Verified RealEstate™

RE REGULATORY RECORD

RERA Document

The document as the regulator published it, reproduced in full behind this page.

Published for reference. The authority's own register is the operative record.

Verified RealEstate™
3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai 600 097, India

hello@verified.realestate
+91 9996 12 9996
verified.realestate

DIGITALLY VERIFIED RECORD

SOIL EXPLORATION AND FOUNDATION REPORT

FOR THE PROPOSED COMMERCIAL BUILDING

AT

NO. 1

OLD SURVEY NO. 96/7

T.S NO. 4/1, BLOCK NO. 5

CHAKRAPANI ROAD

GUINDY, CHENNAI

PROJECT NO. TJE/002330/2022

T.J.ENGINEERS

SOIL EXPLORATION AND FOUNDATION DESIGN DIVISION
T.J.HOUSE
NO.4, ANNA NAGAR, 1ST STREET,
VELACHERY, CHENNAI-42.
tjengineers@yahoo.com
tjengineers1998@gmail.com
Ph : 42 33 41 94.

T. J. ENGINEERS CHENNAI 42.

CONTENTS OF THE REPORT

1.0 INTRODUCTION

2.0 SCOPE OF WORK

3.0 LOCATION AND NUMBER OF BORE HOLES

4.0 GEO TECHNICAL INVESTIGATION

- 4-1. Field Investigation of Bore Holes
- 4.2. Grain Size Analysis
- 4-3.Laboratory Test for Bore Hole Sample

5.0 BORE HOLE DATA

6.0 LABORATORY TEST RESULTS

7.0 GROUND WATER TABLE

8.0 SUB SOIL PROFILE

9.0 FOUNDATION ANALYSIS AND DESIGN

- 9.1. Computation of Safe Bearing Capacity of the soil at 2.00m depth
- 9.2. Computation of Safe Bearing Capacity of the soil at 3.00m depth
- 9.3. Computation of Safe Bearing Capacity of the soil at 4.00m depth
- 9.4. Settlement Analysis

10.0 CONCLUSIONS

11.0 TABLES AND FIGURES

T. J. ENGINEERS ★ CHENNAI-42. ★

EXPLORATION REPORT

PROJECT NO. TJE/002330/2022

1.INTRODUCTION:

M/s ATRIA has proposed to construct a Ground Floor + Four Floors Commercial Building at No. 1, Old Survey No. 96/7, T.S No. 4/1, Block No. 5, Chakrapani Road, Guindy, Chennai-600 032. The soil investigation work was entrusted to T.J. Engineers by the promoter. The location is shown in Fig No.1. The object of the soil exploration work done is to determine the soil properties of the proposed area and to arrive at a most suitable type of foundation system for the proposed structure.

2.0 SCOPE OF WORK

The Scope of Work includes the following

Boreholes

- Drilling of borehole at the proposed borehole locations as per the direction of the client.
- Collection of disturbed and undisturbed soil samples and carrying out the relevant laboratory test on soils.
- Conducting of standard penetration test (SPT) within the borehole at every 1.00m depth interval or as required.
- Collection of soil sample from bore hole.
- Preparation of geotechnical investigation Report.

3.0. LOCATION & NUMBER OF BORE HOLES

For this purpose three bore holes were bored up to maximum depth of 6.50m below existing ground level. The bore hole location is shown in Fig No.1 and bore log details

T. J. ENGINEERS ★ CHENNAI-42. ★

are given in Fig No.2,3&4. The bore holes were terminated in the Very Dense Sandy Gravel (Disintegrated Rock) layer.

4.0. GEOTECHNICAL INVESTIGATIONS

4.1. Filed Investigations of Boreholes

Rotary drilling boring technique was adopted for boring in this area. The Standard penetration tests were conducted at change of layers and at specified intervals, commencing the test at 1.00m below the existing ground level. The relative density of different soil layers obtained from the N-Values are given in the Fig No. 2,3&4. Disturbed and un disturbed samples were collected from all the layers for visual observation, classification tests and strength characteristics of the soil layers.

Standard Penetration Test (SPT)

Standard Penetration Tests were conducted using a split spoon sampler, as per relevant codal provision (IS: 2131 – 1981). The SPT is generally conducted in sandy and completely weathered rock strata till 45 cm penetration with number of blows recorded for every 15 cm penetration. The number of blows required for first 15 cm in neglected. The blows for last 30 cm penetration or refusal 'N' value of 100 whichever is earlier is taken as the 'N' value. In the clayey strata, when driving of sampling tube is not possible, SPT was conducted to know the consistency of the soil strata and to retrieve the disturbed soil sample. The soil samples obtained in the split spoon sampler are carefully packed in polythene bags for testing in the laboratory. The SPT values obtained at every 1.00m interval are given in the bore logs.

T. J. ENGINEERS ★ CHENNAI-42 ★

4.2. Grain Size Analysis

Combined sieve and hydrometer analyses were conducted on the various samples collected. The results are given in Table-1. Based on the proportion of the different soil constituents, the soil is classified.

4.3. Laboratory Tests for Borehole samples

The following laboratory tests were conducted on collected Soil Samples.

I. Moisture Content as per IS: 2720 (Part 2)

II. Specific Gravity as per IS: 2720 (Part 2)

III. Sieve Analysis as per IS: 2720 (Part 4)

IV. Hydrometer Analysis as per IS: 2720 (Part 4)

V. Liquid Limit as per IS: 2720 (Part 5)

VI. Plastic Limit as per IS: 2720 (Part 5)

VII. Swelling Index as per IS: 2720 (Part 40)

5.0.BORE LOG DATA

The Summary of bore hole log data for BH-01, BH-02 & BH-03 is given in Fig No. 2,3&4. Bore hole location is given in Fig.1.

