

TENDER DOCUMENTS

FOR

(PRICE BID – PART 2)

FOR

EXTERNAL ELECTRICAL TENDER

AT

**INDIAN INSTITUTE OF TROPICAL
METEOROLOGY,PASHAN,
PUNE.**

Summary Sheet

PROJECT : -IITM HPC Upgradation
CLIENT : -Indian Institute of Tropical Meteorology
WORK : -Internal & External Electrical Work

DESCRIPTION	Supply AMOUNT Rs. Ps.	Installation AMOUNT Rs. Ps.
SECTION - 'I' : RS. HT Work & Substation		
SECTION - 'II' : RS. Earthing & Lightning Protection		
SECTION - 'III' : RS. M. V. Panels and Distribution Boards.		
SECTION - 'IV' : RS. M.V. Cables		
SECTION - 'V' : RS. Point Wiring, Mains & Fixtures		
SECTION - 'VI' : RS. External & Landscape Lighting		
TOTAL : RS.		

PROJECT : – IITM HPC Upgradation
CLIENT : –Indian Institute of Tropical Meteorology
WORK : –Internal & External Electrical Work

Bill of Quantity

Item No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
	SECTION -I						
	HT Work & Substation						
1.0	Supply, testing, tagging, laying, & commissioning of following 22 kV grade XLPE cable including excavation of in all types of strata upto 1000mm deep except hard rock, sand cushioning of 75mm, laying bricks on both sides of cable & covering with RCC / PCC tiles or half round hume pipe of 200 mm dia and refilling of cable trench, leveling of cable trench etc. as required. (Note: Quantity is tentative as MSEDCL / SEB tap of point is not decided). (Only Hard rock excavation shall be measured separately).						
1.1	3C x 240 Sq.mm. HT XLPE Cable.	Rmt	UR				
2.0	As above but in readymade trenches / RCC pipes / trays..						
2.1	3C X 240 Sq.mm. HT XLPE Cable.	Rmt	840				
3.0	Supply, installation, testing & commissioning of heat shrink jointing for 22kV cables of following sizes including necessary accessories, spider supports, plated hardware like lugs / ferrules, Insulation tapes etc. complete "Raychem" make or similar equivalent make. Scope also includes making suitable cutouts in gland plate & sealing them after connections.						
3.1	3C X 240 Sq.mm. HT XLPE Cable.						
3.1.1	Straight through Joints	Set	UR				
3.1.2	Outdoor End Termination.	Set	2				
3.1.3	Indoor End Termination.	Set	12				
4.0	Dismantling, Removing ,Shifting & handing over of Existing 11KV 3C X 120 Sq.mm. HT XLPE Cable.Approx. distance(265 mtrs.) (Location: Metering Room To Substation) to the store department of IITM	Job	1				

Item No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
5.0	Supply and Installation, testing and commissioning of 22 kV compact indoor type metering Kiosk mounted on plinth with necessary supporting structure consisting of CT/PT units with Provision for installation of Electronic Time of Day metering system as per MSEDCL / SEB requirements, metering instruments, CTPT units should be duly tested for calibration and Class 1 accuracy of suitable ratio.	No.	UR				
5.1	Supply, Installation, testing & commissioning of MSEDCL / SEB approved and duly tested Electronic TOD meter of appropriate class and accuracy (As far as possible the meter should be obtained from MSEDCL / Local power supply company.)	No.	UR				
6.0	Removing of Existing 11KV compact indoor type metering / Kiosk mounted on plinth with necessary supporting structure withTVM / TOD meter along with CT/PT unit as per MSEDCL requirements (Location: Metering Room Near Entrance Gate) scope shall include handing over the said equipment to the store department of client	Job	UR				
OR							
7.0	Supply and Installation, testing and commissioning of 22 kV compact indoor type metering Kiosk (1 Set) mounted on plinth with necessary supporting structure consisting of CT/PT units with Provision for installation of Electronic Time of Day metering system as per MSEDCL / SEB requirements, metering instruments, CTPT units should be duly tested for calibration and Class 1 accuracy of suitable ratio. ON REPLACEMENT WITH Existing 11KV compact indoor type metering / Kiosk mounted on plinth with necessary supporting structure withTVM / TOD meter along with CT/PT unit as per MSEDCL requirements (Scope shall Include Buy Back & Removal of kiosk Location: Metering Room Near Entrance Gate)	Job	1				
7.1	Supply, Installation, testing & commissioning of MSEDCL / SEB approved and duly tested Electronic TOD meter of appropriate class and accuracy (As far as possible the meter should be obtained from MSEDCL / Local power supply company.)	No.	1				

Item No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
8.0	Installation, testing & commissioning of 22 kV, free standing dust and verminproof metal enclosed, breaker panel SF6 / VCB, necessary CT / PT units, Digital meters, indications and protection system consisting of EF & OC relays, Aux. relays, master trip relay, antipumping relay trip circuit supervision relay and any such relays, required for protection functions, window annunciation etc. as per specifications.						
8.1	1 Incomer 630 A VCB/SF6 Breaker, 25kA and 4 No.Outgoings 630 A VCB/SF6 Breaker, 25 kA transformer feeder panel as per SLD drawing No. 810A/FL/2.1	No.	1				
9.0	Installation, Testing & Commissioning of 22kV indoor type Compact type RMU , 2 Nos 630 A, 25 kA Load Break switch as incomer with mechanical interlock & 1 No. 630A, 25 kA VCB/SF6 Compact Breaker as outgoing with Earth Switch with connection facility suitable for termination of HT XLPE Cables of size 3C x 240 sq.mm. with necessary sleeves & boots complete as per SLD & Specification.	No.	1				
10.0	Installation Testing & Commissioning of Indoor type 22kV, 25 kA, 630A VCB/SF6, Single feeder Compact Breaker, floor mounting cubical type manufactured as per 22 kV switchgears requirements, specifications and I.S. standards connection facility for incoming 3C x 240 sq.mm. 22 kV XLPE cable complete as per set SLD & specification.(Equivalent to Make: Merlin Gerin (Schneider Electric RM6 24 kV)	No.	1				
11.0	Supply, installation, testing & commissioning of 110V DC control supply arrangement for 1 Incoming & 4 Outgoing breaker panel with 1 ph 230 V low input battery charger cum supply and low maintenance 60AH battery backup with outgoing MCB's 3 Nos. complete.	No.	1				
12.0	Installation, Testing & Commissioning of outdoor type 1600kVA, 22000V/433Volt, Dyn11, Oil cooled ONAN type Distribution Transformer with accessories like Conservator tank, Bucholz's relay, PRV, OSR, Oil temp Indicator With OLTC/ RTCC panel, and cable End Box on HT side, Busduct termination On LT side.	Nos.	2				
13.0	Supply, installation, of material equipment required as per statutory provision & safety.						
13.1	22 KV class Handgloves.	Set	2				

Item No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
13.2	Laminated First aid chart with frame.	No.	2				
13.3	First aid box.	No.	2				
13.4	3 Nos. of Fire buckets with stand.	Set	2				
13.5	4.5 Kg. Co2 fire extinguisher mounted on wall with stand.	Set	2				
13.6	22 KV grade Rubber matting 1000 mm width.	Rmt	40				
13.7	22 KV Dangerboards of appropriate size & marking.	No.	10				
14.0	Third party testing of entire HT installation from approved testing vendor which will include pressure testing of all cables after jointing, testing and setting of relays including secondary injection, polarity, metering & indication earth station, megger testing and overall precommissioning checking of HT installation.	Job	1				
15.0	Excavation of road for cables upto a depth of 1200mm maximum and refilling with excavated material after cable laying, reinstating etc. complete.	M ³	UR				
TOTAL OF SECTION -I							

Item. No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
	SECTION -II						
	Earthing & Lightning Protection						
1.0	Supply & making following Earthing station as per IS 3043 by using GI plate / Cu. plate / Pipe earthing as electrode complete with watering pipe, 50 x 6 mm connecting GI strip up to chamber, soil treatment with charcoal & salt / bentonite powder brick inspection chamber of suitable size with 400 x 400 mm, CI cover, disconnecting link complete including excavation of earth pit in all type of strata, refilling as detailed below.						
1.1	Earthing station as above but using 600mm X 600mm X 6mm GI. Plate as electrode complete.	Set	UR				
1.2	Earthing station as above but using 600mm X 600mm X 3mm thick Cu. plate as electrode complete.	Set	UR				
1.3	As above but bore earthing with 6.5 mtr. long 100mm dia GI pipe earth electrode treatment with bentonite as earth powder complete including 150 mm dia boring.	Set	UR				
1.4	Earthing as above but using maintenance free earth electrode with chemical treatment 3mtr long Ashlok CAT NO. T39 / Alltec / UES make or equivalent. Including boring of hole upto 6.5 mtrs in all types of strata as required.	Set	18				
2.0	Supply, installation, testing of brass 5 spike Lightning arrester with stem and fixing arrangement with accessories.	Set	1				
2.1	Supply, installation, testing of disconnecting link box for Lightning down conductor at 1mtr. from GL with SMC insulator & Gunmetal disconnecting link of 6mm size width equal to down conductor and 250mm long with bolting arrangement for brass bolts & nuts of 12mm Ø complete as required.	Set	1				
3.0	Supply, tagging, laying, or fixing, testing of GI / CU earthing strip / wire in ground at a depth of 600mm including excavation in all type of strata except hard rock or in readymade trenches with necessary clamps, revette jointing as per specification complete as required.						
3.1	75mm x 6mm thick GI strip.	Rmt	300				
3.2	50mm x 6mm thick GI strip.	Rmt	100				
3.3	25mm x 6 mm thick GI strip.	Rmt	200				
3.4	25mm x 3 mm thick Cu. strip.	Rmt	20				

Item No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
3.5	25mm x 3 mm thick Cu. Strip with Heat shrink PVC sleeve for UPS Earthing.(For 60 kVA UPS)	Rmt	120				
3.6	25mm x 3 mm Cu. Strip down conductor mounted on SMC insulator for Lightning Arrestor.	Rmt	60.0				
3.7	8 SWG GI wire.	Rmt	100.0				
3.8	12 SWG GI wire .	Rmt	150.0				
4.0	Supply and installation of earth busbar box consisting of 50 x 6 mm size, 300mm long GI. Strip with multiple tapping and nut bolt arrangements etc. mounted on SMC insulators.	Nos.	2				
TOTAL OF SECTION -II							

Item No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
	SECTION -III						
	M. V. Panels and Distribution Boards.						
1.0	Supply, installation, testing & commissioning of MV panel boards compartmental cubicle type freestanding with appropriate cable entries, front operating, front maintained wherever required complete with base frame etc. as required and as per IS 8623 specifications. Panel has to be fabricated out of 14 / 16 SWG CRCA sheet, and surface treated with phosphating seven tank process and duly powder coated with RAL 7032 or any approved color. (Refer Single Line Diagram vide drg. no 810A/EL/2.1 for Switchgear and other details).						
1.1	Main LT Panel.	No.	1				
1.2	RTPFC with reactors. 600 kVAR (550V Grade capacitors.)	No.	2				
1.3	UPS Outgoing Panel -1	No.	1				
1.4	UPS Outgoing Panel -2	No.	1				
1.5	UPS Panel (60 kVA Outgoing Panel)	No.	1				
1.6	AC Panel HPC 68 TF	No.	1				
1.7	Substation DB	No.	1				
1.8	Chiller Motor DB	No.	1				
1.9	DB	No.	UR				
2.0	Engineering, Shop drawing, Supply, installation, testing & commissioning of Indoor/ Outdoor Al. conductor sandwich type busducts from transformer / D.G. Sets to panels including necessary accessories, bends, phase crossover, flexible busbar connections & flange arrangement at both ends with earthing as required. Each length is partially outdoor & partially indoor.						
2.1	2000 Amp 3Ø+N. AL. Busduct (Indoor)	Rmt.	18				
2.2	2500 Amp 3Ø+N. AL. Busduct (Outdoor)	Rmt.	16				
3.0	Supply, installation, testing, tagging, (Circuit numbering) and commissioning of following double door readymade recessed type MCB, DB, fabricated out of CRCA sheet and painted with powdercoating process OR made out of scratch proof polycarbonate body, and concealed in wall, or on surface with necessary frame complete as required.						
3.1	2 Way TPN DB with 25 A 4P RCCB 100mA Incomer and 10/20 A SP MCB as outgoing (as per SLD).(Substation Lighting DB)	No.	1				
3.2	6 Way TPN DB with 40 A 3P MCB as I/C and 10 A & 20 A SP/TP MCB as outgoing Complete as PSDB (as per SLD).	No.	UR				

Item No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
4.0	Removal of Existing ATS 400A from Existing Main LT Panel 8.4 TF & Shifting to AC Panel HPC 68.4 TF as per Diagram vide drg. no 810A/EL/2.1	Job	1				
5.0	Supply, fixing, testing of good quality following readymade modular Power sockets with switch, in readymade modular box with switch plate. Box should be suitable to terminate cables / wires easily, complete as required.						
5.1	1no. 6 / 16A, 3pin round pin socket with shutter & switch.	No.	UR				
5.2	1no. 13A, 3pin Flat pin socket with shutter & switch.	No.	UR				
5.3	1no. 6A, 3pin round pin socket with shutter & switch.	No.	UR				
6.0	Supply, fixing, testing, of good quality industrial sockets with MCB's / MCB isolators MCCB's of different ratings in readymade IP 20 metal enclosure. Box should be suitable to terminate cables / wires easily, complete as required.						
6.1	20A 1Ø Socket with 20A SP MCB in a Readymade Box.	No.	2				
6.2	32A, 3Ø Socket outlet with 32A TPMCB in readymade metal enclosure.	No.	2				
6.3	160 A TP MCCB in a Readymade box.	No.	1				
6.4	250 A TP MCCB in a Readymade box.	No.	UR				
6.5	400 A TP MCCB in in sheet steel enclosure with 'ON' indication lamp & necessary control MCB. Including cable termination provision.	No.	6				
6.6	DOL starter suitable for 5 - 7.5 Hp motors.	No.	UR				
	TOTAL OF SECTION -III						

Item No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
	SECTION -IV						
	M.V. Cables						
1.0	Supply, testing, tagging, laying and commissioning following sizes of 1100 Volt grade, XLPE / PVC insulated multistrand Al. / Cu. Conductor armoured / unarmoured cables (As Per IS 1554 & IS 7098) in readymade RCC trench, in provided PVC pipe, RCC pipe hume pipe, on cable trays / ladders etc. as. required complete with clamps for fixing tagging etc.						
1.1	3.5C x 300 Sq.mm. A2XFY cable.	Rmt	3200				
1.2	3.5C x 240 Sq.mm. A2XFY cable.	Rmt	2380				
1.3	3.5C x 150 Sq.mm A2XFY cable.	Rmt	320				
1.4	3.5C x 120 Sq.mm. A2XFY cable.	Rmt	5000				
1.5	3.5C x 70 Sq.mm. A2XFY cable.	Rmt	80				
1.6	3.5C x 35 Sq.mm A2XFY cable.	Rmt	UR				
1.7	4C x 16 Sq.mm. AYFY cable.	Rmt	40				
1.8	4C x 10 Sq.mm. YWY cable.	Rmt	240				
1.9	4C x 6 Sq.mm. AYFY cable.	Rmt	300				
1.10	4C x 6 Sq.mm. YWY cable.	Rmt	UR				
1.11	4C x 4 Sq.mm. YWY cable.	Rmt	120				
1.12	4C x 2.5 Sq.mm. YWY cable.	Rmt	300				
1.13	12C x 2.5 Sq.mm. YWY cable.	Rmt	UR				
1.14	10C x 2.5 Sq.mm. YWY cable.	Rmt	150				
1.15	1C x 50 Sq.mm. YY cable.	Rmt	250				
1.16	1C x 185 Sq.mm. YY cable.	Rmt	1500				
2.0	End termination for above cables including glands Brass heavy duty, lugs, consumable etc. (End terminations for flexible cables will not be considered separately).						
2.1	3.5C x 300 Sq.mm. A2XFY cable.	Nos.	32				
2.2	3.5C x 240 Sq.mm. A2XFY cable.	Nos.	52				
2.3	3.5C x 150 Sq.mm A2XFY cable.	Nos.	2				
2.4	3.5C x 120 Sq.mm. A2XFY cable.	Nos.	36				
2.5	3.5C x 70 Sq.mm. A2XFY cable.	Nos.	2				
2.6	3.5C x 35 Sq.mm A2XFY cable.	Nos.	UR				
2.7	4C x 16 Sq.mm. AYFY cable.	Nos.	2				
2.8	4C x 10 Sq.mm. YWY cable.	Nos.	4				
2.9	4C x 6 Sq.mm. AYFY cable.	Nos.	30				
2.10	4C x 6 Sq.mm. YWY cable.	Nos.	UR				
2.11	4C x 4 Sq.mm. YWY cable.	Nos.	6				
2.12	4C x 2.5 Sq.mm. YWY cable.	Nos.	12				
2.13	12C x 2.5 Sq.mm. YWY cable.	Nos.	UR				
2.14	10C x 2.5 Sq.mm. YWY cable.	Nos.	8				

Item. No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
3.0	Excavation of cable trenches upto a depth of 1200 mm maximum and refilling, reinstating the material after cable laying complete including providing crown and disposing spreading material within 500 mtrs.						

