

Comments on Technical Specification for pre bid clarification

Sr. No.	Document	Clause No.	Description	GIS Manufacturers notes/ comments	Client response
1	GIS Specifications_Rev3		NOTE: All the requirements specified in these specification & relevant standards (latest version) to be adhered by the contractor from drawing proposal to project commissioning. If contractor has missed to propose the right solution in line with the requirements specified in this specification during detailed engineering stage, then same must be rectified at their risk & cost during project execution & commissioning stage.	Proposed GIS is exactly in line with earlier executed project at site. We request a review and acceptance on the same	GIS with separate stand alone LCC shall be considered for this project. Specification requirement to be followed.
2	GIS Specifications_Rev3		e. In the GIS Layout, platform arrangement to be provided for accessing to each operation area (Each MOM BOX, Switches & Density monitors) by human. Also, Gas density monitor to be placed in such a way along with adapter that it can be easily visible standing at GIS floor. If these are not found satisfactory after installation, necessary modification to be done at site.	GIS shall be manufacture and install based on approved drawings/ QAP and ETC requirement. Modification cannot be done after installation at site.	Bidder is requested to develop the drawing considering technical specification requirement irrespective of standard design.
3	GIS Specifications_Rev3		i. Contractor to submit recommended mandatory spare lists with ordering code from respective OEM for respective project specific supply considering 10 Yrs. Of O&M requirement, irrespective of whether we are procuring it or not under this contract.	We understood that past supplied mandatory spares are available at site. Over and above, we do not recommend any spares.	Specification requirement to be followed.
4	GIS Specifications_Rev3		a. Reduced DC voltage test at site to be conducted. CRM test point 2 nos. in each bay to avoid bus shutdown. DCRM & Travel test to be done during FAT & at site during pre-commissioning test.	Kindly share requirement of reduce voltage test.	Test is same as Noraml DC voltage test, CB coil shall be tested at reduced voltage upto -15%.
5	GIS Specifications_Rev3		s. For Outdoor GIS LCC panel OEM must provide Canopy arrangement considering heavy rainy season Operations & Maintenance activities after Energization.	We understood that GIS requirement is Indoor hence this clause is not applicable. Kindly confirm	Noted
6	GIS Specifications_Rev3		u. For Outdoor GIS it will be better to construct outdoor EOT crane for the replacement of GIS equipment CB, CT, VT DE/ES & Busbar if required during shutdown. It will minimize the shutdown duration and same as the Restoration.	Excluded from bidder scope	Noted
7	GIS Specifications_Rev3		<i>One (1) set portable ladder with adjustable height and one (1) set suitable portable scissor lift shall be provided for access of distant portion of GIS installation shall be supplied to access the GIS equipment for O&M purpose , if the GIS proposal is without platform.</i>	1 number of Mobile platform type ladders shall be provided however portable scissor lift is excluded from bidder scope of supply	Specification requirement to be followed.
8	GIS Specifications_Rev3		d. LCC local operation interlock with CB, ISO & DS to be provided. Local / Remote / Maintenance mode selector switch need to be implemented. Respective interlocking for all CB / DS / ES / FES need to be implemented.	Local remote selector switch shall be provided. However maintenance switch cannot be provided since it is already taken care through interlocking type design.	Noted
9	GIS Specifications_Rev3		f. At no point of time AC & DC cable should be mixed up. Upon installation at the site if it's not found meeting the criteria then the contractor needs to lay additional pipe with all the relevant re-work. Also, suitable size of tray to be used for all the cabling in GIS set up & up to LCC area.	In case of CB/ DS/ ES drives, AC cable for heater is combined with other DC signal which are not required to change as this design is type tested . Rest circuit AC & DC will be separate. Request your kind acceptance	Specification requirement to be followed.
10	GIS Specifications_Rev3		g. Auto-reclosure scheme to be implemented through relays for redundancy.	Shall be taken care by CRP	Noted

