

REVISED ELECTRICAL DRAWINGS FOR PROPOSED FUEL RETAIL OUTLET, G+J SALES BUILDING AND OTHER ASSOCIATED STRUCTURES.

LOCATION: DECHEN ROAD , TABA, THIMPHU

**OWNER: STATE TRADING CORPORATION OF
BHUTAN LTD. THIMPHU**

www.greendesign.com.bt
gdsbhutan@gmail.com
+975 17631322/77845668

OFFICE: FLAT NO 8,GONGDZIN LAM
ABOVE 8/11 CONVENIENT STORE
NEXT TO THIMPHU THROMDE BUILDING
THIMPHU:BHUTAN

PROJECT:

TITLE: FUEL RETAIL OUTLET
LOCATION: DECHEN LAM, TABA
OWNER: STCBL
PLOT ID: TA1-101
CERTIFICATE NO: THM-211-78

REMARKS



OWNER SIGNATURE

DESIGNED BY:

MANRUPA PRADHAN
ELECTRICAL ENGINEER

DRAWING TITLE:

DATE: APRIL 2021

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/00

REVISION SUFFIX

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NORTH



GENERAL NOTE:

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- ALL DIMENSIONS ARE TO BE READ AND NOT SCALE OFF.
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REMARKS



OWNER SIGNATURE

DESIGNED BY:
 MANRUPA PRADHAN
 ELECTRICAL ENGINEER

DRAWING TITLE:
 EARTHING CONNECTION

DATE: APRIL 2021

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/01

REVISION SUFFIX

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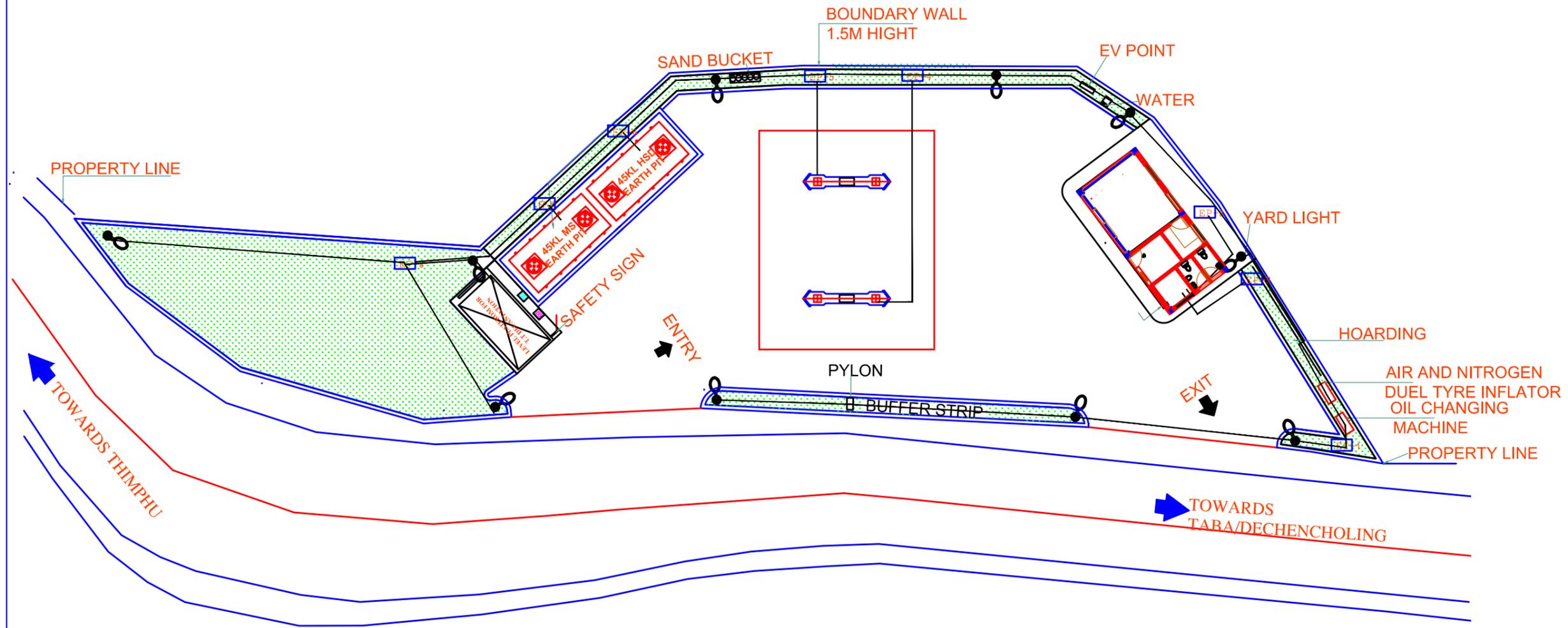
NORTH



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EARTHING CONNECTION



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OWNER SIGNATURE

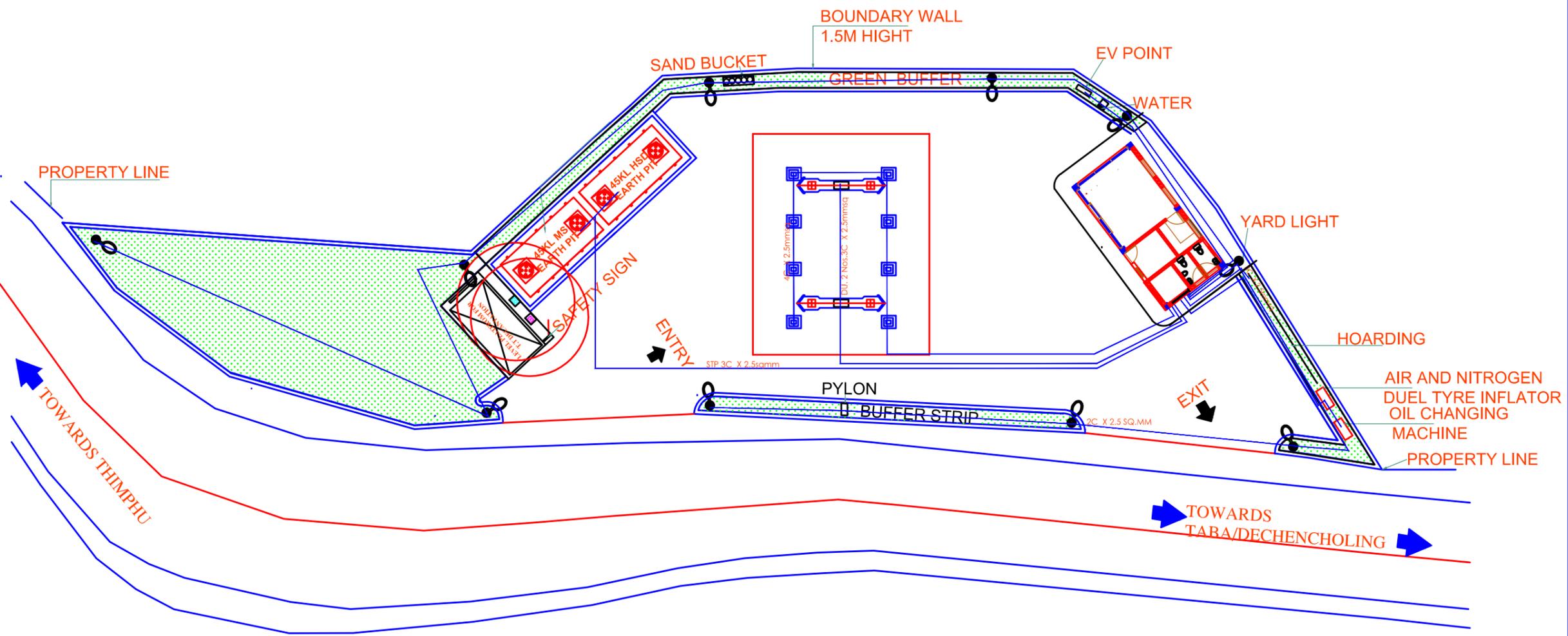
DESIGNED BY:
 MANRUPA PRADHAN
 ELECTRICAL ENGINEER

