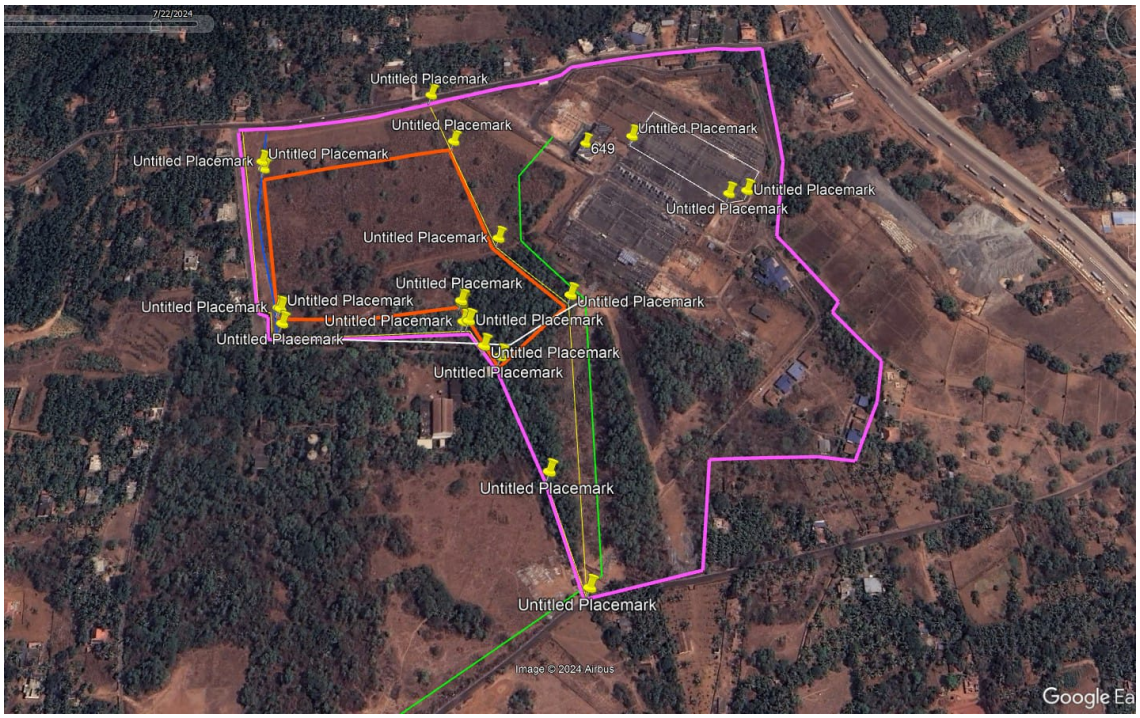

Pink colour loop shows the whole substation boundary.

The red colour loop shows proposed BESS designated area.