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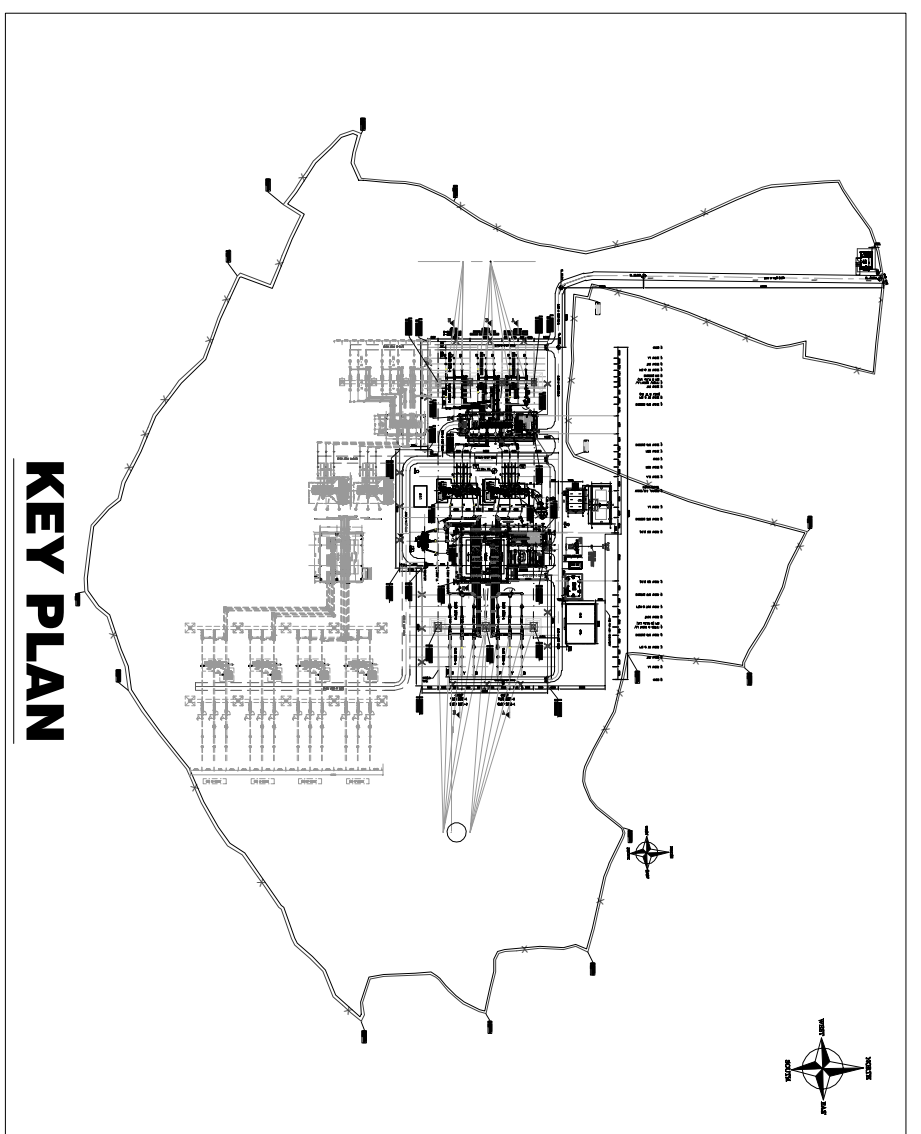
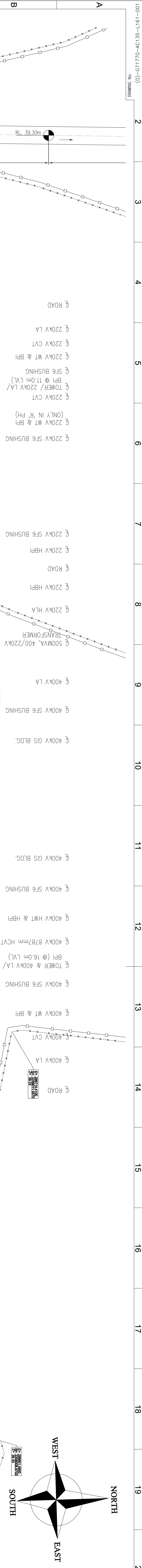
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11	GIS Specifications_Rev3		h. For safe operation of GIS installation, Gas zone trip ckt. must be implemented with selection of Enable / Disable switch. In normal cases it must be in enable mode only. This shall be reported to Station SAS as well.	Instead of selection switches, we will provide disconnecting or link type terminals for gas zone trip circuit. Through which customer can enable or disable. Request your kind acceptance	specification requirement to be followed.
12	GIS Specifications_Rev3		j. For all the GIS DS & ES Mechanical Interlock using solenoid coil for the shutter lock in Operating cubicle/Drive must be provided to avoid close operation of Bus Isolator (DS) & Earth switch(ES) together after Post commissioning Maintenance/Shutdown work. Otherwise, it may lead to Electrical accidents.	Currently this interlock design is not available. Request you to follow previously followed design and accept this as a deviation	Noted
13	GIS Specifications_Rev3		l. No Voltage condition & Bus VT JB MCB ON/Healthy status need to adopt in Bus VT Isolator close & open operation logic in LCC as well as BCU. When the Bus in Live condition VT Isolator Open/Close operation permissive must be in block condition.	This point shall be taken care during detail engineering with support of CRP signals	Noted
14	GIS Specifications_Rev3		m. No Voltage condition/Deadline & Line VT MCB ON/Healthy status need to adopt in Line ES Close & Open operation logic in LCC as well as BCU. When the Line in Live condition Line ES Open/Close operation permissive must be in block condition.	VT is not required in the feeder bays hence this interlock is not applicable	Noted
15	GIS Specifications_Rev3		n. In all LCC panel one Analog Ammeter and one Analog Voltmeter need to be fixed to confirm the status of GIS Individual bay reading after energization at field.	We already provide digital meters in LCC hence analog shall not be provided	Noted
16	GIS Specifications_Rev3		o. Spare Control Cables from GIS to LCC panel must be provided with proper Identification	These shall be taken care during site installation	Noted, it's bidder responsibility to take care the same during installation.
17	GIS Specifications_Rev3		p. Removable Lock & Key must be provided in LCC Local/Remote Selector switch. Locking provision must be arranged in the selector switches.	LR switch is with key lockable. Key will be removable in remote position only	Noted
