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

To

28th Sep 2022

M/s. Bhaggyam construction,
Chennai.

Reg: Proposed construction of Residential Apartment (S+5) at Plot B, comprised T.S.No: 4790/1, 4790/2, 4790/3, 4790/4, Block No: 109, New Giri Road, Thyagaraya Nagar Village, Mambalam - Guindy Taluk, Chennai District-600017, Tamil Nadu, INDIA.

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

ULR-TC867822100000328F

Report No: **MSGTPL/SI-5579/22-23**

Copies Submitted: (2)

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NABL Accredited Laboratory
An ISO 9001 : 2015 Certifed Company
No. 145A, 2nd Cross Street,
Developed Plots Estate, Perungudi, Chennai - 600096.
Phone: 044-48563144 / 48527555
Email: info@msgeotech.com, projects@msgeotech.com
Web: www.msgeotech.com

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REPORT ON GEOTECHNICAL INVESTIGATION AND RECOMMENDATIONS FOR THE PROPOSED CONSTRUCTION OF RESIDENTIAL APARTMENT (S+5 FLOORS) AT T. NAGAR, CHENNAI

1.0 INTRODUCTION

M/s. Bhaggyam construction is planning to construct Residential Apartment (S+5 upper floors) at Plot B, comprised T.S.No: 4790/1, 4790/2, 4790/3, 4790/4, Block No: 109, New Giri Road, Thyagaraya Nagar Village, Mambalam - Guindy Taluk, Chennai District-600017, Tamil Nadu, INDIA.. **M/s. Mars Synergy Geotech Pvt Ltd**, Chennai, carried out this investigation and completed on 14th Sep 2022 according to the instructions from owner of the project.

The scope of work includes the following:

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

1.1 DESCRIPTION OF STRUCTURE

The proposed structure is a residential apartment (S+5). The exact details of columns are not available at the time of preparation of this report. Assuming an approximate column spacing of 4 to 5 m c/c considering this the central column load works about 100 to 125 tones for proposed building. 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 our using 1 sets of Rotary mechanical drilling Rig. The following activities, carried out in chronological sequence, comprised the fieldwork for the project

- Mobilisation of rotary drill 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.

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 (12/09/2022 to 14/09/2021) at site, ground water table was encountered at **(-)3.0m** depth from Existing Ground Level.

1.7 DISCUSSION ON FOUNDATION

Based on soil strata it is necessary to give due importance to the settlement if shallow foundations are to be adopted. Due to soft to medium stiff Clay and loose SAND layers up to -3.50m depth, considering the columns loads and the soil strata shallow foundation is to NOT satisfactory on shear and settlement considerations. Hence it is ideal to adopt bored cast in-situ pile foundation for the proposed building.

1.8 RECOMMENDATIONS

- ✓ Considering that this structure is a residential apartment with stilt + 5 floors, 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 may be about **20.0 m** from the existing ground level.
- ✓ The pile capacities for varying diameters are provided below for the proposed structure.

Length of Pile (m)	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	85	60	1.0	2.6
20.0	500	100	65	1.2	2.9
20.0	600	130	80	1.4	3.6

ESTIMATION OF VERTICAL CAPACITY OF PILE

Project:	5579
Location:	T. Nagar (Residential Apartment, S+5)
Reference BH's	BH-1 & BH-2

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

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

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**	

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	3.5	2.5	Medium stiff CLAY	6	7	30	1	-	-	8.75
2	3.5	5.5	2	Stiff CLAY	11	8	60	0.8	-	-	25.5
3	5.5	12	6.5	Medium dense SAND	16	8.5	-	-	31	1.1	61.125
4	12	19	7	Dense clayey SAND	41	9	-	-	33	1.15	120.25
5	19	22	3	Very Dense clayey SAND	>50	9.5	-	-	35	1.25	166
6	22	23.5	1.5	Hard CLAY	>50	10	300	-	-	-	187.75

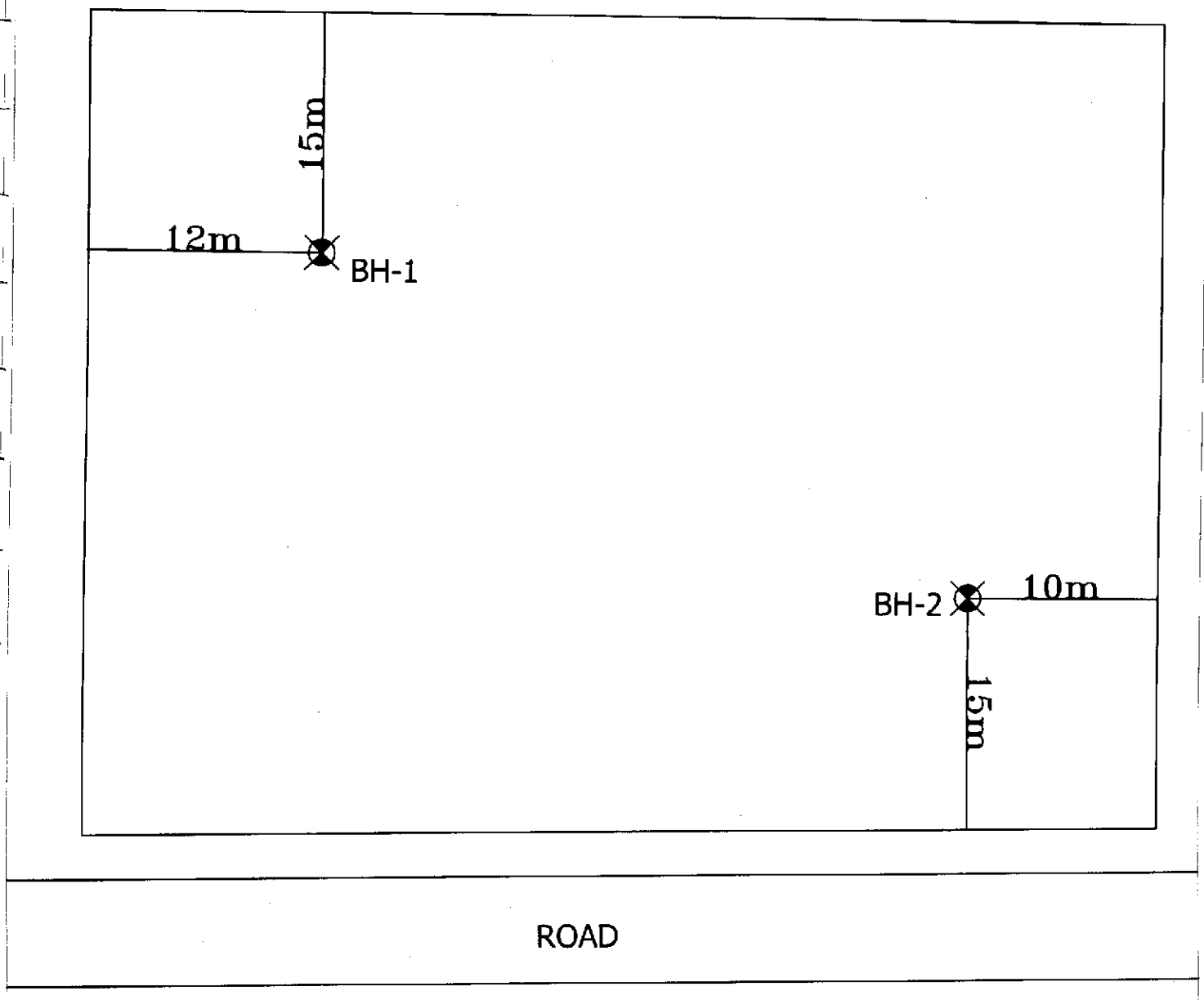
Pile Calculations As per IS-2911 part-1/Sec-2-2010