Item. No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
3.1	Excavation in Hard Rock / Road.	M ³	50				
4.0	Supply, laying of following different types of pipes in trenches for road crossing, telephone cables etc. complete as required including excavation of trench in all types of strata except hard rock and refilling, leveling of trench, shifting of extra earth or debris to dump yard complete as required.						
4.1	300 mm RCC Pipe.	Rmt.	800.0				
4.2	200 mm RCC Pipe.	Rmt.	UR				
4.3	200 mm PVC Pipe.	Rmt.	UR				
4.4	50 mm HDPE Pipes with concrete encasing.	Rmt.	UR				
4.5	110 mm HDPE Pipes with concrete encasing.	Rmt.	200.0				
5.0	Supply & installation of readymade hot dip GI Ladder type tray, shall have 50mm "C" shape channel and rungs at 200 mm CC including readymade accessories e.g. vertical & horizontal bends, Tee's, rightangles etc..						
5.1	300 mm ladder tray 14 SWG.	Rmt	200				
5.2	450 mm ladder tray 14 SWG.	Rmt	450				
5.3	600 mm ladder tray 14 SWG.	Rmt	UR				
6.0	Supply and installation of readymade hot dip GI perforated trays of following size with 50 mm depth unless otherwise specified including readymade accessories e.g. Vertical, horizontal bends, tee's, rightangles etc.						
6.1	50 mm perforated tray 16 SWG.	Rmt	UR				
6.2	150 mm perforated tray 16 SWG.	Rmt	50				
6.3	300 mm perforated tray 14 SWG.	Rmt	UR				
6.4	450 mm perforated tray 14 SWG.	Rmt	UR				
7.0	Supply and installation of readymade hot dip GI tray covers 16/18 SWG including readymade shape of Vertical & Horizontal Bend, Tee's, Rightangles etc. to suit tray for all vertical runs.						
7.1	50 mm tray cover (18 SWG).	Rmt	UR				
7.2	150 mm tray cover (18 SWG).	Rmt	30				
7.3	300 mm tray cover(18 SWG).	Rmt	UR				
7.4	450 mm tray cover (16 SWG).	Rmt	UR				
8.0	Supply and fabrication of M.S. angle / channel supports for trays, DB panels, frames etc. including necessary painting with 2 coats of primer & 2 coats of enamel paint, & required hardware for fixing of supports etc. complete.	Ka.	2400				

Item. No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
9.0	Supply and installation route markers oval cast iron with 350 mm, 20 mm Ø G.I. pin support cast in 150 x 150 x 150 PCC block.	No.	20				
TOTAL OF SECTION -IV							

Item No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
	SECTION -V						
	Point Wiring, Mains & Fixtures						
1.0	Surface / concealed point wiring for light / fan / call bell / 5A points with 2 x 2.5 + 1 x 1.5 Sq.mm. multistrand ZHLS Cu. conductor wires 1100 V gr. in suitable GI ERW conduits as submains and 2 x 1.5 + 1 x 1.5 Sq.mm. wires for each point each point complete (submains will not be measured separately) with necessary modular switch board, switch plates & accessories complete with testing. Note: All conduit in area with false ceiling shall be concealed below false ceiling. (Substation rooms)						
1.1	Point wiring for light points with necessary 5A SP switch, ceiling rose / Holders complete. (Maximum 2 points controlled by one switch).	Pt.	33				
1.2	Point wiring for light points with ceiling rose complete with MCB (Switching will be from respective lighting DB).	Pt.	10				
1.3	Fan point with 5A SP Switch, Ceiling Rose, with electronic step Regulator (modular).	Pt.	UR				
1.4	Ex. Fan point with 5A SP Switch.	Pt.	4				
1.5	5A 3 pin socket outlets on board (Modular).	Pt.	2				
1.6	Point wiring as above but for 5A + 15 A socket with 2 x 2.5 Sq.mm. + 1 x 1.5 Sq.mm. Cu. wires from DB including socket & switch . In case 2 points looped on one circuit 2 x 4.0 + 1 x 2.5 Sq.mm. Cu. wiring shall be done upto 1st point.	Pt.	2				
2.0	Supply & Installation of suitable guage GI / 2 mm thick FR PVC conduit of following sizes including all accessories e.g. deep junction box, bends etc. for concealing in slab / wall & spacer saddles for open on slab / wall.						
2.1	32 mm dia FRPVC.	Rmt	UR				
2.2	25 mm dia GI.	Rmt	300				
3.0	Supply, installation, testing & commissioning of lighting fixtures (with suitable controlgear, electronic controlgear for fluorescent) / fans / Ex. Fans etc. including necessary accessories, lamps, wiring connection chain, down drops, supports etc.						
3.1	1 x 40 Watt Industrial type suspended fixtures Complete as required (Wipro Cat. No. Optima WIF14140 or equivalent.) with electronic controlgear.	No.	UR				
3.2	2 x 40 Watt Industrial type suspended fixtures. (Wipro Cat. No. Optima WIF14240 or equiv.) with electronic controlgear.	No.	33				

Item. No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
3.3	70 W HPSV integral well glass fixture (Wipro Cat. No WWS 62070 or Equivalent)	No.	10				
4.0	Supply, installation, testing & commissioning of 305 mm exhaust fan with frame and protection louvers including all hardware etc complete as required.	No.	4				
5.0	Supply, installation, testing & commissioning of 1200 mm sweep ceiling fan & upto 600mm length down rod with canopies.	No.	UR				
TOTAL OF SECTION -V							

Item No.	Description	Unit	Qty.	Supply		Installation	
				Rate	Amount Rs. Ps.	Rate	Amount Rs. Ps.
	SECTION VI						
	External & Landscape Lighting						
1.0	Supply, Installation of 8.5 mtr. tubular poles SP 22 or equivalent complete including excavation of pole pit in all types of strata except hard rock & 1000 x 450 x 450 mm foundation, coupling 2 Nos. 40 mm dia 1500 mm long GI. pipes bend to shape in foundation for cable entry, cable loop box with 15 A 4 way connector, 15 A SP MCB, earthing of pole with 8 SWG wire, painting with 2 coats of primer & bottom with black paint & balance with silver paint.						
1.1	Poles with single bracket.	No.	8				
1.2	Poles with double bracket.	No.	UR				
1.3	Same as above but 10 mtr. Tubular pole SP-42 & fixing arrangement / bracket for 3 Nos. flood lights.	No.	UR				
2.0	Supply, installation, testing & commissioning of street / flood light fixture on above poles with necessary controlgear, lamp, hardware etc. including cable connection box.						
2.1	250 W HPSV weatherproof street light luminaire on above pole with toughened glass cover complete. Wipro Cat. No. WST25250 or equivalent.	No.	UR				
2.2	150 W HPSV weatherproof street light luminaire on above pole with toughened glass cover complete. Wipro Cat. No. WST25150 or equivalent.	No.	8				
3.0	70 MH Integral walkover / drive over fixture including necessary civil enclosure weather proof Junction box / cable loop box (Ref. Wipro Cat. FAD 31070 or equiv.)	Set	UR				
4.0	1 x 13 Watt Fantasy Step light in high resistance thermoplastic with tempered and satin glass diffuser and thermoplastic grill Wipro Cat. No. FSP 42113 or equivalent.	Set	12				
5.0	Supply, Installation, testing & commissioning of Bollard fixture 1 x 18 W CFL lamp and control gear with necessary pedestals for mounting K-Lite make Cat. Ref. No. KLBRPRSLIGCFLC 281 or equivalent.	Set	12				
	TOTAL SECTION -VI						



KEY PLAN

LEGEND

	TRANSFORMER
	VACUUM CIRCUIT BREAKER
	AIR CIRCUIT BREAKER
	MCCB/MCB
	CURRENT TRANSFORMER
	VOLTAGE TRANSFORMER
	220V INCANDESCENT LAMP
	220V SPRING CHARGE LAMP
	220V LED LAMP
	PHASE INDICATING LAMP
	VOLTMETER SELECTOR SWITCH
	FREQUENCY METER
	VOLT METER
	LOAD MANAGER WITH RS485 PORT
	KILO WATT HOUR METER
	AMMETER SELECTOR SWITCH
	AMMETER
	MAIN FUNCTION METER
	INSTANTANEOUS O/C RELAY
	EMF O/C RELAY
	EMF E/F RELAY
	TRIP LOCK SUPERVISION RELAY
	DC SUPERVISION RELAY
	AUX RELAY
	UNDER VOLTAGE RELAY
	OVER VOLTAGE RELAY
	RESTARTABLE E/F RELAY
	LOCK OUT RELAY

- NOTE:
1. ALL METERS AT MAIN PANEL AND INCOMING MAIN DISTRIBUTION BOARD AND AC PANEL SHALL BE WITH RS485 PORT
 2. AUXILIARY CONTACT BLOCK SHALL BE PROVIDED FOR ALL SWITCHGEAR IN MAIN LT PANELS AND INCOMING SWITCHGEAR OF MAIN DISTRIBUTION BOARD AND AC PANEL.
 3. ALL RELEASES FOR SWITCHGEARS MENTIONED IN NOTE-II ABOVE SHALL BE COMMUNICATION CAPABLE.