18	GIS Specifications_Rev3		r. Gas Level Alarm & Gas Level zone tripping status must be adopted in separate contactors for phase wise Identification from density Monitors to LCC panel. Combined/Parallel circuit for 3 phases in a single aux contactor need to avoid strictly. For all the SF6 stages in each compartment must be taken individual phase wise wiring using separate contactors.	Gas refill alarm is considered. phase wise and gas zone alarm will be considered combinely	Specification requirement to be followed.
19	GIS Specifications_Rev3		s. For Outdoor GIS LCC panel OEM must provide Canopy arrangement considering heavy rainy season Operations & Maintenance activities after Energization.	Not applicable as the GIS is Indoor type	noted
20	GIS Specifications_Rev3		t. In GIS Substation, Ladder/Platform must be provided by OEM to easily access the Bus VT Isolator & JB Box for the Maintenance work during shutdown.	Bus VT is already available at site hence this clause is not applicable for present scope	noted
21	GIS Specifications_Rev3	4.4	Due to safety requirement for working on this pressurized equipment, whenever the pressure of the adjacent gas compartment is reduced during maintenance, this compartment shall be designed so that it shall remain in service to perform its intended duty.	Whenever the pressure of the compartment is reduced the same cannot be kept in service as the required dielectric strength cannot be achieved.	noted
22	GIS Specifications_Rev3	4.5	The material and thickness of the enclosures shall be such as to withstand an internal flash over without burn through for a period of 300 ms at rated short time withstand current.	The Value shall be in line with the requirement of IEC 62271-203. Request a concurrence on the same.	noted
23	GIS Specifications_Rev3	4.19	The GIS shall be designed, so as to take care of the VFT over voltages generated as a result of pre-strikes and re-strikes during isolator operation. Maximum VFT over voltages peak shall not be higher than rated lightning impulse withstand voltage (LIWV) of the equipment. Necessary measures shall be under taken by GIS manufacture to restrict maximum VFT over voltages lower than the LIWV. Manufacturer shall submit the study report of VFTO generated for GIS installation.	VFTO study shall be excluded from Siemens scope.	Specification requirement to be followed.
24	GIS Specifications_Rev3	4.25	In case of GIS EXTENSION package , GIS Bays shall be equipped with Platform in line with existing installation.	The same shall be exercised during detail engineering stage based on the position of platform of existing GIS.	Noted, Kindly note that GIS bays under present scope shall be placed in separate building .
25	GIS Specifications_Rev3	4.36	Grounding	Earthing details shall be provided during detailed engineering stage.	Noted

