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REPORT ON GEOTECHNICAL INVESTIGATION FOR THE PROPOSED CONSTRUCTION OF STILT + 5 FLOORS RESIDENTIAL APARTMENT WITH 15 DWELLING UNITS AT PLOT NO-46. NEW DOOR NO-30, OLD DOOR NO-17, TRUSTPURAM 2nd CROSS STREET & PULIYUR 2nd MAIN ROAD, KODAMBAKKAM, CHENNAI, COMPRISED IN TS NO-35, BLOCK NO-24, OF PULIYUR VILLAGE WITH IN THE LIMIT OF GREATER CHENNAI CORPORATION.

Client:

Mr. Vinod Kothari,

Chennai.

Structural Engineer:

Mr. Kotteeswaran B.E. (Structures)

No-5, 1 Cross Street, Indira Nagar,

Adyar, Chennai-600 020.

REPORT ISSUE STATUS			
<1>	12.08.2024	Revision 1	Detailed Site Address incorporated in the report
<0>	28.10.2023	Final Draft Report	-
Issue	**Date**	**Description**	**Updation**

MS GEOTECH
Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

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An ISO 9001: 2015 Certified Company

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Project No: MSGTPL/SI-5973-R1/23-24

Oct-2023

MS GEOTECH
Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

12th August 2024

To
Mr. Vinod Kothari,
Chennai.

Reg: Proposed construction of Stilt + 5 Floors Residential Apartment with 15 Dwelling units at Plot no-46, New Door No-30, Old Door No-17, Trustpuram 2nd Cross Street & Puliyur 2nd Main Road, Kodambakkam, Chennai, comprised in TS no-35, block no-24, of Puliyur village with in the limit of greater Chennai Corporation.

The **Mars Synergy Geotech Pvt Ltd**, Chennai has completed the geotechnical engineering services for the above referred project.

This geotechnical engineering report presents the results of the subsurface exploration and the recommendations for your proposed structures foundation are presented here in final form together with a summary of field and laboratory data.

We appreciate the opportunity to be of service to you on this project. If you have any comments concerning this report, or if we may be of further services, please contact us/mail.

Note:

1. The test results enclosed are only related to the sample tested by us.
2. The Report shall not be reproduced in full or part without written permission from Mars Synergy Geotech Laboratory.
3. All the lab related tested values are as per the standard conditions followed by the lab.
4. Samples are retained for 30 days from sample received date at lab.

Sincerely,
Mars Synergy Geotech Pvt Ltd.

VASANTHI PADMANABAN, M.Tech.,
Registered Geotechnical Engineer
Reg. No: GTE/19/04/016

Report No: **MSGTPL/SI-5973-R1/23-24**
Copies Submitted: (2)
Total no of Pages: (33)

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REPORT ON GEOTECHNICAL INVESTIGATION AND RECOMMENDATION FOR THE PROPOSED CONSTRUCTION OF STILT+5 FLOORS RESIDENTIAL APARTMENT AT KODAMBAKKAM, CHENNAI.

1.0 INTRODUCTION

Mr. Vinod Kothari, Chennai is planning to construct a Stilt+5 Floors Residential Apartment with 15 dwelling units at Plot no-46, New Door No-30, Old Door No-17, Trustpuram 2nd Cross Street & Puliyur 2nd Main Road, Kodambakkam, Chennai, comprised in TS no-35, block no-24, of Puliyur village with in the limit of greater Chennai Corporation. **M/s. Mars Synergy Geotech Pvt Ltd,** Chennai has carried out this investigation and completed on 16th Oct 2023 as per the client instructions.

The scope of work includes the following

- Making two (02) numbers of Standard Soil Investigation bore-holes
- Collecting soil samples at every 1.0m/1.50m depth intervals
- Conducting laboratory tests on samples collected
- Submitting report with laboratory test results and recommendation for foundations.

1.1 DESCRIPTION OF STRUCTURE

The proposed structure is a Stilt+5 Floors Residential Apartment. The exact details of columns are not available at the time of preparation of this report. Assuming an approximate column spacing of 4.5x5.5m c/c considering this the central column load works about 180 to 200 tones for proposed structure. These loads are assumed for the purpose of foundation only and for the structural design, exact loads are to be estimated based on a suitable structural analysis.

1.2 SOIL INVESTIGATION

The field investigation works were carried out using 1 set of Rotary mechanical drilling Rig. The following activities, carried out in chronological sequence, comprised the field work for the project

- Mobilization of rotary drilling rig, water pump, testing tools and accessories.
- Collection of disturbed samples of non-cohesive soils.
- Sampling and logging of the boreholes. Packing, labeling and dispatching the samples to laboratory.
- Field investigation, tests and laboratory tests conducted as per IS-1892 and IS -2720

1.3 FIELD SAMPLING

Two (02) numbers of standard soil investigation borehole of 100mm diameter were made at the locations shown in the drawing, **MSGTPL/SI-5973** enclosed. Investigations were conducted up to a maximum of 22.0m depth from existing ground level. SPTs were conducted at every 1.0m/1.5m depth intervals and samples were collected for identification and testing.

1.4 LABORATORY TESTS

The laboratory-testing scheme is so designed to obtain the design parameters for the foundations. The following parameters are evaluated:

- Type of soil and it's gradation properties
- Atterberg Limits
- Specific Gravity
- Natural Moisture Content (NMC)
- Sieve analysis on the coarse-grained soil fraction

All the test results are presented in the tabular forms. Comprehensive field information along with SPT values is presented on separate sheet.

1.5 SOIL PROFILE

Based on visual identification of soil samples and test results (of both field and laboratory tests), the soil profile arrived. Subsoil is made-up of seven distinctive layers there are

(i) Stiff CLAY up to -1.5m with avg **SPT's N=10**
(ii) Medium dense SAND -1.50m to -2.50m with **avg SPT's N=16**
(iii) Medium Stiff CLAY -2.50m to -5.0m with **avg SPT's N= 6**
(iv) Stiff CLAY -5.0m to -8.50m with **avg SPT's N=14**
(v) Very Soft CLAY-8.50m to -12.5m with **avg SPT's N=2**
(vi) Hard Sandy CLAY -12.5m to -18.0m with **avg SPT's N=40**
(vii) Hard Shale CLAY-18.0m to -22.0m with **SPT's N>100**

The soil profile details are presented in the bore-chart.

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1.6 GROUND WATER TABLE

Determination of Ground water Table and water depth from Existing Ground level was done using Steel tape with weight. The depth of Ground water table was determined as per procedure laid in IS 6935-1973. At the time of Soil Investigation (14/10/2023 to 16/10/2023) at site, ground water table was **(-)1.0m** depth encountered with in the investigated depth from Existing Ground Level.

No long-term monitoring of groundwater was specified. Thus, the groundwater conditions established are applicable for the time of investigation only. The groundwater condition is subjected to climatic changes and any changes in the surrounding area. Reconfirmation of groundwater level is proposed before any work relating to the groundwater regime.

1.7 DISCUSSION ON FOUNDATION

At this site two boreholes were investigated up to 22.0m depth, the proposed structure is a six-storied residential apartment, the column loads are about 180 to 200 Tones (Assumed).

Due to the presence of clay layer's, shallow foundation is not satisfactory on shear criteria and settlement criteria. The only option is deep foundation hence bored cast in-situ pile foundation is suggested.

Based on these boreholes, soil design parameters are arrived and same as used for the foundation analysis.

Soil Design Parameters

From (m)	To (m)	Thickness (m)	Soil Type	Avg SPT 'N'	γ' (kN/m³)	C (T/sq.m)	α	Φ (deg)	K
0.0	1.5	1.5	Stiff CLAY	10	8	5	0.9	-	-
1.5	2.5	1.0	Medium Dense SAND	16	8	-	-	31	1.0
2.5	5.0	2.5	Medium Stiff CLAY	6	7	3	1	-	-
5.0	8.5	3.5	Stiff CLAY	14	8.5	7.5	0.6	-	-
8.5	12.5	4.0	Very Soft CLAY	2	6	1	1	-	-
12.5	18.0	5.5	Hard Sandy CLAY	40	9.5	20	0.3	-	-
18.0	22.0	4.0	Hard Shale CLAY	>50	10	35	0.28	-	-

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1.8 RECOMMENDATIONS

- ✓ Proposed structure is a six storied residential apartment.
- ✓ Pile foundations are recommended up to **20.0m depth** from existing Ground level.
- ✓ The pile bore may be terminated at a depth of minimum three times diameter of the pile in to hard strata (where three consecutive SPT 'N' values of more than 50 are obtained in each test at depth intervals of one pile diameter).
- ✓ To satisfy the above criterion the pile length shall be about **20.0m** from the existing ground level.
- ✓ The pile capacities for varying diameters are provided below for the proposed structure.

Pile Termination Depth (m) from EGL	Pile Dia (mm)	Safe Vertical Capacity (Tones)	Safe Uplift Capacity (Tones)	Safe lateral Capacity with 5mm deflection	
				Free Head (Tones)	Fixed Head (Tones)
20.0	450	60	35	1.0	2.7
	500	70	42	1.2	3.0
	600	90	52	1.4	3.6

General Recommendation

- The proposed project site is situated in Kodambakkam, Chennai which falls under Seismic Zone III as per IS 1893 (Part 1) - 2002. Structure should be design against Earth quake resistance
- Pile Cut off level is considered 1.0m below EGL.
- Due to soft clay layers, use the temporary/permanent casing up to 13.0m depth.
- Use minimum M25 Grade of concrete
- Centre to centre spacing of piles shall not be less than 3 times of the diameter of the pile shaft.
- The above safe loads suggested are only tentative and these have to be confirmed by conducting through pile load tests conducted as per I.S-2911part –IV:2013

VASANTHI PADMANABAN, M.Tech.,
Registered Geotechnical Engineer
Reg. No: GTE / 19 / 04 / 016

ESTIMATION OF VERTICAL CAPACITY OF PILE

Project:	5973-R1, Stilt + 5 Floors Residential Apartment
Location:	Kodambakkam
Reference BH's	BH-1 & BH-2

Dia of Pile	600	mm
Elevation	0	m
Pile Cut off Level	1.0	m
Pile termination level below G.L	20	m
Total Length of Pile	19.0	m
Factor of safety	**2.5**	

$$Q_u = A_p(\tfrac{1}{2} D\gamma N_\gamma + P_D N_q) + \sum_{i=1}^{n} K_i P_{Di} \tan\delta_i A_{si}$$

$$Q_u = A_p N_c c_p + \sum_{i=1}^{n} \alpha_i c_i A_{si}$$

Soil Design Parameters

Sl.No	From (m)	To (m)	Thickness (m)	Soil Type	Avg 'N'	γ' (kN/m³)	C (kPa)	α	ϕ	K	Pdi (kN/m²)
1	0	1.5	1.5	Stiff CLAY	10	8	50	0.9	-	-	6
2	1.5	2.5	1	Medium dense SAND	16	8	-	-	31	1	16
3	2.5	5	2.5	Medium Stiff CLAY	6	7	30	1	-	-	28.75
4	5	8.5	3.5	Stiff CLAY	14	8.5	75	0.6	-	-	52.375
5	8.5	12.5	4	Very Soft CLAY	2	6	10	1	-	-	79.25
6	12.5	18	5.5	Hard Sandy CLAY	40	9.5	200	0.3	-	-	117.375
7	18	22	4	Hard Shale CLAY	>50	10	350	0.28	-	-	163.5