SUFFIX	DATE	REVISIONS

DWG ISSUED FOR: COMMENTS APPROVAL TENDER ADVANCE COPY RECORD G.P.C

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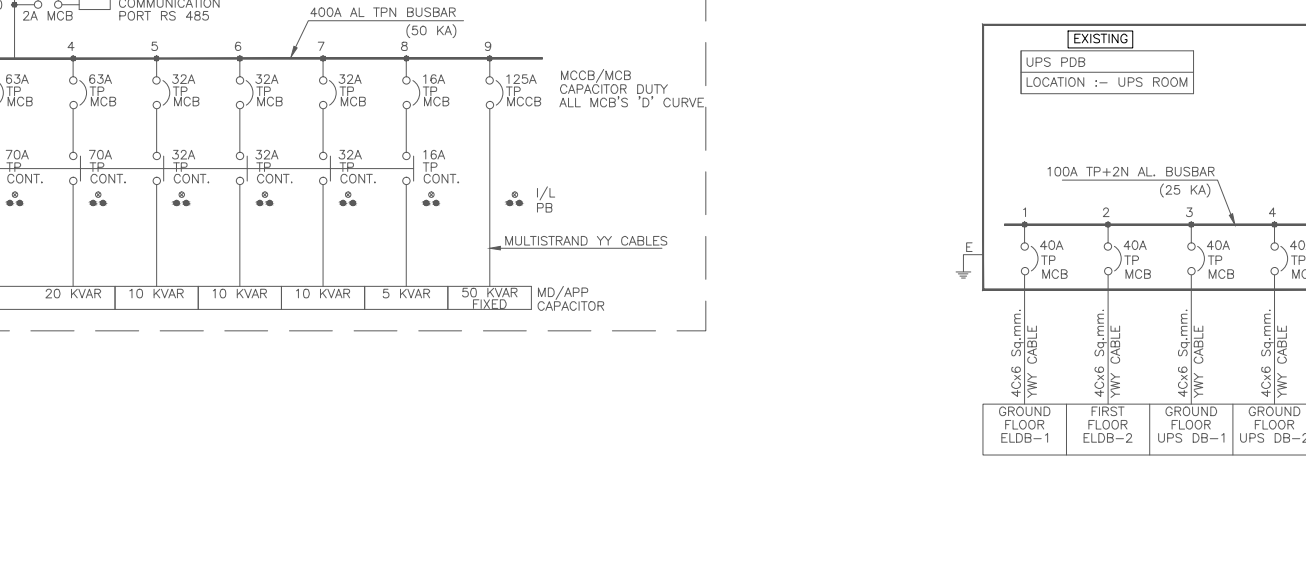
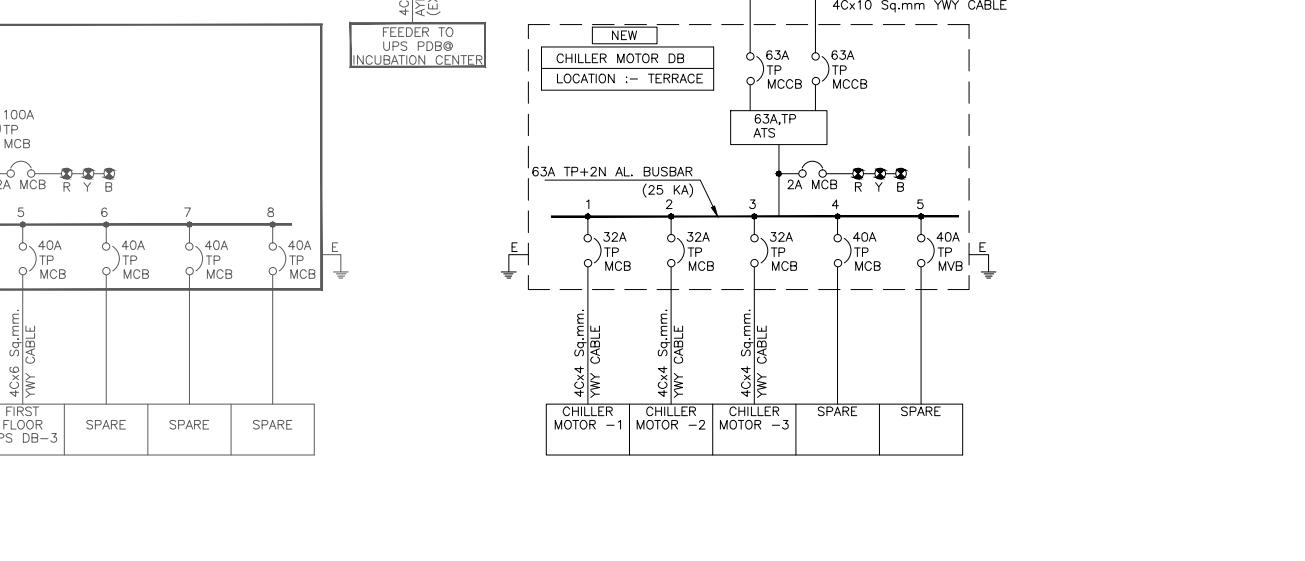
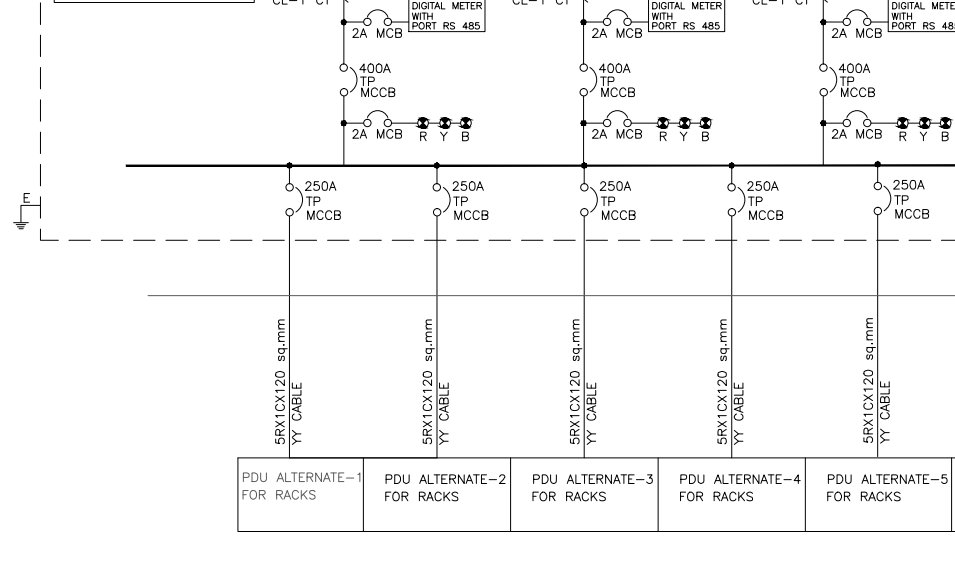
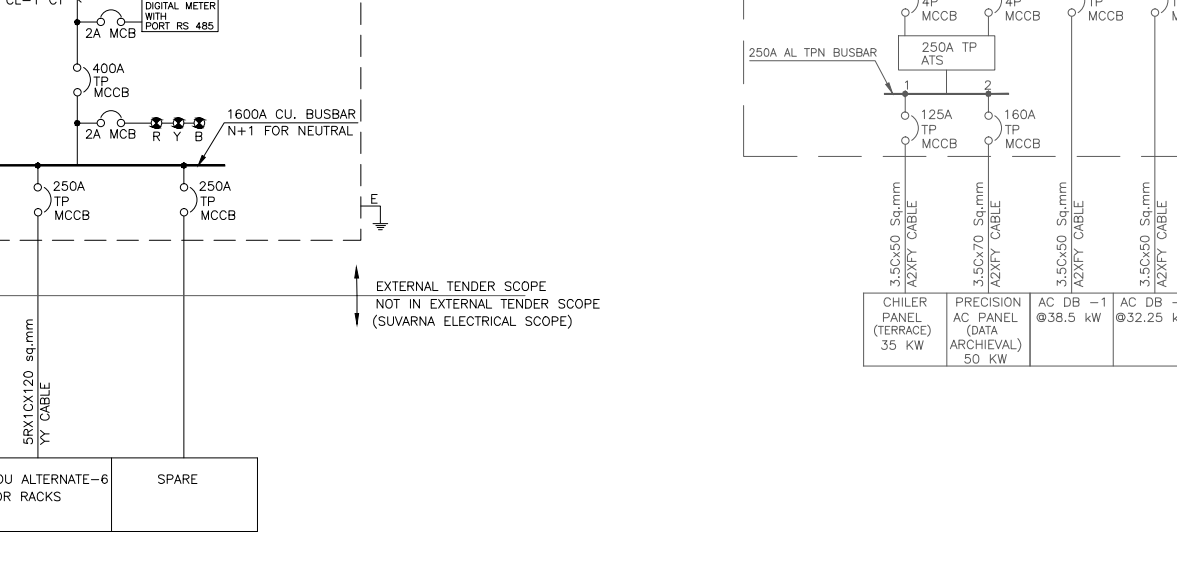
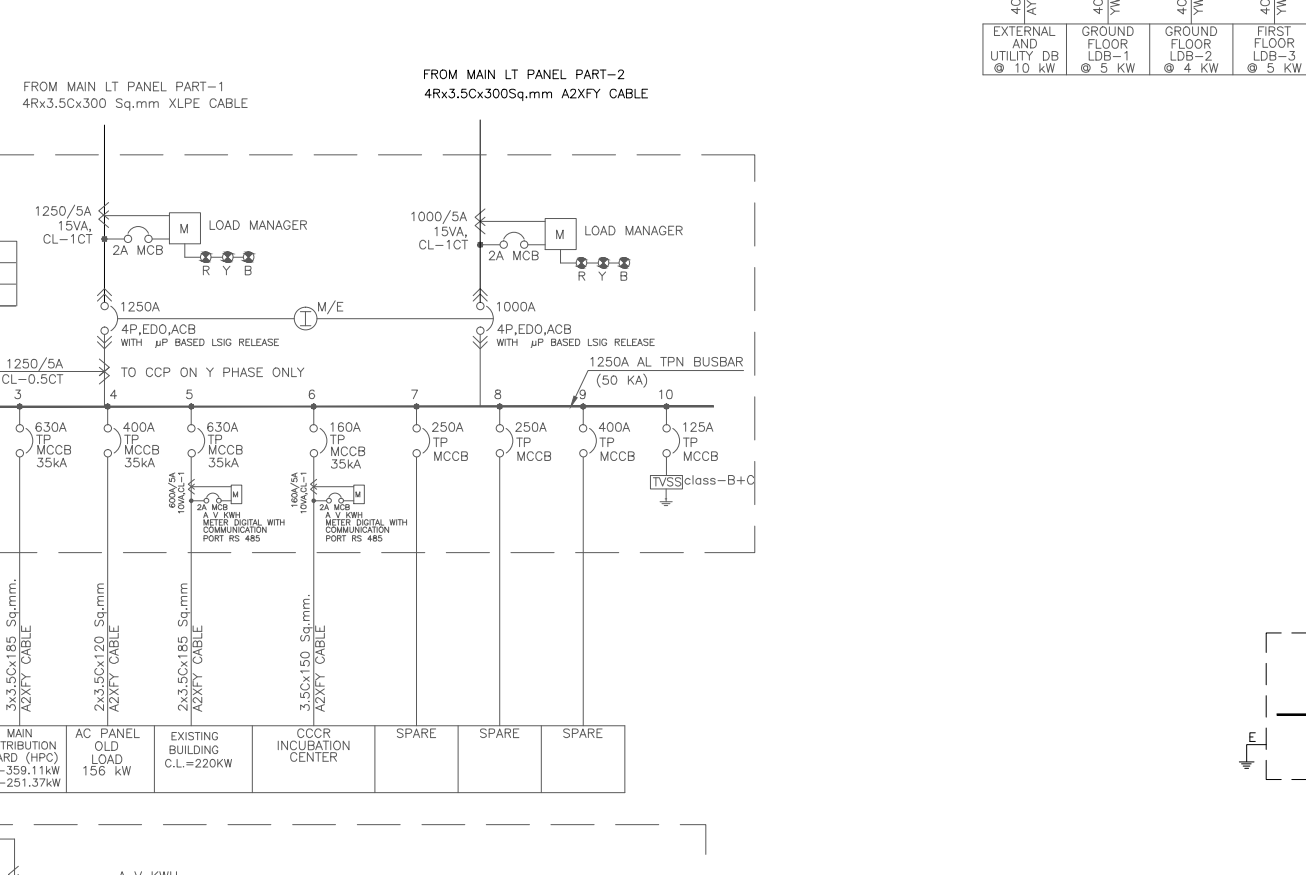
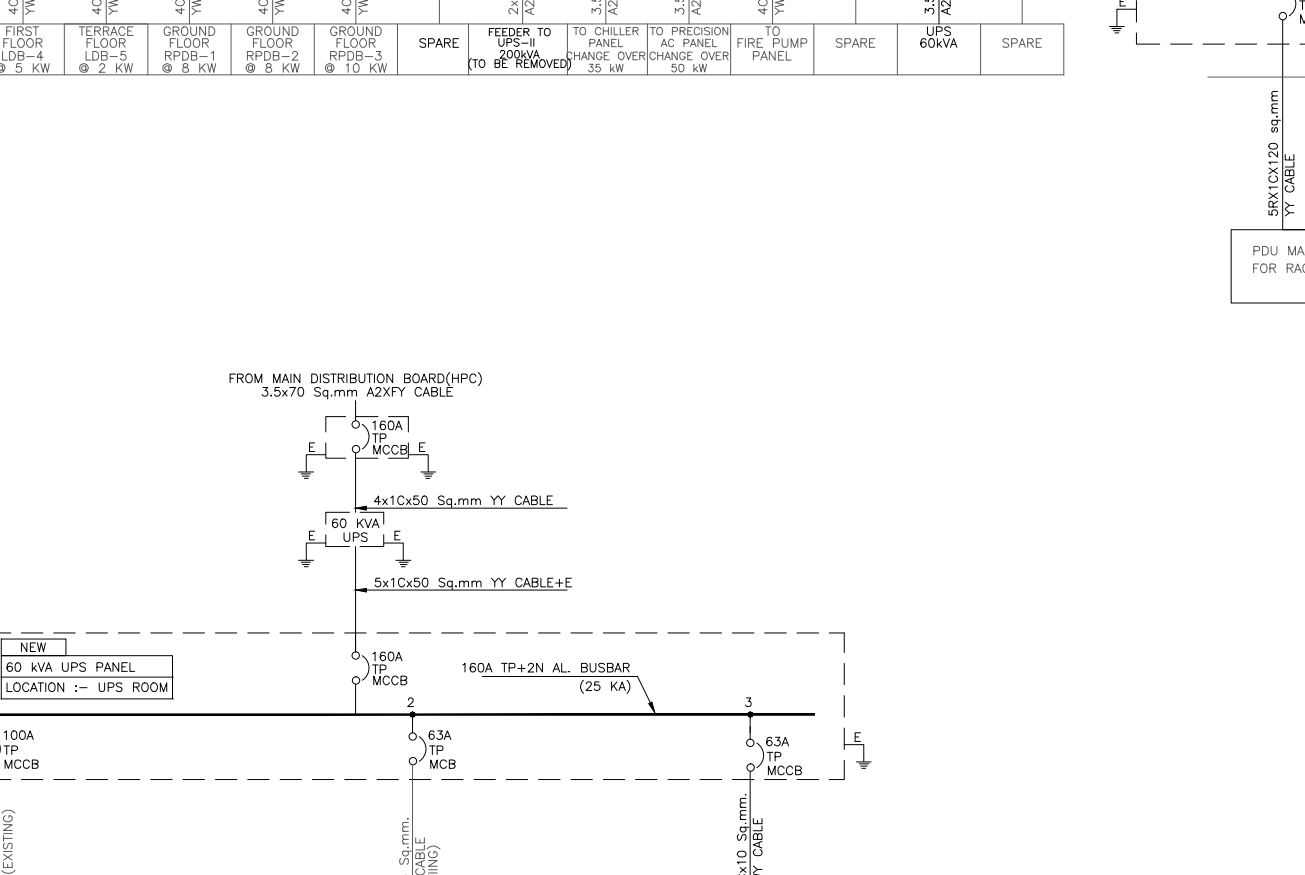
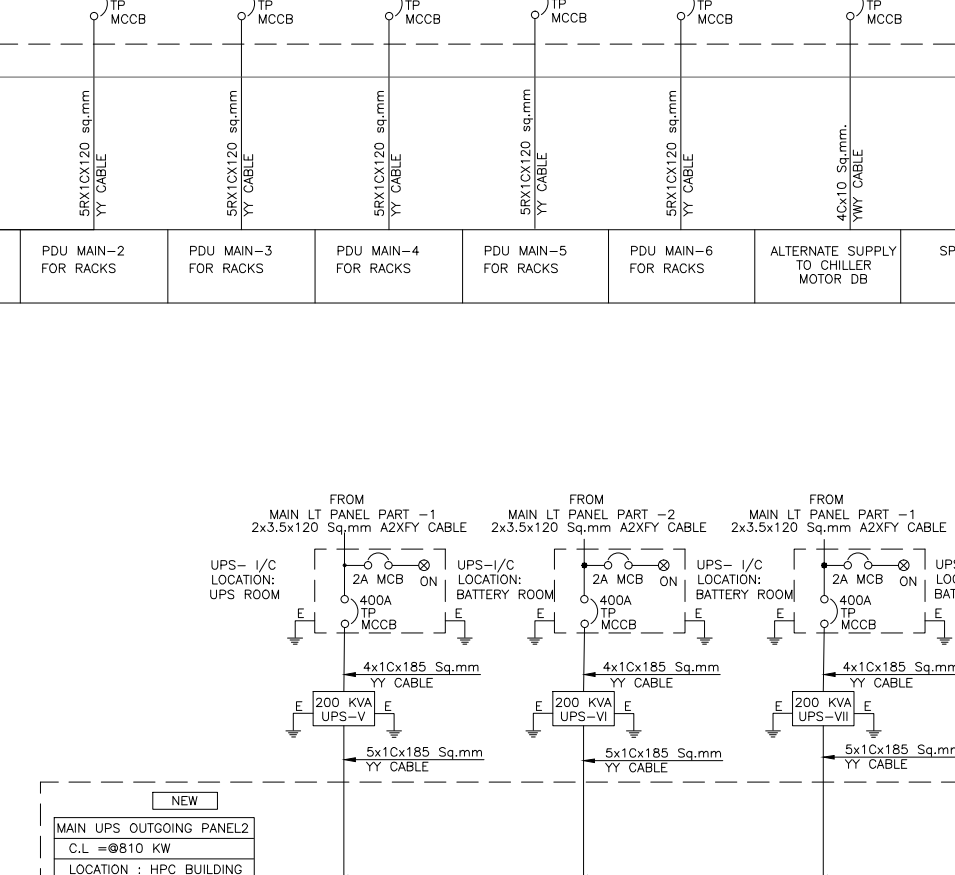
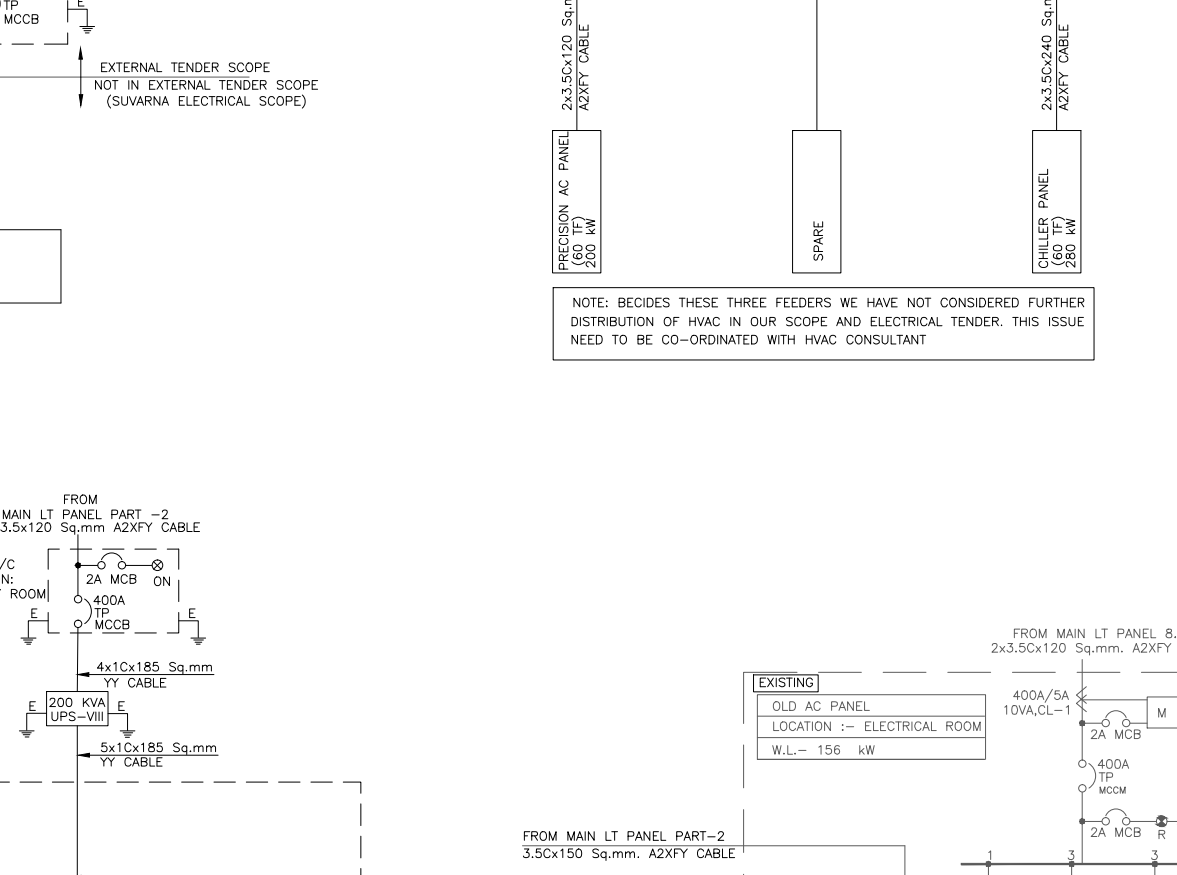
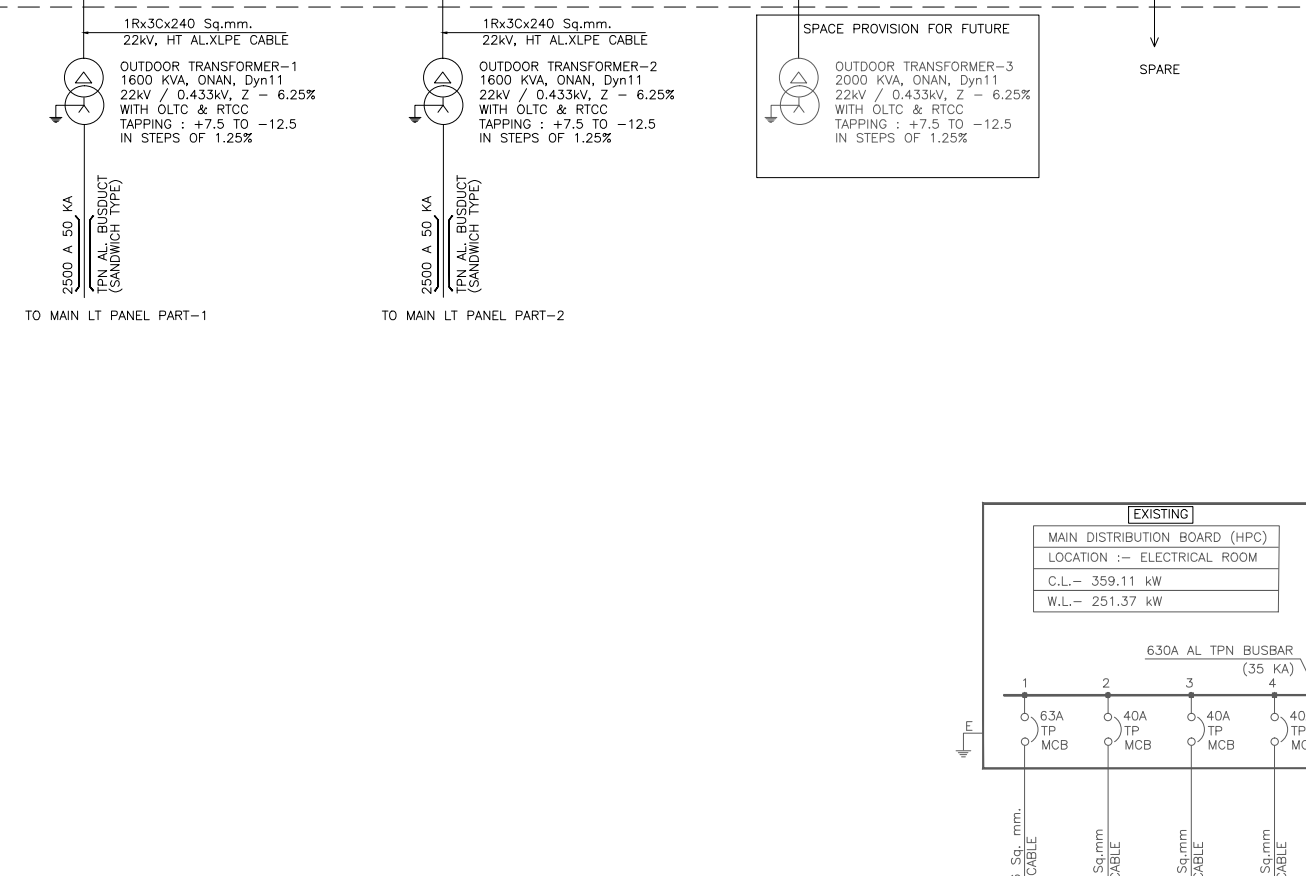
