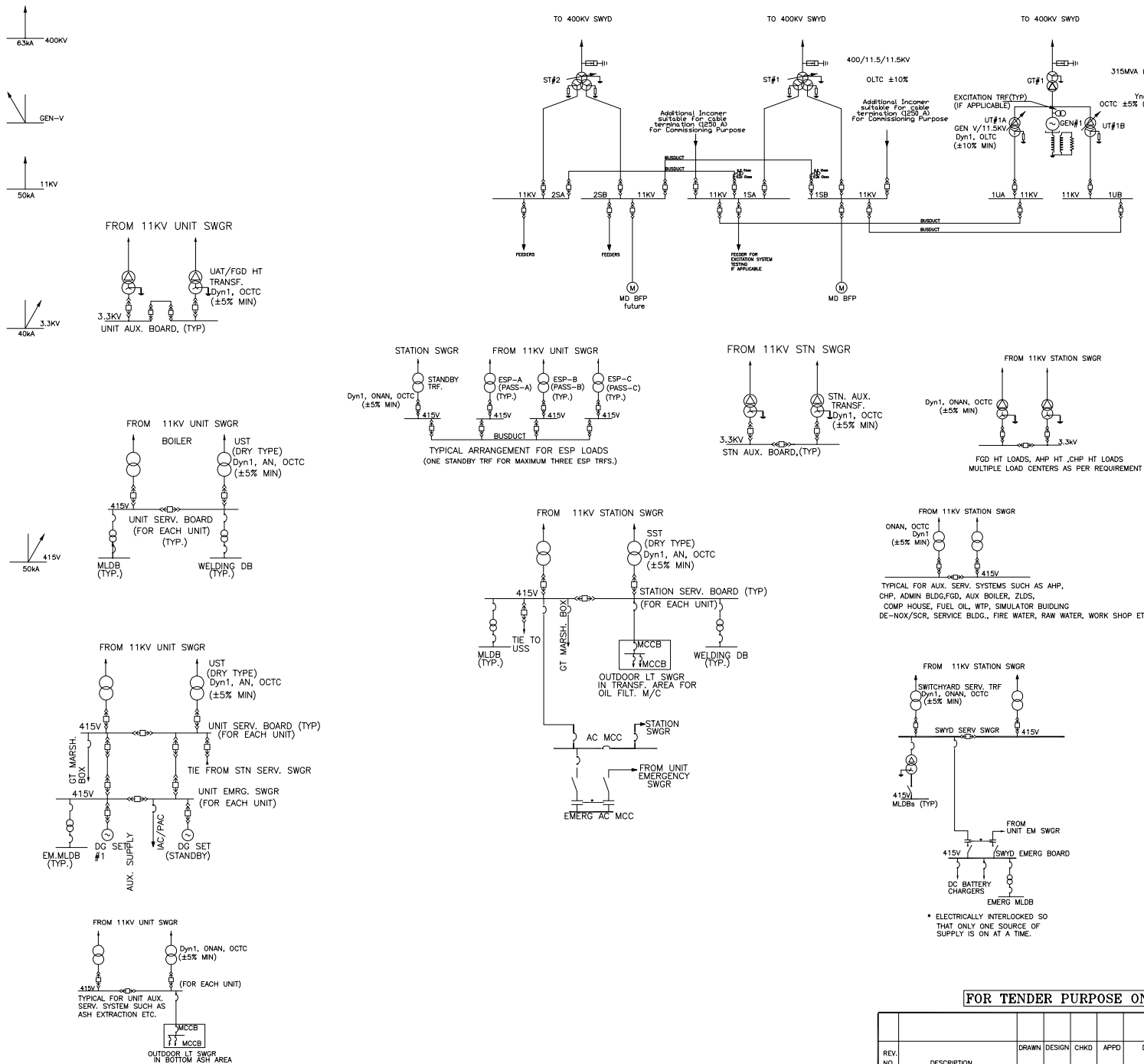




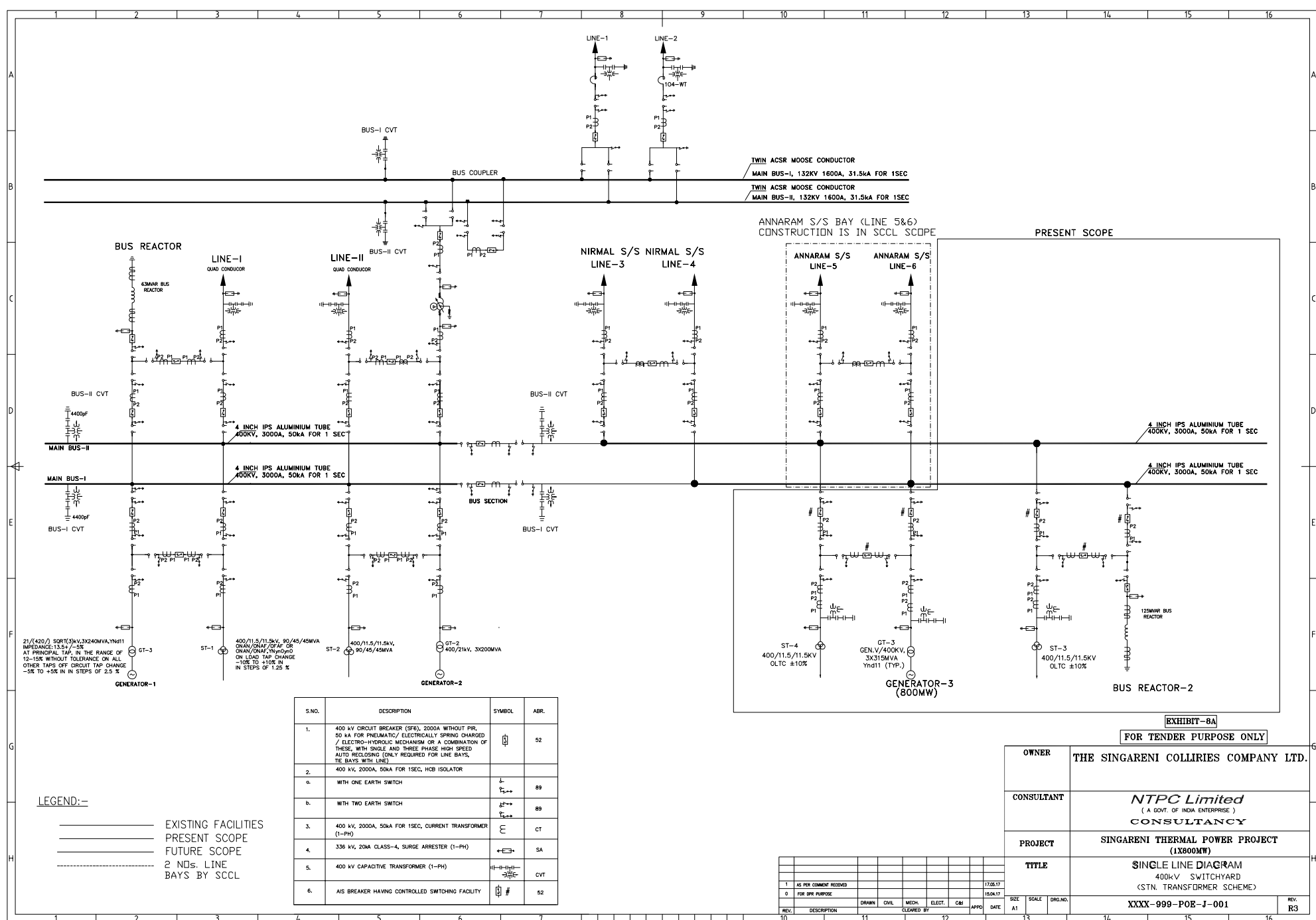
- NOTES:
- ONE MAIN AND ONE STANDBY DIESEL GENERATOR PROVIDED IS CONNECTED TO THE UNIT EMERGENCY BOARD.
 - ONE DIESEL GENERATOR SHALL BE PROVIDED TO CATER FOR FGD EMERGENCY LOAD REQUIREMENT.
 - 2. CHANGEOVER FACILITY**
 - 11KV SYSTEM UNIT BUSES EMPLOY FAST BUS CHANGEOVER FOR RESTORATION OF SUPPLY FROM STATION TRANSFORMER IN CASE OF SUPPLY FAILURE FROM THE RESPECTIVE UNIT TRANSFORMER. MANUAL LIVE CHANGEOVER WITH CHECK SYNCHRONISATION AND SLOW AUTO CHANGEOVER FACILITY AS A BACK-UP IS ALSO PROVIDED FOR THESE BUSES. 11KV SYSTEM STATION BUSES EMPLOY MANUAL LIVE CHANGEOVER.
 - 3.3KV UNIT BUSES ARE PROVIDED WITH FAST BUS CHANGEOVER FOR RESTORATION OF SUPPLY IN CASE OF OUTAGE OF ANY ONE OF THE UNIT AUTO TRANSFORMER. MANUAL LIVE CHANGEOVER WITH CHECK SYNCHRONISATION AND SLOW AUTO CHANGEOVER FACILITY AS A BACK-UP IS ALSO PROVIDED FOR THESE BUSES. OTHER 3.3KV SYSTEM BUSES ARE PROVIDED WITH MANUAL LIVE CHANGEOVER WITH CHECK SYNCHRONISATION AS WELL AS AUTOMATIC SLOW CHANGEOVER.
 - 415V SYSTEM BUSES ARE PROVIDED WITH MANUAL LIVE CHANGEOVER WITH CHECK SYNCHRONISATION AS WELL AS AUTOMATIC SLOW CHANGEOVER.
 - UNIT 415V BUS SECTIONS ARE ADDITIONALLY PROVIDED WITH MANUAL LIVE CHANGEOVER FACILITY WITH CHECK SYNCHRONISATION AND AUTOMATIC CHANGEOVER, WITH THEIR RESPECTIVE DG BUS.
 - 415V EMERGENCY BOARDS ARE NORMALLY FED FROM RESPECTIVE UNIT LV BOARDS. IN THE EVENT OF FAILURE OF NORMAL POWER SUPPLY, MAIN AND STANDBY DG WILL AUTOSTART SIMULTANEOUSLY AND UPON ATTAINING NORMAL VOLTAGE AND FREQUENCY, MAIN DG INCOMERS & US B/C WILL BE CLOSED TO THE RESPECTIVE UNIT EMERGENCY BOARD AND STANDBY DG INCOMER IF REQUIRED WILL BE CLOSED MANUALLY.
 - STANDARD LT TRANSFORMERS RATINGS TO BE USED ARE AS FOLLOWS:
2500/2000/1600/1250 / 1000/630/500/315 kVA
 - ALL BATTERY CHARGERS SHALL HAVE PROVISION FOR RECEIVING 2 INPUT SUPPLIES ALONG WITH SUITABLE AUTOMATIC CHANGEOVER BETWEEN THE SOURCES.
 - CONTROL AND PROTECTION SUPPLIES FOR ALL SWITCHGEARS/OBS/CONTROL PANELS SHALL BE FED FROM TWO DIFFERENT SOURCES/DIFFERENT SECTIONS.
 - THE ARRANGEMENT OF FEEDERS SHOWN IS INDICATIVE IN NATURE SHOWING THE FUNCTIONAL REQUIREMENTS. ACTUAL ARRANGEMENT OF LOAD ON VARIOUS BOARD MAY BE REVIEWED TO ACHIEVE LOAD BALANCING.
 - THE SELECTION OF LT FEEDERS SHALL BE AS INDICATED HEREUNDER:
 - UPTO 400 A - MCCB
 - ABOVE 400 A - BREAKER
 - TIE FROM 415V STATION SERVICE SWGR TO UNIT SERVICE SWGR WILL BE CLOSED ONLY IN CASE OF EMERGENCIES AS MENTIONED BELOW.
 - BOTH UST'S ARE OUT OF SERVICE OR SHUT DOWN ARE TAKEN DUE TO SOME FORCED PROBLEM IN UST'S. UNDER SUCH CONDITION THIS TIE CAN BE CLOSED, AFTER SHIFTING STATION SERVICE LOADS TO OTHER AVAILABLE TRANSFORMER.
 - UNDER ANY EVENTUALITY, OUTAGE OF BOTH THE UST'S & DG SUPPLY NOT BEEN AVAILABLE, THIS TIE CAN BE CLOSED TO RESTORE SUPPLY TO USS/UES AS AN EMERGENCY MEASURE.
 - BIDDER MAY CREATE ADDL 11KV LOAD CENTRES AS PER REQUIREMENT FOR FEEDING OF BULK LOADS LIKE CHP, AHP, FGD, WTP ETC.
 - ROOFTOP SOLAR INCOMER FEEDER FOR ALL BUILDINGS AS LISTED IN TECHNICAL SPECIFICATIONS SHALL HAVE 0.25/0.5 CLASS METERING. BIDDER TO REFER TYPICAL SLD FOR ROOF TOP SOLAR AS INCLUDED IN THE TECHNICAL SPECIFICATION FOR DETAILS.
 - CW PUMPS, CW SYSTEM LOADS AND AIR COMPRESSOR LOADS SHALL BE FED FROM UNIT UNIT SWITCHGEAR.
 - EXCEPT UST, BST, TST AND SST ALL AUXILIARY TRANSFORMERS SHALL BE OF ONAN ONLY.

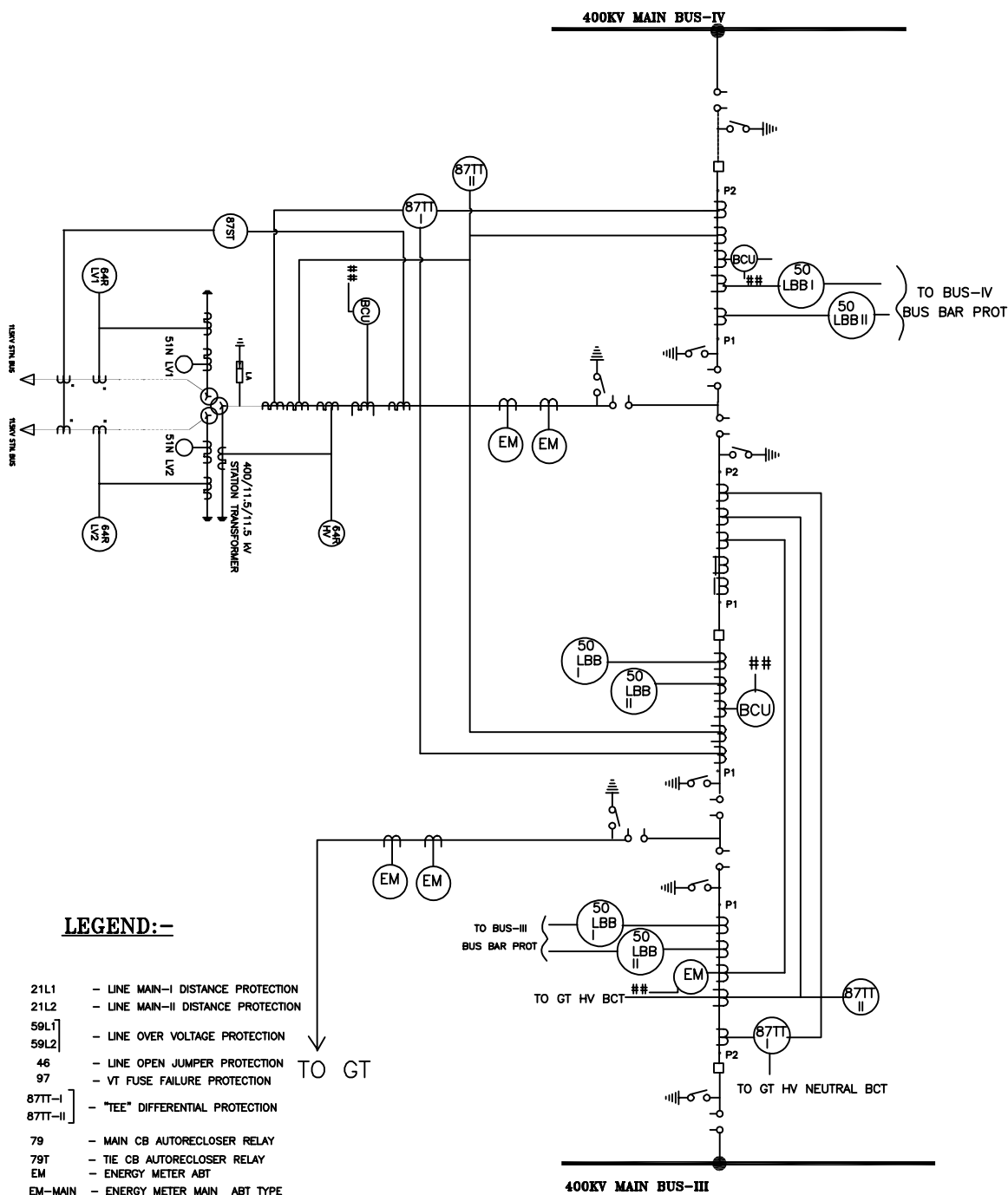
* ELECTRICALLY INTERLOCKED SO THAT ONLY ONE SOURCE OF SUPPLY IS ON AT A TIME.

FOR TENDER PURPOSE ONLY

REV. NO.	DESCRIPTION	DRAWN	DESIGN	CHKD	APPD	DATE

NTPC NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE) DISCLAIMER: DESIGN		PROJECT SINGARENI STPP STAGE-II (1X800 MW)	
TITLE SINGLE LINE DIAGRAM-MAIN PLANT		SIZE A3	SCALE NTS
DRAWING NO. XXXX-999-POE-J-001 SHEET-1		REV. NO. B	





LEGEND:-

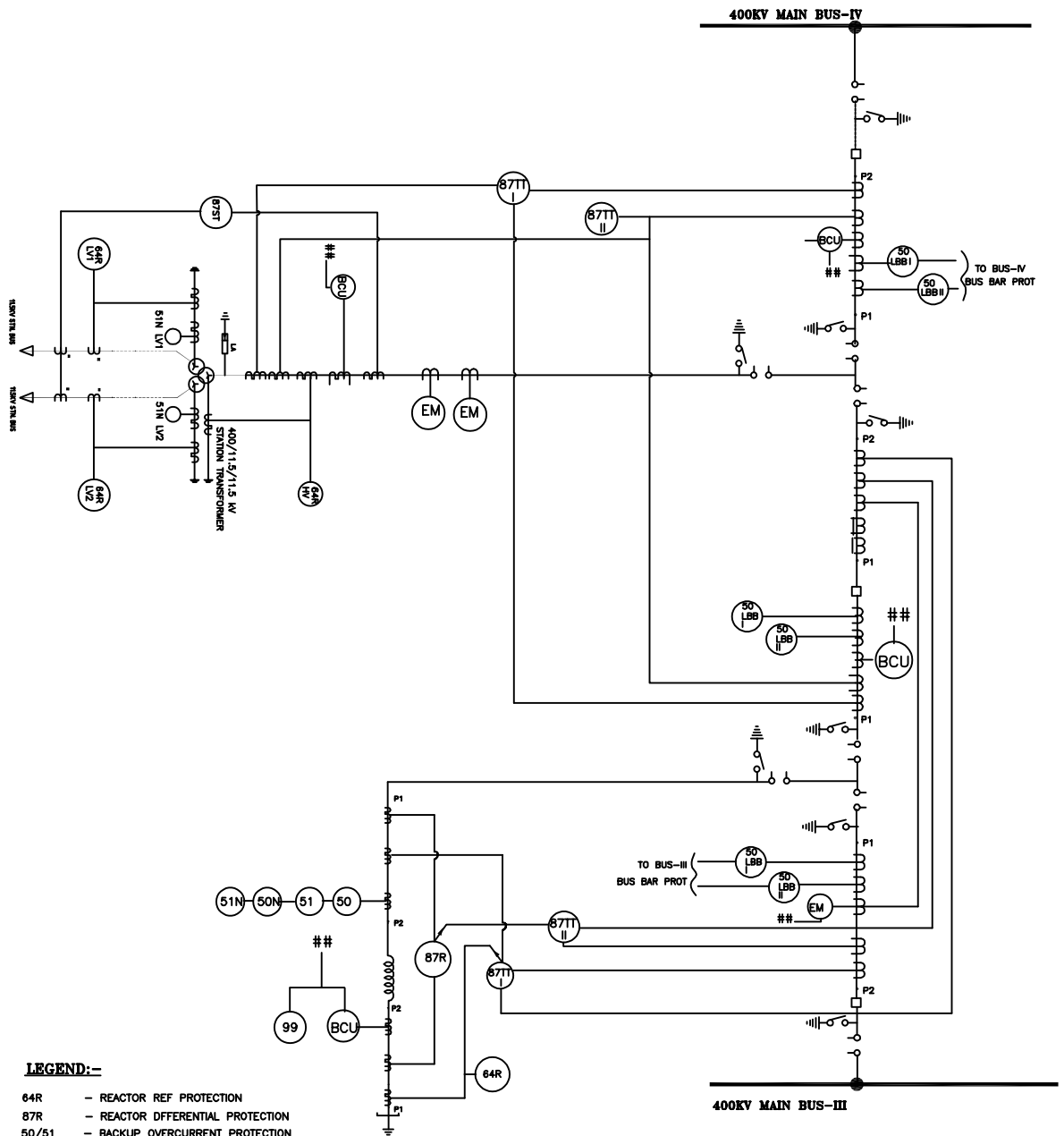
- 21L1 - LINE MAIN-I DISTANCE PROTECTION
- 21L2 - LINE MAIN-II DISTANCE PROTECTION
- 59L1 - LINE OVER VOLTAGE PROTECTION
- 59L2 - LINE OVER VOLTAGE PROTECTION
- 46 - LINE OPEN JUMPER PROTECTION
- 97 - VT FUSE FAILURE PROTECTION
- 87TT-I - "TEE" DIFFERENTIAL PROTECTION
- 87TT-II - "TEE" DIFFERENTIAL PROTECTION
- 79 - MAIN CB AUTORECLOSER RELAY
- 79T - TIE CB AUTORECLOSER RELAY
- EM - ENERGY METER ABT
- EM-MAIN - ENERGY METER MAIN ABT TYPE
- EM-CH - ENERGY METER CHECK ABT TYPE
- 50LBB - BREAKER FAILURE PROTECTION
- 50LBB TB - BREAKER FAILURE PROTECTION TIE BAY
- DR - DIGITAL FAULT RECORDER
- FL - FAULT LOCATOR
- BCU - BAY CONTROL UNIT
- 59C - COMPENSATED OVER VOLTAGE PROTECTION

NOTE:

- ## - Voltage from selected CVT
- ** - To be provided by owner

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एन टी सी NTPC		NTPC Ltd. (A GOVERNMENT OF INDIA ENTERPRISE) ENGINEERING DIVISION	
PROJECT		SINGARENI STG-II (1X800MW)	
TITLE		400kV SWITCHYARD PACKAGE	
PROTECTION S.L.D. FOR GT-TIE-ST DIA			
SIZE	SCALE	DRG. NO.	REV. NO.
--	N.T.S.	xxxx-999-POE-P-003	1



LEGEND:-

- 64R - REACTOR REF PROTECTION
- 87R - REACTOR DIFFERENTIAL PROTECTION
- 50/51 - BACKUP OVERCURRENT PROTECTION
- 50N/51N - BACKUP EARTH FAULT PROTECTION
- 50LBB - BREAKER FAILURE PROTECTION
- 50LBB-TB - BREAKER FAILURE PROTECTION FOR TIE BAY CB
- 87TT-I } - "TEE" DIFFERENTIAL PROTECTION
- 87TT-II }
- 87T - ST DIFFERENTIAL PROTECTION
- 64RHV - ST HV REF PROTECTION
- 99 - REACTOR OVERFLUXING PROTECTION
- BCU - BAY CONTROL UNIT
- EM - ABT COMPLIANT ENERGY METER