Sl.No	From (m)	To (m)	Thickness (m)	Avg 'N'	γ' (kN/m³)	C (kPa)	α	ϕ	K	Asi	Sf (kN)	Sfi (kN)
1	1.0	3.5	2.5	6	7	30	1	-	-	4.71	141.37	141.37
2	3.5	5.5	2	11	8	60	0.8	-	-	3.77	180.96	322.33
3	5.5	12	6.5	16	8.5	-	-	31	1.1	12.25	494.99	817.32
4	12	19	7	41	9	-	-	33	1.15	13.19	1184.95	2002.27
5	19	20	1	>50	9.5	-	-	35	1.25	1.88	273.87	**2276.14**

End Bearing

Bearing Strata	Dia (m)	Ap (m²)	γ' (kN/m³)	q	Nq	Ng	Nc	Cu (kPa)	Qp (kN)	Qult (kN)	Qallow (kN)
Very Dense clayey SAND	0.6	0.28274334	9.5	72	49	48.03	-	-	1036.222	3312.4	**1324.95**

Safe vertical Capacity of Single Pile	**132**	**Tones**



TITLE: DRAWING SHOWING THE SOIL INVESTIGATION BORE HOLE LOCATIONS

PROJECT: PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING (S+4) AT T-NAGAR

LEGEND:

BH: BORE HOLE -SOIL TEST LOCATION SCALE: N T S

ACTIVITY	EXECUTED BY	DATE STARTED	DATE FINISHED
FOREMEN	DEVARAJ	12.09.2022	13.09.2022
DRAFTING	BABU.J	24.09.2022	24.09.2022

MARS SYNERGY GEOTECH Pvt Ltd
(An ISO 9001: 2015 Certified Company)
Engineering Survey & Soil Investigation
30/25.DROWPATHY AMMAN KOIL MAIN ROAD,
VELACHERY,CHENNAI 600 042.
Mobile: 94440 51563 / 94441 22047
Geotechnica.,Geophysica & Engineering Survey in Offshore & Onshore

DRAWING NO: MSGTPL/SI-5579/22-23

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BOREHOLE LOG

Project No: MSGTPL/SI-5579/22-23

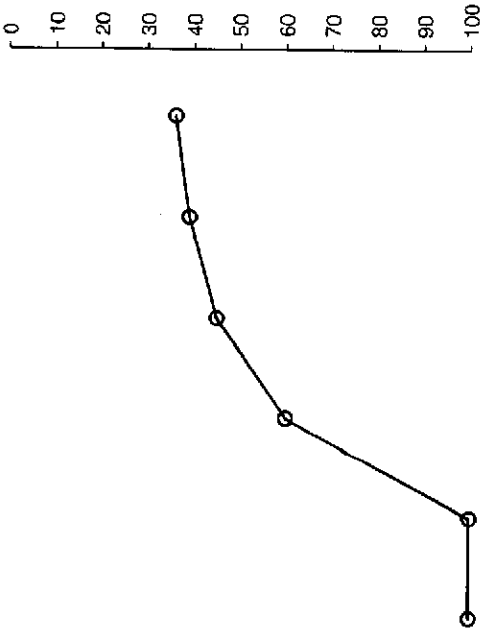
Project: Proposed Construction of Residential Apartment (S+5) at T.Nagar

Location T NAGAR
Ground R.L Nil
Drilling Rotary

Borehole No	**BH-1**	
G.W.T (m)	3.0m	
Date of Start	12-Sep-2022	
Date of Complete	13-Sep-2022	
Dia of Bore (mm)	100	Sheet
Termination Depth (m)	23.50	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
15.0	3.0	Dense Greyish Clayey SAND		SC						
15.5										
16.0					SPT	16.0	10	18	18	**36**
16.5										
17.0										
17.5					SPT	17.5	12	19	20	**39**
18.0	3.0	Dense to Very Dense Clayey SAND		SC						
18.5										
19.0					SPT	19.0	20	21	24	**45**
19.5										
20.0										
20.5					SPT	20.5	20	30	30	**60**
21.0	1.5	Hard Brownish Sandy CLAY		CI						
21.5										
22.0					SPT	22.0	40	50blows for 5cm		
22.5	1.5	Soft Disintegrated Rock		GP						
23.0										
23.5					SPT	23.5	50blows for 1cm			
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										