Pile Calculations As per IS-2911 part-1/Sec-2-2010

Sl.No	From (m)	To (m)	Thickness (m)	γ' (kN/m³)	Pdi (kN/m2)	C (kPa)	α	ϕ	K	Asi	Sf (kN)	Sfi (kN)
1	1.0	1.5	0.5	8	2.0	50	0.9	-	-	0.94	42.41	42.41
2	1.5	2.5	1	8	8.0	-	-	31	1	1.88	9.06	51.47
3	2.5	5	2.5	7	20.8	30	1	-	-	4.71	141.37	192.84
4	5	8.5	3.5	8.5	44.4	75	0.6	-	-	6.60	296.88	489.72
5	8.5	12.5	4	6	71.3	10	1	-	-	7.54	75.40	565.12
6	12.5	18	5.5	9.5	109.4	200	0.3	-	-	10.37	622.04	1187.16
7	18	20	2	10	145.5	350	0.28	-	-	3.77	369.45	1556.61
Due to negative drag, Layer-5 Shaft Friction Ignored												**1405.81**

End Bearing

Bearing Strata	Dia (m)	Ap (m²)	γ' (kN/m³)	q	Nq	Ng	Nc	Cp (kpa)	Qp (kN)	Qult (kN)	Qallow (kN)
Hard Shale CLAY	0.6	0.28274334	10	63	-	-	9	350.0	890.64	2296.5	**918.58**

Safe Vertical Capacity of Single Pile	**92**	**Tones**

Lateral Pile Capacity Calculation

Project Title : 5973-R1, Stilt + 5 Floors Residential Apartment
Site : Kodambakkam
BH: BH-1 to BH-2

As Per IS-2911(Part-1/Sec-2):2010

$Deflection, y = \frac{H(e + Z_f)^3}{3EI} X10^3$ ...for free head pile	$Deflection, y = \frac{H(e + Z_f)^3}{12EI} X10^3$ ...for fixed head pile

Input

Soil		Medium stiff CLAY	
Diameter of Pile	=	600	mm
Length of Pile Below FGL, (L)	=	20	m
Length of Pile Above FGL, (L1=e)	=	0	m
Grade of Concrete	=	25	
Allowable Dellection, (y)	=	5	mm
Young's modulus of pile material, (E)	=	25000.00	MN/m^2
Moment Inertia of the Pile Cross section (I)	=	0.0064	m^4

For CLAY			Stiffness factor R, in m = $\sqrt[4]{\frac{EI}{KB}}$
k_1=	10.8	MN/m^2	L1/R= 0
K=	3.6	MN/m^3	Lf/R (Free Head)= 1.9
R=	2.93	m	Lf/R (Fixed Head)= 2.2
For SAND			Stiffness factor T, in m = $\sqrt[5]{\frac{EI}{\eta_h}}$
η_h=		MN/m^3	L_f/T(Free Head)= 1.9
T=	#DIV/0!	m	L_f/T(Fixed Head)= 2.2
L_1/T=	#DIV/0!		

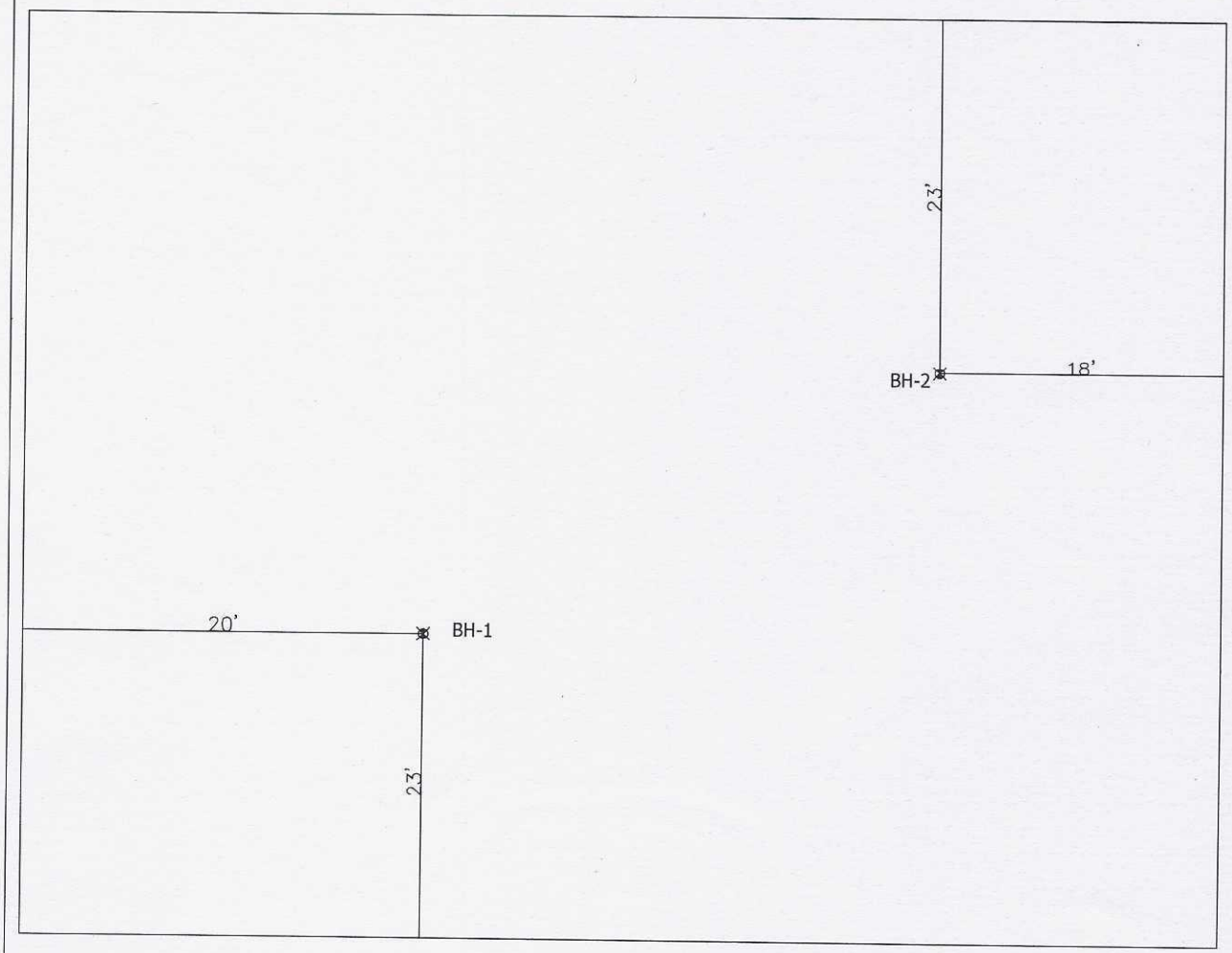
Output for CLAY Soil

Z_f (Free Head)/ Depth of Fixity =	5.57	m
Z_f (Fixed Head) / Depth of Fixity =	6.44	m

Result

Lateral Load Free Head =	**1.38**	**Tones**
Lateral Load Fixed Head =	**3.57**	**Tones**

TRUST PURAM 2nd CROSS STREET



PULIYUR 2nd MAIN ROAD

TITLE: DRAWING SHOWING THE SOIL INVESTIGATION BORE HOLE LOCATIONS

PROJECT: PROPOSED CONSTRUCTION OF STILT +5 FLOORS RESIDENTIAL APARTMENT AT KODAMBAKKAM

LEGEND:		
BH: BORE HOLE	⊗ -SOIL TEST LOCATION	
ACTIVITY	EXECUTED BY	SCALE: N T S
FOREMEN	SHIVA	
DRAFTING	JB	

N

MS GEOTECH
Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

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DRAWING NO: MSGTPL/SI-5973-R1/23-24

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BOREHOLE LOG

Project No: MSGTPL/SI-5973-R1/23-24

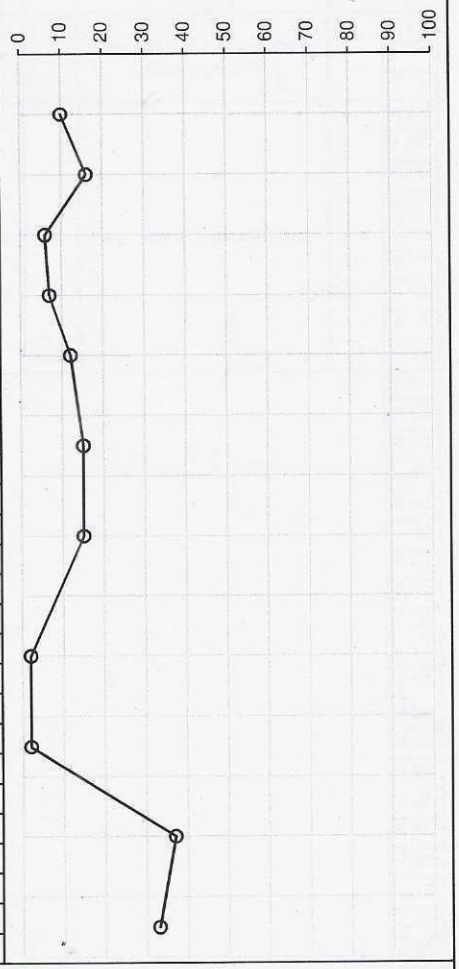
Project: Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

Location	Kodambakkam
Ground R.L	Nil
Drilling	Rotary

Borehole No	BH-1	
G.W.T (m)	(-)1.0	
Date of Start	14-Oct-2023	
Date of Complete	15-Oct-2023	
Dia of Bore (mm)	100	Sheet
Termination Depth (m)	22.00	1 of 2

Depth below EGL (m)	Layer Thickness	Soil Layers Description	Soil Symbol	IS-Classification	Type Field Test	Test Depth (m)	SPT Values Record 0 to 45cm			SPT- N- Value
0.0										
0.5	1.0	Stiff Brownish Sandy CLAY		CI						
1.0					SPT	1.0	3	4	6	10
1.5	1.0	Medium Dense Brownish Clayey SAND		SC						
2.0					SPT	2.0	5	8	8	16
2.5	1.0	Medium Stiff Greyish Sandy CLAY		CI						
3.0					SPT	3.0	2	3	3	6
3.5	1.0	Medium Stiff Brownish Sandy CLAY		CH						
4.0					SPT	4.0	1	3	4	7
4.5										
5.0					SPT	5.0	6	5	7	12
5.5										
6.0	4.0	Stiff Brownish & Greyish CLAY		CH						
6.5					SPT	6.5	7	7	8	15
7.0										
7.5										
8.0					SPT	8.0	5	6	9	15
8.5										
9.0										
9.5										
10.0	3.5	Very Soft Greyish CLAY		CH	SPT	10.0	2	1	1	2
10.5										
11.0										
11.5					SPT	11.5	0	1	1	2
12.0										
12.5	1.5	Hard Light Greyish Sandy CLAY		CH						
13.0					SPT	13.0	9	16	21	37
13.5										
14.0	1.5	Dense Light Greyish Clayey SAND		SC						
14.5					SPT	14.5	8	14	19	33
15.0										

Graphical Representation of SPT



Borehole Termination Depth (m) 22.0

EGL- Existing Ground Level
R.L- Reduced Level
GWT- Ground Water Table
SPT- Standard Penetration Test
UDS- Undisturbed Sample
VST- Vane Shear Test
DS- Disturbed Sample
CR- Core Recovery
RQD- Rock Quality Designation

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BOREHOLE LOG

Project No: MSGTPL/SI-5973-R1/23-24

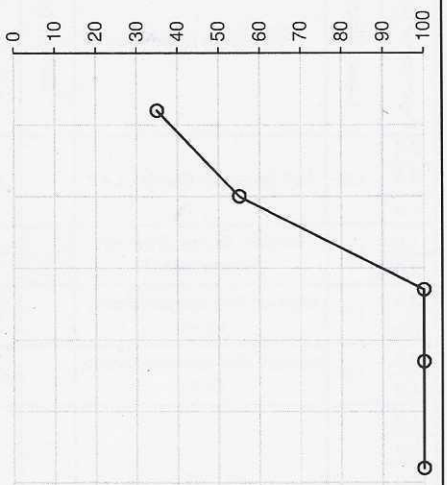
Project: Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