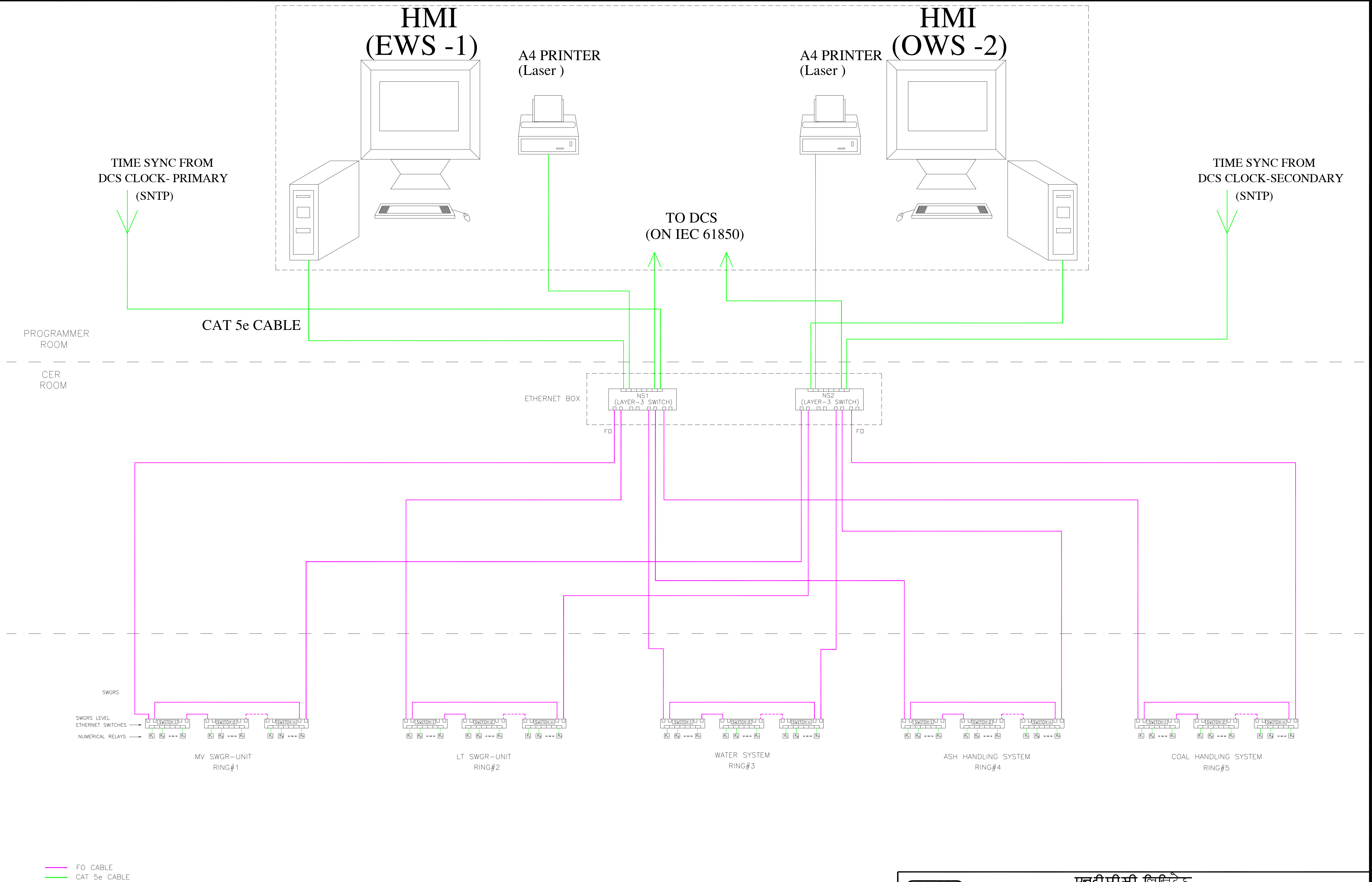
NOTE:

- ## - Voltage from selected CVT
- ** - To be provided by owner

FOR TENDER PURPOSE ONLY

NTPC NTPC Ltd. (A GOVERNMENT OF INDIA ENTERPRISE) ENGINEERING DIVISION		PROJECT		SINGARENI STG-II (1X800MW)	
		TITLE		400KV SWITCHYARD PACKAGE	
				PROTECTION S.L.D. FOR BR-TIE ST DIA	
REV. NO.	DESCRIPTION	DESIGN	CHKD.	APPD	DATE
---	N.T.S.	---	---	---	---
SIZE	SCALE	DRG. NO.	XXXX-999-POE-P-002		REV. NO.
---	N.T.S.	---			1

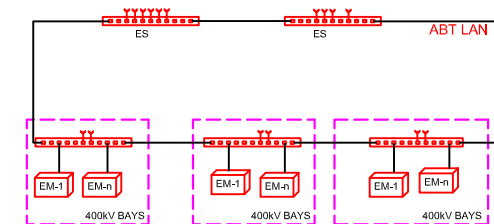
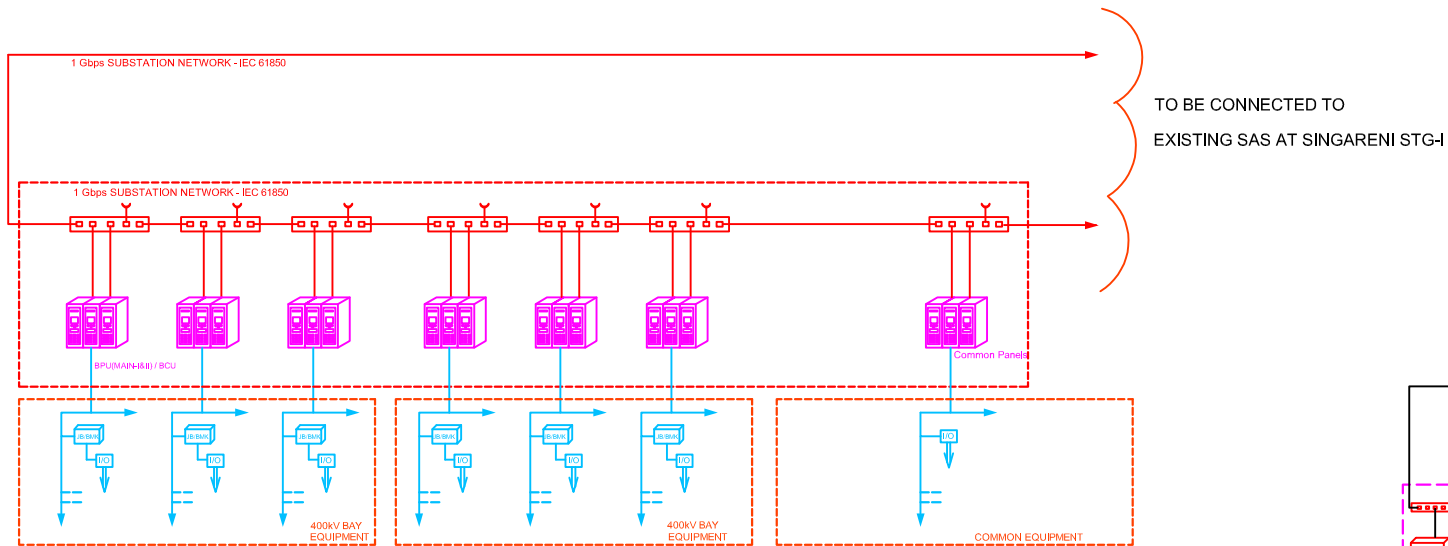
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NOTES:

1. ACTUAL NO OF RELAYS, ETHERNET SWITCHES & ITS PORTS SHALL BE IN LINE WITH THE RELEVANT CLAUSES OF TECHNICAL SPECIFICATIONS.
2. FO CABLE SHALL BE USED TO NETWORK THE ETHERNET SWITCHES.
3. CAT-5e/FO CABLE SHALL BE USED TO CONNECT THE NUMERICAL RELAYS (IEDs) TO ETHERNET SWITCHES IN THE SWITCHBOARDS.
4. EACH EWS TABLE/CONSOLE SHALL HAVE SPACE FOR KEEPING ONE ADDITIONAL PC(OWS) FOR DC HEALTH MONITORING SYSTEM OF MAIN PLANT & SWITCHYARD BATTERIES.
5. EACH RING SHOULD NOT HAVE MORE THAN 120 RELAYS.

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CLEARED BY					PROJECT				
C	E	M	C&I	ES	STANDARD				
					TITLE				
					TYPICAL OVERALL ARCHITECTURE OF SWITCHGEAR RELAY NETWORK				
DRN	DGN	CHKD	APPD	DATE	SCALE	DRAWING No.			REV.
-					NA	0000-205-PDE-A-001			0



NOTES:

1. The SWYD Inter bay bus shall be a ring or dual redundant star topology, fiber optic bus. (This diagram is showing a typical ring topology).
2. All network connections between rooms or buildings shall be via fiber-optic.
3. Metering LAN shall be separate from Substation/Station IEC 61850 LAN.
4. No. of ports in Ethernet Switches are Indicative only.
5. Minimum two no. spare port shall be available in each of the ES.

LEGEND:-

MMI	MAN MACHINE INTERFACE
OWS	OPERATOR WORKSTATION
BCU	BAY CONTROL UNIT
BPU	BAY PROTECTION UNIT
I/O	INPUT AND OUTPUT
BMK/JB	BAY MARSHALLING KIOSK / JUNCTION BOX
RLDC	REGIONAL LOAD DISPATCH CENTRE
GPS	GLOBAL POSITIONING SYSTEM
TSE	TIME SYNCHRONIZING EQUIPMENT
CER	CONTROL EQUIPMENT ROOM
GIS CR	GIS CONTROL ROOM
ES	ETHERNET SWITCH (MANAGED)

TENDER DRAWING
NOT FOR CONSTRUCTION

OWNER:	NTPC LTD.		
PROJECT:	SINGARENI STAGE-II (1X800MW)		
TITLE:	SUBSTATION AUTOMATION SYSTEM		
Design:	Checked:	Approved:	
Date:	Drq No.	Rev No. 01	

3.3 kv switchgear

STEEL
STORAGE
YARD

SPACE PROVISION FOR HYDROGEN PLANT

SPACE PROVISION METHANOL PLANT

LAYDOWN &
PRE-ASSEMBLY
AREA

Plant Sub Station

R134

Plant Sub Station



COVERED SHED

COVERED SHED

COVERED SHED

COVERED SHED

COVERED SHED

SEMI-COVERED

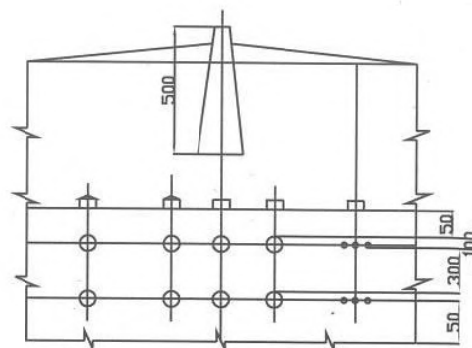
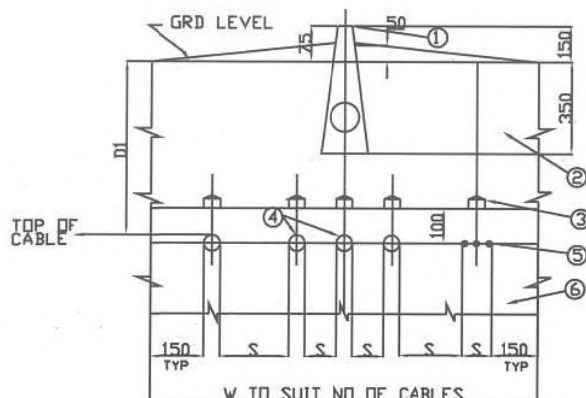


STOP
FOR
PUMP HOUSE

50

ACCESS
ON

FWBPH



DIRECTLY BURIED CABLES IN SINGLE LAYER

DIRECTLY BURIED CABLES IN TWO LAYER

LEGEND

- ① — CABLE ROUTE MARKER
- ② — EARTH BACK FILLED & RAMMED
- ③ — PROTECTIVE COVERS
 - a) BRICKS FOR LOW VOLTAGE CABLES
 - b) RCC FOR HIGH VOLTAGE CABLES WITH HOLE AT EACH END TO TIE EACH OTHER WITH G.S. WIRE
- ④ — ARMoured POWER CABLE
- ⑤ — ARMoured CONTROL CABLE
- ⑥ — FINE SAND/RIDDLLED SOIL COMPACTED

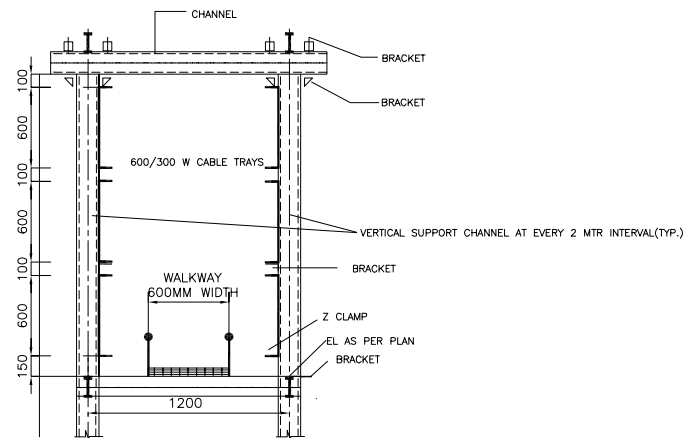
DIMENSION MIN.	1100V GRADE CABLES	FOR 3.3 KV TO 11KV	ABOVE 11KV & UPTO 33KV
D1	750	900	1050
S	= d BETWEEN CABLES OF SAME CLASS = 300MM BETWEEN CABLES OF DEFT CLASS = 400MM BETWEEN 1/C POWER CABLE AND COMMUNICATION CABLE. = 300MM BETWEEN MULTICORE POWER CABLE & COMMUNICATION CABLE.		

d - OVERALL DIAMETER OF THE BIGGER OF THE TWO CABLES.
D1 - MINIMUM DEPTH OF LAYING FROM GROUND SURFACE TO TOP OF CABLES.

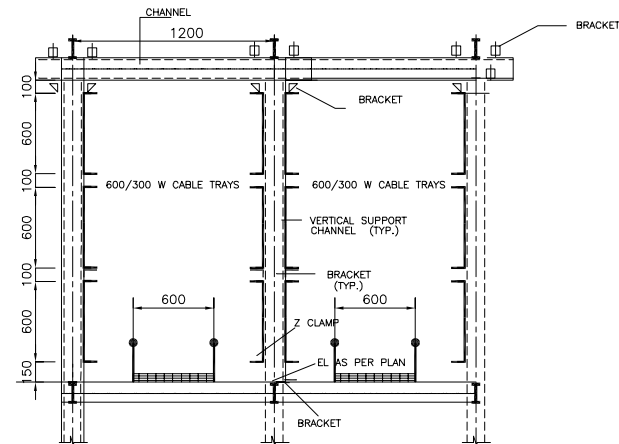
NOTE

1. SINGLE CORE CABLES SHALL BE RUN IN TREFOIL FORMATION AND SHALL BE BOUND BY SELFLOCKING CABLE TIES AT EVERY 750 MM.
2. CABLE IDENTIFICATION TAG SHALL BE TIED AT BOTH ENDS OF THE CABLE.
3. IF THE MINIMUM CLEARANCE AS INDICATED THE ABOVE TABLE FOR CABLES OF DIFFERENT CLASSES ARE NOT FEASIBLE BRICK BARRIERS SHALL BE USED BETWEEN ADJACENT CABLES.
4. G.I/HUME/HDPE. PIPES SHALL BE PROVIDED FOR ROAD CROSSING AT A MINIMUM DEPTH OF 600 FROM THE GRADE LEVEL AS DECIDED BY NTPC.
5. ALL DIMENSIONS ARE IN mm

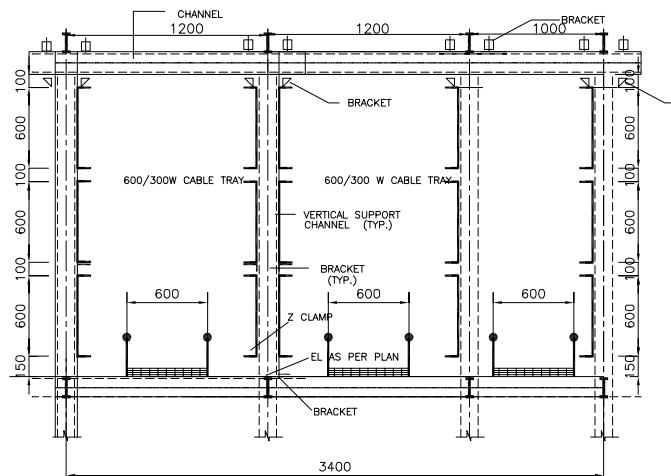
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RB	FOR TENDER PURPOSE	RKG	RKG	SG	-	SS	-	-	-	AS	20.11.2006
RA	FOR TENDER PURPOSE	-	-	-	-	-	-	-	-	-	17.01.2000
REV. NO.	DESCRIPTION	DRAWN	DESIGN	CHKD	M	E	C	C&I	ARCH	APPD	DATE
					CLEARED BY						
		NTPC LTD. (A GOVERNMENT OF INDIA ENTERPRISE) ENGINEERING DIVISION									
PROJECT		STANDARD									
TITLE		BURIED CABLES TRENCH FOR HT & LT CABLES									
SIZE	SCALE	DRG. NO.								REV. NO.	
A4	NTS	0000-211-POE-A-050								RC	



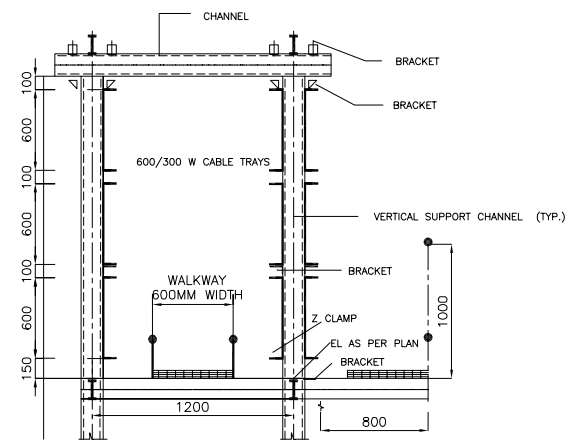
TYPICAL SECTION OF CABLE TRAY ARRANGEMENT (6 NOS).
CABLE TRAYS & ITS SUPPORTING ARRANGEMENT TO BE PROVIDED BY CONTRACTOR
(ALL SUPPORT STRUCTURE & CABLE TRAYS ARE IN CONTRACTOR SCOPE).



TYPICAL SECTION OF CABLE TRAY ARRANGEMENT (UPTO 12 NOS)
CABLE TRAYS & ITS SUPPORTING ARRANGEMENT TO BE PROVIDED BY CONTRACTOR
(ALL SUPPORT STRUCTURE & CABLE TRAYS ARE IN CONTRACTOR SCOPE).



TYPICAL SECTION OF CABLE TRAY ARRANGEMENT (UPTO 18 NOS)
CABLE TRAYS & ITS SUPPORTING ARRANGEMENT TO BE PROVIDED BY CONTRACTOR
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TYPICAL SECTION OF CABLE TRAY ARRANGEMENT (UPTO 9 NOS).
CABLE TRAYS & ITS SUPPORTING ARRANGEMENT TO BE PROVIDED BY CONTRACTOR
(ALL SUPPORT STRUCTURE & CABLE TRAYS ARE IN CONTRACTOR SCOPE).

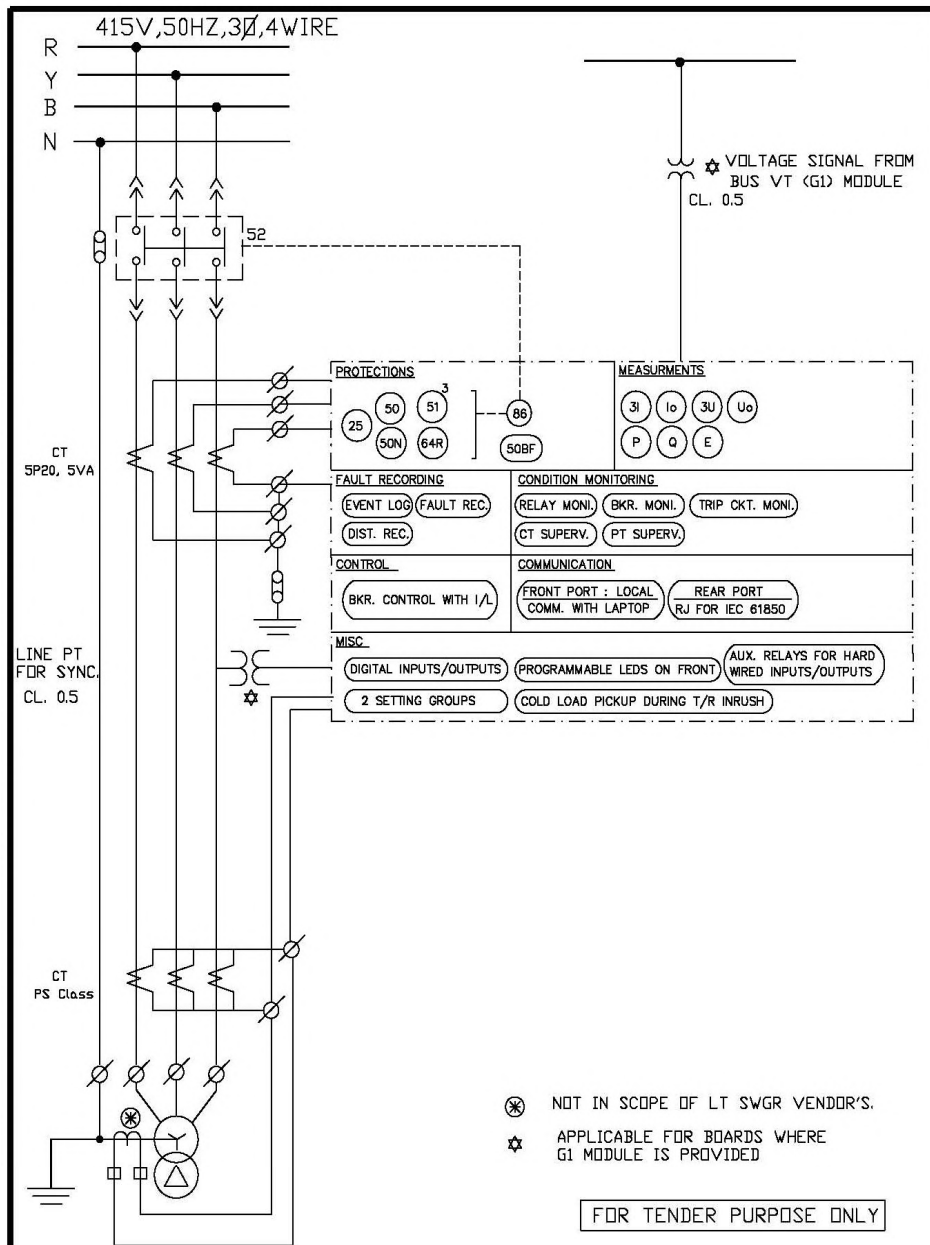
NTPC Limited.
(A Government of India Enterprise)
ENGINEERING DIVISION

TITLE										REV. NO.			
TYPICAL SECTION OF CABLE TRAY ARRANGEMENT IN TRESTDLE										11255-999-POE-J-004			
DESCRIPTION										0			
Cleared by													
APPRO													
DATE													
REV. NO.													
O RELEASED FOR CONSTRUCTION													
DRAWN DESIGN CHKD.													
M E C OBI													
23-01-2015													