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26	GIS Specifications_Rev3	4.38	GIS bus ducts of each circuit shall be arranged in preferably horizontal formation and the clearance (outer to outer) between nearest bus ducts of two adjacent circuits shall be minimum one (1) meter.	Clearance as per OEM standard design shall be offered. Kindly confirm	Should be as per existing GIS Bays
27	GIS Specifications_Rev3	4.38	The minimum outer to outer horizontal clearance between each GIS bus duct shall be 0.75 meter for 765kV & 400 kV voltage level and 0.5 meter for 220 kV & 132 kV voltage level.	Clearance as per OEM standard design shall be offered. Kindly confirm	Should be as per existing GIS Bays
28	GIS Specifications_Rev3	4.39	One (1) set portable ladder with adjustable height and one (1) set suitable portable scissor lift shall be provided for access of distant portion of GIS installation shall be supplied to access the GIS equipment for O&M purpose, if the GIS proposal is without platform.	We shall offer Mobile platform type ladder. Portable scissor lift shall be excluded from Siemens scope.	Specification requirement to be followed.
29	GIS Specifications_Rev3	6.2.12	The disconnectors and safety grounding switches shall have a mechanical and electrical inter-locks to prevent closing of the grounding switches when isolator switches are in the closed position and to prevent closing of the disconnectors when the grounding switch is in the closed position. Integrally mounted lock when provided shall be equipped with a unique key for such three phase group. Master key is not permitted.	The disconnectors and the safety grounding switches are separate modules in GIS design and shall have only electrical inter-locks between them. However the required padlocking facility shall be provided for the manual interlocking for additional protection.	Should be as per existing GIS Bays
30	GIS Specifications_Rev3	6.2.17	The disconnecting switches shall be provided with rating plates and shall be easily accessible.	Rating plate shall be provided for complete bay, CT, VT. We do not envisage separate rating plate for DS and the same shall not be provided.	This to be complied with suitable rating plate arrangement
31	GIS Specifications_Rev3	10.2	Insulation co-ordination and selection of surge arrestor: The disconnecting switches shall be provided with rating plates and shall be easily accessible.	The same shall be excluded from Siemens scope of supply.	Noted
32	GIS Specifications_Rev3	26	TESTING & MAINTENACE EQUIPMENT SF6 Gas leakage detector. Gas filling and evacuating plant SF6 gas analyzer: Portable Partial Discharge(PD) monitoring system Online Partial Discharge Monitoring System	Excluded from Siemens scope.	Specification requirement to be followed.
33	General			Obtaining Electrical Inspector's clearance and statutory fees, before commissioning, is excluded from the bidder's scope. Payment of all statutory fees, supervision charges and deposits payable to CEIG/ Government/ Environment & Municipal bodies in connection against invoice / bills of government bodies with Approvals, sanctions, and execution is excluded from bidder's scope.	Noted . How ever necessary supporting dpcument shall be provided by Bidder to get clearance from the respective agency.
34	General			Kindly confirm the the technical specifications for Control & Protection system and SAS to be referred .	Kindly refer the Technical specification in BID document.
35	SLD			Metering shall be provided as per CEA & CTU guidelines.	Noted
36	Layout			Please provide the layout and other drawings like foundation,structure design of existing substation .	Existing SLD and Layout is attached for reference . Other details shall be provided during detailed engineering stage.
37	CRP /SAS			Kindly confirm the existing make of CRP and SAS	M/s Siemens make
38	Technical Specification			All LT power cables shall be Al. conductor and all control cable shall copper conductor.	LT Power cable upto 6 sqmm is Copper conductor and above 6sqmm is Al conductor..
39	TTR			Type test reports shall be submitted as per latest CEA guidelines.	Noted. However TTR shall be provided based on latest Standards.
40				Civil	

