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Covering letter

From

T. Saravanan,
Integrated engineers,
P.N Palayam road,
Coimbatore -45

To

The Director,
Metro pole homes,
Salem.

Sir,

Sub: Submitting soil test report.

We have tested your soil samples taken from your project. Here with we Enclosed test reports as per your requirement. Kindly accept our report with your kind coordination. We are expecting your reply.

Thanking you,

Date : 11/6/2017

Station: Coimbatore

Yours Faithfully,

GEO ECO

63/54,55, 1st Floor,
Dhamu Nagar Bus Stop,
P.N.Palayam Road,
Puliakulam, Coimbatore - 641 045

For METROPOLE HOMES

PARTNER.

For METROPOLE HOMES

R. Uma Maheswari
PARTNER.

INTRODUCTION

1.0 Preamble

Geotechnical site investigation report for the project Metropole Homes, Salem. The client has carried out the Standard Penetration Test in the field on 08.05.2017 upto the depth of 5m, and collected the sample at every depth of 1m, sealed and produced in our laboratory for testing. The soil sample collected are of disturbed sample from split spoon sampler and at the 5m depth the sample are of washed out sample. This report has been prepared based on the field result given by the client. This report contains the laboratory test results and safe bearing capacity values of the given soil sample.

1.1 Scope of the work

- Preparing of Borelog report from the SPT result given by the client
- Conducting relevant laboratory test.
- Preparing report for laboratory result and analyzing the safe bearing capacity values.

1.2 Summary of the Field work

Based on the field report a bore log sheet has been prepared for the location B11-01 is shown in Fig.1.2.

1.3 Ground water table

Ground water table has not struck upto a depth of 5m during the Standard Penetration Test conducted on 2nd week of May 2017.

1.4 Laboratory Tests

The laboratory tests on soil samples were started immediately after the receipt of the same in the laboratory. Following laboratory tests are carried out to determine the physical and engineering properties of disturbed soil samples. The operations to be performed in the laboratory depend upon the type of the nature of data required for the problem at hand. The design parameters are worked out based on the laboratory test results and field test data such as from SPT – N value.

Following laboratory tests are conducted,

- Moisture content
- Sieve analysis
- Direct shear test

1.2.1 Moisture content test

As per IS 2720-2(1973), this test is done to determine the water content in soil by oven drying method. This result is presented in the Table 1.2.

1.2.2 Sieve analysis

As per IS 2720-4 (1985) to know the gradation characteristic and to classify them. This result is presented in Table 1.2.

1.2.3 Direct shear test

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As per IS 2720-13(1986), to determine the shear strength parameters of the soil. This result is presented in the Table 1.2.

1.5 Safe Bearing Capacity

The allowable bearing pressure based on tolerable settlement has been established empirically by Terzaghi and Peck, 1948 and may be expressed by the equation.

$$\text{Safe Bearing Capacity (SBC)} = 35(N_{\text{corr}} - 3) \left[\frac{B + 0.3}{2B} \right]^2 R_w F_d + P$$

Where.

- N_{corr} = Corrected N value
- B = width of foundation = constant 1
- R_w = water table correction factor = constant 0.5
- F_d = Depth factor = constant 1
- P = overburden pressure