Graphical Representation of SPT



Borehole Termination Depth (m) 23.5

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-5579/22-23

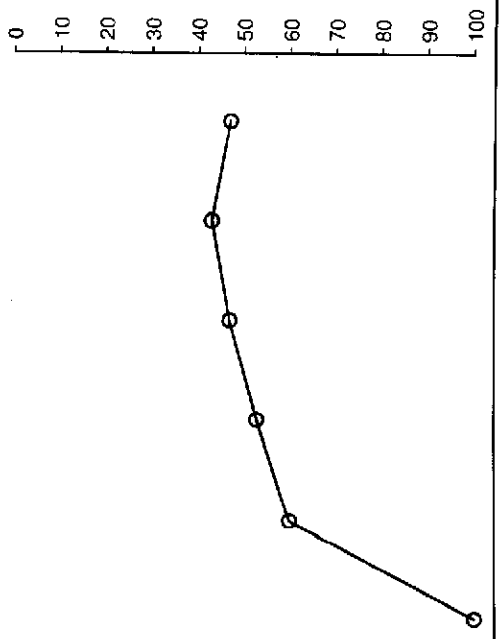
Project: Proposed Construction of Residential Apartment (S+5) at T.Nagar

Location T NAGAR
Ground R.L Nil
Drilling Rotary

Borehole No **BH-2**
G.W.T (m) 3.0m
Date of Start 13-Sep-2022
Date of Complete 14-Sep-2022
Dia of Bore (mm) 100 Sheet
Termination Depth (m) 23.50 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
15.0										
15.5										
16.0					SPT	16.0	20	23	24	**47**
16.5										
17.0	4.5	Dense Light Greyish Clayey SAND		SC						
17.5					SPT	17.5	17	20	23	**43**
18.0										
18.5										
19.0					SPT	19.0	19	20	27	**47**
19.5										
20.0	1.5	Hard Light Greyish CLAY		CH						
20.5					SPT	20.5	20	25	28	**53**
21.0										
21.5	1.5	Very Dense Light Greyish Clayey SAND		SC						
22.0					SPT	22.0	30	30	30	60
22.5										
23.0	1.5	Hard Light Greyish CLAY		CI						
23.5					SPT	23.5	50blows for 10cm			
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										

Graphical Representation of SPT



Borehole Termination Depth (m) 23.5

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
ROD- Rock Quality Designation

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Project No: MSGTPL/SI-5579/22-23

Project : Proposed Construction of Residential Apartment (S+5) at T.Nagar

BH No 2 **Ground Water Level:(-)3.0m** **Termination Depth:23.5m**

SUMMARY OF TEST RESULTS

N Value	Layer Thickness	Depth (m)	Soil Description	IS Classification	Index Properties (%)					FreeSwell	Specific Gravity	Grain Size Analysis (%)				
					NMC	W_L	W_P	I_P	Ic			Gravel	Coarse Sand	Medium Sand	Fine Sand	Silt & Clay
		0.00														
4	3.0	1.00	Soft to Medium Stiff Brownish CLAY	CI-CH	35											
5		2.00			24	43	13	30			2.65					
6		3.00			23	59	19	40								
9	2.0	4.00	Stiff Greyish Sandy CLAY	CI	21	43	15	28			2.66					
12		5.00			25	41	13	28								
18	3.0	6.50	Medium Dense Greyish Fine to Medium SAND	SW	17							0	0	58	36	6
20		8.00			15						2.62	0	0	58	36	6
18	3.5	10.00	Medium Dense Light Greyish Clayey SAND	SC	17							0	1	41	35	23
17		11.50			15							0	0	32	28	40
35	1.5	13.00	Dense Light Greyish Fine SAND	SM	13						2.65	0	9	54	19	18
39		14.50			14							1	8	46	25	20
47	6.0	16.00	Dense Light Greyish Clayey SAND	SC	12							0	1	48	25	26
43		17.50			13							0	9	51	26	14
47		19.00			13						2.63	2	1	38	31	28
53	1.5	20.50	Hard Light Greyish CLAY	CH	21	57	14	43								
60	1.5	22.00	Very Dense Light Greyish Clayey SAND	SC	14							1	1	15	43	40
>100	1.5	23.50	Hard Light Greyish CLAY	CI	11	49	12	36			2.6					

Project No: MSGTPL/SI-5579/22-23
Project :Proposed Construction of Residential Apartment (S+5) at T.Nagar

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	183	270	232	297	36	55	131	159	99	76	88	68
Wt of Tare (gr)	31.18	32.63	29.95	27.95	30.41	29.40	29.56	30.51	29.97	29.23	29.38	28.27
Tare + Soil (gr)	70.18	71.12	60.27	58.67	62.10	57.23	58.11	56.97	61.42	53.06	51.82	58.54
Tare+Dry soil (gr)	65.09	65.90	56.58	54.93	58.67	54.40	54.41	53.56	57.67	50.19	49.34	55.18
Wt of Water (gr)	5.09	5.22	3.69	3.74	3.43	2.83	3.70	3.41	3.75	2.87	2.48	3.36
Wt Dry soil (gr)	33.91	33.27	26.63	26.98	28.26	25.00	24.85	23.05	27.70	20.96	19.96	26.91
Water Content (%)	15.01	15.69	13.86	13.86	12.14	11.32	14.89	14.79	13.54	13.69	12.42	12.49
Average Water Content (%)	15		14		12		15		14		12	

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Project No: MSGTPL/SI-5579/22-23
Project :Proposed Construction of Residential Apartment (S+5) at T.Nagar

