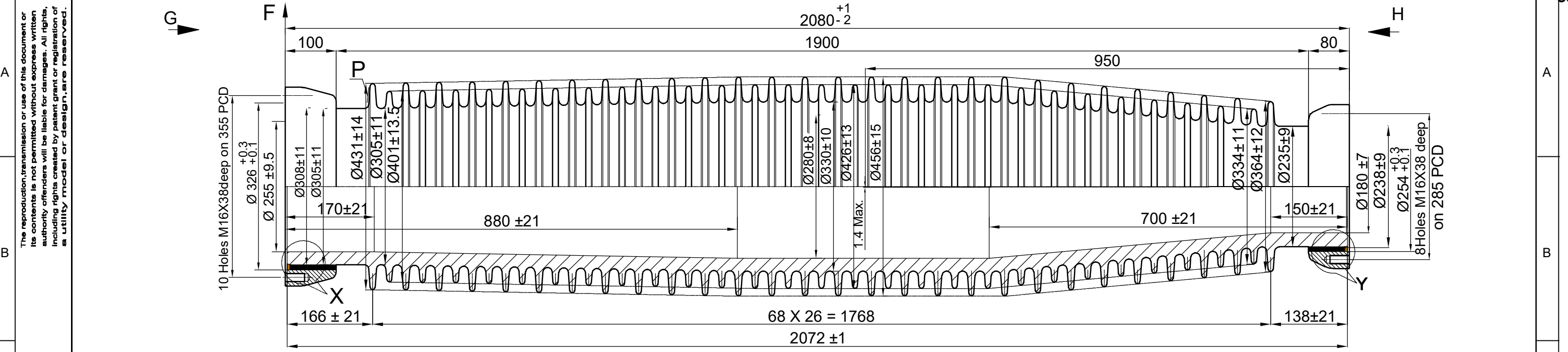
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Chief Engineer
Projects

Drawing approval subject to valid vendor registration

Date	19.02.2024	Customer:	Transmission Corporation of Andhra Pradesh Limited	SIEMENS LTD.	Descp:	420kV, 63kA, 4000A-SF6-CB	SO NO:	Qty:	
Prep.	MSR	CONTRACTOR:	As Applicable	Aurangabad	Type:	3AP2FI			
Ckd.	SB	PROJECT:	As Applicable		Dwg. Name:	Equipment List			
Issue	Remarks	Date	Name	ORIGINAL/REPLACEMENT FOR/REPLACED BY:					Sh. 7
									10 Sh.

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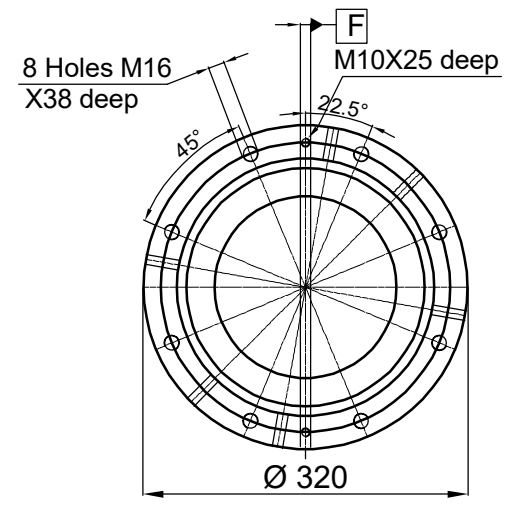
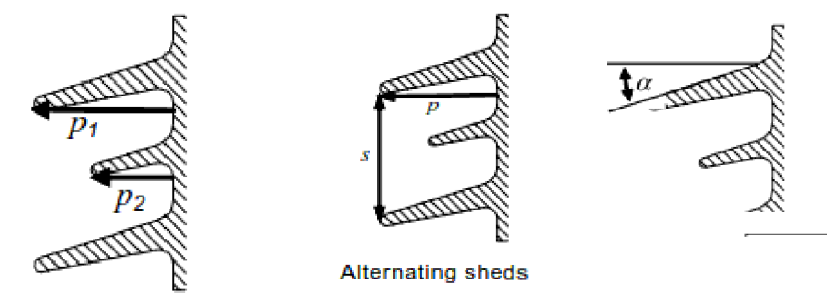


NOTE : DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS.
TO BE CHECKED DURING ACCEPTANCE TESTS.