Green line shows the 220 kv line under construction passing

Digital Survey Plan

N
W E
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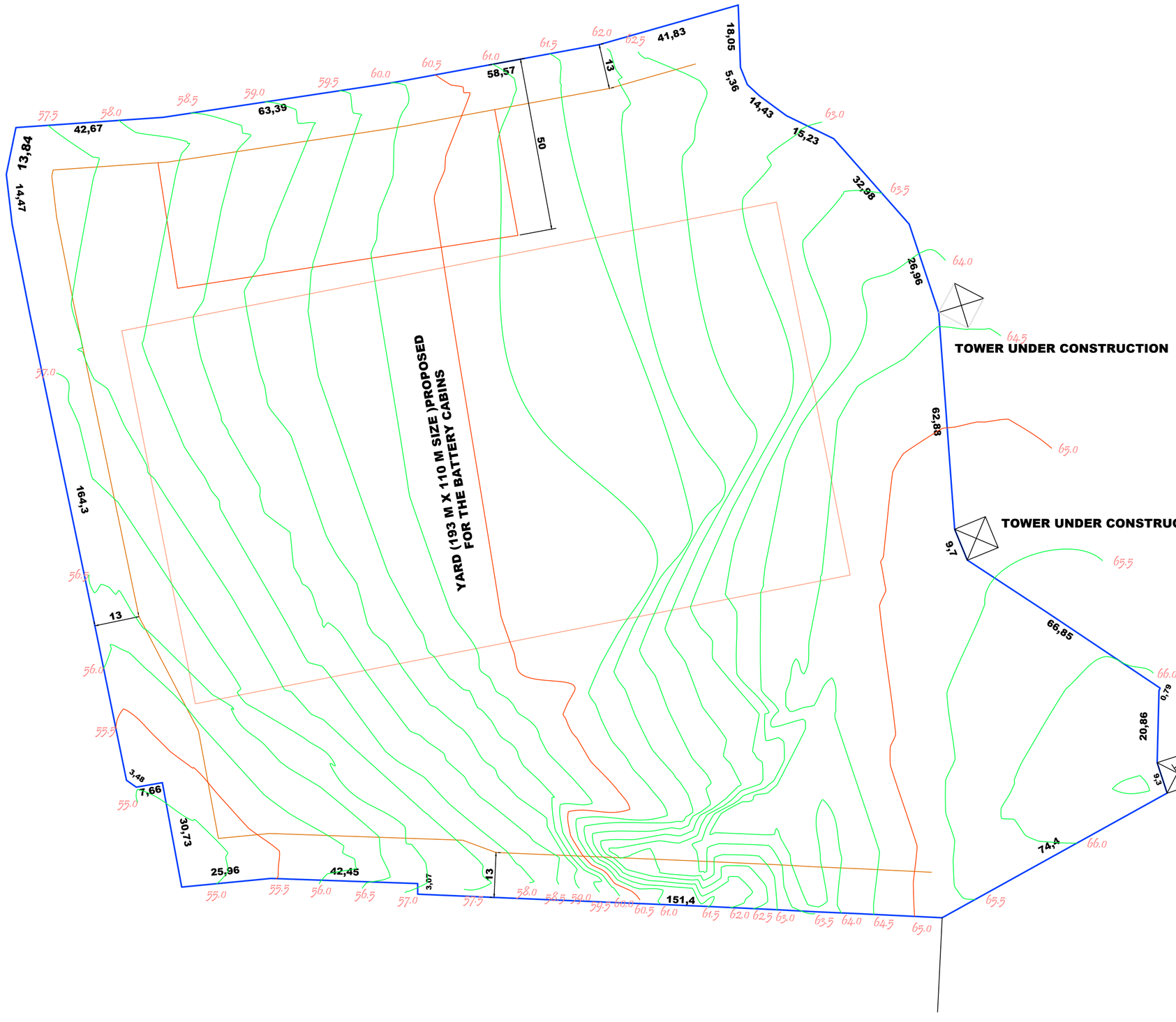
FILE NO. :- RTK-309



NOTES

All Dimensions Are In Meters

- PLOT BOUNDARY (INSIDE OF COMPOUND WALL)
  TOTAL EXTEND OF LAND 15.4 ACRE
- 13 M GREEN BELT
- 50 M GREEN BELT
- PROPOSED PLOT OF 5.25 ACRE FOR BATTERY CONTAINERS
- MAJOR CONTOUR 5 M INTERVAL
- MINOR CONTOUR 0.5 M INTERVAL

SOIL INVESTIGATION REPORT

NAME OF WORK

220KV SUBSTATION, MYLATTY- IMPLEMENTATION OF BESS AT 220KV SUBSTATION, MYLATTY- CONDUCTING SOIL INVESTIGATION OF PROPOSED SITE LOCATION INSIDE 220KV SUBSTATION, MYLATTY.

CLIENT

THE ASSISTANT EXECUTIVE ENGINEER
220 KV SUB STATION
SUB DIVISION,
MYLATTY, KASARGOD.

