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SOIL EXPLORATION AND FOUNDATION REPORT
FOR THE PROPOSED CONSTRUCTION OF
STILT FLOOR + 5 FLOORS RESIDENTIAL BUILDING WITH 10
DWELLING UNITS PEARL ISHAAN TO BE SET UP AT DOOR
NO.2, ANNA MAIN ROAD AND 1ST SECTOR 1ST STREET,
K.K.NAGAR, CHENNAI-600 078 COMPRISED IN OLD S. NO. 394/1
PART, T.S. NO:256/10, BLOCK NO. 104 OF KODAMBAKKAM
VILLAGE, WITHIN THE LIMIT OF GREATER CHENNAI
CORPORATION, DIVISION NO-136,
ZONE NO -10

PROJECT NO. TJE/002842/2023

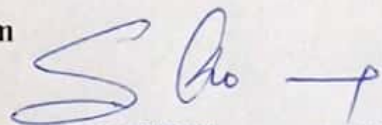


T.J.ENGINEERS

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.


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: 98412 55480
CMDA Registration No: GTE/19/03/006
DTCP Reg. No: CGLRGN/RGTE/2019/07/010
Email: tjengineers@yahoo.com

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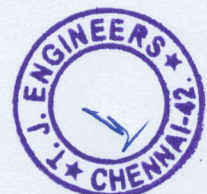
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EXPLORATION REPORT

PROJECT NO. TJE/002842/2023

1.INTRODUCTION:

M/S PEARL CONSTRUCTIONS CHENNAI PRIVATE LIMITED has proposed to construct a Stilt Floor + Five Floors Building at New No. 2, Block No. 93, Sowbhagya Colony, Ashok Pillar Road, Kodambakkam, Chennai-600 078. 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

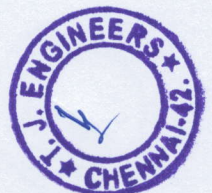
The Scope of Work includes the following

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 1.50m 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 two bore holes were bored up to maximum depth of 21.00m below existing ground level. The bore hole location is shown in Fig No.1 and bore log details



are given in Fig No. 2&3. The bore holes were terminated in the Very Dense Sandy Gravel- (Slate) layer.

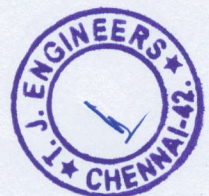
4.0. GEOTECHNICAL INVESTIGATIONS

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 1.50m 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. 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 is 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 1.50m interval are given in the bore logs.



4.2. Grain Size Analysis

Combined sieve and hydrometer analyses were conducted on the various samples collected. The results are given in Table-1a, 1b. 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

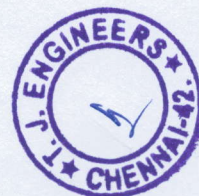
The Summary of bore hole log data for BH-01 & BH-02 is given in Fig No. 2&3. Borehole location is given in Fig-1.

6.0. LABORATORY TEST RESULTS

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

7.0. GROUND WATER TABLE

The ground water table was **encountered at the depth of 1.00m** below the existing ground level at the time of soil exploration. It was noticed from the existing well at the site.



8.0. SUB SOIL PROFILE

From the visual identification from field test results, it is concluding that the sub soil is basically made-up of eight distinctive layers.

- | | | |
|-------|--|---------------|
| i. | Filled Up Soil 0.00m to 0.60m | |
| ii. | Medium Stiff Sandy Silty Clay, 0.60m to 2.80m SPT's | N = 5-6 |
| iii. | Medium Stiff to Stiff Silty Clay, 2.80m to 5.30m SPT's | N = 7-10 |
| iv. | Medium Stiff to Stiff Silty Clay, 5.30m to 8.40m SPT's | N = 7-10 |
| v. | Loose to Medium Dense Silty Sand, 8.40m to 12.80m SPT's | N = 9-15 |
| vi. | Very Soft to Medium Stiff Sandy Silty Clay, 12.80m to 17.20m | |
| | | SPT's N = 2-5 |
| vii. | Very Hard Sandy Silty Clay, 17.20m to 18.60m SPT's | N = 53-55 |
| viii. | Very Dense Sandy Gravel-(Slate), 18.60m to 21.00m SPT's | N = >100 |