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CLAUSE NO.	TECHNICAL REQUIREMENT																																																								
LEGEND DESCRIPTION 52 CIRCUIT BREAKER 42 CONTACTOR 5A SURGE ARRESTOR CURRENT TRANSFORMER CORE BALANCE CURRENT TRANSFORMER VOLTAGE TRANSFORMER 50 TRIPLE POLE IDMTL/DMT O/C PROTECTION 51 TRIPLE POLE INSTANTENIOUS O/C PROTECTION 50N IDMTL/DMT SENSITIVE/F PROTECTION 51N INSTATENIOUS E/F PROTECTION 49 THREE PHASE THERMAL O/L PROT.N.WITH O/L ALARM & RESTART INHIBITE FUNCTION 4L/R STALLING/LOCKED ROTOR PROTECTION 4B THREE PHASE NEGATIVE PHASE SEQUENCE PROTECTION 66 NUMBER OF START LIMITATION /REPATETIVE START PROTECTION 2 THE DELAY PROTECTION 60 FUSE FAILURE PROTECTION 87M 3 PHASE MOTOR DIFFERENTIAL PROTECTION J MCB 85 MPCB LEGEND DESCRIPTION 64R RESTRICTED EARTH FAULT PROTECTION 51G STAND BY EARTH FAULT PROTECTION 87T 3 PHASE UNDER VOLTAGE TRANSFORMER DIFFERENTIAL PROTECTION 27M 3 PHASE UNDER VOLTAGE TRANSFORMER FOR MOTOR TRIPPING 27L 3 PHASE BUS UNDER VOLTAGE 27N NO VOLT PROTECTION FOR BUS 50BF CIRCUIT BREAKER FAILURE PROTECTION 88 LOCKOUT FUNCTION 31 3 PHASE CURRENT MEASUREMENT 1n NEUTRAL CURRENT MEASUREMENT 3U 3 PHASE VOLTAGE MEASUREMENT 1u RESIDUAL VOLTAGE MEASUREMENT P ACTIVE POWER MEASUREMENT Q REACTIVE POWER MEASUREMENT E ENERGY MEASUREMENT PF POWER FACTOR MEASUREMENT 1H FREQUENCY MEASUREMENT 1M HOUR RUN METER 1 MCCB FOR TENDER PURPOSE ONLY एन टी पी सी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE) <table><tr><td colspan="5">CLEARED BY</td><td colspan="2">PROJECT</td></tr><tr><td>C</td><td>E</td><td>M</td><td>C&I</td><td>ES</td><td colspan="2">STANDARD</td></tr><tr><td colspan="5"></td><td colspan="2">TITLE</td></tr><tr><td colspan="5"></td><td colspan="2">LEGEND DETAIL</td></tr><tr><td>DRN</td><td>DGN</td><td>CHKD</td><td>APPD</td><td>DATE</td><td>SCALE</td><td>DRAWING No.</td></tr><tr><td></td><td></td><td></td><td></td><td>18/05/18</td><td></td><td>0000-206-PDE-A-003</td></tr><tr><td colspan="6"></td><td>REV.</td></tr><tr><td colspan="6"></td><td>A</td></tr></table> A3 420X297		CLEARED BY					PROJECT		C	E	M	C&I	ES	STANDARD							TITLE							LEGEND DETAIL		DRN	DGN	CHKD	APPD	DATE	SCALE	DRAWING No.					18/05/18		0000-206-PDE-A-003							REV.							A
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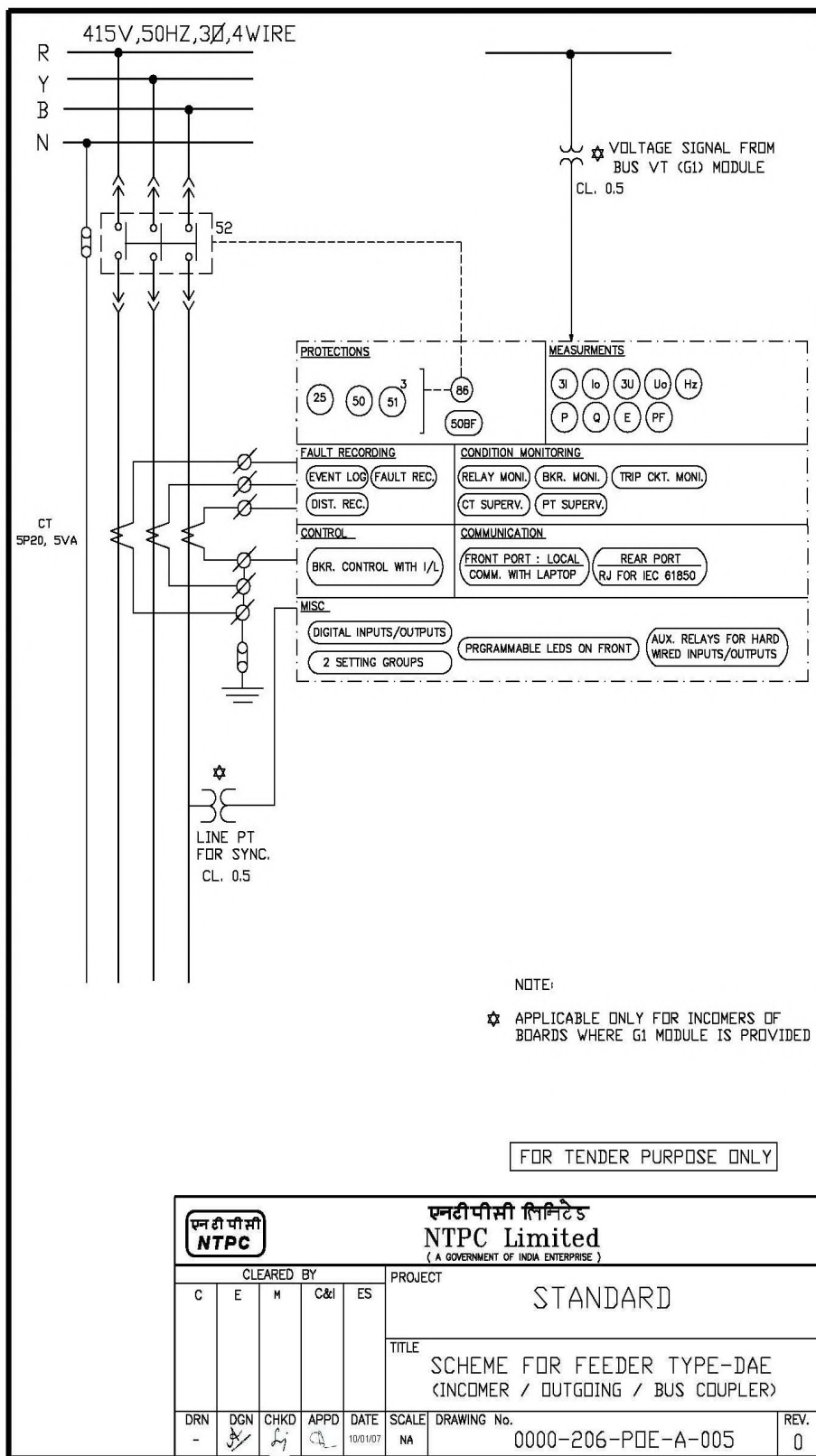
एन टी पी सी लिमिटेड
NTPC

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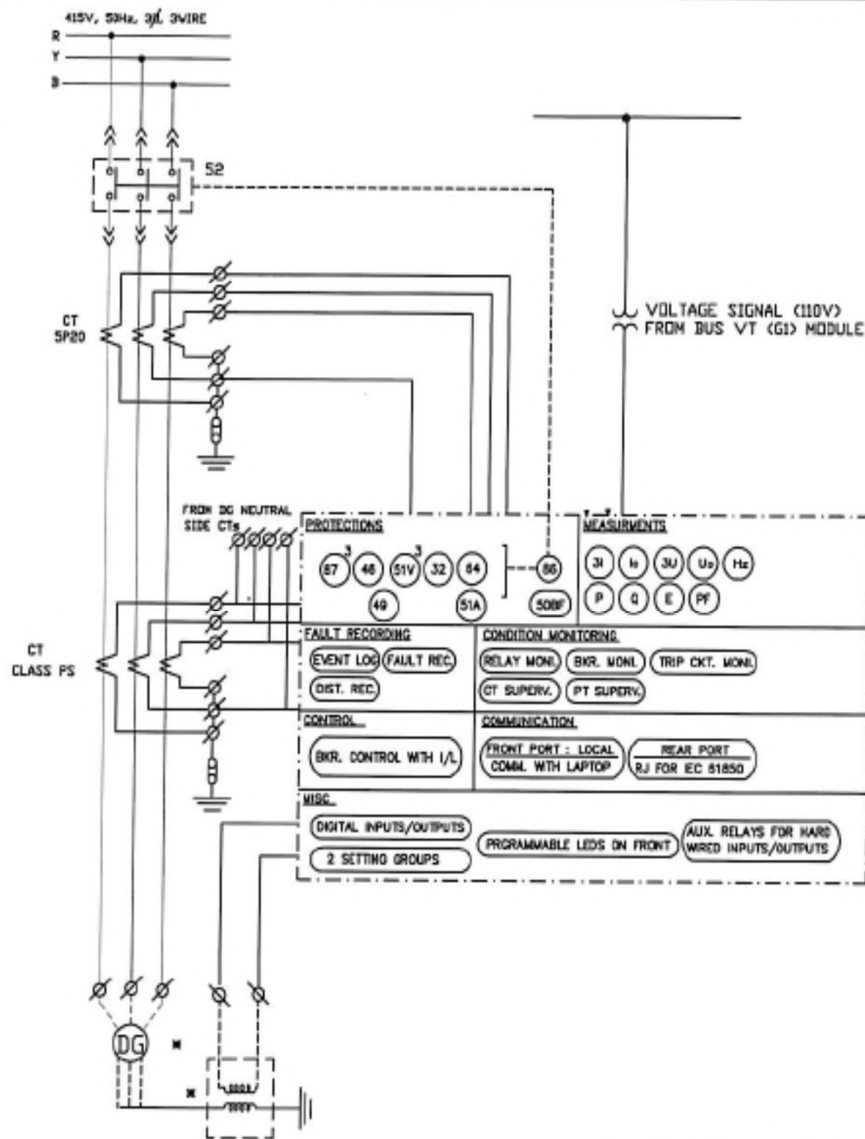
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DRN	DGN	CHKD	APPD	DATE
-				10/01/07

PROJECT	STANDARD
TITLE	SCHEME FOR FEEDER TYPE-DAET (INCOMER FROM TRANSFORMER)
DRAWING No.	0000-206-PDE-A-004
SCALE	NA
REV.	0

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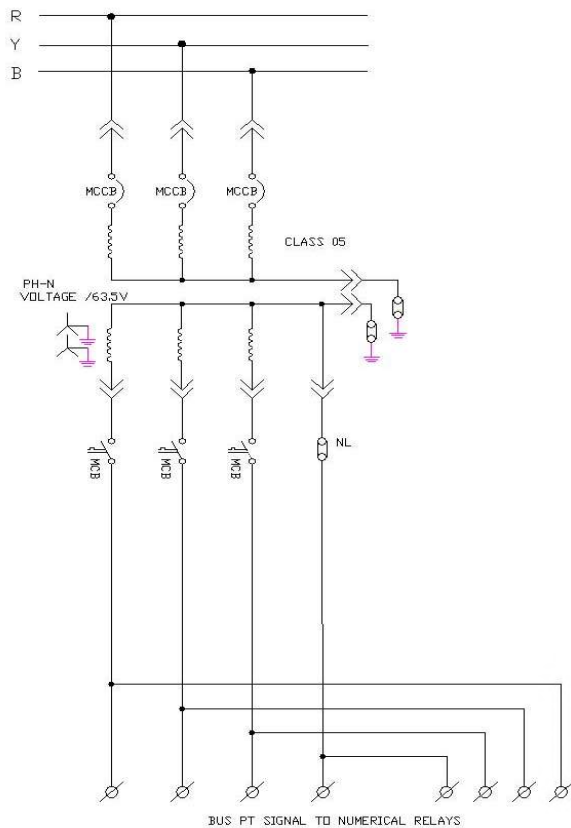


* NOT IN BIDDER'S SCOPE

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CLEARED BY <table border="1"> <tr> <td>C</td> <td>E</td> <td>M</td> <td>CAI</td> <td>ES</td> </tr> </table> PROJECT STANDARD					C	E	M	CAI	ES
C	E	M	CAI	ES					
TITLE SCHEME FOR FEEDER TYPE-DG (INCOMER FROM DG)									
DRN	DON	CHKD	APPD	DATE	SCALE	DRAWING No.	REV.		
-	...	...	...	...	NA	0000-206-PDE-A-006	0		

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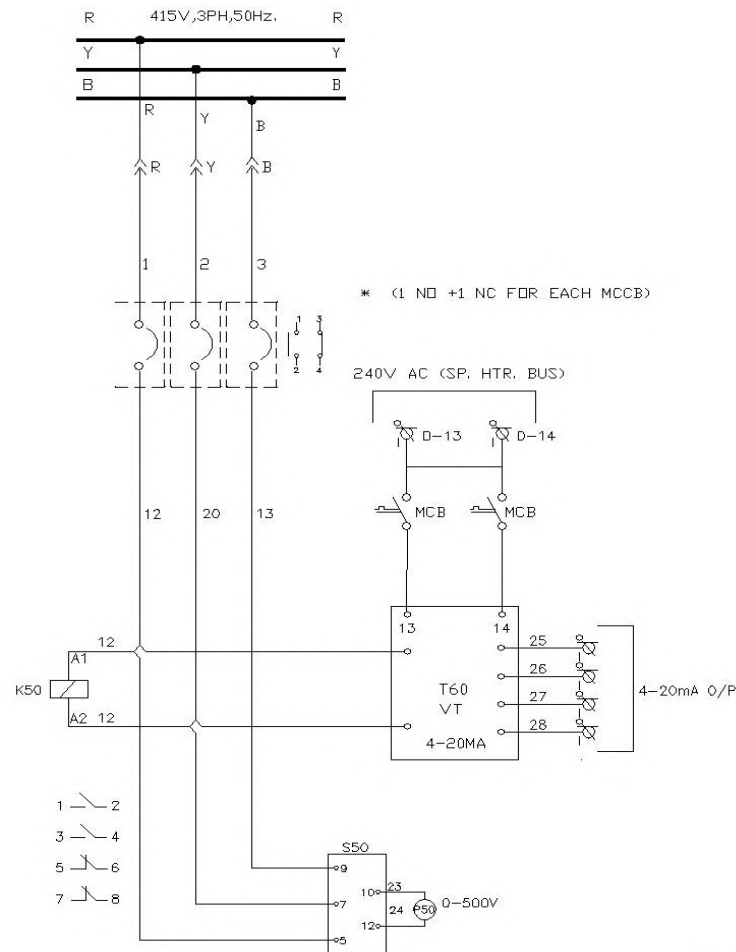
LT017.DWG

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Cleared By					PROJECT	
C	E	M	C&I	ES	STANDARD	
TITLE					SCHEME FOR MODULE TYPE-G1 (BUS PT)	
DRN	DGN	CHKD	APPD	DATE	SCALE	DRAWING No.
				30/04/18		0000-206-PDE-A-007
						REV.
						A

A3 420X297

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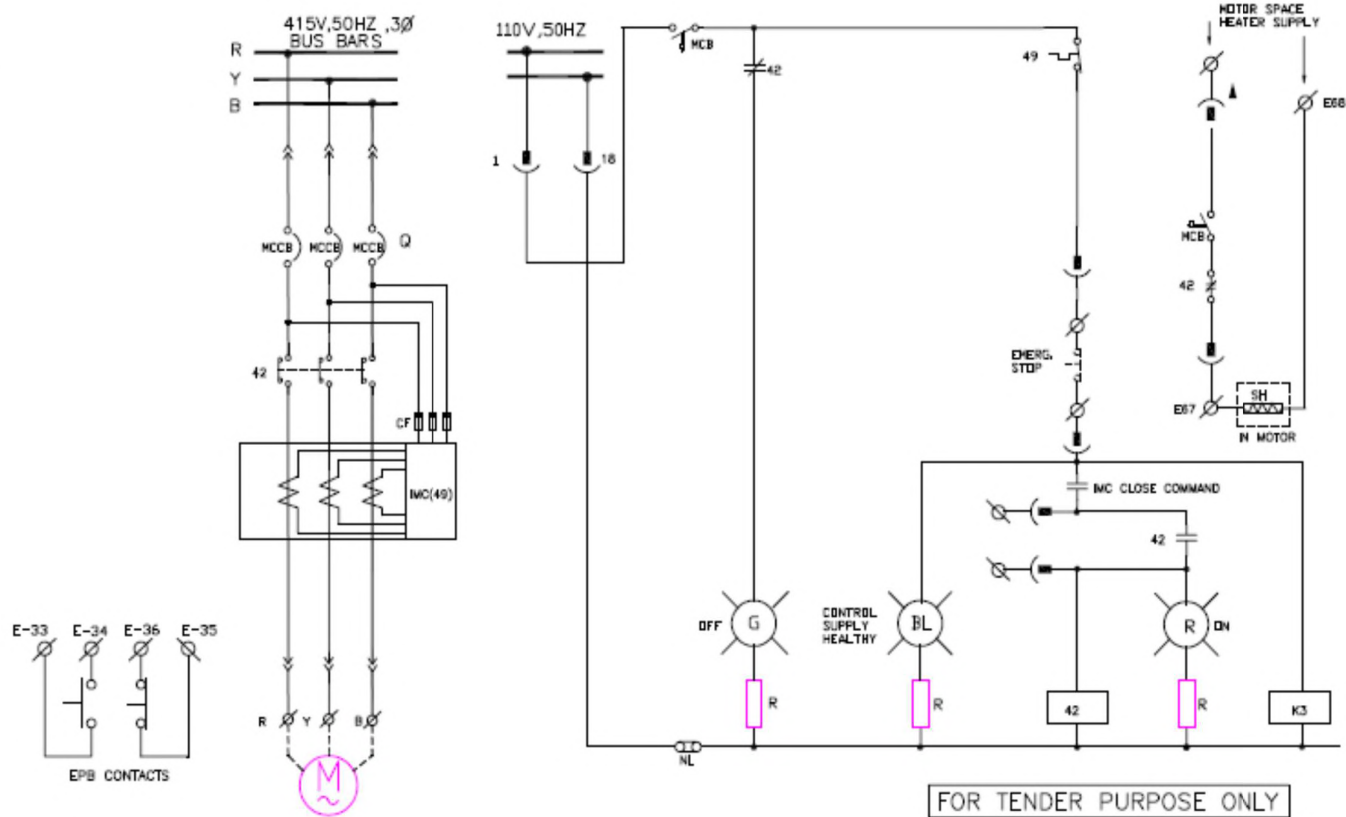


LT016.DWG

FOR TENDER PURPOSE ONLY

					एन टी पी सी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)																																		
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DRN					DGN					CHKD					APPD					DATE					SCALE					DRAWING No.					REV.				
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LEGEND

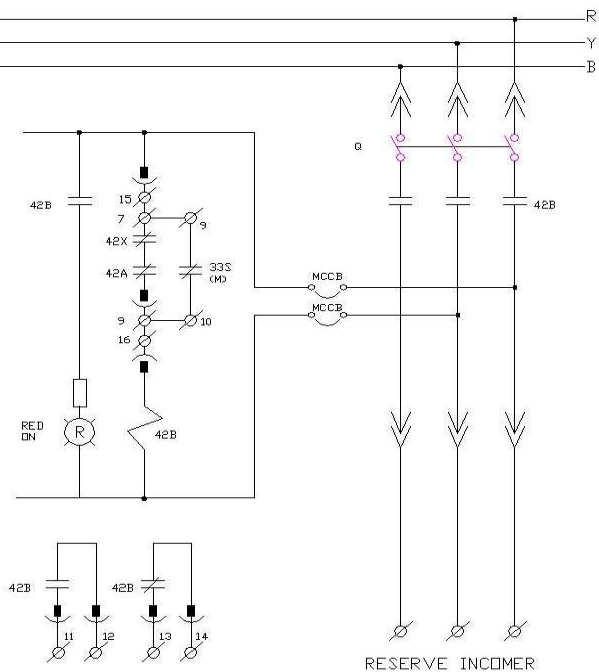
- POWER DRAW OUT CONTACT
- CONTROL DRAW OUT CONTACT
- FIXED TERMINAL ON MCC

NOTES:-

- MOTOR SHALL BE CONTROLLED FROM DCS/PLC THROUGH IMC ON PROFIBUS PROTOCOL COMMUNICATION.
- EPB WIRING FROM FIELD TO IMC INPUT AND CONTACTOR CONTROL HARDWIRED CKT TO BE DONE.

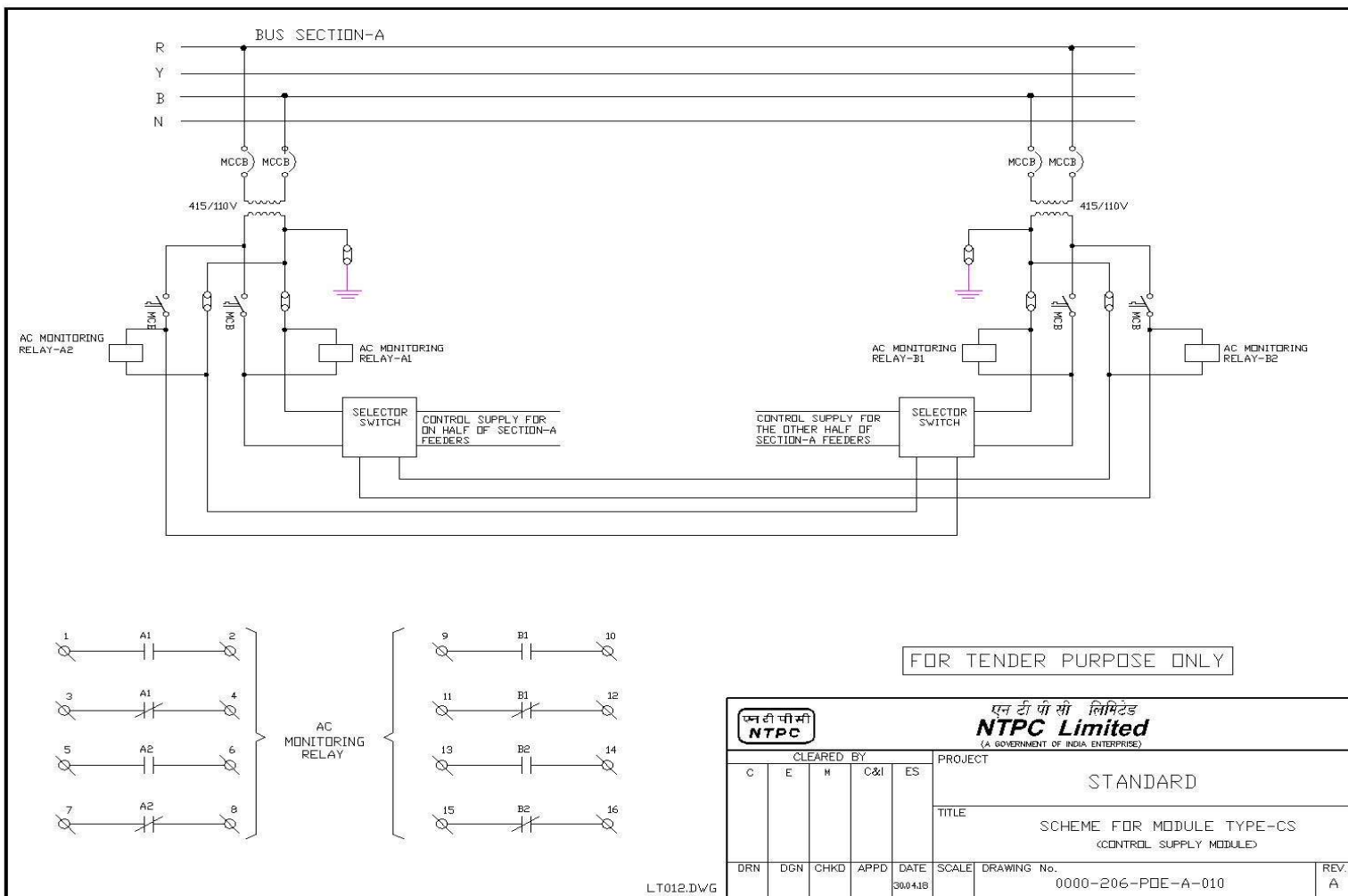
FOR TENDER PURPOSE ONLY
TYPICAL FOR DDC/PLC CONTROLLED MOTORS

एन टी पी सी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)				
CLEARED BY				
C	E	R	C&I	ES
DRN	DGN	CHKD	APPD	DATE
PROJECT				STANDARD
TITLE				SCHEME FOR MODULE TYPE-DK21 (CONTACTOR CONTROLLED MOTOR)
SCALE				DRAWING No. 0000-206-PDE-A-008B
REV.				A