DRAWING TITLE:
 PIPE AND WIRING CONNECTION

DATE: APRIL 2021
 SCALE: NTS
 DRAWING : ELECTRICAL
 SHEET NO : EL/02

REVISION SUFFIX	NORTH
□ □ □ □ □	

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PIPE AND WIRING CONNECTION

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REMARKS



OWNER SIGNATURE

DESIGNED BY:
 MANRUPA PRADHAN
 ELECTRICAL ENGINEER

DRAWING TITLE:
 DU AND STP CONNECTION

DATE: APRIL 2021

SCALE: NTS

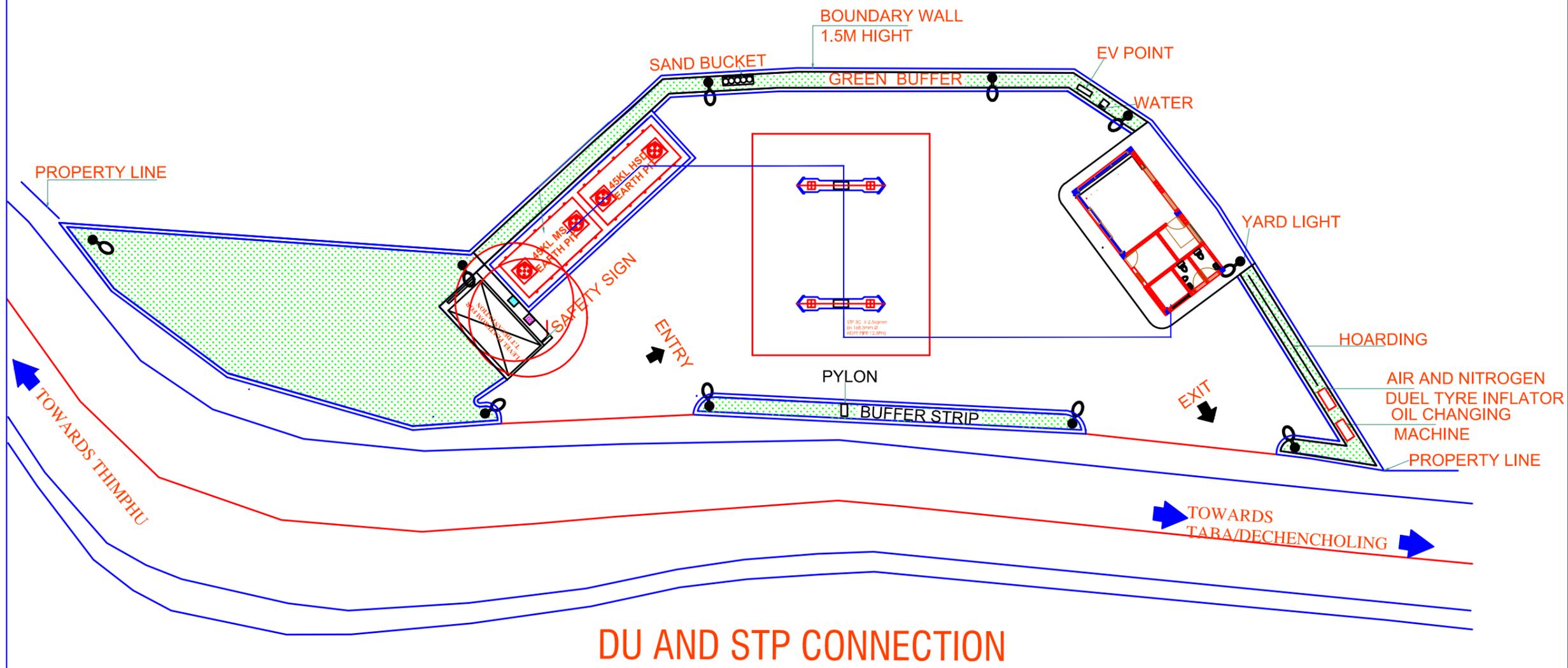
DRAWING : ELECTRICAL

SHEET NO : EL/03

REVISION SUFFIX	NORTH
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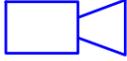
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DU AND STP CONNECTION

SPECIFICATION FOR ELECTRICAL WORKS:

	80 Watt LED light
	CCTV
	1x36 Watts - LED Tube light Surface Fitting
	Bulk Head fitting, 60W
	1x13 Watts - Fluorescent Tubelight/CFL Surface Fitting
	0.5 Watt - LED Dim light (taken 20Watt for calculation)
	1x80 Watts - 300mm Exhaust Fan
	Ceiling Fan, 1400mm Sweep ,60W
	6A- One Way Switch (Modular)
	Mirror light luminaries, 13W
	5pin, 16A- 2000 Watts Socket Outlet (universal)
	3pin, 6A- 1000 Watts Socket Outlet (Universal)
	Switch board with 6 A switch
	Television Socket Outlet
	Television Distribution Box
	Telephone Socket Outlet
	Telephone Terminal Cabinet
	Sub - Distribution Board
	Main Distribution Board

- ALL LIGHT POINT WIRING SHALL BE WITH 1.5 SQ. MM. PVC INSULATED FIRE RESISTANT COPPER CONDUCTOR 1.1 KV GRADE IN RECESSED HDPE PIPE.
- ALL LIGHT CIRCUIT WIRING SHALL BE WITH 2.5 SQ. MM. PVC INSULATED FIRE RESISTANT COPPER CONDUCTOR 1.1 KV GRADE IN RECESSED HDPE PIPE.
- ALL POWER POINT WIRING SHALL BE WITH 4 SQ. MM. PVC INSULATED FIRE RESISTANT COPPER CONDUCTOR 1.1 KV GRADE IN RECESSED HDPE PIPE.
- ALL THE LIGHT SWITCH BOARDS SHALL BE 23CM AWAY FROM DOOR FRAME/EDGE OF WALL AND 1.5M ABOVE THE FINISHED FLOOR LEVEL (FFL).
- ALL POWER POINTS IN THE ROOM SHALL BE AT 30CM FROM FINISHED FLOOR LEVEL AND IN TOILETS AND PANTRY AT 1.5M, FROM FFL.
- ALL THE CONDUIT ACCESSORIES ARE THREADED TYPE ONLY.
- LAYOUT INDICATES 25MM/32MM DIA. HDPE CONDUIT AS PER THE REQUIREMENT.
- NO PHASE DIFFERENCE IS ALLOWED TO BE DRAWN THROUGH THE SAME CONDUIT.
- POWER POINTS SHALL NOT BE LOOPED.
- ALL WALL FIXTURES SHALL BE AT A HEIGHT OF 2.75 M FROM FINISHED FLOOR LEVEL (FFL).
- ALL SUB DISTRIBUTION SHALL BE IN RECESSED.
- TTC (TELEPHONE TERMINAL CABINET) & TV-DB (TELEVISION - DISTRIBUTION BOARD) SHALL BE AT THE GROUND FLOOR.
- MDB (MAIN DISTRIBUTION BOARD) SHALL BE AT THE BASEMENT OR GROUND FLOOR.
- SOME ASSUMPTION AND LOADS ARE AS FOLLOWS FOR THE MAIN DISTRIBUTION BOARD.

