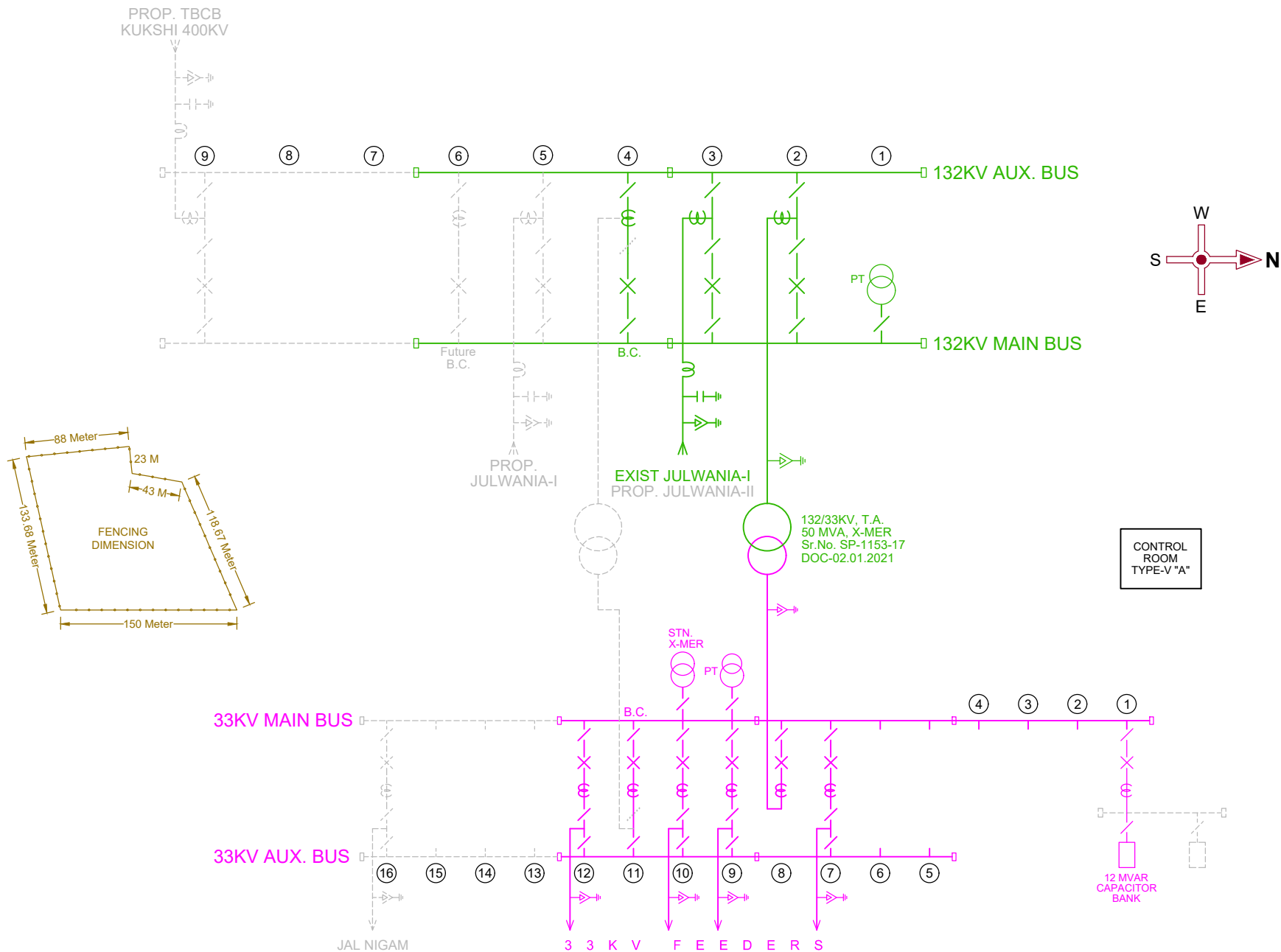


132/33 kV S/S PATI (Barwani)



SINGLE LINE DIAGRAM OF
132/33KV S/S AT
PATI (Barwani)



RAS TA

1. SIZE OF FLATS FOR EARTH MATS (IN mm)
 132 & 33KV SWITCH YARD : 65X8 mm.
 RISERS : 50X6 mm.
2. M.S. FLATS WOULD BE BURIED BELOW THE FINISHED LEVEL OF GROUND AT A DEPTH OF 500 mm AND MAXIMUM WIDTH OF FLAT SHALL BE PARALLEL TO THE GROUND SURFACE.
3. GROUNDING EARTH RODS 25X3000mm SHALL BE DRIVEN VERTICALLY, AT INTERVALS AS SHOWN IN DRG. AND PROPERLY WELDED WITH EARTH MAT.
4. EARTH MAT SHALL BE LAID ABOUT 150 TO 200 mm AWAY FROM THE FOUNDATIONS. DETAILS OF WELDING LAP JOINTING AS GIVEN IN SKETCH DRAWING.
5. CABLE RACKS OR TRAYS SHALL BE CONNECTED TO THE NEAREST EARTH MAT AT EVERY 5 METERS APART.
6. EACH EQUIPMENT STRUCTURE SHALL BE CONNECTED TO EARTH MAT MINIMUM AT TWO POINTS.
7. DUE CARE HAS BEEN EXERCISED TO ELIMINATE FOULING OF FOUNDATIONS FOR SWITCHYARD EQUIPMENT/APPARATUS WITH THE EARTH MAT. NONETHELESS, EEHT MAY ENSURE TO AVOID SUCH A POSSIBILITY.
8. 1/2" GI PIPE LINE FOR WATER SUPPLY TO EARTHPIITS SHALL BE LAID 10 CM BELOW GROUND LEVEL.
9. GI PIPE OF 40MM DIA & 4MM THICK SHOULD BE USED FOR EARTH PIT..
10. OVERHEAD EARTH WIRE SHOULD BE CONNECTED WITH EARTH MAT THROUGH RISER OF 50x6mm MS FLATS.

LEGEND:-

	EARTHING BUS
	GROUNDING ROD
	CABLE TRENCH
	EARTH PIT
	WATER PIPE LINE

T/PIT DETAILS AS PER SE (EHT-C).IND., Ltr.No.3166,Dt.17.10.16

TOTAL TENTATIVE LENGTH OF RETAINING WALL - 10M + 35M = 45M

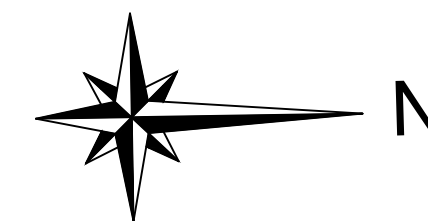
TP – TRIAL PIT



R3 :- Rev. R2 MODIFIED. TAKE OFF DIRECTION CHANGED OF 132KV JULWANIYA-I & II FEEDER AS PER E.E (EHT-C)BAR. Lt. No.554, Dt.15.07.24 & S.E.(EHT-C) IND. U.O. No.1071, Dt.22.07.24 & C.E.(EHT-C)JBP U.O.No 882, Dt.24.07.24

R4 :-33KV MAIN & AUXI. BUS EXTN. 33KV M.P. JAL NIGAM
FEEDER SHOWN AT BAY No.16. AGAINST Estt.
No.0670, Dt.03.02.25 Dt.04.02.25

<u>EARTHMAT Arrgt.OF</u> 132/33KV SUB-STATION <u>P A T I</u> (Barwani)			NAME	DATE
		DRN.	GS DUBEY	15-02-16
		FIG.	RK GUPTA	05-09-16
		CKD.		
		APP.		
SCALE	O/O THE CHIEF ENGINEER (P&D) M.P. POWER TRANS. Co. Ltd. JABALPUR	DRAWING No.:-		REV.
NTS		XII-N08-3000 R4		04-02-2



NOTES

1. ALL CABLE TRENCHES SHOULD BE CONSTRUCTED IN SUCH A WAY THAT THERE WILL NOT BE WATER LOGGING IN THE TRENCHES. ALSO DEPENDING UP ON THE CONTOUR & GRADIENT OF THE YARD AS PER ACTUAL SITE CONDITIONS.
2. FOR CONSTRUCTION OF CABLE TRENCHES PLEASE REFER STRUCTURAL DETAILS DRG. OF C.E. (CIVIL) Trns. JABALPUR. DRAWING No.TRN/ST/143, Dt.08-08-12
3. ORIENTATION OF CONTROL ROOM BUILDING SHALL BE FINALIZED IN CONSULTATION WITH SE(T&C)&SE EHT (C&M).
4. LOCATION OF CABLE TRENCH (F-TYPE) FOR X-MER SHALL BE FINALIZED AS PER APPROVED G.A. DRG. OF X-MER & IN CONSULTATION WITH S.E. (T&C).
5. FOUNDATION WORK OF 132 KV CC SHALL BE TAKEN UP IN CONSULTATION WITH E.E.(COMM.) TO ENSURE CORRECT PHASE MATCHING WITH OTHER END.

TRIAL PIT TABLE --								
Sr.	TYPE OF STRATA	TP-1	TP-2	TP-3	TP-4	TP-5	TP-6	REMARK
1	HM	0.40 RM	0.30 RM	0.30 RM	0.30 RM	0.20 RM	0.40 RM	
2	DR	0.30 RM	0.30 RM	0.30 RM	0.20 RM	REMAINING DEPTH	0.20 RM	
3	SR	0.30 RM	0.20 RM	0.20 RM	0.30 RM		-Null-	
4	HR	REMAINING DEPTH	REMAINING DEPTH	REMAINING DEPTH	REMAINING DEPTH		REMAINING DEPTH	
T/PIT DETAILS AS PER SE (EHT-C), IND., Ltr.No.3166, Dt.17.10.16								

AREA CONSIDERED FOR LEVELLING - A,B,C,D,E,F,G.

FINISHED GROUND LEVEL 98.80

TOTAL TENTATIVE LENGTH OF RETAINING WALL - 10M + 35M = 45M

TP - TRIAL PIT

R2 :- 132KV JULWANIYA-II FEEDER SHOWN AT BAY No.5. AGAINST Estt. No.0665, Dt.01.02.23 Dt.31.01.23

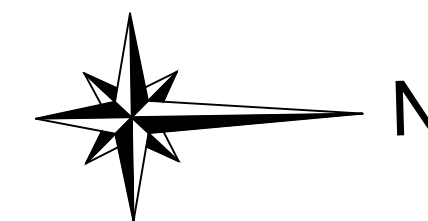
R3 :- Rev. R2 MODIFIED. TAKE OFF DIRECTION CHANGED OF 132KV JULWANIYA-I & II FEEDER AS PER E.E (EHT-C)BAR. Lt. No.554, Dt.15.07.24 & S.E.(EHT-C) IND. U.O. No.1071, Dt.22.07.24 & C.E.(EHT-C)JBP U.O.No.882, Dt.24.07.24 Dt.18.07.24

R4 :-33KV MAIN & AUXI. BUS EXTN. 33KV M.P. JAL NIGAM FEEDER SHOWN AT BAY No.16. AGAINST Estt. No.0670, Dt.03.02.25 Dt.04.02.25

Fdn.PLAN & CABLE TRENCHES OF
132/33KV SUB-STATION
PATI (Barwani)

SCALE O/O THE CHIEF ENGINEER (P&D)
NTS M.P. POWER TRANS. Co. Ltd.
JABALPUR

NAME	DATE
DRN. GS DUBEY	15-02-16
FIG. RK GUPTA	05-09-16
CKD.	
APP.	
DRAWING No.:- XII-N08-2299	REV. 04-02-25
	R4



NOTES

1. THE MAIN BUSES OF 132KV SHOULD BE STRUNG WITH TWIN ZEBRA ACSR JOINTLESS CONDUCTOR.
2. AUXI. BUSES OF 132 & 33KV SHOULD BE STRUNG WITH SINGLE ZEBRA ACSR JOINTLESS CONDUCTOR.
3. THE STRINGING OVERHEAD CONDUCTOR BETWEEN GANTRY TO GANTRY, DROP OUT & ALL JUMPERS FOR INTERCONNECTING SWITCHYARD EQUIP. SHALL BE SINGLE ZEBRA ACSR CONDUCTOR, EXCEPT FOR LV SIDE OF X-MER BAYS & ALL MAIN BUS ISOLATORS.
4. ALL MAIN BUS ISOLATORS INTERCONNECTION SHALL BE WITH TWIN ZEBRA.
5. THE 33KV X-MER BAY OF 40MVA X-MER STRINGING/ JUMPERING & INTERCONNECTION OF EQUIPMENTS UP-TO MAIN BUS SHALL BE WITH TWIN ZEBRA ACSR. JUMPERING OF MAIN BUS TO ALL ISOLATORS OF MAIN BUS SIDE SHALL BE WITH TWIN ZEBRA ACSR CNDUCTOR.
6. Earthing of all shielding wires must be ensure.
7. Shielding wire should be strung in such a way that it should protect complete Switch yard from Lightning hazard.
8. An angle piece (on the 33kv Gantry & on the Bus struct. at the end) should be used for strung the Shielding Wire.

Min. size of Angle should be used for Shielding Wire:-

On 33kv Gantry	65x65x6	1.5m.long.
On 33kv Bus	65x65x6	1.5m.long.
On 132kv Bus	75x75x6	2.25m.long.
On 220kv Bus	90x90x8	2.5m.long.

TRIAL PIT TABLE --								
Sr.	TYPE OF STRATA	TP-1	TP-2	TP-3	TP-4	TP-5	TP-6	REMARK
1	HM	0.40 RM	0.30 RM	0.30 RM	0.30 RM	0.20 RM	0.40 RM	
2	DR	0.30 RM	0.30 RM	0.30 RM	0.20 RM	REMAINING DEPTH	0.20 RM	
3	SR	0.30 RM	0.20 RM	0.20 RM	0.30 RM		—Nil—	
4	HR	REMAINING DEPTH	REMAINING DEPTH	REMAINING DEPTH	REMAINING DEPTH		REMAINING DEPTH	
T/PIT DETAILS AS PER SE (EHT-C), IND., Ltr.No.3166, Dt.17.10.16								

AREA CONSIDERED FOR LEVELLING - A,B,C,D,E,F,G.

