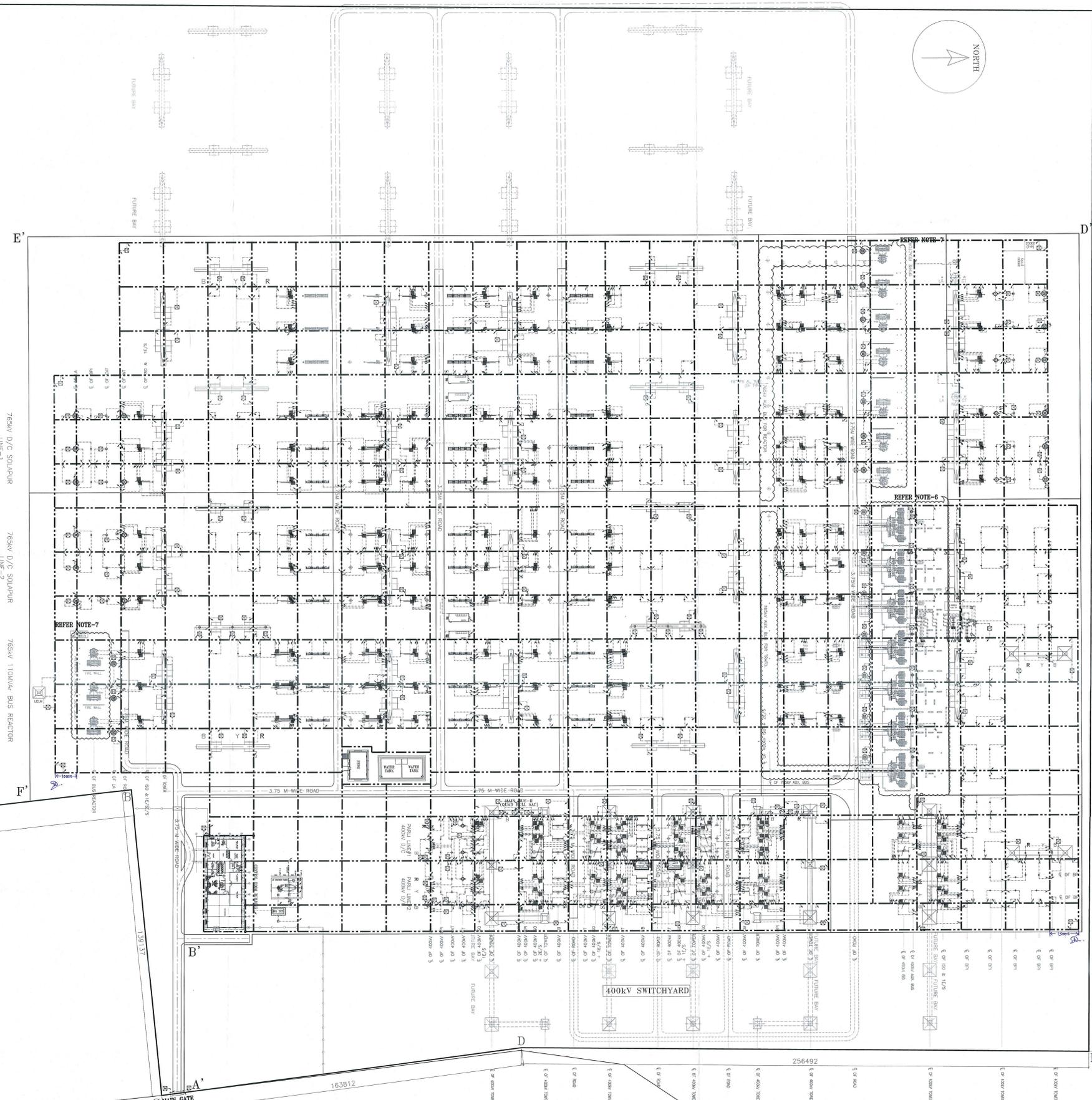


600536



765kV D/C SQUARE LINE-1
765kV D/C SQUARE LINE-2
765kV 110kV-A-BUS REACTOR

765kV D/C WARDRA WITH LINE REACTOR LINE-2
765kV D/C WARDRA WITH LINE REACTOR LINE-1
94802/765/400kV ICT-2
765/400kV ICT-1