Chief Engineer
Projects

Drawing approval subject to valid vendor registration

Parameter	Reference value as per IEC 60815-2	Actual value
C	≥30 mm	57.4 mm
s/p	>0.8	1.08
ld/d	<5	4.61
p1-p2	≥15 mm	15 mm
a	>5°	8°
Kad	-	1.041
CF	≤4	3.55

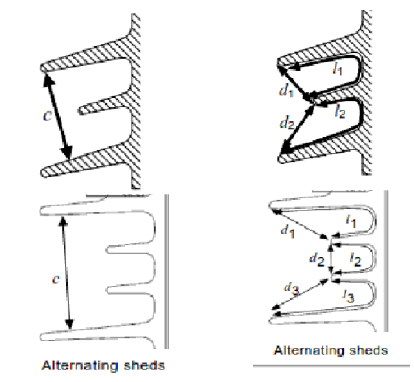


- MECHANICAL CHARACTERISTICS:**
1. Mechanical routine test: Pressure test 30 bar for 1 min
 2. Design pressure 10 bar
 3. 4 way bend test F = 8440N for 10 sec/90 deg.
 4. Min. bending breaking load F > 12058N for 1 min.

- ELECTRICAL PARAMETERS FOR COMPLETE CB:**
1. 1 MIN. P.F. withstand voltage = 610 kV
 2. Lightning Impluse withstand voltage = 1425 kVp

Min. creepage distance : 6750mm
All unspecified dimensional tolerances are as per IEC 62155