(A) CONNECTED LOADS	-	41,135 WATT
(B) DEMAND LOADS	-	32,908 WATT
(C) POWER FACTOR	-	0.85
(D) LOAD FACTOR	-	0.8
(E) VOLTAGE	-	415 V
(F) CURRENT DRAWN AS PER CONNECTED LOAD	-	67.32 A
(G) CURRENT DRAWN AS PER DEMAND LOAD	-	53.86 A

SPECIFICATION FOR TELEPHONE & TV WORKS:

- TELEPHONE & TV CABLE DUCT SHALL BE WITH 25MM DIA. CONDUIT.
- TELEPHONE AND TELEVISION CABLE DUCT MUST BE AT LEAST 0.5M AWAY FROM ELECTRICAL ROUTE.
- TELEPHONE TERMINAL CABINET (TTC) AT 1.5M ABOVE FINISHED FLOOR LEVEL AND SHOULD BE WATER TIGHT AND MOISTURE PROOF.
- TELEPHONE SOCKET OUTLET SHALL BE WITH 2 PIN, RJ-11 AT 25CM ABOVE FINISHED FLOOR LEVEL.
- BRIDGE METHOD SHOULD BE FOLLOWED AT THE CROSSING.
- TELEPHONE AND TV LINES SHALL BE ROUTED THROUGH SEPARATE DUCTS.

TEST RESULTS:

- POLARITY TEST : - ALL THE SWITCHES MUST BE ON THE LIVE CONDUCTOR.
- INSULATION TEST : - MINIMUM TEST RESULT SHOULD NOT BE LESS THAN 1 MEGA OHM.
- EARTH CONTINUITY TEST : - LOW VOLTAGE LAMP TEST SHOULD SATISFY THE WHOLE INSULATION.
- EARTH TEST : - TEST RESULTS SHOULD BE WITHIN 5 OHMS.

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REMARKS



OWNER SIGNATURE

DESIGNED BY:

MANRUPA PRADHAN
ELECTRICAL ENGINEER

DRAWING TITLE:

LEGENDS AND SPECIFICATIONS

DATE: APRIL 2021

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/04

REVISION SUFFIX	NORTH
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 CERTIFICATE NO: THM-211-78

REMARKS



OWNER SIGNATURE

DESIGNED BY:

MANRUPA PRADHAN
 ELECTRICAL ENGINEER

DRAWING TITLE:

JAMTHOG FITTING AND FIXTURE WITH
 WIRING LAYOUT PLAN

DATE: APRIL 2021

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/06

REVISION SUFFIX

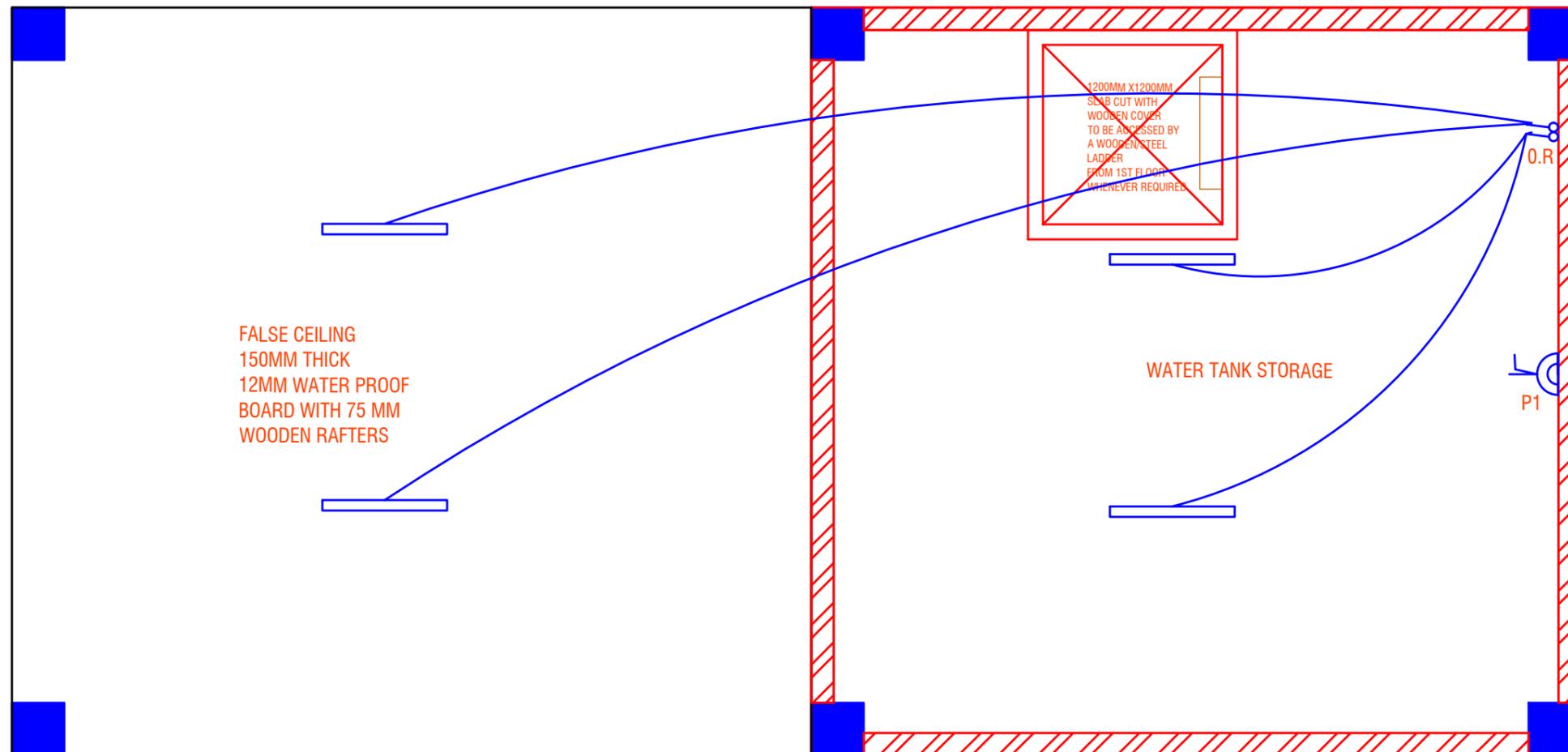
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Jamthog Fitting and fixture with wiring layout

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 LOCATION: DECHEN LAM, TABA
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 CERTIFICATE NO: THM-211-78