Location	Kodambakkam
Ground R.L	Nil
Drilling	Rotary

Borehole No	BH-1	
G.W.T (m)	(-)1.0	
Date of Start	14-Oct-2023	
Date of Complete	15-Oct-2023	
Dia of Bore (mm)	100	Sheet
Termination Depth (m)	22.00	2 of 2

Depth below EGL (m)	Layer Thickness	Soil Layers Description	Soil Symbol	IS-Classification	Type Field Test	Test Depth (m)	SPT Values Record 0 to 45cm			SPT- N- Value
15.5										
16.0	1.0	Hard Light Greyish Sandy CLAY		CH	SPT	16.0	9	15	20	35
16.5										
17.0	1.5	Very Dense Light Greyish Clayey SAND		SC						
17.5					SPT	17.5	13	20	35	55
18.0										
18.5										
19.0					SPT	19.0	50 Blows for 12cm			
19.5										
20.0	4.5	Hard Brownish Shale CLAY		CI						
20.5					SPT	20.5	50 Blows for 7cm			
21.0										
21.5										
22.0					SPT	22.0	30	50 Blows for 4cm		
22.5										
23.0										
23.5										
24.0										
24.5										
25.0										
25.5										
26.0										
26.5										
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31.0										
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32.0										
32.5										
33.0										

Graphical Representation of SPT



Borehole Termination Depth (m) 22.0

EGL- Existing Ground Level
R.L- Reduced Level
GWT- Ground Water Table
SPT- Standard Penetration Test
UDS- Undisturbed Sample
VST- Vane Shear Test
DS- Disturbed Sample
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BOREHOLE LOG

Project No: MSGTPL/SI-5973-R1/23-24

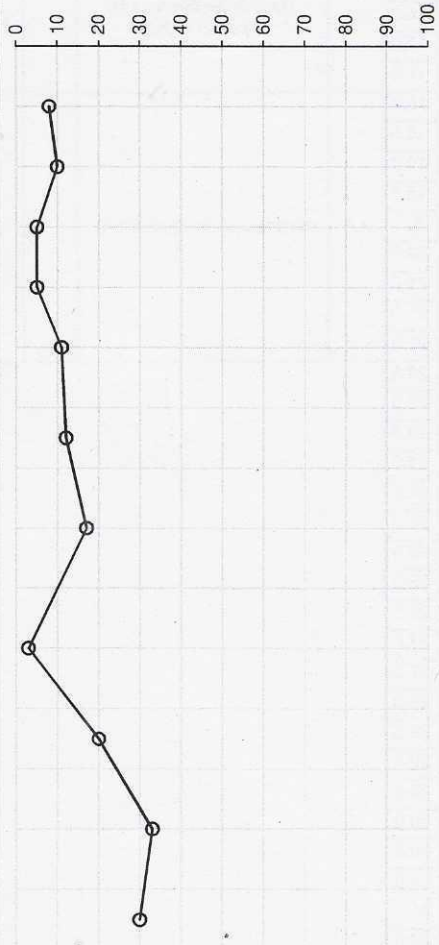
Project: Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

Location	Kodambakkam
Ground R.L	Nil
Drilling	Rotary

Borehole No	BH-2	
G.W.T (m)	(-)1.0	
Date of Start	15-Oct-2023	
Date of Complete	16-Oct-2023	
Dia of Bore (mm)	100	Sheet
Termination Depth (m)	22.00	1 of 2

Depth below EGL (m)	Layer Thickness	Soil Layers Description	Soil Symbol	IS-Classification	Type Field Test	Test Depth (m)	SPT Values Record 0 to 45cm			SPT- N- Value
0.0										
0.5										
1.0	2.0	Stiff Brownish Sandy CLAY		CH	SPT	1.0	2	3	5	8
1.5										
2.0					SPT	2.0	3	4	6	10
2.5										
3.0	2.0	Medium Stiff Greyish CLAY		CH	SPT	3.0	2	2	3	5
3.5										
4.0					SPT	4.0	2	2	3	5
4.5										
5.0					SPT	5.0	3	4	7	11
5.5	2.5	Stiff Greyish CLAY		CH						
6.0										
6.5					SPT	6.5	4	4	8	12
7.0										
7.5	1.5	Medium Dense Greyish Fine SAND		SM						
8.0					SPT	8.0	6	8	9	17
8.5										
9.0	2.0	Soft Greyish Sandy CLAY		CH						
9.5										
10.0					SPT	10.0	1	1	2	3
10.5										
11.0	1.5	Medium Dense Light Greyish Clayey SAND		SC						
11.5					SPT	11.5	6	9	11	20
12.0										
12.5	1.5	Hard Brownish & Light Greyish Sandy CLAY		CH						
13.0					SPT	13.0	7	12	21	33
13.5										
14.0	1.5	Dense Brownish & Light Greyish Clayey SAND		SC						
14.5					SPT	14.5	9	11	19	30
15.0										

Graphical Representation of SPT



Borehole Termination Depth (m) 22.0

EGL- Existing Ground Level
R.L- Reduced Level
GWT- Ground Water Table
SPT- Standard Penetration Test
UDS- Undisturbed Sample
VST- Vane Shear Test
DS- Disturbed Sample
CR- Core Recovery
RQD- Rock Quality Designation

MARS SYNERGY GEOTECH PVT LTD

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Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

BOREHOLE LOG

Project No: MSGTPL/SI-5973-R1/23-24

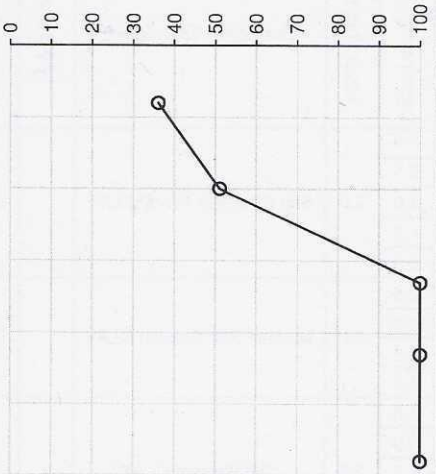
Project: Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

Location	Kodambakkam
Ground R.L	Nil
Drilling	Rotary

Borehole No	BH-2	
G.W.T (m)	(-)1.0	
Date of Start	15-Oct-2023	
Date of Complete	16-Oct-2023	
Dia of Bore (mm)	100	Sheet
Termination Depth (m)	22.00	2 of 2

Depth below EGL (m)	Layer Thickness	Soil Layers Description	Soil Symbol	IS-Classification	Type Field Test	Test Depth (m)	SPT Values Record 0 to 45cm			SPT- N- Value
15.5										
16.0					SPT	16.0	9	14	22	36
16.5	2.5	Hard Brownish & Light Greyish CLAY		CH						
17.0										
17.5					SPT	17.5	14	22	29	51
18.0										
18.5										
19.0					SPT	19.0	50 Blows for 13cm			
19.5										
20.0	4.5	Hard Brownish Shale CLAY		CI						
20.5					SPT	20.5	39	50 Blows for 5cm		
21.0										
21.5										
22.0					SPT	22.0	50 Blows for 4cm			
22.5										
23.0										
23.5										
24.0										
24.5										
25.0										
25.5										
26.0										
26.5										
27.0										
27.5										
28.0										
28.5										
29.0										
29.5										
30.0										
30.5										
31.0										
31.5										
32.0										
32.5										
33.0										

Graphical Representation of SPT



Borehole Termination Depth (m) 22.0

EGL- Existing Ground Level
R.L- Reduced Level
GWT- Ground Water Table

SPT- Standard Penetration Test
UDS- Undisturbed Sample
VST- Vane Shear Test

DS- Disturbed Sample
CR- Core Recovery
RQD- Rock Quality Designation

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Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

Project No: MSGTPL/SI-5973-R1/23-24

Project : Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

BH No 1 | **Ground Water Level:(-)1.0m** | **Termination Depth:22.0m**

SUMMARY OF TEST RESULTS

N Value	Layer Thickness	Depth (m)	Soil Description	IS Classification	Index Properties (%)						Specific Gravity	Grain Size Analysis (%)				
					NMC	W_L	W_P	I_P	Ic	FreeSwell		Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt & Clay
	1.0	0.00	Stiff Brownish Sandy CLAY	CI												
10		1.00			21						2.63					
	1.0		Medium Dense Brownish Clayey SAND	SC												
16		2.00			24							0	0	19	35	46
	1.0		Medium Stiff Greyish Sandy CLAY	CI												
6		3.00			35	39	19	20								
	1.0		Medium Stiff Brownish Sandy CLAY	CH												
7		4.00			37							0	0	2	32	66
12	4.0	5.00	Stiff Brownish & Greyish CLAY	CH	34	66	32	35								
15		6.50			33						2.65					
15		8.00			33							0	0	7	3	60
2	3.5	10.00	Very Soft Greyish CLAY	CH	63	71	34	36								
2		11.50			35											
37	1.5	13.00	Hard Light Greyish Sandy CLAY	CH	18							0	0	10	25	65
33	1.5	14.50	Dense Light Greyish Clayey SAND	SC	21							0	0	19	33	48
35	1.5	16.00	Hard Light Greyish Sandy CLAY	CH	19						2.62	0	0	14	34	52
55	1.5	17.50	Very Dense Light Greyish Clayey SAND	SC	13							0	0	4	49	47
>100	4.5	19.00	Hard Brownish Shale CLAY	CI	19											
>100		20.50			19											
>100		22.00			21	48	20	28			2.68					

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Project No: MSGTPL/SI-5973-R1/23-24

Project : Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

BH No 2 | **Ground Water Level:(-)1.0m** | **Termination Depth:22.0m**

SUMMARY OF TEST RESULTS

N Value	Layer Thickness	Depth (m)	Soil Description	IS Classification	Index Properties (%)						Specific Gravity	Grain Size Analysis (%)				
					NMC	W_L	W_P	I_P	Ic	FreeSwell		Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt & Clay
	2.0	0.00	Stiff Brownish Sandy CLAY	CH												
8		1.00			21							0	1	7	25	67
10		2.00			25						2.66	0	1	4	29	66
	2.0	3.00	Medium Stiff Greyish CLAY	CH												
5					34	57	25	32								
5		4.00			37	59	29	31								
	2.5	5.00	Stiff Greyish CLAY	CH												
11					37	75	33	42								
12		6.50			38	80	25	55								
	1.5		Medium Dense Greyish Fine SAND	SM												
17		8.00			29							0	0	6	76	18
	2.0		Soft Greyish Sandy CLAY	CH												
3		10.00			38											
	1.5		Medium Dense Light Greyish Clayey SAND	SC												
20		11.50			14						2.65	2	1	19	34	44
	1.5		Hard Brownish & Light Greyish Sandy CLAY	CH												
33		13.00			16							0	0	14	30	56
	1.5		Dense Brownish & Light Greyish Clayey SAND	SC												
30		14.50			14							0	0	10	45	45
	3.0	16.00	Hard Brownish & Light Greyish CLAY	CH	17	50	20	30								
36																
51		17.50			23											
>100	4.5	19.00	Hard Brownish Shale CLAY	CI	20						2.63					
>100		20.50			18	43	19	23								
>100		22.00			24											

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Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

Project No: MSGTPL/SI-5973-R1/23-24
Project :Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