6.0.LABORATORY TEST RESULTS

The laboratory test results of boreholes samples are presented in Table-1 and Table-2.

7.0.GROUND WATER TABLE

The ground water table was **encountered at the depth of 5.00m** below the existing ground level at the time of soil exploration.

8.0.SUB SOIL PROFILE

From the visual identification from field test results, it is concluding that soil strata is not similar in BH-01, BH-02 & BH-03 location.

T. J. ENGINEERS ★ CHENNAI-42. ★

In BH-01 Location the soil strata is made-up of four distinctive layers.

i. Filled Up Soil 0.00m to 0.90m

ii. Medium Dense Silty Sand, 0.90m to 2.00mSPT's N = 12

iii. Very Dense Clayey Silty Gravelly Sand, 2.00m to 4.80m SPT's N = 54->100

iv. Very Dense Sandy Gravel, 4.80m to 6.50m SPT's N = >100

In BH-02 Location the soil strata is made-up of four distinctive layers.

i. Filled Up Soil 0.00m to 1.50m

ii. Loose Silty Clayey Sand, 1.50m to 2.70mSPT's N = 9

iii. Medium Dense Clayey Silty Sand, 2.70m to 4.00mSPT's N = 11

iv. Very Dense Sandy Gravel, 4.00m to 6.50m SPT's N = 59->100

In BH-03 Location the soil strata is made-up of four distinctive layers.

i. Filled Up Soil 0.00m to 0.70m

ii. Stiff Sandy Silty Clay, 0.70m to 1.80mSPT's N = 9

iii. Very Dense Sandy Gravel, 1.80m to 2.50m SPT's N = >100

iv. Very Dense Gravel, 2.50m to 5.00m SPT's N = >100

The soil profile details are presented in the Bore logs, Presented in Fig. 2,3&4.

T. J. ENGINEERS ★ CHENNAI-42.

9.0 FOUNDATION ANALYSIS

From the bore log data at the top from 0.00m to 0.90m/1.50m Filled Up Soil layer is present.

In BH-01 & BH-03 location from 0.90m/1.50m to 2.00mStiff Sandy Silty Clay layer and medium dense Sandy layer is present, and the Clay layer has got swelling character. Below 2.00m very dense Clayey Silty Gravelly Sand/Sandy Gravel (Disintegrated Rock) layer is present.

In BH-02 location, from 0.90m/1.50m to2.70m Loose Silty Clayey Sand layer is present. From 2.70m to 4.00m Medium Dense Clayey Silty Sand layer is present. Below 4.00m very dense Sandy Gravel (Disintegrated Rock) layer is seen.

The soil in the shallow depth is fair to adopt open foundation system. For the proposed Ground Floor + Four Floors structure the foundation can be **Isolated Footing or Continuous Strip Footing or Raft Foundation.** The foundation can be placed at the minimum **depth of 2.00m** below the exiting ground level (Ground level at the time of soil investigation).The existing ground level was same as the road level at the time of soil investigation. In BH-02 location, soil up to 4.00m loose to medium dense Sandy layer is present, in BH-01 & BH-03 location below 2.00m very dense Sandy layer is present. BH-02 location has been considered for Safe Bearing Capacity(SBC) Calculation, and the SBC at 2.00m, 3.00m and 4.00m depth has been worked out and given below.

T. J. ENGINEERS ★ CHENNAI-42. ★

9.1. COMPUTATION OF THE SAFE BEARING CAPACITY AT 2.00m DEPTH

Based on the standard penetration test value the ultimate bearing capacity (qu) could be calculated from the following formula.

$qu = \gamma\ Df\ Nq + 0.4\ \gamma'\ B\ N\gamma$

The observed N-Value is taken as 9 from Fig. 2,3&4.

The corresponding bearing capacity factors are,

$Nq = 10.42$

$N\gamma = 7.75$

Where,

γ = Bulk density = 1.50 t/m 3

γ' = Submerged density = 0.50 t/m 3

Df = Depth of footing = Considered minimum of 2.00 m.

Dw = Depth of water table = 5.00m

B = Breadth of the footing = Consider minimum of 1.00m.

Substitute all the above values in the formula,

Qu = 1.50 x 2.00 x 10.42 + 0.4 x 0.50 x 1.00 x 7.75

= 31.26 + 1.55

= 32.81 t/m^2

Safe bearing capacity could be considered with a factor of safety of 2.5

Hence, safe bearing capacity q s = 32.81 / 2.50 = 13.50 t/m^2. 13.50 t/m^2.

Therefore, Safe Bearing Capacity of the soil at the depth of 2.00m is 13.50 t/m^2

T. J. ENGINEERS ★ CHENNAI-42. ★

9.2. COMPUTATION OF THE SAFE BEARING CAPACITY AT 3.00m DEPTH

Based on the standard penetration test value the ultimate bearing capacity (qu) could be calculated from the following formula.

$qu = \gamma Df\ Nq + 0.4\ \gamma'\ B\ N\gamma$

The observed N-Value is taken as 11 from Fig. 2,3&4.

The corresponding bearing capacity factors are,

$Nq = 11.25$

$N\gamma = 8.37$

Where,

γ = Bulk density = 1.50 t/m 3

γ' = Submerged density = 0.50 t/m 3

Df = Depth of footing = Considered minimum of 3.00 m.

Dw = Depth of water table = 5.00m

B = Breadth of the footing = Consider minimum of 1.00m.

Substitute all the above values in the formula,

Qu = 1.50 x 3.00 x 11.25 + 0.4 x 0.50 x 1.00 x 8.37

= 50.625 + 1.674

= 52.299 t/m ^{2}

Safe bearing capacity could be considered with a factor of safety of 2.5

Hence, safe bearing capacity q s = 52.299 / 2.50 = 20.919 t/m ^{2}. 21.00 t/m ^{2}.