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41	General			Land Development including soil filling with borrowed earth is not envisaged and shall not be part of the bidder's scope. Only Micro-grading shall be in the scope of bidder. Kindly Confirm	Land Development including soil filling with borrowed earth is in present scope. Bidder is requested to visit the site for details
42	General			Please provide Soil Investigation, ERT and Contour report.	Shall be provided during detailed engineering stage. Bidder is requested to visit the site for details.
43	General			Please confirm the type and detailed specification for cable trench and drain.	kindly refer following technical specification 1. Standard Specification for Civil Design & work 2. Standard Specification for Switchyard Erection & Associated Hardware
44	Technical Queries			Request you to please provide four coordinates for the proposed substation location to facilitate the immediate commencement of the site survey	Pls find attached Electrical layout with coordinate
45				Plot survey drawing	Pls find attached document.
46				Existing SLD and Layout	Pls find attached document.
47				Existing Earthing Layout	Shall be provided during detailed engineering stage
48				Earth Resistivity Test Report if any	Shall be provided during detailed engineering stage
49				Existing GIS layout with complete Building details	Layout is attached for reference.
50				Existing CR Panel and SAS drawing:	It shall be provided during detailed engineering stage



MINIMUM CLEARANCE – AS PER EN 61336					
Sl. No.	DESCRIPTION	40KV & 220V SYSTEM	220KV SYSTEM	Sl. No.	DESCRIPTION
1	PHASE TO PHASE CONDUCTOR TO CONDUCTOR	400V 220V 61336	400V 220V 61336	1	40KV TOWER
2	PHASE TO GROUND ROD TO STRUCTURE	400V 2100	61336	2	220KV BEAM
3	SECTIONAL CLEARANCE	5000	3000	3	220KV BEAM
				4	220KV BEAM

SYSTEM PARAMETERS:—				
S/N	DESCRIPTION OF PARAMETER	400V SYSTEM	230V SYSTEM	10T TERTIARY SYSTEM
1	SYSTEM OPERATING VOLTAGE	400V	220V	66kV
2	MAX OPERATING VOLTAGE OF THE SYSTEM (rms)	420V	220V	66kV
3	RATED FREQUENCY	50Hz	50Hz	50Hz
4	NO. OF PHASES	3	3	3
5	RATED INSULATION LEVEL i) FILL WARE LIGHTNING IMPULSE WITHSTAND VOLTAGE (1.2/50microsec) ii) SWITCHING IMPULSE WITHSTAND VOLTAGE (250/2500microsec) iii) ONE MINUTE POWER FREQUENCY DRY WITHSTAND VOLTAGE (rms) iiii) THE MINUTE POWER FREQUENCY DRY WITHSTAND VOLTAGE (rms)	±1550kV ±1050kV ±1050kV —	±1050kVp — — —	±325kVp — — 140kV
6	CORONA EXTINCTION VOLTAGE	320kV	208kV	—
7	MAX RATIO INTERFERENCE VOLTAGE LEVEL AT CORONA EXTINCTION VOLTAGE (rms).	1000 micro volts	1000 micro volts	—
8	RATED 3-PHASE SYMMETRICAL SHORT CIRCUIT CURRENT WITHSTAND CAPACITY	500A./sec.	500A./sec.	25kA./sec.
9	SYSTEM NEUTRAL EARTHING	EFFECT. EARTHED	EFFECT. EARTHED	UN-EARTHED
10	MINIMUM CREEPAGE DISTANCE	31mm/kV	31mm/kV	31mm/kV
11	EQUIPMENT BUS HEIGHT (FROM PLANT)	8000mm	5800mm	4000mm