FINISHED GROUND LEVEL 98.80

TOTAL TENTATIVE LENGTH OF RETAINING WALL - 10M + 35M = 45M

TP - TRIAL PIT

R2 :- 132KV JULWANIYA-II FEEDER SHOWN AT BAY No.5.
AGAINST Estt. No.0665, Dt.01.02.23 Dt.31.01.23

R3 :- Rev. R2 MODIFIED. TAKE OFF DIRECTION CHANGED OF
132KV JULWANIYA-I & II FEEDER AS PER E.E (EHT-C)BAR.
Lt. No.554, Dt.15.07.24 & S.E.(EHT-C) IND. U.O. No.1071,
Dt.22.07.24 & C.E.(EHT-C)JBP U.O.No.882, Dt.24.07.24
Dt.18.07.24

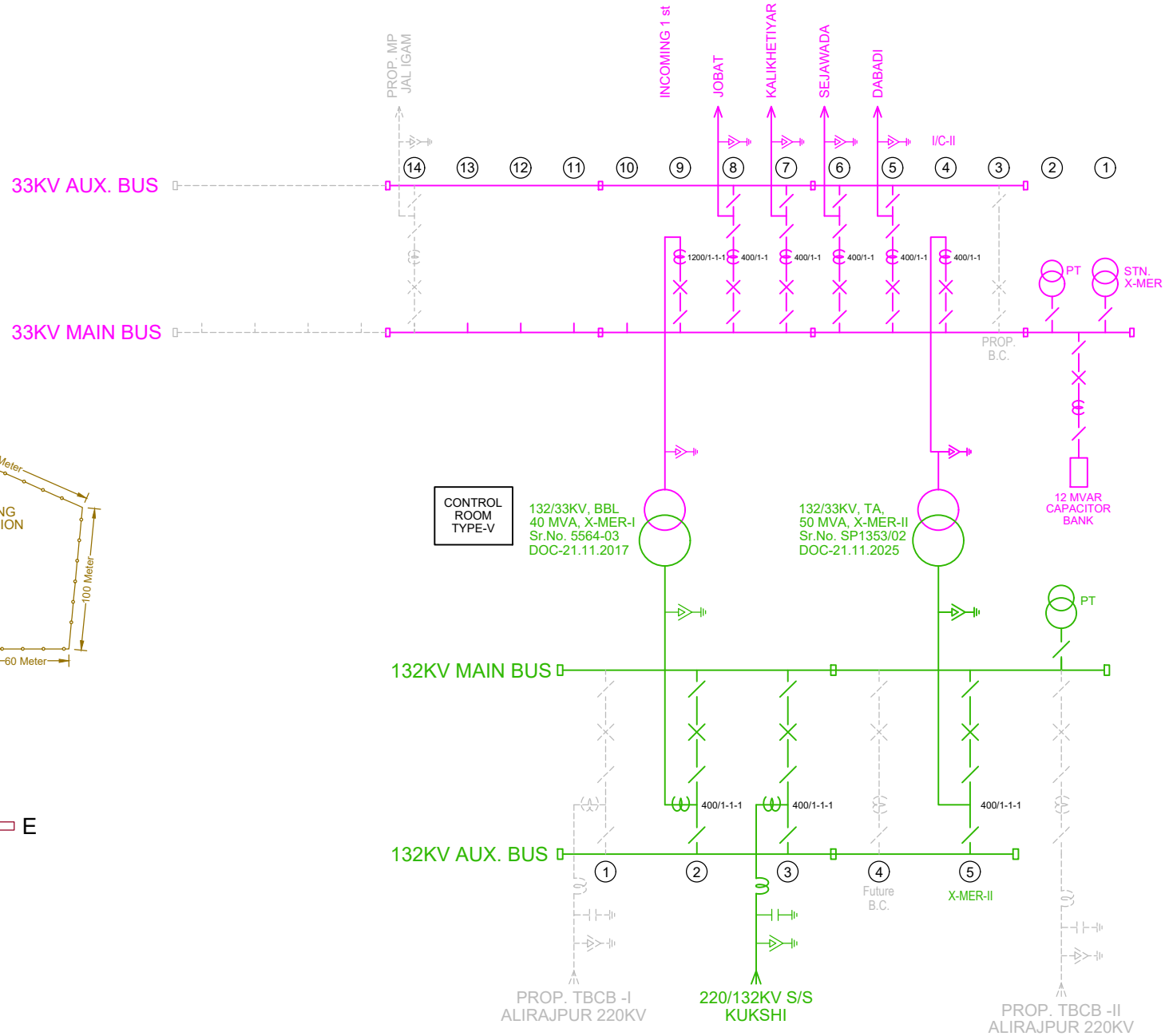
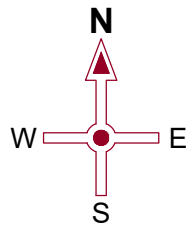
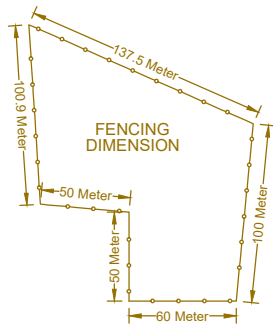
R4 :-33KV MAIN & AUXI. BUS EXTN. 33KV M.P. JAL NIGAM
FEEDER SHOWN AT BAY No.16. AGAINST Estt.
No.0670, Dt.03.02.25 Dt.04.02.25

PLAN AND ELEVATION 132/33KV SUB-STATION PATI (Barwani)

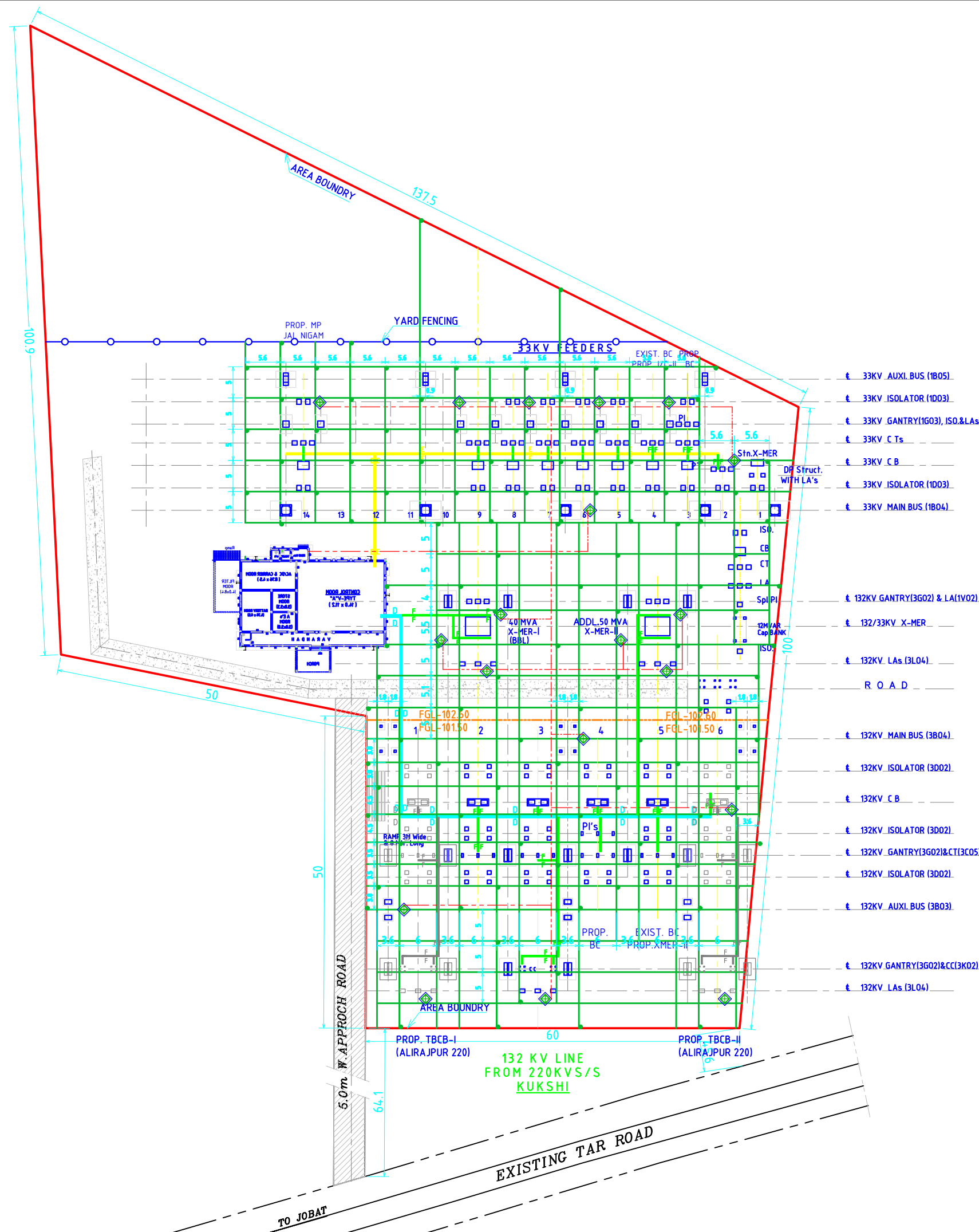
SCALE O/O THE CHIEF ENGINEER (P&D)
M.P. POWER TRANS. Co. Ltd.
JABALPUR

NAME		DATE
DRN.	GS DUBEY	15-02-16
FIG.	RK GUPTA	05-09-16
CKD.		
APP.		
DRAWING No.:-		REV.
XII-N08-2298		04-02-25
		R4

132/33 kV S/S JOBAT (Alirajpur)



SINGLE LINE DIAGRAM OF
132/33KV S/S AT
JOBAT (Alirajpur)



1. SIZE OF FLATS FOR EARTH MATS (IN mm).
132 KV SWITCH YARD : 65X8 mm.
33KV SWITCHYARD & RISERS : 50X6 mm.
2. M.S. FLATS SHOULD BE BURIED BELOW THE FINISHED LEVEL OF GROUND AT A DEPTH OF 500 mm AND MAXIMUM WIDTH OF FLAT SHALL BE PARALLEL TO THE GROUND SURFACE.
3. GROUNDING EARTH RODS 25X3000mm SHALL BE DRIVEN VERTICALLY, AT INTERVALS AS SHOWN IN DRG. AND PROPERLY WELDED WITH EARTH MAT.
4. EARTH MAT SHALL BE LAID ABOUT 150 TO 200 mm AWAY FROM THE FOUNDATIONS. DETAILS OF WELDING LAP JOINTING AS GIVEN IN SKECH DRAWING.
5. CABLE RACKS OR TRAYS SHALL BE CONNECTED TO THE NEAREST EARTH MAT AT EVERY 15 METERS APART.
6. EACH EQUIPMENT STRUCTURE SHALL BE CONNECTED TO EARTH MAT MINIMUM AT TWO POINTS.
7. DUE CARE HAS BEEN EXERCISED TO ELIMINATE FOULING OF FOUNDATIONS FOR SWITCHYARD EQUIPMENT/APPARATUS WITH THE EARTH MAT. NONETHELESS, E.E.H.T. MAY ENSURE TO AVOID SUCH A POSSIBILITY.
8. 1/2" G I PIPE LINE FOR WATER SUPPLY TO EARTHPIPS SHALL BE LAID 10 CM BELOW GROUND LEVEL.
9. G.I. PIPE OF 40MM DIA & 4MM THICK SHOULD BE USED FOR EARTHING. EARTH WIRE SHOULD BE CONNECTED WITH EARTH MAT THROUGH RISER OF 50x6mm MS FLATS.

FGL-102.60 OF 33 KV SIDE
FGL-101.50 OF 132KV SIDE

EARTHING BUS
 GROUNDING ROD
 CABLE TRENCH
 EARTH PIT
 WATER PIPE LINE

R2 :- 33KV MAIN & AUXI. BUS EXTN. 33KV MP JAL NIGAM FEEDER
SHOWN AT BAY No.14. AGAINST Estt. No.0661, Dt.15.01.26
Dt.16.01.26

<u>EARTH MAT ARRANGEMENT</u> <u>OF 132/33KV SUB Stn.</u> <u>J O B A T</u> (Alirajpur)			NAME	DATE
		DRN.	G S DUBEY	17-01-16
		FIG.	RK GUPTA	11-02-16
		CKD.		
		APP.		
SCALE	O/O THE CHIEF ENGINEER (P&D) M.P. POWER TRANS. Co. Ltd. JABALPUR	<u>DRAWING No.-</u>		REV.
NTS		XII-N08-2228		16.01.26 R2



- NOTES**
1. ALL CABLE TRENCHES SHOULD BE CONSTRUCTED IN SUCH A WAY THAT THERE WILL NOT BE WATER LOGGING IN THE TRENCHES. ALSO DEPENDING UP ON THE CONTOUR & GRADIENT OF THE YARD AS PER ACTUAL SITE CONDITIONS.
 2. FOR CONSTRUCTION OF CABLE TRENCHES PLEASE REFER STRUCTURAL DETAILS DRG. OF C.E. (CIVIL) TRNG. JABALPUR. DRAWING No. TRN/ST/143, Dt. 08-08-12
 3. ORIENTATION OF CONTROL ROOM BUILDING SHALL BE FINALIZED IN CONSULTATION WITH SEITA&CASE. EHT (C&M).
 4. LOCATION OF CABLE TRENCH (F-TYPE) FOR X-MER SHALL BE FINALISED AS PER APPROVED G.A. DRG. OF X-MER & IN CONSULTATION WITH S.E. (T&C).
 5. FOUNDATION WORK OF 132 KV CC SHALL BE TAKEN UP IN CONSULTATION WITH E.E.(COMM) TO ENSURE CORRECT PHASE MATCHING WITH OTHER END.