Method: IS-2720 P-2

Natural Moisture Content Data Sheet

BH.No/ Pit no	1		1		1		1		1		1	
Depth (m)	1.0		2.0		3.0		4.0		5.0		6.5	
Tare No	11	243	106	25	248	133	170	269	3	149	286	67
Wt of Tare (gr)	29.03	30.28	28.80	30.41	28.76	31.12	30.47	30.01	28.55	29.97	27.39	32.07
Tare + Soil (gr)	60.60	60.97	60.93	54.96	54.74	56.88	58.09	58.55	52.08	54.31	57.77	63.76
Tare+Dry soil (gr)	55.10	55.60	54.60	50.15	48.02	50.25	50.70	50.85	46.04	48.08	50.17	55.81
Wt of Water (gr)	5.50	5.37	6.33	4.81	6.72	6.63	7.39	7.70	6.04	6.23	7.60	7.95
Wt Dry soil (gr)	26.07	25.32	25.80	19.74	19.26	19.13	20.23	20.84	17.49	18.11	22.78	23.74
Water Content (%)	21.10	21.21	24.53	24.37	34.89	34.66	36.53	36.95	34.53	34.40	33.36	33.49
Average Water Content (%)	21		24		35		37		34		33	

Tested by: Reviewed by: Authorized by:

MS GEOTECH
Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

Project No: MSGTPL/SI-5973-R1/23-24
Project :Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

Method: IS-2720 P-2

Natural Moisture Content Data Sheet

BH.No/ Pit no	1		1		1		1		1		1	
Depth (m)	8.0		10.0		11.5		13.0		14.5		16.0	
Tare No	285	239	254	50	143	123	278	229	199	171	280	23
Wt of Tare (gr)	29.25	29.86	29.82	30.35	29.52	29.28	29.26	29.78	29.81	29.54	29.38	31.07
Tare + Soil (gr)	60.64	59.01	55.23	60.37	58.44	59.33	60.91	65.65	56.06	57.66	52.81	57.01
Tare+Dry soil (gr)	52.93	51.85	45.35	48.76	50.93	51.42	56.00	60.09	51.45	52.74	49.02	52.85
Wt of Water (gr)	7.71	7.16	9.88	11.61	7.51	7.91	4.91	5.56	4.61	4.92	3.79	4.16
Wt Dry soil (gr)	23.68	21.99	15.53	18.41	21.41	22.14	26.74	30.31	21.64	23.20	19.64	21.78
Water Content (%)	32.56	32.56	63.62	63.06	35.08	35.73	18.36	18.34	21.30	21.21	19.30	19.10
Average Water Content (%)	33		63		35		18		21		19	

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Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

Project No: MSGTPL/SI-5973-R1/23-24
Project :Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

Method: IS-2720 P-2

Natural Moisture Content Data Sheet

BH.No/ Pit no	1		1		1		1		2		2	
Depth (m)	17.5		19.0		20.5		22.0		1.0		2.0	
Tare No	135	288	88	160	255	223	81	156	42	165	77	63
Wt of Tare (gr)	29.06	30.00	29.38	29.96	28.66	29.12	29.11	29.07	30.29	29.96	29.17	29.97
Tare + Soil (gr)	59.79	62.95	57.13	56.08	57.18	57.05	56.39	57.90	66.15	69.24	62.71	68.81
Tare+Dry soil (gr)	56.18	59.04	52.65	51.85	52.55	52.57	51.74	52.92	59.78	62.39	56.05	61.23
Wt of Water (gr)	3.61	3.91	4.48	4.23	4.63	4.48	4.65	4.98	6.37	6.85	6.66	7.58
Wt Dry soil (gr)	27.12	29.04	23.27	21.89	23.89	23.45	22.63	23.85	29.49	32.43	26.88	31.26
Water Content (%)	13.31	13.46	19.25	19.32	19.38	19.10	20.55	20.88	21.60	21.12	24.78	24.25
Average Water Content (%)	13		19		19		21		21		25	

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Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

Project No: MSGTPL/SI-5973-R1/23-24
Project :Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

Method: IS-2720 P-2

Natural Moisture Content Data Sheet

BH.No/ Pit no	2		2		2		2		2		2	
Depth (m)	3.0		4.0		5.0		6.5		8.0		10.0	
Tare No	163	200	178	252	54	216	198	108	86	174	130	272
Wt of Tare (gr)	29.39	29.04	30.43	29.81	27.29	29.38	30.16	29.77	29.30	31.92	28.89	30.82
Tare + Soil (gr)	57.83	54.96	60.34	52.15	51.32	55.94	57.90	63.04	60.62	62.13	59.02	58.47
Tare+Dry soil (gr)	50.60	48.35	52.25	46.09	44.85	48.85	50.19	53.85	53.51	55.25	50.65	50.83
Wt of Water (gr)	7.23	6.61	8.09	6.06	6.47	7.09	7.71	9.19	7.11	6.88	8.37	7.64
Wt Dry soil (gr)	21.21	19.31	21.82	16.28	17.56	19.47	20.03	24.08	24.21	23.33	21.76	20.01
Water Content (%)	34.09	34.23	37.08	37.22	36.85	36.41	38.49	38.16	29.37	29.49	38.47	38.18
Average Water Content (%)	34		37		37		38		29		38	

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Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

Project No: MSGTPL/SI-5973-R1/23-24
Project :Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

Method: IS-2720 P-2

Natural Moisture Content Data Sheet

BH.No/ Pit no	2		2		2		2		2		2	
Depth (m)	11.5		13.0		14.5		16.0		17.5		19.0	
Tare No	158	264	235	296	55	118	292	177	20	241	85	270
Wt of Tare (gr)	27.80	31.62	29.01	29.05	29.40	29.57	30.78	29.64	29.53	29.09	31.57	32.63
Tare + Soil (gr)	52.68	60.62	54.34	59.05	56.48	61.87	54.97	61.72	55.72	70.45	61.38	59.73
Tare+Dry soil (gr)	49.60	56.97	50.85	54.94	53.22	57.96	51.39	57.00	50.86	62.78	56.55	55.27
Wt of Water (gr)	3.08	3.65	3.49	4.11	3.26	3.91	3.58	4.72	4.86	7.67	4.83	4.46
Wt Dry soil (gr)	21.80	25.35	21.84	25.89	23.82	28.39	20.61	27.36	21.33	33.69	24.98	22.64
Water Content (%)	14.13	14.40	15.98	15.87	13.69	13.77	17.37	17.25	22.78	22.77	19.34	19.70
Average Water Content (%)	14		16		14		17		23		20	

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Geotechnical, Geophysical & Engineering Survey in Offshore & Onshore

Project No: MSGTPL/SI-5973-R1/23-24
Project :Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

Method: IS-2720 P-2

Natural Moisture Content Data Sheet

BH.No/ Pit no	2		2									
Depth (m)	20.5		22.0									
Tare No	13	242	114	185								
Wt of Tare (gr)	29.51	29.09	29.40	29.63								
Tare + Soil (gr)	65.12	61.68	63.06	54.54								
Tare+Dry soil (gr)	59.69	56.81	56.45	49.70								
Wt of Water (gr)	5.43	4.87	6.61	4.84								
Wt Dry soil (gr)	30.18	27.72	27.05	20.07								
Water Content (%)	17.99	17.57	24.44	24.12								
Average Water Content (%)	18		24									

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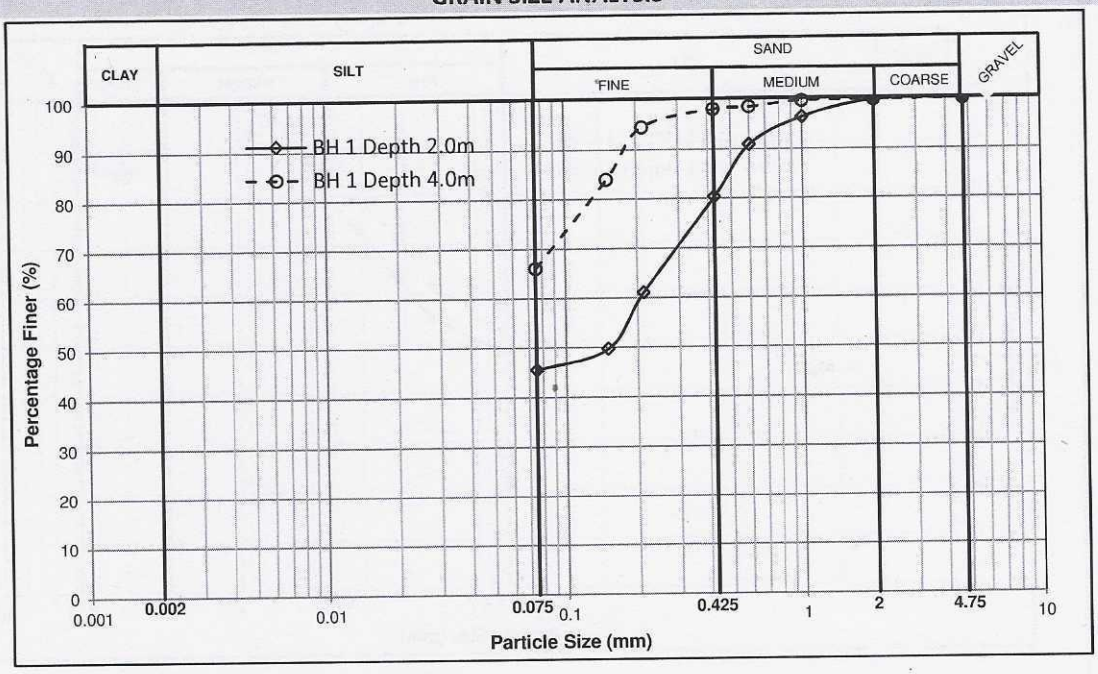
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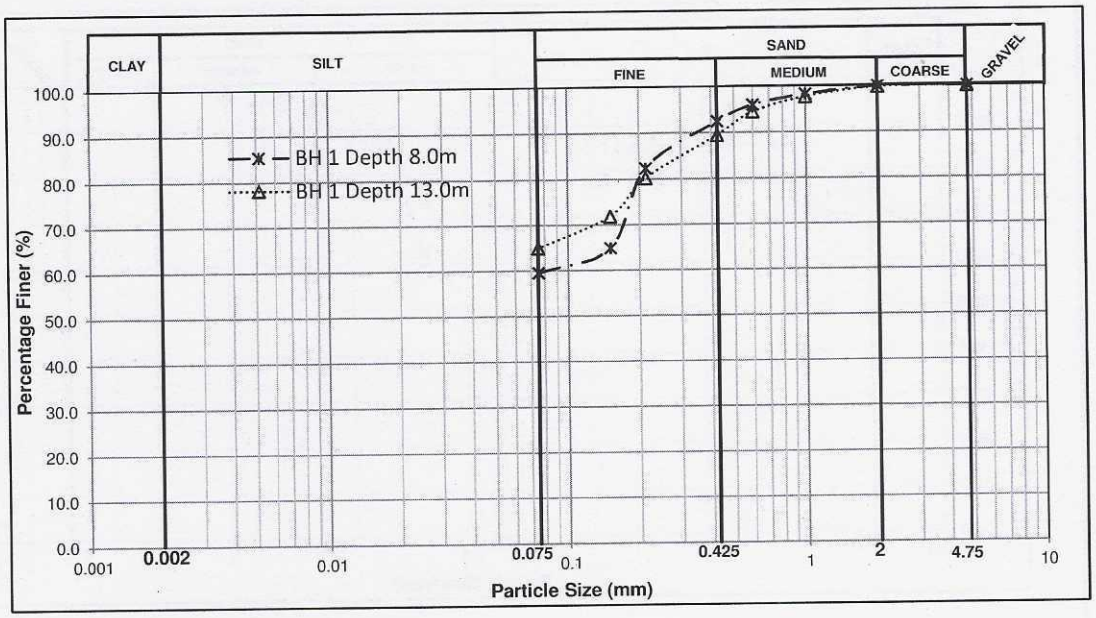
MARS SYNERGY GEOTECH P