PROJECT/SITE: Proposed 220kV Substation at Mylatty, Kasargod
CLIENT: The Assistant Executive Engineer, 220KV Substation, Mtlatty

SUB SOIL PROFILE

In BH1, the top 0.40 comprise of ordinary soil. Below this hard laterite was noted extending up to depth of 4.20m. Below this hard laterite was noted having S.P.T value of 44 to greater than 50 extending up to depth of 9.00m. Below this hard strata was noted and BH1 was terminated at in this depth. Water table was not met in the borehole during the time of investigation from ground level.

In BH2, the top 0.30 comprise of ordinary soil. Below this hard laterite was noted extending up to depth of 4.30m. Below this hard laterite was noted having S.P.T value of greater than 50 extending up to depth of 8.30m. Below this medium dense to dense lateritic clayey sand was noted having S.P.T value 29 to 41 extending up to depth of 13.20m. Below this hard clay was noted having S.P.T value of greater than 50 extending up to depth of 16.50m. This was followed by medium dense clayey sand having S.P.T value 19 to 21 extending up to depth of 22.00m. Below this medium dense silty sand was noted having S.P.T value of 15 extending up to depth of 24.10m. From 24.10m to 25.00m soft rock was noted. Below this hard rock was noted and BH2 was terminated at in this depth. Water table was not met in the borehole during the time of investigation from ground level.

In BH3, the top 0.40 comprise of ordinary soil. Below this hard laterite was noted extending up to depth of 4.90m. Below this dense to very dense lateritic clayey sand was noted having S.P.T value of 42 to greater than 50 extending up to depth of 10.50m was noted and BH3 was terminated at in this depth. Water table was not met in the borehole during the time of investigation from ground level.

In BH4, the top 0.80 comprise of ordinary soil. Below this hard laterite was noted extending up to depth of 5.70m. Below this very dense lateritic clayey sand was noted having S.P.T value of greater than 50 extending up to depth of 10.50m was noted and BH4 was terminated at in this depth. Water table was not met in the borehole during the time of investigation from ground level.

In BH5, the top 0.60 comprise of ordinary soil. Below this hard laterite was noted extending up to depth of 6.30m. Below this very dense lateritic clayey sand was noted having S.P.T value of greater than 50 extending up to depth of 10.50m was noted and BH5 was terminated at in this depth. Water table was not met in the borehole during the time of investigation from ground level.

For the proposed structures, shallow foundation may be provided in the hard laterite strata at a depth of about 0.60m from the ground level. A safe bearing capacity of 30t/m^2 may be adopted for a footing of minimum width of 1.0m commencing from the hard laterite strata at a depth of 0.60m from the ground level. Depending upon the intensity of loading either wall footing, Isolated foundation, strip footing or raft foundation may be adopted.

Recommendations are based on the soil samples and N-value provided b
and in the assumption that the soil profile found in the boreholes tested is indicative of the entire plot area. Any deviation in soil profile other than those observed in the boreholes tested, should immediately be referred to the consultant and proper modification should be implemented. **The foundation execution is recommended under strict technical supervision.**

PROJECT	: Proposed Constrn. of 220 KV Substation Building
SITE	: Mylatty, Kasargod
BORE HOLE NO.	: 1
TYPE OF BORING	: Rotary Drilling

1/1

DATE OF COMMENCE	: 28-12-2024
DATE OF COMPLETION	: 28-12-2024
GROUND WATER LEVEL	: Not met with

BORE LOG CHART & DATA SHEET

Depth in Meter	Soil Profile	Visual Description of Soil	Thickness of Layers (M)	Standard Penetration Test Data					Graph of 'N' Value	Remarks
				Depth (m)	15	30	45	'N' Value	10 20 30 40 50 >50	
0.00										
		Ordinary soil (Grey)	0.40							
0.40				0.40	>50	SPT Rebounded w/o sample				
		Hard laterite (Red)	3.80	Hard laterite boring done with D/bit from 0.40 to 4.20m (3.80m)						
4.20										
		Medium hard laterite (R/Y/White)	2.70	4.50	20	21	23	44		
				6.00	19	29	21	>50		(Bal-03cms)
6.90										
		Hard laterite (Y/red)	2.10	7.50	>50	-	-	>50		(Bal-31cms)
9.00				9.00	>50	SPT Rebounded w/o sample				
		Hard strata	--							

Bore Hole Terminated at 9.00m depth.