LEVEL :-

FGL-102.60 OF 33 KV SIDE
FGL-101.50 OF 132KV SIDE

R1 :- 132KV B/C SHIFTED FROM BAY No.5 TO 4 & 33KV B/C SHIFTED FROM BAY No.4 TO 3. ADDL. 50MVA XMER-II SHOWN AT 132KV BAY No. 5 & 33KV BAY No.4. AGAINST Estt. No.0656, Dt.13.01.25 Dt.22.01.25

R2 :- 33KV MAIN & AUXI. BUS EXTN. 33KV MP JAL NIGAM FEEDER SHOWN AT BAY No.14. AGAINST Estt. No.0661, Dt.15.01.26 Dt.16.01.26

FOUNDATION PLAN & CABLE TRENCHES		NAME	DATE
OF 132/33KV SUB Stn. J O B A T (Alirajpur)		DRN.	G S DUBEY 17-01-16
		FIG.	RK GUPTA 11-02-16
		CKD.	
		APP.	
SCALE	O/O THE CHIEF ENGINEER (P&D)	DRAWING No.-	REV.
NTS	M.P. POWER TRANS. Co. Ltd. JABALPUR	XII-N08-2227	16.01.26 R2



NOTES

1. THE MAIN BUSES OF 132KV SHOULD BE STRUNG WITH TWIN ZEBRA ACSR JOINTLESS CONDUCTOR.
2. AUXI. BUSES OF 132 & 33KV SHOULD BE STRUNG WITH SINGLE ZEBRA ACSR JOINTLESS CONDUCTOR.
3. THE STRINGING OVERHEAD CONDUCTOR BETWEEN GANTRY TO GANTRY, DROP OUT & ALL JUMPERS FOR INTERCONNECTING SWITCHYARD EQUIP. SHALL BE SINGLE ZEBRA ACSR CONDUCTOR, EXCEPT FOR LV SIDE OF X-MER BAYS & ALL MAIN BUS ISOLATORS.
4. ALL MAIN BUS ISOLATORS INTERCONNECTION SHALL BE WITH TWIN ZEBRA.
5. THE 33KV X-MER BAY OF 40MVA X-MER STRINGING/ JUMPING & INTERCONNECTION OF EQUIPMENTS UP TO MAIN BUS SHALL BE WITH TWIN ZEBRA ACSR. JUMPING OF MAIN BUS TO ALL ISOLATORS OF MAIN BUS SIDE SHALL BE WITH TWIN ZEBRA ACSR CONDUCTOR.
6. Earthing of all shielding wires must be ensure.
7. Shielding wire should be strung in such a way that it should protect complete Switch yard from Lightning hazard.
8. An angle piece (on the 33kv Gantry & on the Bus struct. at the end) should be used for strung the Shielding Wire.

Min. size of Angle should be used for Shielding Wire:-
On 33kv Gantry 65x65x6 1.5m.long.
On 33kv Bus 65x65x6 1.5m.long.
On 132kv Bus 75x75x6 2.25m.long.
On 220kv Bus 90x90x8 2.5m.long.

LEVEL :-

FGL-102.60 OF 33 KV SIDE
FGL-101.50 OF 132KV SIDE

R1 :- 132KV B/C SHIFTED FROM BAY No.5 TO 4 & 33KV B/C SHIFTED FROM BAY No.4 TO 3. ADDL. 50MVA XMER-II SHOWN AT 132KV BAY No. 5 & 33KV BAY No.4. AGAINST Estt. No.0656, Dt.13.01.25 Dt.22.01.25

R2 :- 33KV MAIN & AUXI. BUS EXTN. 33KV MP JAL NIGAM FEEDER SHOWN AT BAY No.14. AGAINST Estt. No.0661, Dt.15.01.26 Dt.16.01.26

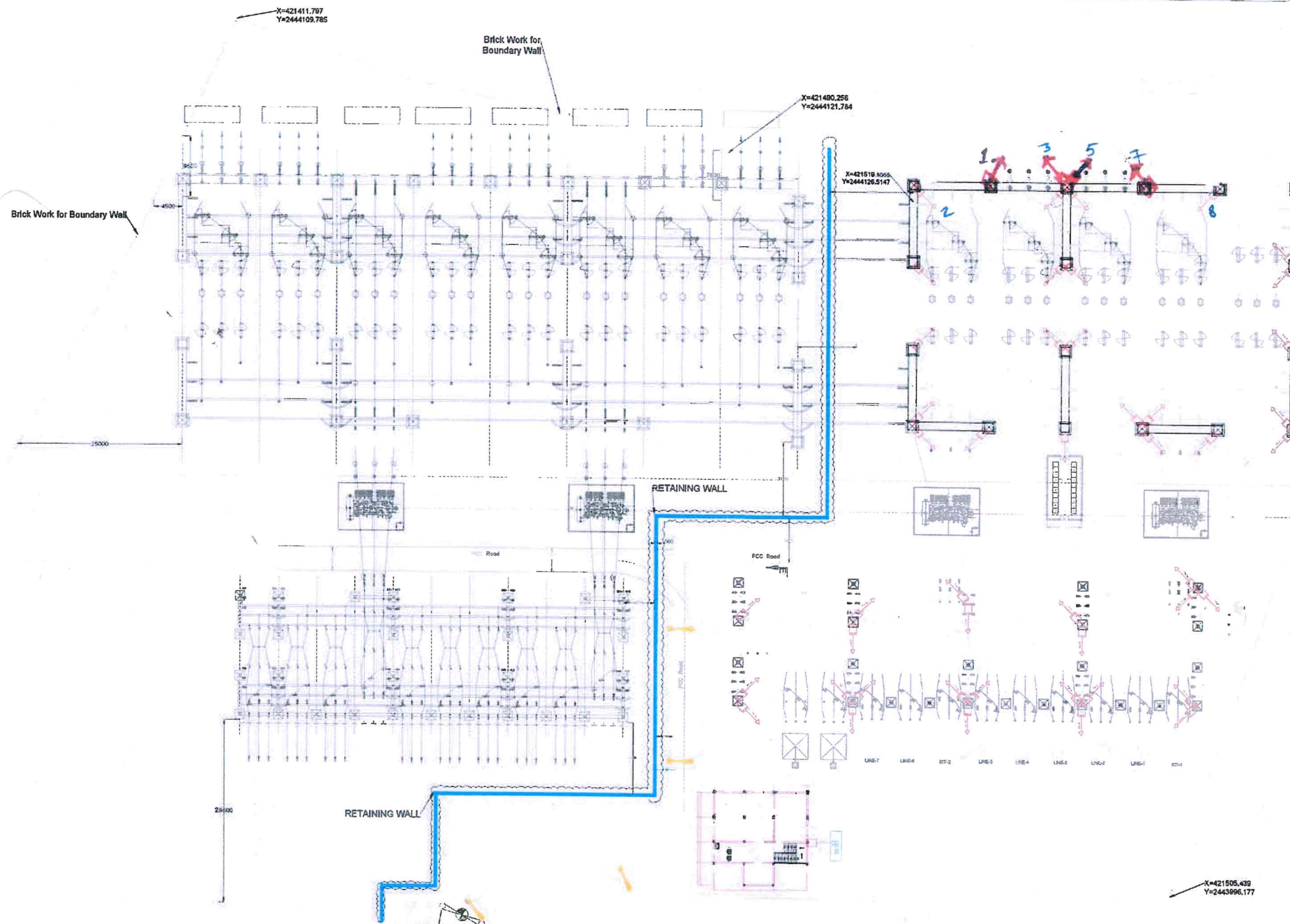
PLAN AND ELEVATION OF 132/33KV S/Stn.

J O B A T (Alirajpur)

SCALE O/O THE CHIEF ENGINEER (P&D)
M.P. POWER TRANS. Co. Ltd.
JABALPUR

NAME	DATE
DRN. G S DUBEY	17-01-16
FIG. RK GUPTA	11-02-16
CKD.	
APP.	
DRAWING No.-	REV.
XII-N08-2226	16.01.26
	R2

132/33 kV S/S AMBAJA



NOTES:

1. All dimensions are in mm.
2. This drawing shall be used only for outdoor illumination purpose.
3. The fixtures shall be powered by a common 4C copper cable from a single location.
4. All Switchyard Lighting fixtures are mounted on towers at Beam level to illuminate all switchyard area.
5. Avg. lux level: 50 lux @1.5m from ground level.

Luminaire List						
Sr. No.	Symbols	DESCRIPTION	Manufacturer	Connected Load (W)	Luminous Flux (lm)	Qty. (Nos.)
1		LED FLOOD LIGHT FIXTURES	Bajaj or Equivalent Make	120	12000	51
3		LED FLOOD LIGHT FIXTURES	Bajaj or Equivalent Make	120	12000	4
4		OUTDOOR AC LIGHTING PANEL				2
5		JUNCTION BOX				4

Approved
M.P. POWER TRANSMISSION PACKAGE-1 LIMITED

- Cat
- I Approved
 - II Approved subject to incorporation of comments.
 - III Returned for correction / Re-submission as per comments.
 - IV Accepted for information / reference.

MP Power Transmission Package -1 Ltd

MEGHA ENGINEERING & INFRASTRUCTURES LTD

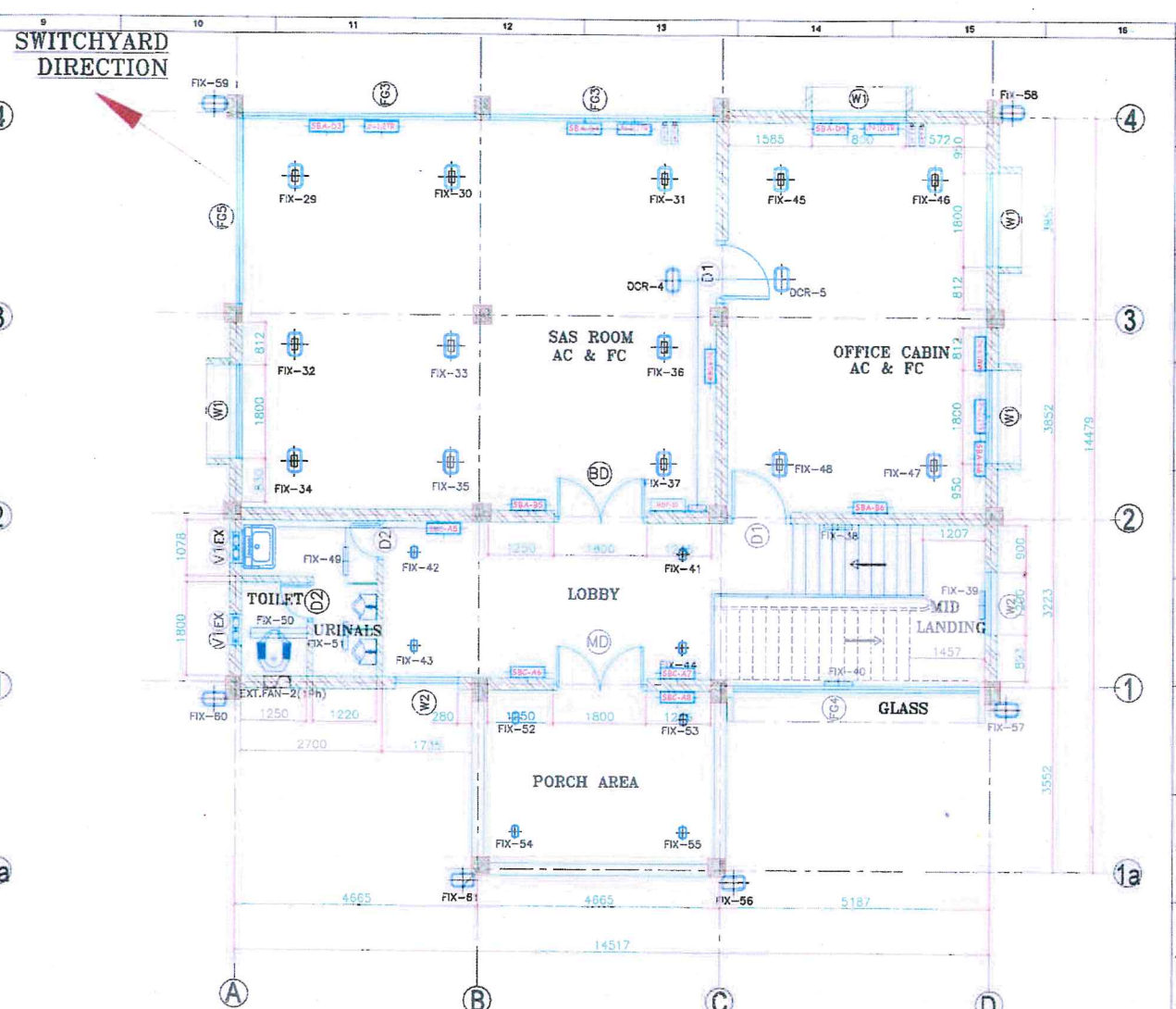
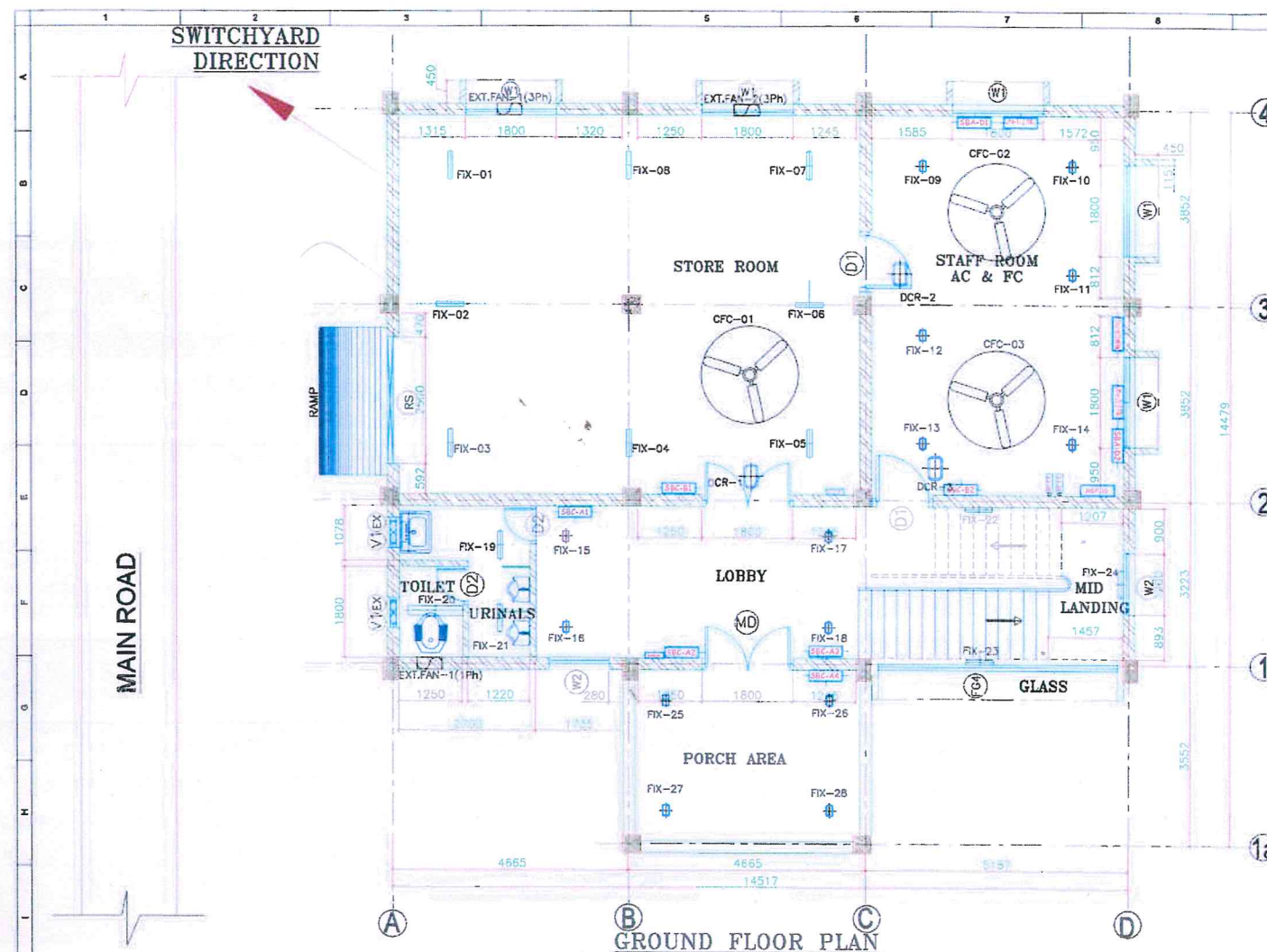
132/33 KV SUB-STATION AT AMBAJA
OUTDOOR ILLUMINATION LAYOUT