Project No: MSGTPL/SI-5973-R1/23-24

Project : Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

GRAIN SIZE ANALYSIS





BH-No	Depth	Gravel	SAND (%)			SILT& CLAY	D_{10}	D_{30}	D_{60}	Cu	Cc
	(m)	(%)	Coarse	Medium	Fine	(%)	(mm)	(mm)	(mm)		
1	2.0m	0	0	19	35	46			0.206	#####	#####
1	4.0m	0	0	2	32	66				#####	#####
1	8.0m	0	0	7	33	60			0.082	#####	#####
1	13.0m	0	0	10	25	65				#####	#####

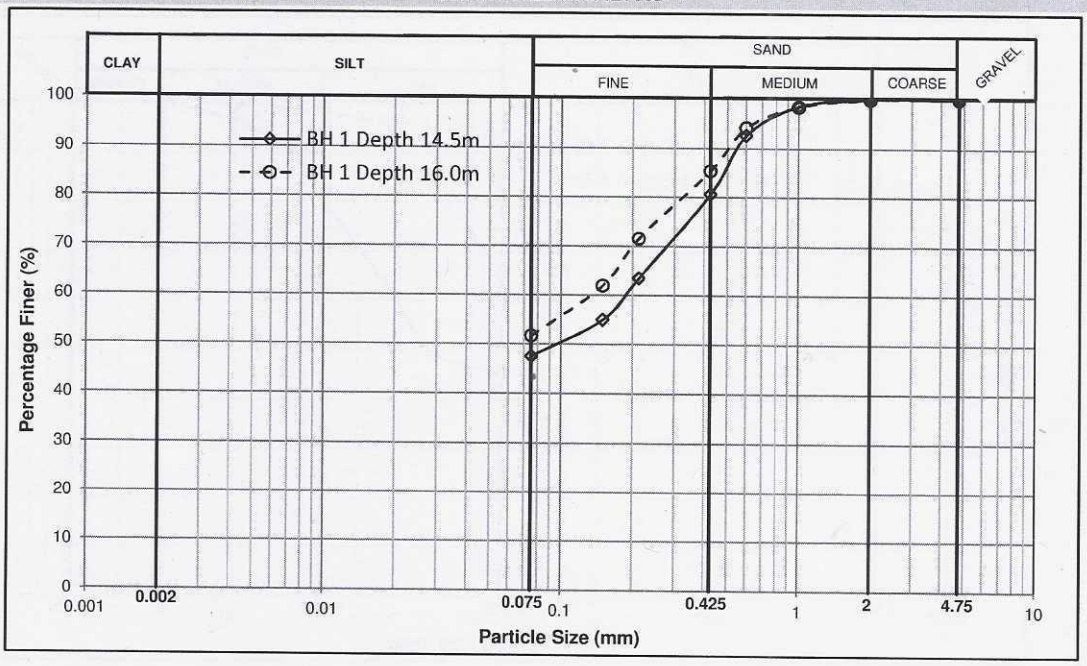
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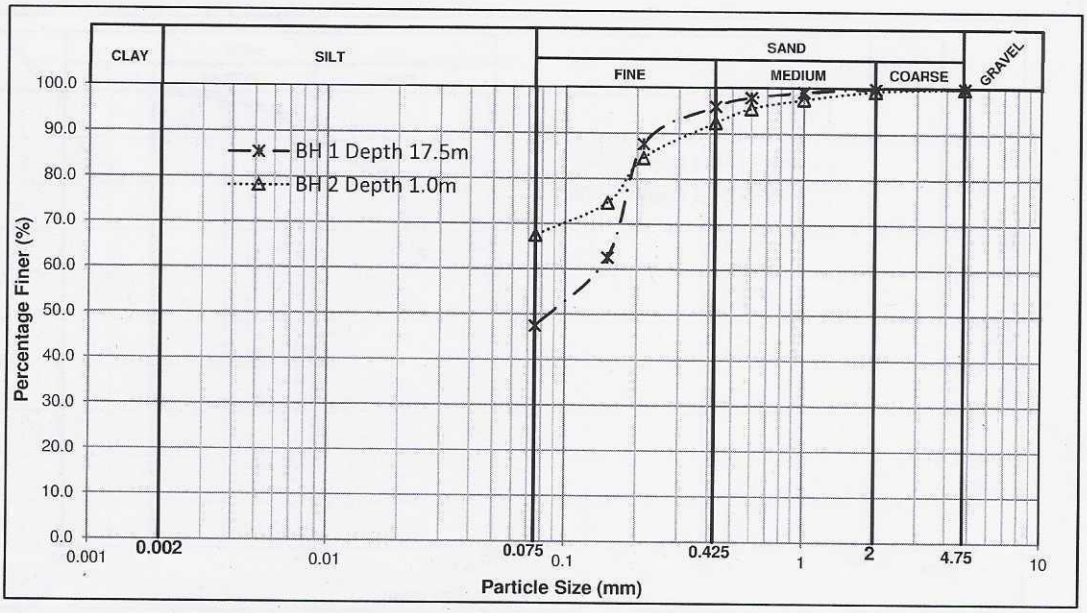
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Project No: MSGTPL/SI-5973-R1/23-24

Project : Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

GRAIN SIZE ANALYSIS





BH-No	Depth	Gravel	SAND (%)			SILT& CLAY	D_{10}	D_{30}	D_{60}	Cu	Cc
	(m)	(%)	Coarse	Medium	Fine	(%)	(mm)	(mm)	(mm)		
1	14.5m	0	0	19	33	48			0.187	#####	#####
1	16.0m	0	0	14	34	52			0.136	#####	#####
1	17.5m	0	0	4	49	47			0.137	#####	#####
2	1.0m	0	1	7	25	67				#####	#####

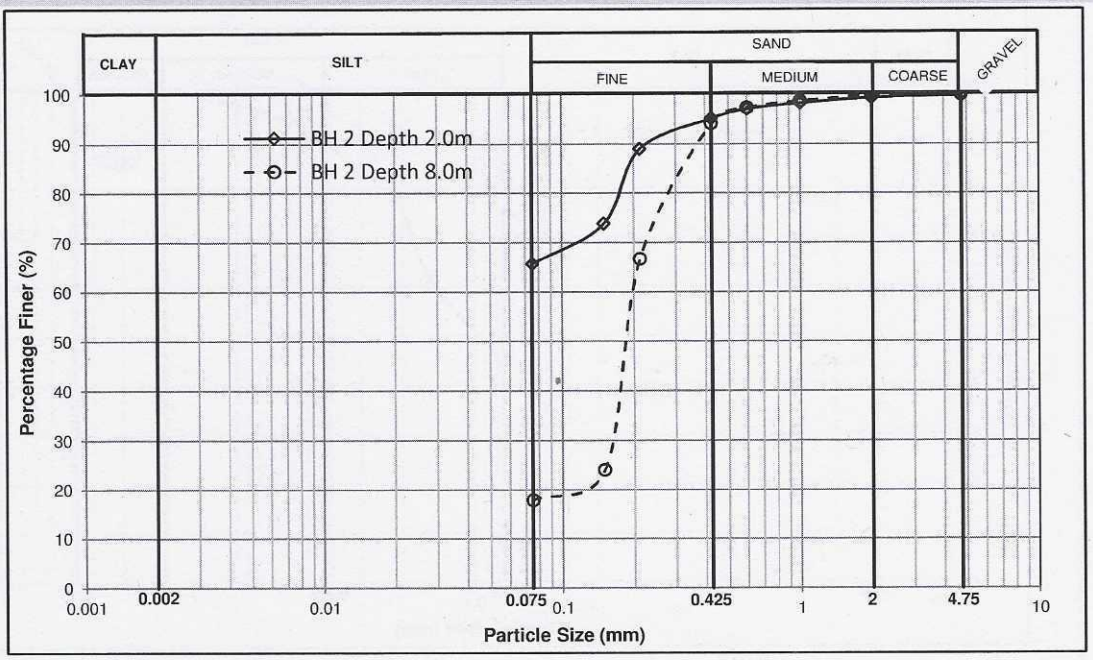
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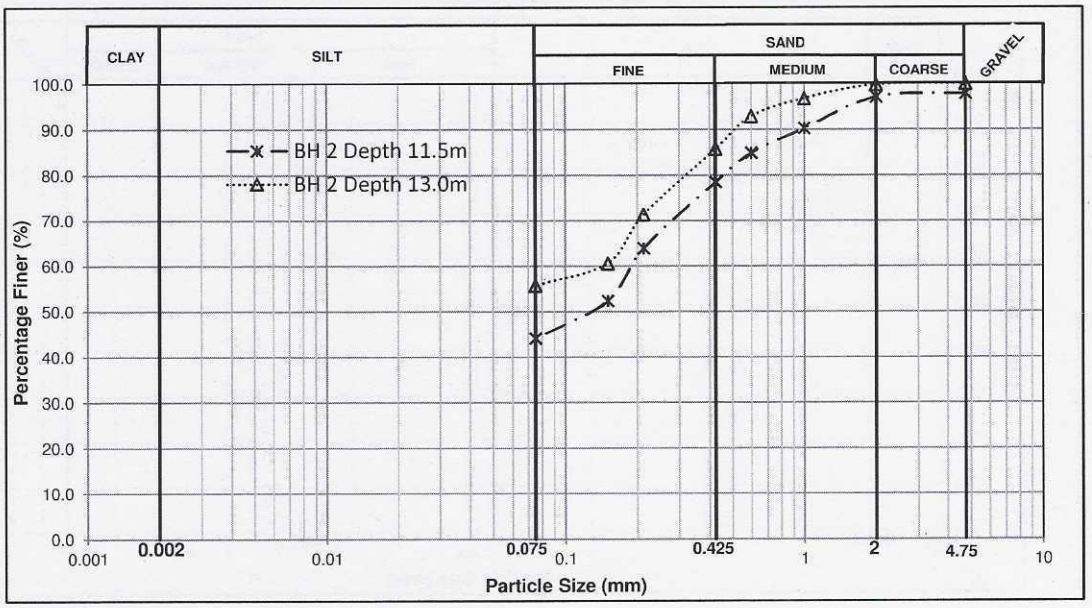
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Project No: MSGTPL/SI-5973-R1/23-24

Project : Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

GRAIN SIZE ANALYSIS





BH-No	Depth	Gravel	SAND (%)			SILT& CLAY	D_{10}	D_{30}	D_{60}	Cu	Cc
	(m)	(%)	Coarse	Medium	Fine	(%)	(mm)	(mm)	(mm)		
2	2.0m	0	1	4	29	66				#####	#####
2	8.0m	0	0	6	76	18		0.159	0.202	#####	#####
2	11.5m	2	1	19	34	44			0.191	#####	#####
2	13.0m	0	0	14	30	56			0.141	#####	#####