BQ4 - 400kV EQUIPMENTS				
S/N	EQUIPMENT	SYMBOL	DESCRIPTION	QTY. AS RETURNS
1	LA		300W SHIELD AMPLIFIER	21 NOS.
2	CRY		1500W 1500KVA TAP	24 NOS.
3	CRY		1500W 1500KVA TAP	24 NOS.
4	RFI		400W RFI CRY INSULATOR	10 NOS.
5	BUSHING		SPR. AIR BUSHING	21 NOS.
6	TRNO		3/4"ID INSULATOR RODMAN	01 NOS.
7	REACTOR		BUS REACTOR 125MVA	
8	BUS DUCT		BUS DUCT	

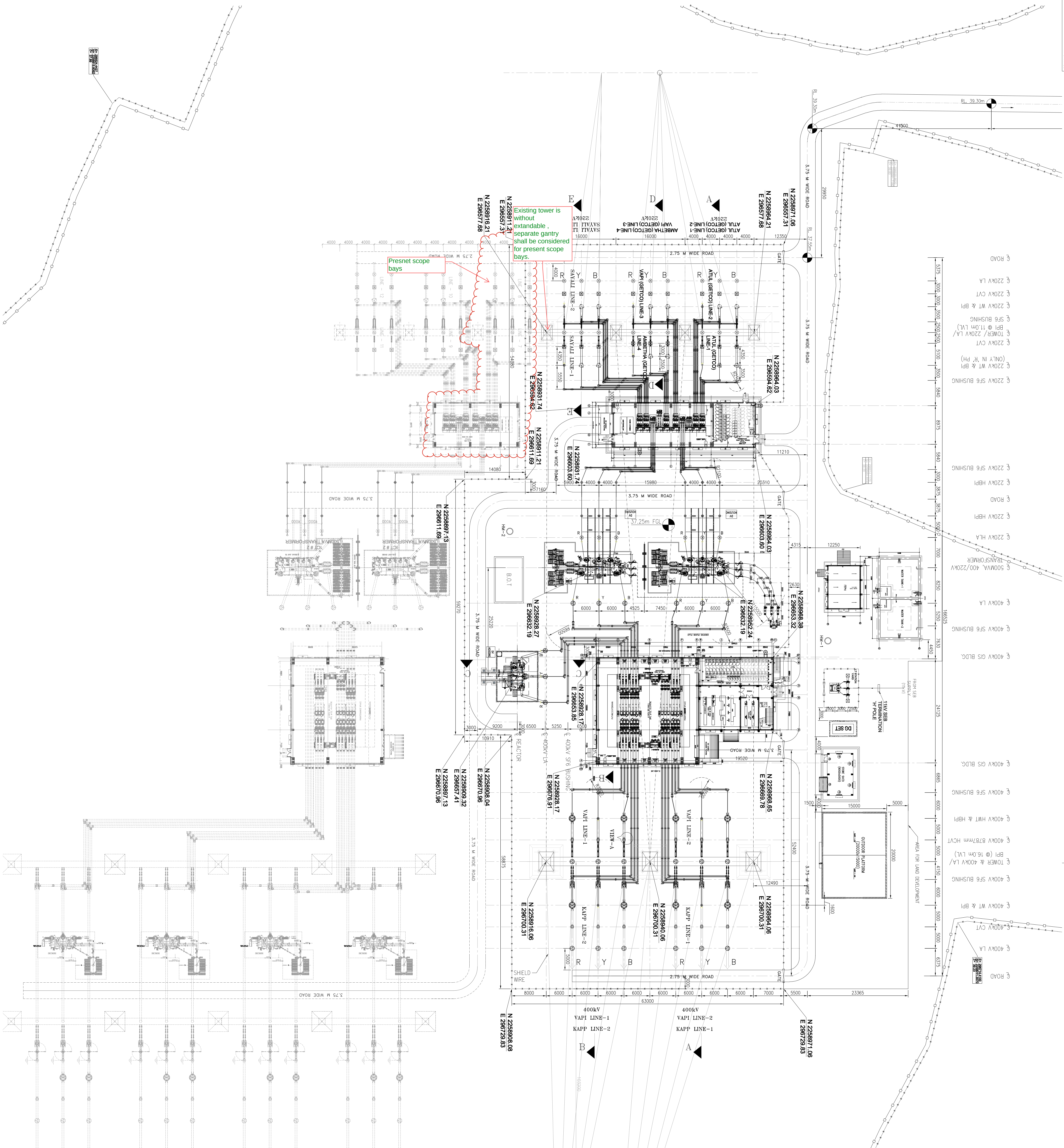
BQ. OF 220KV EQUIPMENTS			ITEM NO.	ITEM DWG	REMARKS
S/NO	EQUIPMENT	SYMBOL	DESCRIPTION		
1	LA		21KV SHUNT ARRESTER (1-1#)	24 NOS.	
2	CVT		400KV-220KV CVT	18 NOS.	
3	CT		100KV-0.5KV CTMS INP	12 NOS.	
4	PT		220KV-0.5KV PTMS INP	12 NOS.	
5	BR		220KV BUS ROOT INSULATOR	15 NOS.	
6	ROHING		24 NOS		
7	BUS DUCT		BUS DUCT		
			TOTAL REQUIRED QTY		
			PLAN APPROVED		

