FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN MM.)

DRAWING No. TB-2-361-318-002

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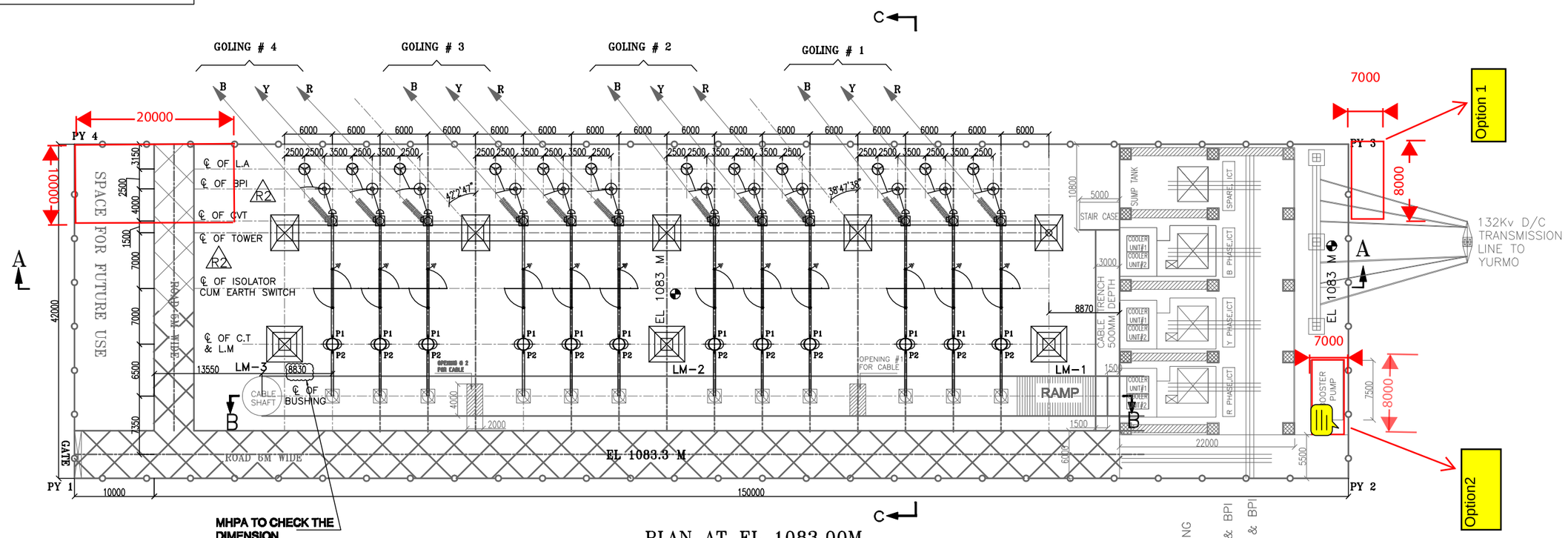
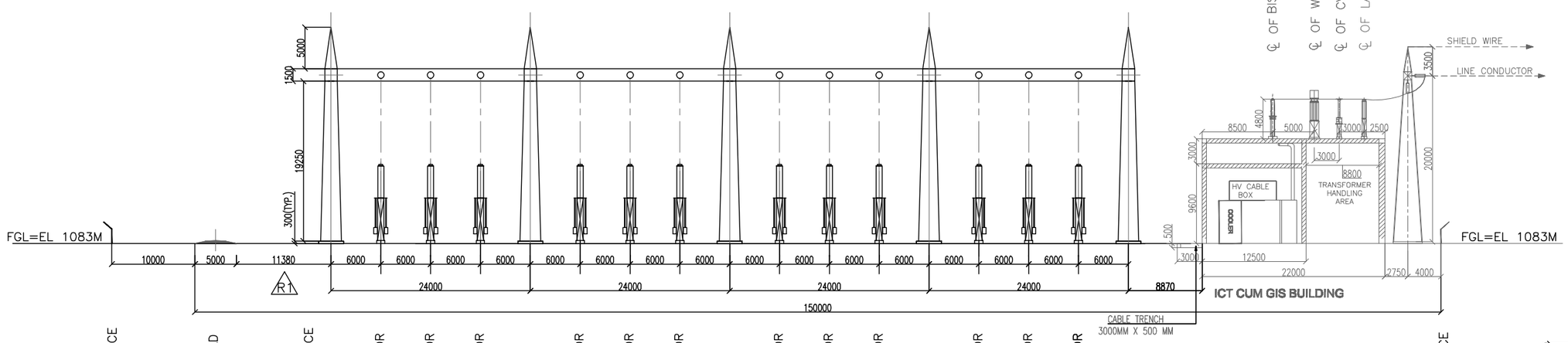
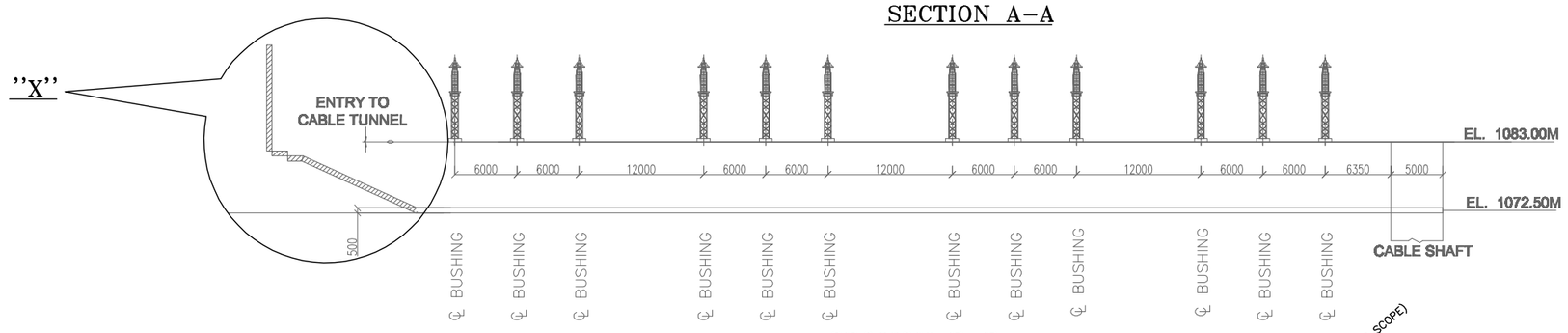