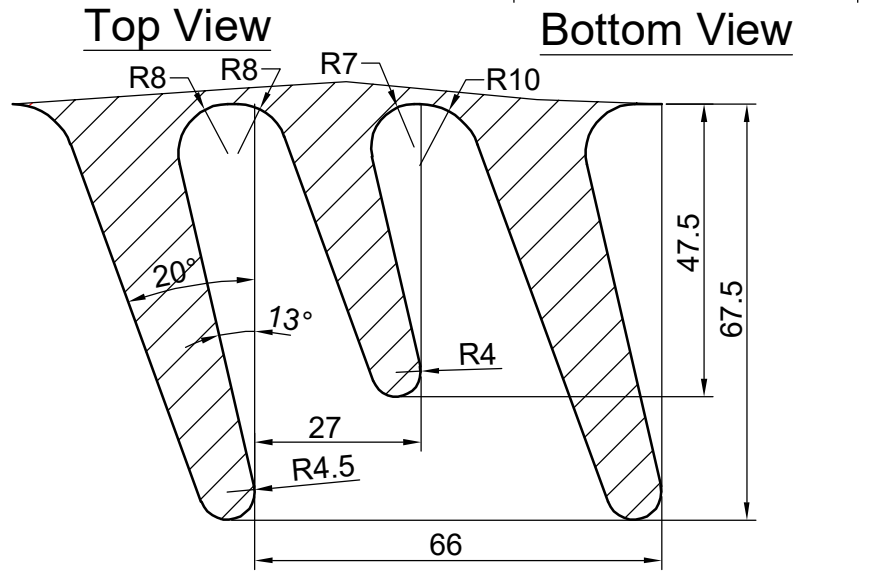
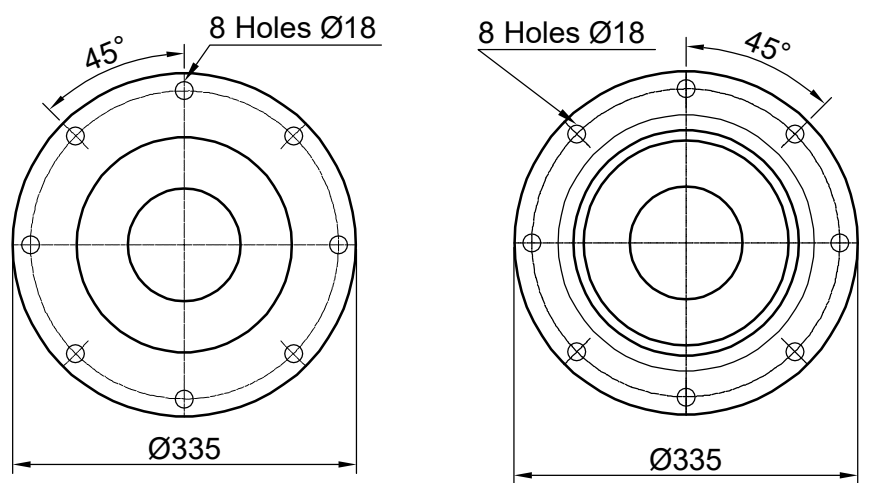
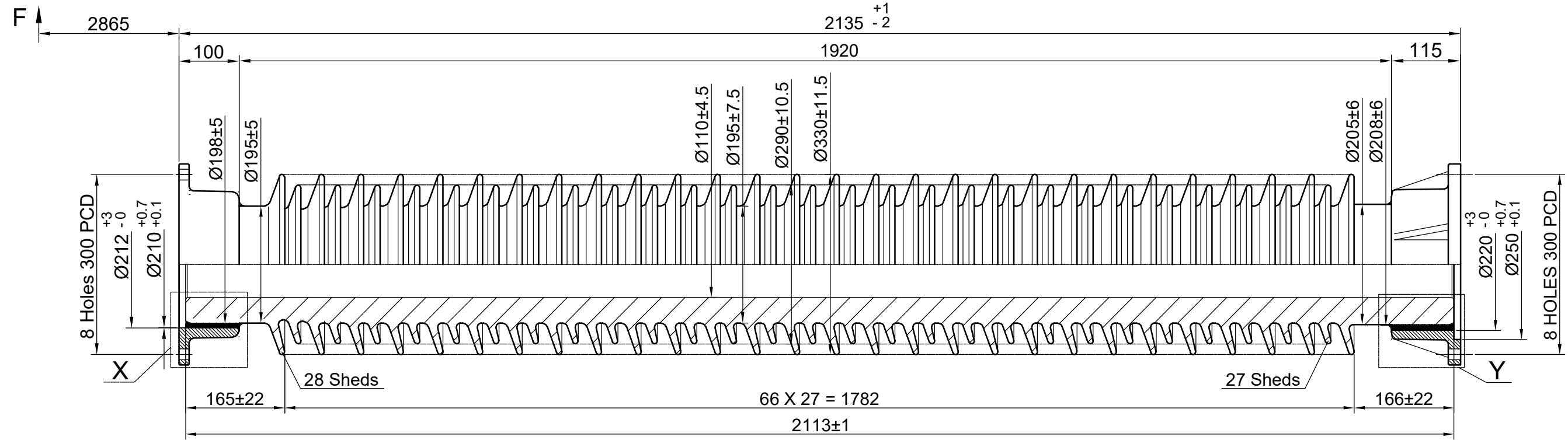
For Reference



Issue	Remarks	Date	Name	Norm.	Original / Replacement for / Replaced by :-	SIEMENS AURANGABAD	Descr : 420kV SF6 Circuit Breaker. Type : 3AP2FI_WOPIR Details : CHAMBER INSULATOR(31mm/kV)	SO No :	Qty:	Drg. No:- (3)G71AHS-OA404-C0696	Sh. 1 3 Sh.

HO/ESD-Coord/9E 03-90 T

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NOTE : DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS.
TO BE CHECKED DURING ACCEPTANCE TESTS.

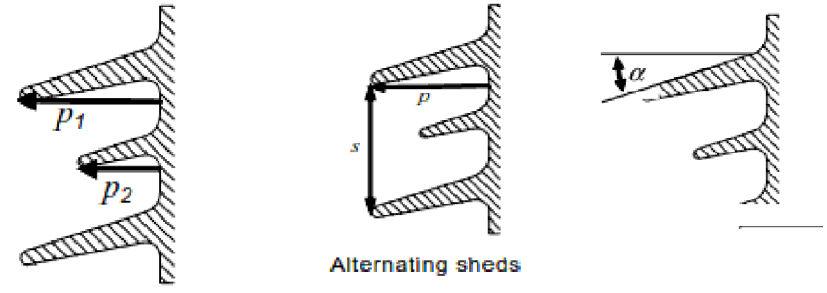
Chief Engineer
Projects

Drawing approval subject to valid vendor registration

Parameter	Reference value as per IEC 60815-2	Actual value
C	≥30 mm	56.4 mm
s/p	>0.8	0.98
ld/d	<5	4.67
p1-p2	≥15 mm	20 mm
a	>5°	20°
Kad	-	1.0
CF	≤4	3.80