Site-in-charge

PROJECT	: Proposed Constrn. of 220 KV Substation Building
SITE	: Mylatty, Kasargod
BORE HOLE NO.	: 2
TYPE OF BORING	: Rotary Drilling

1/1

DATE OF COMMENCE	: 28-12-2024
DATE OF COMPLETION	: 29-12-2024
GROUND WATER LEVEL	: Not met with

BORE LOG CHART & DATA SHEET

Depth in Meter	Soil Profile	Visual Description of Soil	Thickness of Layers (M)	Standard Penetration Test Data					Graph of 'N' Value	Remarks
				Depth (m)	15	30	45	'N' Value	10 20 30 40 50 >50	
0.00										
		Ordinary soil (Grey)	0.30							
0.30				0.30	SPT Rebounded w/o sample					
		Hard laterite (Red)	4.00	Hard laterite boring done with D/bit from 0.30 to 4.30m (4.00m)						
4.30										
		Hard laterite with pebbles (R/Yellow)	2.70	4.50	31	>50	-	>50		(Bal-18cms)
				6.00	32	>50	-	>50		(Bal-21cms)
7.00										
		Hard laterite(Y/brown)	1.30	7.50	>50	-	-	>50		(Bal-33cms)
8.30										
		Lateritic clayey sand (W/red)	3.20	9.00	11	13	23	36		
				10.50	15	15	26	41		
11.50										
		Lateritic clayey sand (R/W/Yellow)	1.70	12.00	10	12	17	29		
13.20										
		Stiff clay (Red)	1.50	13.50	16	20	30	>50		(Bal-03cms)
14.70										
		Stiff clay (Br/red)	1.80	15.00	18	24	26	>50		(Bal-05cms)
16.50										

Site-in-charge

contd. on page--2

PROJECT	: Proposed Constrn. of 220 KV Substation Building
SITE	: Mylatty, Kasargod
BORE HOLE NO.	: 2
TYPE OF BORING	: Rotary Drilling

1/1

DATE OF COMMENCE	: 28-12-2024
DATE OF COMPLETION	: 29-12-2024
GROUND WATER LEVEL	: Not met with

BORE LOG CHART & DATA SHEET

Depth in Meter	Soil Profile	Visual Description of Soil	Thickness of Layers (M)	Standard Penetration Test Data					Graph of 'N' Value						Remarks
				Depth (m)	15	30	45	'N' Value	10	20	30	40	50	>50	
16.50															
		Clayey sand (Grey)	2.10	17.00	6	8	13	21							
18.60															
		Clayey sand (Y/brown)	3.40	19.00	5	8	11	19							
				21.00	6	9	11	20							
22.00															
		Silty clayey sand (W/grey)	2.10	23.00	5	7	8	15							
24.10				24.10	>50 SPT Rebounded w/o sample Soft rock boring done with D/bit from 24.10 to 25.00m (0.90m) No recovery.										
		Soft rock (W/grey)	0.90												
25.00				25.00											
		Hard rock (Grey)	1.00		Hard rock boring done with D/bit from 25.00 to 26.00m (1.00m) Recovery--52cms RQD-11%										
26.00															
		Bore Hole Terminated at 26.00m depth.													