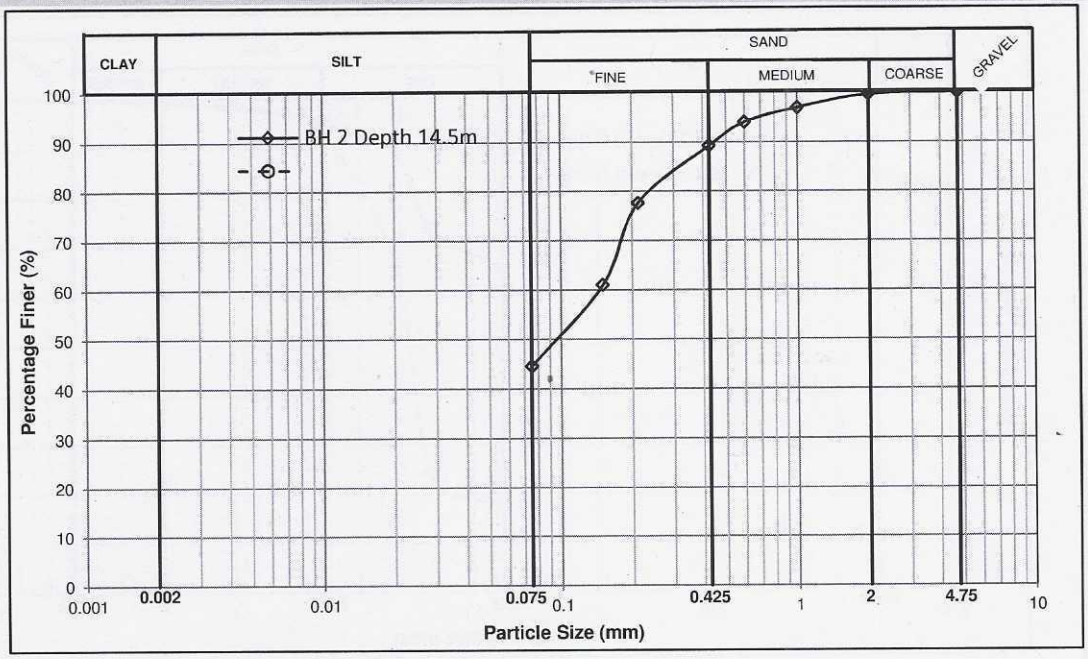
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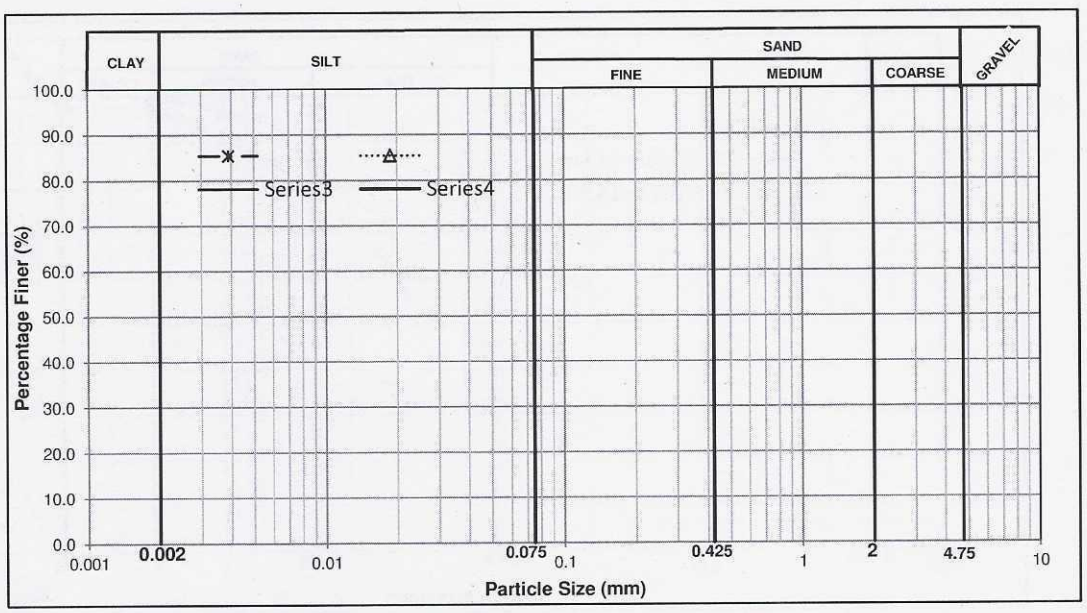
MARS SYNERGY GEOTECH PVT LTD

Project No: MSGTPL/SI-5973-R1/23-24

Project : Proposed Construction of Stilt + 5 Floors Residential Apartment at Kodambakkam

GRAIN SIZE ANALYSIS





BH-No	Depth (m)	Gravel (%)	SAND (%)			SILT& CLAY (%)	D_{10} (mm)	D_{30} (mm)	D_{60} (mm)	Cu	Cc
			Coarse	Medium	Fine						
2	14.5m	0	0	10	45	45			0.145	#####	#####

Tested by: Reviewed by: Authorized by:

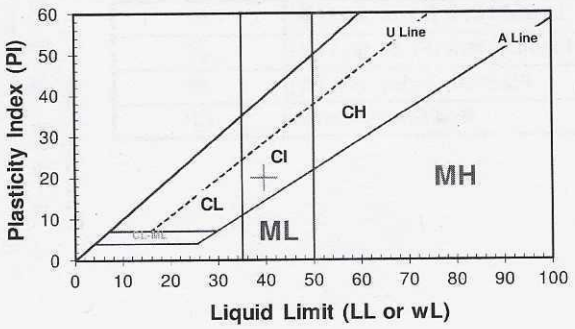
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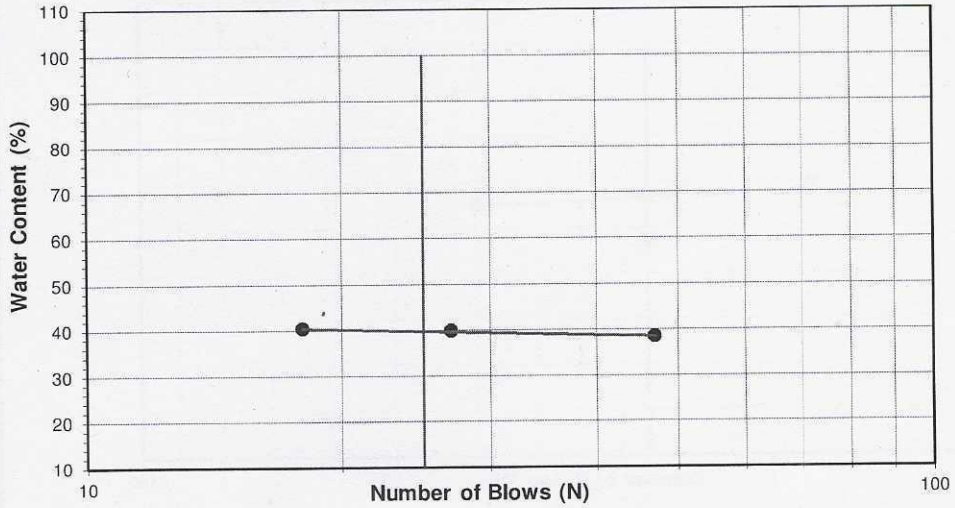
IS-2720-Part-5

Project :	Stilt + 5 Floors Residential Apartment
Location:	Kodambakkam
Boring No:	1
Sample Depth:	3.0m
Project No:	MSGTPL/SI-5973-R1/23-24

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	18	27	47					
Tare Number	---	---	12	132	268		1			
Weight of Empty Tare	M_C	(g)	29.79	30.19	30.04		30.62			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	54.8	55.44	58.25		56.9			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	47.62	48.26	50.42		52.63			
Weight of Soil	M_S	(g)	17.83	18.07	20.38		22.01			
Weight of Water	M_W	(g)	7.18	7.18	7.83		4.27			
Water Content	w	(%)	**40.3**	**39.7**	**38.4**		**19.4**			

Liquid Limit (LL or w_L) (%)	**39**
Plastic Limit (PL or w_P) (%)	**19**
Plasticity Index (PI) (%)	**20**
Soil Classification	**CI**





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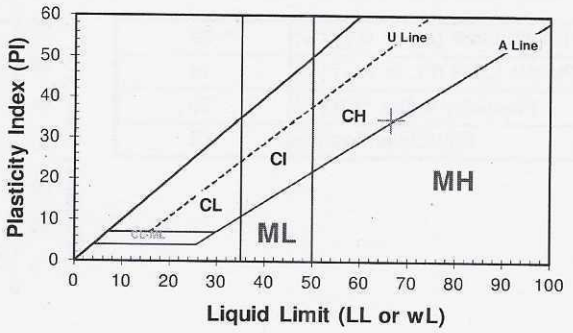
ATTERBERG LIMITS DATA SHEET

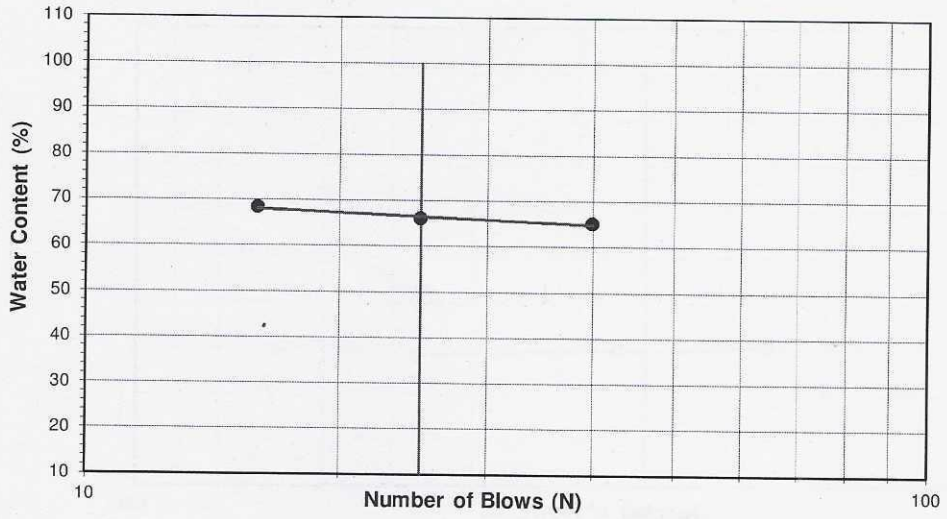
IS-2720-Part-5

Project :	Stilt + 5 Floors Residential Apartment
Location:	Kodambakkam
Boring No:	1
Sample Depth:	5.0m
Project No:	MSGTPL/SI-5973-R1/23-24

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	16	25	40					
Tare Number	---	---	206	5	222		231			
Weight of Empty Tare	M_C	(g)	28.6	31.87	28.63		27.5			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	51.65	53.45	52.59		50.39			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	42.30	44.87	43.15		44.86			
Weight of Soil	M_S	(g)	13.70	13.00	14.52		17.36			
Weight of Water	M_W	(g)	9.35	8.58	9.44		5.53			
Water Content	w	(%)	**68.2**	**66.0**	**65.0**		**31.9**			

Liquid Limit (LL or w_L) (%)	**66**
Plastic Limit (PL or w_P) (%)	**32**
Plasticity Index (PI) (%)	**35**
Soil Classification	**CH**





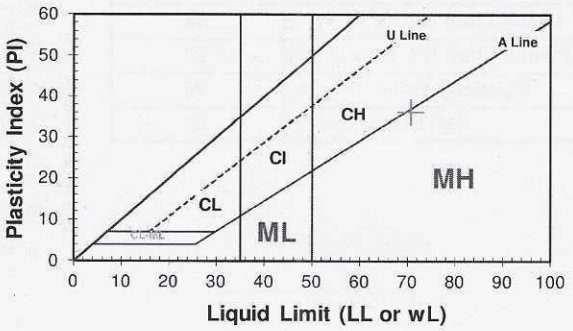
ATTERBERG LIMITS DATA SHEET

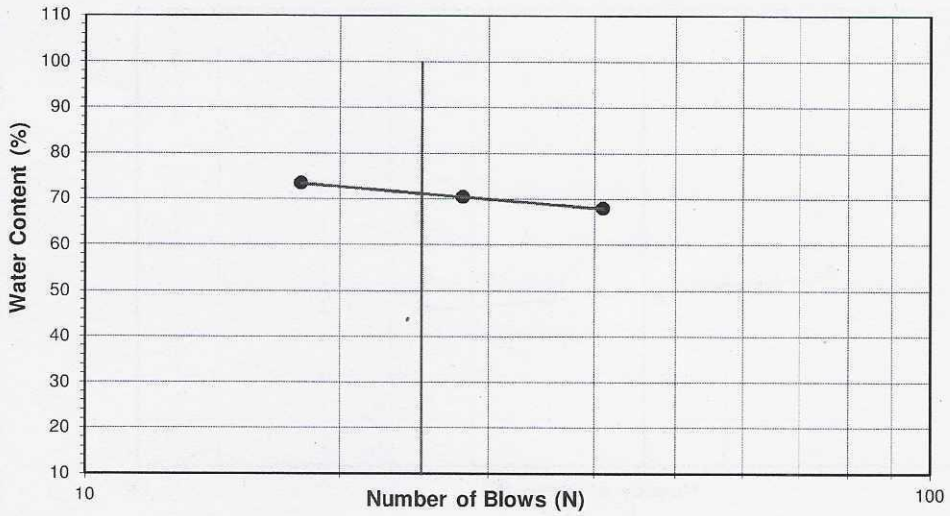
IS-2720-Part-5

Project :	Stilt + 5 Floors Residential Apartment
Location:	Kodambakkam
Boring No:	1
Sample Depth:	10.0m
Project No:	**MSGTPL/SI-5973-R1/23-24**