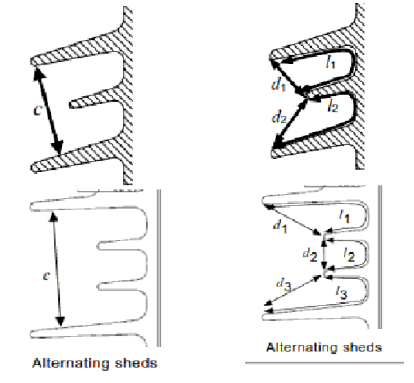
MECHANICAL CHARACTERISTICS:

1. Mechanical routine test: Pressure test 30 bar / 1 min
2. Design pressure 10 bar
3. 4 way bend test F = 4900N for 10 sec./90 deg.
4. Min. bending breaking load F - 7000N for 1 min.



ELECTRICAL PARAMETERS FOR COMPLETE CB:

1. 1 MIN. P.F. withstand voltage = 610 kV
2. Lightning Impluse withstand voltage = 1425 kVp

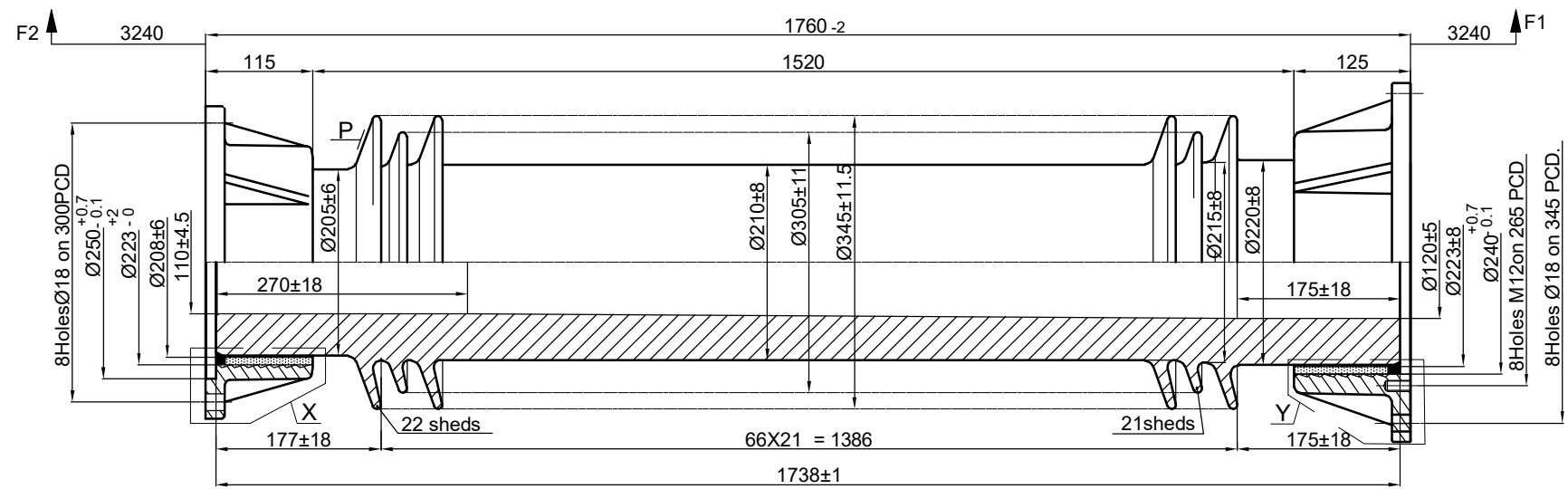


Min. creepage distance : 7304 mm

All unspecified dimensional tolerances are as per IEC 62155

HO/ESD-Coord/9E-03-90	Date	19.02.2024	CLIENT: Transmission Corporation of Andhra Pradesh Limited	SIEMENS	Descr : 420kV SF6 Circuit Breaker.	SO No :	Qty:
	Prep	MSR	CONTRACTOR: As Applicable	AURANGABAD	Type : 3AP2FI_WOPIR	Drg. No:- (3)G71AHS-OA404-C0696	
	Ckd.	SB	PROJECT: As Applicable		Details : TOP SUPPORT INSULATOR(31mm/kV)	Sh. 2	