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	138	239	96	8	137	217	107	93	203	245	21	184
Wt of Tare (gr)	29.12	29.86	28.88	28.89	30.20	29.27	30.79	31.28	29.21	30.29	28.09	28.76
Tare + Soil (gr)	59.43	57.61	66.27	54.31	66.80	56.27	68.14	62.92	63.25	65.57	64.27	63.27
Tare+Dry soil (gr)	53.86	52.33	59.94	49.79	59.56	50.95	62.88	58.36	58.87	60.90	59.10	58.31
Wt of Water (gr)	5.57	5.28	6.33	4.52	7.24	5.32	5.26	4.56	4.38	4.67	5.17	4.96
Wt Dry soil (gr)	24.74	22.47	31.06	20.90	29.36	21.68	32.09	27.08	29.66	30.61	31.01	29.55
Water Content (%)	22.51	23.50	20.38	21.63	24.66	24.54	16.39	16.84	14.77	15.26	16.67	16.79
Average Water Content (%)	23		21		25		17		15		17	

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Project No: MSGTPL/SI-5579/22-23
Project :Proposed Construction of Residential Apartment (S+5) at T.Nagar

Method: IS-2720 P-2

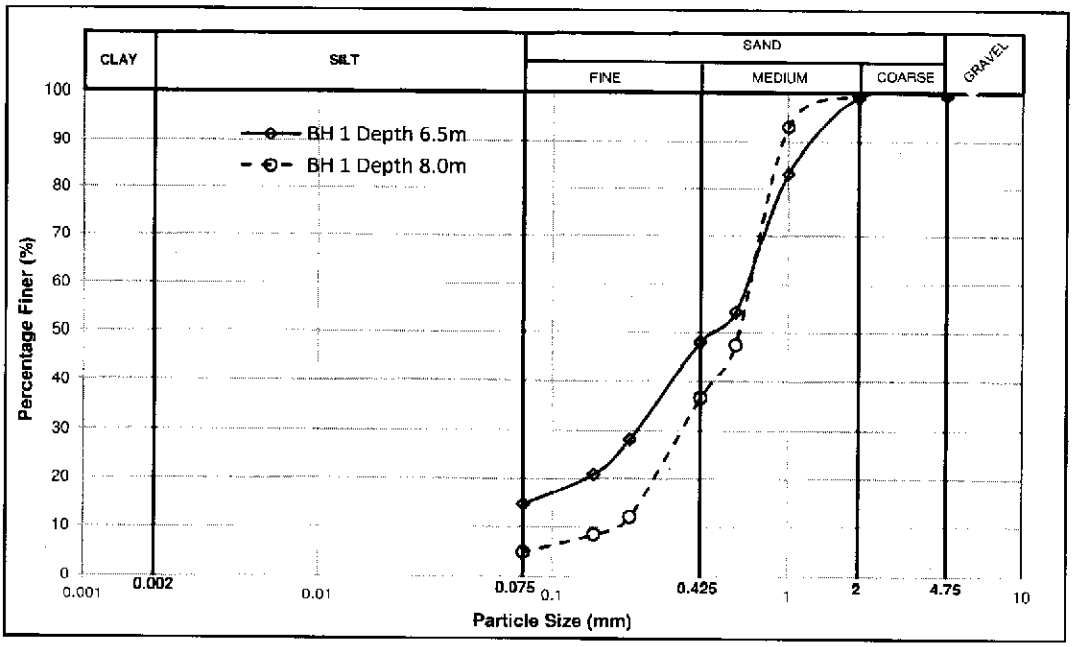
Natural Moisture Content Data Sheet

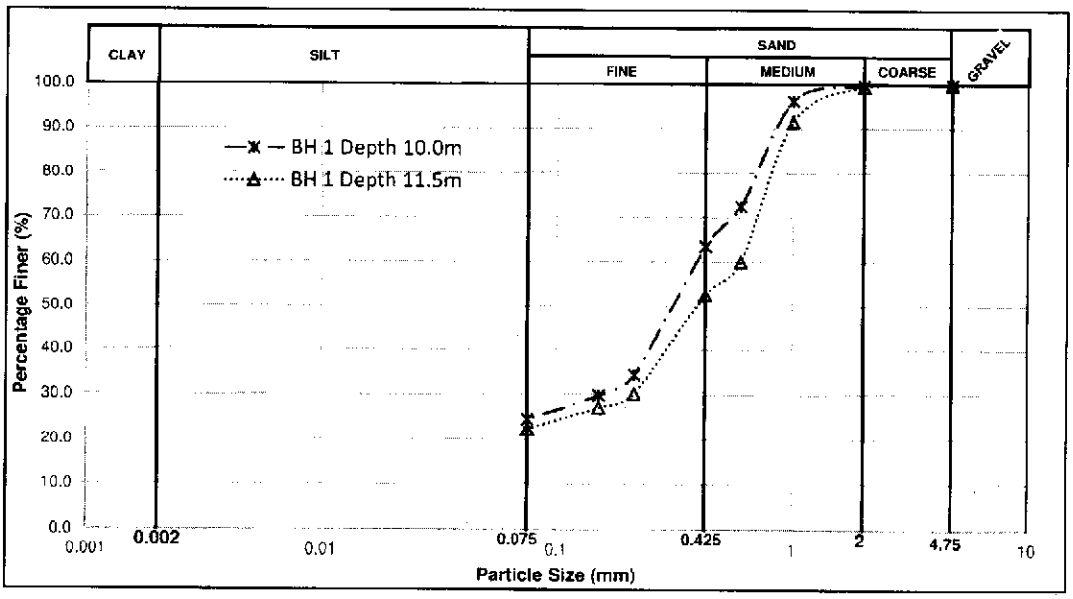
BH.No/ Pit no	2		2		2							
Depth (m)	20.5		22.0		23.5							
Tare No	60	200	259	92	128	134						
Wt of Tare (gr)	29.48	29.04	31.05	29.77	30.45	28.41						
Tare + Soil (gr)	51.33	49.87	52.45	51.39	46.88	52.82						
Tare+Dry soil (gr)	47.53	46.17	49.96	48.64	45.15	50.55						
Wt of Water (gr)	3.80	3.70	2.49	2.75	1.73	2.27						
Wt Dry soil (gr)	18.05	17.13	18.91	18.87	14.70	22.14						
Water Content (%)	21.05	21.60	13.17	14.57	11.77	10.25						
Average Water Content (%)	21		14		11							