REMARKS



OWNER SIGNATURE

DESIGNED BY:
 MANRUPA PRADHAN
 ELECTRICAL ENGINEER

DRAWING TITLE:
 GROUND FLOOR FITTING AND FIXTURE
 WITH CONDUIT LAYOUT PLAN

DATE: APRIL 2021

SCALE: NTS

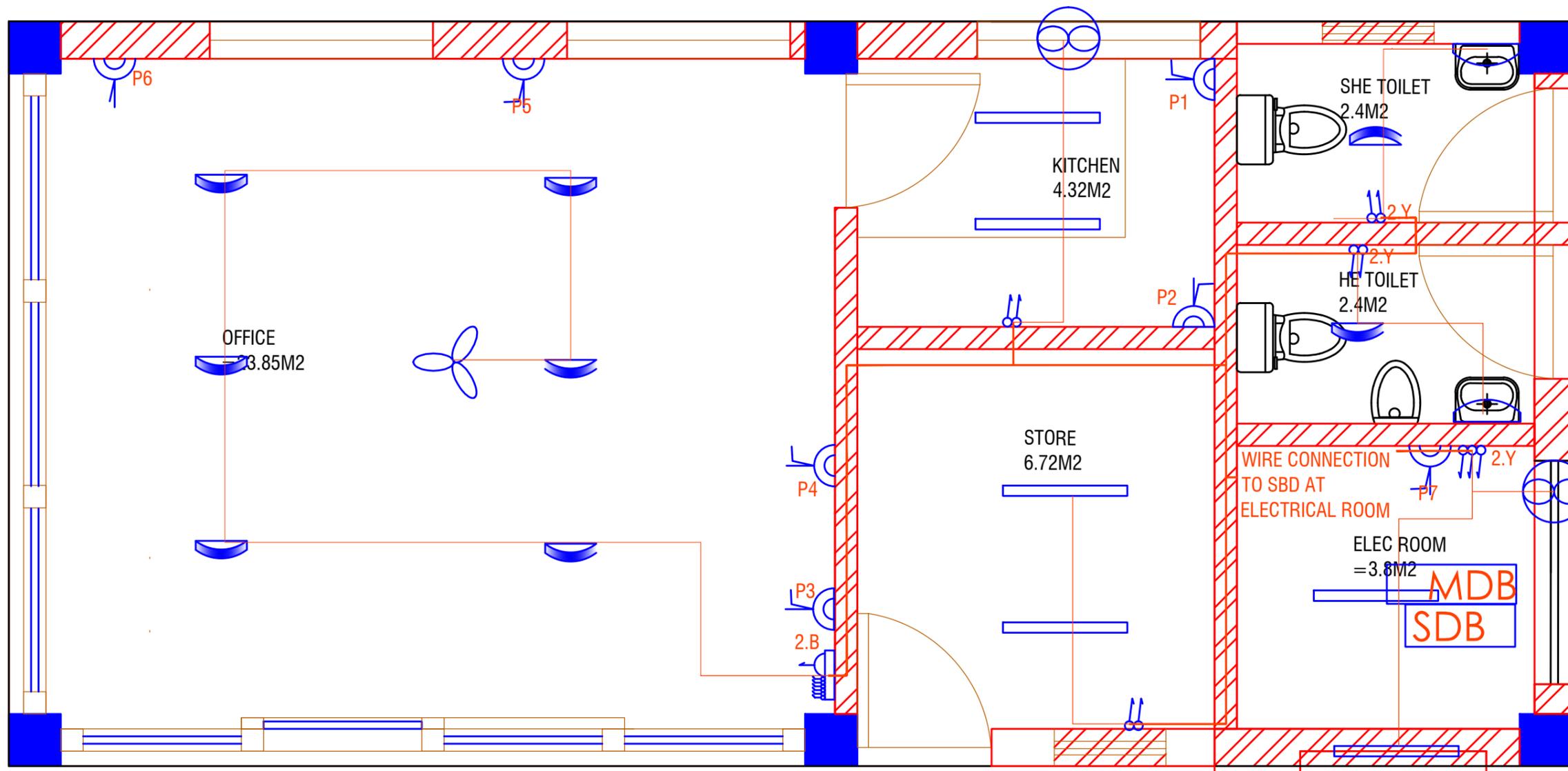
DRAWING : ELECTRICAL

SHEET NO : EL/07

REVISION SUFFIX	NORTH
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Ground Floor Fitting and fixture with conduit layout

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 OWNER: STCBL
 PLOT ID: TA1-101
 CERTIFICATE NO: THM-211-78

REMARKS



OWNER SIGNATURE

DESIGNED BY:

MANRUPA PRADHAN
 ELECTRICAL ENGINEER

DRAWING TITLE:

JAMTHOG FITTING AND FIXTURE WITH
 CONDUIT LAYOUT PLAN

DATE: APRIL 2021

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/8

REVISION SUFFIX

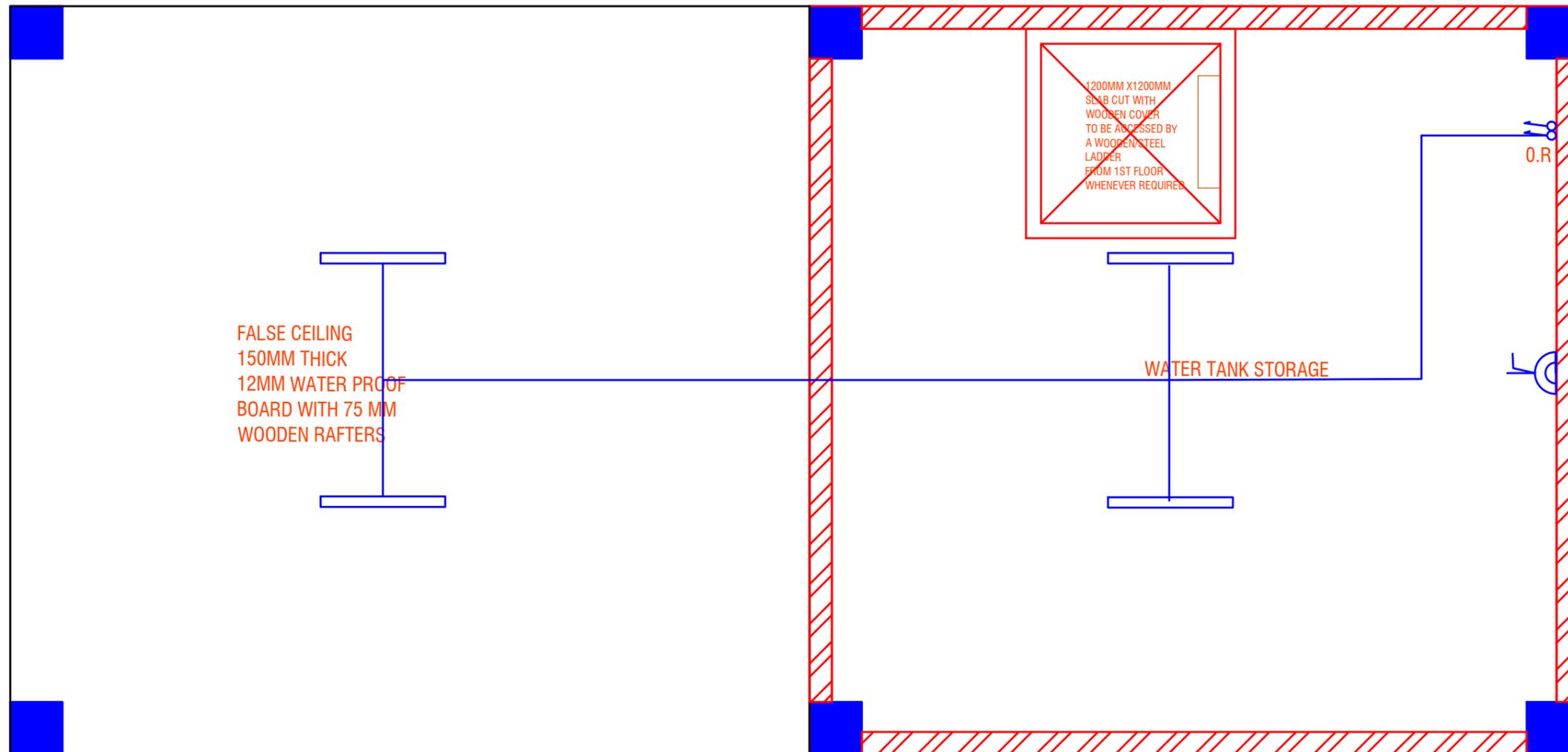
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 OWNER: STCBL
 PLOT ID: TA1-101
 CERTIFICATE NO: THM-211-78