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	18	28	41					
Tare Number	---	---	211	219	155		32			
Weight of Empty Tare	M_C	(g)	30.11	27.86	29.79		29.11			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	48.73	56.73	58.52		48.67			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	40.85	44.81	46.90		43.68			
Weight of Soil	M_S	(g)	10.74	16.95	17.11		14.57			
Weight of Water	M_W	(g)	7.88	11.92	11.62		4.99			
Water Content	w	(%)	**73.4**	**70.3**	**67.9**		**34.2**			

Liquid Limit (LL or w_L) (%)	**71**
Plastic Limit (PL or w_P) (%)	**34**
Plasticity Index (PI) (%)	**36**
Soil Classification	**CH**





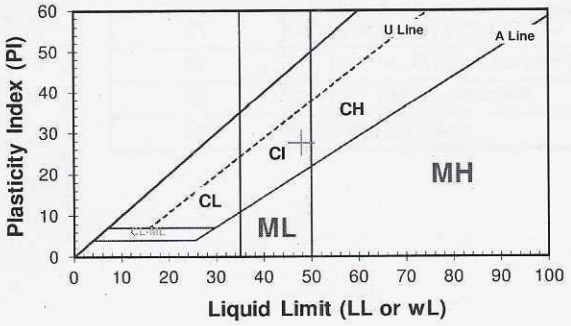
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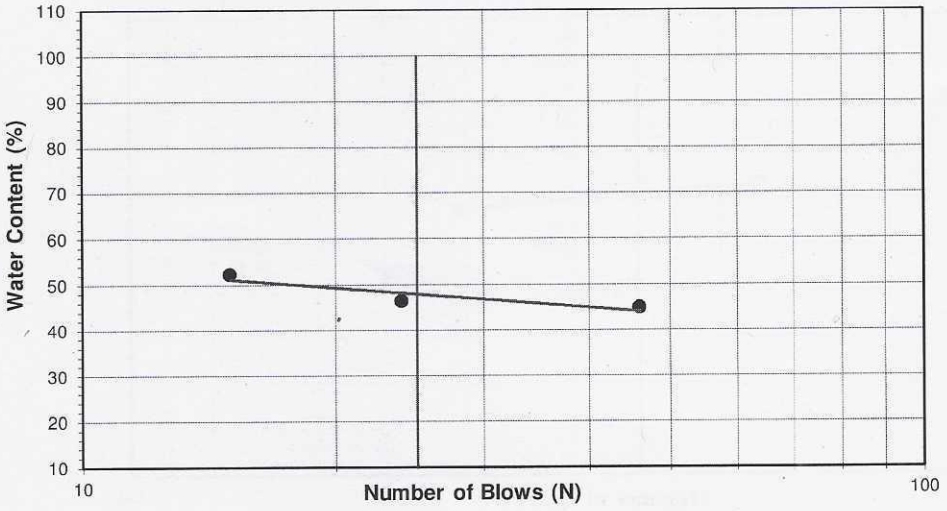
IS-2720-Part-5

Project :	Stilt + 5 Floors Residential Apartment
Location:	Kodambakkam
Boring No:	1
Sample Depth:	22.0m
Project No:	**MSGTPL/SI-5973-R1/23-24**

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	15	24	46					
Tare Number	---	---	238	153	48		279			
Weight of Empty Tare	M_C	(g)	27.59	29.46	28.99		29.61			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	53.58	54.01	58.79		48.89			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	44.67	46.23	49.57		45.65			
Weight of Soil	M_S	(g)	17.08	16.77	20.58		16.04			
Weight of Water	M_W	(g)	8.91	7.78	9.22		3.24			
Water Content	w	(%)	**52.2**	**46.4**	**44.8**		**20.2**			

Liquid Limit (LL or w_L) (%)	**48**
Plastic Limit (PL or w_P) (%)	**20**
Plasticity Index (PI) (%)	**28**
Soil Classification	**CI**





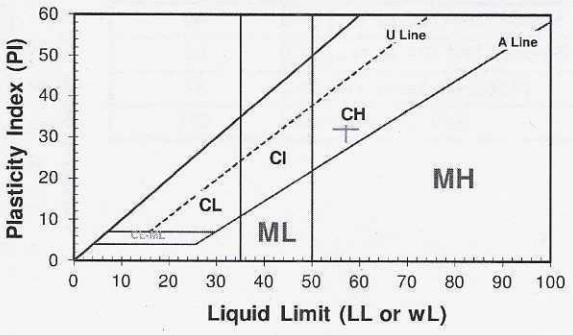
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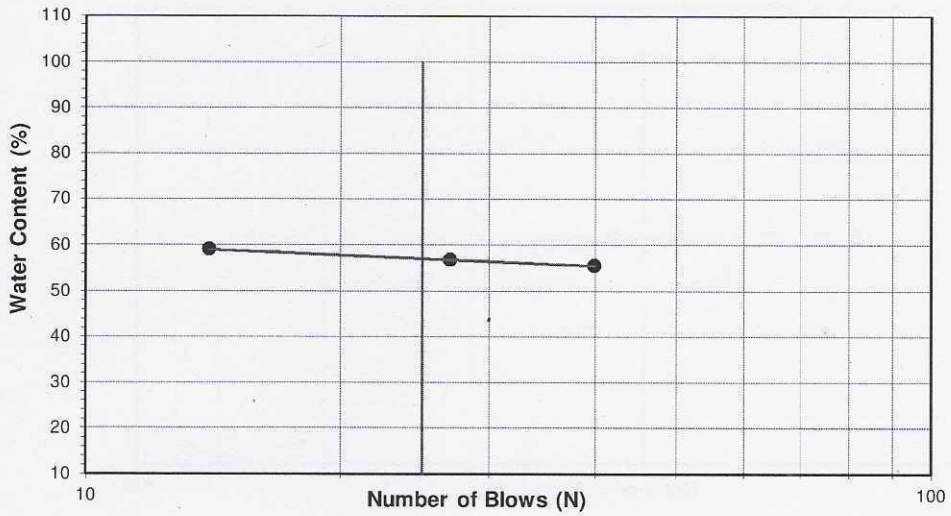
IS-2720-Part-5

Project :	Stilt + 5 Floors Residential Apartment
Location:	Kodambakkam
Boring No:	2
Sample Depth:	3.0m
Project No:	**MSGTPL/SI-5973-R1/23-24**

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	14	27	40					
Tare Number	---	---	114	77	36		275			
Weight of Empty Tare	M_C	(g)	29.4	29.17	30.41		28.91			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	55.89	61.79	57.25		49.32			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	46.06	49.99	47.67		45.23			
Weight of Soil	M_S	(g)	16.66	20.82	17.26		16.32			
Weight of Water	M_W	(g)	9.83	11.80	9.58		4.09			
Water Content	w	(%)	**59.0**	**56.7**	**55.5**		**25.1**			

Liquid Limit (LL or w_L) (%)	57
Plastic Limit (PL or w_P) (%)	25
Plasticity Index (PI) (%)	32
Soil Classification	CH





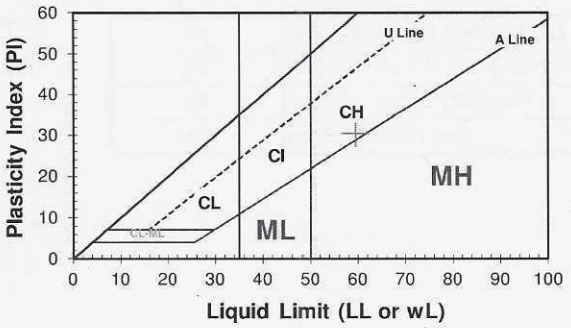
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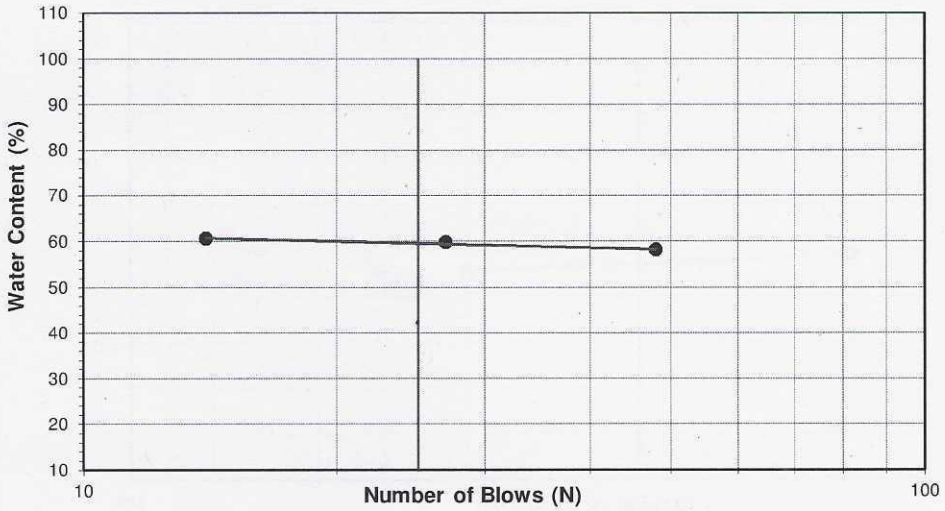
IS-2720-Part-5

Project :	Stilt + 5 Floors Residential Apartment
Location:	Kodambakkam
Boring No:	2
Sample Depth:	4.0m
Project No:	**MSGTPL/SI-5973-R1/23-24**

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	14	27	48					
Tare Number	---	---	289	194	175		102			
Weight of Empty Tare	M_C	(g)	29.93	29.14	29.3		29.07			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	52.83	52.24	56.89		52.29			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	44.19	43.61	46.75		47.08			
Weight of Soil	M_S	(g)	14.26	14.47	17.45		18.01			
Weight of Water	M_W	(g)	8.64	8.63	10.14		5.21			
Water Content	w	(%)	**60.6**	**59.6**	**58.1**		**28.9**			

Liquid Limit (LL or w_L) (%)	59
Plastic Limit (PL or w_P) (%)	29
Plasticity Index (PI) (%)	31
Soil Classification	CH