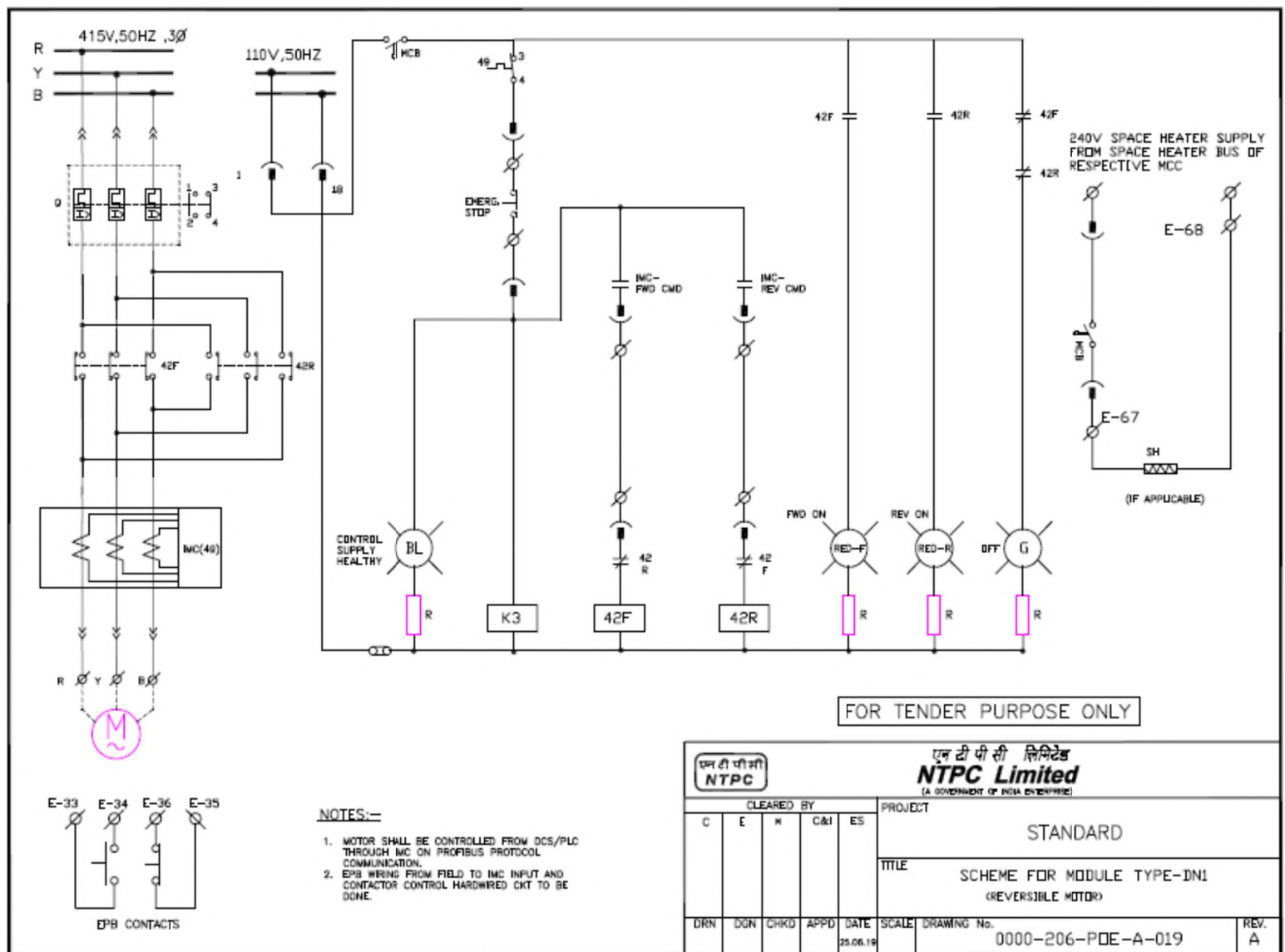
[illegible]

एन टी पी सी NTPC					एन टी पी सी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)									
CLEARED BY					PROJECT									
C	E	M	C&I	ES	STANDARD									
					TITLE									
					SCHEME FOR MODULE TYPE-CC (INCOMER WITH AUTO CHANGEOVER)									
DRN	DGN	CHKD	APPD	DATE	SCALE	DRAWING No.				REV.				
				30.04.18		0000-206-PDE-A-009				A				

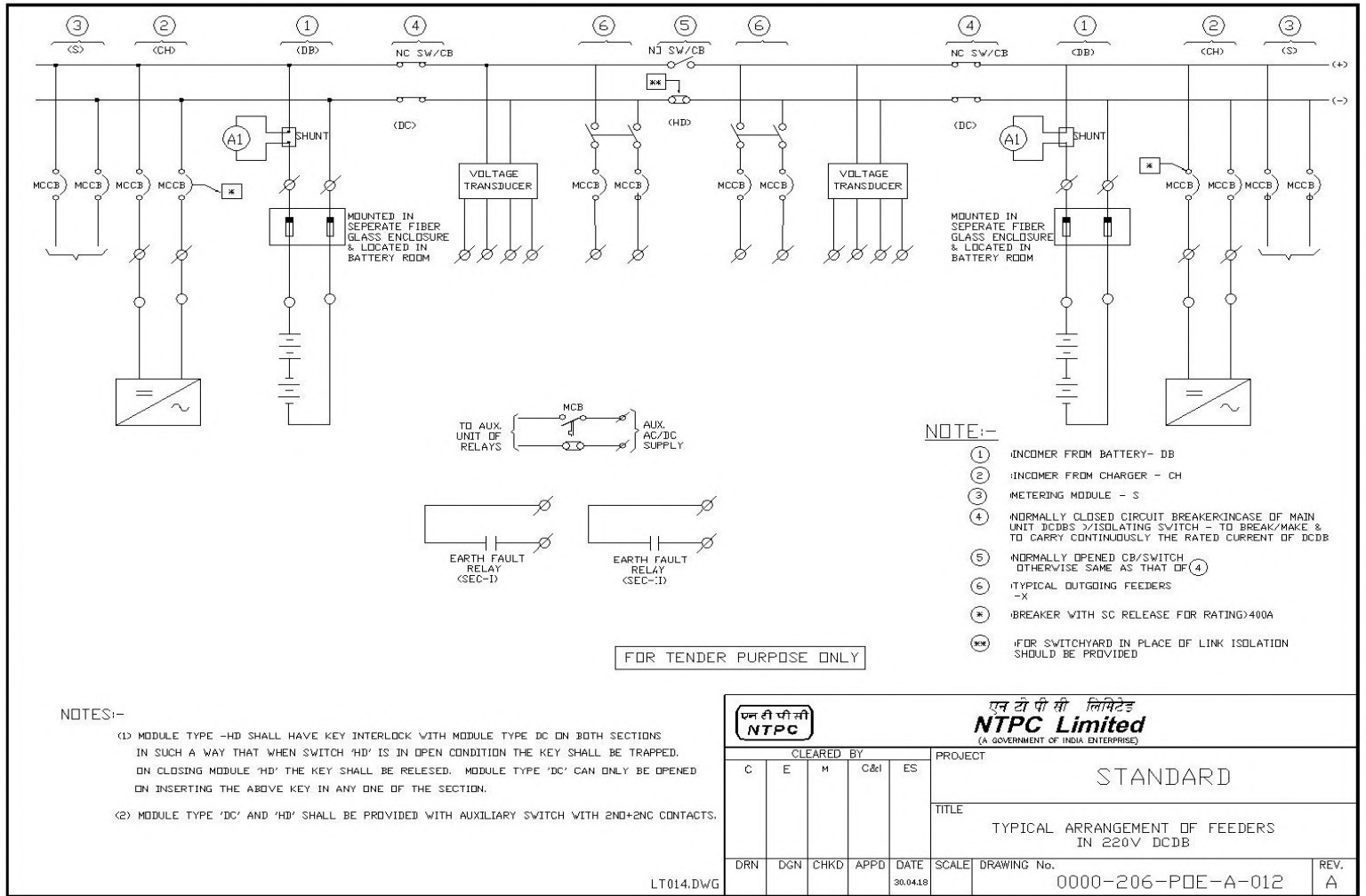
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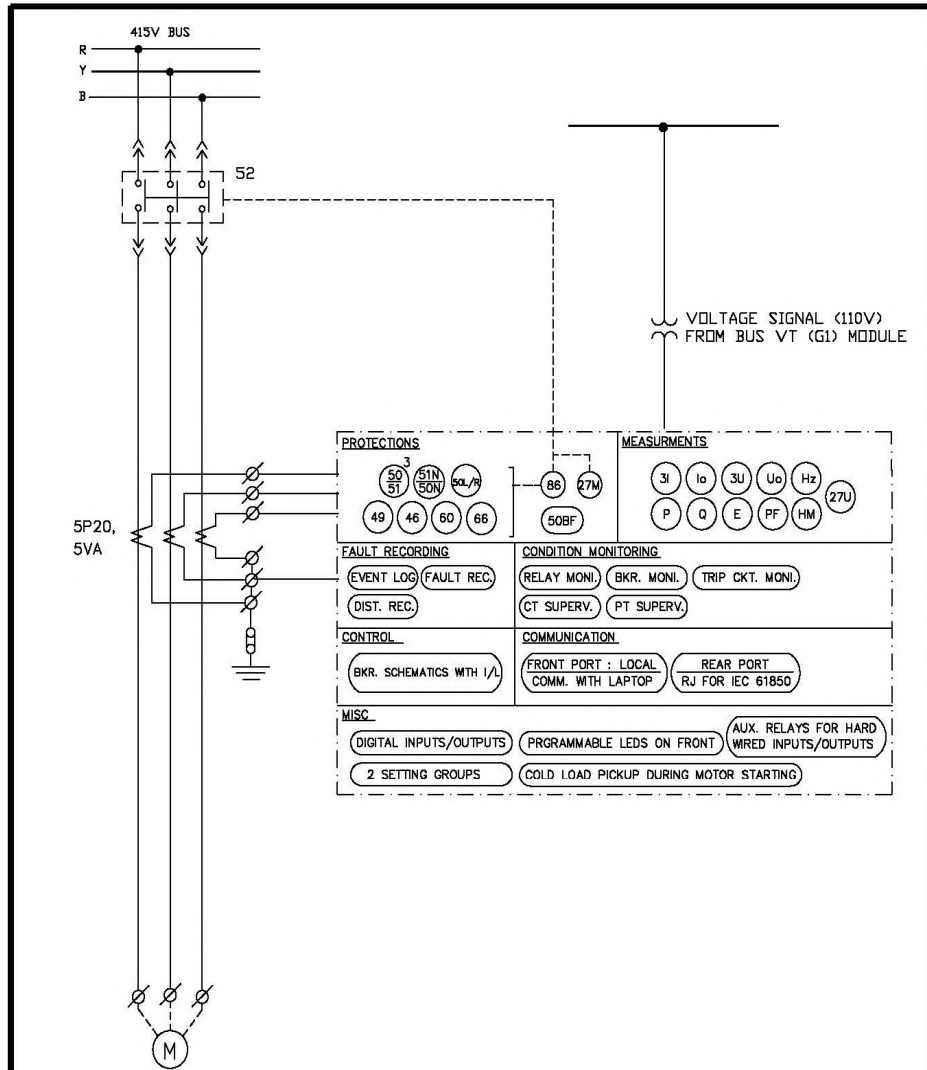
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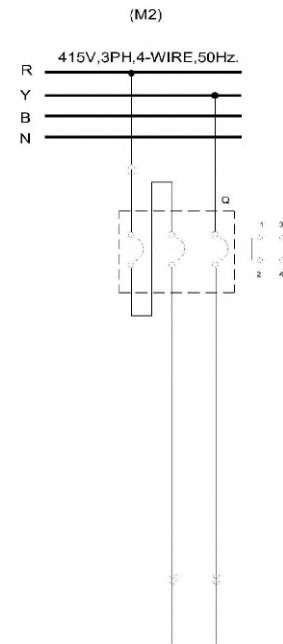
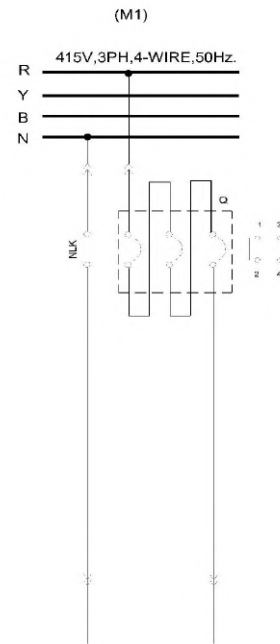
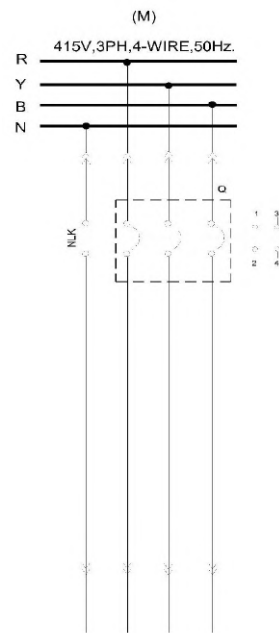


NOTE:
BREAKER OPEN / CLOSE COMMAND FROM OWNER'S DDCMIS (REMOTE) SHALL BE HARD WIRED.

FOR TENDER PURPOSE ONLY

एन टी पी सी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)				
CLEARED BY				
C	E	M	C&I	ES
PROJECT				
STANDARD				
TITLE				
SCHEME FOR FEEDER TYPE-DM (MOTOR RATING 110kW AND ABOVE)				
DRN	DGN	CHKD	APPD	DATE
-				1001/07
SCALE	DRAWING No.			
NA	0000-206-PDE-A-014			
REV.	0			

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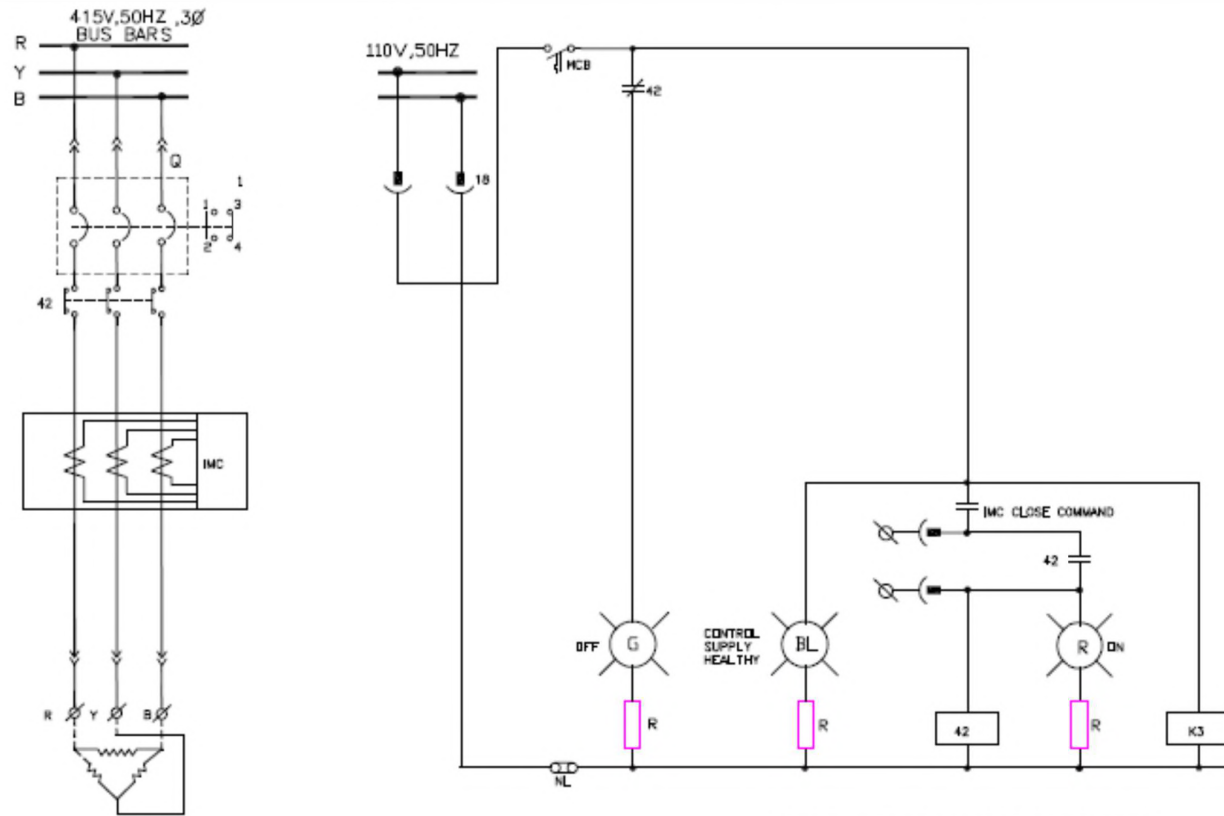
FOR TENDER PURPOSE ONLY

एन टी पी सी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)	
PROJECT	
STANDARD	
TITLE	
TYPICAL SCHEMATIC FOR M/M1/M2	
DRAWING No. 0000-206-POE-A-018	
REV. A	

LT016.DWG

A3 420X297

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FOR TENDER PURPOSE ONLY

LEGEND

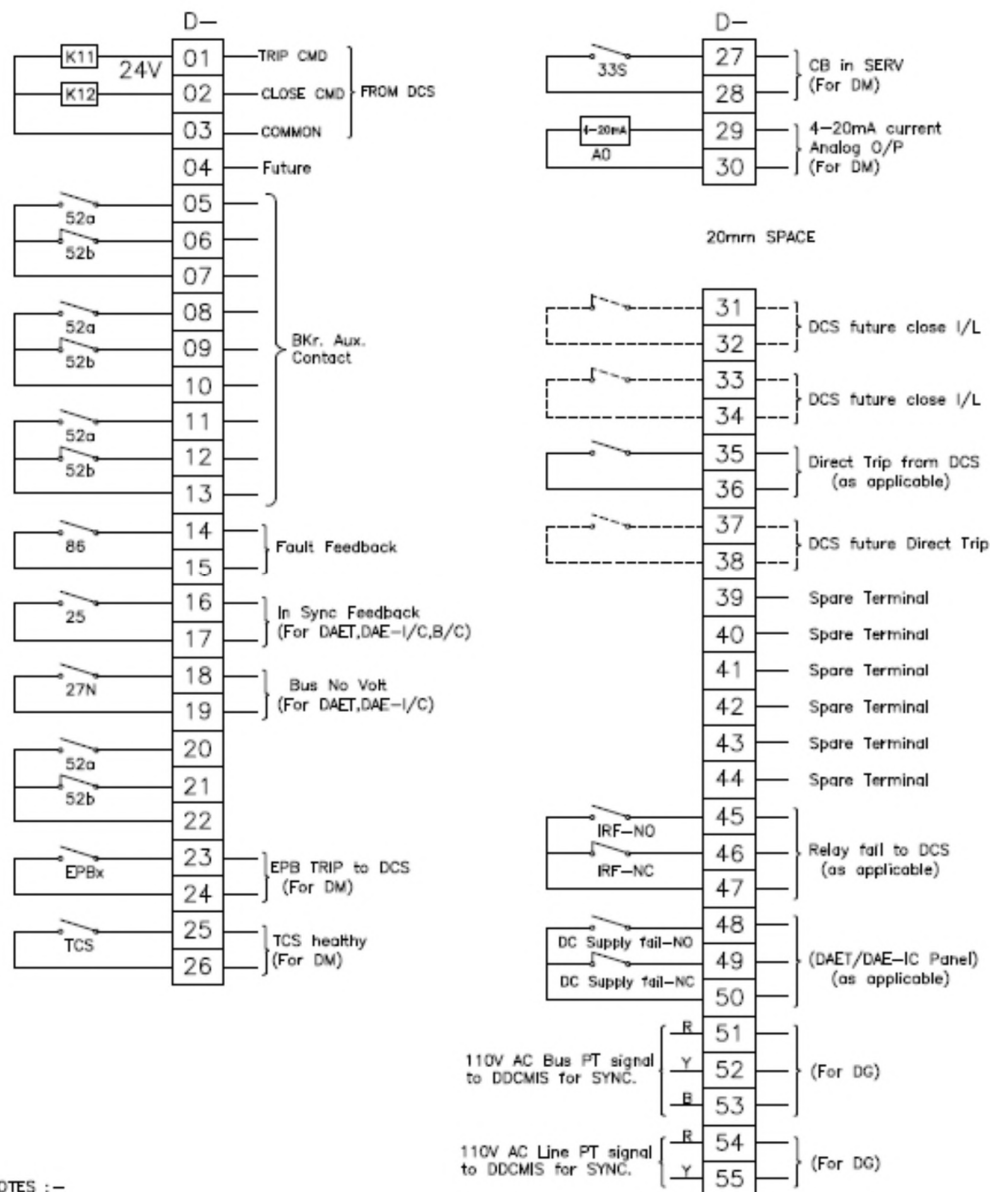
- POWER DRAW OUT CONTACT
- CONTROL DRAW OUT CONTACT
- FIXED TERMINAL ON MCC

NOTES:-

1. HEATER SHALL BE CONTROLLED FROM DCS/PLC THROUGH IMC ON PROFIBUS PROTOCOL COMMUNICATION.

					एन टी पी सी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)				
CLEARED BY C E N C&I ES					PROJECT STANDARD				
TITLE SCHEME FOR MODULE TYPE-HTR (CONTRACTOR CONTROLLED HEATER)					REV. A				
DRN	DGN	CHKD	APPD	DATE	SCALE	DRAWING No.			0000-206-PDE-A-021
				25.06.19					

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NOTES :-

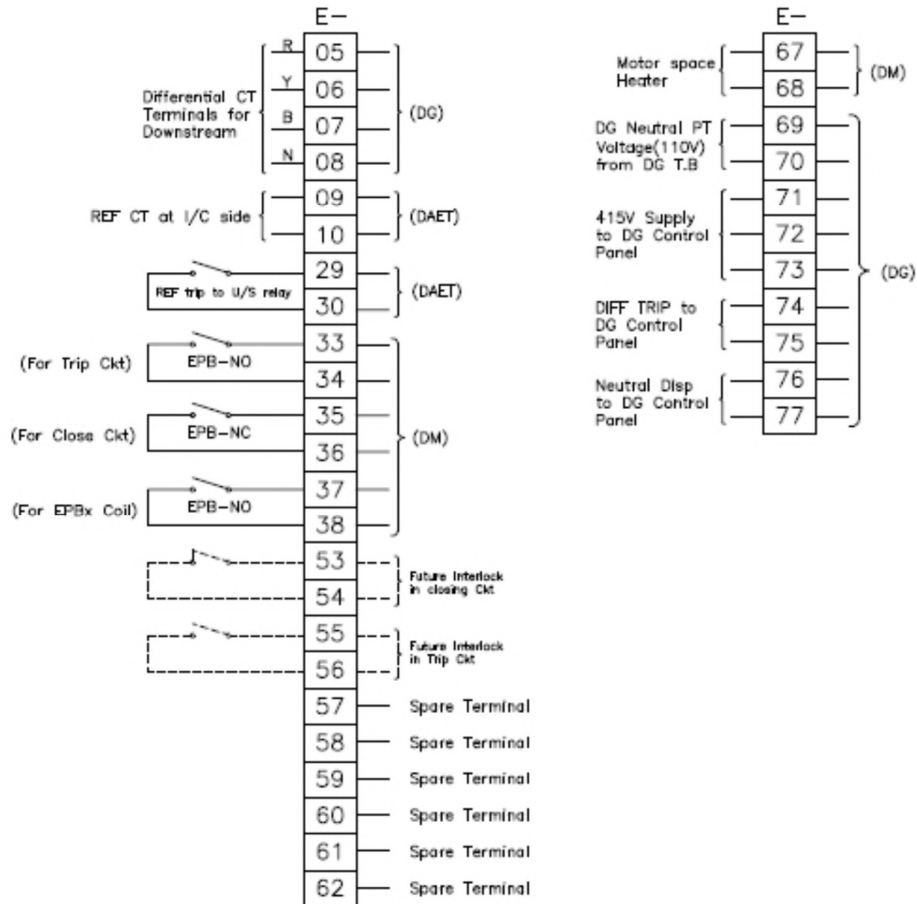
1. 52a & 52b shown above are breaker aux. contacts when breaker is in Service position.
2. If any signal (except 52a & 52b signals, future & Spare terminals marked) is not applicable for a module type, associated terminals/terminal nos. may be absent in the panel.
3. If any new signal not covered in this list is required to be wired to DCS during detail engg, new terminal nos as per above philosophy shall be assigned.