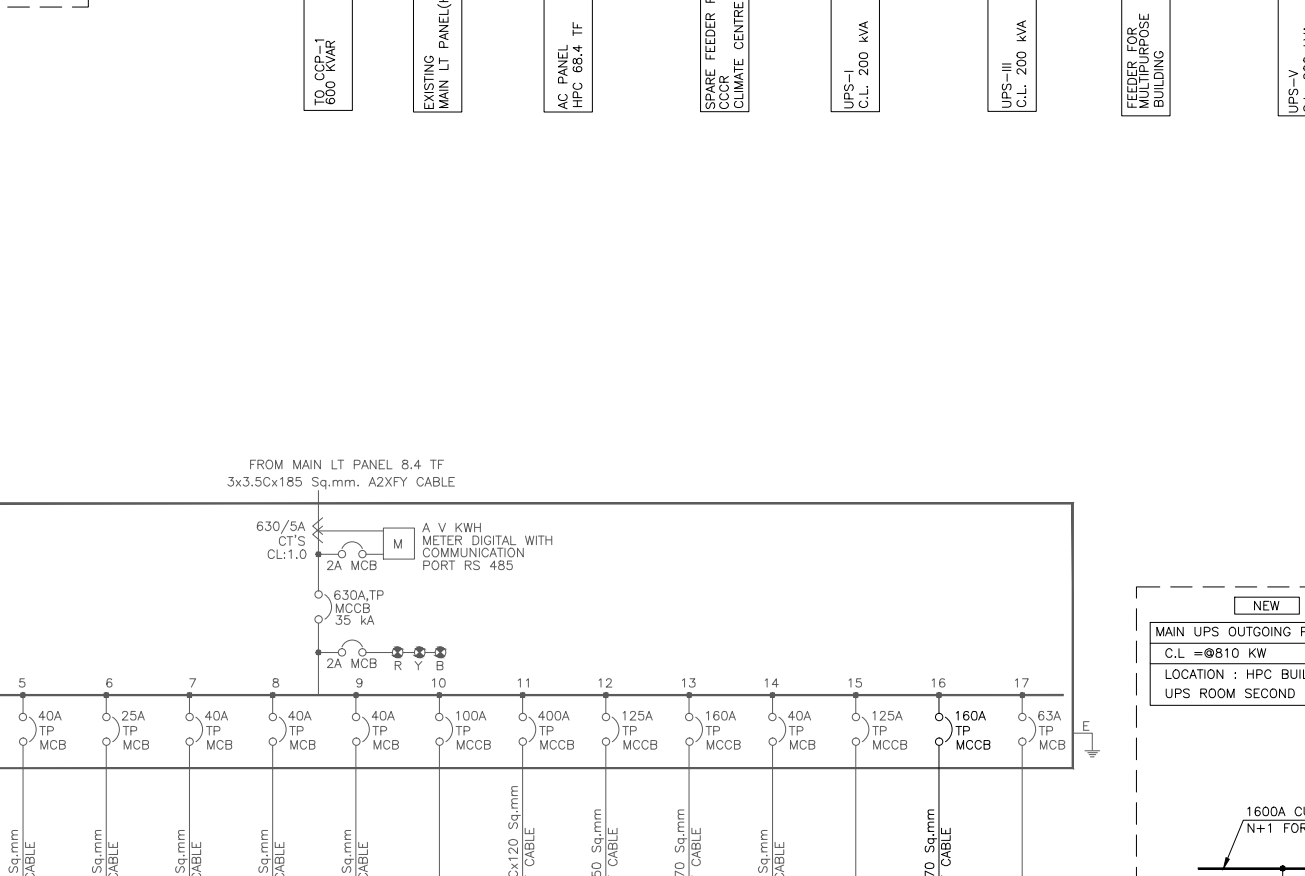
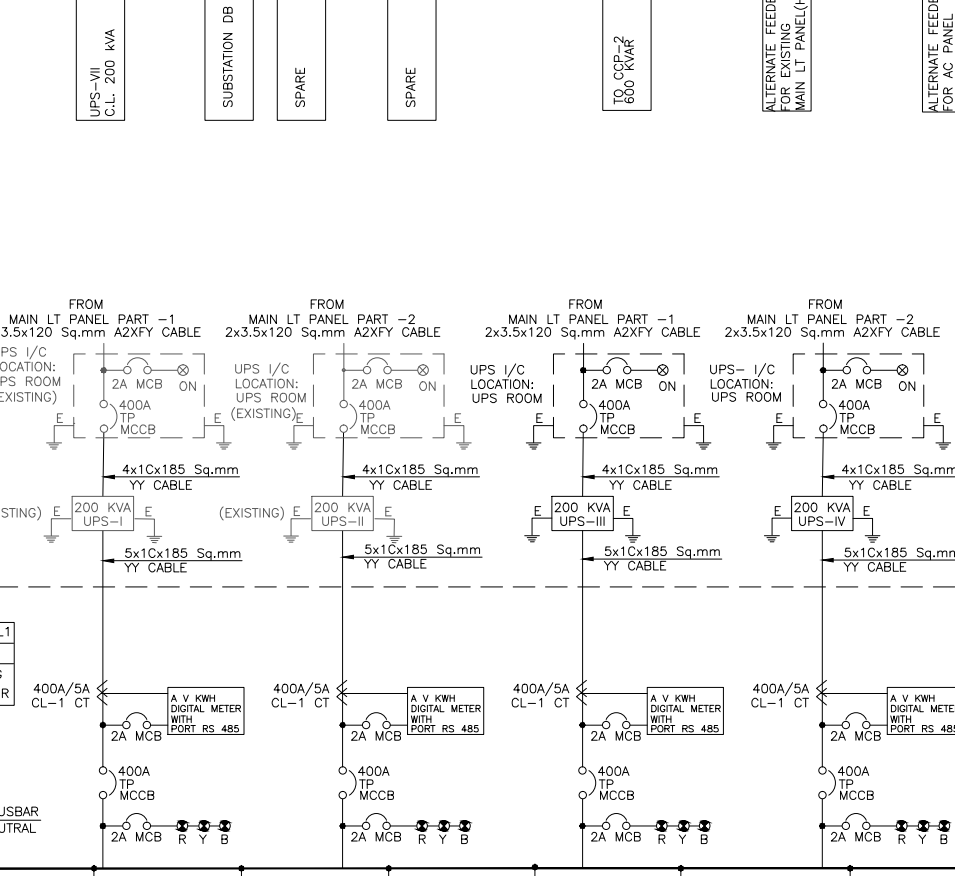
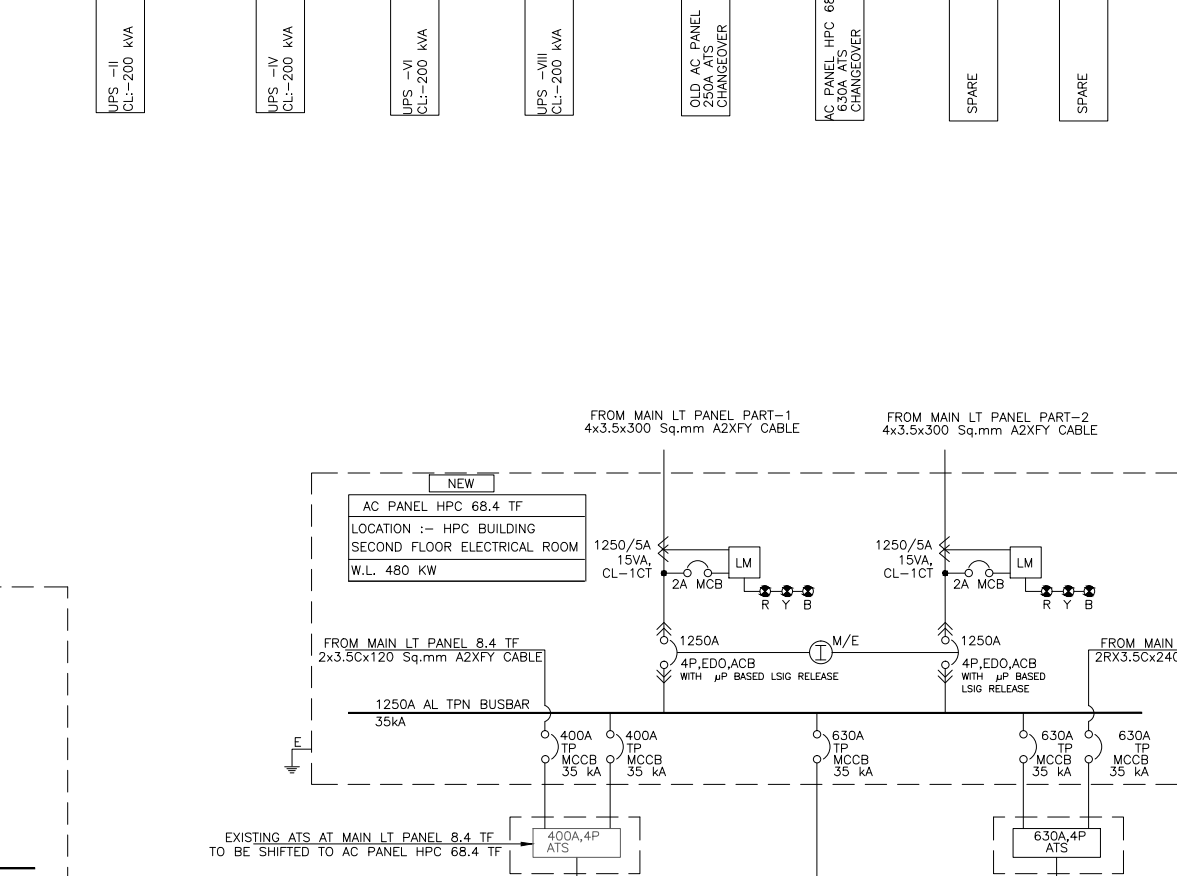
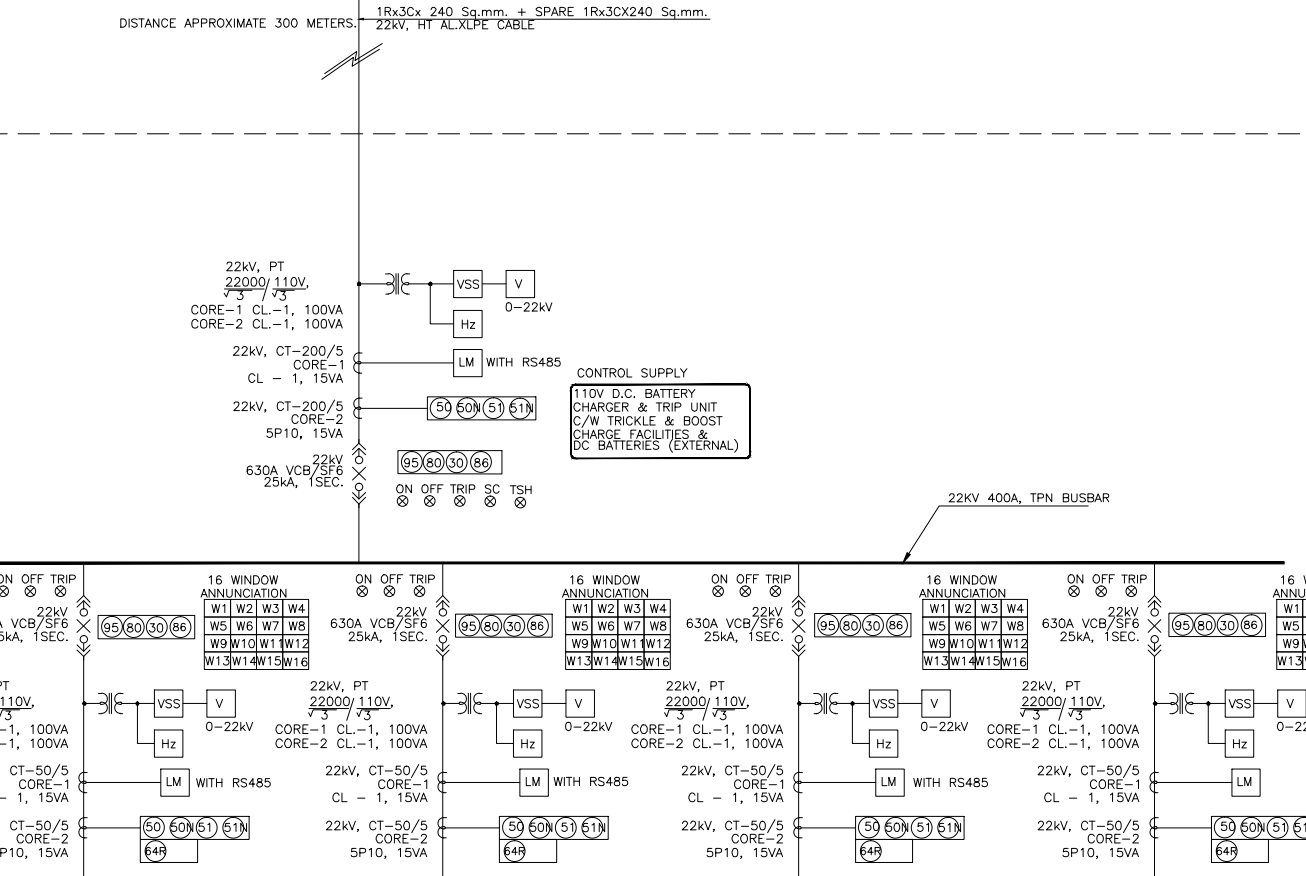
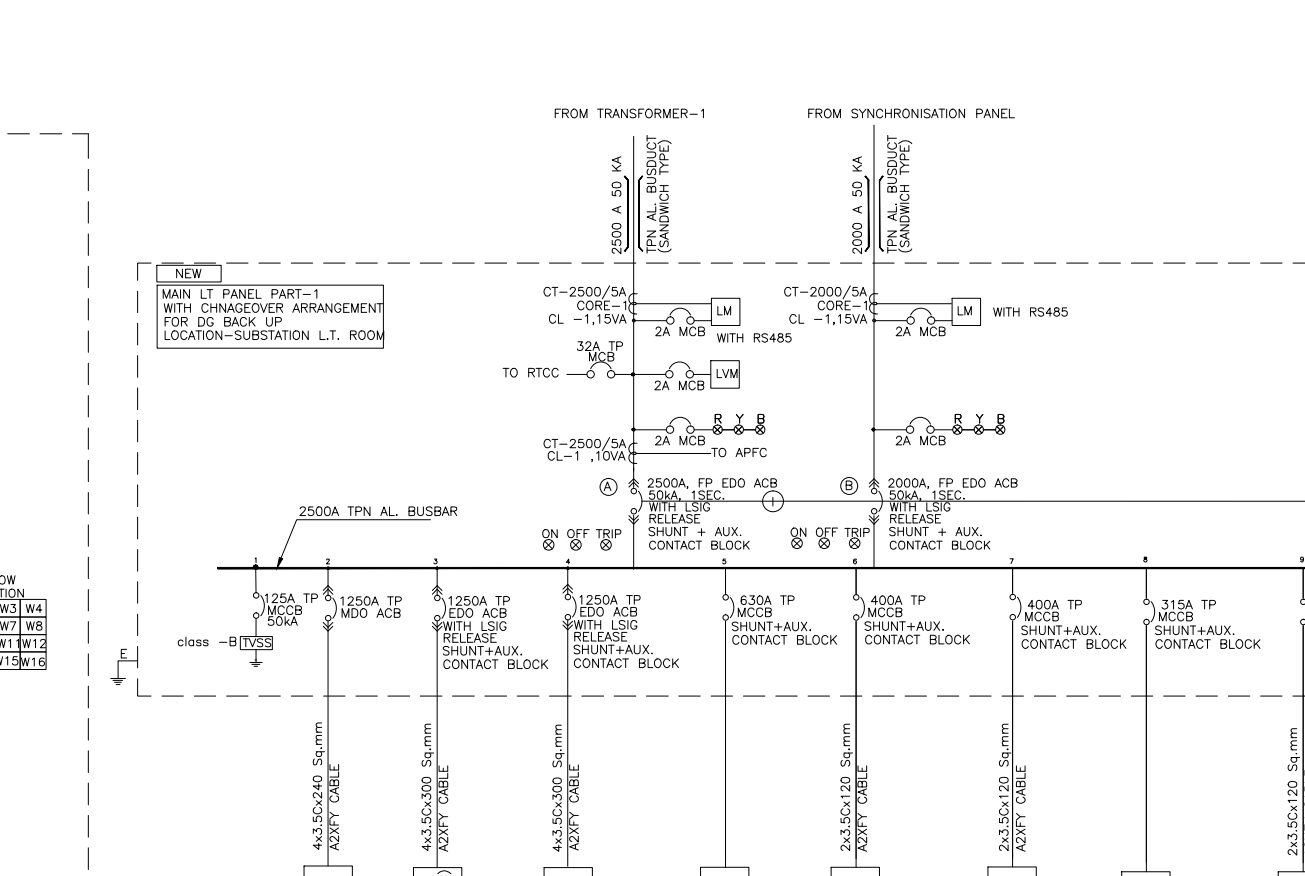
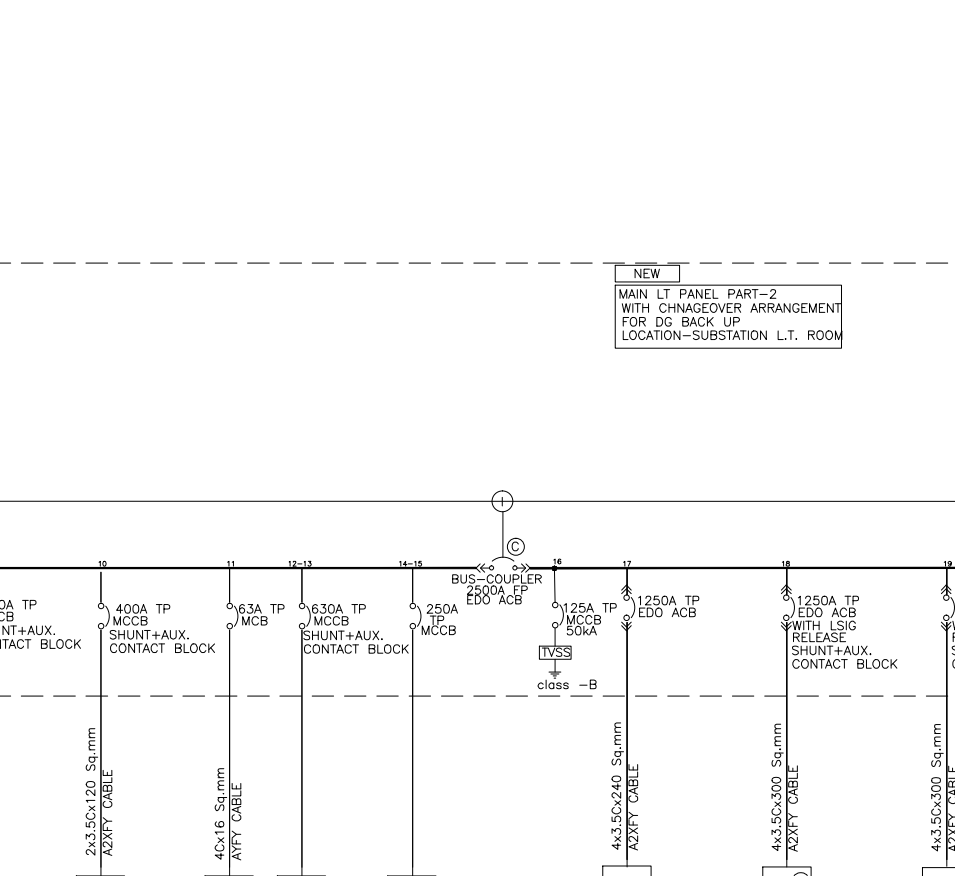
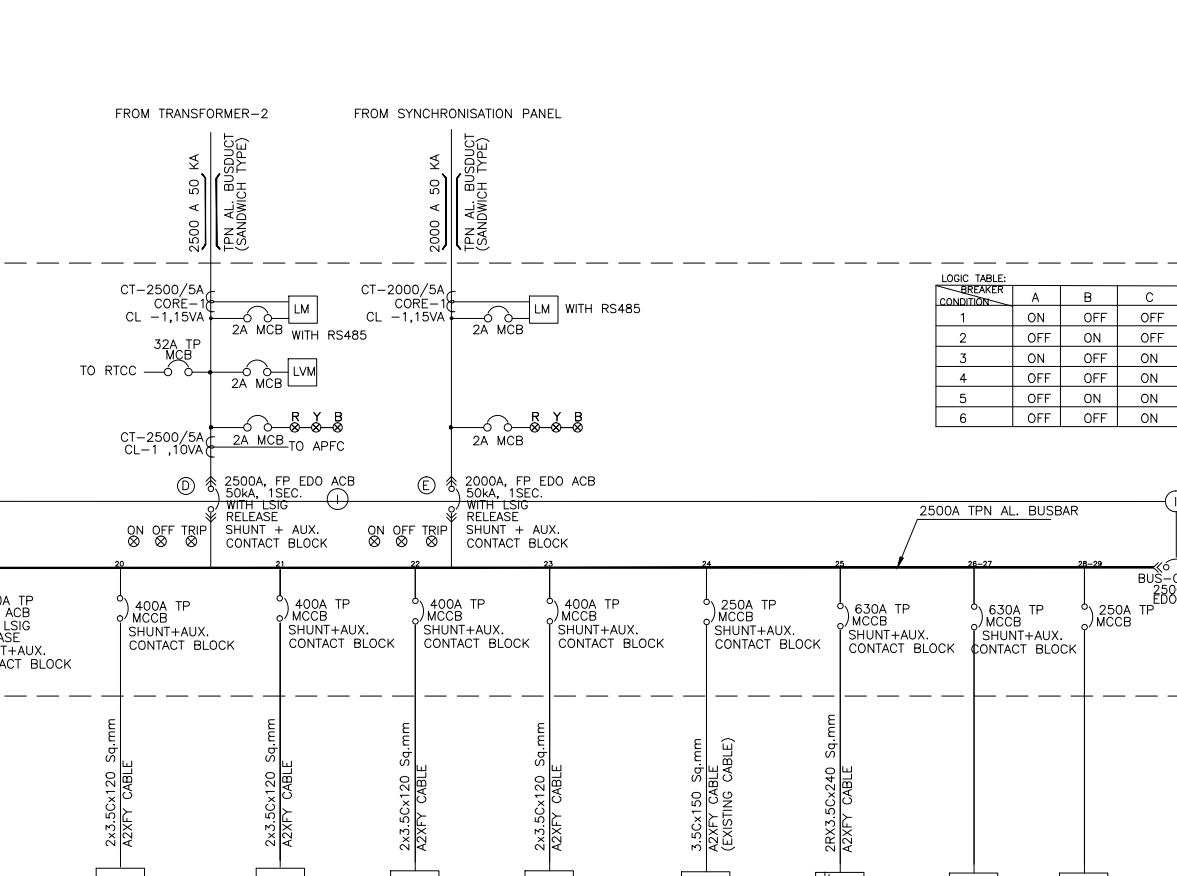
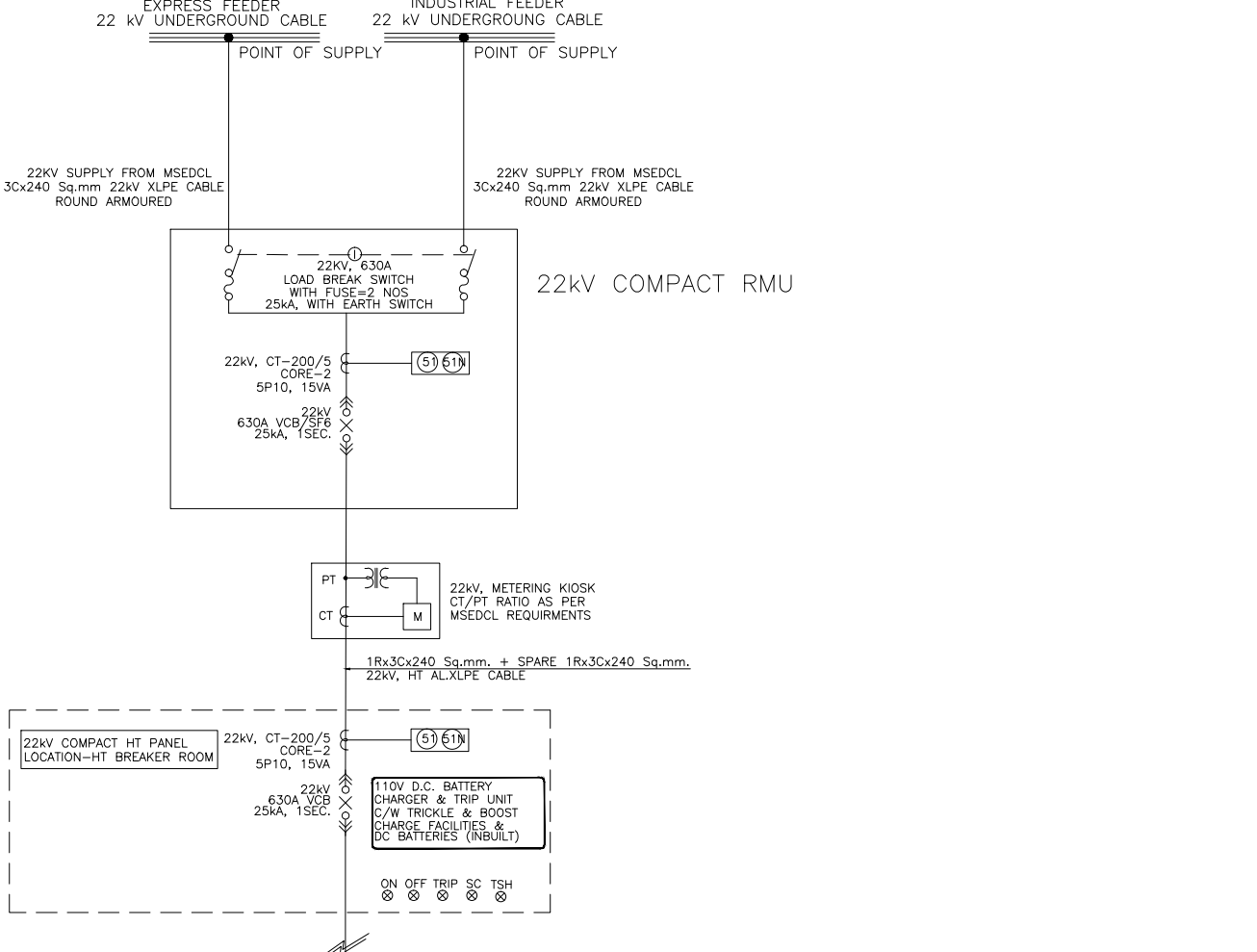
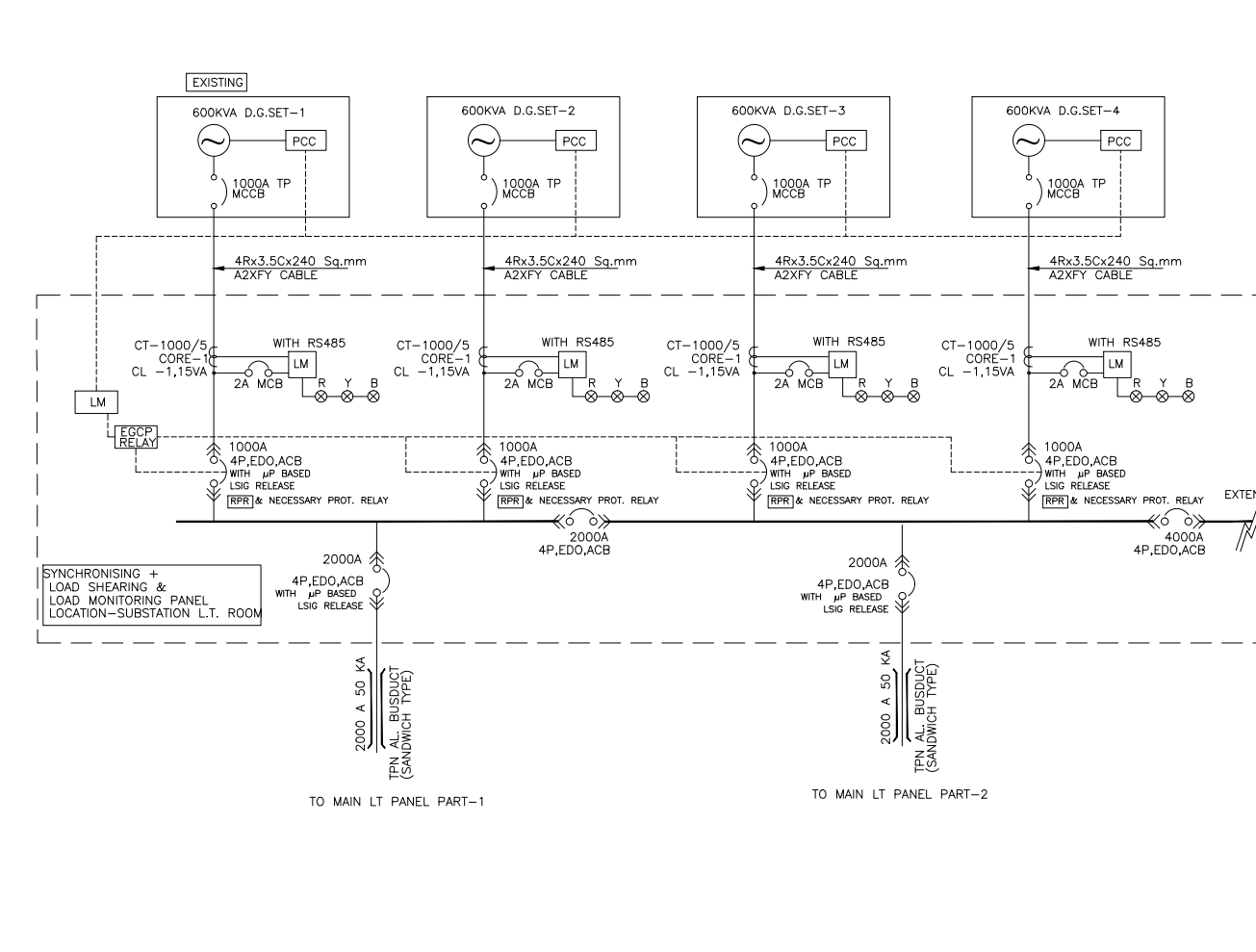
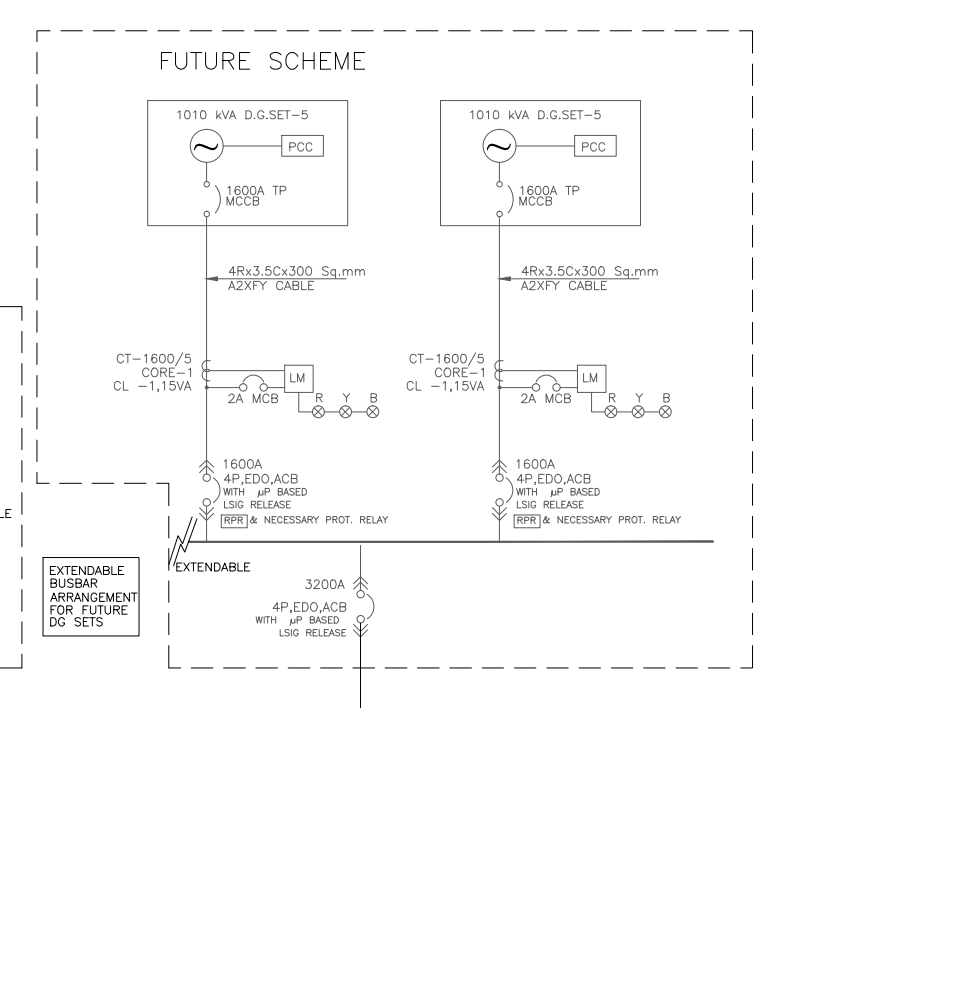
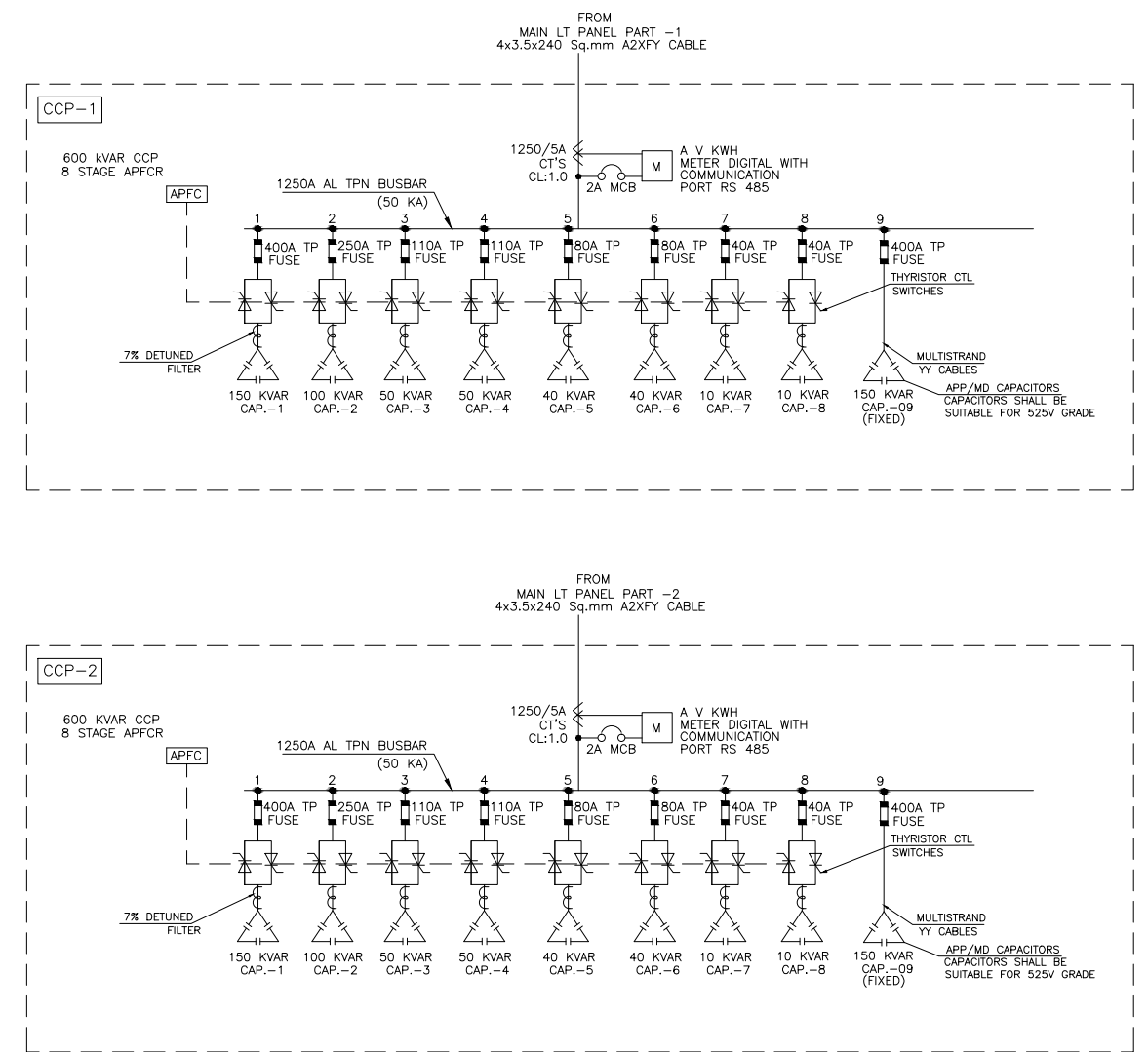
CLIENT: **INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE.**