Project No: MSGTPL/SI-5579/22-23

Project : Proposed Construction of Residential Apartment (S+5) at T.Nagar

GRAIN SIZE ANALYSIS



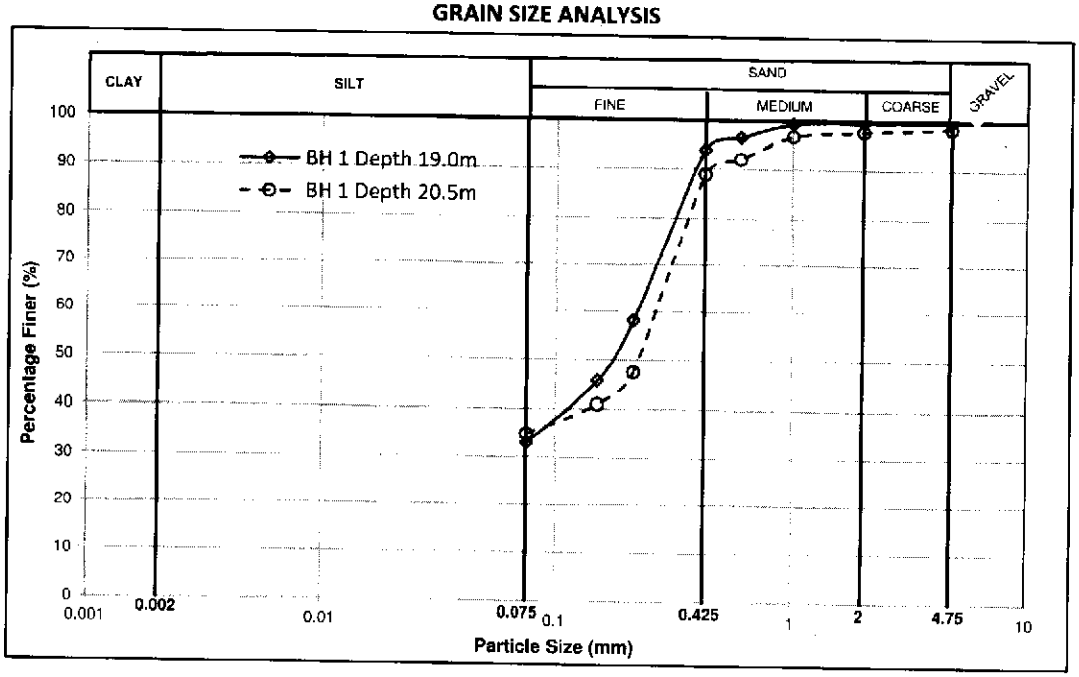


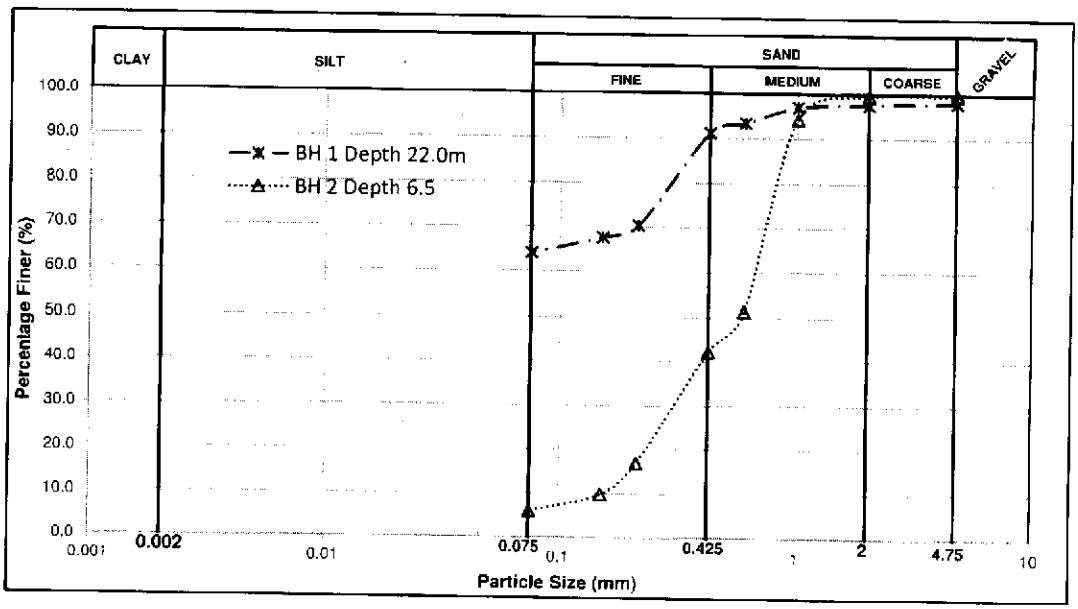
BH-No	Depth	Gravel	SAND (%)			SILT& CLAY	D_{10}	D_{30}	D_{60}	Cu	Cc
	(m)	(%)	Coarse	Medium	Fine	(%)	(mm)	(mm)	(mm)		
1	6.5m	0	1	51	33	15		0.231	0.681		#####
1	8.0m	0	0	63	32	5	0.176	0.366	0.709		1.1
1	10.0m	0	0	36	39	25		0.149	2.147		#####
1	11.5m	0	1	47	30	22		0.208	0.600		#####