DRAWING No
SS-F-AMB-SYS-015

A1



NO FIRST ISSUE
DATE 23.03.24
DRAWN BY
CHECKED BY
APPROVED BY
FOR APPROVAL



BOQ OF LIGHTING FIXTURE/ACCESSORIES (GROUND FLOOR)

SLNO	PRICE SCHEDULE REFERENCE	DESCRIPTION OF FIX TYPE/ACCESSORIES	MAKE / TYPE	LEGEND	STORE ROOM	STAFF ROOM	AC/TELECOM	MID LANDING	TOILET	LOBBY/PASSAGE	PORCH AREA	TOTAL QTY. (NOS)
1	SCH-CPSS-A 1	24 W LED lighting fixtures (1'x1')	BAJAJ-BZRSOL 34W CW	⊕	0	6	0	0	0	4	4	14
2	5	22W LED lighting equivalent to 36W fluorescent lamp	BAJAJ-BZRSOL 22W	⊕	8	0	0	3	3	0	0	14
3	NEW ITEM	100 W Incandescent GLS lamp in recessed black anodized bank, reflector with provision of lamp replacement	BAJAJ-BZRSOL 100W GLS (DC LIGHTING)	⊕	1	2	0	0	0	0	0	03
4	10	Decorative type Six panel switch boards with 5A switches-3Nos & 5/15A plug-2No with 2No 15A switch	ANCHOR / HAVELLS	⊕	0	6	0	0	0	3	1	04
5	11	Decorative type Ten panel switch boards with 5A switches-7Nos & 5/15A plug-3No with 3No 15A switch	ANCHOR / HAVELLS	⊕	1	1	0	0	0	0	0	02
6	13	Decorative type Three panel switchboards with 32A switches - 2Nos & 32A plug - 2No	ANCHOR / HAVELLS	⊕	0	2	0	0	0	0	0	02
7	14	Indoor Main Distribution Board with 1No 63A TP MCB for I/C & 6Nos 32A SPMCB, 6Nos 10A SPMCB, 10Nos 16A SPMCB for O/C	As per Approved Make	⊕	0	0	0	0	0	1	0	01
8	5	220V DC Emergency Lighting Panels (Indoor) I/C 32A DP SFU-1 No. O/C 10A DP MCB-4 Nos.	As per Approved Make	⊕	1	0	0	0	0	1	0	01
9	10	Telephone Junction Boxes	As per Approved Make	⊕	0	0	0	0	0	0	0	01
	a)	MDF box suitable for 10 pair telephones with cranes & surge protection complete		⊕	0	1	0	0	0	0	0	01
	b)	Single socket outlet comprising RJ-45 socket		⊕	0	1	0	0	0	0	0	01
	c)	Dual socket outlet comprising RJ-45 socket		⊕	0	1	0	0	0	0	0	01
10	11	1400mm sweep ceiling fans with electronic regulator	CG./BAJAJ/USHA/ KHATTAN	⊕	1	2	0	0	0	0	0	03
11	SCH-CPST-A 1	Split AC (2 TON)	As per Approved Make	⊕	0	2	0	0	0	0	0	02
12	SCH-CPST-B a)	Exhaust fan 1PH, 8" sweep, 1440 RPM	As per Approved Make	⊕	0	0	0	0	1	0	0	01
	b)	Exhaust fan 1PH, 12" sweep, 260 RPM	As per Approved Make	⊕	2	0	0	0	0	0	0	02

BOQ OF LIGHTING FIXTURE/ACCESSORIES (FIRST FLOOR)

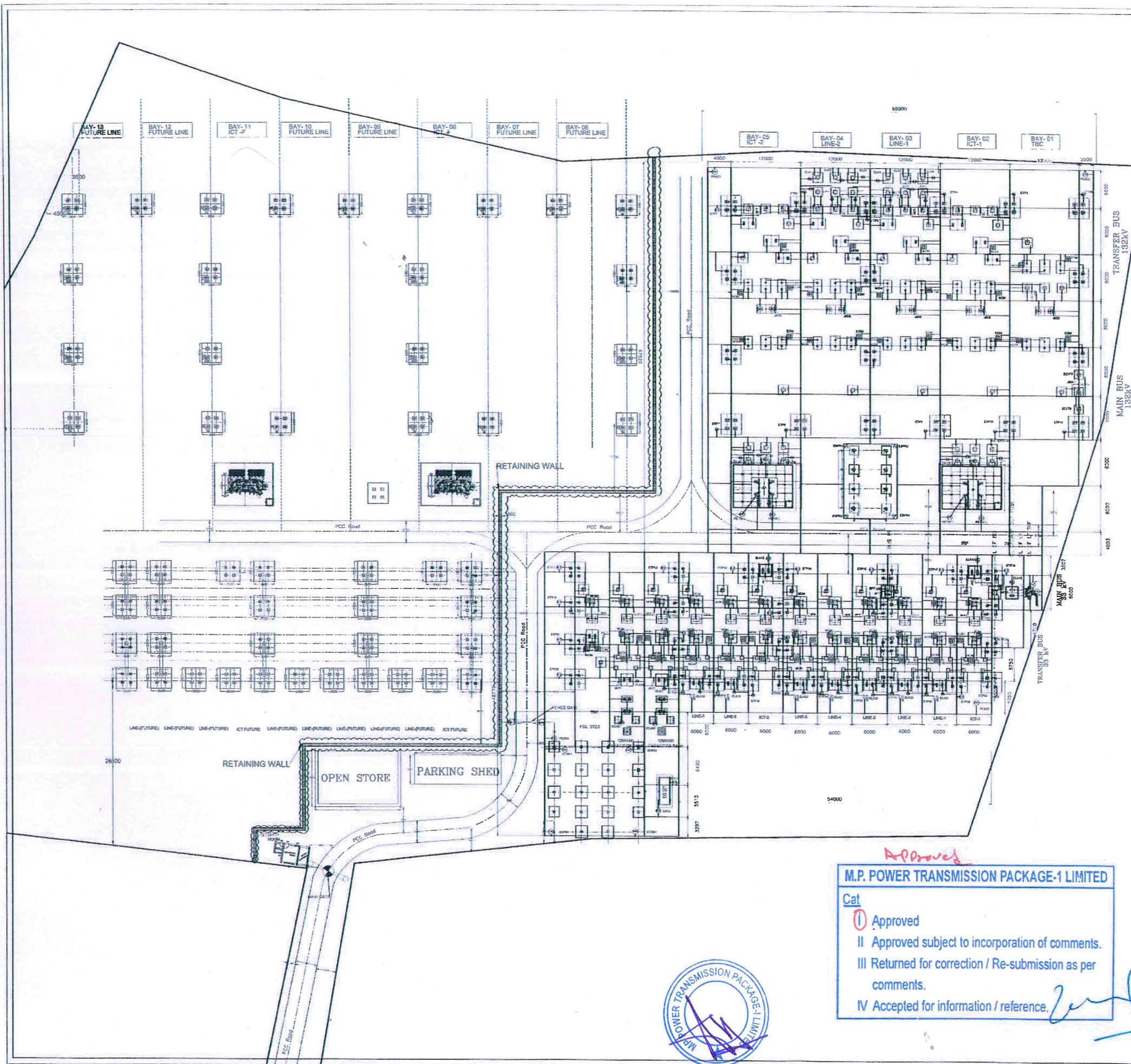
SLNO	PRICE SCHEDULE REFERENCE	DESCRIPTION OF FIX TYPE/ACCESSORIES	MAKE / TYPE	LEGEND	SAS ROOM	OFFICE CABIN	AC/TELECOM	MID LANDING	TOILET	LOBBY/PASSAGE	PORCH AREA	Periphery	TOTAL QTY. (NOS)
1	SCH-CPSS-A 1	24 W LED lighting fixtures (1'x1')	BAJAJ-BZRSOL 34W CW	⊕	0	0	0	0	0	4	4	0	08
2	2	36 W LED lighting fixtures (2'x2')	BAJAJ-BZRSOL 36W	⊕	9	4	0	0	0	0	0	6	19
3	5	22W LED lighting equivalent to 36W fluorescent lamp	BAJAJ-BZRSOL 22W	⊕	0	0	0	3	3	0	0	0	06
4	NEW ITEM	100 W Incandescent GLS lamp in recessed black anodized bank, reflector with provision of lamp replacement	BAJAJ-BZRSOL 100W GLS (DC LIGHTING)	⊕	1	1	0	0	0	0	0	0	02
5	10	Decorative type Six panel switch boards with 5A switches-3Nos & 5/15A plug-2No with 2No 15A switch	ANCHOR / HAVELLS	⊕	0	0	0	0	0	3	1	0	04
6	11	Decorative type Ten panel switch boards with 5A switches-7Nos & 5/15A plug-3No with 3No 15A switch	ANCHOR / HAVELLS	⊕	2	1	1	0	0	0	0	0	04
7	13	Decorative type Three panel switchboards with 32A switches - 2Nos & 32A plug - 2No	ANCHOR / HAVELLS	⊕	2	1	1	0	0	0	0	0	04
8	14	Indoor Main Distribution Board with 1No 63A TP MCB for I/C & 6Nos 32A SPMCB, 6Nos 10A SPMCB, 10Nos 16A SPMCB for O/C	As per Approved Make	⊕	1	1	0	0	0	0	0	0	02
9	5	220V DC Emergency Lighting Panels (Indoor) I/C 32A DP SFU-1 No. O/C 10A DP MCB-4 Nos.	As per Approved Make	⊕	1	0	0	0	0	0	0	0	01
10	10	Telephone Junction Boxes	As per Approved Make	⊕	1	0	0	0	0	0	0	0	01
	a)	MDF box suitable for 10 pair telephones with cranes & surge protection complete		⊕	1	0	0	0	0	0	0	0	01
	b)	Single socket outlet comprising RJ-45 socket		⊕	1	1	0	0	0	0	0	0	02
	c)	Dual socket outlet comprising RJ-45 socket		⊕	1	1	0	0	0	0	0	0	02
11	SCH-CPST-A 1	Split AC (2 TON)	As per Approved Make	⊕	2	1	0	0	0	0	0	0	03
12	SCH-CPST-B a)	Exhaust fan 1PH, 8" sweep, 1440 RPM	As per Approved Make	⊕	0	0	0	0	1	0	0	0	01

FIRST FLOOR PLAN

Approved
M.P. POWER TRANSMISSION PACKAGE-1 LIMITED

- Cat
- I Approved
 - II Approved subject to incorporation of comments.
 - III Returned for correction / Re-submission as per comments.
 - IV Accepted for information / reference.