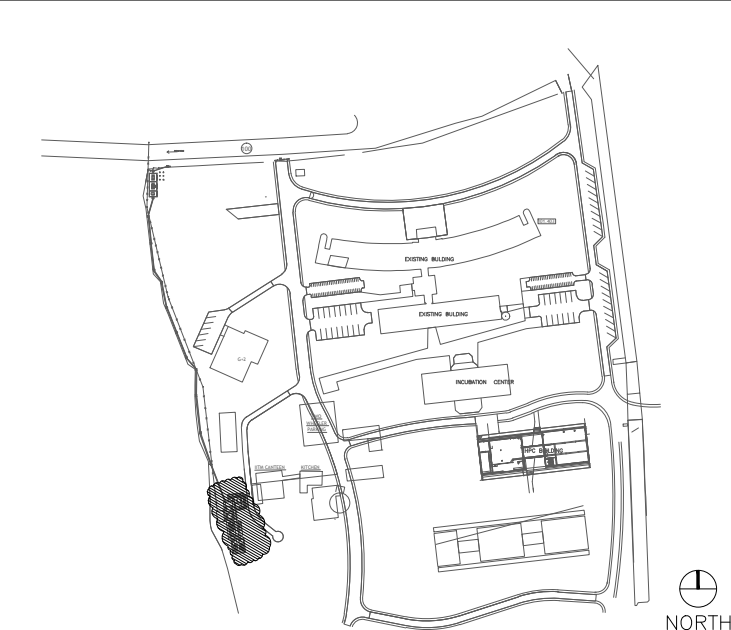
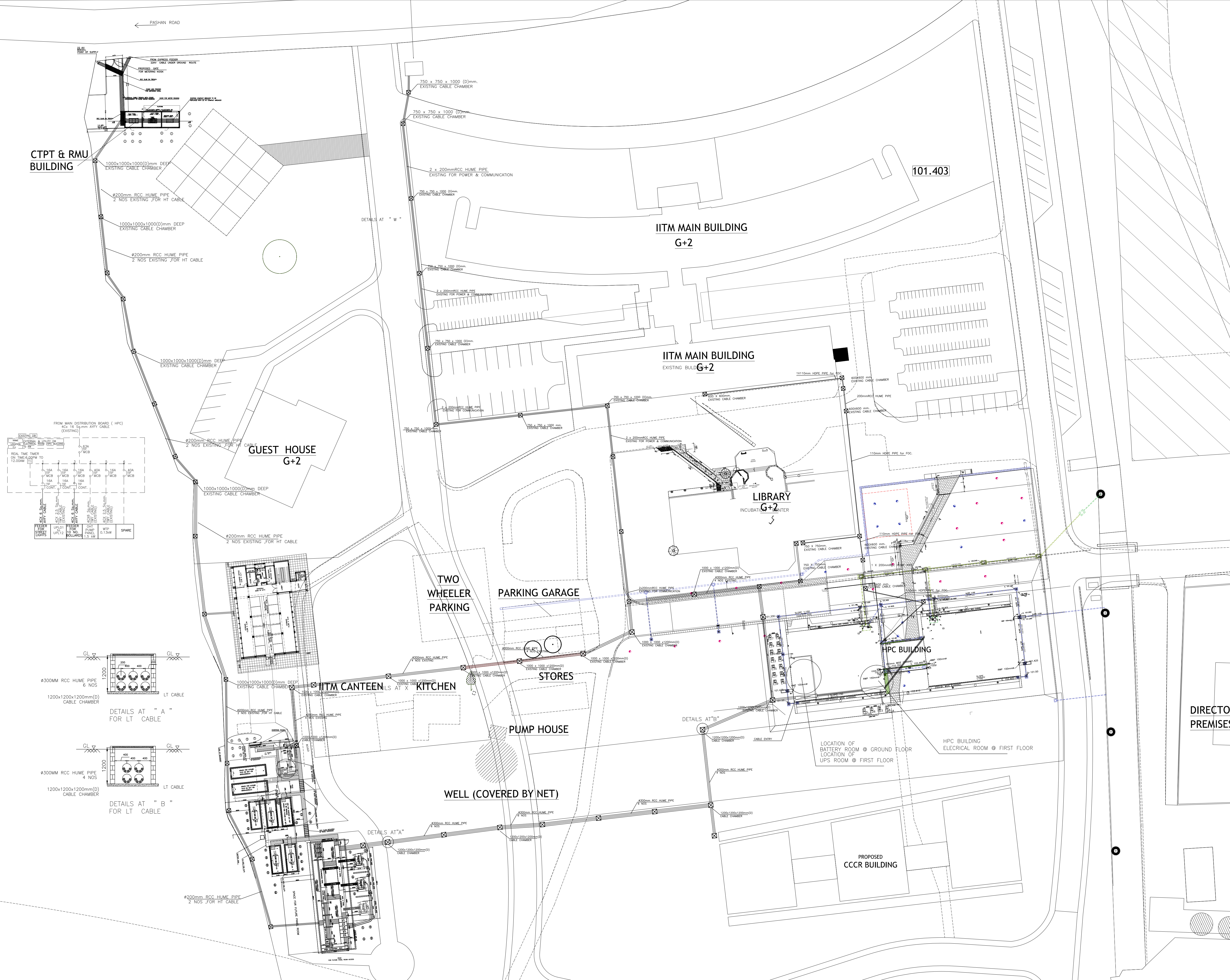
PROJECT: **ITM HPC UPGRADATION**