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. MAIN EARTHING CONDUCTOR WILL BE LAID 600MM BELOW FROM THE FINISH GROUND LEVEL.
3. EARTHING CONDUCTOR RUNNING BELOW CABLE TRENCHES, DRAINS & RAIN WILL BE LAID 300MM BELOW ROAD OR AT GREATER DEPTH TO SUIT SITE CONDITION.
4. THIS DRAWING IS ONLY SYMBOLIC REPRESENTATION OF EARTHING CONDUCTOR LAYOUT AT ACTUAL SITE CONDITION CONDUCTOR WILL BE ROUTED IN SUCH MANNER, SO THAT IT DOES NOT FOUL WITH ANY FOUNDATION.
5. MAIN EARTHING CONDUCTOR WILL BE LAID 300MM BEYOND THE FENCE.
6. CABLE SUPPORTS IN TRENCHES SHALL BE EARTHED BY 50x5mm MS FLAT RUNNING ALONG THE TOP TIER OF THE CABLE TRENCH.
7. EQUIPMENT EARTHING CONNECTION ARE DIAGRAMATIC ONLY AND WILL BE DONE AS PER SITE CONDITION.
8. FENCE WILL BE EARTHED AT ALTERNATE POST. RAIL TRACK WILL BE EARTHED AT EVERY 10M'S INTERVAL AND AT BOTH ENDS.
9. ALL EARTHING WILL BE DONE IN ACCORDANCE WITH IS:3043 UNLESS OTHERWISE SPECIFIED IN THE TECHNICAL SPECIFICATION.
10. AUXILIARY EARTHING 1500x1500 WITH GRID SPACING 300MM WILL BE PLACED BELOW ISOLATOR MOM & EDM AT 300MM DEPTH FROM GROUNDING LEVEL THIS WILL BE DONE AS PER THE ACTUAL LOCATION OF MOM & EDM AT SITE FOR DETAILS OF CONNECTION OF AUX EARTHINGS TO MAIN EARTHING. REFER GROUNDING NOTES & DETAILS (DETAIL NO-241)
11. EACH INDIVIDUAL STRUCTURE /EQUIPMENT SHOULD BE EARTHED AND CONNECTED TO TWO DIFFERENT GRID.
12. LOCATION OF SWITCHYARD PANEL ROOM IS TENTATIVE. FOR FINAL LOCATION REFER CABLE TRENCH LAYOUT 765kV PARLI.
13. DISTANCE BETWEEN TWO EARTH PITS SHALL BE GREATER THAN 2L (L-LENGTH OF THE ROD ELECTRODE) GRID, BUT IT IS NOT POSSIBLE TO SHOW IN EARTHING LAYOUT AS PER CONSTRUCTION THE DISTANCE BETWEEN TWO EARTH PITS WILL BE MINIMUM 2L.
14. COMPLETE EARTHING (BELOW & ABOVE GROUND RISERS WITH EARTH PIT) OF 765kV & 400kV REACTORS, TRANSFORMERS, AUX. BUSES & NEUTRAL BASES WITH ASSOCIATED EQUIPMENTS (i.e. BPR, HGR, 120kV LA, NCT ETC) ARE NOT IN SCOPE OF M/A SIEMENS.
15. COMPLETE CIVIL WORKS ARE NOT IN SCOPE OF M/A SIEMENS.

REFERENCE DRAWINGS:-

1. 765kV SWITCHYARD EQUIPMENT LAYOUT PLAN OF 765kV AIS SYSTEM
- (0)-G71770-AB916-L153-01
2. 400kV SWITCHYARD EQUIPMENT LAYOUT PLAN OF 400kV AIS SYSTEM
- (0)-G71770-AB916-S154-01

LEGENDS:

SYMBOLS	MATERIAL SIZE	DESCRIPTION	QTY.
	40mm DA MS ROD	MAIN EARTH MAT CONDUCTOR TO BE BURIED IN GROUND (GROUND REEP)	15.5 KM.
	40mm DA MS ROD	EARTH MAT REEP CONDUCTOR BELOW GROUND (FOR EQUIPMENTS, STRUCTURES ETC.)	18.6 KM.
	75x12mm G.S. FLAT	CONDUCTOR ABOVE GROUND & EARTHING LEADS (FOR STRUCTURES, EQUIPMENTS ETC.)	14.0 KM.
	50x5mm MS. FLAT	CABLE TRENCH EARTHING (OUTDOOR)	2.80 KM.
	50x5mm G.S. FLAT	EARTHING OF LT PANELS, BMS's, LIGHTING PANELS, AFS, WFL, LT MOTORS ETC.	2.0 KM.
	40mm DA MS ROD (SIZE=1.5x1.5 Mtr.)	AUXILIARY EARTH MAT FOR ISOLATOR & EARTHSMITH MOM	6.5 KM.
	40mm DA 3000mm LONG MS ROD EARTH ELECTRODE	FOR LA, CIVT, TOWERS WITH PEAK, SWITCHYARD CORNER, LT TERTIARY NEUTRAL, ETC.	176 Nos.