Therefore, Safe Bearing Capacity of the soil at the depth of 3.00m is 21.00 t/m ^{2}

T. J. ENGINEERS ★ CHENNAI-42. ★

9.3. COMPUTATION OF THE SAFE BEARING CAPACITY AT 4.00m DEPTH

Based on the standard penetration test value the ultimate bearing capacity (qu) could be calculated from the following formula.

$qu = \gamma Df\ Nq + 0.4\ \gamma'\ B\ N\gamma$

The observed N-Value is taken as 59 from Fig. 2,3&4.

The corresponding bearing capacity factors are,

Nq = 18.61

Nγ = 17.47

Where,

γ = Bulk density = 1.50 t/m 3

γ' = Submerged density = 0.50 t/m 3

Df = Depth of footing = Considered minimum of 4.00 m.

Dw = Depth of water table = 5.00m

B = Breadth of the footing = Consider minimum of 1.00m.

Substitute all the above values in the formula,

Qu = 1.50 x 4.00 x 18.61+ 0.4 x 0.50 x 1.00 x 17.47

= 111.66 + 3.494

= 115.154 t/m ^{2}

Safe bearing capacity could be considered with a factor of safety of 2.5

Hence, safe bearing capacity q s = 115.154 / 2.50 = 46.06 t/m ^{2}. 46.00 t/m ^{2}.

Therefore, Safe Bearing Capacity of the soil at the depth of 4.00m is 46.00 t/m ^{2}

T. J. ENGINEERS ★ CHENNAI-42 ★

9.4. SETTLEMENT ANALYSIS FOR THE INTENSITY OF 21.00 t/m ^{2}

LAYER -1, CLAYEY SILTY SAND

The Settlement of the Sand layer can be calculated using the following formula.

$$S_1 = (H/C)\ Log_e\ (\sigma'_0+\Delta\sigma\ /\ \sigma'_0)$$

Where

H = The thickness of the compressible sand layer
= 1.00m

σ'_0 = The effective over burden pressure at the centre of the layer
= 5.25 t/m^2

$\Delta\sigma$ = The stress increases at the centre of the sand layer due to foundation loads (or) pressure
= 1.037 t/m^2

C = $1.5q_c / \sigma'_0$

q_c = Static cone resistance
=220t/m^2

C = 1.5x220/5.25
= 62.85

S_1 = (1.00 /62.85) x Log_e (5.25 +1.037/5.25)
= 0.0159 x 10^{-3}m x 0.1798
= 0.002859m
= 2.859mm

TOTAL SETTLEMENT

S_1 = 2.859mm <50mm

The maximum allowable settlement as per IS: 1904-1986 for R.C.C structure with Isolated footing foundation is 50mm-75mm.**The settlement is within the permissible limit. Hence it is Safe**

T. J. ENGINEERS ★ CHENNAI-42. ★

10.0. CONCLUSIONS

1. Soil in the shallow depth is fair to adopt open foundation system.
2. The foundation can be **Isolated Footing** or **Continuous Strip Footing (Inverted T Beam)** or **Raft Foundation.**
3. The **foundation** can be placed at the **minimum depth** of **2.00m** below existing ground level, existing ground level considered as the ground level at the time of soil investigation. The existing ground level was same as the road level at the time of soil investigation.
4. In BH-02 location, soil up to 4.00m loose to medium dense Sandy layer is present, in BH-01 & BH-03 location below 2.00m very dense Sandy layer is present. BH-02 location has been considered for Safe Bearing Capacity(SBC) Calculation, and the S.B.C at 2.00m, 3.00m and 4.00m depth has been worked out and given below.

Sl. No	DEPTH	S.B.C(t/m ^{2})
1	2.00	13.50
2	3.00	21.00
3	4.00	46.00

5. The **minimum width** of footing should be maintained as **1.00m** to avoid any punching shear failure and to achieve suggested SBC.
6. The shallow foundation should rest on **natural un disturbed strata.**
7. All the foundation should rest on 100 mm thick 1:4:8 concrete mat, over 100mm thick river sand or M Sand layer.
8. If isolated footing provided, it is advisable to provide **plinth beam** connecting all column on both direction, **continuous belt beam** at floor level, **continuous sill slab, and continuous lintel beam.**
9. All suggested foundation recommendations and precautions should be adopted while undertaking the design aspects and construction activities.