Project No: MSGTPL/SI-5579/22-23

Project : Proposed Construction of Residential Apartment (S+5) at T.Nagar

GRAIN SIZE ANALYSIS



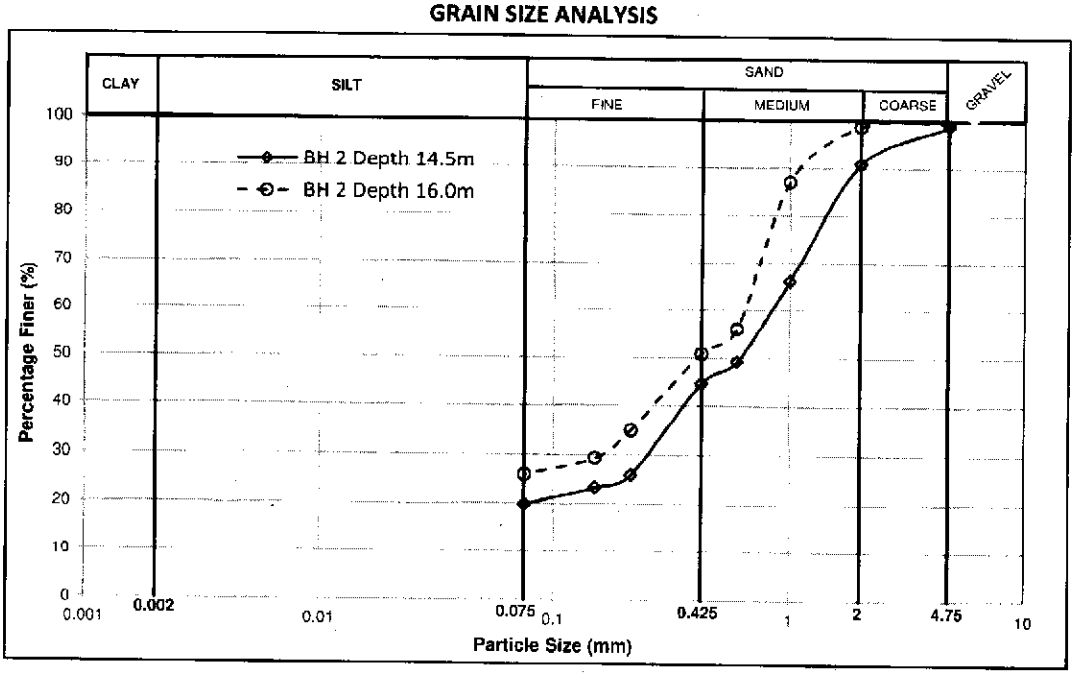


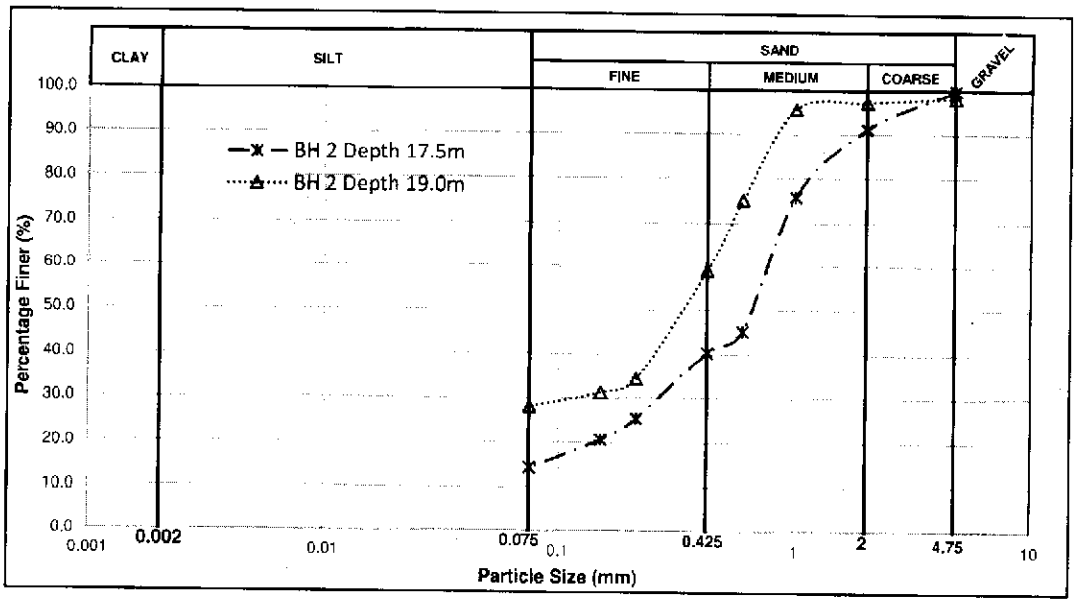
BH-No	Depth	Gravel	SAND (%)			SILT& CLAY	D_{10}	D_{30}	D_{60}	Cu	Cc
	(m)	(%)	Coarse	Medium	Fine	(%)	(mm)	(mm)	(mm)		
1	19.0m	0	0	6	61	33			0.223		#####
1	20.5m	1	1	9	54	35			0.276		#####
1	22.0m	2	0	7	27	64					#####
2	6.5	0	0	58	36	6	0.152	0.322	0.680		1.0

Project No: MSGTPL/SI-5579/22-23

Project : Proposed Construction of Residential Apartment (S+5) at T.Nagar

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	14.5m	1	8	46	25	20		0.258	0.855		#####
2	16.0m	0	1	48	25	26		0.157	0.651		#####
2	17.5m	0	9	51	26	14		0.295	0.716		#####
2	19.0m	2	1	38	31	28		0.122	0.435		#####