TITLE: **MAIN SINGLE LINE DIAGRAM**

SCALE: NTS DATE: 29/03/2010 DRAWN: NILESH
 DWG.NO. SUFFIX: 0 CHECKED: MUKUND APPROVED: YAV

REF. DWG: SERVED2008810/810A/DRAWING/ELECTRICAL





KEY PLAN

LEGEND

EXISTING EARTHING DETAILS (RMU AND KIOSK)

E01, E02 : HT BODY EARTHING (KIOSK AND RMU - COMPACT BREAKER)

E03, E04 : CT EARTHING

E05, E06 : PT EARTHING

E07, E08 : METER EARTHING

E09, E10 : OLD TRANSFORMER NEUTRAL EARTHING

E11, E12 : OLD HT BODY EARTHING (HT BREAKER) (SUBSTATION AREA, USS)

E13, E14 : OLD TRANSFORMER BODY EARTHING

E15, E16 : LT BODY EARTHING (USS)

E17, E18 : MAIN LT PANEL BODY EARTHING

E19, E20 : DG SET-1 NEUTRAL EARTHING

E21, E22 : DG SET-1 BODY EARTHING

E24 - E40 : EARTHINGS AT HPC BUILDING

EARTHING IN SCOPE OF EXTERNAL TENDER

E41, E42 : HT PANEL BODY EARTHING

E43, E44 : 1600 KVA TRANSFORMER-1 NEUTRAL EARTHING

E45, E46 : 1600 KVA TRANSFORMER-1 BODY EARTHING

E47, E48 : 1600 KVA TRANSFORMER-2 NEUTRAL EARTHING

E49, E50 : 1600 KVA TRANSFORMER-2 NEUTRAL EARTHING

E51, E52 : MAIN LT PANEL BODY EARTHING

EARTHING IN SCOPE OF DG VENDOR

E53, E54 : DG SET-2 BODY EARTHING

E55, E56 : DG SET-2 NEUTRAL EARTHING

E57, E58 : DG SET-3 BODY EARTHING

E59, E60 : DG SET-3 NEUTRAL EARTHING

E61, E62 : DG SET-4 BODY EARTHING

E63, E64 : DG SET-4 NEUTRAL EARTHING

E65, E66 : DG SYNCHRONISATION PANEL BODY EARTHING

NOTE :