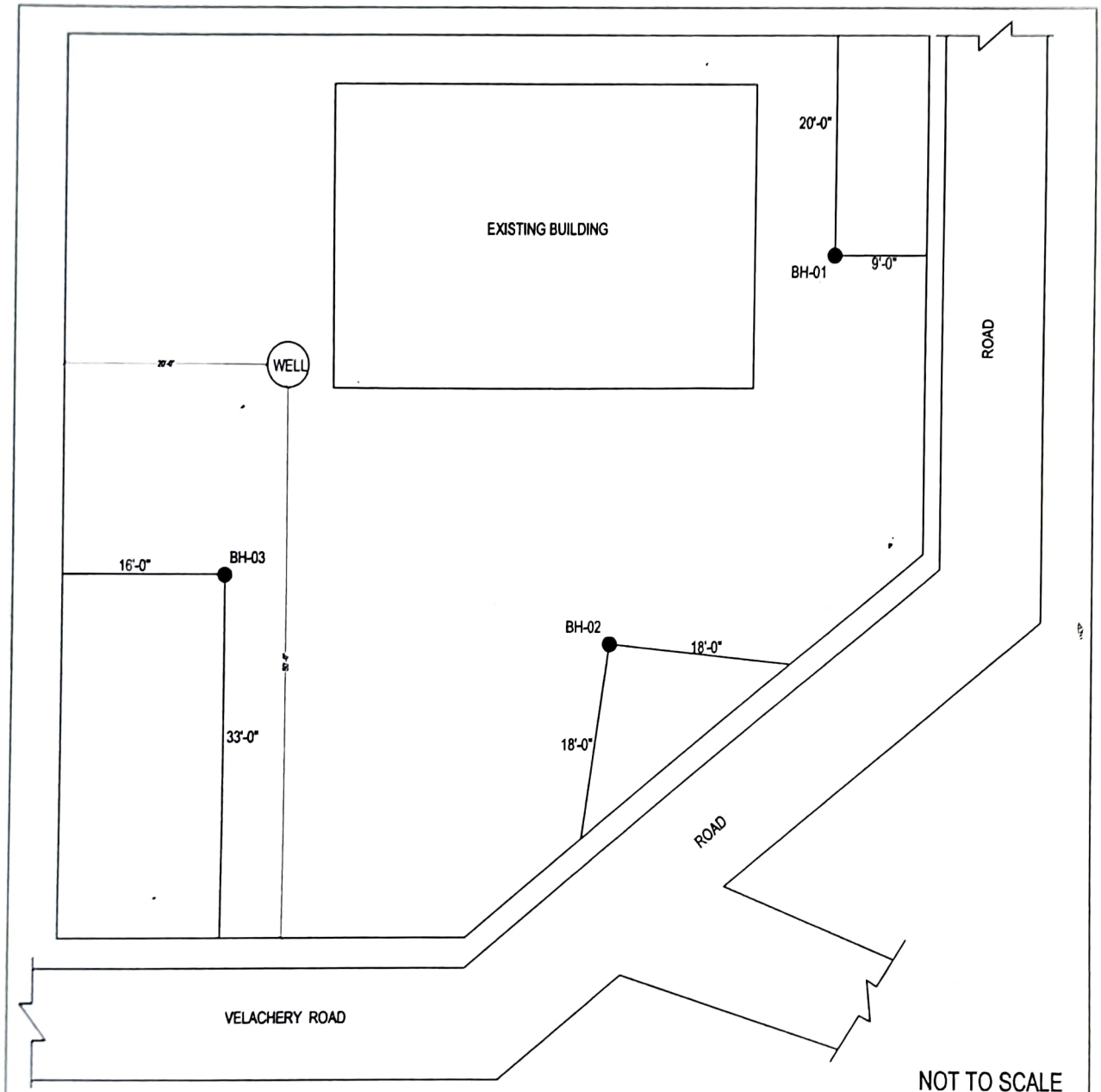
T. J. ENGINEERS ★ CHENNAI-42. ★

For T.J. Engineers

03 - 06 -2022

Dr. S.CHOCKALINGAM, M.E. (Geo-Tech)., Ph.D.,
Geo - Technical Engineer
T.J. ENGINEERS
Plot No 4, Anna Nagar, 1st Street,
Velachery, Chennai-600 042.
Phone: 044 42334194 Mob: 9841255480
CMDA Registration No: GTE/19/03/006
DTCP Reg. No: CGLRGN/RGTE/2019/07/010

T. J. ENGINEERS ★ CHENNAI-42. ★



NOT TO SCALE

CLIENT:-	PROJECT:-		
M/S ATRIA CHENNAI	PROPOSED COMMERCIAL BUILDING AT NO. 1, SURVEY NO. 96/7, T.S. NO. 4/1, BLOCK NO. 5, CHAKRAPANI ROAD, GUINDY, CHENNAI.	SITE PLAN FIG.1	T.J. ENGINEERS soil investigation and foundation design division T.J. HOUSE PLOT NO. 4, ANNA NAGAR, 1ST STREET, VELACHERY, CHENNAI 42.

T.J. ENGINEERS CHENNAI-42.

BORE LOG

PROJECT : Proposed Commercial Building at No. 1, Old Survey No. 96/7, T.S No. 4/1, Block No. 5, Chakrapani Road, Guindy, Chennai-600 032.

BORE HOLE NO : B.H:01

TYPE OF BORING : Rotary Drilling

DATE OF COMMENCEMENT : 26 - 05 - 2022

DATE OF COMPLETION : 27 - 05 - 2022

G.W.L : 5.00m (well)

Depth below G.L	Soil profile	Description of soil	Thickness of layer	Depth at witch samples are collected D.S	Depth at witch samples are collected U.D.S	Standard penetration testdata: Depth at witch test is conducted	N-Value	Relative density/ Consistency
0.00		Filled Up Soil	0.90	0.90				
1.00		Silty Sand-SLS1 (Brown)	1.10			1.50	12	Medium Dense
2.00				2.00				
3.00		Clayey Silty Gravelly Sand-CSLGS1 (Whitish Yellowish Brown)	2.80			3.00	>100	Very Dense
4.00						4.50	>100	Very Dense
				4.80				
5.00		Sandy Gravel-SG1 (Disintegrated Rock) (Whitish Gray Brown)				5.00	>100	Very Dense
6.00						6.00	>100	Very Dense
6.50 →						6.50	>100	Very Dense
7.00								
8.00								
9.00								
10.00								

Graphical representation of penetration resistance: 10 20 30 40 50

Remark: All Dimensions in meters

→ End of Boring

T. J. ENGINEERS ★ CHENNAI-42. ★

FIG: 2

BORE LOG

PROJECT : **Proposed Commercial Building at No. 1, Old Survey No. 96/7, T.S No. 4/1, Block No. 5, Chakrapani Road, Guindy, Chennai-600 032.**