** Details of Earthing Equipment Areas, Shd the as per Annex-A of Action Analysis Section*

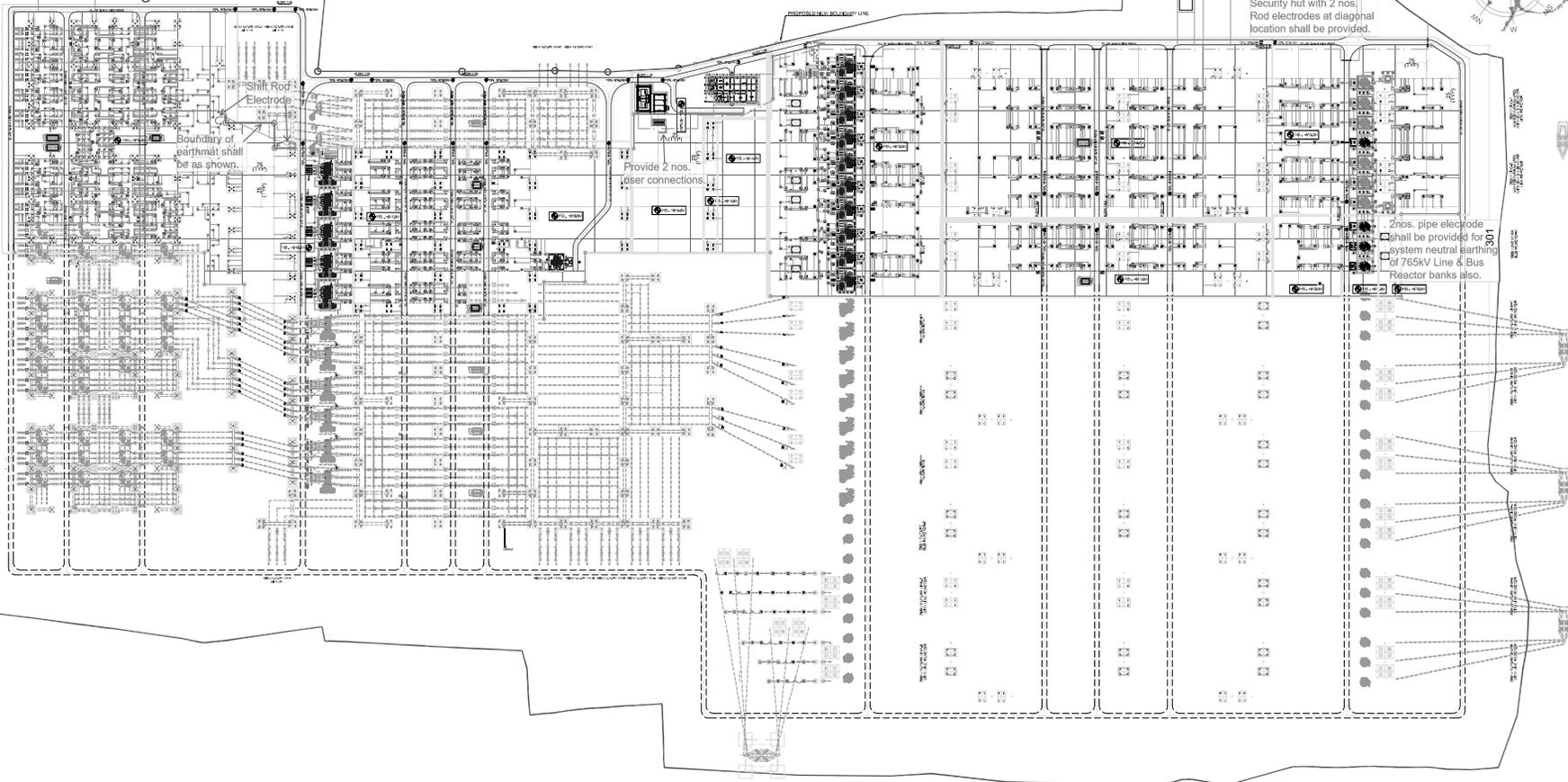
** In case of earthing conductor found to be insufficient, as it should be feasible to be checked at site in consultation to Proposed Site Engineer.*