1. THIS DRAWING SHALL BE READ WITH DRAWING NO. 810A/EL/01 & 810A/EL/02

SUFFIX	DATE	REVISIONS

DWG ISSUED FOR
 COMMENTS APPROVAL TENDER
 ADVANCE COPY RECORD G.P.C

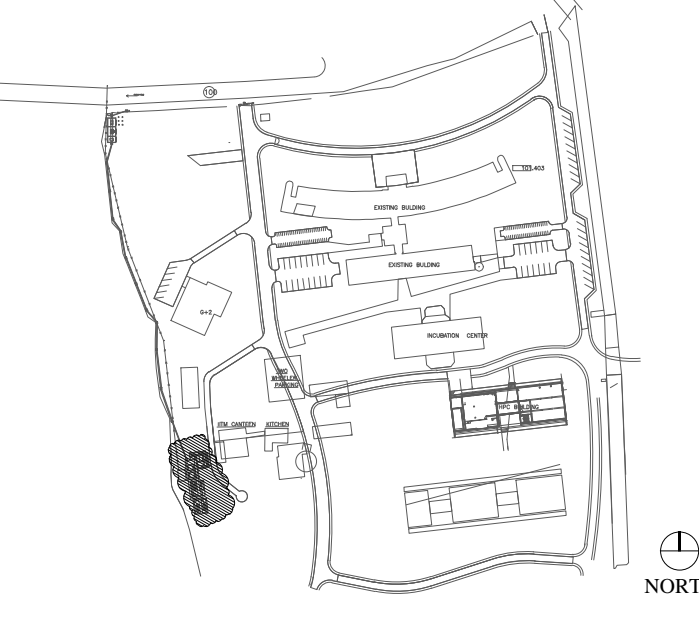
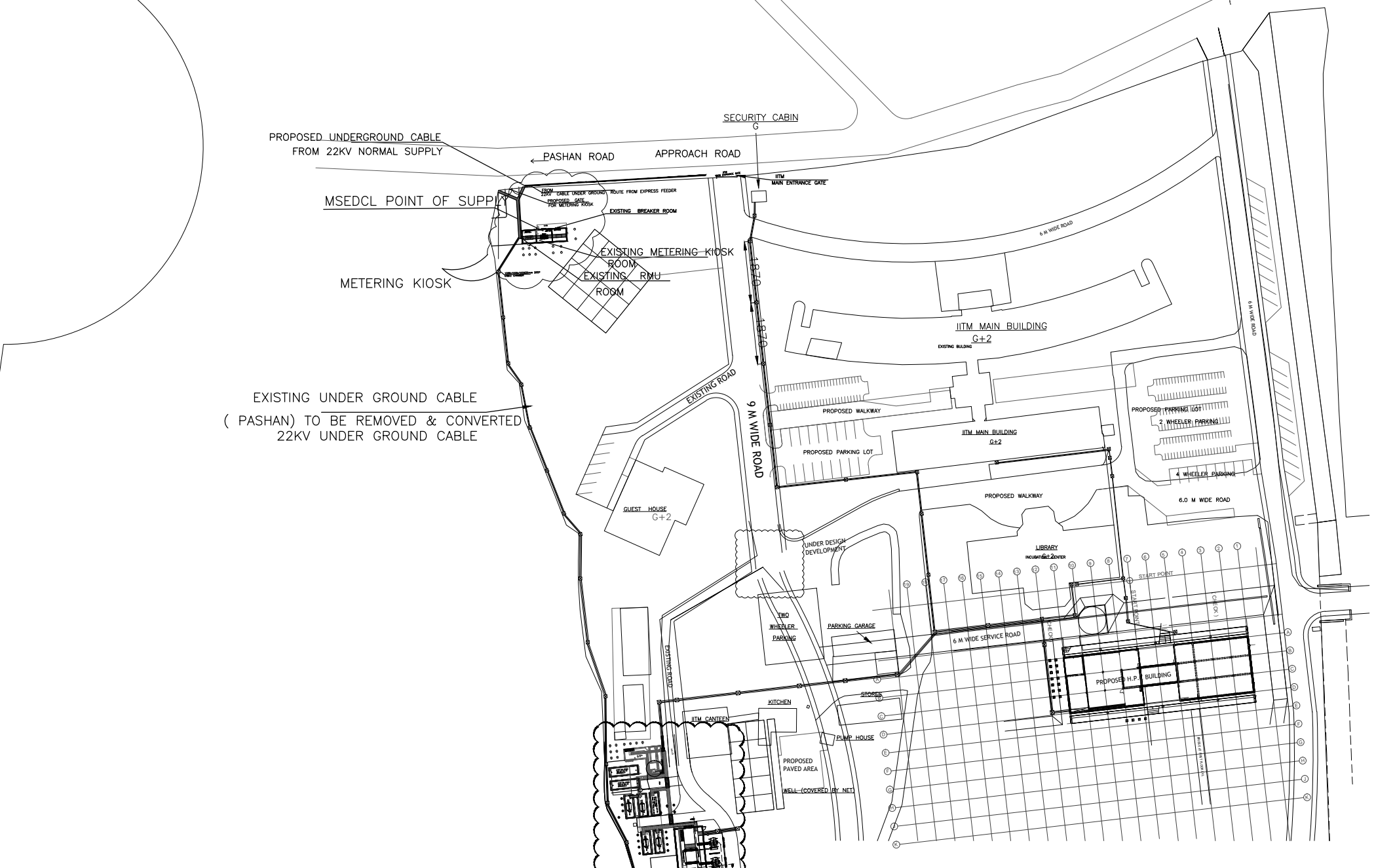
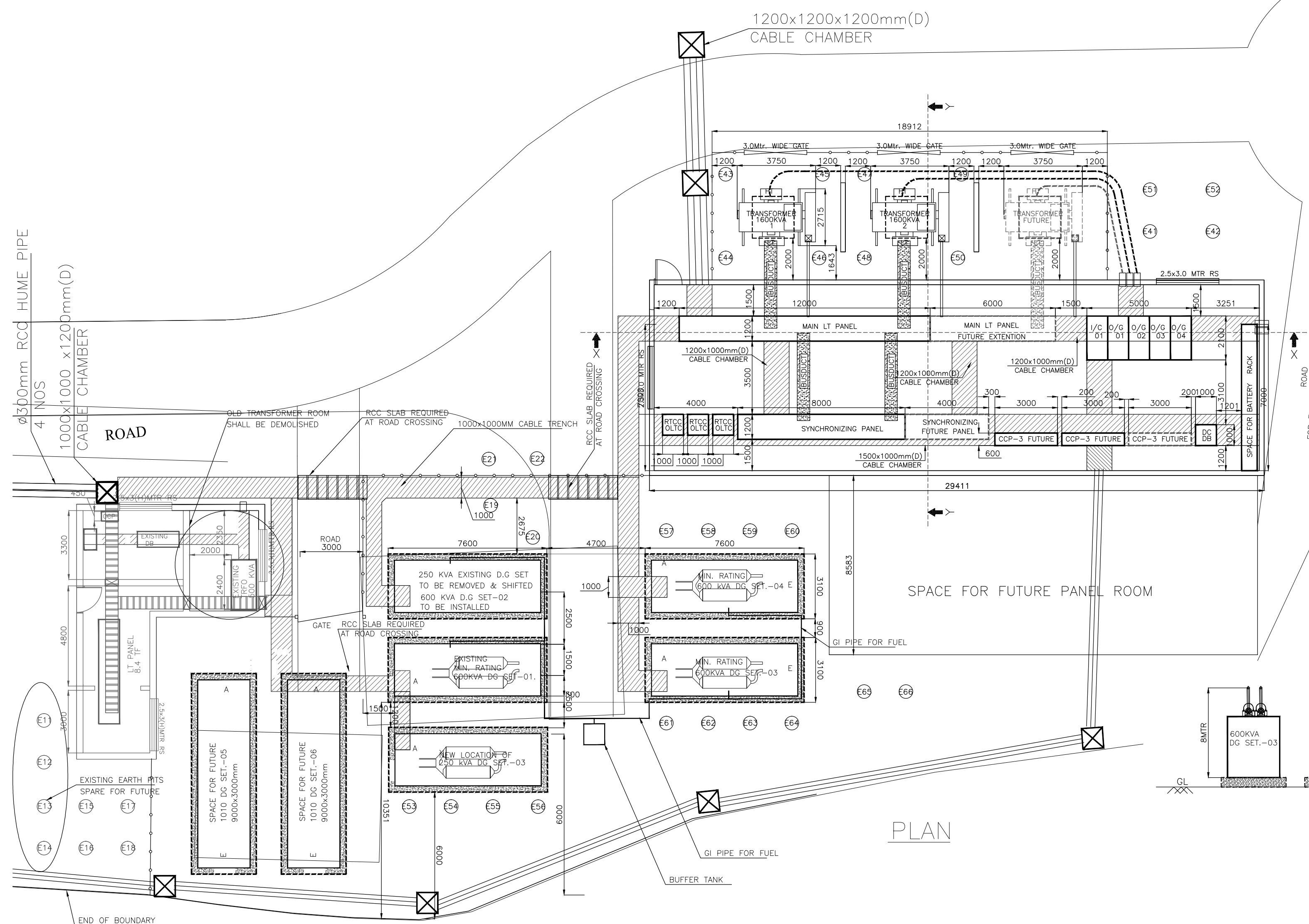
ARCHITECT :
 MADHAV JOSHI AND ASSOCIATES
 ARCHITECTS AND INTERIORS
 102, SHRI LAXMI VELA APPTS. 1170/32 REVENUE COLONY, SHIVAJINAGAR,
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CLIENT
 INDIAN INSTITUTE OF TROPICAL METEOROLOGY,
 PUNE

PROJECT
 ITM HPC UPGRADATION

TITLE
 EXTERNAL ELECTRICAL LAYOUT

SCALE: NTS DATE: 29-03-2010 DRAWN: NILESH
 DWG.NO. 0810A/EL/03 SUFFIX 0 CHECKED: S.DESHPANDE
 REF. DWG: SERVER/2008/810/810A/DRAWING/ELECTRICAL APPROVED: V.A.V.
 ARCH DWG REF: MASTERPLAN/C1/28-11-09



KEY PLAN

LEGEND

EXISTING EARTHING DETAILS (RMU AND KIOSK)

E01, E02 : HT BODY EARTHING (KIOSK AND RMU)+COMPACT BREAKER)

E03, E04 : CT EARTHING

E05, E06 : PT EARTHING

E07, E08 : METER EARTHING

E09, E10 : OLD TRANSFORMER NEUTRAL EARTHING

E11, E12 : OLD HT BODY EARTHING(HI BREAKER) (SUBSTATION AREA, USS)

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EARTHING IN SCOPE OF DG VENDOR

E53, E54 : DG SET-2 BODY EARTHING

E55, E56 : DG SET-2 NEUTRAL EARTHING

E57, E58 : DG SET-3 BODY EARTHING

E59, E60 : DG SET-3 NEUTRAL EARTHING

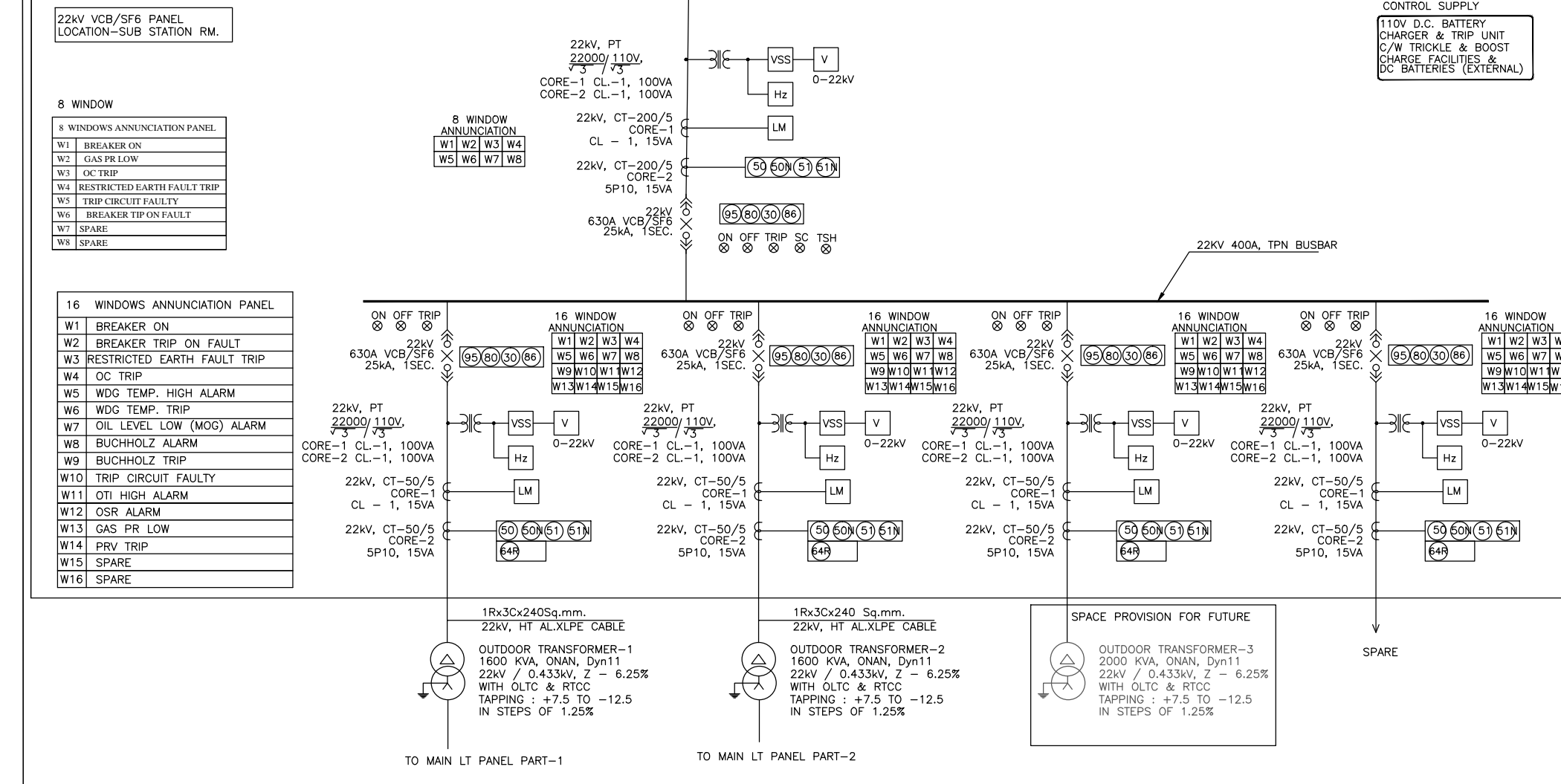
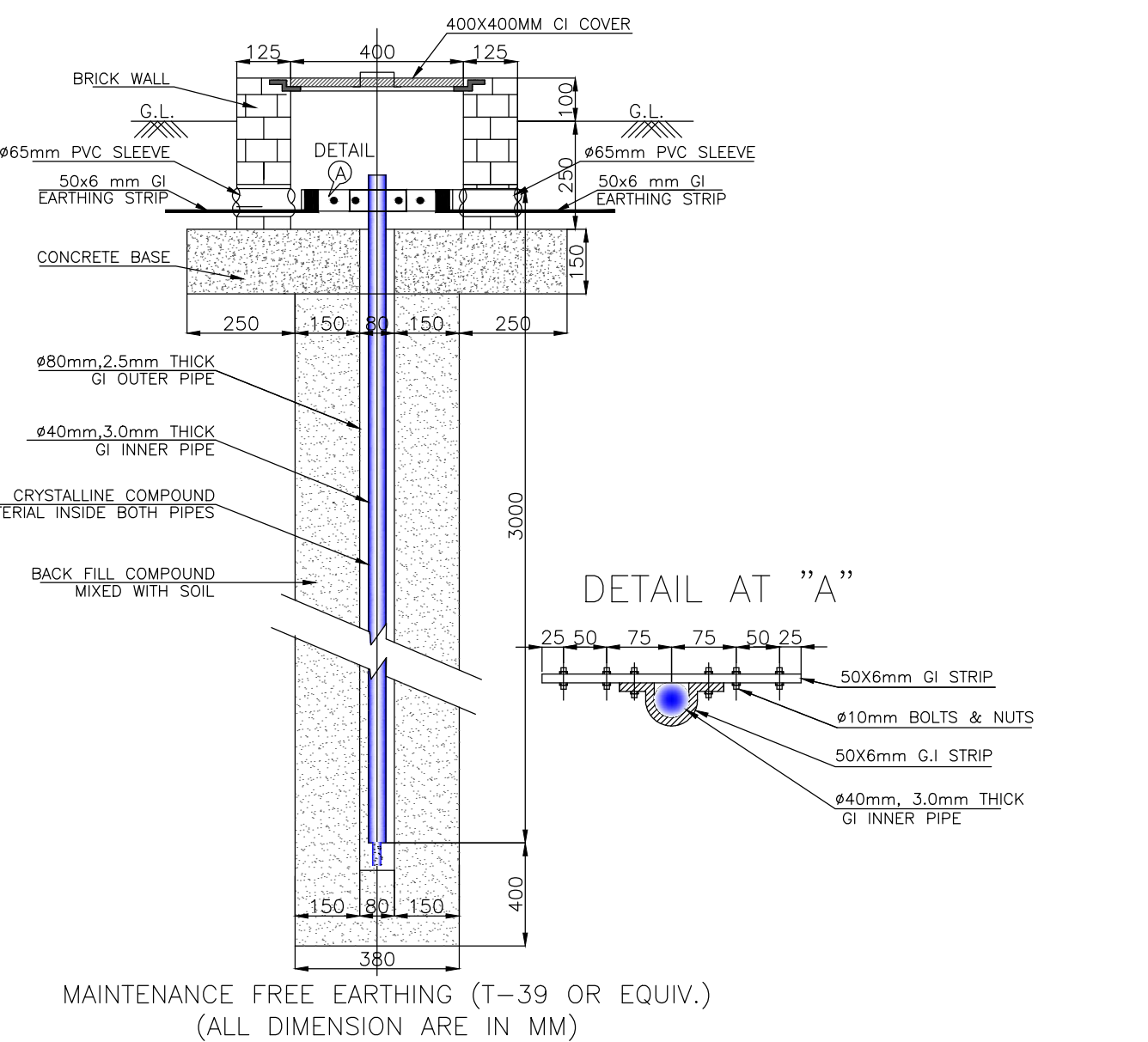
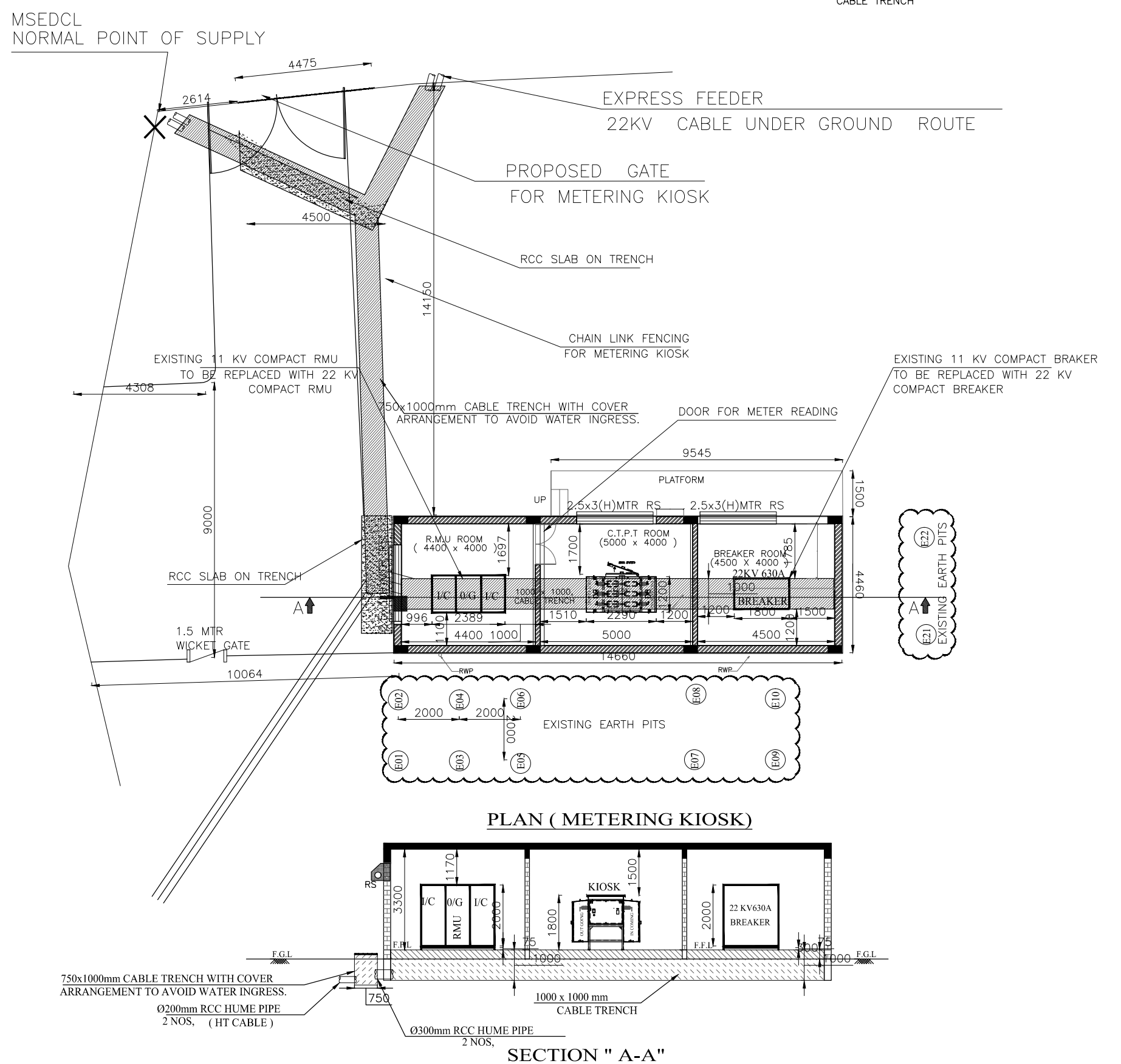
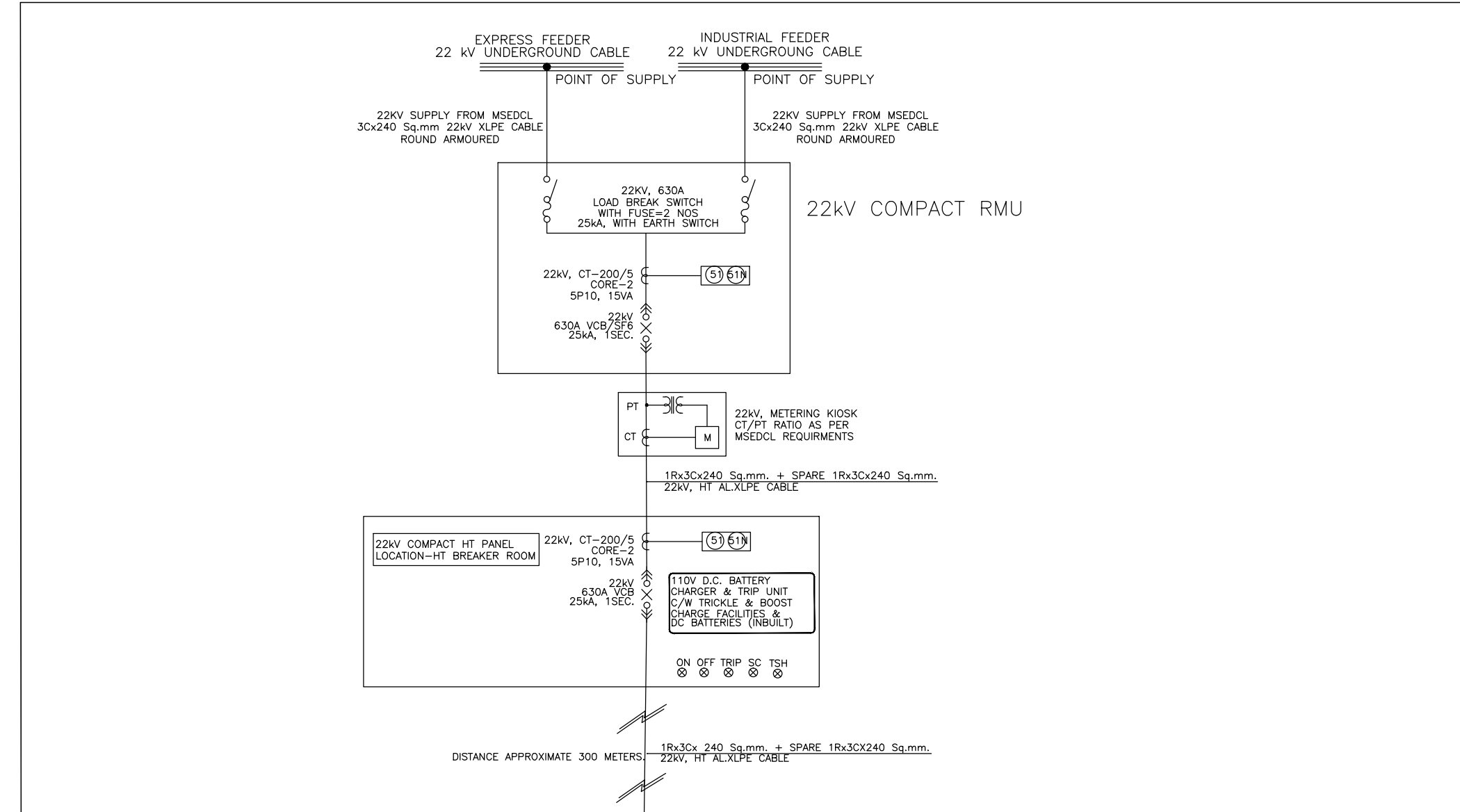
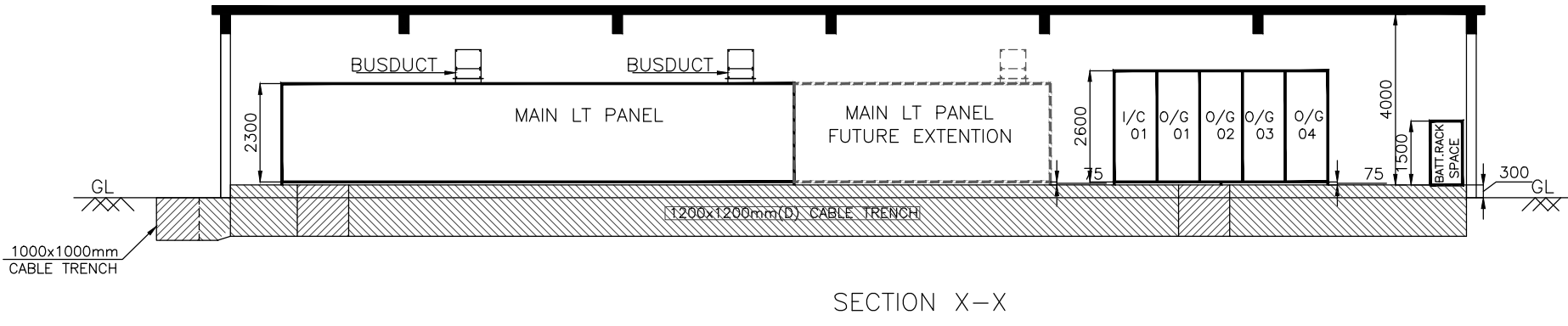
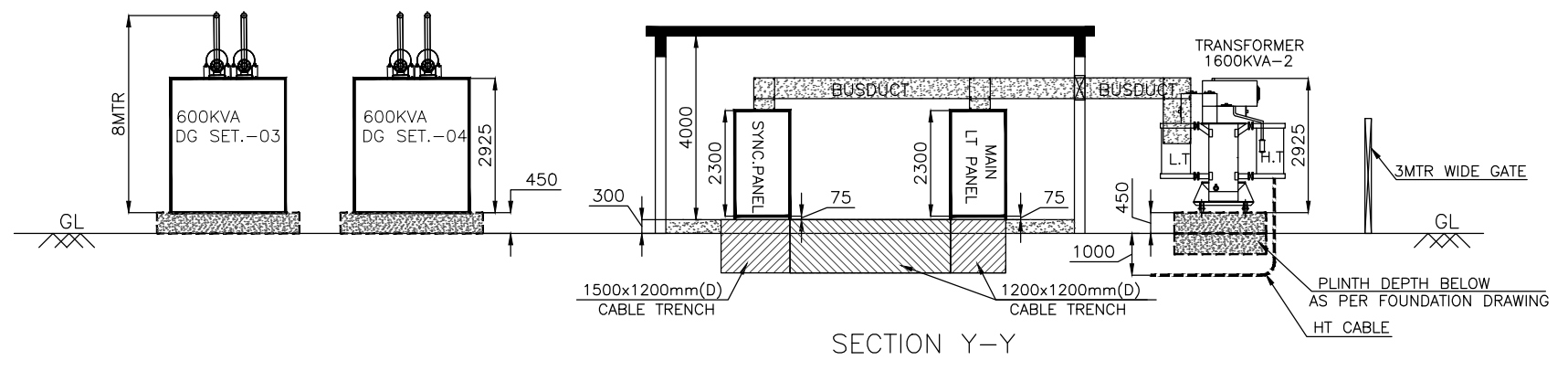
E61, E62 : DG SET-4 BODY EARTHING