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



9.0. FOUNDATION ANALYSIS AND DESIGN

From the bore log data at the top from 0.00m to 0.60m Filled Up Soil layer is present. From 0.60m to 2.80m medium stiff Sandy Silty Clay layer is present, this layer has got swelling character. From 2.80m to 8.40m medium stiff to stiff Silty Clay layer is present, this layer also has got swelling character. From 8.40m to 12.80m loose to medium dense Silty Sand layer is present. From 12.80m to 17.20m very soft to medium stiff Sandy Silty Clay layer is present, this layer also has got swelling character. From 17.20m to 18.60m very hard Sandy Silty Clay layer is present, this layer also has got swelling character. Below 18.60m very dense Sandy Gravel-(Slate) layer is seen, this layer is fair to rest the pile foundation for heavy loaded structure.

The layer up to 17.20m is the critical zone for open foundation system. Within the critical zone very soft to stiff Clayey and loose to medium dense Sandy layers are present, and the Clayey layer has got swelling character. For light loaded structure with column positions are symmetrical and short span, open foundation of **Isolated Footing Foundation** can be adopted. For light loaded structure with column positions are unsymmetrical long span sensitive for differential settlement, open foundation of **Continues Strip Raft Footing or Raft Foundation** can be adopted. The open foundation can be placed at the minimum **depth of 2.10m** below the existing ground level. The existing ground level was same as the road level at the time of soil investigation.

For heavy loaded structure, if the SBC is not sufficient for the expected loading intensity, it is advisable to provide deep foundation of pile foundations. The pile foundation can be **Bored Cast in situ pile**. The pile foundation should be terminated at the minimum **depth of 21.00m (Including Anchorage Depth)** below existing ground



level. The pile should be anchored into the very dense Sandy Gravel-(Slate) layer for minimum of 1.00m depth.

9.1. COMPUTATION OF THE SAFE BEARING CAPACITY AT 2.10m DEPTH

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

$$q_u = 1.2 C N_c + \gamma' D_f N_q$$

The minimum observed N-Value is taken as 6 from Fig. 2&3.

The corresponding bearing capacity factors are,

$$N_c = 5.7$$

$$N_q = 1$$

Where,

$$C = \text{Un drained shear strength} = 3.68 \text{ t/m}^2$$

$$\gamma = \text{Unit weight of the soil} = 1.50 \text{ t/m}^3$$

$$\gamma' = \text{Submerged unit weight of the soil} = 0.50 \text{ t/m}^3$$

$$D_f = \text{Depth of footing} = 2.10 \text{ m}$$

$$D_w = \text{Depth of water table} = 1.00 \text{ m}$$

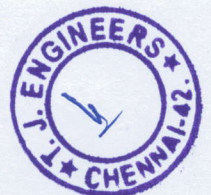
Substitute all the above values in the formula,

$$\begin{aligned} q_u &= 1.2 \times 3.68 \times 5.7 + 0.50 \times 2.10 \times 1 \\ &= 25.171 + 1.05 = 26.221 \text{ t/m}^2 \end{aligned}$$

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

Hence, safe bearing capacity $q_s = 26.221/2.50 = 10.48 \text{ t/m}^2$. Say 10.50 t/m^2 .

Therefore, safe bearing capacity of the soil at 2.10m is 10.50 t/m^2



9.2. SETTLEMENT ANALYSIS FOR THE LOADING INTENSITY OF

10.50 t/m²

LAYER -1, SILTY CLAY/SANDY SILTY CLAY

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

$$S_1 = (C_c / 1 + e_0) H \log_{10} (\sigma'_0 + \Delta\sigma / \sigma'_0)$$

Where

C_c = Coefficient of compression index

$$= 0.37$$

e_0 = The initial void ratio

$$= 1.90$$

H = The thickness of the compressible clay layer

$$= 15.10\text{m}$$

σ'_0 = The original effective over burden pressure at the centre of the clay layer

$$= 5.825 \text{ t/m}^2$$

$\Delta\sigma$ = The stress increases at the centre of the clay layer due to foundation loads
(or) pressure