PROJECT:	DEVELOPMENT OF INTRA STATE TRANSMISSION WORK IN MP THROUGH PACKAGE 1									
OWNER:			MP Power Transmission Package - 1 Ltd							
NODAL AGENCY:			State Transmission Utility (MP)							
CONTRACTOR:			MEGHA ENGINEERING INFRASTRUCTURE LIMITED							
TITLE:	ARCHITECTURAL LAYOUT PLAN OF CONTROL ROOM BUILDING FOR 132/33 KV (E-15 AMBAJA) S/S									
DRAWING NO.	MEIL-MPBOOT-132KV-E15-AMBAJA-CRB-ARCH-001						SH.No.	01 OF 02	REV.	0
DATE	02.01.2025	DRAWN BY	MPR	CHECKED BY	DKA	APPROVED BY	PHP	SHEET SIZE	A2	



NOTES

- Routing of conductor to be diagrammatic only & marginal splitting of conductor to avoid interfaces of structures/fundations, cable trenches etc. shall be done at site.
- All equipment and structures shall, in general be grounded at 2 points in opposite corners whether shown or not and these shall be connected to different parts of the ground wherever possible.
- Grounding conductors in the outdoor area shall be buried 600mm below finished ground level.
- Whenever a grounding conductor crosses overhead service ducts, pipes, tunnel, railway track, railway line, transformer with 40 kV & above shall be 300mm below them, shall be insulated from the equipment/structure/fundations.
- Grounding conductor around the building shall be buried in ground at a minimum distance of 1500mm from outer boundary of the building.
- Grounding conductor embedded in concrete shall be approximately 50mm concrete cover. Grounding conductor is required to be embedded in major foundations, then it shall be laid in a groove.
- Connection between equipment grounding leads and main ground conductors shall be welded type for rust protection, the welds shall be covered with zinc brush, treated with red lead primer and afterwards thickly coated with two coats of bitumen compound to prevent corrosion.
- All ground connections shall be made by electric arc welding. All welded joints are allowed to cool down gradually to atmospheric temp before putting any test or stress. Artificial cooling shall not be allowed.
- Bonding of Large Earthing rod shall be done preferably by gas heating.
- All arc welding of large conductors shall be done by low hydrogen electrodes.
- Location of rod electrode E and pipe electrode PE are shown tentatively. Electrodes of LA and Transformer shall be located nearest to respective equipment.
- All electrodes shall be 40 dia x 3000 mm long M.S. Rod except for neutral transformer neutral where it is 40 dia x 3000 mm Pipe electrode.
- Grounding conductors along their run on cable trench, ladder columns, beams, walls etc. shall be supported by suitable walling/bracing at intervals of 7500mm. Grounding conductors along cable trenches shall be on the wall and not on the equipment, wherever galvanic isolation from ends of the structure shall be provided for the passage of the conductors. Both ends of the structure shall be isolated to prevent the passage of water through the elements.
- All steel columns, metallic pipes etc. shall be connected to the nearest conductor by grounding leads. Electrical continuity shall be assured by bonding the different sections of metal rails and metallic stairs.
- Isolated pipes, conduits and cable tray sections for cable installation shall be bonded to ensure electrical continuity at intervals of 20mtrs along with length of the trench and at all the end of the trench. All trenches shall be covered with earthen cover or sections at a depth of 300mm below ground level.
- A separate grounding conductor shall be provided for grounding lighting fixtures, receptacles, switches, junction box, lighting conductors etc.
- Lighting poles/junction boxes on the poles shall be bonded to the nearest conductor at two points.
- 50kV and above galvanized steel rod shall be used for earthing of cable trenches and control panels. All trenches shall be earthen at intervals of 20mtrs along with length of the trench and at all the end of the trench. Earthen shall be provided for trench earthing at every 20 mtrs at all ends.
- Riser connection to Earthing rod shall be 40 mm dia rod and clear to equipment connection shall be 75kVmm GI Flat.
- Auxiliary earth mesh of copper sized 200x200 of size 900mmx900mm conductor shall be provided below the operating benches or sections at a depth of 300mm below ground level.
- Earth mat shall be buried 2m beyond the fence on all sides. All poles and every alternative pole shall be connected to earthing grid.
- Grounding conductor along the length of the fence shall have min clearance of 4m from top of fence to avoid striking with min 23m dimensions are 100mm unless otherwise specified.

LEGEND	DESCRIPTION	UNIT	QUANTITY
(RE)	EARTH ELECTRODE 40MM DIA, 3M LENGTH	NOS	84
(RE)	MS ROD FOR AUXILIARY MAT (40 mm DIA) AREA OF AUXILIARY MAT = 0.2 MT SQ	METRE	520 M
(RE)	MS FLAT FOR EARTHING 75 X 10MM	METRE	2170 M
(RE)	MS FLAT FOR RISER 75 X 10 MM	METRE	2270 M
(RE)	TOTAL MS FLAT 75 X 10 MM	METRE	4440 M
PIPE ELECTRODE AND JUNCTION BOX			
(PE)	TREATED EARTHPIPE PIPE ELECTRODE MS PIPE 40MM DIA, 3M LONG	NOS	16
(PE)	CB JUNCTION BOX (JBCB)	NOS	17
(PE)	CT JUNCTION BOX (JBCCT)	NOS	17
(PE)	CVT/PT JUNCTION BOX (JBCVT/JBPT)	NOS	04
(PE)	ECRS & ESPR	NOS	08
(PE)	PEBC	NOS	04
(PE)	ETRF	NOS	04
(PE)	ELTRF	NOS	02

SCHEDULE OF REQUIREMENT OF MS ROD ELECTRODE, 40MM DIA, 3M LONG

S.NO.	DESCRIPTION	UNIT	NO. OF EQUIPMENT	NO. OF ROD ELECTRODE PER EQUIPMENT	TOTAL ROD ELECTRODE QTY (NO. DIA, 3M LONG)	LEGENDS	ELECTRODES
01.	LIGHTING ARRESTOR (20KV)	NOS	12	01	12	ELA	ELA1-ELA12
02.	LIGHTING ARRESTOR (33KV)	NOS	36	1No FOR 3 LA	12	ELA	ELA13-ELA48
03.	TOTAL TOWER WITH PEAK	NOS	25	01	25	ETP	ETP1-ETP25
04.	CVT	NOS	05	01	05	ECVT	ECVT1-ECVT5
05.	UG SET	NOS	01	02	02	EDG	EDG1-EDG2
06.	CAPACITOR BANK	NOS	02	01	02	ECAB	ECAB1-ECAB2
07.	POTENTIAL TRANSFORMER	NOS	03	1No FOR 3 PT	01	EPT	EPT1
TOTAL					77		

M.P. POWER TRANSMISSION PACKAGE-1 LIMITED

Cal

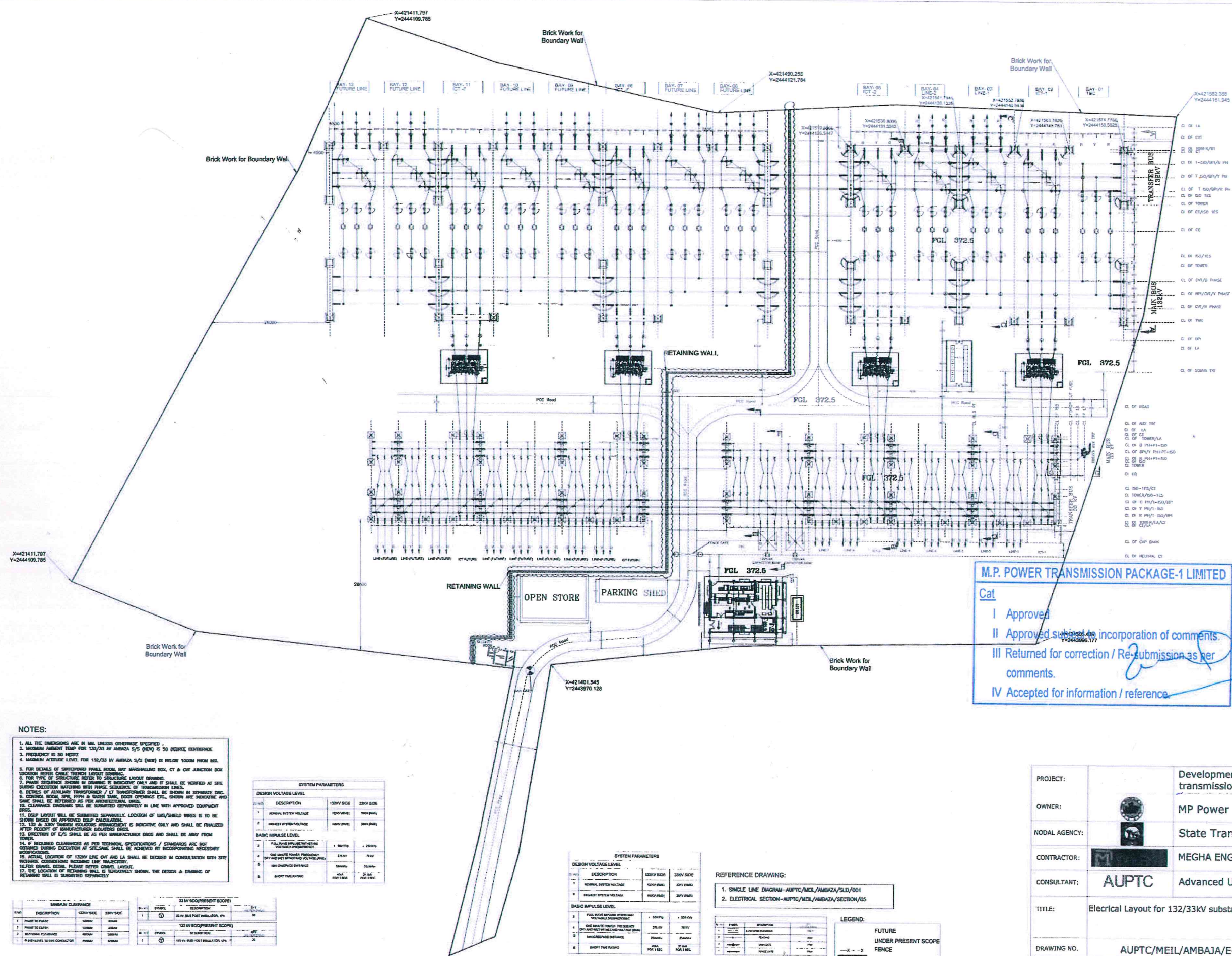
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PROJECT:	Development of intra state transmission transmission work in MP through Package 1		
OWNER:	MP Power Transmission Package -1 Ltd		
NODAL AGENCY:	State Transmission Utility (MP)		
CONTRACTOR:	MEGHA ENGINEERING INFRASTRUCTURE LIMITED		
CONSULTANT:	AUPTC Advanced Ultra Power Transmission Consultancy		
TITLE:	Earthmat Layout for 132/33kV substation at AMBAJA (District-ALIRAJPUR)		
DRAWING NO.	AUPTC/MEIL/AMBAJA/EARTHMAT-LAYOUT/057	SH.No.	1
DESIGNED BY	VISHAL	CHECKED BY	GH
SUBMITTED BY	RAJESH	SHEET SIZE	A-1

16.01.2025

REV. 00



NOTES:

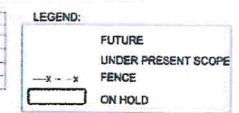
1. ALL THE DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED.
2. MAXIMUM AMBIENT TEMP FOR 132/33 KV AMBAJA S/S (NEW) IS 50 DEGREE CENTIGRADE.
3. FREQUENCY IS 50 HERTZ.
4. MAXIMUM ATTITUDE LEVEL FOR 132/33 KV AMBAJA S/S (NEW) IS BELOW 1000M FROM MSL.
5. FOR DETAILS OF SWITCHGEAR PANEL ROOM, BUS MOUNTING BOX, CT & CVT JUNCTION BOX, LOCATION NOTES, CHIEF ENGINEER LAYOUT DRAWING.
6. FOR TYPE OF STRUCTURE REFER TO STRUCTURE LAYOUT DRAWING.
7. PHASE SEQUENCE SHOWN IN DRAWING IS INDICATIVE ONLY AND IT SHALL BE VERIFIED AT SITE DURING EXECUTION MATCHING WITH PHASE SEQUENCE OF TRANSMISSION LINES.
8. DETAILS OF AUXILIARY TRANSFORMER / LT TRANSFORMER SHALL BE SHOWN IN SEPARATE Dwg.
9. GENERAL ROOM, SPIN & WATER TANK, BOSS OPENINGS ETC. SHOWN ARE INDICATIVE AND SAME SHALL BE RETURNED AS PER ARCHITECTURAL DWG.
10. CLEARANCE DIMENSIONS WILL BE SUBMITTED SEPARATELY IN LINE WITH APPROVED EQUIPMENT DWG.
11. DRAIN LAYOUT WILL BE SUBMITTED SEPARATELY. LOCATION OF LINES/SHIELD WIRES IS TO BE SHOWN BASED ON APPROVED DRAIN CALCULATION.
12. 132 & 33KV TRANSFORMER ARRANGEMENT IS INDICATIVE ONLY AND SHALL BE FINALIZED AFTER RECEIPT OF MANUFACTURER ISOLATORS DWG.
13. LOCATION OF E/O SHALL BE AS PER MANUFACTURER DWG AND SHALL BE AWAY FROM TOWER.
14. IF REQUIRED CLEARANCES AS PER TECHNICAL SPECIFICATIONS / STANDARDS ARE NOT OBTAINED DURING EXECUTION AT SITE, SAME SHALL BE ACHIEVED BY INCORPORATING NECESSARY MODIFICATIONS.
15. ACTUAL LOCATION OF 132KV LINE OUT AND LA SHALL BE DECIDED IN CONSULTATION WITH SITE ENGINEER, CONSIDERING INCLUDING LINE MAINTENANCE.
16. FOR SHED, DETAIL, PLEASE REFER CIVIL LAYOUT.
17. THE LOCATION OF RETAINING WALL IS TENTATIVELY SHOWN. THE DESIGN & DRAWING OF RETAINING WALL IS SUBMITTED SEPARATELY.