FOR TENDER PURPOSE ONLY

		एनटीपीसी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)	
PROJECT STANDARD		TITLE STANDARD "D" TERMINALS (FOR CABLING BETWEEN SWGR & DCS) FOR LT SWGR	
DRN -	DGN -	CHKD -	APPD -
DATE 25.06.18	SCALE NA	DRAWING No. 0000-206-POE-A-022	REV. A

AA 210X297

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NOTES :-

1. 52a & 52b shown above are breaker aux. contacts when breaker is in Service position.
2. If any signal (except 52a & 52b signals, future & Spare terminals marked) is not applicable for a module type, associated terminals/terminal nos. may be absent in the panel.
3. If any new signal not covered in this list is required to be wired to any other external equipment during detail engg, new terminal nos as per above philosophy shall be assigned.

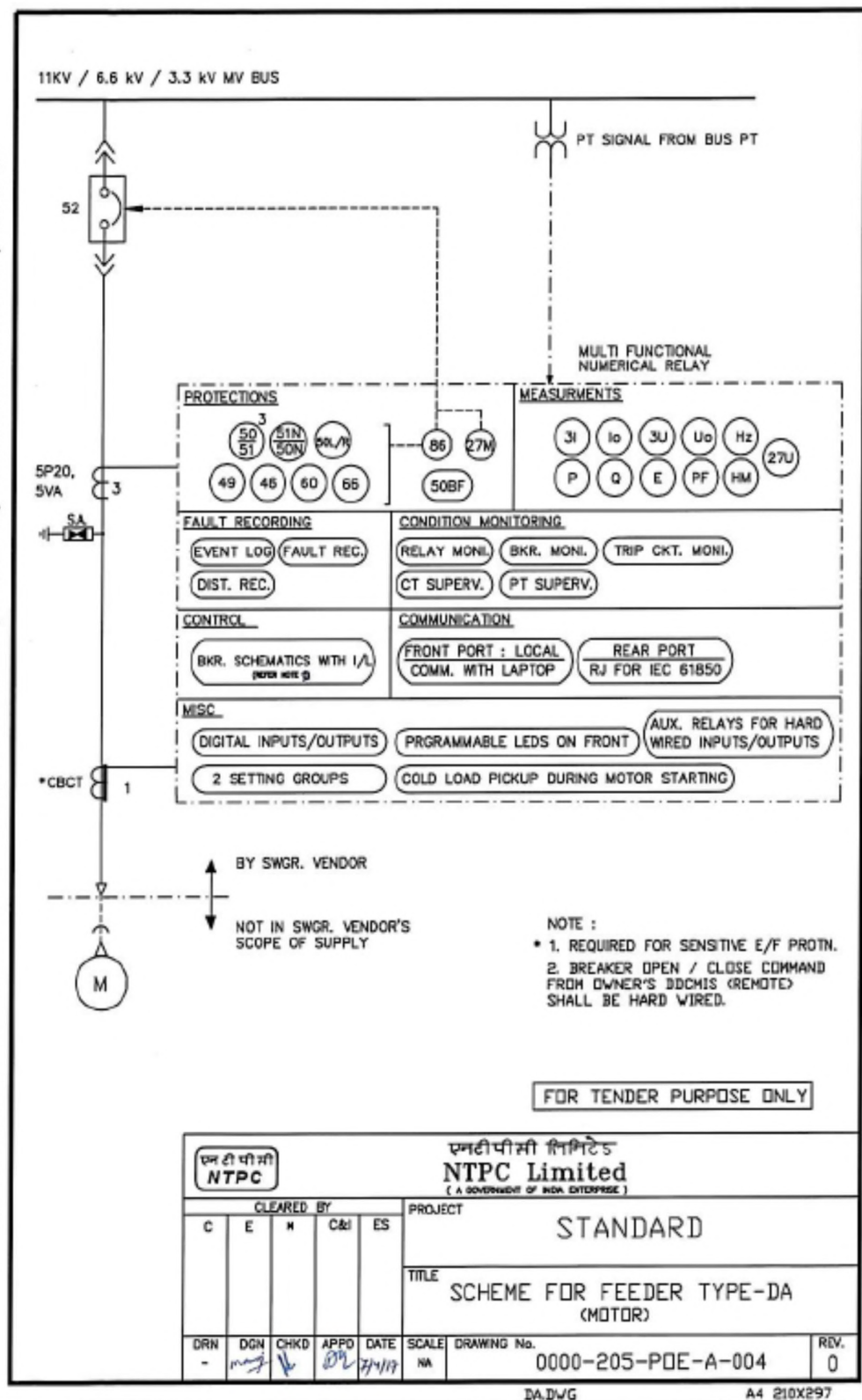
FOR TENDER PURPOSE ONLY



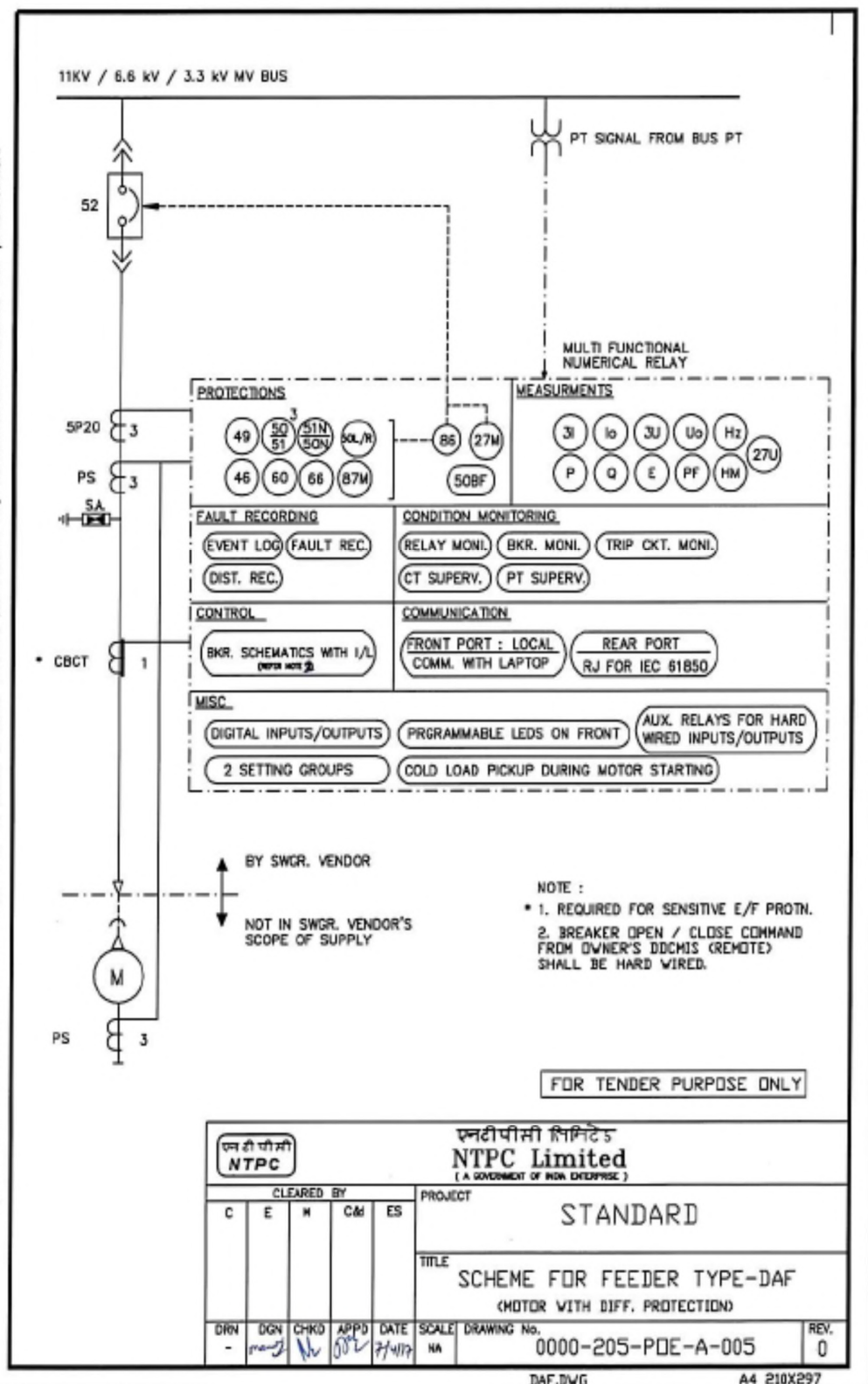
NTPC Limited
(A GOVERNMENT OF INDIA ENTERPRISE)

CLEARED BY					PROJECT		
C	E	M	CM	ES	STANDARD		
					TITLE STANDARD 'E' TERMINALS (FOR CABLING BETWEEN SWGR TO MOTOR, SWGR TO TRF & INTERBOARD CABLING) FOR LT SWGR		
DRN	DGN	CHKD	APPD	DATE	SCALE	DRAWING No.	REV.
-				25.06.19	NA	0000-206-POE-A-023	A

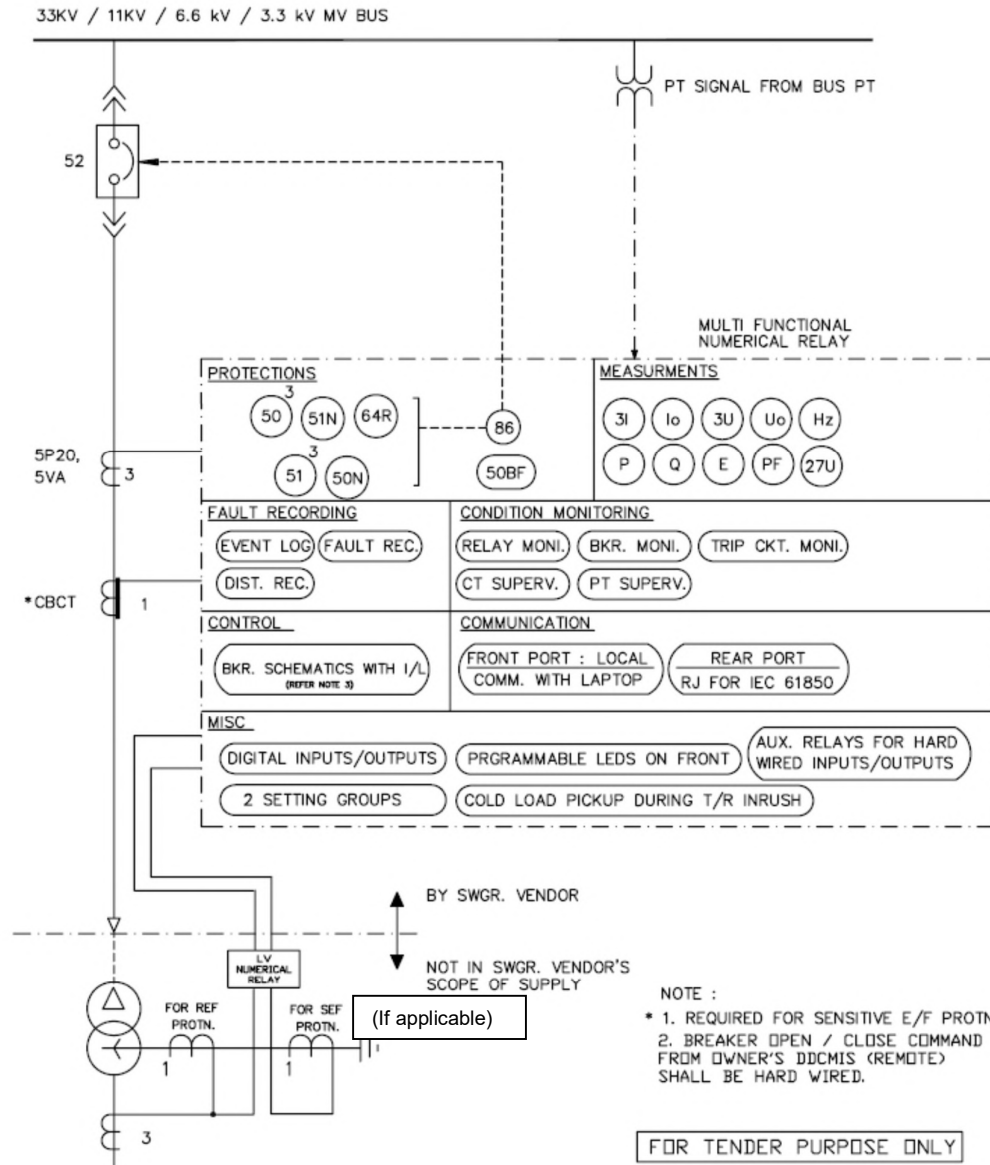
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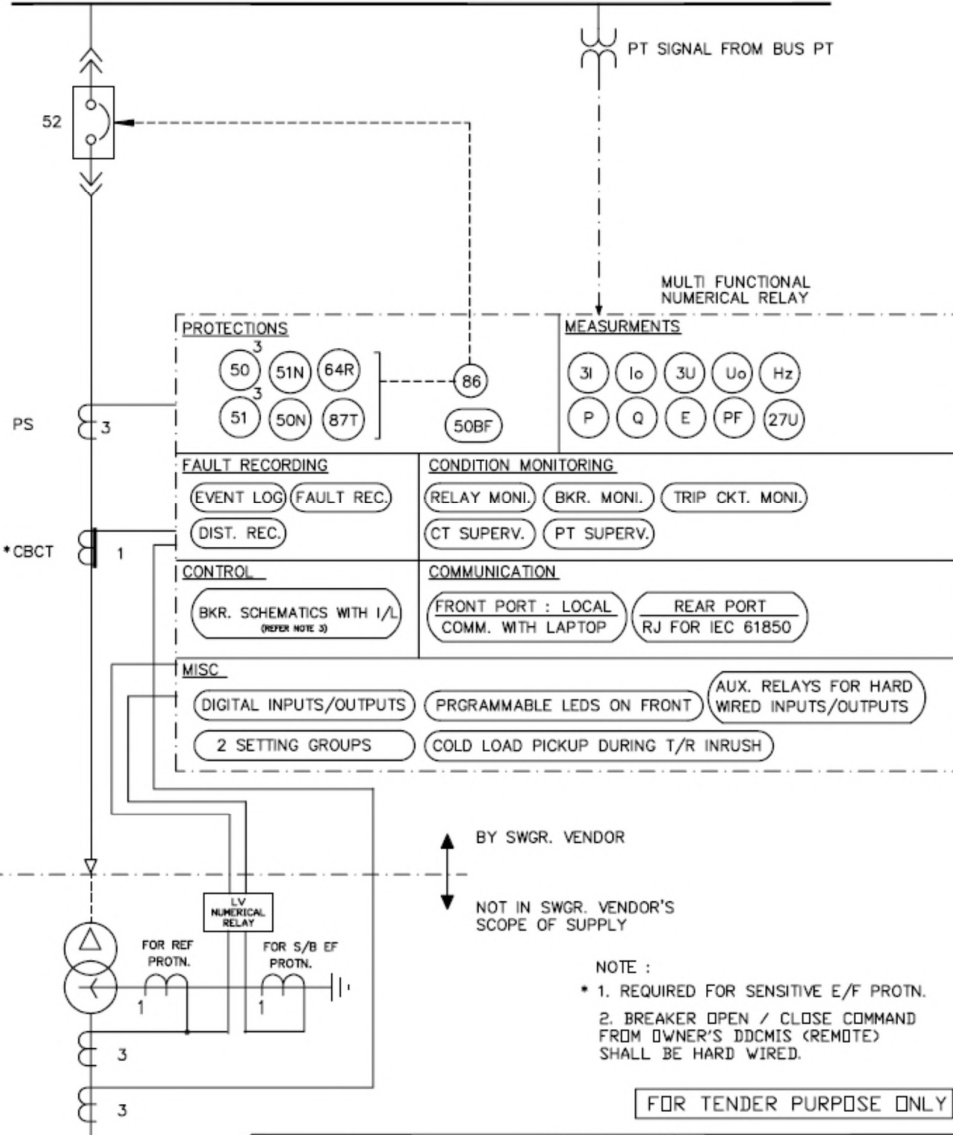
		एनटीपीसी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)	
CLEARED BY			
C	E	M	C&I ES
DRN	DGN	CHKD	APPD
-	✓	✓	✓
DATE	SCALE	DRAWING No.	REV.
10/01/07	NA	0000-205-PDE-A-006	0
PROJECT		STANDARD	
TITLE		SCHEME FOR MV SWGR FEEDER TYPE-DB (TRANSFORMER)	

DB.DWG

A4 210X297

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33KV / 11KV / 6.6 kV / 3.3 kV MV BUS

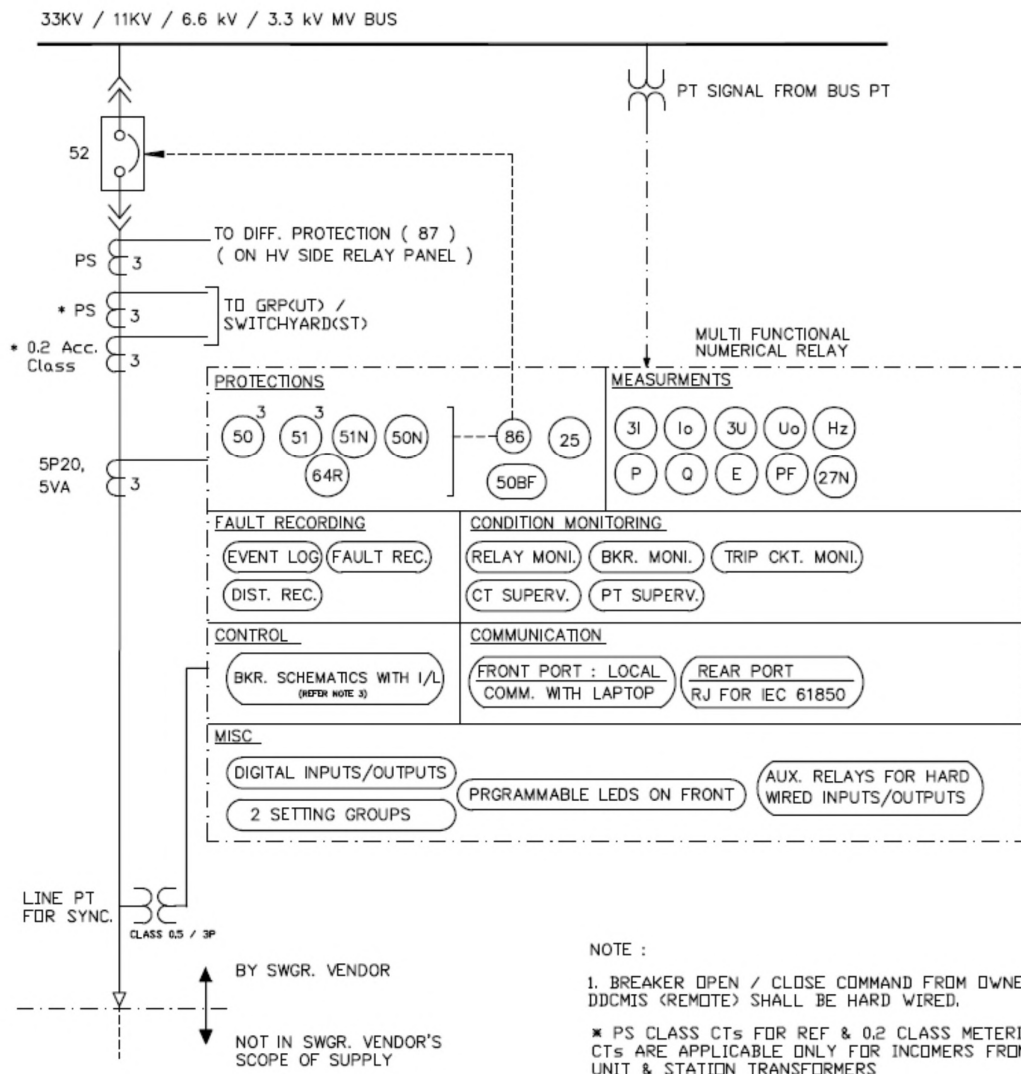


एनटीपीसी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)				
CLEARED BY				
C	E	M	C&I	ES
PROJECT				
STANDARD				
TITLE				
SCHEME FOR MV SWGR FEEDER TYPE-DBF (TRANSFORMER WITH DIFF. PROTECTION)				
DRN	DGN	CHKD	APPD	DATE
-				10/01/97
SCALE	DRAWING No.			REV.
NA	0000-205-PDE-A-007			0

DBF.DWG

A4 210X297

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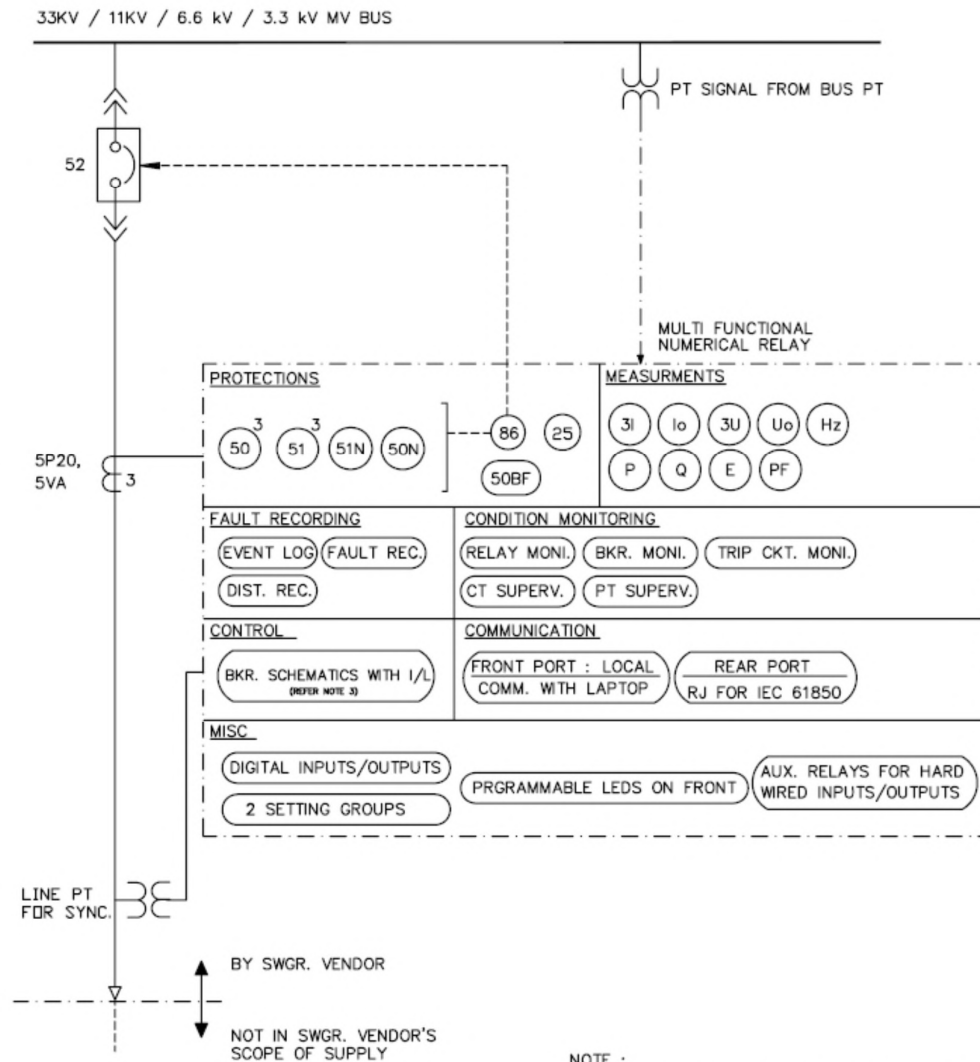
FOR TENDER PURPOSE ONLY

		एनटीपीसी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)											
CLEARED BY <table border="1"> <tr> <td>C</td> <td>E</td> <td>M</td> <td>C&I</td> <td>ES</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		C	E	M	C&I	ES						PROJECT STANDARD	
C	E	M	C&I	ES									
TITLE SCHEME FOR MV SWGR FEEDER TYPE-DC (INCOMER)													
DRN	DGN	CHKD	APPD	DATE	SCALE	DRAWING No.	REV.						
-				10/01/07	NA	0000-205-PDE-A-008	0						

DC.DWG

A4 210X297

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NOTE :
1. BREAKER OPEN / CLOSE COMMAND FROM OWNER'S DDCMIS (REMOTE) SHALL BE HARD WIRED.