BORE HOLE NO : **B.H:02**

TYPE OF BORING : **Rotary Drilling**

DATE OF COMMENCEMENT : **27 - 05 - 2022**

DATE OF COMPLETION : **27 - 05 - 2022**

G.W.L : **5.00m (well)**

Depth below G.L	Soil profile	Description of soil	Thickness of layer	Depth at witch samples are collected D.S	Depth at witch samples are collected U.D.S	Standard penetration testdata: Depth at witch test is conducted	Standard penetration testdata: N-Value	Standard penetration testdata: Relative density/ Consistency	Graphical representation of penetration resistance
0.00									10 20 30 40 50
		Filled Up Soil	1.50	1.50					
1.00									
2.00		**Silty Clayey Sand-SLCS1 (Brown)**	1.20	2.70		2.00	9	Loose	
3.00		**Clayey Silty Sand-CSLS1 (Whitish Yellowish Brown)**	1.30			3.00	11	Medum Dense	
4.00				4.00		4.00	59	Very Dense	
5.00		**Sandy Gravel-SG1 (Disintegrated Rock) (Whitish Gray Brown)**				5.00	>100	Very Dense	
6.00						6.00	>100	Very Dense	
6.50						6.50	>100	Very Dense	
7.00									
8.00									
9.00									
10.00									

Remark: All Dimensions in meters

End of Boring

T. J. ENGINEERS ★ CHENNAI-42. ★

FIG: 3

BORE LOG

PROJECT : Proposed Commercial Building at No. 1, Old Survey No. 96/7, T.S No. 4/1, Block No. 5, Chakrapani Road, Guindy, Chennai-600 032.

BORE HOLE NO : B.H:03

TYPE OF BORING : Rotary Drilling

DATE OF COMMENCEMENT : 27 - 05 - 2022

DATE OF COMPLETION : 28 - 05 - 2022

G.W.L : 5.00m (well)

Depth below G.L	Soil profile	Description of soil	Thickness of layer	Depth at witch samples are collected D.S	Depth at witch samples are collected U.D.S	Standard penetration testdata: Depth at witch test is conducted	Standard penetration testdata: N-Value	Standard penetration testdata: Relative density/ Consistency	Graphical representation of penetration resistance
0.00		Filled Up Soil	0.90	0.90					
1.00		Sandy Silty Clay-SSLC1 (Grayish Brown)	0.90	1.80		1.00	9	Stiff	
2.00		Sandy Gravel-SG1 (Brown Whitish Gray)	0.70	2.50		2.00	>100	Very Dense	
3.00		Gravel (Disintegrated Rock) (Brown Whitish Gray)				3.00	>100	Very Dense	
4.00						4.00	>100	Very Dense	
5.00 →						5.00	>100	Very Dense	
6.00									
7.00									
8.00									
9.00									
10.00									

Graphical representation of penetration resistance: 10 20 30 40 50

Remark: All Dimensions in meters

→ End of Boring

T. J. ENGINEERS ★ CHENNAI-42. ★

FIG: 4

Project: Proposed Building at No. 1, Survey No. 96/7, T.S. No. 4/1, Block No. 5, Chakrapani Road, Guindy, Chennai-600 032