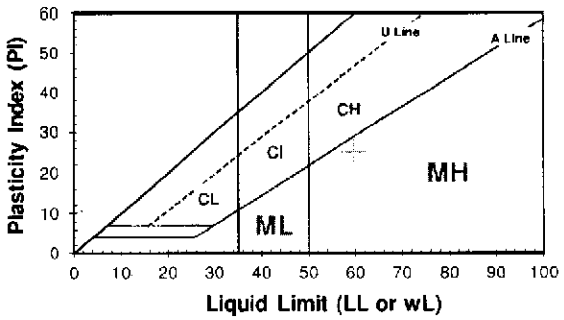
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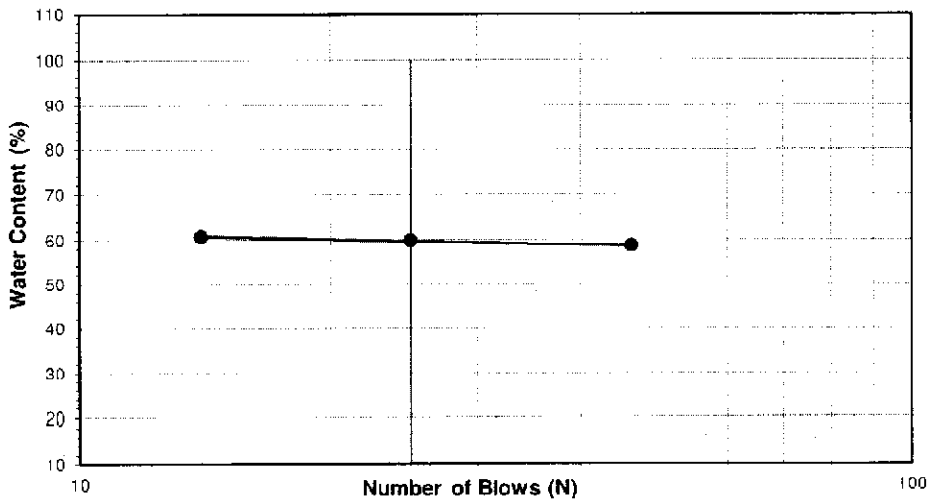
IS-2720-Part-5

Project :	Residential Apartment (S+5)
Location:	T NAGAR
Boring No:	BH-1
Sample Depth:	1.0m
Project No:	**MSGTPL/SI-5579/22-23**

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	14	25	46					
Tare Number	---	---	199	56	163		191			
Weight of Empty Tare	M_C	(g)	29.81	30.13	29.39		30.12			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	52.07	52.9	56.21		57.36			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	43.66	44.38	46.30		50.35			
Weight of Soil	M_S	(g)	13.85	14.25	16.91		20.23			
Weight of Water	M_W	(g)	8.41	8.52	9.91		7.01			
Water Content	w	(%)	**60.7**	**59.8**	**58.6**		**34.7**			

Liquid Limit (LL or w_L) (%)	60
Plastic Limit (PL or w_P) (%)	35
Plasticity Index (PI) (%)	25
Soil Classification	CH





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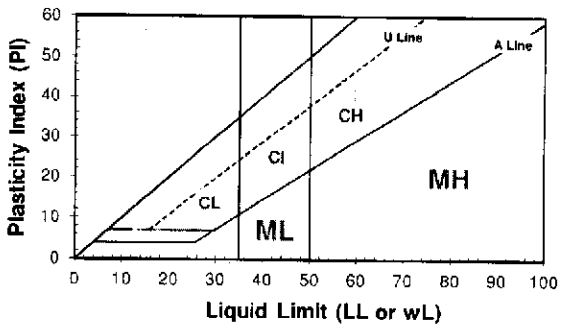
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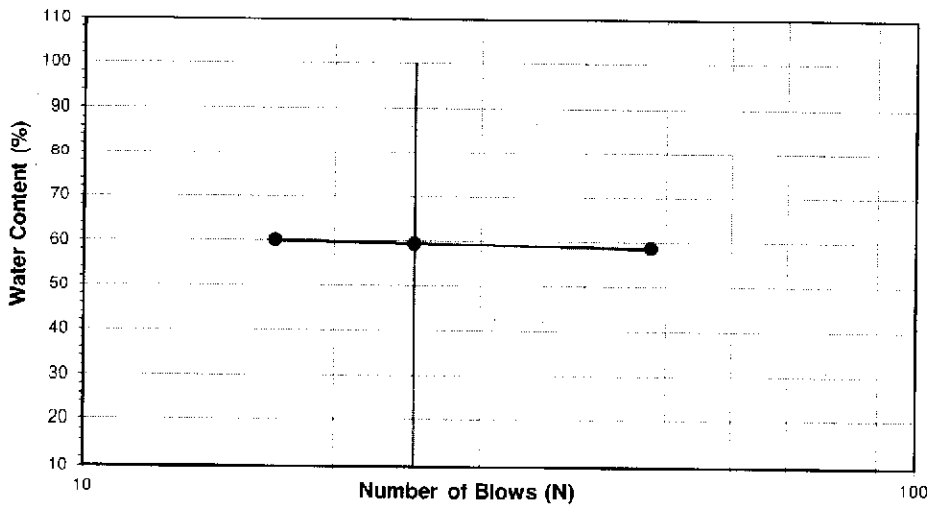
IS-2720-Part-5

Project :	Residential Apartment (S+5)
Location:	T NAGAR
Boring No:	BH-2
Sample Depth:	3.0m
Project No:	**MSGTPL/SI-5579/22-23**

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	17	25	48					
Tare Number	---	---	47	227	12		284			
Weight of Empty Tare	M_C	(g)	31.08	29.63	29.79		29.06			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	51.77	46.63	57.95		56.11			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	44.00	40.30	47.55		51.76			
Weight of Soil	M_S	(g)	12.92	10.67	17.76		22.70			
Weight of Water	M_W	(g)	7.77	6.33	10.40		4.35			
Water Content	w	(%)	**60.1**	**59.3**	**58.6**		**19.2**			

Liquid Limit (LL or w_L) (%)	59
Plastic Limit (PL or w_P) (%)	19
Plasticity Index (PI) (%)	40
Soil Classification	CH