REMARKS



OWNER SIGNATURE

DESIGNED BY:
 MANRUPA PRADHAN
 ELECTRICAL ENGINEER

DRAWING TITLE:
 GROUND FLOOR POWER POINT WITH
 CONDUIT LAYOUT PLAN

DATE: APRIL 2021

SCALE: NTS

DRAWING : ELECTRICAL

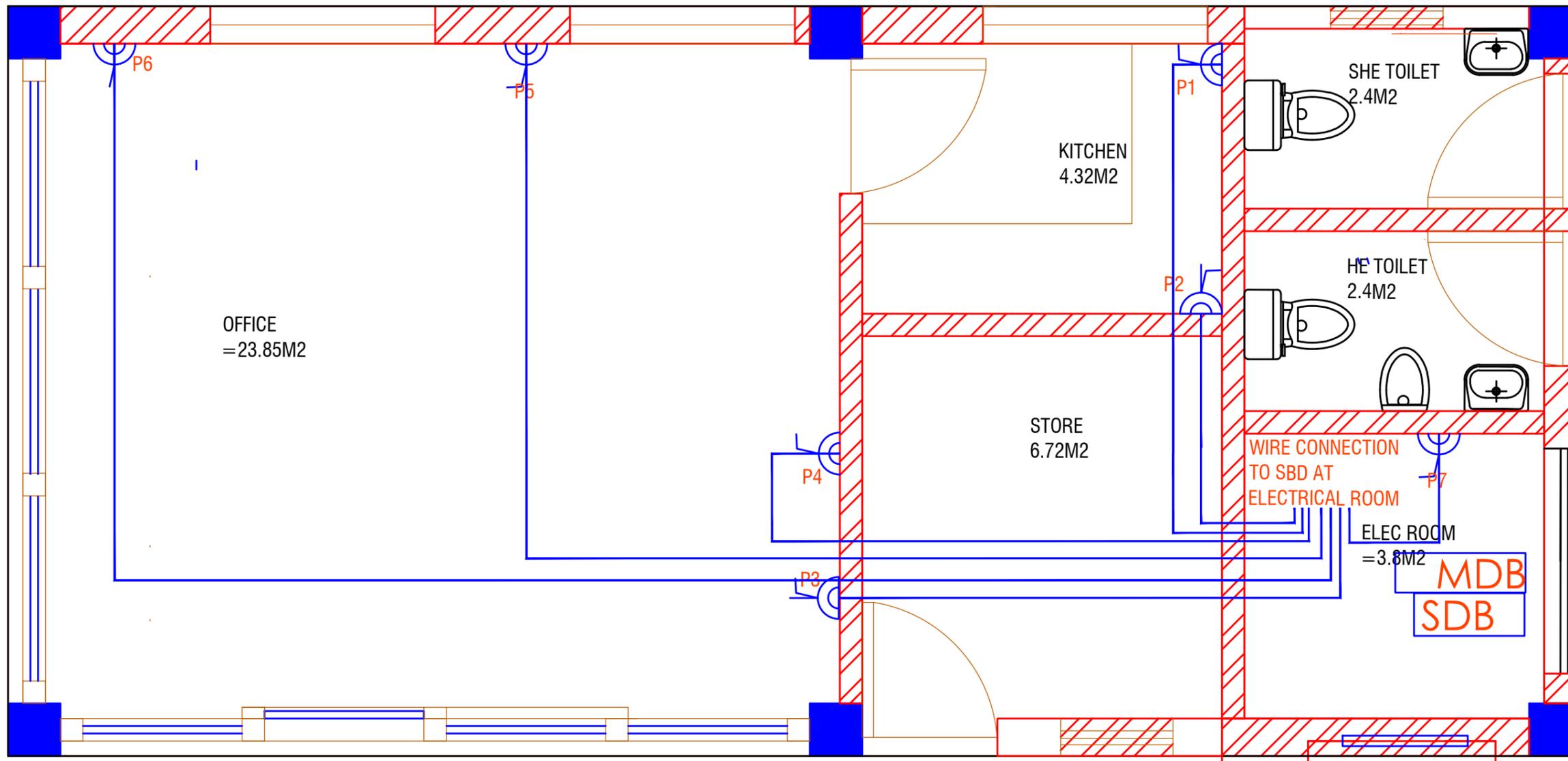
SHEET NO : EL/09

REVISION SUFFIX NORTH



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Ground Floor power point with conduit layout

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REMARKS



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DESIGNED BY:

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 ELECTRICAL ENGINEER

DRAWING TITLE:

JAMTHOG POWER POINT WITH CONDUIT
 LAYOUT PLAN

DATE: APRIL 2021

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/10

REVISION SUFFIX

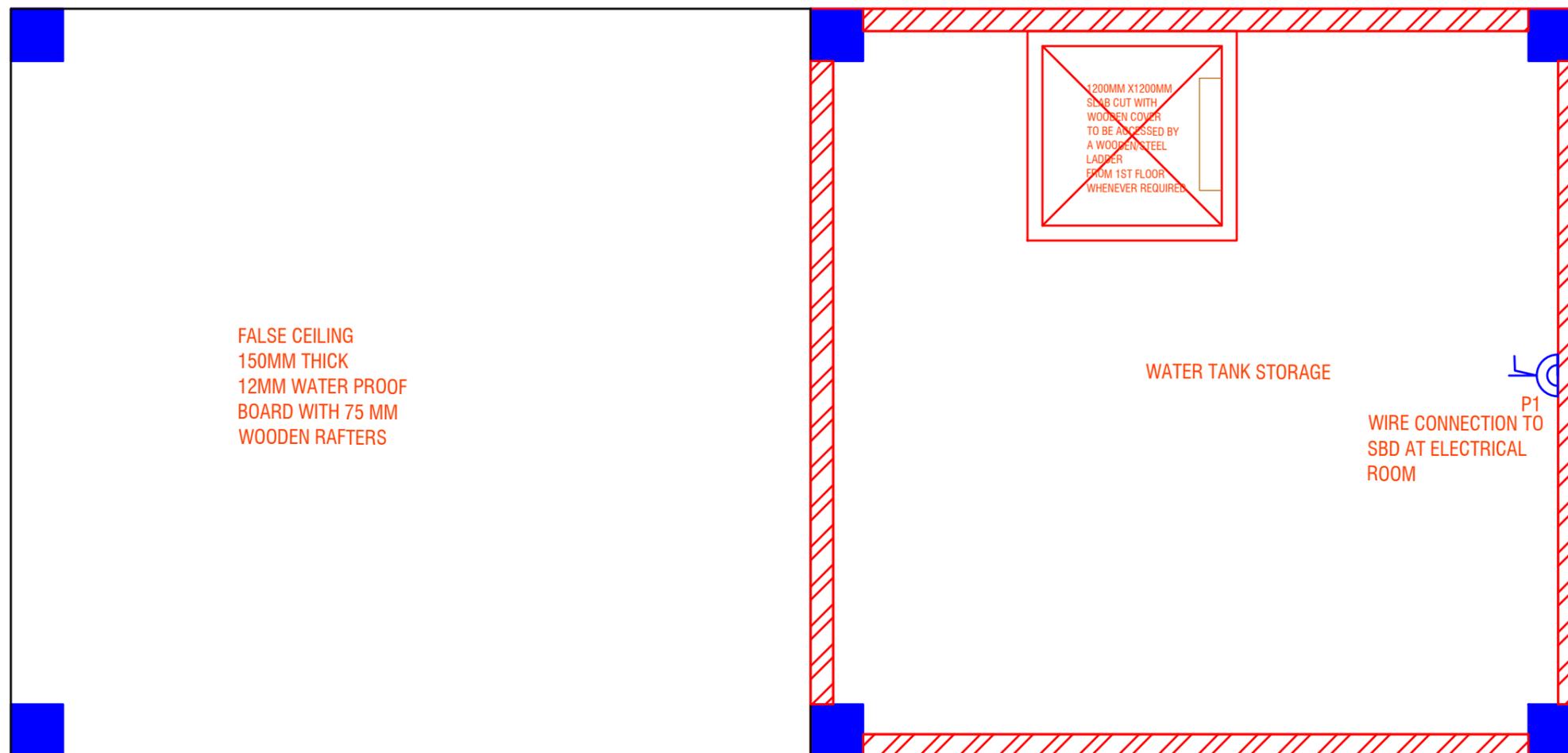
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DRAWING TITLE:
 GROUND FLOOR TELEPHONE LAYOUT
 PLAN