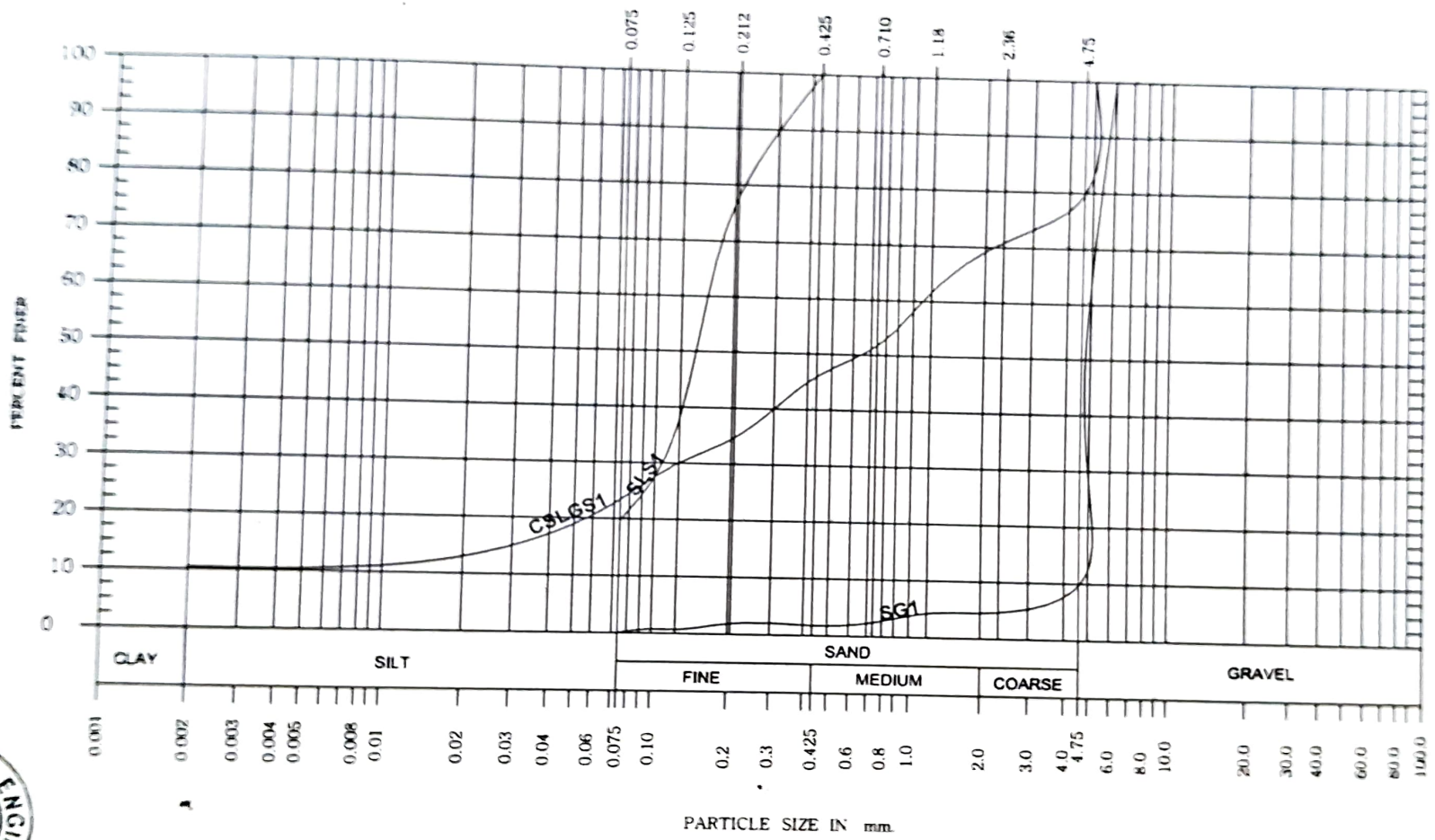


FIG. 5 GRAIN SIZE DISTRIBUTION CURVE-BH-01

T.J. ENGINEERS * CHENNAI-42 *

Project: Proposed Building at No. 1, Survey No. 96/7, T.S. No. 4/1, Block No. 5, Chakrapani Road, Guindy, Chennai-600 032.

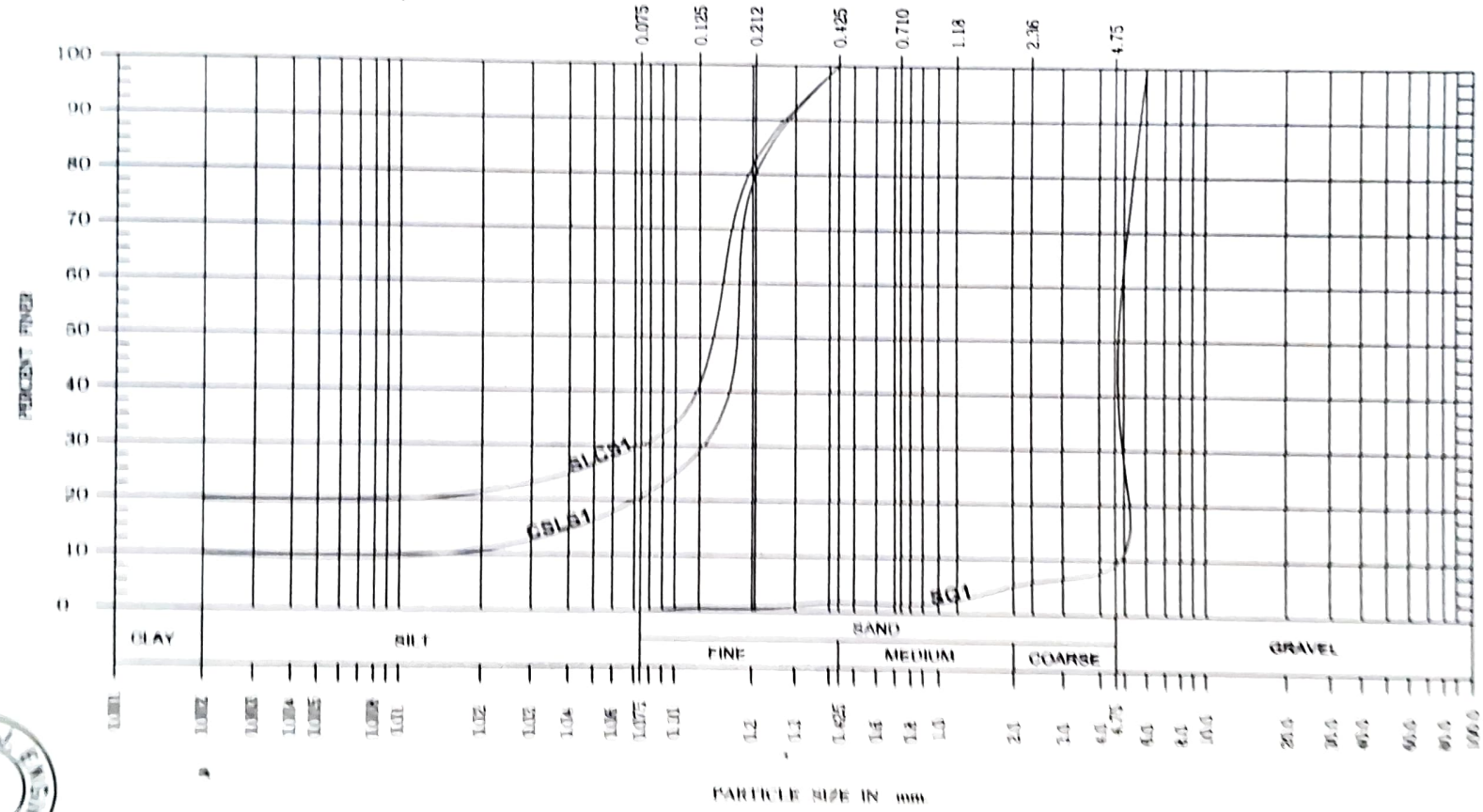


FIG. 8 GRAIN SIZE DISTRIBUTION CURVE-BH-02

Project: Proposed Building at No. 1, Survey No. 96/7, T.S. No. 4/1, Block No. 5, Chakrapani Road, Guindy, Chennai-600 032.