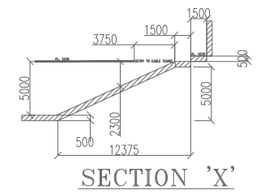
PLAN AT EL 1083.00M



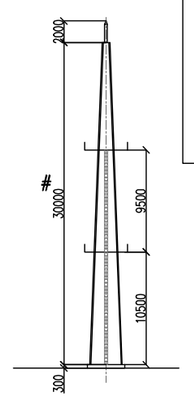
SECTION A-A



SECTION B-B



SECTION 'X'

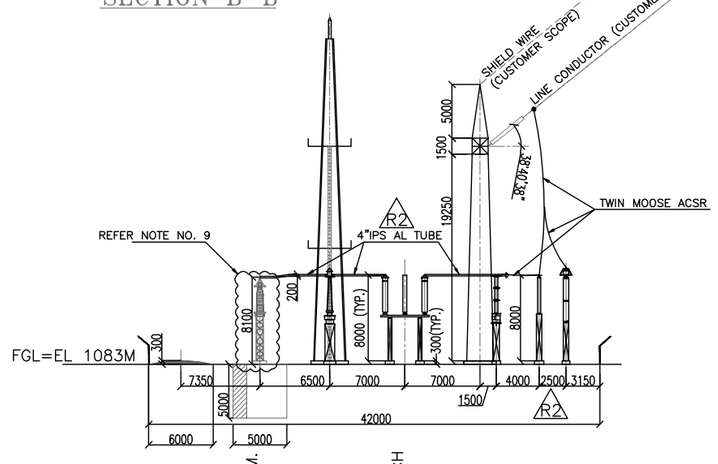


LM DETAIL (TYP.)

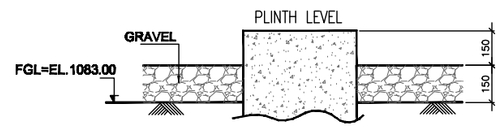
: HEIGHT OF LM SHALL BE AS PER APPROVED DSLP CALC.

LEGENDS:-

- TOWER
- LM
- CVT
- ISOLATOR
- CT
- LA
- CABLE TERMINATION BUSHING (NOT IN BHEL SCOPE)
- BHEL/PRESENT SCOPE
- NOT IN BHEL SCOPE /FUTURE SCOPE



SECTION C-C



TYPICAL PLINTH LEVEL(NTS)
DETAIL 'Y'