Issue	Remarks	Date	Name	Norm.	Original / Replacement for /Replaced by :-	3 Sh.	

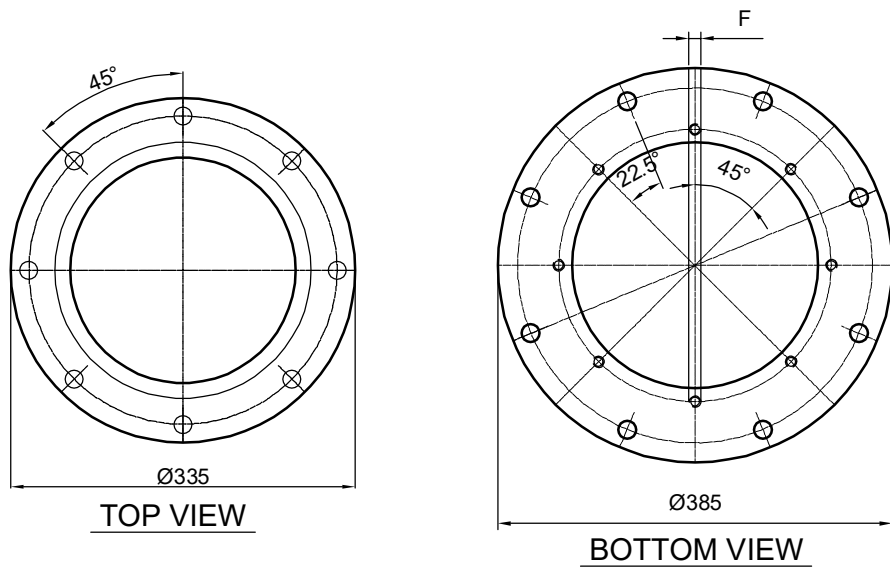
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NOTE : DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS.
TO BE CHECKED DURING ACCEPTANCE TESTS.

Chief Engineer
Projects

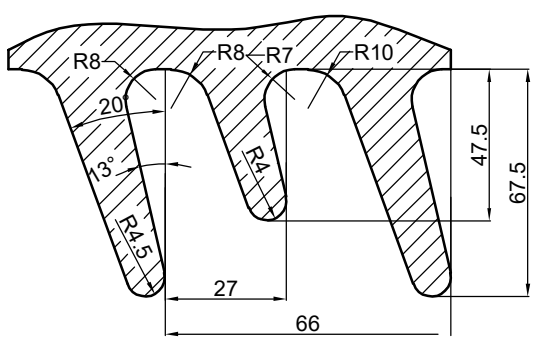
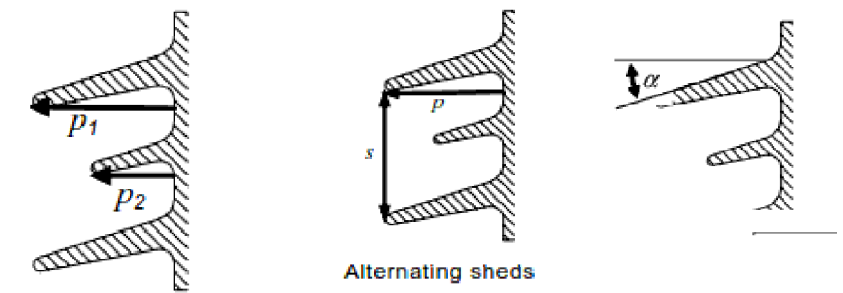
Ground clearance of 8000 mm shall be maintained during erection. Plinth height of 300 mm shall be maintained



Drawing approval subject to valid vendor registration

Detail at X & Y

- MECHANICAL CHARACTERISTICS:**
1. Mechanical routine test: Pressure test 30 bar / 1 min
 2. Design pressure 10 bar
 3. 4 way bend test F1 = 4900Nm for 10 sec.
 4. 4 way bend test F2 = 6300Nm for 10 sec.
 5. Min. bending breaking load F1 - 7000N for 1 min.
 6. Min. bending breaking load F2 - 9000N for 1 min.