SYSTEM PARAMETERS			
DESIGN VOLTAGE LEVEL			
NO.	DESCRIPTION	132KV SIDE	33KV SIDE
1	NOMINAL SYSTEM VOLTAGE	132KV (PMU)	33KV (PMU)
2	HIGHEST SYSTEM VOLTAGE	140KV (PMU)	36KV (PMU)
BASIC IMPULSE LEVEL			
1	1.5 X NOMINAL SYSTEM VOLTAGE (1.5 X 132KV)	198KV	52.5KV
2	ONE SHOCK POWER FREQUENCY (ONE SHOCK POWER FREQUENCY)	275KV	78KV
3	MAX ONE SHOCK DISTANCE	300KV	78KV
4	SHORT CIRC. RATING	50KA FOR 1 SEC	25KA FOR 1 SEC

SYSTEM PARAMETERS			
DESIGN VOLTAGE LEVEL			
NO.	DESCRIPTION	132KV SIDE	33KV SIDE
1	NOMINAL SYSTEM VOLTAGE	132KV (PMU)	33KV (PMU)
2	HIGHEST SYSTEM VOLTAGE	140KV (PMU)	36KV (PMU)
BASIC IMPULSE LEVEL			
1	1.5 X NOMINAL SYSTEM VOLTAGE (1.5 X 132KV)	198KV	52.5KV
2	ONE SHOCK POWER FREQUENCY (ONE SHOCK POWER FREQUENCY)	275KV	78KV
3	MAX ONE SHOCK DISTANCE	300KV	78KV
4	SHORT CIRC. RATING	50KA FOR 1 SEC	25KA FOR 1 SEC

REFERENCE DRAWING:

1. SINGLE LINE DIAGRAM - AUPTC/MEIL/AMBAJA/SLD/001
2. ELECTRICAL SECTION - AUPTC/MEIL/AMBAJA/SECTION/05



M.P. POWER TRANSMISSION PACKAGE-1 LIMITED

Cat

I Approved

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IV Accepted for information / reference



PROJECT:	Development of intra state transmission transmission work in MP through Package 1.		
OWNER:	MP Power Transmission Package -1 Ltd		
NODAL AGENCY:	State Transmission Utility (MP)		
CONTRACTOR:	MEGHA ENGINEERING INFRASTRUCTURE LIMITED		
CONSULTANT:	AUPTC Advanced Ultra Power Transmission Consultancy		
TITLE:	Electrical Layout for 132/33kV substation at AMBAJA (District-ALIRAJPUR)		
DRAWING NO.	AUPTC/MEIL/AMBAJA/E-LAYOUT/002		20.04.2024
DESIGNED BY	PRIYANSHU	CHECKED BY	GH
SUBMITTED BY	RAJESH	SHEET SIZE	A-1



CABLE TRENCH LENGHT

SECTION	LENGHT(M)
SECTION 2A-2A	56
SECTION 2-2	182
SECTION 3-3	94
SECTION 4-4	156
100MM CONDUIT	650

LEGEND

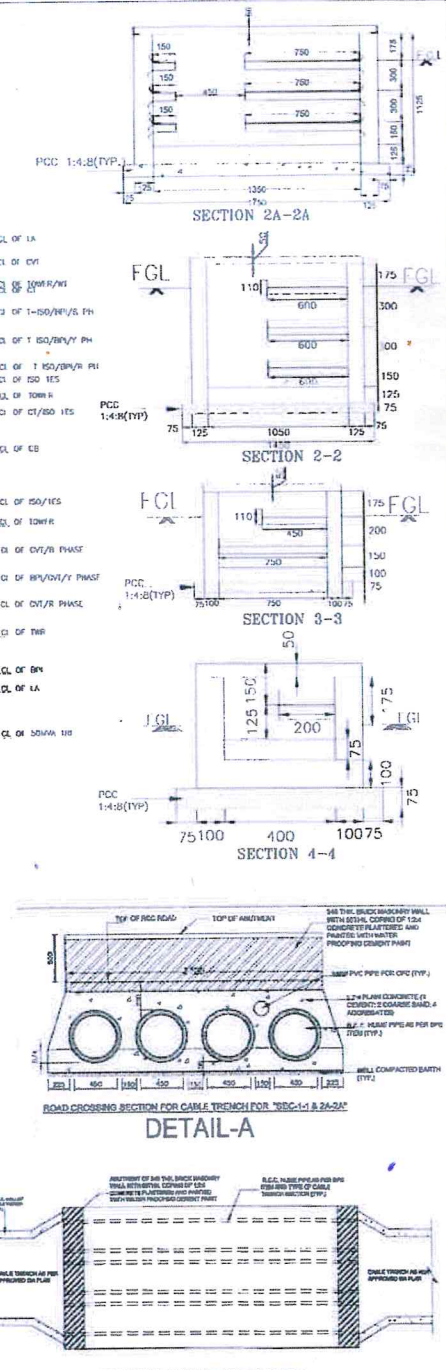
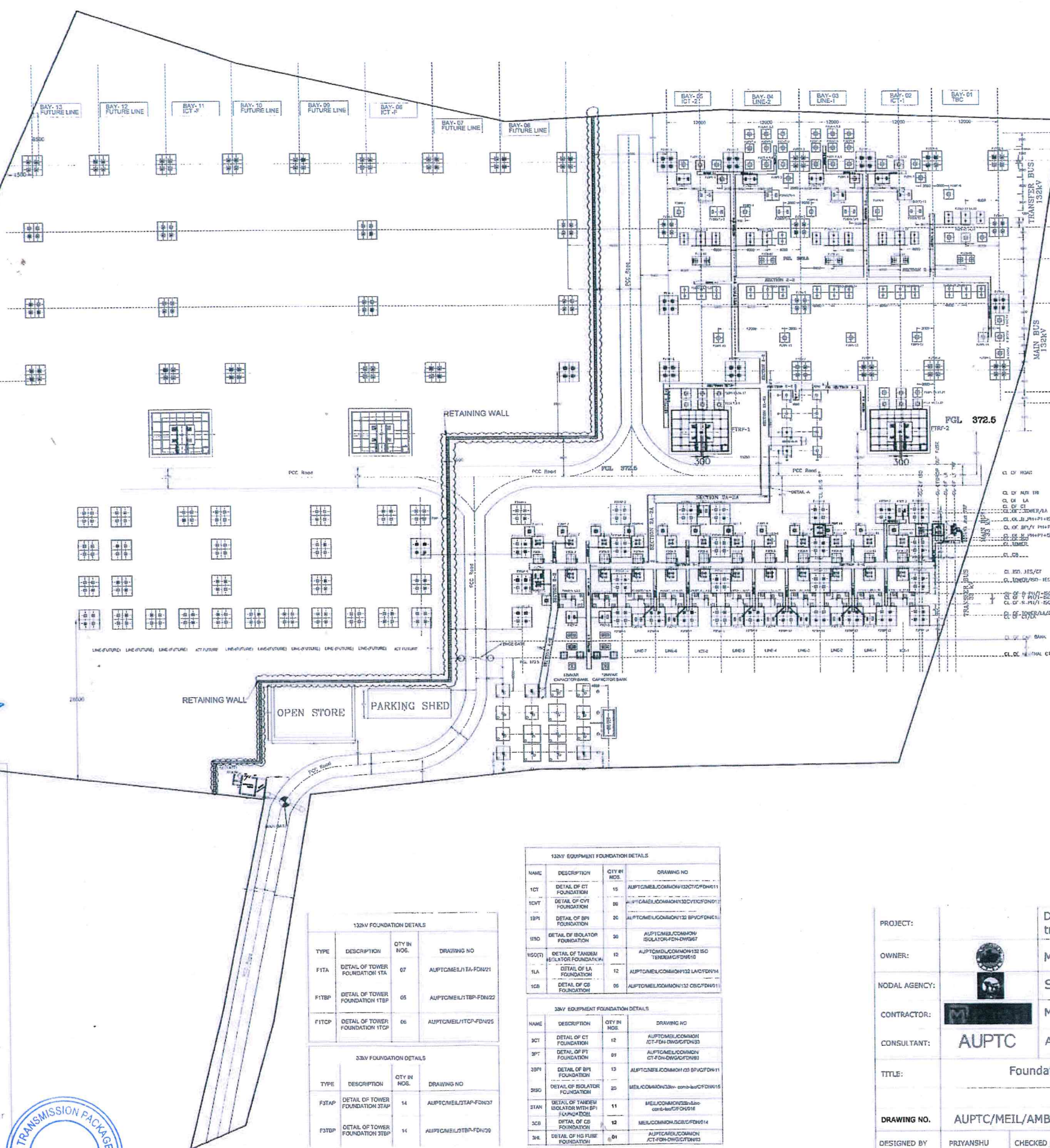
- CONDUIT PIPE
- CABLE TRENCH

M.P. POWER TRANSMISSION PACKAGE-1 LIMITED

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- ALL THE DIMENSIONS ARE IN MM. UNLESS OTHERWISE SPECIFIED.
- 50mm*6mm MS Flat shall run on the top tier and all along the cable trenches. It will be welded to each of the racks. The Flat shall be earthed at both ends and at an interval of 30meters. The MS Flat shall be finally painted with two coats of Red oxide primer and two coats of Zinc riched enamel paint.
- PVC pipe shall be provided to take cable out from trench to respective equipment, which shall be buried in ground at a depth of 250mm below finish formation level.
- After laying the cable, the ends of conduit shall be suitably sealed at site to prevent the passage of water inside the conduits.
- Separate PVC pipe shall be provided for power and control cables.
- Necessary opening in cable trench shall be provided for PVC conduits at appropriate locations.
- Conduits shall be kept at least 300mm away from hot pipes, heating devices, etc.
- PVC pipe used shall be class 4 as per IS 4985.
- Power and control cables in the cable trench shall be laid in separate tiers. Power cables to be laid in top tiers. Control instrumentation & other service cables in bottom tiers.
- The size of the conduit/pipe shall be selected on the basis of 40% fill (i.e. 60% void) criteria.
- Minor changes if required in cable trench route can be carried as directed by site I/C of MEIL & AUPTC.
- Due to short distances of PVC pipes i.e. between the cable trench and equipments, pulpit is not envisaged.
- Construction details of Cable Trench shall be as per Civil Drawing.
- For Road crossing & Cable Trench crossing as marked up, respective drawing shall be referred.
- The tentative location of PVC pipes is shown and shall be laid as per the exact location of operating box of equipments.
- All the FDN dwg is indicative only. Detail foundation drawing shall be submitted separately.



TYPE	DESCRIPTION	QTY IN NOS.	DRAWING NO.
FITA	DETAIL OF TOWER FOUNDATION ITA	07	AUPTCMEIL/ITA-FDN01
FITBP	DETAIL OF TOWER FOUNDATION ITBP	05	AUPTCMEIL/ITBP-FDN02
FITCP	DETAIL OF TOWER FOUNDATION ITCP	06	AUPTCMEIL/ITCP-FDN03