DATE: APRIL 2021

SCALE: NTS

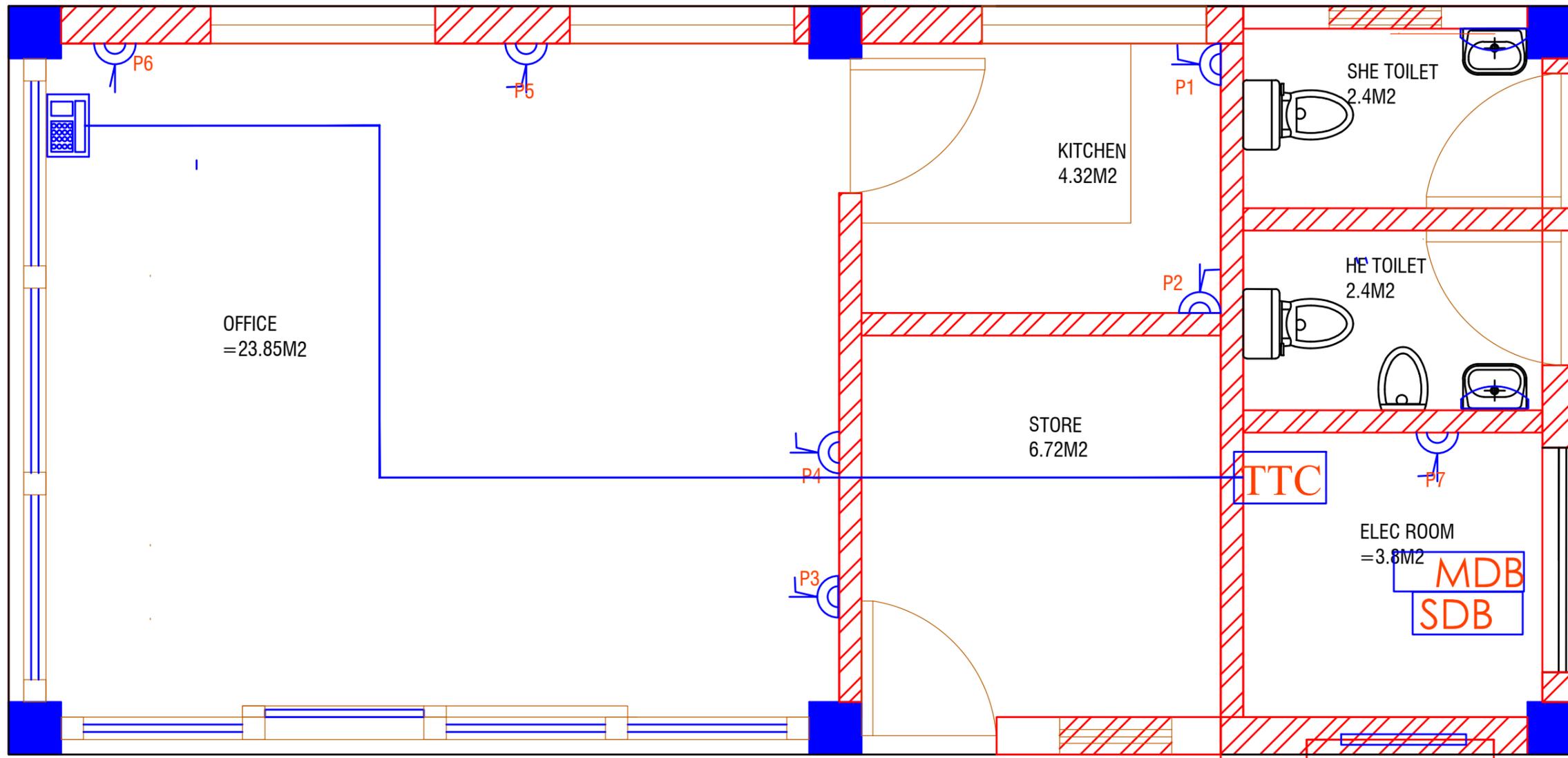
DRAWING : ELECTRICAL

SHEET NO : EL/11

REVISION SUFFIX	NORTH
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Ground Floor Telephone layout

Load distribution

Circuit	R-phase	Y-phase	B-phase
Ckt-1	283	1000	1000
ckt-2	2000	1000	1000
Ckt-3	2000	2000	2000
Ckt-4	1000	1000	1000
Ckt-5	0	1000	1000
Ckt-6	0	0	0
Total	5283	6000	6000
Total connected load			17283

Total Connected load (Watt)		
R-phase	Y-phase	B-phase
5283	6000	6000
Total connected load (watt)		17283
Assumed Load factor		80%
Minimum Pf		85%
Calculated load current at 80% L.F (Amps)		22.6305

Commercial space

Circuit	R-phase	Y-phase	B-phase
Ckt-1	384	298	330
ckt-2	1000	1000	1000
Ckt-3	1000	1000	1000
Ckt-4	1000	2000	2000
Ckt-5	940	900	2000
Ckt-6	2000	2000	2000
Ckt-7	2000	0	0
Total	8324	7198	8330
Total connected load			23852

Total Connected load (Watt)		
R-phase	Y-phase	B-phase
8324	7198	8330
Total connected load (watt)		23852
Assumed Load factor		80%
Minimum Pf		85%
Calculated load current at 80% L.F (Amps)		31.23109

Sales building & outside lightning

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DRAWING TITLE:

LOAD DISTRIBUTION

DATE: APRIL 2021

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/12

REVISION SUFFIX

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DRAWING TITLE:

STANDARD EARTHING DETAILS

DATE: APRIL 2021

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/13

REVISION SUFFIX

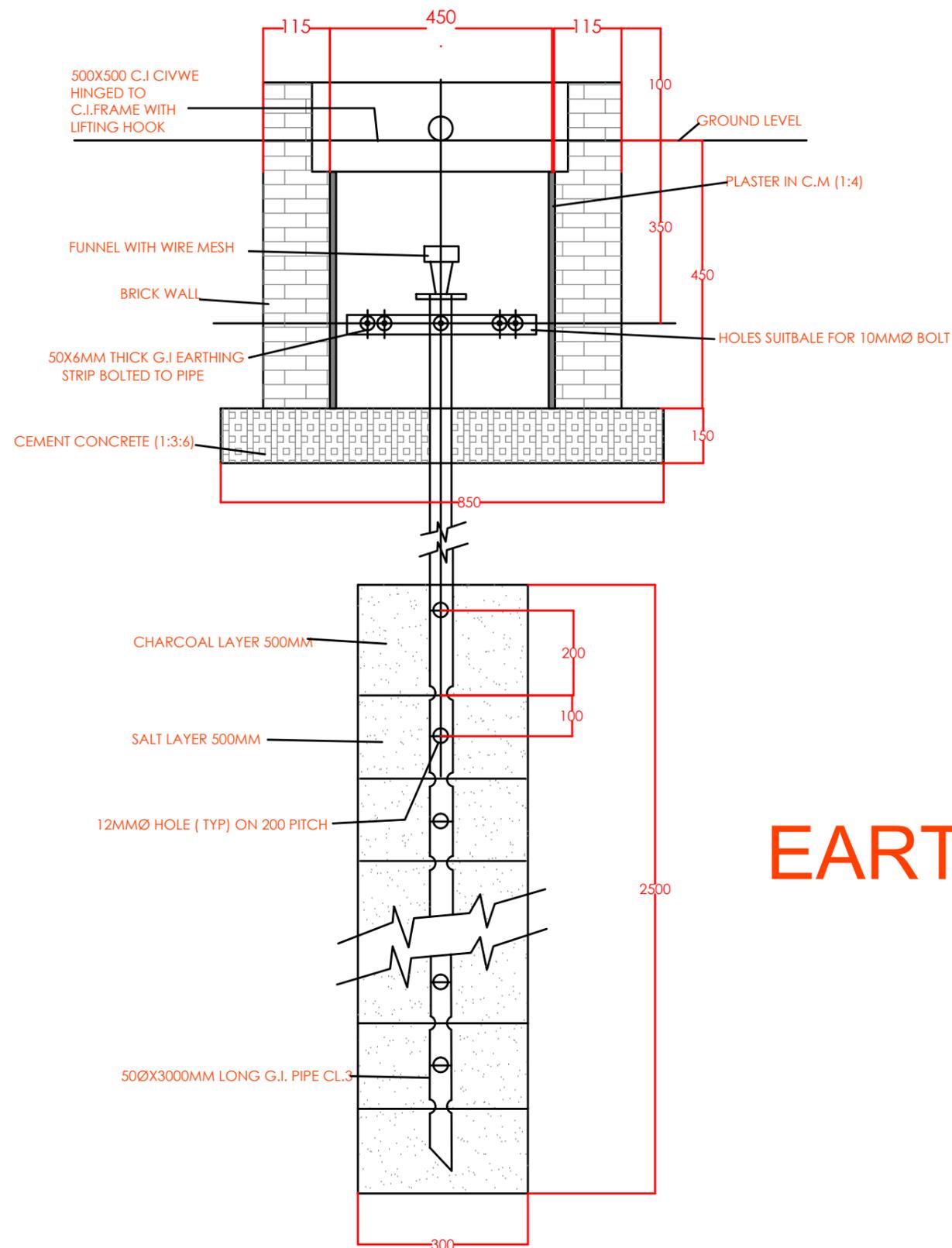
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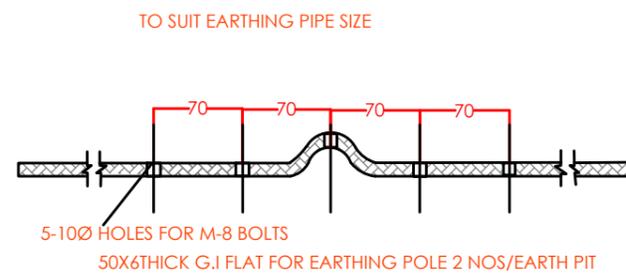
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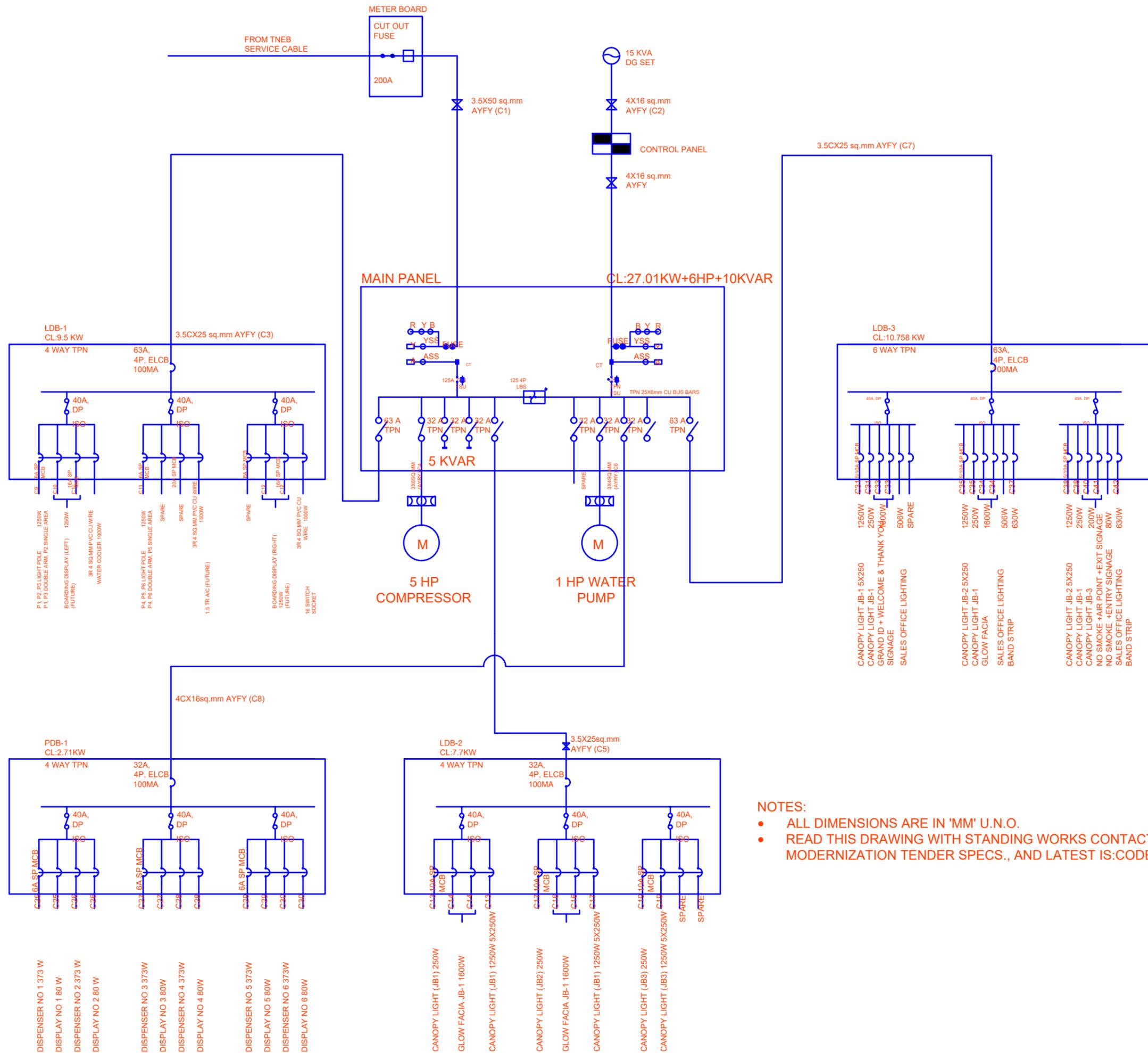


SL.NO	DESCRIPTION	SIZE	QTY	MAT
1	PIPE FOR EARTHING	50ØX300 LG	1	G.I
2	CHARCOAL		100 KG	
3	ROCK SALT		100 KG	
4	FUNNEL WITH WIRE MESH	6" Ø MOUTH	1	G.I
5	HEX.BOLT WITH NUT & WASHER	M-8 X 30 LG	5	G.I
6	EARTHING STRIP	400 X 50 X 6 THICK	2	G.I

THE EARTHING SHALL BE AS PER IS-3043-1987



EARTHING DETAILS



- NOTES:**
- ALL DIMENSIONS ARE IN 'MM' U.N.O.
 - READ THIS DRAWING WITH STANDING WORKS CONTACT FOR MODERNIZATION TENDER SPECS., AND LATEST IS:CODES.