$$= 0.0925 \text{ t/m}^2$$

$$S_1 = (0.37 / 1 + 1.90) 15.10 \log_{10} (5.825 + 0.0925 / 5.825)$$

$$= 0.127 \times 15.10 \times 6.842$$

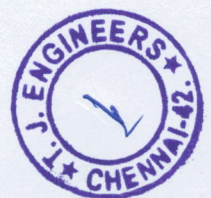
$$= 0.013121\text{m} \times 10^{-3}$$

$$= 13.121\text{mm}$$

TOTAL SETTLEMENT

$$= 13.121\text{mm} < 50\text{mm}$$

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



9.3. LOAD CARRYING CAPACITY OF THE CONVENTIONAL PILE FOR THE DEPTH OF 21.00m

Based on the standard penetration test value the ultimate load carrying capacity (q_u) could be calculated from the following formula.

$$Q_u = Q_b + Q_s$$

$$Q_s = \text{Ultimate unit skin friction on an individual layer}$$

$$= K_s \sigma'_{vo} \tan \delta \pi D L$$

Where

$$K_s = \text{Co-efficient of horizontal soil stress} = 0.471$$

$$\sigma'_{vo} = \text{average effective overburden pressure} = 9.75 \text{ t/m}^2$$

$$\delta = \text{angle of wall friction} = 32$$

$$D = \text{Dia meter of pile} = 0.40\text{m}$$

$$L = \text{Length of individual layer} = 1.00\text{m}$$

$$= 0.471 \times 9.75 \times 0.624 \times 3.14 \times 0.40 \times 1.00$$

$$= 3.599 \text{ t}$$

$$q_b = N_q \sigma'_{vo} A_b$$

where

$$N_q = \text{Bearing Capacity Factor} = 120$$

$$\sigma'_{vo} = \text{effective overburden pressure at the toe} = 10.00 \text{ t/m}^2$$

$$A_b = \text{Cross sectional area at the base}$$

$$D = \text{Dia of Pile} = 0.40\text{m}$$

$$= 120 \times 10.00 \times 3.14 \times 0.40^2 / 4$$



$$= 150.72 \text{ t}$$

$$Q_u = Q_b + Q_s$$

$$= 150.72 + 3.599 = 154.31 \text{ t}$$

$$Q_{\text{safe}} = Q_u / F.S = 154.31 / 2.5 = 61.724 \text{ say } 62.00 \text{ t}$$

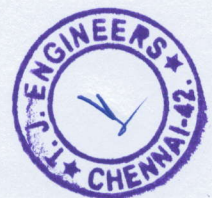
The safe load carrying capacity for five different diameter of piles for the **depth of 21.00m** are worked and are given below.

Dia of Pile	Depth of Pile	Safe Vertical Load (Tones)
400mm	21.00m	62
450mm	21.00m	78
500mm	21.00m	96
600mm	21.00m	138
750mm	21.00m	215

The above safe loads are provisional and shall be confirmed by conducting pile load test as per the guide line laid down in IS: 2911 (Part: IV).

10.0. CONCLUSIONS

1. Soil in the shallow depth is fair to adopt open foundation system for light loaded structure.
2. For light loaded structure with column positions are symmetrical and short span, open foundation of **Isolated Footing Foundation** can be adopted. For light loaded structure with column positions are unsymmetrical long span sensitive for differential settlement, open foundation of **Continues Strip Raft Footing or Raft Foundation** can be adopted.
3. The open foundation can be placed at the minimum **depth of 2.10m** below the existing ground level. The existing ground level was same as the road level at the time of soil investigation.
4. The Safe Bearing Capacity of the soil at the **depth of 2.10m is 10.50 t/m²**.
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 layer.
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. Within the critical zone very soft to stiff Clayey and loose to medium dense Sandy layers are present, and the Clayey layer has got swelling character., **If open foundation of Isolated footing foundation provided it advisable to make the structure as rigid as possible** by providing continues Plinth beam connecting Column on both direction, continues Sill Slab at sill level and continues lintel connecting monolithically with column.