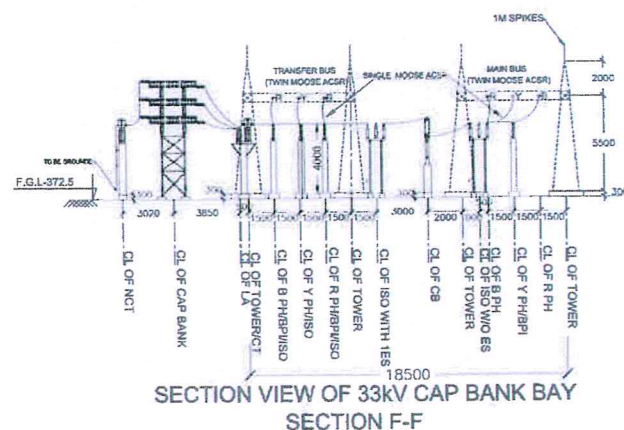
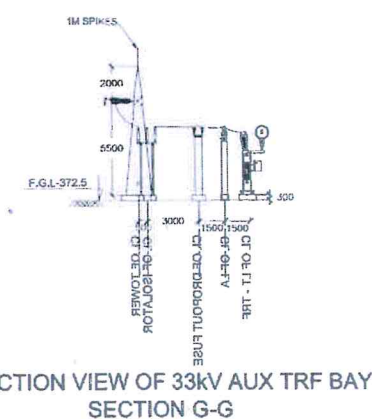
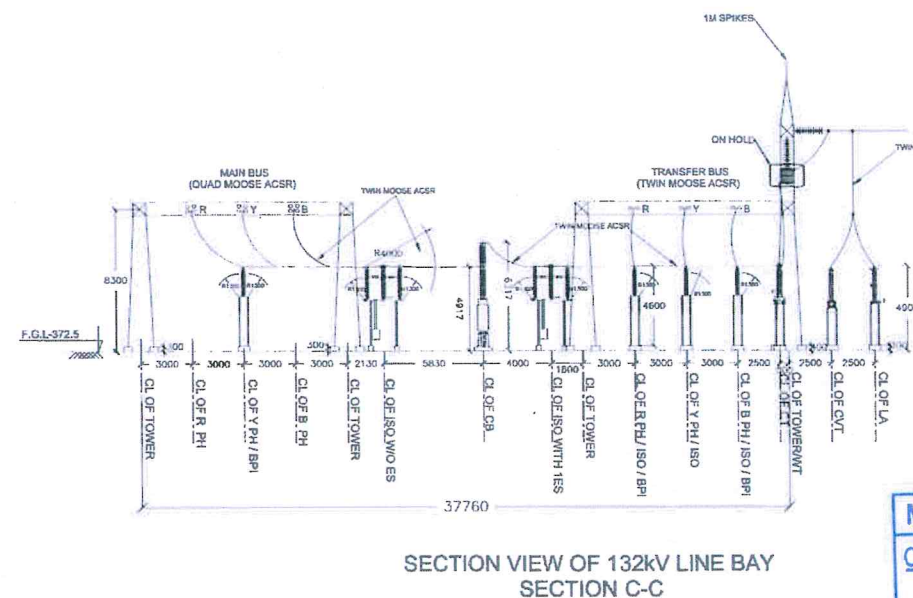
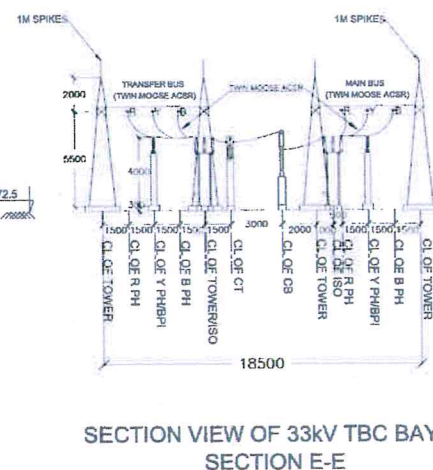
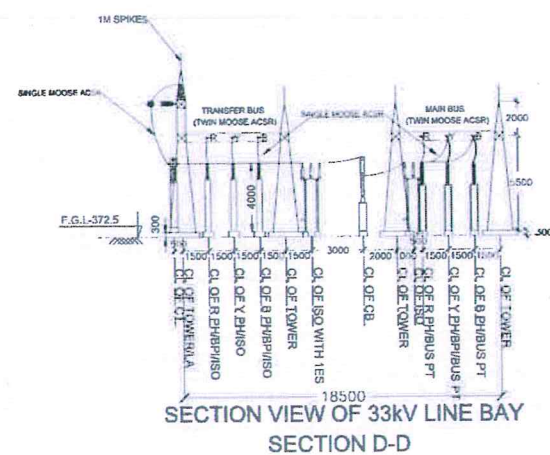
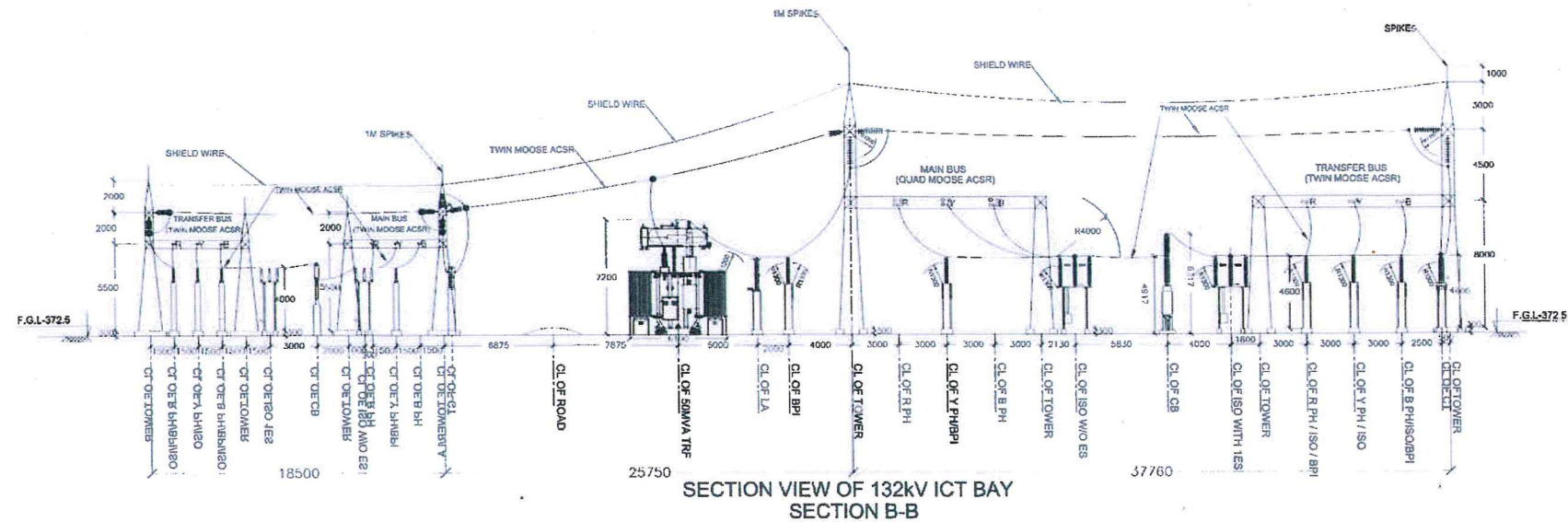
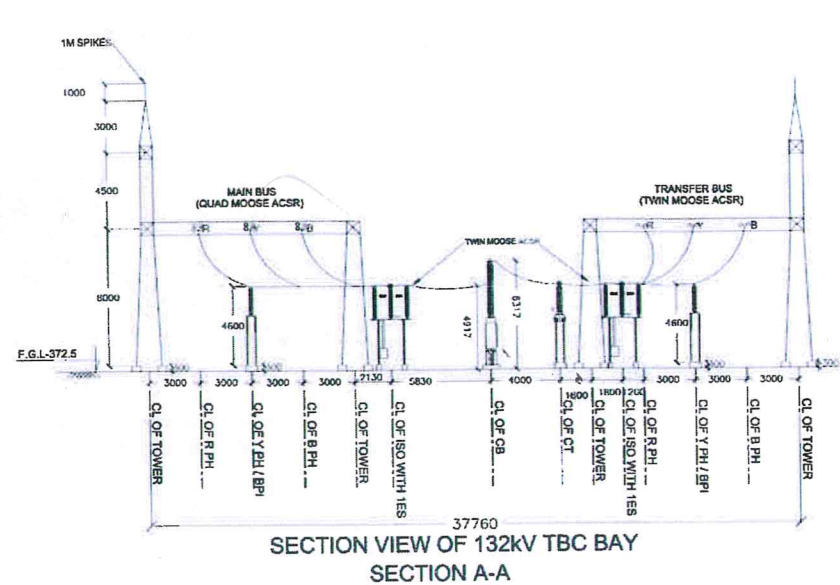
TYPE	DESCRIPTION	QTY IN NOS.	DRAWING NO.
FSTA	DETAIL OF TOWER FOUNDATION STA	14	AUPTCMEIL/STA-FDN01
FSTBP	DETAIL OF TOWER FOUNDATION STBP	14	AUPTCMEIL/STBP-FDN02

NAME	DESCRIPTION	QTY IN NOS.	DRAWING NO.
101	DETAIL OF CT FOUNDATION	15	AUPTCMEIL/COMMON/101CT-FDN01
102	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/102CT-FDN01
103	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/103CT-FDN01
104	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/104CT-FDN01
105	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/105CT-FDN01
106	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/106CT-FDN01
107	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/107CT-FDN01
108	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/108CT-FDN01
109	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/109CT-FDN01
110	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/110CT-FDN01
111	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/111CT-FDN01
112	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/112CT-FDN01
113	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/113CT-FDN01
114	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/114CT-FDN01
115	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/115CT-FDN01
116	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/116CT-FDN01
117	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/117CT-FDN01
118	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/118CT-FDN01
119	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/119CT-FDN01
120	DETAIL OF CT FOUNDATION	06	AUPTCMEIL/COMMON/120CT-FDN01

NAME	DESCRIPTION	QTY IN NOS.	DRAWING NO.
301	DETAIL OF CT FOUNDATION	12	AUPTCMEIL/COMMON/301CT-FDN01
302	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/302CT-FDN01
303	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/303CT-FDN01
304	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/304CT-FDN01
305	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/305CT-FDN01
306	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/306CT-FDN01
307	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/307CT-FDN01
308	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/308CT-FDN01
309	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/309CT-FDN01
310	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/310CT-FDN01
311	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/311CT-FDN01
312	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/312CT-FDN01
313	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/313CT-FDN01
314	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/314CT-FDN01
315	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/315CT-FDN01
316	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/316CT-FDN01
317	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/317CT-FDN01
318	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/318CT-FDN01
319	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/319CT-FDN01
320	DETAIL OF CT FOUNDATION	07	AUPTCMEIL/COMMON/320CT-FDN01

PROJECT:	Development of intra state transmission transmission work in MP through Package 1		
OWNER:	MP Power Transmission Package -1 Ltd		
NODAL AGENCY:	State Transmission Utility (MP)		
CONTRACTOR:	MEGHA ENGINEERING INFRASTRUCTURE LIMITED		
CONSULTANT:	AUPTC Advanced Ultra Power Transmission Consultancy		
TITLE:	Foundatio Layout for 132/33kV substation at AMBAZA		
DRAWING NO.	AUPTC/MEIL/AMBAZA/FDN-LAYOUT/046	SH.No.	1
DESIGNED BY	PRIYANSHU	CHECKED BY	GH
SUBMITTED BY	RAJESH	SHEET SIZE	A-1

16.01.2025



SYSTEM PARAMETERS			
DESIGN VOLTAGE LEVEL			
Sl. No.	DESCRIPTION	132KV SIDE	33KV SIDE
1	NOMINAL SYSTEM VOLTAGE	132KV (RMS)	33KV (RMS)
2	HIGHEST SYSTEM VOLTAGE	145KV (RMS)	36KV (RMS)
BASIC IMPULSE LEVEL			
3	FULL WAVE IMPULSE WITHSTAND VOLTAGE (1.050MICROSEC)	1.650 KVp	1.250 KVp
4	ONE MINUTE POWER FREQUENCY DRY AND WET WITHSTAND VOLTAGE (RMS)	225 KV	70 KV
5	MIN. CREEPAGE DISTANCE	2500mm	2500mm
6	SHORT TIME RATING	40KA FOR 1 SEC	31.5KA FOR 2 SEC

NOTES			
1.	ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED		
2.	ACTUAL LOCATION OF TOWER AND PILE CAPS SHALL BE DECIDED BY THE USER OF THE DRAWING		
3.	THEY SHALL BE DECIDED BY THE USER OF THE DRAWING		
4.	THEY SHALL BE DECIDED BY THE USER OF THE DRAWING		
5.	THEY SHALL BE DECIDED BY THE USER OF THE DRAWING		
6.	THEY SHALL BE DECIDED BY THE USER OF THE DRAWING		
7.	THEY SHALL BE DECIDED BY THE USER OF THE DRAWING		

CONDUCTOR DETAILS			
132KV		33KV	
DESCRIPTION	CONDUCTOR	DESCRIPTION	CONDUCTOR
MAIN BUS	QUAD MOOSE ACSR	MAIN BUS	TWIN MOOSE ACSR
TRANSFER BUS	TWIN MOOSE ACSR	TRANSFER BUS	TWIN MOOSE ACSR
JACK BUS/JUMPERS	TWIN MOOSE ACSR	JACK BUS/JUMPERS	TWIN MOOSE ACSR
EQUIP. CONNECTION	TWIN MOOSE ACSR	EQUIP. CONNECTION	TWIN MOOSE ACSR
EQUIP. CONNECTION ICT BAY	TWIN MOOSE ACSR	EQUIP. CONNECTION LINE BAY	SINGLE MOOSE ACSR

MINIMUM CLEARANCE			
DESCRIPTION	132KV SIDE	33KV SIDE	
1. PHASE TO PHASE	13000mm	3300mm	
2. PHASE TO EARTH	13000mm	3300mm	
3. SECTIONAL CLEARANCE	4000mm	3300mm	
4. PLANT LEVEL TO LINE CONDUCTOR	4000mm	3300mm	

Approved

M.P. POWER TRANSMISSION PACKAGE-1 LIMITED

Cat

I Approved

II Approved subject to incorporation of comments.

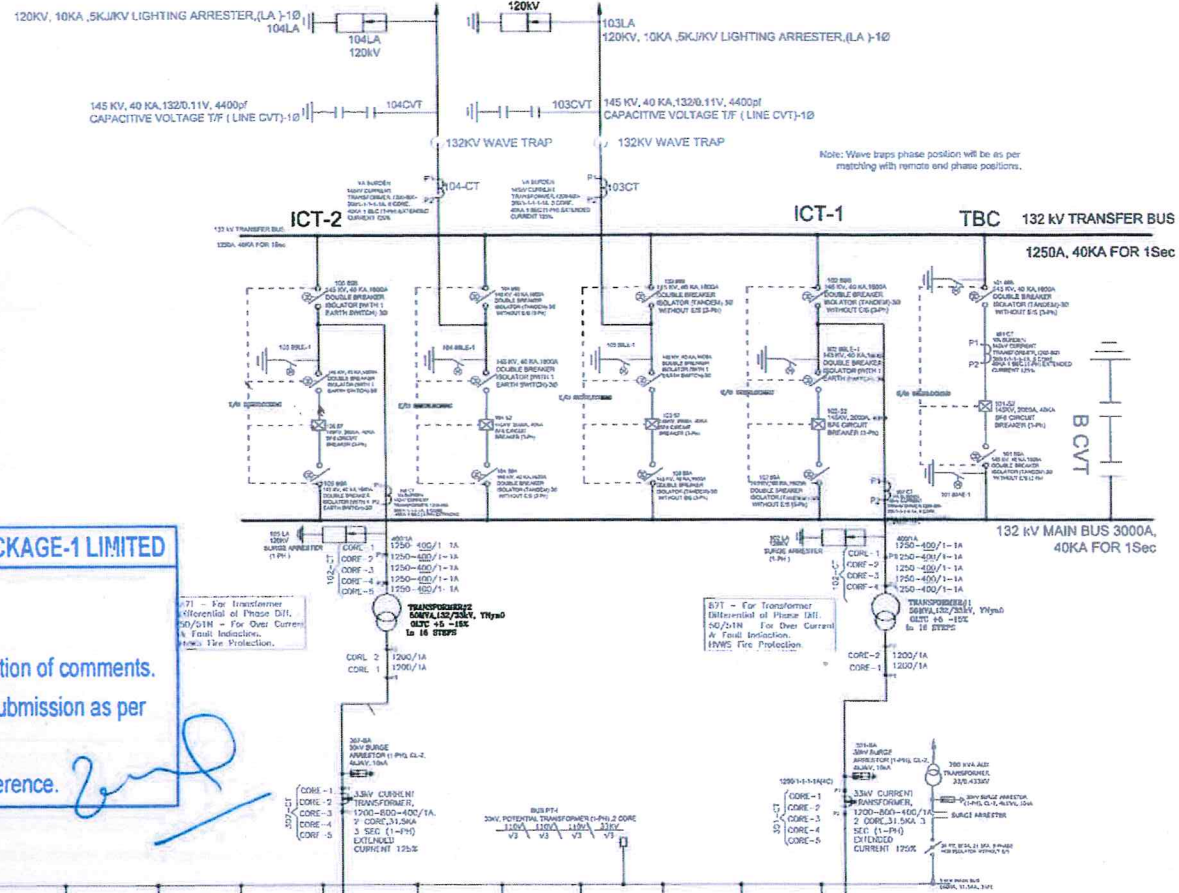
III Returned for correction / Re-submission as per comments.