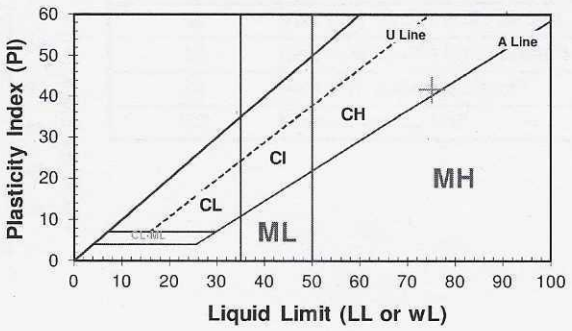
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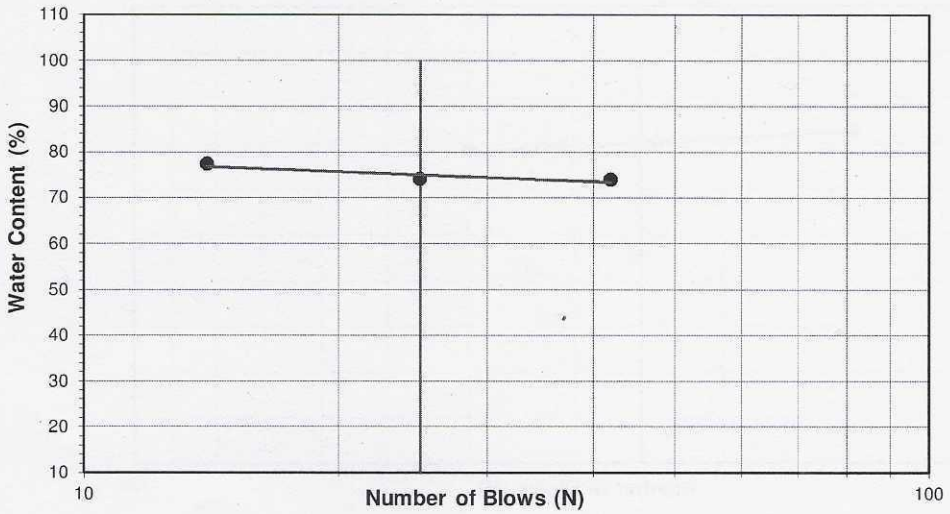
IS-2720-Part-5

Project :	Stilt + 5 Floors Residential Apartment
Location:	Kodambakkam
Boring No:	2
Sample Depth:	5.0m
Project No:	**MSGTPL/SI-5973-R1/23-24**

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	14	25	42					
Tare Number	---	---	93	94	290		24			
Weight of Empty Tare	M_C	(g)	31.28	29.16	28.91		29.92			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	56.2	50.5	52.66		49.6			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	45.34	41.42	42.57		44.69			
Weight of Soil	M_S	(g)	14.06	12.26	13.66		14.77			
Weight of Water	M_W	(g)	10.86	9.08	10.09		4.91			
Water Content	w	(%)	**77.2**	**74.1**	**73.9**		**33.2**			

Liquid Limit (LL or w_L) (%)	**75**
Plastic Limit (PL or w_P) (%)	**33**
Plasticity Index (PI) (%)	**42**
Soil Classification	**CH**





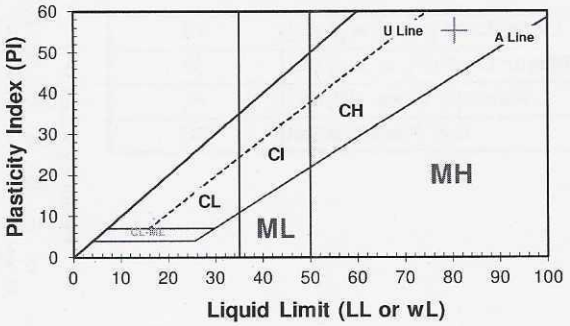
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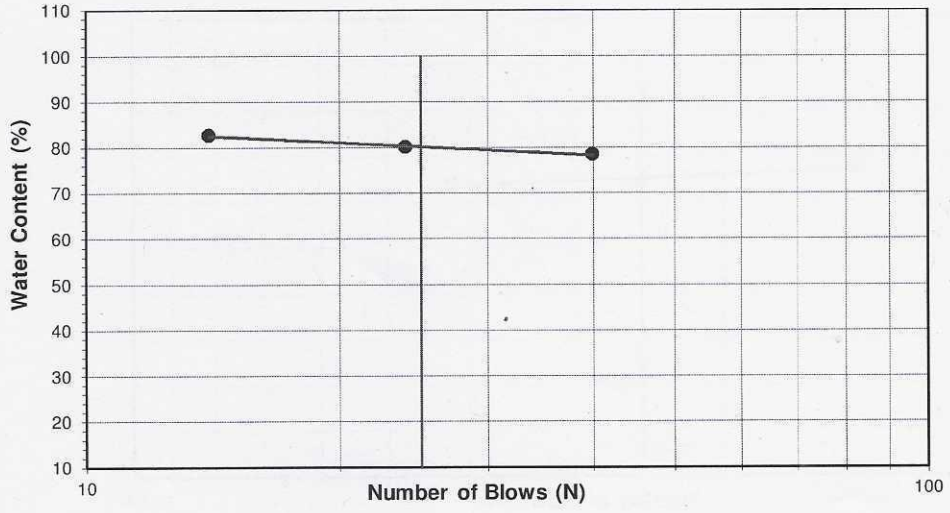
IS-2720-Part-5

Project :	Stilt + 5 Floors Residential Apartment
Location:	Kodambakkam
Boring No:	2
Sample Depth:	6.5m
Project No:	**MSGTPL/SI-5973-R1/23-24**

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	14	24	40					
Tare Number	---	---	253	262	244		263			
Weight of Empty Tare	M_C	(g)	28.93	31.53	29.99		29.92			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	55.07	56.8	51.5		52.17			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	43.24	45.57	42.05		47.72			
Weight of Soil	M_S	(g)	14.31	14.04	12.06		17.80			
Weight of Water	M_W	(g)	11.83	11.23	9.45		4.45			
Water Content	w	(%)	**82.7**	**80.0**	**78.4**		**25.0**			

Liquid Limit (LL or w_L) (%)	**80**
Plastic Limit (PL or w_P) (%)	**25**
Plasticity Index (PI) (%)	**55**
Soil Classification	**CH**





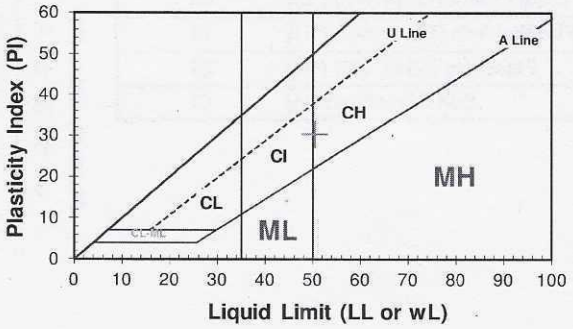
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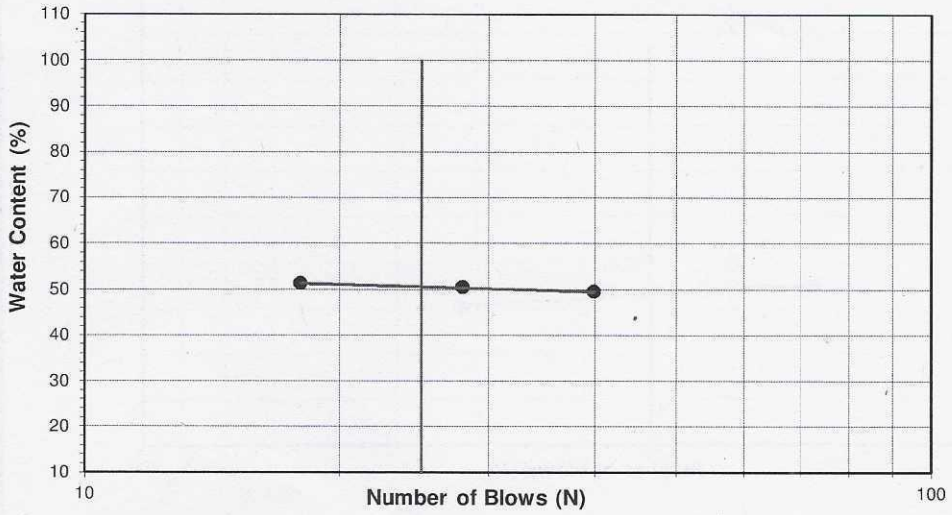
IS-2720-Part-5

Project :	Stilt + 5 Floors Residential Apartment
Location:	Kodambakkam
Boring No:	2
Sample Depth:	16.0m
Project No:	MSGTPL/SI-5973-R1/23-24

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	18	28	40					
Tare Number	---	---	51	173	146		30			
Weight of Empty Tare	M_C	(g)	28.66	30.17	28.67		28.12			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	58.54	58.05	53.88		51.39			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	48.42	48.70	45.54		47.51			
Weight of Soil	M_S	(g)	19.76	18.53	16.87		19.39			
Weight of Water	M_W	(g)	10.12	9.35	8.34		3.88			
Water Content	w	(%)	**51.2**	**50.5**	**49.4**		**20.0**			

Liquid Limit (LL or w_L) (%)	**50**
Plastic Limit (PL or w_P) (%)	**20**
Plasticity Index (PI) (%)	**30**
Soil Classification	**CH**





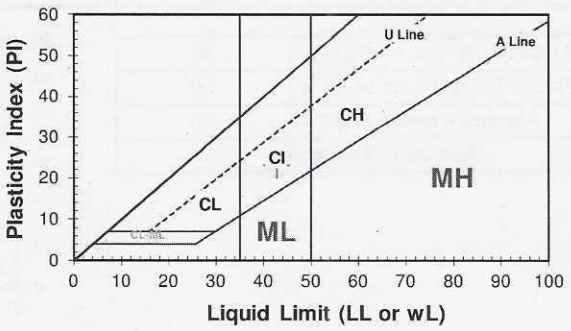
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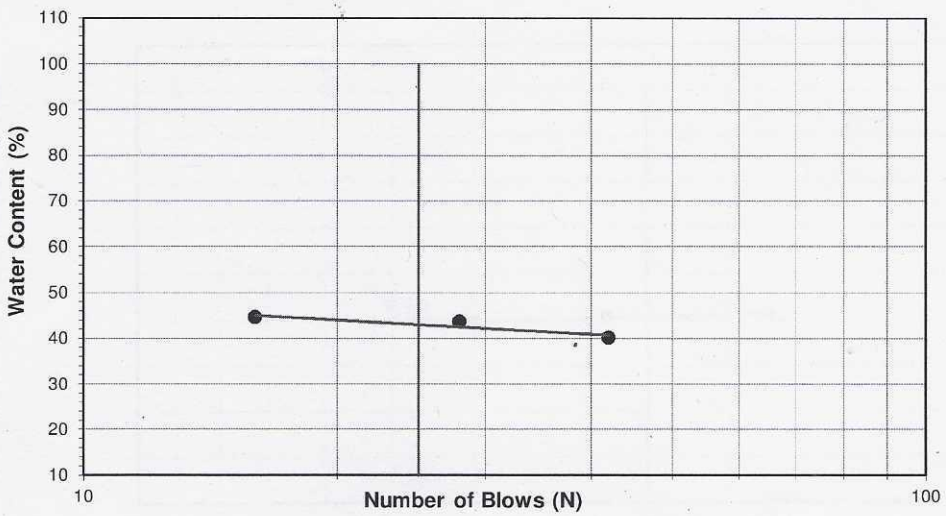
IS-2720-Part-5

Project :	Stilt + 5 Floors Residential Apartment
Location:	Kodambakkam
Boring No:	2
Sample Depth:	20.5m
Project No:	MSGTPL/SI-5973-R1/23-24

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	16	28	42					
Tare Number	---	---	227	29	26		203			
Weight of Empty Tare	M_C	(g)	29.63	29.8	29.08		29.21			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	57.15	58.7	56.48		59.00			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	48.67	49.93	48.65		54.15			
Weight of Soil	M_S	(g)	19.04	20.13	19.57		24.94			
Weight of Water	M_W	(g)	8.48	8.77	7.83		4.85			
Water Content	w	(%)	**44.5**	**43.6**	**40.0**		**19.4**			

Liquid Limit (LL or w_L) (%)	43
Plastic Limit (PL or w_P) (%)	19
Plasticity Index (PI) (%)	23
Soil Classification	CI





.....END OF THE REPORT.....

VASANTHI PADMANABAN, M.Tech.,
Registered Geotechnical Engineer
Reg. No: GTE/19/04/016



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