P-90916_E_CT_8771_PARL_D		765/400kV PARLI AIS SUBSTATION	
Scale 1 : 800			
Substation Package SS02 for 765/400kV PARLI(NEW) Pooling Station associated with Gadawara Part (B) Transmission System Project under TBCB route.		POWERGRID PARLI TRANSMISSION LIMITED (A wholly owned subsidiary of Power Grid Corporation of India Ltd.)	
Date	01.09.2016	REV	NO
Drawn	SR		
Chk	MS		
Appr.	MM		
		765/400kV EARTHING LAYOUT (PARLI SUBSTATION)	
		2	
2		SIEMENS	
1	Based on per PDC, with ref. no. 3.0.004	05.12.2016	MW
0	Revised the Action Earth level	22.11.2016	TS
0	Final issue	01.09.2016	TS
Rev.	Remarks	Date	Name

Note: Out of the 2 risers arising from each building, store, etc. 1 riser shall be connected to horizontal & other to vertical main earthmat.

Riser 1500m around Security hut with 2 nos. Rod electrodes at diagonal location shall be provided.



Qty of main earthmat indicated is based on engineering estimation only. However, the actual qty shall be as per execution at site.

BOM OF EARTHING SYSTEM				
SL. NO.	DESCRIPTION	MATERIAL	TOTAL QUANTITY	LOA QUANTITY
1	MAIN EARTHMAT	40mm DIA M.S. ROD	20000 MTR.	25000 MTR.
2	RISER CONNECTION BELOW GROUND (CONNECTING FROM MAIN EARTHMAT TO EQUIPMENT/EQUIPMENT STRUCTURE)	40mm DIA M.S. ROD	47000 MTR.	
3	AUXILIARY MAT FOR ISOLATOR MOM BOX	32mm DIA M.S. ROD	11502 MTR.	
4	CONDUCTOR ABOVE GROUND AND EARTHING LEADS (FOR EQUIPMENT, COLUMNS, RAIL AND AUX. STRUCTURE)	75 x 12mm G.S. FLAT.	26000 MTR.	
5	EARTHING INDOOR LT PANELS, CONTROL PANELS & OUTDOOR MARSHALLING BOX, MOM BOXES, JB & LIGHTING PANELS.	50 x 6mm G.S. FLAT.	6000 MTR.	
6	EARTHING CONDUCTOR ALONG CABLE TRENCHES.	50 x 6mm M.S. FLAT.	5600 MTR.	
7	ROD EARTH ELECTRODE.	40mm DIA 3 MTR LONG M.S. ROD	386 NOS.	388 NOS.
8	PIPE EARTH ELECTRODE (IN TREATED PIT)	40mm DIA 3 MTR LONG G.S. PIPE	36 NOS.	
9	CLEAT TYPE CLAMP FOR 75X12 MM G.S. FLAT	----	10000 NOS.	
10	CLEAT TYPE CLAMP FOR 50X06 MM G.S. FLAT	----	1000 NOS.	
11	SWITCHYARD FENCE	----	750 MTR.	2000 MTR.
12	SWITCHYARD GATE	----	08 NOS.	10 NOS.

LEGEND

- MAIN EARTH MAT
- RISER
- AUXILIARY MAT FOR ISOLATOR
- ROD ELECTRODE
- NEUTRAL PIPE ELECTRODE

Note: For the LOT items identified, the qty indicated is based on estimation only. In case any additional item/qty is found to be required during execution at site, same shall be supplied by TECHNO without any additional price implications to POWERGRID.