FOR TENDER PURPOSE ONLY

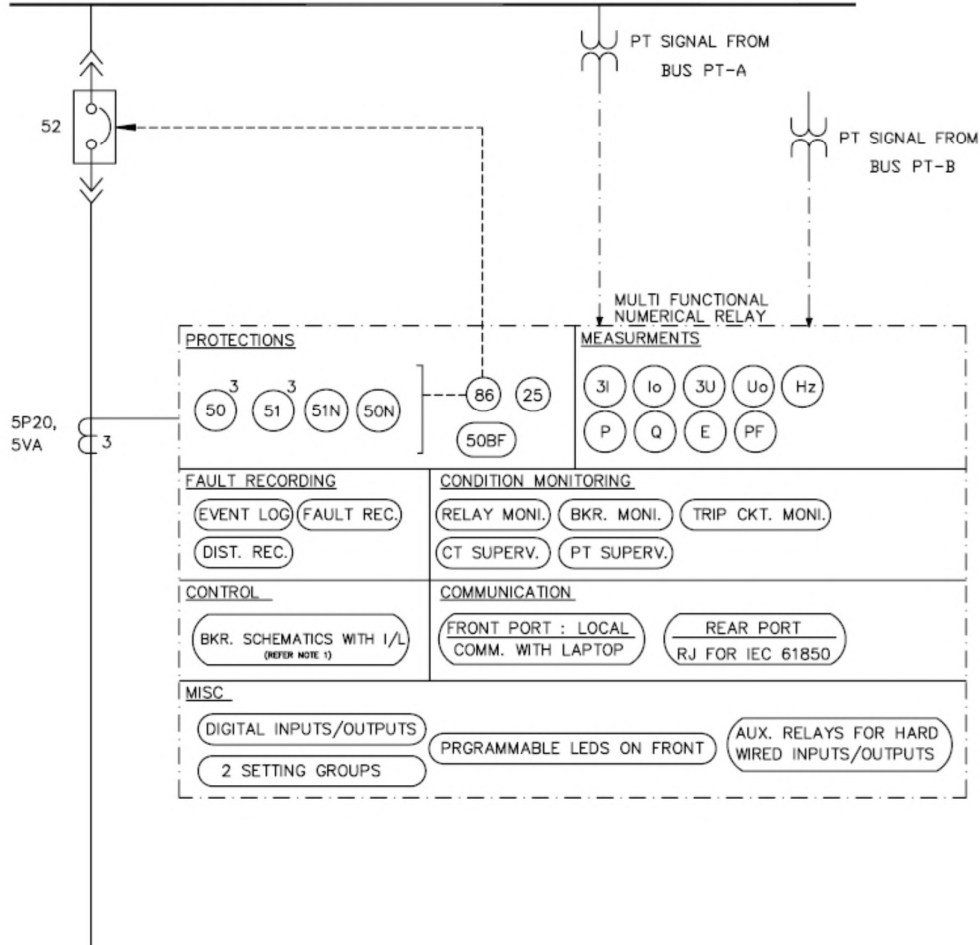
					एनटीपीसी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)				
CLEARED BY C E M C&I ES					PROJECT STANDARD				
DRN DGN CHKD APPD DATE - 10/01/07					TITLE SCHEME FOR MV SWGR FEEDER TYPE-DE (TIE FEEDER)				
SCALE NA					DRAWING No. 0000-205-PDE-A-009			REV. 0	

DE.DWG

A4 210X297

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33KV / 11KV / 6.6 kV / 3.3 kV MV BUS



NOTE :

1. BREAKER OPEN / CLOSE COMMAND FROM OWNER'S DDCMS (REMOTE) SHALL BE HARD WIRED.

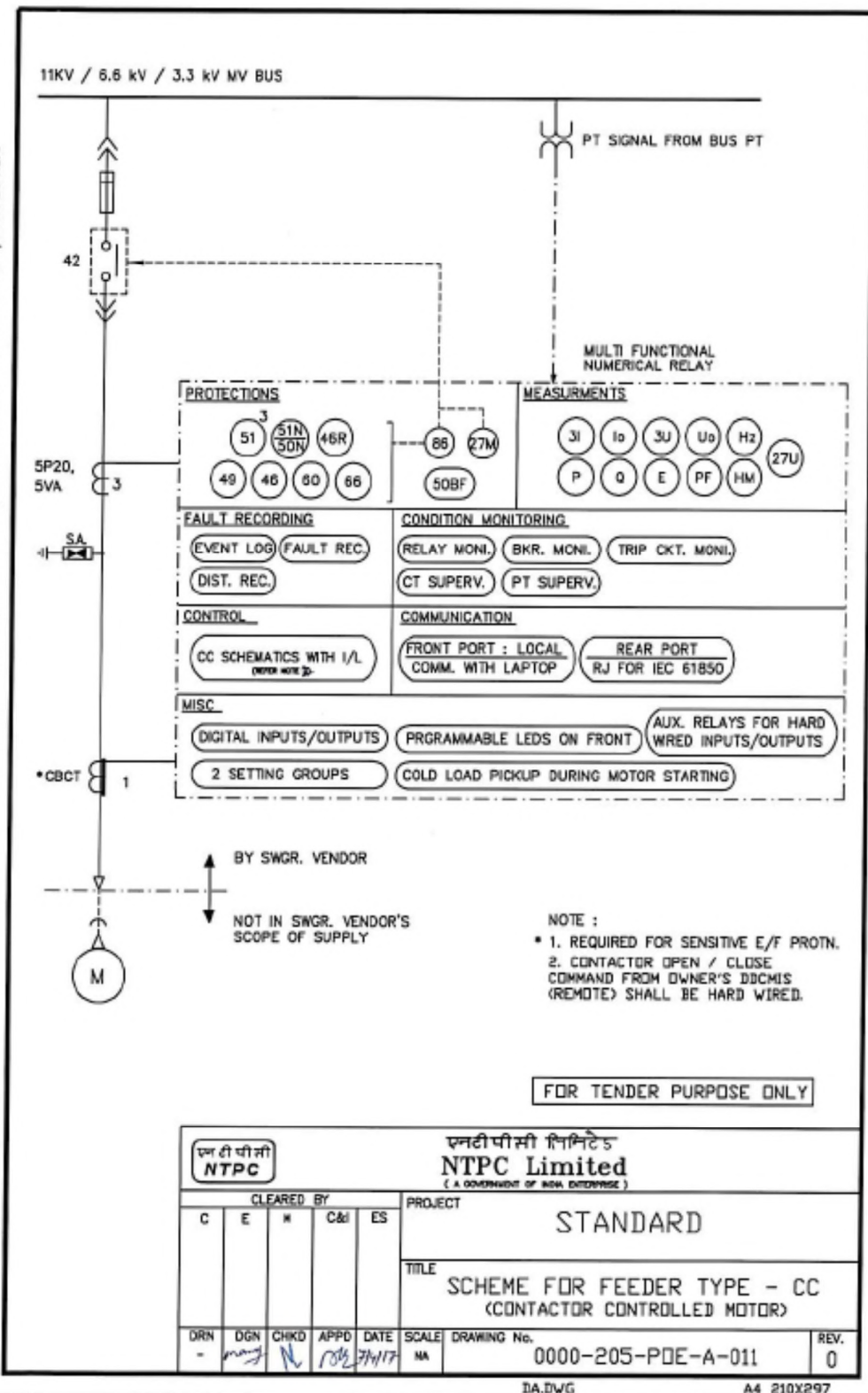
FOR TENDER PURPOSE ONLY

		एनटीपीसी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)	
CLEARED BY C E M C&I ES		PROJECT STANDARD	
DRN -		TITLE SCHEME FOR MV SWGR FEEDER TYPE-DD (BUS COUPLER)	
DGN [Signature]		DRAWING No. 0000-205-PDE-A-010	
CHKD [Signature]		SCALE NA	
APPD [Signature]		REV. 0	
DATE 10/01/07			

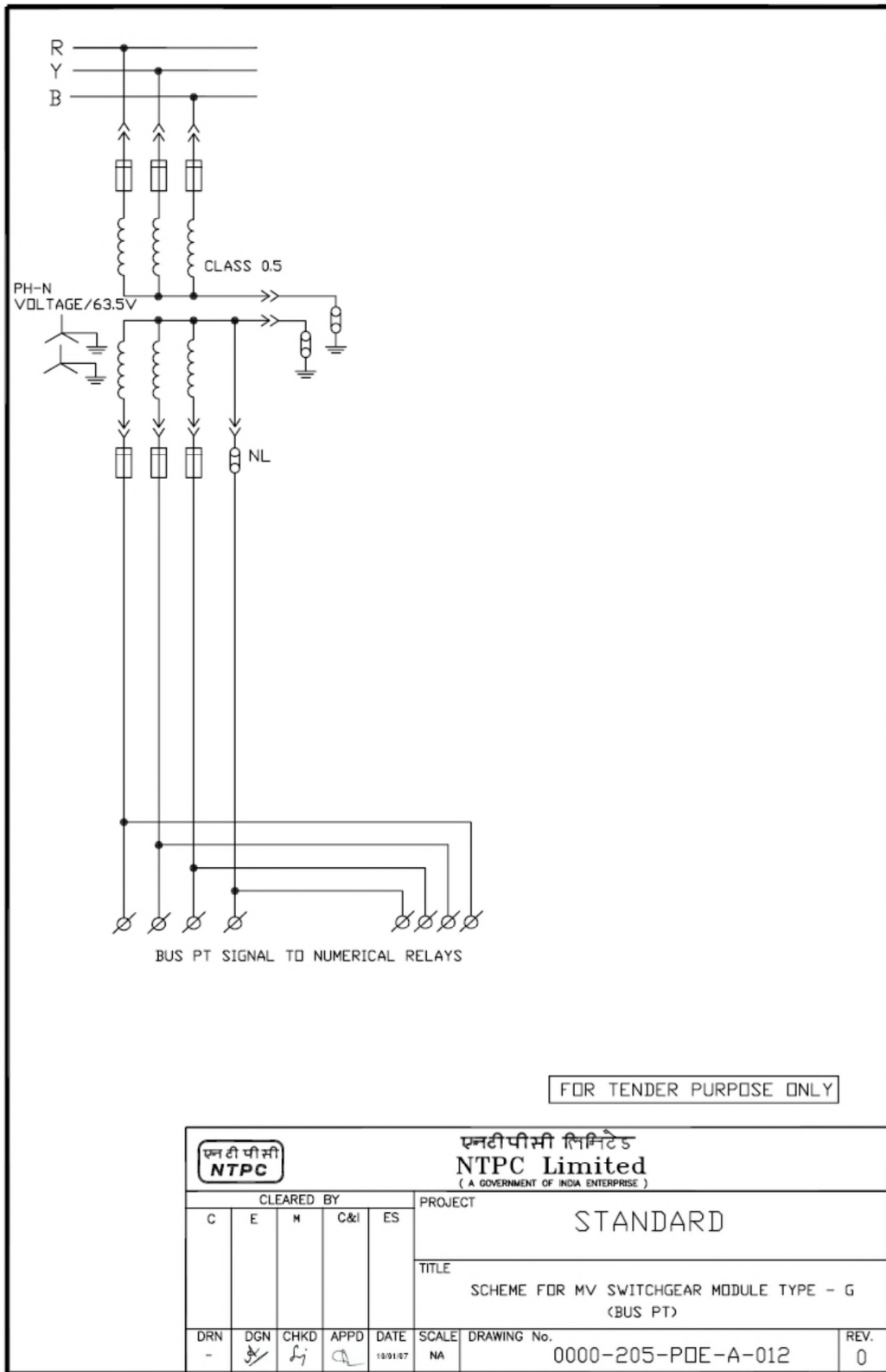
DD.DWG

A4 210X297

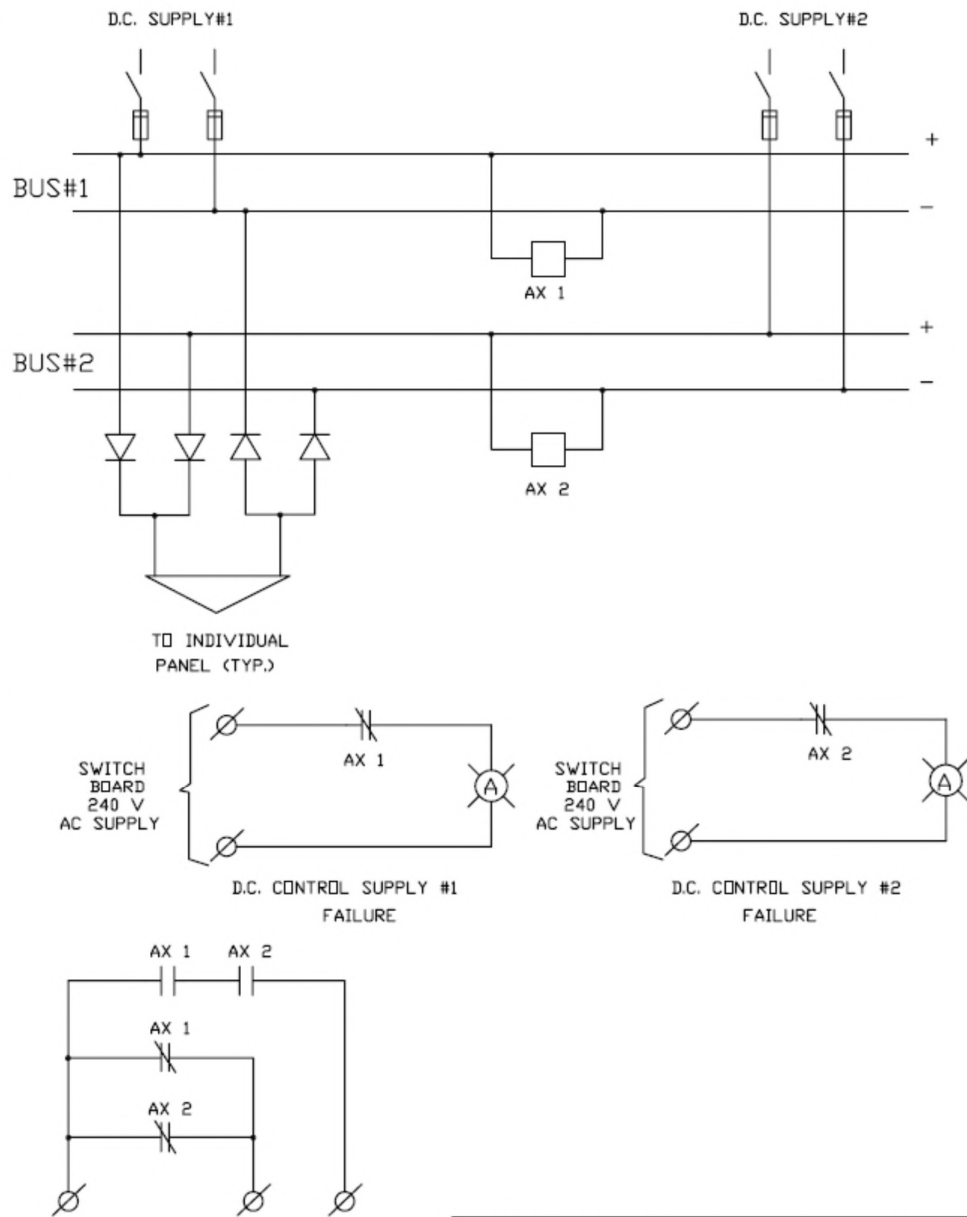
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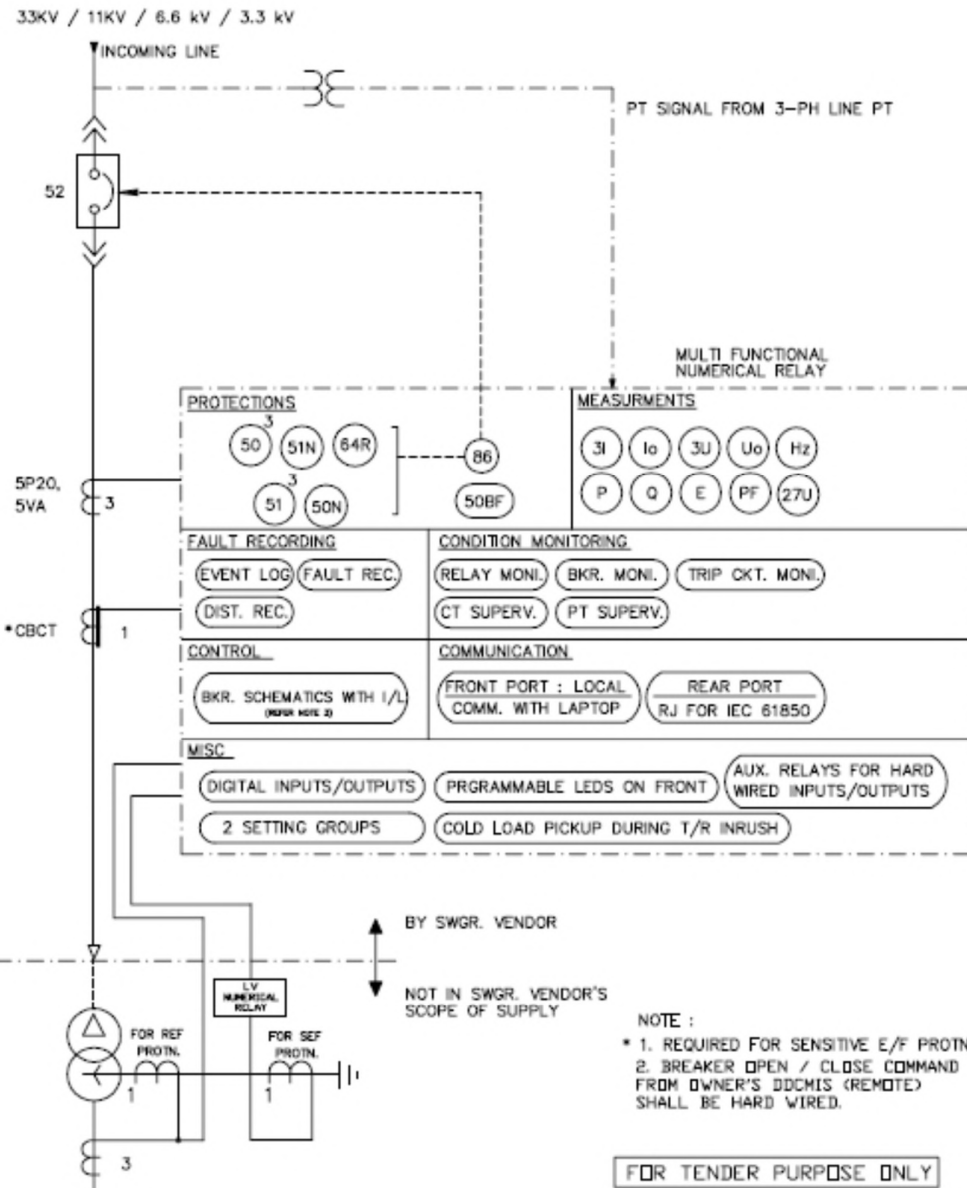
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एन टी पी सी NTPC		नैशनल थर्मल पावर कॉर्पोरेशन लिमिटेड National Thermal Power Corporation Ltd. (A GOVERNMENT OF INDIA ENTERPRISE)	
CLEARED BY C E M C&I ES		PROJECT STANDARD	
DRN -		TITLE TYPICAL CONTROL SUPPLY SCHEME FOR MV SWITCHGEAR PANELS	
DGN 10/01/07	CHKD 10/01/07	APPD 10/01/07	SCALE NA
DRAWING No. 0000-205-PDE-A-013		REV. 0	

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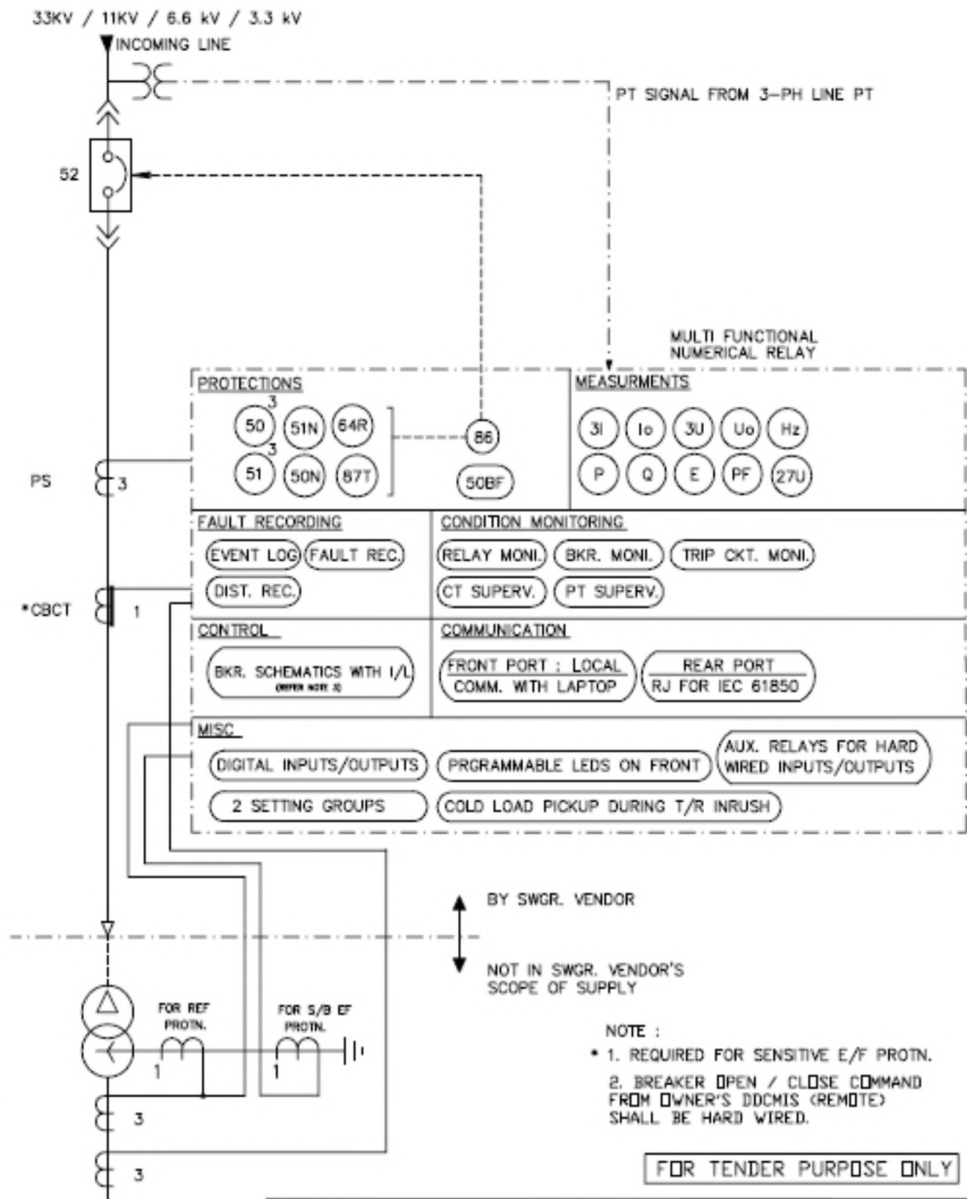