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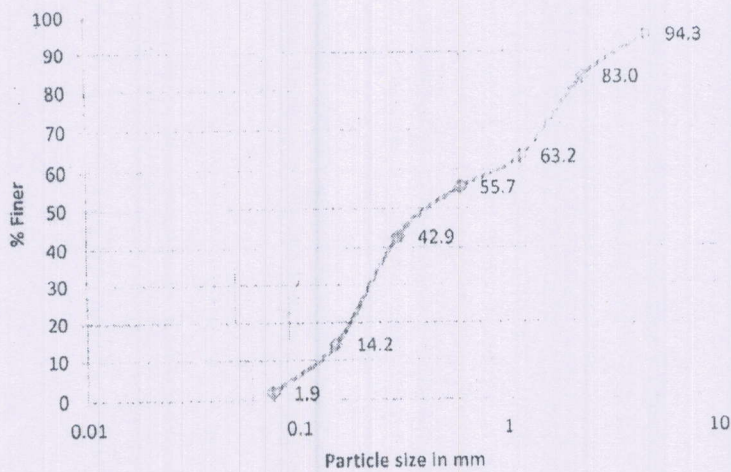
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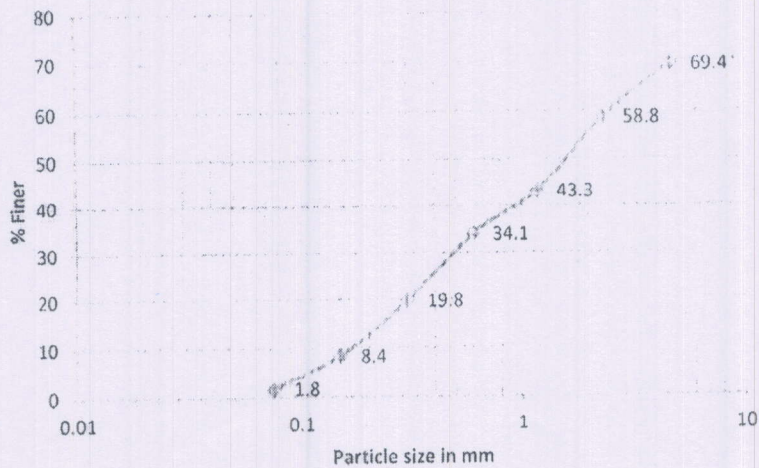
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At 2.0m Depth



At 3.0m Depth



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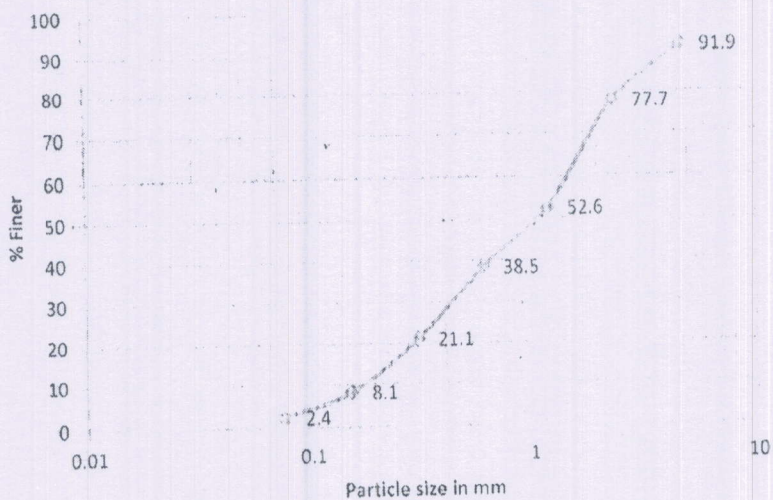
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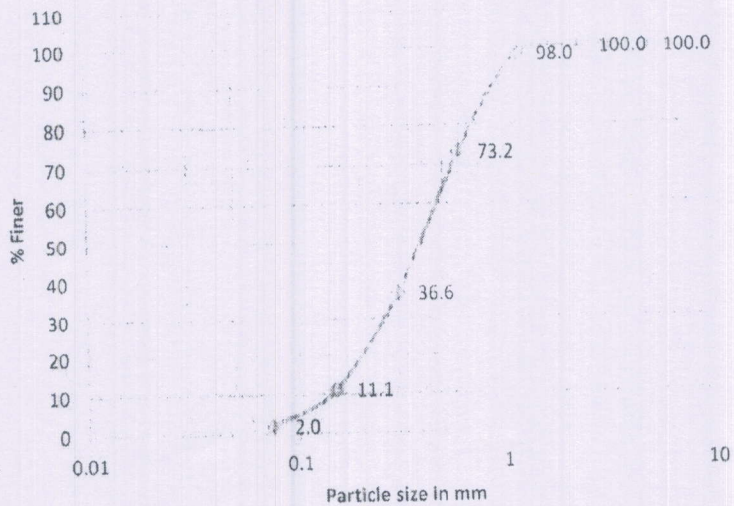
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At 4.0m Depth



At 5.0m Depth



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Project: Metropole Homes, Salem
Soil Profile for: BH-01 Location
Soil Investigation done by:

Date of commencement: 08.05.2017
Date of completion : 08.05.2017

Fig 1.2 BORE LOG REPORT

R.L. of Layer(m)	G.W.T	Soil profile	Engineering Description of Soil	Type of sample	SPT - Details				Graphical Representation of SPT										Relative Density / Consistency
					Depth of SPT (m)	0-15 cm	15 - 30 cm	30 - 45 cm	N Value	10	20	30	40	50	60	70	80	90	
0.00	Not struck upto 5m depth		Top Soil	Disturbed	0.00	-	-	-											Very loose
1.00			Poorly Graded sand with little fines	Disturbed	1.00	5	4	4	8										Loose
2.00			Poorly Graded sand with little fines	Disturbed	2.00	6	9	13	22										Medium
3.00			Poorly Graded sand with little fines	Disturbed	3.00	14	14	15	29										Medium
4.00			Soft Disintegrated Rock	Disturbed	4.00	25	50		>50										Dense
5.00			Soft Disintegrated Rock	Disturbed	5.00	Fully bounded			>50										Very dense

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Table 1.2 SOIL TEST RESULTS

Metropole Homes, Salem				Bore number 1			Reduced Level		Ground water Level: not met		Work Commenced on:08.05.2017 Work Completed on:08.05.2017		Remarks		
Soil profile and depth in m	IS soil classification	Soil density g/cc	Moisture content %	Index Test			Sieve analysis % passing IS sieve analysis		Shear test		Standard Penetration test			Remarks	
				Liquid Limit %	Plastic Limit %	Plasticity Index	Gravel (%)	Sand (%)	Silt and Clay (%)	Cohesion kN/m ²	Angle of internal friction °	Depth of testing m	(Observed N value		Corrected N value
	SP	4	12.5	NP	NP	NP	15	81	3	SP	24	0.00	-	-	Disturbed sample
	SP	5.2	16.6	NP	NP	NP	0.7	96	3.6	SP	29	1.00	8	13	Disturbed sample
	SP	5.5	11.1	NP	NP	NP	5.6	92	1.8	SP	30	2.00	22	22	Disturbed sample
	SP	5.6	12	NP	NP	NP	31	68	1.8	SP	32	3.00	29	24	Disturbed sample
	SP	5.8	7.14	NP	NP	NP	8	89	2	SP	38	4.00	>50	50	Disturbed sample
	SP	4.7	0	NP	NP	NP	0	98	1.96	SP	40	5.00	>50	50	Washed out sample has been collected at this depth. Based on that sieve analysis was done

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1.6 Sub Surface Stratification

1.6.1 Soil Profile at BH-01 Location

• Layer -1 (from G.L. to 1.0m depth)	
Thickness of layer	: 1m
Type of sample	: Disturbed
SPT of the layer	: 8
Corrected SPT value	: 13
Relative Density	: Loose
Angle of Shearing Resistance ϕ	: 29°
• Layer -2 (from 1.0m to 2.0m depth)	
Thickness of layer	: 1m
SPT of the layer	: 22
Corrected SPT value	: 22
Relative Density	: Medium
Angle of Shearing Resistance ϕ	: 30
• Layer -3 (from 2.0m to 3.0m depth)	
Thickness of layer	: 1m
SPT of the layer	: 29
Corrected SPT value	: 24
Relative Density	: Medium
Angle of Shearing Resistance ϕ	: 32
• Layer -4 (from 3.0m to 4.0m depth)	
Thickness of layer	: 1m
SPT of the layer	: 50
Relative Density	: Dense
Angle of Shearing Resistance ϕ	: 38
• Layer -5 (from 4.0m to 5.0m depth)	
Thickness of layer	: 1m
SPT of the layer	: 50
Relative Density	: Very dense
Angle of Shearing Resistance ϕ	: 40

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1.7 Recommendation

- The site of Metropole Homes, Salem, from the SPT test, soil is determined
- From the collected soil sample the type of sample was POORLY GRADED SAND, as per IS: 2720-1985.
- The SAFE BEARING CAPACITY of the soil was found to be 1100 to 1375 kN/m² at a depth of 1 to 5m.

Tested By
P. Mahalingam
9/6/17

Verified By
S. S. Srinivasan
9/6/17

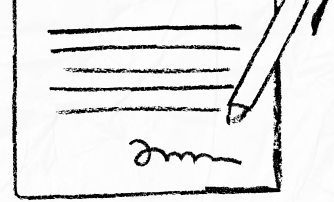
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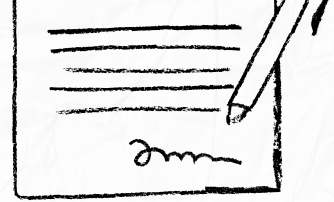
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