IV Accepted for information / reference.

PROJECT:	Development of intra state transmission transmission work in MP through Package 1
OWNER:	MP Power Transmission Package -1 Ltd
NODAL AGENCY:	State Transmission Utility (MP)
CONTRACTOR:	MEGHA ENGINEERING INFRASTRUCTURE LIMITED
CONSULTANT:	AUPTC Advanced Ultra Power Transmission Consultancy
TITLE:	Section for 132/33kv substation at AMBAJA (District-ALIRAJPUR)
DRAWING NO.	AUPTC/MEIL/AMBAJA/SECTION/005
DESIGNED BY	PRIYANSHU
CHECKED BY	GH
SUBMITTED BY	RAJESH
SH.No.	1
REV.	01
SHEET SIZE	A-1

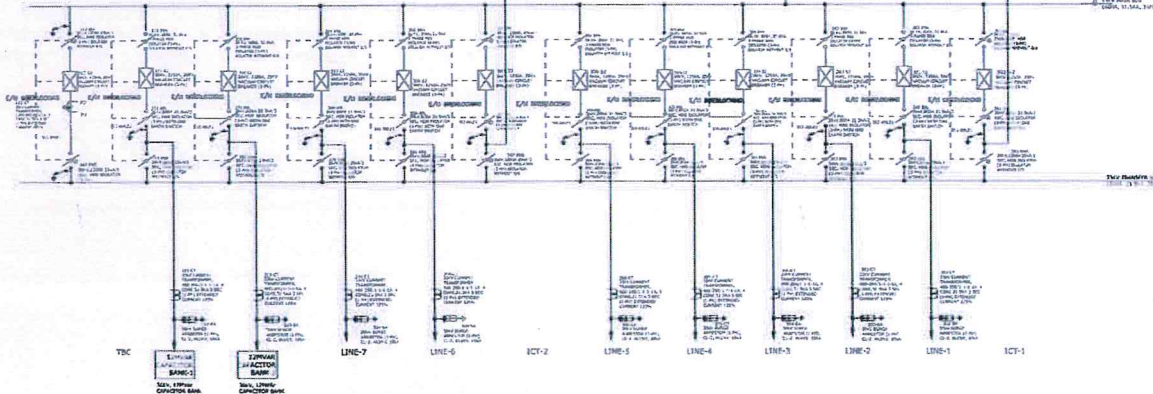
20.04.2024

BARWANI-KUKSHI LINE-02 BARWANI-KUKSHI LINE-01



M.P. POWER TRANSMISSION PACKAGE-1 LIMITED

- Approved**
- Approved subject to incorporation of comments.**
- Returned for correction / Re-submission as per comments.**
- Accepted for information / reference.**



33 KV BAY (FAULT LEVEL: 31.5KA for 3 sec)

SYMBOL	DESCRIPTION	QTY
1	132KV/33KV TRANSFORMER (132KV/33KV)	12
2	132KV/33KV TRANSFORMER (132KV/33KV)	06
3	132KV/33KV TRANSFORMER (132KV/33KV)	27
4	132KV/33KV TRANSFORMER (132KV/33KV)	03
5	132KV/33KV TRANSFORMER (132KV/33KV)	26
6	132KV/33KV TRANSFORMER (132KV/33KV)	04
7	132KV/33KV TRANSFORMER (132KV/33KV)	00
8	132KV/33KV TRANSFORMER (132KV/33KV)	02
9	132KV/33KV TRANSFORMER (132KV/33KV)	00
10	132KV/33KV TRANSFORMER (132KV/33KV)	02
11	132KV/33KV TRANSFORMER (132KV/33KV)	01
12	132KV/33KV TRANSFORMER (132KV/33KV)	02

CORE NO.	APPLICATION	PRIMARY VOLTAGE	SECONDARY VOLTAGE	ACCURACY CLASS	BURDEN (VA)
1	PROTECTION	132KV/33KV	110KV/33KV	3P	100
2	PROTECTION	132KV/33KV	110KV/33KV	3P	100
3	METERING	132KV/33KV	110KV/33KV	0.2	100

SYMBOL	DESCRIPTION	QTY
1	132KV/33KV TRANSFORMER (132KV/33KV)	02
2	132KV/33KV TRANSFORMER (132KV/33KV)	05
3	132KV/33KV TRANSFORMER (132KV/33KV)	15
4	132KV/33KV TRANSFORMER (132KV/33KV)	04
5	132KV/33KV TRANSFORMER (132KV/33KV)	00
6	132KV/33KV TRANSFORMER (132KV/33KV)	04
7	132KV/33KV TRANSFORMER (132KV/33KV)	04
8	132KV/33KV TRANSFORMER (132KV/33KV)	03
9	132KV/33KV TRANSFORMER (132KV/33KV)	00
10	132KV/33KV TRANSFORMER (132KV/33KV)	02
11	132KV/33KV TRANSFORMER (132KV/33KV)	01
12	132KV/33KV TRANSFORMER (132KV/33KV)	02

CORE NO.	APPLICATION	PRIMARY CURRENT	SECONDARY CURRENT	ACCURACY CLASS	BURDEN (VA)
1	METERING	400-200A	5A	0.2S	20
2	PROTECTION	400-200A	1A	PS	-

CORE NO.	APPLICATION	PRIMARY CURRENT	SECONDARY CURRENT	ACCURACY CLASS	BURDEN (VA)
1	METERING	1200-600-400A	1A	0.2S	20
2	METERING	1200-600-400A	1A	0.2S	20
3	PROTECTION	1200-600-400A	1A	PS	-
4	PROTECTION	1200-600-400A	1A	PS	-

CORE NO.	APPLICATION	PRIMARY CURRENT	SECONDARY CURRENT	ACCURACY CLASS	BURDEN (VA)
1	METERING	1200-600-400A	1A	0.2S	20
2	METERING	1200-600-400A	1A	0.2S	20
3	PROTECTION	1200-600-400A	1A	PS	-
4	PROTECTION	1200-600-400A	1A	PS	-

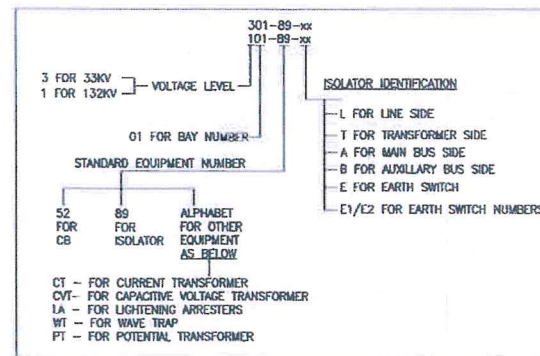
CORE NO.	APPLICATION	PRIMARY CURRENT	SECONDARY CURRENT	ACCURACY CLASS	BURDEN (VA)
1	METERING	1200-600-400A	1A	0.2S	20
2	METERING	1200-600-400A	1A	0.2S	20
3	PROTECTION	1200-600-400A	1A	PS	-
4	PROTECTION	1200-600-400A	1A	PS	-

132KV RELAY DETAILS

SR. NO.	FEEDER NAME	RELAY TYPE	PROTECTION/CONTROL FUNCTION
01	132KV Line Protection Panel	REL670 Make 30A/100V	21/27N - Line distance protection 60 - Line fault protection 67N - Directional LV protection 67/67N/50V - Overcurrent/Earth fault 27 - Under Voltage protection 59 - Over Voltage protection 85 - Carrier Scheme communication 88 - Power Swing Block 45 - Broken Conductor SCDF, fault location, line, event logger, protection, IEC 61850. Communication Rear port: 2 No LC, MM, FO (for SCADA communication) Front port: RJ45 port (for relay parameterization) 24 Binary Inputs and 35 Binary Outputs
02	33KV Transformer Bay protection panel	REL670 Make 30A/100V	67/67N - Directional Overcurrent and earth fault protection 27 - Under Voltage protection 78 - Autorestore Protection: IEC 61850. Communication Rear port: 2 No LC, MM, FO (for SCADA communication) Front port: RJ45 port (for relay parameterization) 24 Binary Inputs and 48 Binary Outputs
03	33KV Busbar protection panel	REL670 Make 30A/100V	67/67N - Directional Overcurrent and earth fault protection 27 - Under Voltage protection 78 - Autorestore Protection: IEC 61850. Communication Rear port: 2 No LC, MM, FO (for SCADA communication) Front port: RJ45 port (for relay parameterization) 24 Binary Inputs and 48 Binary Outputs

33KV RELAY DETAILS

SR. NO.	FEEDER NAME	RELAY TYPE	PROTECTION/CONTROL FUNCTION
01	33KV Line protection	75/621 Make 30A/100V	50/51/50N/51N - Overcurrent and earth fault protection Protocol: IEC 61850. Communication Rear port: 2 No LC, MM, FO (for SCADA communication) Front port: RJ45 port (for relay parameterization) 24 Binary Inputs and 14 Binary Outputs
02	33KV 1/1 protection	75/621 Make 30A/100V	50/51/50N/51N - Overcurrent and earth fault protection Protocol: IEC 61850. Communication Rear port: 2 No LC, MM, FO (for SCADA communication) Front port: RJ45 port (for relay parameterization) 24 Binary Inputs and 14 Binary Outputs
03	33KV Capacitor bank protection	75/621 Make 30A/100V	50/51/50N/51N - Overcurrent and earth fault protection Protocol: IEC 61850. Communication Rear port: 2 No LC, MM, FO (for SCADA communication) Front port: RJ45 port (for relay parameterization) 24 Binary Inputs and 14 Binary Outputs



AUXILIARY SUPPLY

- AC 400V, 3PHASE, 4 WIRE, 50Hz
230V, 1PHASE, 2 WIRE, 50Hz
SOLIDLY EARTHED
VOLTAGE VARIATION +10% to -20%
FREQUENCY VARIATION +5% to -5%
- DC: 110V, 2 WIRE UNEARTHED
VOLTAGE VARIATION 1.0%

NOTES

1. BAY NUMBERING FORMAT AS FOLLOWS: FIRST DIGIT: VOLTAGE LEVEL (1 FOR 132KV, A FOR 33KV), SECOND/THIRD DIGIT: BAY NUMBER, REST OF THE DIGIT: EQUIPMENT NUMBER
2. THIS SLD INDICATES ONLY MAJOR EQUIPMENTS & ADOPTED CT RATIO ARE SHOWN, HOWEVER PROTECTIVE RELAYS SHALL BE SHOWN IN A SEPARATE SLD.
3. PHASES & DPT OF WAVE SHALL BE IDENTIFIED AS PER RELAY LND.
4. MANUAL/LOCAL EARTH TO BE USED TO EARTH THE TRAP CHARGE BEFORE EQUIPMENT/BUS MAINTENANCE.

ELECTRICAL PARAMETERS FOR WHICH THE SYSTEM IS DESIGNED:

DESCRIPTION	VALUE	VALUE
SYSTEM OPERATING VOLTAGE (KV)	132	33
MAXIMUM OPERATING VOLTAGE OF SYSTEM (KV RMS)	145	36
RATED FREQUENCY	50	50
NO. OF PHASES	3	3
BASIC IMPULSE WITHSTAND VOLTAGE (KV) (1.2/50 MICROSEC.)	650	250
a) FOR TRANSFORMERS (KV)	650	170
b) FOR OTHER EQUIPMENTS (KV)	775	70
ONT MIN. POWER FREQUENCY DRY & WET WITHSTAND VOLTAGE (KV RMS)	105	NA
CORONA EXTINGUISH VOLTAGE (KV)	500	NA
MAXIMUM FOR 0.5MIN TO 2 MIN (MICRO VOLT)	3675	900
MIN. CREEPAGE DISTANCE (MM/KV)	40A	25A
MAX. FAULT CURRENT	1 SEC	3 SEC

PROJECT:	Development of intra state transmission transmission work in MP through Package 1						
OWNER:		MP Power Transmission Package -1 Ltd					
NODAL AGENCY:		State Transmission Utility (MP)					
CONTRACTOR:		MEGHA ENGINEERING INFRASTRUCTURE LIMITED					
CONSULTANT:	AUPTC		Advanced Ultra Power Transmission Consultancy				
TITLE:	Single line diagram for 132/33kV substation at AMBAZA (District-ALIRAJPUR)						
		16.01.2025					
DRAWING NO.	AUPTC/MEIL/AMBAZA/SLD/001			SH.No.	1	REV.	01
DESIGNED BY	PRIYANSHU	CHECKED BY	GH	SUBMITTED BY	RAJESH	SHEET SIZE	A-1