 एनटीपीसी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)					PROJECT STANDARD											
CLEARED BY <table border="1"> <tr> <td>C</td> <td>E</td> <td>M</td> <td>C&I</td> <td>ES</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>					C	E	M	C&I	ES						TITLE SCHEME FOR MV SWGR FEEDER TYPE-DB1 (STAND ALONE PANEL)	
C	E	M	C&I	ES												
DRN	DGN	CHKD	APPD	DATE	SCALE	DRAWING No.										
-				24/1/17	NA	0000-205-PDE-A-014										
						REV.										
						0										

DB.DWG

A4 210X297

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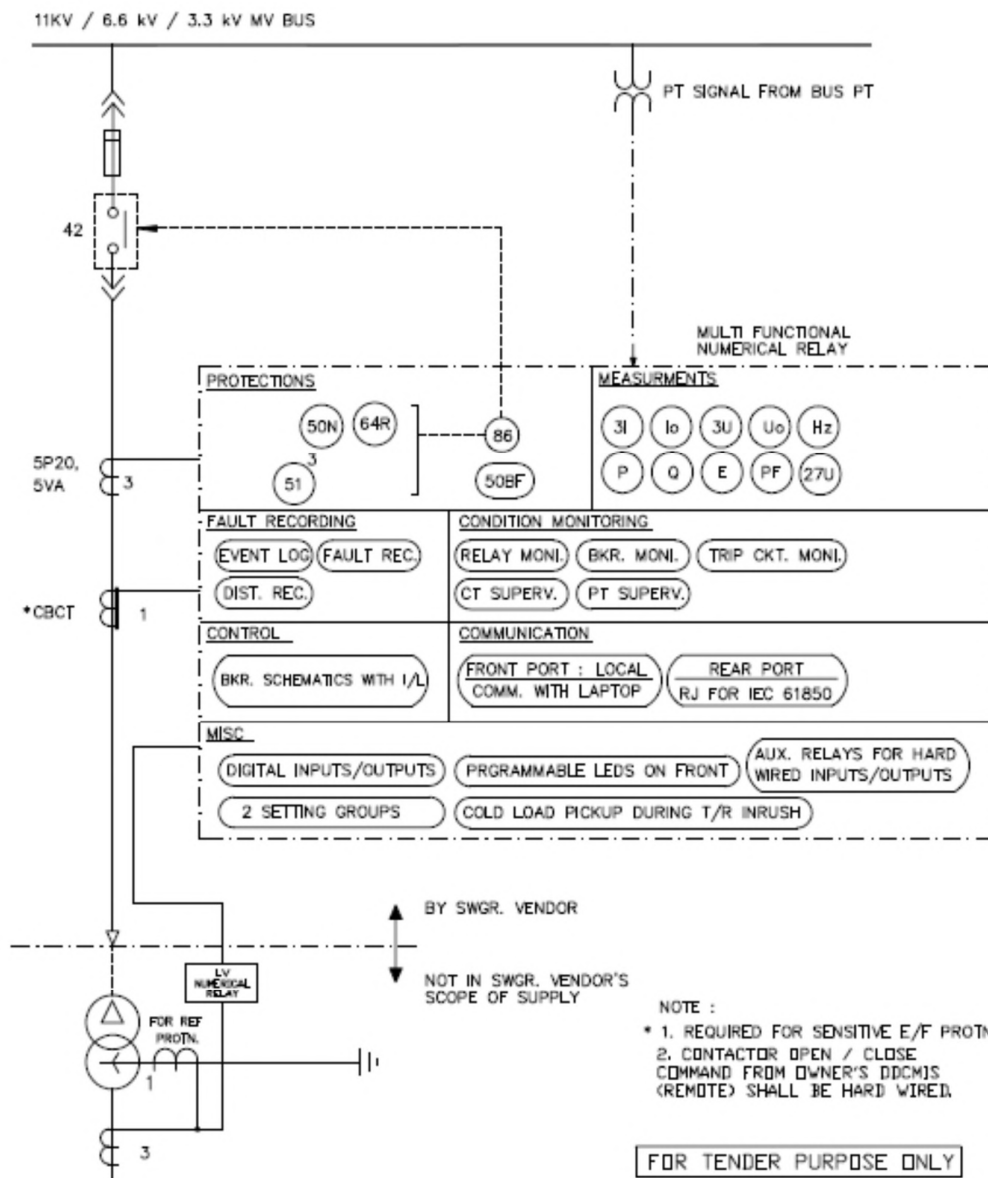


		एन टी पी सी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)	
CLEARED BY C E M C&I ES		PROJECT STANDARD	
ORN -		TITLE SCHEME FOR MV SWGR FEEDER TYPE-DBF1 (STAND ALONE PANEL WITH DIFF. PROTECTION)	
DGN -	CHKD -	APPD -	DATE 7/4/17
SCALE NA	DRAWING No. 0000-205-PDE-A-015	REV. 0	

DBF.DWG

A4 210X297

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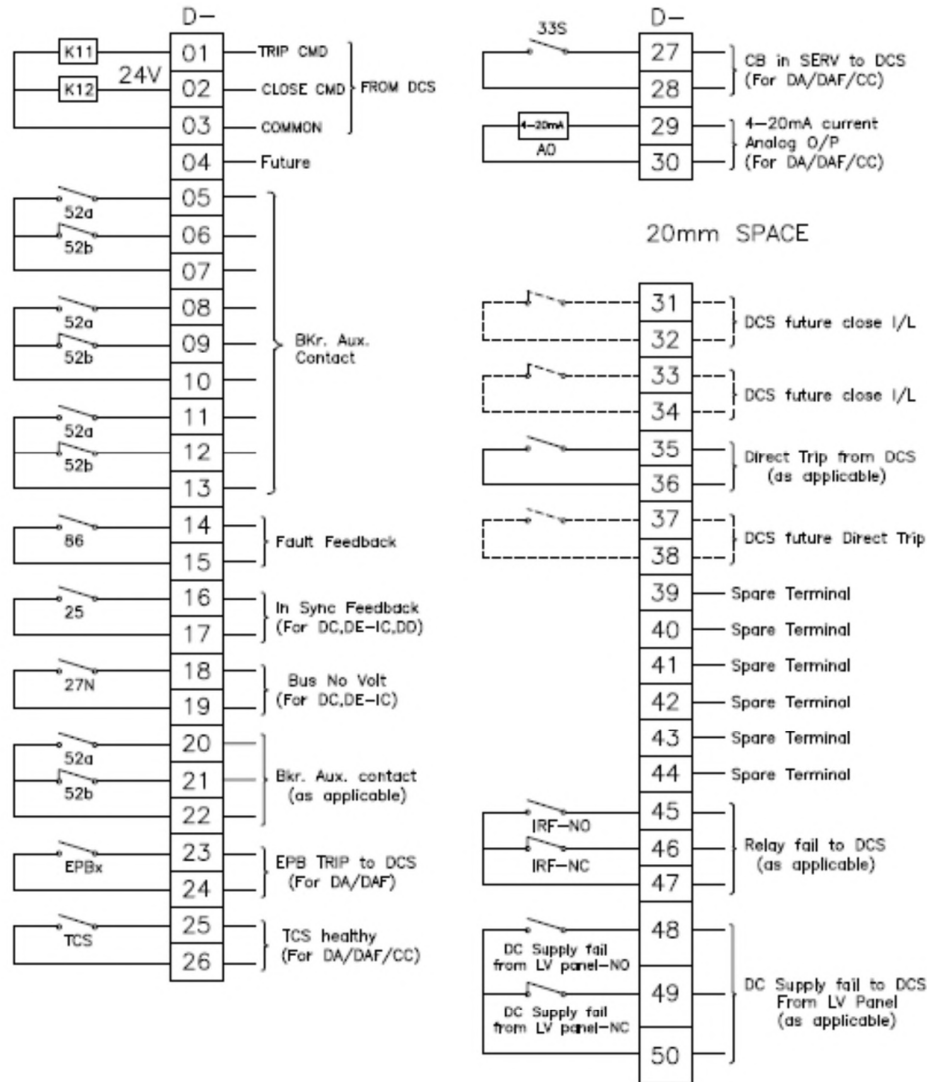


					एनटीपीसी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)				
CLEARED BY C E H C&I ES					PROJECT STANDARD				
DRN -					TITLE SCHEME FOR MV SWGR FEEDER TYPE-CCT (S/R TRANSFORMER)				
DGN -					SCALE NA				
CHKD -					DRAWING No. 0000-205-PDE-A-016				
APPD -					REV. 1				
DATE 25.05.19									

DB.DWG

A4 210X297

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NOTES :-

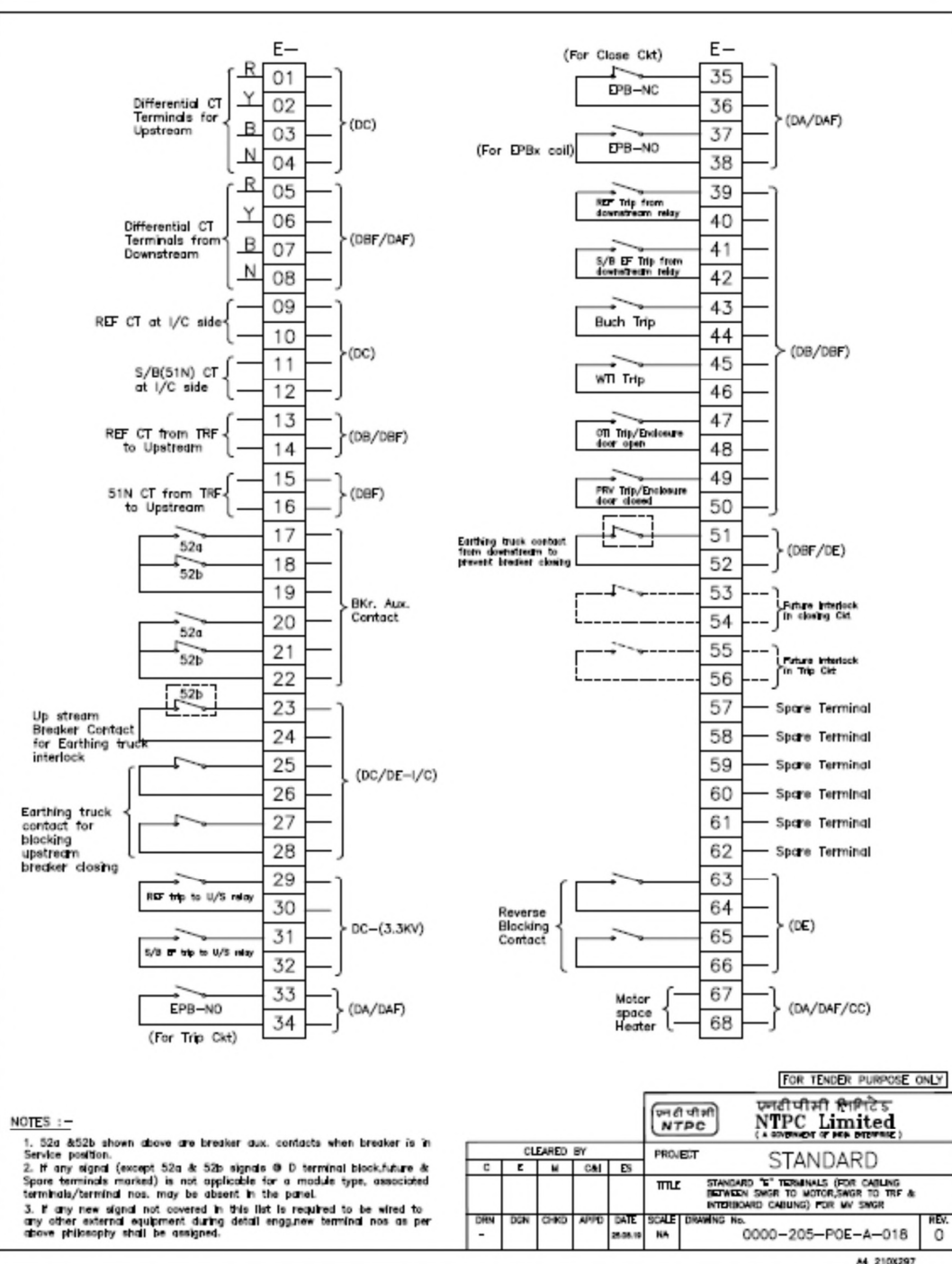
1. 52a & 52b shown above are breaker aux. contacts when breaker is in Service position.
2. If any signal (except 52a & 52b signals @ D terminal block, future & Spare terminals marked) is not applicable for a module type, associated terminals/terminal nos. may be absent in the panel.
3. If any new signal not covered in this list is required to be wired to DCS during detail engg, new terminal nos as per above philosophy shall be assigned.

FOR TENDER PURPOSE ONLY

एन टी पी सी NTPC					एन टी पी सी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)				
CLEARED BY					PROJECT				
C	E	M	CM	ES	STANDARD				
					TITLE				
					STANDARD "D" TERMINALS (FOR CABLING BETWEEN SWGR & DCS) FOR MV SWGR				
DRN	DGN	CHKD	APPD	DATE	SCALE	DRAWING No.			REV.
-				25.06.18	NA	0000-205-POE-A-017			0

M 210X297

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NOTES :-

- 52a & 52b shown above are breaker aux. contacts when breaker is in Service position.
- If any signal (except 52a & 52b signals @ D terminal block/future & Spare terminals marked) is not applicable for a module type, associated terminals/terminal nos. may be absent in the panel.
- If any new signal not covered in this list is required to be wired to any other external equipment during detail engineering terminal nos as per above philosophy shall be assigned.

CLEARED BY				
C	E	M	DAI	ES
DRN	DCN	CHKD	APPD	SATD
-	-	-	-	28.09.19

FOR TENDER PURPOSE ONLY	
एन टी सी लिमिटेड NTPC Limited (A GOVERNMENT OF INDIA ENTERPRISE)	PROJECT STANDARD
TITLE STANDARD 15" TERMINALS (FOR CABLING BETWEEN SWGR TO MOTOR, SWGR TO TRF & INTERBOARD CABLING) FOR MV SWGR	
DRAWING No. 0000-205-POE-A-018	REV. 0

TB NO.	DESCRIPTION	REMARKS
T-01	415V, 3 PHASE 4 WIRE SUPPLY - 1	
T-02		
T-03		
T-04		
T-05	SPARE	
T-06	415V, 3 PHASE 4 WIRE SUPPLY - 2	
T-07		
T-08		
T-09		
T-10	SPARE	
T-11	OLTC SUPPLY 415 V, 3PH. 4WIRE	
T-12		
T-13		
T-14		
T-15	SPARE	
T-16		
T-17		
T-18		
T-19	1 PHASE SUPPLY TO CONTROL CIRCUIT, 240 V	
T-20	SPARE	
T-21	1 PHASE SUPPLY TO HEATER AND LIGHTING CIRCUIT, 240 V	
T-22		
T-23		
T-24		
T-25	1 PHASE SUPPLY TO LAMP INDICATION, 240 V	
T-26	SPARE	
T-27	SPARE	
T-28	FIRE PROTECTION CONTACT SUPPLY - 1	
T-29	SPARE	
T-30	SPARE	
T-31	FIRE PROTECTION CONTACT SUPPLY - 2	
T-32	SPARE	
T-33		
T-34		
T-35		
T-36	BUCHHOLZ RELAY (ALARM)	
T-37		
T-38		
T-39		
T-40	TRAFO. PRV - 1 (ALARM)	
T-41	TRAFO. PRV - 2 (ALARM)	
T-42		
T-43	TRAFO. MOG (LOW ALARM)	
T-44		
T-45	OLTC MOG (LOW ALARM)	
T-46		
T-47	WTI HV (ALARM)	
T-48		
T-49	OTI (ALARM)	
T-50		
T-51	WTI LV1(ALARM)	
T-52		
T-53	WTI LV2(ALARM)	
T-54		
T-55	spare	
T-56	BUCHOLZ RELAY (TRIP)	
T-57		
T-58		
T-59		
T-60	TRAFO. PRV -1 (TRIP)	
T-61		
T-62		
T-63		
T-64	TRAFO. PRV -2 (TRIP)	
T-65		
T-66		
T-67		
T-68	WTI - HV (TRIP)	
T-69		
T-70		
T-71		
T-72	OTI (TRIP)	
T-73		
T-74		
T-75		
T-76	WTI LV1(TRIP)	
T-77		
T-78		
T-79		
T-80	WTI LV2 (TRIP)	
T-81		
T-82		
T-83		
T-84	COOLER (SUPPLY -1) FAIL	
T-85		
T-86		
T-87		
T-88	COOLER (SUPPLY -2) FAIL	
T-89		
T-90		
T-91		
T-92	415 V SUPPLY CHANGE OVER	
T-93		
T-94		
T-95		
T-96	SUPPLY CHANGE OVER FAILS	
T-97		
T-98		
T-99		
T-100	COOLER CONTROL SUPPLY FAILS	
T-101		
T-102		
T-103		
T-104	COOLER CONTROL ON LOCAL MANUAL	
T-105		
T-106		
T-107		
T-108	COOLER CONTROL ON LOCAL AUTO	
T-109		
T-110		
T-111		
T-112	TAP CHANGE INCOMPLETE	
T-113		
T-114		
T-115		
T-116	TAP CHANGER MOTOR TRIP	
T-117		
T-118		
T-119		
T-120	OLTC UPPER LIMIT REACHED	
T-121		
T-122		
T-123		
T-124	OLTC LOWER LIMIT REACHED	
T-125		
T-126		
T-127		
T-128	TAP CHANGER CONTROL SUPPLY FAIL	
T-129		
T-130		
T-131		
T-132	TAP CHANGE IN PROGRESS	
T-133		
T-134		
T-135		
T-136	OLTC IN LOCAL MODE	
T-137		
T-138		
T-139		
T-140	OLTC IN AUTO MODE	
T-141		
T-142		
T-143		
T-144	OLTC RAISE (FROM DDCMIS)	
T-145		
T-146		
T-147		
T-148	OLTC LOWER (FROM DDCMIS)	
T-149		
T-150		
T-151		
T-152	4-20 mA O/P TO WTI-HV (REMOTE)	
T-153		
T-154		
T-155		
T-156	4-20 mA O/P TO WTI-LV1 (REMOTE)	
T-157		
T-158		
T-159		
T-160	4-20 mA O/P TO WTI-LV2 (REMOTE)	
T-161		
T-162		
T-163		
T-164	4-20 mA O/P FOR TAP POSITION (REMOTE)	
T-165		
T-166		
T-167		
T-168	4-20 mA O/P TO WTI-HV (REMOTE)	
T-169		
T-170		
T-171		
T-172	4-20 mA O/P TO WTI-LV1 (REMOTE)	
T-173		
T-174		
T-175		
T-176	4-20 mA O/P TO WTI-LV2 (REMOTE)	
T-177		
T-178		
T-179		
T-180	SPARE	
T-181		
T-182		
T-183		
T-184	WTI - HV CONTACT FOR COOLER CONTROL	
T-185		
T-186		
T-187		
T-188	WTI-LV1 CONTACT FOR COOLER CONTROL	
T-189		
T-190		
T-191		
T-192	WTI-LV2 CONTACT FOR COOLER CONTROL	
T-193		
T-194		
T-195		
T-196	WTI-LV1 CONTACT FOR COOLER CONTROL	
T-197		
T-198		
T-199		
T-200	WTI-LV1 CONTACT FOR COOLER CONTROL	
T-201		
T-202		
T-203		
T-204	SPARE	
T-205		
T-206		
T-207		
T-208	SPARE	
T-209		
T-210		
T-211		

TB NO.	DESCRIPTION	REMARKS
T-123	4-20 mA O/P TO WTI-LV2 (REMOTE)	
T-124		
T-125		
T-126		
T-127	4-20 mA O/P TO OTI (REMOTE)	
T-128		
T-129		
T-130		
T-131	4-20 mA O/P TO WTI-HV (REMOTE)	
T-132		
T-133		
T-134		
T-135	4-20 mA O/P TO WTI-LV1 (REMOTE)	
T-136		
T-137		
T-138		
T-139	4-20 mA O/P FOR TAP POSITION (REMOTE)	
T-140		
T-141		
T-142		
T-143	WTI - HV CONTACT FOR COOLER CONTROL	
T-144		
T-145		
T-146		
T-147	WTI-LV1 CONTACT FOR COOLER CONTROL	
T-148		
T-149		
T-150		
T-151	SPARE	
T-152	WTI-HV CT	(AS APPLICABLE)
T-153	WTI-LV1 CT	
T-154	WTI-LV2 CT	
T-155	WTI-LV2 CT	
T-156	LV1 NEUTRAL CT	
T-157	LV1 NEUTRAL CT	
T-158	LV1 NEUTRAL CT	
T-159	LV2 NEUTRAL CT	
T-160	LV2 NEUTRAL CT	
T-161	LV2 NEUTRAL CT	
T-162	HV CT (R PHASE)	
T-163	HV CT (Y PHASE)	
T-164	HV CT (B PHASE)	
T-165	HV CT (B PHASE)	
T-166	HV CT (Y PHASE)	
T-167	HV CT (R PHASE)	
T-168	HV CT (Y PHASE)	
T-169	HV CT (B PHASE)	
T-170	HV CT (R PHASE)	
T-171	HV CT (Y PHASE)	
T-172	HV CT (B PHASE)	
T-173	HV CT (R PHASE)	
T-174	HV CT (Y PHASE)	
T-175	HV CT (B PHASE)	
T-176	HV NEUTRAL CT	
T-177	SPARE	
T-178-192	SPARE	
T-193	TO DM FOR TAP CHANGE POSITION INDICATION	
T-194	TO DM FOR TAP CHANGE OPERATION	
T-195		
T-196		
T-197		
T-198	TO DM FOR TAP CHANGE OPERATION FROM REMOTE	
T-199		
T-200		
T-201		
T-202	CUSTOMER 220 V DC SUPPLY	
T-203	SPARE	
T-204	OLTC OSR (TRIP)	
T-205	SPARE	
T-206		
T-207		
T-208		

NOTES	
1	CT TBs AS MENTIONED IF NOT USED, CAN BE LEFT UNUSED AS SPARE.
2	THE TERMINALS WHICH ARE NOT USED FOR A PARTICULAR TRANSFORMER SHALL BE LEFT AS SPARE.
3	NUMBER OF SPARE TBs TO BE MAINTAINED AS MINIMUM 20 % OF TOTAL