E63, E64 : DG SET-4 NEUTRAL EARTHING

E65, E66 : DG SYNCHRONISATION PANEL BODY EARTHING

NOTE :

- FOR 22 KV RMU, METERING, COMPACT BREAKER EXISTING EARTH PITS & STRIPS SHALL BE USED.
- THIS DRAWING SHALL BE READ WITH 810A/EL/03 & 810A/EL/1.2



SUFFIX	DATE	REVISIONS

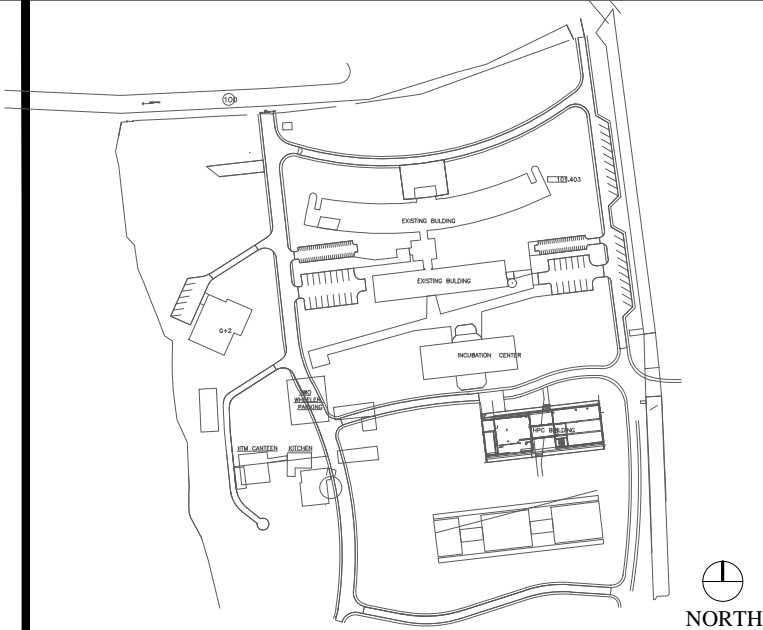
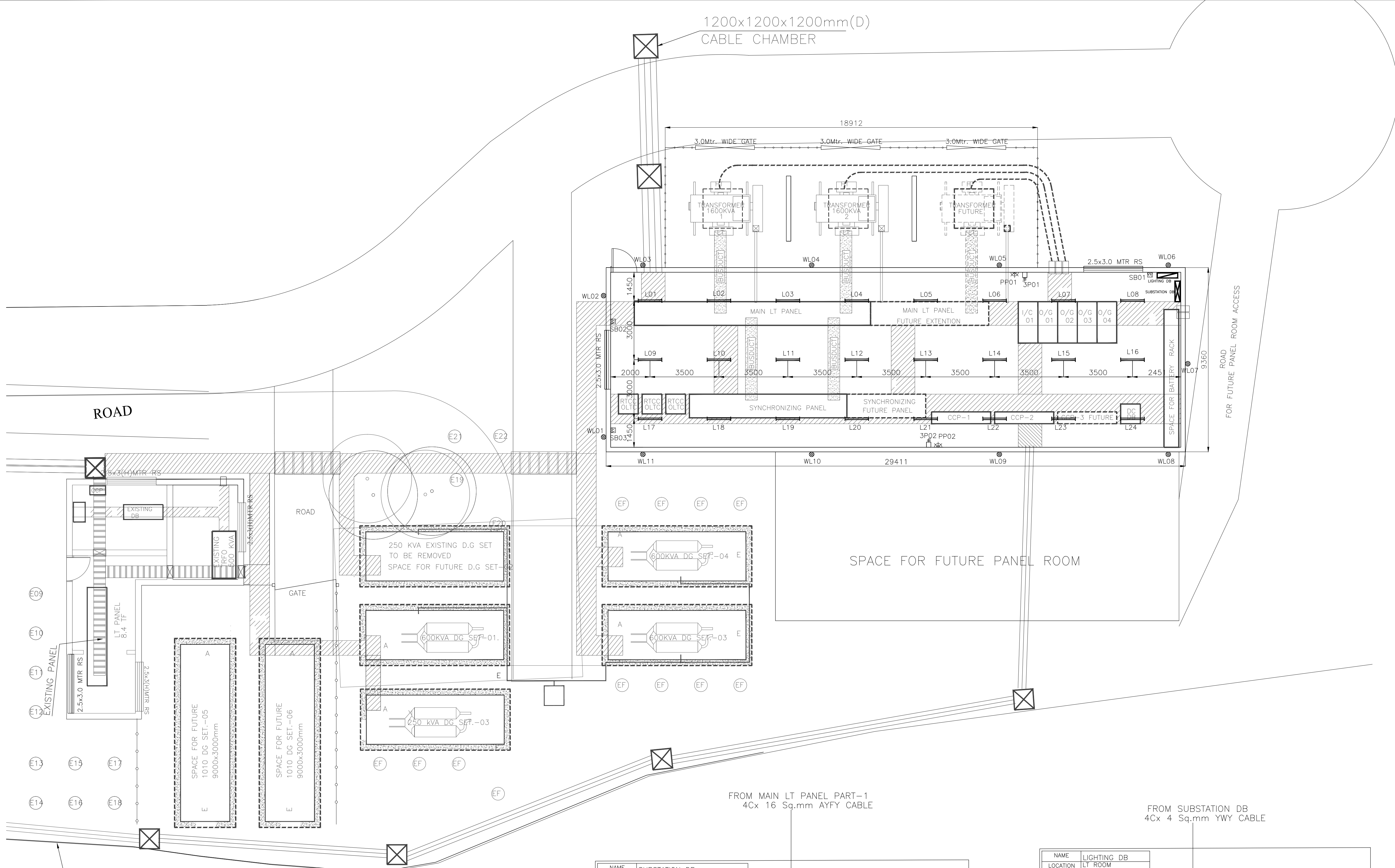
ABHIYANTA
ELECTRICAL CONSULTANTS & ENGINEERS
AN ISO 9001:2015 CERTIFIED COMPANY
Shree Swami Krupa, Plot No.-6, Neelkamal Housing Society,
Kharve nagar, Pune - 411052. Tel/Fax- 25442173, 25410691.
design@abhiyantaelectricals.com, www.abhiyantaelectricals.com

CLIENT
INDIAN INSTITUTE OF TROPICAL METEOROLOGY,
PUNE

PROJECT
IITM HPC UPGRADEATION

TITLE
5 MVA, 22/433 KV OUTDOOR SUBSTATION

DWG.NO.	DATE	SCALE	DRAWN
0810A/EL/1.1	29/3/2010	NTS	NILESH
			CHECKED
			APPROVED
			VIJAY



KEY PLAN

LEGEND

	240V FTL INDUSTRIAL RAIL
	SWITCH BOARD WITH LIGHT SWITCHES
	32A 3P SOCKET OUTLET+TP MCB
	5A/15A SOCKET WITH SWITCH
	70W HPSV WELL GLASS FIXTURE
	SUBSTATION DB
	LIGHTING DB

NOTE :
 1. THIS DRAWING SHALL BE READ WITH 810A/EL/02 & 810A/EL/1.1

SUFFIX	DATE	REVISIONS

DWG ISSUED FOR

COMMENTS APPROVAL TENDER

ADVANCE COPY RECORD G.F.C

ARCHITECT :

MADHAV JOSHI AND ASSOCIATES
 ARCHITECTS AND URBAN PLANNERS
 102 SHRI LAXMI VILLA APTS. 117032 REVENUE COLONY, SHIVAJINAGAR,
 PUNE - 411005. PH.NO. +91-20-30223385 E-mail : mjaarchitects@eth.net

Electrical Consultants:
Abhyanta
 ELECTRICAL CONSULTANTS &
 ARCHITECTS AND URBAN PLANNERS
 AN ISO 9001:2008 CERTIFIED COMPANY
 Shree Swami Krupa, Plot No.-6, Neelkamal Housing Society,
 Karve nagar, Pune - 411052. Tel/Fax - 25462173, 25410691.
 design@abhyantaconsultants.com
 www.abhyantaconsultants.com

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 INDIAN INSTITUTE OF TROPICAL METEOROLOGY,
 PUNE

PROJECT
 IITM HPC UPGRADATION

TITLE
 SUBSTATION LIGHTING & POWER LAOUT

SCALE : NTS DATE : 29/3/2010 DRAWN : NILESH

DWG.NO. SUFFIX CHECKED

810A/EL/1.2 0 S.DESHMUKH

REF. DWG. SER VER: 2008/810/810A/DRAWING/ELECTRICAL APPROVED : P.P. NAGLE

ARCH DWG REF: MASTERPLAN/C1/28-11-09