NOTES :-

01. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
02. THE EARTHING SYSTEM INSTALLATION WORK SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITIONS OF THE FOLLOWING STANDARDS/CODES:-
 - a. IS:3043
 - b. IEEE Std 80
 - c. POWERGRID TECHNICAL SPECIFICATION (CIENGG-STD-EARTHING-09), TOTAL 28 SHEETS.
03. ALL EQUIPMENT STRUCTURES, TOWER STRUCTURES, METALLIC STAIRS SHALL BE CONNECTED TO NEAREST EARTHING GRID BY ATLEAST TWO EARTHING LEADS.
04. THIS DRG IS ONLY DIAGRAMMATIC REPRESENTATION OF EARTHING CONDUCTOR LAYOUT. AT ACTUAL CONDITION, CONDUCTOR WILL BE ROUTED IN SUCH MANNER SO THAT IT DOES NOT FOUL WITH ANY FOUNDATION, BUILDING ETC.
05. EARTHING CONDUCTOR RUNNING BELOW CABLE TRENCH, DRAINS, ROADS & RAIL WILL BE LAID 300mm BELOW THE BOTTOM OF ABOVE SUBTEMS.
06. TAP CONNECTION FROM EARTHING GRID TO EQUIPMENT STRUCTURE TO BE EARTHED AND SHALL BE TERMINATED ON THE TERMINAL OF EQUIPMENT(S) AS PER STANDARD EARTHING DETAILS (CIENGG-STD-EARTHING-09) ENCLOSED WITH SECTION- SWITCHYARD ERECTION, ANNEXURE - G OF TECH. SPEC.
07. THE WELDING JOINTS OF THE EARTH MAT AND EARTHING FLAT IN THE CABLE TRENCHES WILL BE PAINTED AS PER TECHNICAL SPECIFICATION (CLAUSE NO. 8.7.2 OF 86-SWITCHYARD ERECTION).
08. AUXILIARY EARTH MAT (150x150mm WITH GRID) SPACING 300mm WILL BE PLACED BELOW 800MM & 500MM DEPTH FROM GROUNDING LEVEL. THIS WILL BE DONE AS PER THE ACTUAL LOCATION OF MOM & EOM BOX AT SITE FOR DETAILS OF CONNECTION OF AUX EARTH MAT TO MAIN EARTH MAT REFER EARTHING NOTES & DETAILS.
09. ONE NO. 40mm DIA 3000mm LONG MS ROD ELECTRODE WITH TEST LINK, C.I. FRAME & COVER SHALL BE PROVIDED TO CONNECT EACH DOWN CONDUCTOR OF SURGE ARRESTER, CAPACITIVE VOLTAGE TRANSFORMER & TOWER WITH PEAK.
10. MINIMUM DISTANCE OF 600MM SHALL BE MAINTAINED IN BETWEEN TWO TREATED (PIPE) ELECTRODE.
11. EARTHING FOR FIRE FIGHTING SYSTEM UNDER PRESENT SCOPE SHALL ALSO BE DONE IN LINE WITH REQUIREMENT OF TS.

Note: Switchyard Fence & Gates shall also be earthed as per TS.

REF DRAWING

1. BIDAR S/S (NEW)-765/400/220KV ELECTRICAL LAYOUT PLAN & SECTION (DWG NO. - TB202364-I002393-SC3530-ELECT-LAY-PLAN)
2. BIDAR S/S (NEW)- EARTH MAT DESIGN CALCULATION (DWG NO. - TB202364-I002393-SC3530-EMAT-LAY)
3. BIDAR S/S (NEW)-765KV FOUNDATION LAYOUT (DWG NO. - TB202364-I002393-SC3530-765V-FDN-LAY)
4. BIDAR S/S (NEW)-400KV FOUNDATION LAYOUT (DWG NO. - TB202364-I002393-SC3530-400V-FDN-LAY)
5. BIDAR S/S (NEW)-400KV FOUNDATION LAYOUT (DWG NO. - TB202364-I002393-SC3530-400V-FDN-LAY)
6. STANDARD EARTHING DETAILS (DWG NO. - CIENGG-STD-EARTHING-09)

2	THIRD SUBMISSION	MM	AM	BS	10.04.25
1	SECOND SUBMISSION	MM	AM	BS	17.03.25
0	FIRST SUBMISSION	MM	AM	BS	04.03.25
REV	DESCRIPTION	PREP.	CHKD.	APPD.	DATE
		SIGN.			
CUSTOMER		POWER GRID CORPORATION OF INDIA LTD.			
ERECTOR		TECHNO ELECTRIC & ENGG. CO. LTD.			
NOA NO.	SUPPLY	CC/TW-AIS/DOM/A06/23/02743/NOA-1/24-103573/01, DATE: 13.03.2024			
	ERECTION	CC/TW-AIS/DOM/A06/23/02743/NOA-2/24-103573/02, DATE: 13.03.2024			
PROJECT	765KV SUBSTATION (NEW) PACKAGE-SS-11T FOR ESTABLISHMENT OF 3X1500MVA (765/400KV), 6X500MVA (400/220KV) STATION AT SUITABLE BORDER LOCATION AT BIDAR INCLUDING 400KV, 125MMVAR BUS REACTOR UNDER TRANSMISSION SCHEME FOR SOLAR ENERGY ZONE IN BIDAR (2300MM), KARNATAKA THROUGH TARIFF BASED COMPETITIVE BIDDING 19/08 ROUTE				
SUBSTATION	765/400/220 KV BIDAR (NEW) PS				
DRG. TITLE	BIDAR S/S (NEW)-765/400/220KV EARTH MAT LAYOUT				
DRG. NO. :	TB202364-I002393-SC3530-EMAT-LAY				
SCALE :	NTS	JOB NO:	0804BI	SHEET	1 OF 1