9. For heavy loaded structure, if the SBC is not sufficient for the expected loading intensity, it is advisable to provide deep foundation of pile foundations. The pile foundation can be Bored Cast in situ pile. The pile foundation should be terminated at the minimum depth of 21.00m (Including Anchorage Depth) below existing ground level. The pile should be anchored into the very dense Sandy Gravel-(Slate) layer for minimum of 1.00m depth.
10. The Safe Vertical load carrying capacity for five different diameters of piles for the depth of 21.00m are worked and are given below.

Dia of Pile	Depth of Pile	Safe Vertical Load (Tones)
400mm	21.00m	62
450mm	21.00m	78
500mm	21.00m	96
600mm	21.00m	138
750mm	21.00m	215

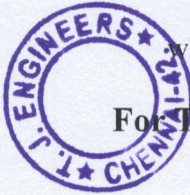
The above safe loads are provisional and shall be confirmed by conducting pile load test as per the guide line laid down in IS: 2911 (Part: IV)

11. The pile boring should be done with **Percussion** drilling or **Hydraulic** Rotary Drilling, with DMC method.
12. Proper precaution should be taken while boring the pile against sliding of bore hole, by maintaining the proper dense bentonite slurry or providing temporary casing or permanent casing and pile concreting should be done as soon as boring is over.

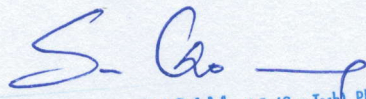
13. The bore hole should be flushed properly before laying concrete. It has to be ensured by comparing the depth of pile bore hole and Tremie Pipe. The depth of Tremie Pipe lowered can be 300mm less than borehole depth. If the gap between bore hole bottom and Tremie Pipe bottom is more than 300mm, there is a possibility of slush deposit in the bore hole.
14. For foundation design stress due to any eccentricity and horizontal force should be considered and stability should be checked.
15. It is advisable not to mix deep foundation and shallow foundation in same building individually. Combined Pile cum Raft Can be adopted.
16. All suggested foundation recommendations and precautions should be adopted

while undertaking the design aspects and construction activities.