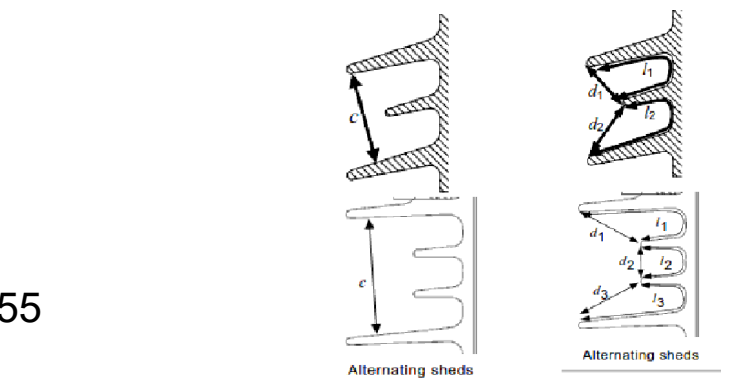


Shed Profile

For Reference

- ELECTRICAL PARAMETERS FOR COMPLETE CB:**
1. 1 MIN. P.F. withstand voltage = 610 kV
 2. Lightning Impulse withstand voltage = 1425 kVp

Min. creepage distance : 5914 mm
All unspecified dimensional tolerances are as per IEC 62155



Alternating sheds

Parameter	Reference value as per IEC 60815-2	Actual value
C	≥30 mm	54.3 mm
s/p	>0.8	0.98
ld/d	<5	4.47
p1-p2	≥15 mm	20 mm
a	>5°	20°
Kad	-	1.0
CF	≤4	3.89

Date	19.02.2024	CLIENT: Transmission Corporation of Andhra Pradesh Limited	SIEMENS	Descr : 420kV SF6 Circuit Breaker.	SO No :	Qty:
Prep	MSR	CONTRACTOR: As Applicable	AURANGABAD	Type : 3AP2FI - W/O PIR	Drg. No:- (3)G71AHS-OA404-C0696	
Ckd.	SB	PROJECT: As Applicable		Details : BOTTOM SUPPORT INSULATOR (31mm/kV)	Sh. 3	
Issue		PO.NO.: As Applicable			3 Sh.	
Remarks		Original / Replacement for /Replaced by :-				

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Ground clearance of 8000 mm shall be maintained during erection. Plinth height of 300 mm shall be maintained

NRV in pole
NRV in pipe

Drawing approval subject to valid vendor registration

NOTE : DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS.
TO BE CHECKED DURING ACCEPTANCE TESTS.

MA

W2

B4

NRV for gas filling

W1

Chief Engineer
Projects

B4 SF6 DENSITY MONITOR (RED/GREEN BAND)
(AMBIENT TEMPERATURE COMPENSATED)

W1 FILLING FLANGE

W2 TEST CONNECTION (OPTIONAL)

MA PRESSURE GAUGE (BARS ABSOLUTE)
(TEMPERATURE COMPENSATED)

HO/ESD-Coord/SE 03-90 T				Date	19.02.2024	CLIENT: Transmission Corporation of Andhra Pradesh Limited	Siemens Ltd.	Descr : 420kV, 63kA, 4000A-SF6-CB	SO No :	Qty:	
				Prep	MSR	CONTRACTOR: As Applicable	AURANGABAD	Type : 3AP2FI-W/O PIR			
				Ckd.	SB	PROJECT: As Applicable		Details : SF6 GAS LINE DIAGRAM			
Issue	Remarks	Date	Name	Norm.		Original / Replacement for /Replaced by :-				Drg. No:- (3)G71AHS-OA404-S0696	Sh. 1 1 Sh.