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DRAWING TITLE:

DATE: APRIL 2021

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/14

REVISION SUFFIX	NORTH
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- GENERAL NOTE:**
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www.greendesign.com.bt
 gdsbhutan@gmail.com
 +975 17631322/77845668

OFFICE: FLAT NO 8, GONGDZIN LAM
 ABOVE 8/11 CONVENIENT STORE
 NEXT TO THIMPHU THROMDE BUILDING
 THIMPHU: BHUTAN

PROJECT:

TITLE: FUEL RETAIL OUTLET
 LOCATION: DECHEN LAM, TABA
 OWNER: STCBL
 PLOT ID: TA1-101
 CERTIFICATE NO: THM-211-78

REMARKS



OWNER SIGNATURE

DESIGNED BY:

MANRUPA PRADHAN
 ELECTRICAL ENGINEER

DRAWING TITLE:

DATE: APRIL 2021

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/15

REVISION SUFFIX

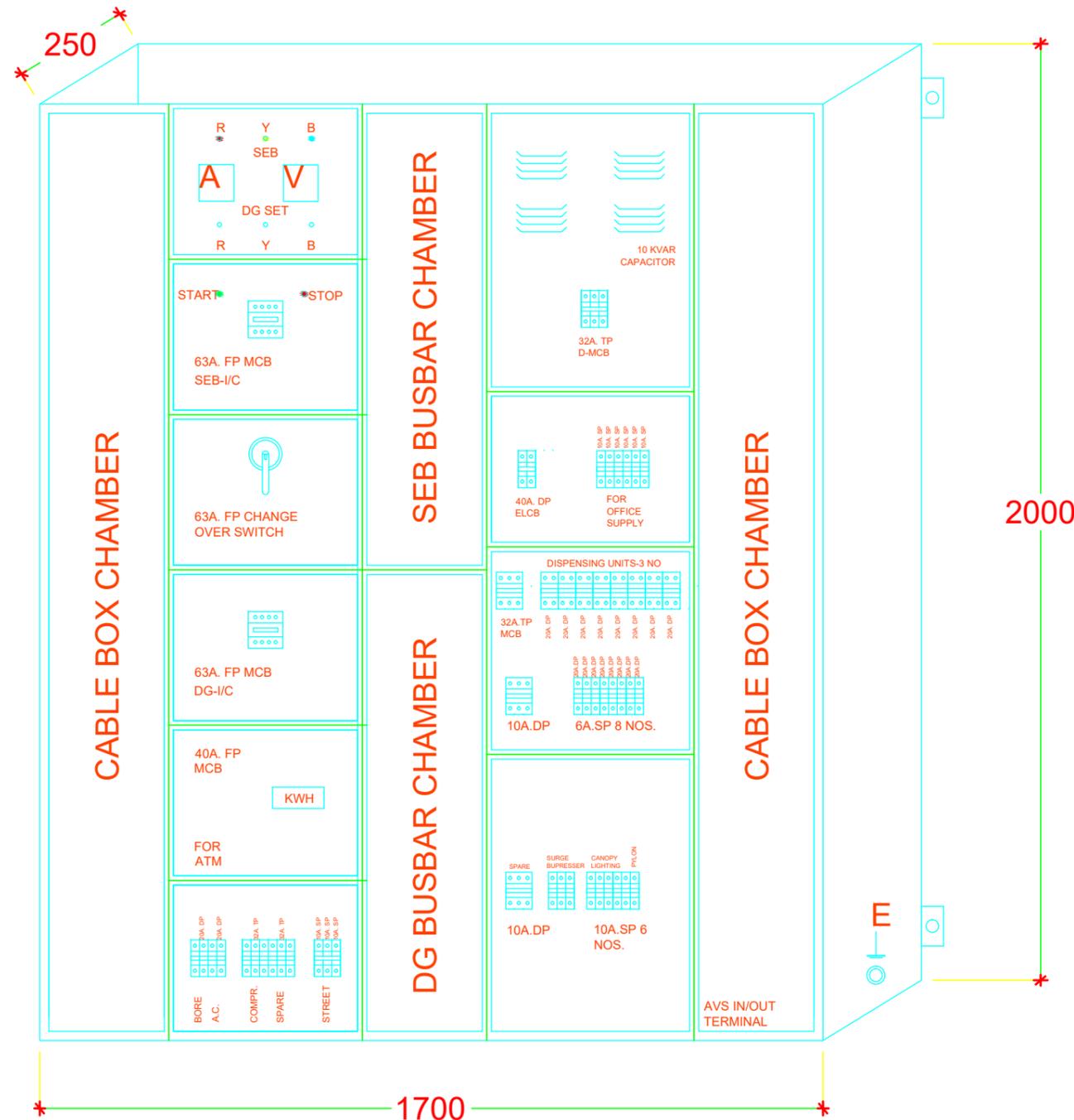


NORTH



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- SPECIFICATION:-
- CONSTRUCTION: 16 SWG-CRGA SHEET
 - PAINT: POWDER COATING SIEMENS GREY
 - SWITCHGEAR: L&T/SCHNEIDER/C&S
 - BUSBAR: COPPER
 - COS: L&T OR HPL
 - MCB/ & ELCB: HAGAR /SCHNEIDER/C&S
 - CAPACITOR: EPCOS/SIEMENS
 - IND. LAMPS: TECHNIC
 - GLAND PLATE: 14 SWG.
 - PANEL MOUNTING : WALL
 - CABLE ENTRY: BOTTOM

25KW G.A. DRG.

INDEX

R	CONNECTION FROM RED PHASE
Y	CONNECTION FROM YELLOW PHASE
B	CONNECTION FROM BLUE PHASE

15kVA DG Set				
Brand				
Description	Units	TMTL	KOEL	Mahindra
Genset				
Genset Model		15	KG1-15AS	15kVA
Genset Rating	kVA	15	15	15
Frequency	Hz	50	50	50
Power Factor	Lagging	0.8	0.8	0.8
Voltage	Volts	230(1Ph)/415(3Ph)	230(1Ph)/415(3Ph)	230(1Ph)/415(3Ph)
Noise Level	dBA		<75	75
Fuel Consumption (Ltrs/Hr)	At 100% Load	3.82	4	4.55
	At 75% Load	2.75	3	3.2
	At 50% Load	2	2.2	2.45
Fuel Tank Capacity	Ltrs	100	65	90
Over all Dimensions of Genset (LXWXH)	mm	1950 x 900 x 1250	1772X1050X1410	1800X900X1300
Dry Weight of Genset With Canopy(approx.)	Kg	950	950	
Electrical Battery Starting Voltage	Volts-DC	12	12	12,88Ah
Engine				
Engine Model		322ES	HA294G1	3255GMC2
Cooling medium	Air / Water	Air	Air	Water
Rated Power (Gross)	Hp (kW)	25.1 (18.5) (*)	20.5 (15.1)	25 (18.4)
Engine fuel	HSD	Diesel	Diesel	Diesel
Aspiration	NA/TC	NA	NA	NA
Number of stroke	Nos	4	4	4
Number of Cylinders	Nos	2	2	3
Bore X Stroke	mm x mm	100x125	100X120	88.9X101.6
Displacement	CC/Ltrs	1963	1.88	1891
Compression ratio	--	17 : 1		19.5:1
Rated Speed	Rpm	1500	1500	1500
Governing Class & Type		A1	G2	A1
Lubrication filter	Type / no. Of filters	Spin-on type / Single		
Total Coolant Capacity	Litres	NA	NA	11
Lubrication oil	API	15W40-C14		CF415W40
Fuel Filter	Type / No of filters	Double bowl / Single		
Air Cleaner type		Dry		
Service Interval		500/6	500/6	300 Hr Top UP
Warranty	Hrs/Months or yrs.	5C	2Yr.	2 Yrs.

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DESIGNED BY:

MANRUPA PRADHAN
ELECTRICAL ENGINEER

DRAWING TITLE:

DATE: APRIL 2021

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/16

REVISION SUFFIX

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