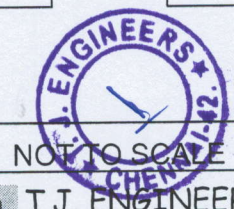
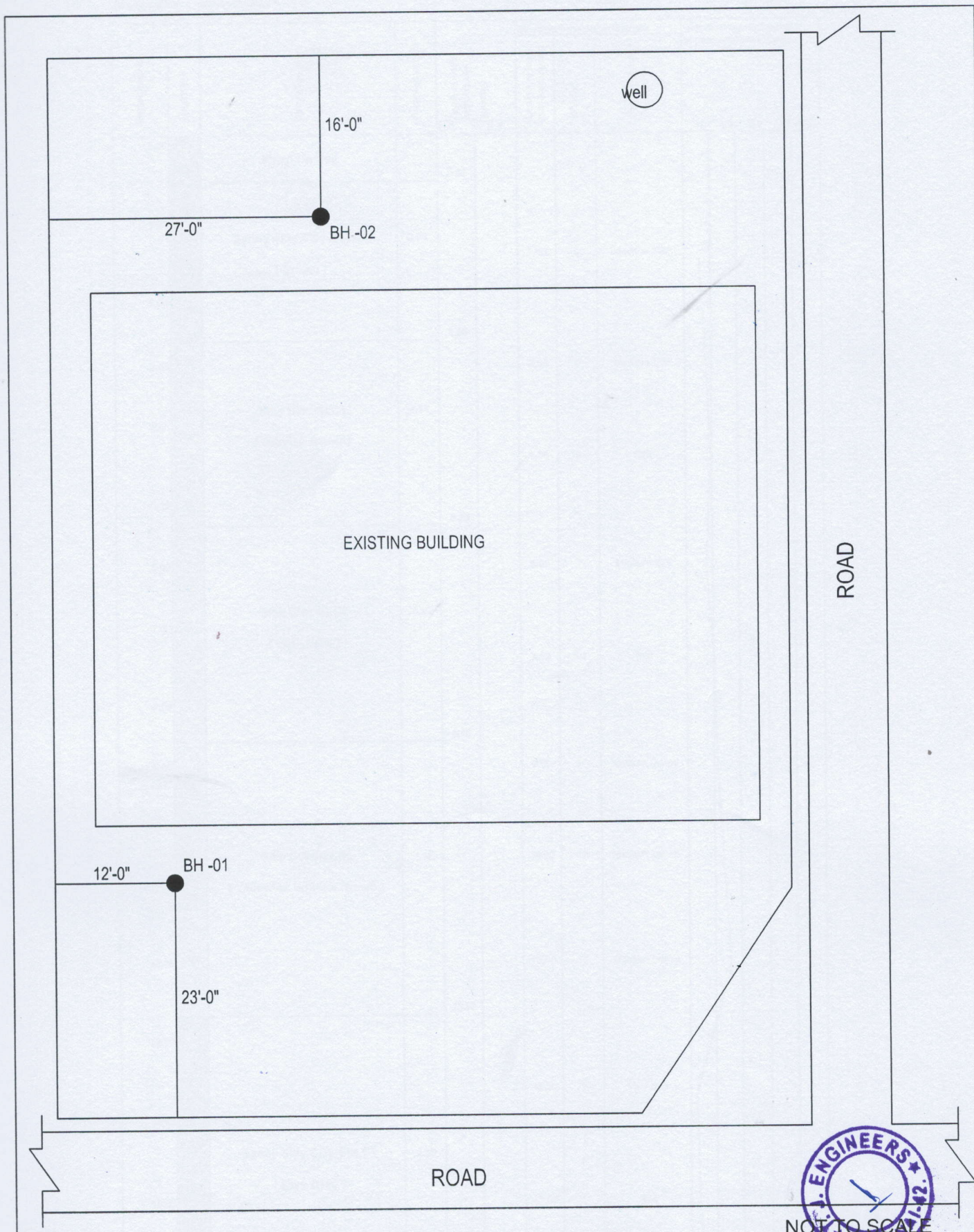
For **T.J. Engineers**



29 - 07 - 2023


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





CLIENT:-

M/S PEARL CONSTRUCTIONS CHENNAI PRIVATE LIMITED
CHENNAI.

PROJECT:-

PROPOSED BUILDING AT NEW NO. 2,
BLOCK NO. 93, SOWBHAGYA COLONY,
ASHOK PILLAR ROAD, KODAMBAKKAM,
CHENNAI-600 078.

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,
tjengineers@yahoo.com
tjengineers1998@gmail.com
OFF: 044-42334194

BORE LOG

PROJECT : Proposed Building at New No. 2, Block No. 93, Sowbhagya Colony, Ashok Pillar Road,
Kodambakkam, Chennai-600 078.
BORE HOLE NO : B.H:01
TYPE OF BORING : Rotary Drilling

DATE OF COMMENCEMENT : 11 - 07 - 2023
DATE OF COMPLETION : 12 - 07 - 2023
G.W.L : 1.00m (Well)

Depth below G.L	Soil profile	Description of soil	Thickness of layer	Depth at which samples are collected		Standard penetration test data			Graphical representation of penetration resistance				
				D.S	U.D.S	Depth at which test is conducted	N-Value	Relative density/ Consistency	10	20	30	40	50
0.00		Filled Up Soil	0.60										
1.00		Sandy Silty Clay-SSLC1 (Brown)	2.20			1.50	5	Medium Stiff					
2.00													
3.00		Silty Clay-SLC1 (Grayish Brown)	2.40			3.00	8	Medium Stiff					
4.00						4.50	9	Stiff					
5.00													
6.00		Silty Clay-SLC2 (Dark Gray)	3.20			6.00	7	Medium Stiff					
7.00						7.50	10	Stiff					
8.00													
9.00						9.00	11	Medium Dense					
10.00		Silty Sand-SLS1 (Yellowish Whitish Brown)	4.40			10.50	13	Medium Dense					
11.00													
12.00						12.00	15	Medium Dense					
13.00													
14.00		Sandy Silty Clay-SSLC2 (Dark Gray)	4.30			13.50	2	Very Soft					
15.00						15.00	3	Soft					
16.00						16.50	5	Medium Stiff					

Remark: All Dimensions in meters
→ End of Boring

FIG: 2

cont....