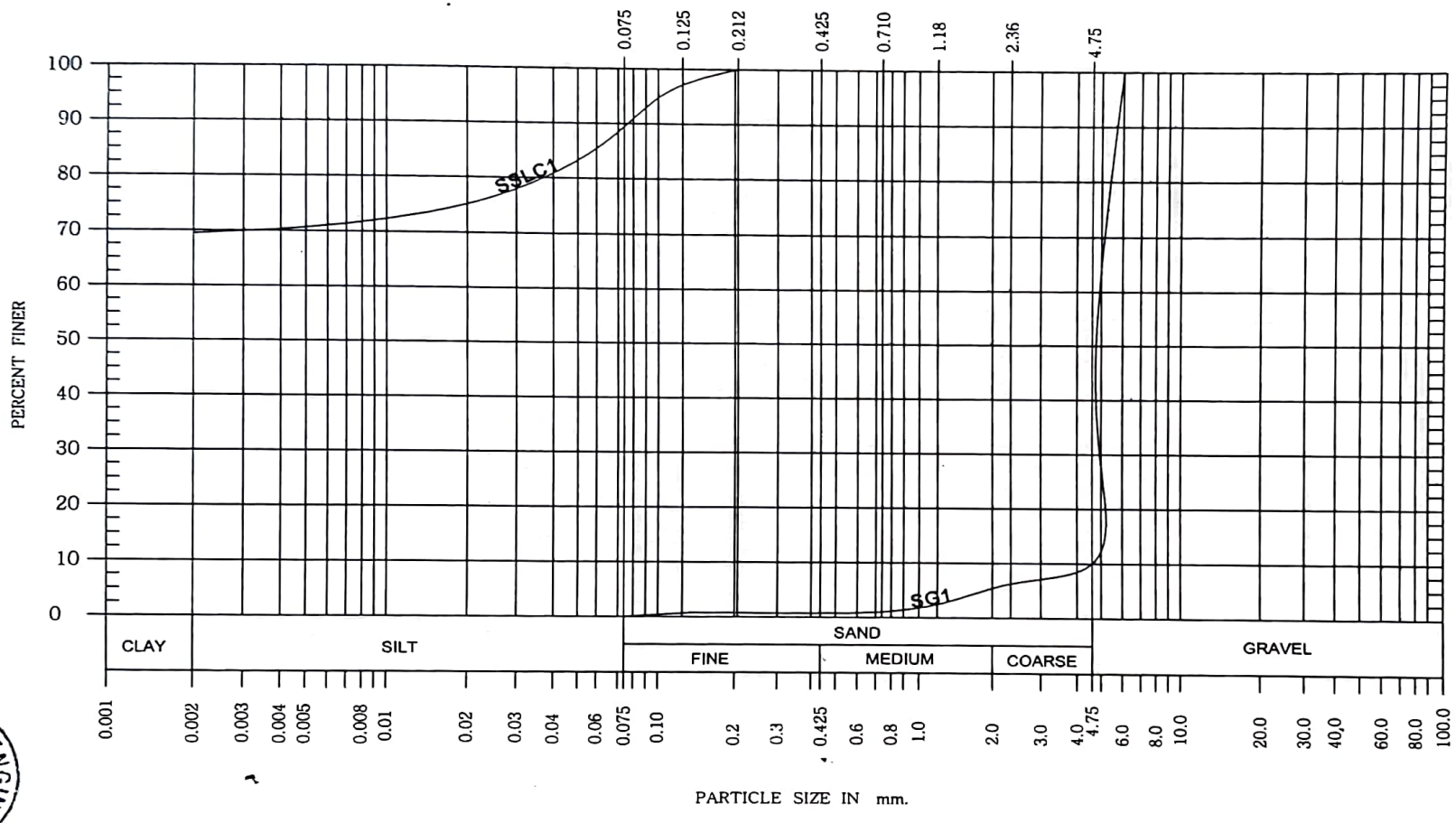


FIG. 7 GRAIN SIZE DISTRIBUTION CURVE-BH-03

T. J. ENGINEERS CHENNAI-42

LABORATARY TEST RESULTS

TABLE-1

B.H No	Layer thickness	Soil classification	Depth of sample collected		SP. gravity	%of free swell	Grain size distribution				Remarks
	m		DS / SPT m	UDS m			Clay	Silt	Sand	Gravel	
						%	%	%	%	%	
1	0.00 - 0.90	Filled Up Soil	–	–	–	–	–	–	–	–	–
	0.90 - 2.00	Silty Sand-SLSI	1.50	–	2.63	–	0	19	81	0	–
	2.00 - 4.80	Clayey Silty Gravelly Sand-CSLGS1	3.00	–	2.64	–	11	13	55	21	–
	4.80 - 6.50	Sandy Gravel-SG1	6.00	–	2.63	–	0	0	9	91	–
2	0.00 - 1.50	Filled Up Soil	–	–	–	–	–	–	–	–	–
	1.50 - 2.70	Silty Clayey Sand-SLCS1	2.00	–	2.64	–	18	12	70	0	–
	2.70 - 4.00	Clayey Silty Sand-CSLS1	3.00	–	2.64	–	9	12	79	0	–
	4.00 - 6.50	Sandy Gravel-SG1	6.00	–	2.63	–	0	0	8	92	–
3	0.00 - 0.70	Filled Up Soil	–	–	–	–	–	–	–	–	–
	0.70 - 1.80	Sandy Silty Clay-SSLC1	1.00	–	2.65	32	69	20	11	0	–
	1.80 - 2.50	Sandy Gravel-SG1	2.00	–	2.63	–	0	0	9	91	–
	2.50 - 5.00	Gravel	5.00	–	2.63	–	0	0	0	100	–