Site in charge

PROJECT	: Proposed Constrn. of 220 KV Substation Building	1/1	DATE OF COMMENCE : 02-01-2025
SITE	: Mylatty, Kasargod		DATE OF COMPLETION : 02-01-2025
BORE HOLE NO.	: 3		GROUND WATER LEVEL : Not met with
TYPE OF BORING	: Rotary Drilling		

BORE LOG CHART & DATA SHEET

Depth in Meter	Soil Profile	Visual Description of Soil	Thickness of Layers (M)	Standard Penetration Test Data					Graph of 'N' Value	Remarks
				Depth (m)	15	30	45	'N' Value	10 20 30 40 50 >50	
0.00										
		Ordinary soil (Grey)	0.40							
0.40				0.40	>50	SPT Rebounded			w/o sample	
		Hard laterite (Red)	4.50	Hard laterite boring done with D/bit from 0.40 to 4.90m (4.50m)						
4.90										
		Lateritic clayey sand with pebbles (Br/Y/White)	3.40	6.00	25	35	15	>50		(Bal-10cms)
				7.50	28	40	10	>50		(Bal-12cms)
8.30										
		Lateritic clayey sand with pebbles (R/yellow)	2.20	9.00	13	20	22	42		
10.50				10.50	16	22	25	47		

Bore Hole Terminated at 10.50m depth.

Site-in-charge

PROJECT	: Proposed Constrn. of 220 KV Substation Building	1/1	DATE OF COMMENCE : 03-01-2025
SITE	: Mylatty, Kasargod		DATE OF COMPLETION : 03-01-2025
BORE HOLE NO.	: 4		GROUND WATER LEVEL : Not met with
TYPE OF BORING	: Rotary Drilling		

BORE LOG CHART & DATA SHEET

Depth in Meter	Soil Profile	Visual Description of Soil	Thickness of Layers (M)	Standard Penetration Test Data					Graph of 'N' Value						Remarks
				Depth (m)	15	30	45	'N' Value	10	20	30	40	50	>50	
0.00															
		Ordinary soil (Grey)	0.80												
0.80				0.80	SPT Rebounded w/o sample										
		Hard laterite (Red)	4.90	Hard laterite boring done with D/bit from 0.80 to 5.70m (4.90m) No recovery.											
5.70															
		Lateritic clayey sand with pebbles (Br/Yellow)	3.00	6.00	28	40	10	>50							(Bal-13cms)
				7.50	30	42	8	>50							(Bal-15cms)
8.70															
		Lateritic clayey sand with pebbles (R/Y/white)	1.80	9.00	18	35	15	>50							(Bal-10cms)
10.50				10.50	22	38	12	>50							(Bal-12cms)
		Bore Hole Terminated at 10.50m depth.													

Site in charge

PROJECT	: Proposed Constrn. of 220 KV Substation Building	1/1	DATE OF COMMENCE : 03-01-2025
SITE	: Mylatty, Kasargod		DATE OF COMPLETION : 03-01-2025
BORE HOLE NO.	: 5		GROUND WATER LEVEL : Not met with
TYPE OF BORING	: Rotary Drilling		

BORE LOG CHART & DATA SHEET

Depth in Meter	Soil Profile	Visual Description of Soil	Thickness of Layers (M)	Standard Penetration Test Data					Graph of 'N' Value						Remarks
				Depth (m)	15	30	45	'N' Value	10	20	30	40	50	>50	
0.00															
		Ordinary soil (Grey)	0.60												
0.60				0.60	SPT Rebounded w/o sample										
		Hard laterite (Red)	5.70	Hard laterite boring done with D/bit from 0.60 to 6.30m (5.70m) No recovery.											
6.30															
		Lateritic clayey sand with pebbles (R/Y/White)	3.30	7.50	20	28	22	>50							(Bal-05cms)
				9.00	25	34	16	>50							(Bal-08cms)
9.60		Lateritic clay with sand & pebbles(R/Y/white)	0.90												
10.50				10.50	18	25	25	>50							(Bal-02cms)

Bore Hole Terminated at 10.50m depth.

Site-in-charge