BILL OF QUANTITY

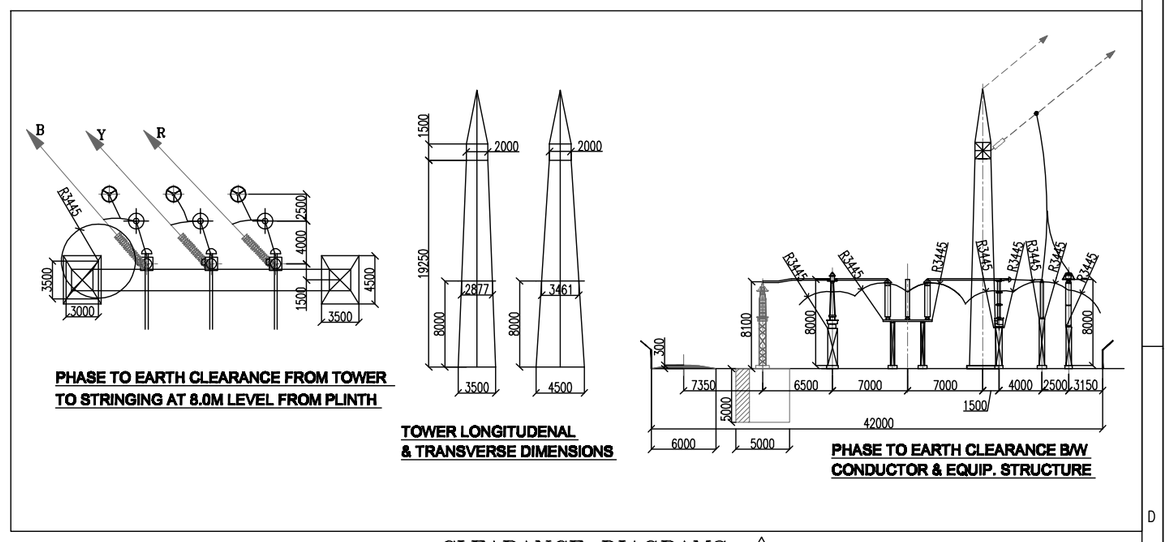
S.N.	ITEM DESCRIPTION	UNIT	MAIN QUANTITY	SPARES QUANTITY	
1.	400kV, 2000A, 63kA FOR 1Sec. THREE PHASE HORIZONTAL DOUBLE BREAK ISOLATOR MOTOR OPERATED ELECTRICALLY GANGED WITH ONE E/S MOTOR OPERATED ELECTRICALLY GANGED.	Nos.	04	01	
2.	400kV, 1000A, 63kA FOR 1Sec. WITH 120% EXTENDED CURRENT RATING, 2 CORE, SINGLE PHASE CURRENT TRANSFORMER.	Nos.	12	02	
3.	400kV, 8800/4400pF, SINGLE PHASE CAPACITIVE VOLTAGE TRANSFORMER (3 SECONDARY).	Nos.	12	02	
4.	336kV, DISCHARGE CLASS IV, 20 kA, SINGLE PHASE, STATION TYPE, HEAVY DUTY, METAL OXIDE, GAPLESS TYPE SURGE ARRESTOR.	Nos.	12	02	
5.	400kV, 10kN POST INSULATORS	Nos.	12	–	R2
6.	GALVANIZED GANTRY STRUCTURE & SUPPORT STRUCTURES FOR TERMINATION OF TRANSMISSION LINE & OLTE.	LOT	1	–	
7.	ACSR MOOSE CONDUCTOR FOR 400kV POTHEAD YARD	meters	300	100	R2
8.	4 INCH IPS ALUMINIUM TUBE	meters	300	–	R2
9.	NAME PLATE & DANGER PLATES FOR POTHEAD YARD (ONE NAME PLATE & TWO DANGER PLATES PER BAY)	SET	04	–	

SYSTEM PARAMETERS

DESCRIPTION	400kV
LIGHTNING IMPULSE WITHSTAND VOLTAGE (kVp)	1425
SWITCHING IMPULSE WITHSTAND VOLTAGE (kVp)	1050
P.F. WITHSTAND VOLTAGE (kVrms)	630
HIGHEST SYSTEM VOLTAGE (kV)	420
CREEPAGE DISTANCE (mm)	10500
SHORT CIRCUIT CAPABILITY (kA FOR 1SEC)	63

CLEARANCE TABLE

PHASE TO PHASE (PP)	4255
LIVE PART TO EARTH (PE)	3445
SECTION CLEARANCE (SC)	6582
MINIMUM VERTICAL CLEARANCE FROM ANY ENERGIZED METAL PART TO TOP OF PLINTH	8000
VERTICAL CLEARANCE FROM BOTTOM OF THE LOWEST PART OF BUSHING OR SUPPORTING INSULATOR TO TOP OF PLINTH	2550



CLEARANCE DIAGRAMS R2

NOTES:

1. ALL DIMENSIONS ARE IN mm.
2. 40mm AVERAGE SIZE OF GRAVELS (150mmTHICK LAYER) SHALL BE SPREAD OVER FINISHED GROUND LEVEL. PLINTH LEVEL OF VARIOUS EQUIPMENT/TOWERS IN POTHEADYARD SHALL BE KEPT 300mm ABOVE FINISHED GROUND LEVEL (REFER DETAIL 'Y').
3. LA PRESSURE RELIEF VALVE SHALL NOT BE TOWARDS ANY EQUIPMENT KEPT NEAR LIGHTNING ARRESTER.
4. ANY CIVIL WORK INCLUDING LAND FILLING/CUTTING, PCC, GRAVEL SPREADING, FOUNDATION, CABLE TRENCHES, ROADS, FENCING & GIS BUILDING ETC. IS NOT IN BHEL SCOPE.
5. SUPPLY OF MS ROD FOR BELOW GROUND EARTHING SHALL BE DONE BY BHEL–EMRP. HOWEVER LAYING OF MAIN & AUXILIARY EARTHMATS & PROVISION OF RISERS NEAR EQUIP./TWR. SHALL BE DONE BY PSER. ONLY EARTHING USING GI/GS FLAT (SUPPLY & INSTALLATION) FROM THE RISER NEAR POTHEADYARD EQUIP./TWR. & UPTO THE EQUIP./TWR. IIS N BHEL TBG SCOPE.
6. CIVIL WORKS OF FOUNDATIONS SHALL BE DONE BY CUSTOMER BASED ON THE INPUTS i.e. LOADING DETAILS, DIMENSIONS ETC. GIVEN BY BHEL. HOWEVER, SUPPLY OF THE EMBEDMENTS i.e. ANCHOR PLATES, FOUNDATION BOLTS TO BE EMBEDDED IN FOUNDATION SHALL BE IN BHEL SCOPE.
7. LOCATION & HEIGHT OF LM ARE TENTATIVE & SHALL BE AS PER THE APPROVED DSLP CALCULATIONS/ LAYOUT.
8. SUPPLY AND STRINGING OF 400kV LINE CONDUCTOR, SHIELD WIRE, INSULATOR AND HARDWARE BETWEEN 400kV DEAD END TOWER AND SWITCHYARD TERMINAL GANTRY ARE NOT IN BHEL SCOPE. HOWEVER, JUMPERING FOR THE RESPECTIVE EQUIPMENT, JUMPERS & HARDWARE REQUIRED FOR JUMPERS ARE IN SCOPE OF BHEL.
9. SUPPLY AND ERECTION OF 400kV CABLE TERMINATION BUSHING & STRUCTURE ARE IN CUSTOMER SCOPE. HOWEVER, CONNECTION OF TWIN MOOSE CONDUCTOR ALONG WITH SUPPLY OF TERMINAL CONNECTOR IS IN BHEL TBG SCOPE.
10. 400/132kV ICT, ICT CUM GIS BUILDING & 132kV SYSTEM ARE NOT IN BHEL SCOPE. LAYOUT SHOWN IS INDICATIVE ONLY.
11. ALL CLEARANCES ON LINE SIDE TO BE ENSURED BY 400kV TRANSMISSION LINE CONTRACTOR. R2

REV.	DATE	ALTERED AK / CHECKED AS / APPROVED AS	REVISED AS PER MEETING DTD. 19.07.16 AT NHPC WITH MHPA REGARDING ORIENTATION OF LINE SIDE EQUIPMENTS.
02	25.07.16		
01	24.06.16	ALTERED AK / CHECKED AS / APPROVED AS	REVISED AS PER CUSTOMER COMMENTS SEND VIDE LETTER NO. 560 DATED 28.05.16.

ADDITIONAL INFORMATION

STATUS OF DRAWING

DISTRIBUTION OF PRINTS
MHPA
NHPC
BHEL BHOPAL

DRN	NAME	SIGN	DATE	NO. OF VAR
	AK			
CKD	MM			
APPD	AS			

SUB-SUPPLIER/VENDOR

PROJECT: MANGDECHHU HYDROELECTRIC POWER PROJECT (4X180MW)

CUSTOMER: MHPA,BHUTAN

CONSULTANT: NHPC LIMITED

CONTRACTOR: BHARAT HEAVY ELECTRICALS LTD. TRANSMISSION BUSINESS GROUP

ISSUED BY DEPT TBEM / DEPT. CODE 316 | UNTOL.DIMS. GR. | ANGLE | SCALE 1 : 900 | WEIGHT (KG) | REF. TO ASSY. DRG. | ITEM NO. | NO. OF ITEM

TITLE: LAYOUT PLAN & SECTION OF 400KV POTHEAD YARD

DRAWING NO. TB-2-361-318-002 | REV. 02

SHT. No. 01 | NO. OF SHT. --

COMPUTER DRG. PATH NAME : | REF. DRG. No. | SIGN. & DATE | INVENTORY No.