T. J. ENGINEERS CHENNAI-42.

LABORATARY TEST RESULTS

TABLE -2

B.H No	Layer thickness	Soil classification	Depth of sample collected		LL	PL	Bulk density	Consolidation Parameters		Shear Strength Parmeters		Remarks
			DS / SPT	UDS				e_o	Cc	Cu	∅	
	m		m	m	%	%	t/m³			t/m²	degree	
1	0.00 - 0.90	Filled Up Soil	–	–	–	–	–	–	–	–	–	–
	0.90 - 2.00	Silty Sand-SLSI	1.50	–	–	–	1.52	–	–	–	33	–
	2.00 - 4.80	Clayey Silty Gravelly Sand-CSLGS1	3.00	–	–	–	1.58	–	–	–	38	–
	4.80 - 6.50	Sandy Gravel-SG1	6.00	–	–	–	1.62	–	–	–	42	–
2	0.00 - 1.50	Filled Up Soil	–	–	–	–	–	–	–	–	–	–
	1.50 - 2.70	Silty Clayey Sand-SLCS1	2.00	–	–	–	1.50	–	–	–	30	–
	2.70 - 4.00	Clayey Silty Sand-CSLS1	3.00	–	–	–	1.53	–	–	–	31	–
	4.00 - 6.50	Sandy Gravel-SG1	6.00	–	–	–	1.62	–	–	–	42	–
3	0.00 - 0.70	Filled Up Soil	–	–	–	–	–	–	–	–	–	–
	0.70 - 1.80	Sandy Silty Clay-SSLC1	1.00	–	67	23	1.50	1.62	0.31	5.42	–	–
	1.80 - 2.50	Sandy Gravel-SG1	2.00	–	–	–	1.58	–	–	–	38	–
	2.50 - 5.00	Gravel	5.00	–	–	–	1.61	–	–	–	41	–

T. ENGINEERS * CHE

LABORATARY TEST RESULTS

TABLE -2

B.H No	Layer thickness	Soil classification	Depth of sample collected		LL	PL	Bulk density	Consolidation Parameters		Shear Strength Parmeters		Remarks
			DS / SPT	UDS				e_o	Cc	Cu	Ø	
	m		m	m	%	%	t/m³			t/m²	degree	
1	0.00 - 0.90	Filled Up Soil	–	–	–	–	–	–	–	–	–	–
	0.90 - 2.00	Silty Sand-SLSI	1.50	–	–	–	1.52	–	–	–	33	–
	2.00 - 4.80	Clayey Silty Gravelly Sand-CSLGS1	3.00	–	–	–	1.58	–	–	–	38	–
	4.80 - 6.50	Sandy Gravel-SG1	6.00	–	–	–	1.62	–	–	–	42	–
2	0.00 - 1.50	Filled Up Soil	–	–	–	–	–	–	–	–	–	–
	1.50 - 2.70	Silty Clayey Sand-SLCS1	2.00	–	–	–	1.50	–	–	–	30	–
	2.70 - 4.00	Clayey Silty Sand-CSLS1	3.00	–	–	–	1.53	–	–	–	31	–
	4.00 - 6.50	Sandy Gravel-SG1	6.00	–	–	–	1.62	–	–	–	42	–
3	0.00 - 0.70	Filled Up Soil	–	–	–	–	–	–	–	–	–	–
	0.70 - 1.80	Sandy Silty Clay-SSLC1	1.00	–	67	23	1.50	1.62	0.31	5.42	–	–
	1.80 - 2.50	Sandy Gravel-SG1	2.00	–	–	–	1.58	–	–	–	38	–
	2.50 - 5.00	Gravel	5.00	–	–	–	1.61	–	–	–	41	–

T. J. ENGINEERS * CHENNAI-42 *

THE LANDLENS SUITE

Eight ways to know a piece of land before you pay for it.

This report covers one part of the picture. These cover the rest, drawn from the same government records, for any property in Tamil Nadu.

LandLens One
Ask anything about a property and get an answer grounded in live government records, with the sources shown.
/landlens/one

Verify My Land
Every record check run on one property and returned as a single report.
/landlens/verify-my-land

Legal Opinion
An advocate's written opinion on the title, built on the records we pull for it.
/landlens

One Map
Every layer on one map: the parcel, its boundary, zoning, water bodies and what sits around it.
/landlens/one/map

PriceMap
What land actually changed hands for around this plot, taken from the registered deeds.
/landlens/pricemap

Build Scope
What you are allowed to build here: floor space, height, coverage and setbacks.
/landlens/build-scope

Property Tracker
Watch a property and hear about it when something new is registered against it.
/landlens/property-tracker

Deal Room
Run the transaction in one place: documents, stamping, signatures and the parties.
/landlens/deal-room

FREE TOOLS · NO ACCOUNT NEEDED

Twenty-four checks you can run yourself, at no cost.

Records and verification

The registers themselves, read for you.

- Encumbrance Certificate
- Patta and Chitta
- Field Measurement Sketch
- EC Analyzer
- Bank charge check
- Court case search
- Seller background check
- Approval check by survey

Value and duty

What it is worth and what it costs to register.

- Guideline value by street
- Guideline value by survey
- Stamp duty and registration fees
- Capital gains
- Floor space index
- Area unit converter

Zoning and land use

What the plan says can happen on this land.

- Land use zone finder
- CMDA land use check
- Coastal regulation zone
- Master plan check
- Water bodies finder
- Airport height clearance

Registers and directories

Who holds it, and which office keeps the record.

- Find your registering office
- Temple property check
- Waqf property check
- RERA register

Every free tool
/tools

Services we run for you
/services

The LandLens suite
/landlens/one

Verified RealEstate™

Every claim in this document traces back to a government record.

- Legal opinions, due diligence and title verification
- Building plan, layout and sub-division approvals
- Completion and occupancy certificates, regularisation
- Escrow, negotiation and NRI property management
- Land survey, soil testing, architecture and construction

Verified RealEstate
3/350/2 Mettukuppam,
OMR Thoraipakkam,
Chennai 600 097, India
hello@verified.realestate
+91 9996 12 9996

Prepared from the registers named on the page each finding sits on. Where a register could not be read, this document says so in its place rather than leaving the gap to be read as a clean result.