TITLE:	STANDARD TERMINAL NUMBERS FOR STATION TRANSFORMER
DRAWING NO. :	0000-501-POE-A-002

TB NO.	DESCRIPTION	REMARKS
T-01	415V, 3 PHASE 4 WIRE SUPPLY - 1	
T-02		
T-03		
T-04		
T-05	SPARE	
T-06		
T-07		
T-08		
T-09	415V, 3 PHASE 4 WIRE SUPPLY - 2	
T-10		
T-11		
T-12		
T-13	OLTCTO SUPPLY 415 V, 3PH. 4WIRE	
T-14		
T-15		
T-16		
T-17	SPARE	
T-18		
T-19		
T-20		
T-21	1 PHASE SUPPLY TO CONTROL CIRCUIT, 240 V	
T-22		
T-23		
T-24		
T-25	SPARE	
T-26		
T-27		
T-28		
T-29	1 PHASE SUPPLY TO HEATER AND LIGHTING CIRCUIT, 240 V	
T-30		
T-31		
T-32		
T-33	SPARE	
T-34		
T-35		
T-36		
T-37	BUCHHOLZ RELAY (ALARM)	
T-38		
T-39		
T-40		
T-41	TRAFO. PRV - 1 (ALARM)	
T-42		
T-43		
T-44		
T-45	TRAFO. MOG (LOW ALARM)	
T-46		
T-47		
T-48		
T-49	OLTCTO MOG (LOW ALARM)	
T-50		
T-51		
T-52		
T-53	WTI HV (ALARM)	
T-54		
T-55		
T-56		
T-57	WTI LV(ALARM)	
T-58		
T-59		
T-60		
T-61	spare	
T-62		
T-63		
T-64		
T-65	BUCHHOLZ RELAY (TRIP)	
T-66		
T-67		
T-68		
T-69	TRAFO. PRV -1 (TRIP)	
T-70		
T-71		
T-72		
T-73	TRAFO. PRV -2 (TRIP)	
T-74		
T-75		
T-76		
T-77	WTI - HV (TRIP)	
T-78		
T-79		
T-80		
T-81	OTI (TRIP)	
T-82		
T-83		
T-84		
T-85	WTI LV(TRIP)	
T-86		
T-87		
T-88		
T-89	COOLER (SUPPLY -1) FAIL	
T-90		
T-91		
T-92		
T-93	COOLER (SUPPLY -2) FAIL	
T-94		
T-95		
T-96		
T-97	415 V SUPPLY CHANGE OVER	
T-98		
T-99		
T-100		
T-101	SUPPLY CHANGE OVER FAILS	
T-102		
T-103		
T-104		
T-105	COOLER CONTROL SUPPLY FAILS	
T-106		
T-107		
T-108		
T-109	RUNNING FAN FAIL (BANK 1)	
T-110		
T-111		
T-112		
T-113	RUNNING FAN FAIL (BANK 2)	
T-114		
T-115		
T-116		
T-117	STANDBY FAN FAIL (BANK 1)	
T-118		
T-119		
T-120		
T-121	STANDBY FAN FAIL (BANK 2)	
T-122		
T-123		
T-124		
T-125	COOLER CONTROL ON LOCAL MANUAL	
T-126		
T-127		
T-128		
T-129	COOLER CONTROL ON LOCAL AUTO	
T-130		
T-131		
T-132		
T-133	TAP CHANGE INCOMPLETE	
T-134		
T-135		
T-136		
T-137	TAP CHANGER MOTOR TRIP	
T-138		
T-139		
T-140		
T-141	OLTCTO UPPER LIMIT REACHED	
T-142		
T-143		
T-144		
T-145	OLTCTO LOWER LIMIT REACHED	
T-146		
T-147		
T-148		
T-149	TAP CHANGER CONTROL SUPPLY FAIL	
T-150		
T-151		
T-152		
T-153	TAP CHANGE IN PROGRESS	
T-154		
T-155		
T-156		
T-157	OLTCTO IN LOCAL MODE	
T-158		
T-159		
T-160		
T-161	OLTCTO IN AUTO MODE	
T-162		
T-163		
T-164		
T-165	OLTCTO RAISE (FROM DDCMIS)	
T-166		
T-167		
T-168		
T-169	OLTCTO LOWER (FROM DDCMIS)	
T-170		
T-171		
T-172		
T-173	4-20 mA O/P TO WTI-HV (REMOTE)	
T-174		
T-175		
T-176		
T-177	4-20 mA O/P TO WTI-LV (REMOTE)	
T-178		
T-179		
T-180		
T-181	4-20 mA O/P TO OTI (REMOTE)	
T-182		
T-183		
T-184		
T-185	4-20 mA O/P FOR TAP POSITION (REMOTE)	
T-186		
T-187		
T-188		

TB NO.	DESCRIPTION	REMARKS
T-124	4-20 mA O/P TO WTI-LV (REMOTE)	
T-125		
T-126		
T-127		
T-128	4-20 mA O/P FOR TAP POSITION (REMOTE)	
T-129		
T-130		
T-131		
T-132	WTI - HV CONTACT FOR COOLER CONTROL	
T-133		
T-134		
T-135		
T-136	WTI-LV CONTACT FOR COOLER CONTROL	
T-137		
T-138		
T-139		
T-140	WTI-LV CONTACT FOR COOLER CONTROL	
T-141		
T-142		
T-143		
T-144	LV NEUTRAL CT	
T-145		
T-146		
T-147		
T-148	HV CT (R PHASE)	(AS APPLICABLE)
T-149		
T-150		
T-151		
T-152	HV CT (Y PHASE)	
T-153		
T-154		
T-155		
T-156	HV CT (B PHASE)	
T-157		
T-158		
T-159		
T-160	SPARE	
T-161		
T-162		
T-163		
T-164		
T-165		
T-166		
T-167		
T-168		
T-169		
T-170		
T-171		
T-172		
T-173		
T-174		
T-175		
T-176		
T-177		
T-178		
T-179		
T-180		
T-181		
T-182		
T-183		
T-184		
T-185		
T-186		
T-187		
T-188		

NOTES	
1	CT TBs AS MENTIONED IF NOT USED, CAN BE LEFT UNUSED AS SPARE.
2	THE TERMINALS WHICH ARE NOT USED FOR A PARTICULAR TRANSFORMER SHALL BE LEFT AS SPARE.
3	NUMBER OF SPARE TBs TO BE MAINTAINED AS MINIMUM 20 % OF TOTAL

TITLE:	STANDARD TERMINAL NUMBERS FOR UNIT TRANSFORMER
DRAWING NO. :	0000-501-POE-A-003

AT CMB (COMMON)		
TB. NO.	DESCRIPTION	REMARKS
CP-01	SUPPLY - A, 415 V, 3PHASE, 4 WIRE	
CP-02		
CP-03		
CP-04		
CP-05		
CP-06	SUPPLY - B, 415 V, 3PHASE, 4 WIRE	
CP-07		
CP-08		
CP-09		
CP-10		
CP-11	415 V, 3PHASE, 4 WIRE TO U-PHASE CCC (SUPPLY-A)	HARD WIRED
CP-12		
CP-13		
CP-14		
CP-15		
CP-16	415 V, 3PHASE, 4 WIRE TO V-PHASE CCC (SUPPLY-A)	
CP-17		
CP-18		
CP-19		
CP-20		
CP-21	415 V, 3PHASE, 4 WIRE TO W-PHASE CCC (SUPPLY-A)	
CP-22		
CP-23		
CP-24		
CP-25		
CP-26	415 V, 3PHASE, 4 WIRE TO U-PHASE CCC (SUPPLY-B)	
CP-27		
CP-28		
CP-29		
CP-30		
CP-31	415 V, 3PHASE, 4 WIRE TO V-PHASE CCC (SUPPLY-B)	
CP-32		
CP-33		
CP-34		
CP-35		
CP-36	SPARE	
CP-37		
CP-38		
CP-39		
CP-40		
CP-41	1-PH SUPPLY TO CMB (TO HEATER & LIGHTING)	HARD WIRED
CP-42		
CP-43		
CP-44		
CP-45		
CP-46	FIRE PROTECTION CONTACT (SUPPLY-A)	HARD WIRED
CP-47		
CP-48		
CP-49		
CP-50		
CP-51	FIRE PROTECTION CONTACT (SUPPLY-B)	HARD WIRED
CP-52		
CP-53		
CP-54		
CP-55		
CP-56	GEN-1B 2ND CONTACT BY EMPLOYER	TO SAS
CP-57		
CP-58		
CP-59		
CP-60		
CP-61	220 V DC SUPPLY BY EMPLOYER	
CP-62		
CP-63		
CP-64		
CP-65		
CP-66	SUPPLY-A FAIL	
CP-67		
CP-68		
CP-69		
CP-70		
CP-71	SUPPLY-B FAIL	
CP-72		
CP-73		
CP-74		
CP-75		
CP-76	1PH CHARGER AT DIFFERENT POSITION	
CP-77		
CP-78		
CP-79		
CP-80		
CP-81	SPARE	
CP-82		
CP-83		
CP-84		
CP-85		

AT CMB (IN TRIPLICATE FOR EACH PHASE)		
TB. NO.	DESCRIPTION	REMARKS
CTCMU-01	LV CT (W/T)	HARD WIRE
CTCMU-02	CTCMU-03	
CTCMU-03	EARTHING LINK	
CTCMU-04	HV CT (W/T)	
CTCMU-05	CTCMU-06	
CTCMU-06	EARTHING LINK	HARD WIRE
CTCMU-07	LV CT (DIFF-2)	
CTCMU-08	CTCMU-09	
CTCMU-09	EARTHING LINK	
CTCMU-10	LV CT (DIFF-2)	
CTCMU-11	CTCMU-12	HARD WIRE
CTCMU-12	EARTHING LINK	
CTCMU-13	HV NEUTRAL CT (DIFF.)	
CTCMU-14	CTCMU-15	
CTCMU-15	EARTHING LINK	
CTCMU-16	HV NEUTRAL CT (BU/EFT)	HARD WIRE
CTCMU-17	CTCMU-18	
CTCMU-18	EARTHING LINK	
CTCMU-19	HV PHASE CT (DIFF.)	
CTCMU-20	CTCMU-21	
CTCMU-21	EARTHING LINK	HARD WIRE
CTCMU-22	CTCMU-23	
CTCMU-23	EARTHING LINK	
CTCMU-24	CTCMU-25	
CTCMU-25	EARTHING LINK	
CTCMU-26	SPARE	HARD WIRE
CTCMU-27	CTCMU-28	
CTCMU-28	EARTHING LINK	
CTCMU-29	CTCMU-30	
CTCMU-30	EARTHING LINK	
CTCMU-31	ADDITIONAL HV CT CAN BE ACCOMMODATED IN PHASE TB AND CORRESPONDING EXTRA SPARE TBs TO BE INCLUDED	HARD WIRE
CTCMU-32	CTCMU-33	
CTCMU-33	EARTHING LINK	
CTCMU-34	CTCMU-35	
CTCMU-35	EARTHING LINK	

CONVENTION
1. M. Box-1 will consist of OTI, WTI, CTs and transformer accessories related signals.
2. M. Box-2/CCC will consist of all cooler control and power supply signals.
3. CMB-1 will consist of all power supply for coolers.
4. CMB-2 will consist of redundant SCUs and all control, CT signals for employer use (hard wire) and SAS signals.
5. Number of spare TBs to be provided as minimum 20% of total TBs.
6. TB details shown above are indicative, however the sequence of TBs is to be maintained as shown and if any additional signal is required during detail

NOTES
1. The TB numbering shown above is considering one phase ("U") only except "CPC" TBs (which are common) for other phase ("V" & "W") same numbering shall be followed, however TB name shall be changed to "MV"/"CV"/"MW" / "V"/"W".
2. TB numbering "CT", "CCT" for CT signals shown above are for CMB ("U" - Phase), which is derived from M. Box-1 to same numbering shall be followed in M. Box-1 for CT signals with TB name as "CT_M1U". Similar numbering is applicable for "V" Phase & "W" phase also.
3. The Terminals which are not used shall be left as spare, e.g. in case if 220 V DC supply is not provided, then terminals CP-77 & CP-78 shall be left as spare terminals.
4. All the above TBs with hardwiring shall be kept near to Gland Plate (which is provided for Employer) with the distance of approx. 300 mm above gland plate.
5. All signals marked as "To SAS" shall be communicated to this SAS as per the required format line with technical specification. Also communicate additional signals for "SAS-Main" & "SAS-Standby" Fail of each phase.
6. Data for each CT shall be provided to DOCCMS from SAS through CPC. Following signals shall be hardwired to DOCCMS:
CTMU-04-01
CTMU-05-02
CTMU-11-13
CTMU-12-14
CTMU-13-15
CTMU-14-16
CTMU-15-17
CTMU-16-18
CTMU-17-19
CTMU-18-20
CTMU-19-21
CTMU-20-22
CTMU-21-23
CTMU-22-24
CTMU-23-25
CTMU-24-26
CTMU-25-27
CTMU-26-28
CTMU-27-29
CTMU-28-30
CTMU-29-31
CTMU-30-32
CTMU-31-33
CTMU-32-34
CTMU-33-35
CTMU-34-36
CTMU-35-37
CTMU-36-38
CTMU-37-39
CTMU-38-40
CTMU-39-41
CTMU-40-42
CTMU-41-43
CTMU-42-44
CTMU-43-45
CTMU-44-46
CTMU-45-47
CTMU-46-48
CTMU-47-49
CTMU-48-50
CTMU-49-51
CTMU-50-52
CTMU-51-53
CTMU-52-54
CTMU-53-55
CTMU-54-56
CTMU-55-57
CTMU-56-58
CTMU-57-59
CTMU-58-60
CTMU-59-61
CTMU-60-62
CTMU-61-63
CTMU-62-64
CTMU-63-65
CTMU-64-66
CTMU-65-67
CTMU-66-68
CTMU-67-69
CTMU-68-70
CTMU-69-71
CTMU-70-72
CTMU-71-73
CTMU-72-74
CTMU-73-75
CTMU-74-76
CTMU-75-77
CTMU-76-78
CTMU-77-79
CTMU-78-80
CTMU-79-81
CTMU-80-82
CTMU-81-83
CTMU-82-84
CTMU-83-85
CTMU-84-86
CTMU-85-87
CTMU-86-88
CTMU-87-89
CTMU-88-90
CTMU-89-91
CTMU-90-92
CTMU-91-93
CTMU-92-94
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CTMU-95-97
CTMU-96-98
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CTMU-98-100
CTMU-99-101
CTMU-100-102
CTMU-101-103
CTMU-102-104
CTMU-103-105
CTMU-104-106
CTMU-105-107
CTMU-106-108
CTMU-107-109
CTMU-108-110
CTMU-109-111
CTMU-110-112
CTMU-111-113
CTMU-112-114
CTMU-113-115
CTMU-114-116
CTMU-115-117
CTMU-116-118
CTMU-117-119
CTMU-118-120
CTMU-119-121
CTMU-120-122
CTMU-121-123
CTMU-122-124
CTMU-123-125
CTMU-124-126
CTMU-125-127
CTMU-126-128
CTMU-127-129
CTMU-128-130
CTMU-129-131
CTMU-130-132
CTMU-131-133
CTMU-132-134
CTMU-133-135
CTMU-134-136
CTMU-135-137
CTMU-136-138
CTMU-137-139
CTMU-138-140
CTMU-139-141
CTMU-140-142
CTMU-141-143
CTMU-142-144
CTMU-143-145
CTMU-144-146
CTMU-145-147
CTMU-146-148
CTMU-147-149
CTMU-148-150
CTMU-149-151
CTMU-150-152
CTMU-151-153
CTMU-152-154
CTMU-153-155
CTMU-154-156
CTMU-155-157
CTMU-156-158
CTMU-157-159
CTMU-158-160
CTMU-159-161
CTMU-160-162
CTMU-161-163
CTMU-162-164
CTMU-163-165
CTMU-164-166
CTMU-165-167
CTMU-166-168
CTMU-167-169
CTMU-168-170
CTMU-169-171
CTMU-170-172
CTMU-171-173
CTMU-172-174
CTMU-173-175
CTMU-174-176
CTMU-175-177
CTMU-176-178
CTMU-177-179
CTMU-178-180
CTMU-179-181
CTMU-180-182
CTMU-181-183
CTMU-182-184
CTMU-183-185
CTMU-184-186
CTMU-185-187
CTMU-186-188
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CTMU-189-191
CTMU-190-192
CTMU-191-193
CTMU-192-194
CTMU-193-195
CTMU-194-196
CTMU-195-197
CTMU-196-198
CTMU-197-199
CTMU-198-200
CTMU-199-201
CTMU-200-202
CTMU-201-203
CTMU-202-204
CTMU-203-205
CTMU-204-206
CTMU-205-207
CTMU-206-208
CTMU-207-209
CTMU-208-210
CTMU-209-211
CTMU-210-212
CTMU-211-213
CTMU-212-214
CTMU-213-215
CTMU-214-216
CTMU-215-217
CTMU-216-218
CTMU-217-219
CTMU-218-220
CTMU-219-221
CTMU-220-222
CTMU-221-223
CTMU-222-224
CTMU-223-225
CTMU-224-226
CTMU-225-227
CTMU-226-228
CTMU-227-229
CTMU-228-230
CTMU-229-231
CTMU-230-232
CTMU-231-233
CTMU-232-234
CTMU-233-235
CTMU-234-236
CTMU-235-237
CTMU-236-238
CTMU-237-239
CTMU-238-240
CTMU-239-241
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Standard Terminal Numbers to be incorporated in Transformer Marshalling Box
For Outdoor Transformers (Oil filled)

Terminal No.	Description
T-01	230V, Single Phase, 50Hz, AC Supply
T-02	
T-03	
T-04	
T-05	MOG (Oil Level) Alarm
T-06	
T-07	Buchholz Relay Alarm
T-08	
T-09	
T-10	OTI Alarm
T-11	WTI-1 Alarm
T-12	
T-13	WTI-2 Alarm
T-14	
T-15	PRV-1 Alarm
T-16	
T-17	PRV-2 Alarm
T-18	
T-19	
T-20	
T-21	
DUMMY	Buchholz Relay Trip
T-22	
T-23	
DUMMY	PRV-1 Trip
T-24	
T-25	PRV-2 Trip
DUMMY	
T-26	OTI Trip
T-27	
DUMMY	
T-28	WTI-1 Trip
T-29	
DUMMY	
T-30	WTI-2 Trip
T-31	
DUMMY	
T-32	
T-33	
T-34	
T-35	Neutral CT (for REF Protection) 64
T-36	
T-37	Neutral CT (for Earth Fault Protection) 51N
T-38	
T-39	CT Shorting Terminal
T-40	CT Shorting Terminal
T-41	Spare Terminals for NTPC use
T-42	
T-43	
T-44	
T-45	220V DC Supply (If required)
T-46	

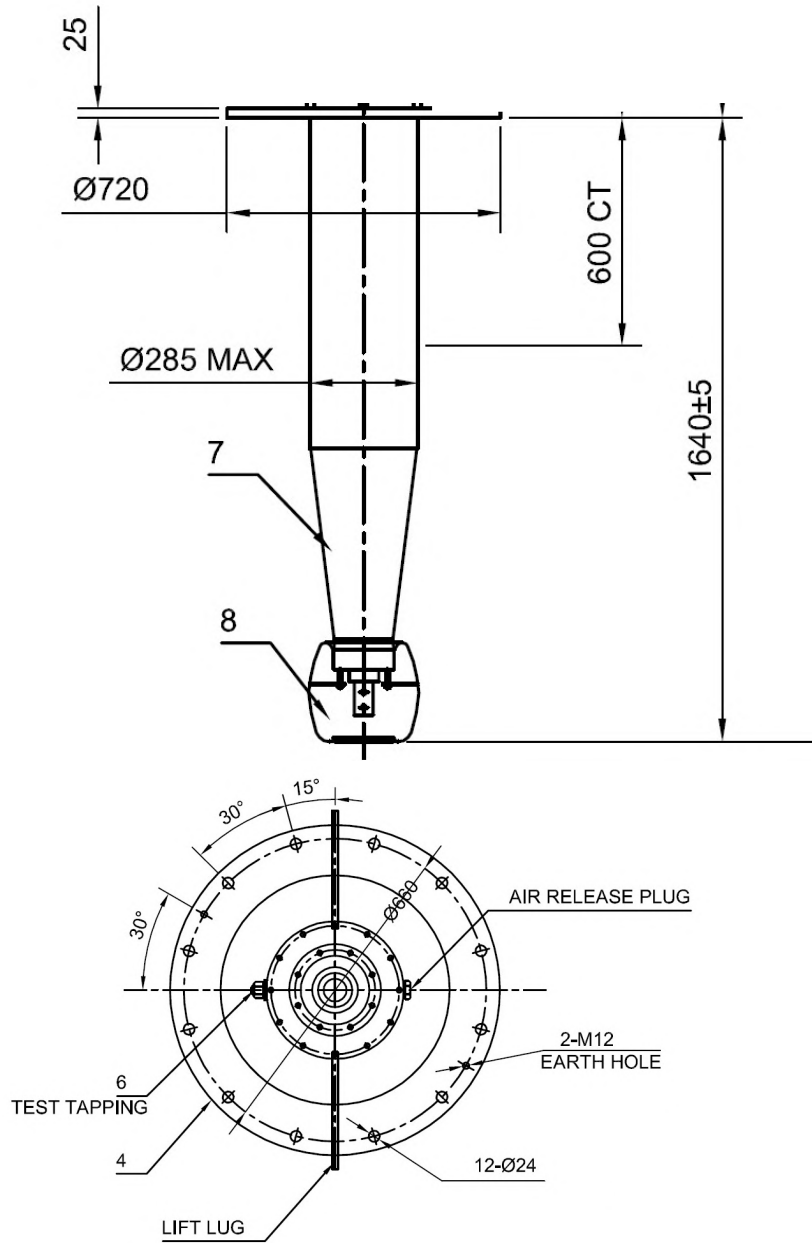
Notes:

1. The Terminals from T-01 to T-46 shall be designated as indicated in the chart for all outdoor auxiliary transformers (upto 16MVA)

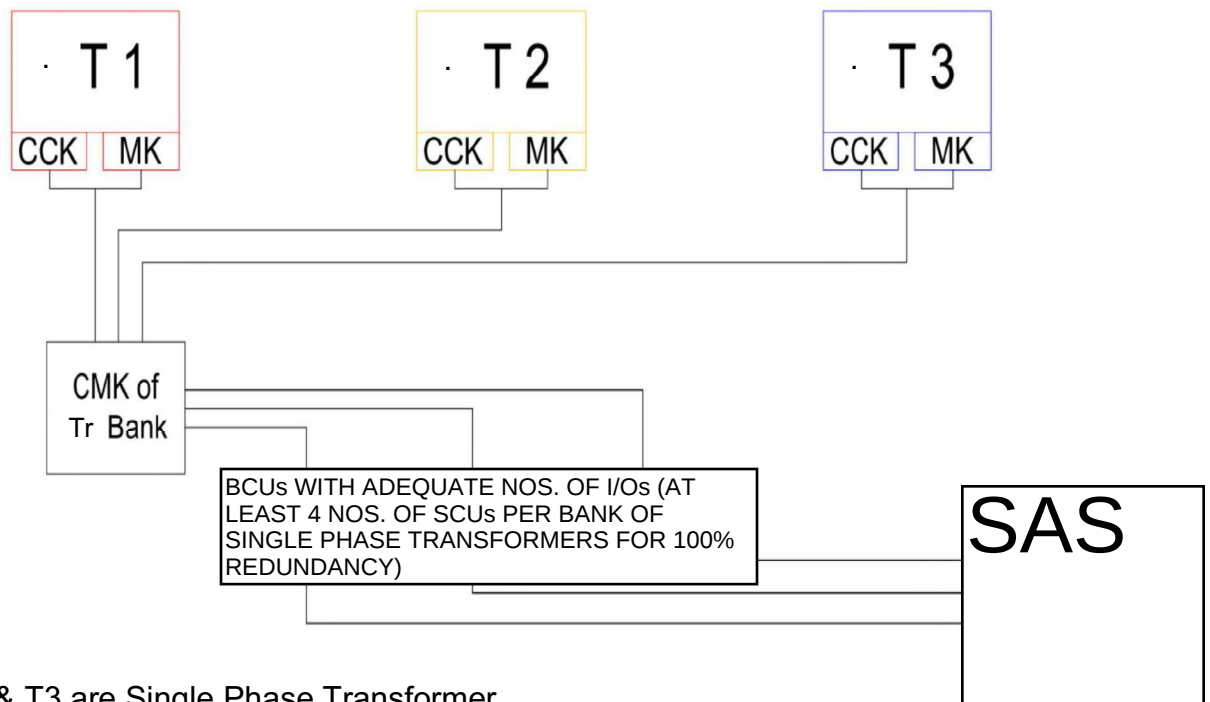
2. The Terminals which are not used for a particular Transformer shall be left as spare. e.g. in case there is only one PRV, then terminals T-17, T-18, T-25 & T-26 shall be left as spare terminals.

Drg. Title	Standard Terminal Numbers for Marshalling Box of oil filled transformers		
Drg. No.	0000-203-PVE-B-001		

Standard Drawing for oil end portion of 420 kV Class RIP Bushing (800-2000 Amp.)



		NTPC Ltd. (A Government of India Enterprise) Engineering Division	
Project		Standard Drawing	
Title		Oil end portion of 420 kV class RIP Bushing (800-2000 A)	
Size A4	Scale NTS	Drg. no.: 0000-501-POE-A-006	Rev. no.: 0



T1,T2 & T3 are Single Phase Transformer

CCK : Cooler Control Kiosk with Fans

MK : Marshalling Kiosk for WTI,OTI,MOG,PRV,CT's,PRV signals etc.

CMK : Common Marshalling Kiosk

NOTE : This is only a single line diagram and does not represent physical location.

Transformer Outdoor Layout

		NTPC Ltd. (A Government of India Enterprise) Engineering Division	
Project		Standard Drawing	
Title		Transformer Outdoor Layout	
Size A4	Scale NTS	Drg. no.: 0000-501-POE-A - 005	Rev. no. 1