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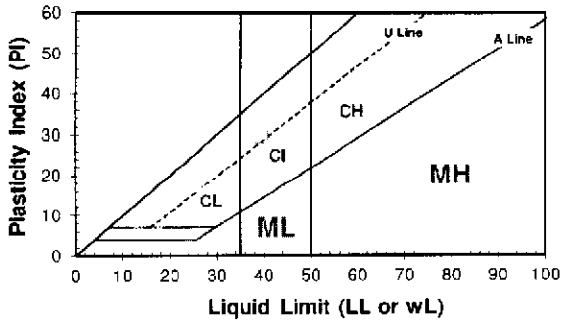
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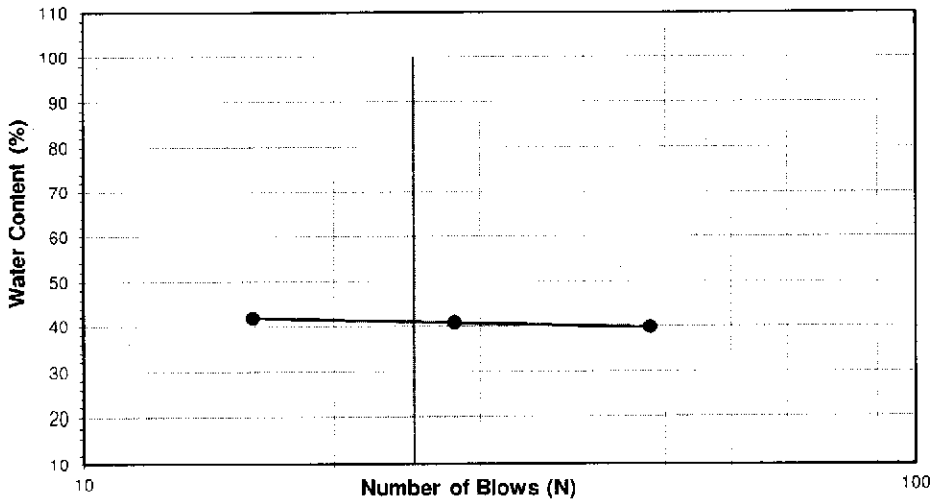
IS-2720-Part-5

Project :	Residential Apartment (S+5)
Location:	T NAGAR
Boring No:	BH-2
Sample Depth:	5.0m
Project No:	**MSGTPL/SI-5579/22-23**

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	16	28	48					
Tare Number	---	---	224	300	152		260			
Weight of Empty Tare	M_C	(g)	29.51	30.89	30.46		29.05			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	43.87	50.6	62.78		52.19			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	39.64	44.90	53.60		49.59			
Weight of Soil	M_S	(g)	10.13	14.01	23.14		20.54			
Weight of Water	M_W	(g)	4.23	5.70	9.18		2.60			
Water Content	w	(%)	41.8	40.7	39.7		12.7			

Liquid Limit (LL or w_L) (%)	41
Plastic Limit (PL or w_P) (%)	13
Plasticity Index (PI) (%)	28
Soil Classification	CI





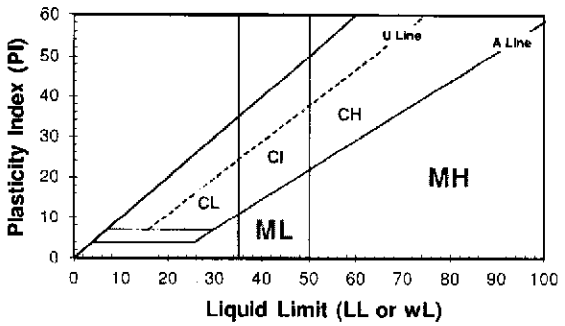
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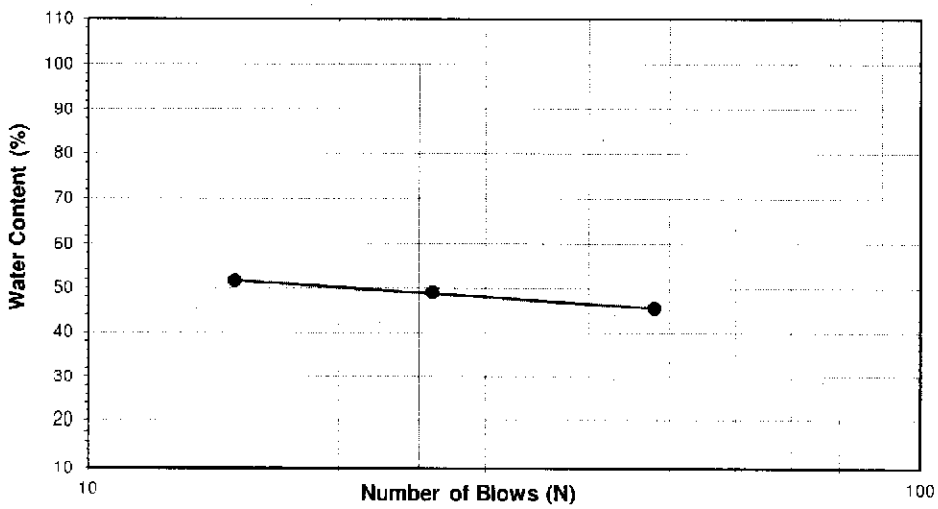
IS-2720-Part-5

Project :	Residential Apartment (S+5)
Location:	T NAGAR
Boring No:	BH-2
Sample Depth:	23.50m
Project No:	**MSGTPL/SI-5579/22-23**

TEST			LIQUID LIMIT				PLASTIC LIMIT			
Variable	NO		1	2	3		1	2		
	Var.	Units								
Number of Blows	N	blows	15	26	48					
Tare Number	---	---	11	274	142		186			
Weight of Empty Tare	M_C	(g)	29.03	29.59	29.38		28.79			
Wt of Tare + Soil (Wet)	M_{CMS}	(g)	61.68	51.22	45.41		47.29			
Wt of Tare + Soil (Dry)	M_{CDS}	(g)	50.57	44.12	40.41		45.25			
Weight of Soil	M_S	(g)	21.54	14.53	11.03		16.46			
Weight of Water	M_W	(g)	11.11	7.10	5.00		2.04			
Water Content	w	(%)	51.6	48.9	45.3		12.4			

Liquid Limit (LL or w_L) (%)	49
Plastic Limit (PL or w_P) (%)	12
Plasticity Index (PI) (%)	36
Soil Classification	CI







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