[illegible]

1800 OF 114V EQUIPMENTS					
S/NO	EQUIPMENT	SYMBOL	DESCRIPTION	QTY. AS FEST. QTY.	REMARKS
1	1A		1A. 800VZ INSULATOR (M)	0 NOS.	
2	2		1A. 800VZ INSULATOR (M)	0 NOS.	
3	3		1A. 800VZ INSULATOR (M)	0 NOS.	
4	4		1A. 800VZ INSULATOR (M)	0 NOS.	
CONDUCTOR					
CONDUCTOR TYPE					
EQUIPMENTS BUS					
HIGH/ LOW FLUENT					

[illegible][illegible]

	WRSS - NERS
	DURING DOCUMENT REVIEW STATUS O CATT APPROVED O CATT APPROVED WITH COMMENTS (RE- SUBMISSION REQUIRED) O CATT C: RETURNED FOR CORRECTION (RE- SUBMISSION REQUIRED) O CATT I: FOR INFORMATION AND RECORDS PURPOSE ONLY
DATE: 17-05-2022 SIGNATURE: <i>Enidley May</i>	
Do not return this form received as noted with regard to general instructions. This form is to be used to document the completion of the review. Comments are to be made for the acceptance or rejection of the vendor's performance and details. Approval of this responsibility is carrying out the work. The signature of the individual is required under the "Contract" and "Vendor" line of the "Product" is signed under the "Contract" and "Vendor"	



REFERENCE DRAWING NO.

1. SINGLE LINE DIAGRAM FOR 400/220/66/33KV SWITCHYARD. DWG No : (1)-G71770-AC135-S151-001_m.c

NOTES:

- [illegible]

LEGEND:

- PRESENT SCOPE
— FUTURE / NOT IN SCOPE OF M/s SIEMENS
— FENCE LINE
— BOUNDARY LINE