BORE LOG

PROJECT Proposed Building at New No. 2, Block No. 93, Sowbhagya Colony, Ashok Pillar Road,
Kodambakkam, Chennai-600 078.
BORE HOLE NO B.H:01
TYPE OF BORING Rotary Drilling

DATE OF COMMENCEMENT: 11 - 07 - 2023
DATE OF COMPLETION: 12 - 07 - 2023
G.W.L: 1.00m (Well)

Depth below G.L		Soil profile	Description of soil	Thickness of layer	Depth at which samples are collected		Standard penetration test data			Graphical representation of penetration resistance																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Remark: All Dimensions in meters
→ End of Boring

FIG: 2



BORE LOG

PROJECT : Proposed Building at New No. 2, Block No. 93, Sowbhagya Colony, Ashok Pillar Road,
Kodambakkam, Chennai-600 078.
BORE HOLE NO : B.H:02
TYPE OF BORING : Rotary Drilling

DATE OF COMMENCEMENT : 12 - 07 - 2023
DATE OF COMPLETION : 12 - 07 - 2023
G.W.L : 1.00m (Well)

Depth below G.L	Soil profile	Description of soil	Thickness of layer	Depth at which samples are collected		Standard penetration test data			Graphical representation of penetration resistance				
				D.S	U.D.S	Depth at which test is conducted	N-Value	Relative density/Consistency					
0.00		Filled Up Soil	0.30						10	20	30	40	50
1.00		Sandy Silty Clay-SSLC1 (Brown)	2.20			1.50	6	Medium Stiff					
2.00													
3.00		Silty Clay-SLC1 (Grayish Brown)	2.80			3.00	7	Medium Stiff					
4.00						4.50	10	Stiff					
5.00													
6.00		Silty Clay-SLC2 (Dark Gray)	2.80			6.00	8	Medium Stiff					
7.00						7.50	10	Stiff					
8.00													
9.00		Silty Sand-SLS1 (Yellowish Whitish Brown)	3.40			9.00	9	Loose					
10.00						10.50	12	Medium Dense					
11.00													
12.00						12.00	3	Soft					
13.00		Sandy Silty Clay-SSLC2 (Dark Gray)				13.50	4	Soft					
14.00													
15.00						15.00	3	Soft					
16.00						16.50	2	Very Soft					

Remark: All Dimensions in meters
→ End of Boring

FIG: 3

cont....



BORE LOG

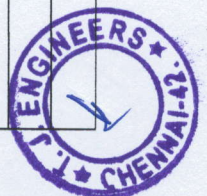
PROJECT : Proposed Building at New No. 2, Block No. 93, Sowbhagya Colony, Ashok Pillar Road,
Kodambakkam, Chennai-600 078.
BORE HOLE NO : B.H:02
TYPE OF BORING : Rotary Drilling

DATE OF COMMENCEMENT: 12 - 07 - 2023
DATE OF COMPLETION : 12 - 07 - 2023
G.W.L : 1.00m (Well)

Depth below G.L	Soil profile	Description of soil	Thickness of layer	Depth at which samples are collected		Standard penetration test data			Graphical representation of penetration resistance				
				D.S	U.D.S	Depth at which test is conducted	N-Value	Relative density/ Consistency	10	20	30	40	50
17.00		Sandy Silty Clay-SSLC3 (Whitish Gray)	1.60	17.00									
18.00						18.00	55	Very Hard					
19.00		Sandy Gravel-SG1 (Slate) (Yellowish Brown)		18.60									
20.00						20.00	>100	Very Dense					
21.00						21.00	>100	Very Dense					
22.00													
23.00													
24.00													
25.00													
26.00													
27.00													
28.00													
29.00													
30.00													

Remark: All Dimensions in meters
→ End of Boring

FIG: 3



Project: Proposed Building at New No. 2, Block No. 93, Sowbhagya Colony, Ashok Pillar Road, Kodambakkam, Chennai-600 078.

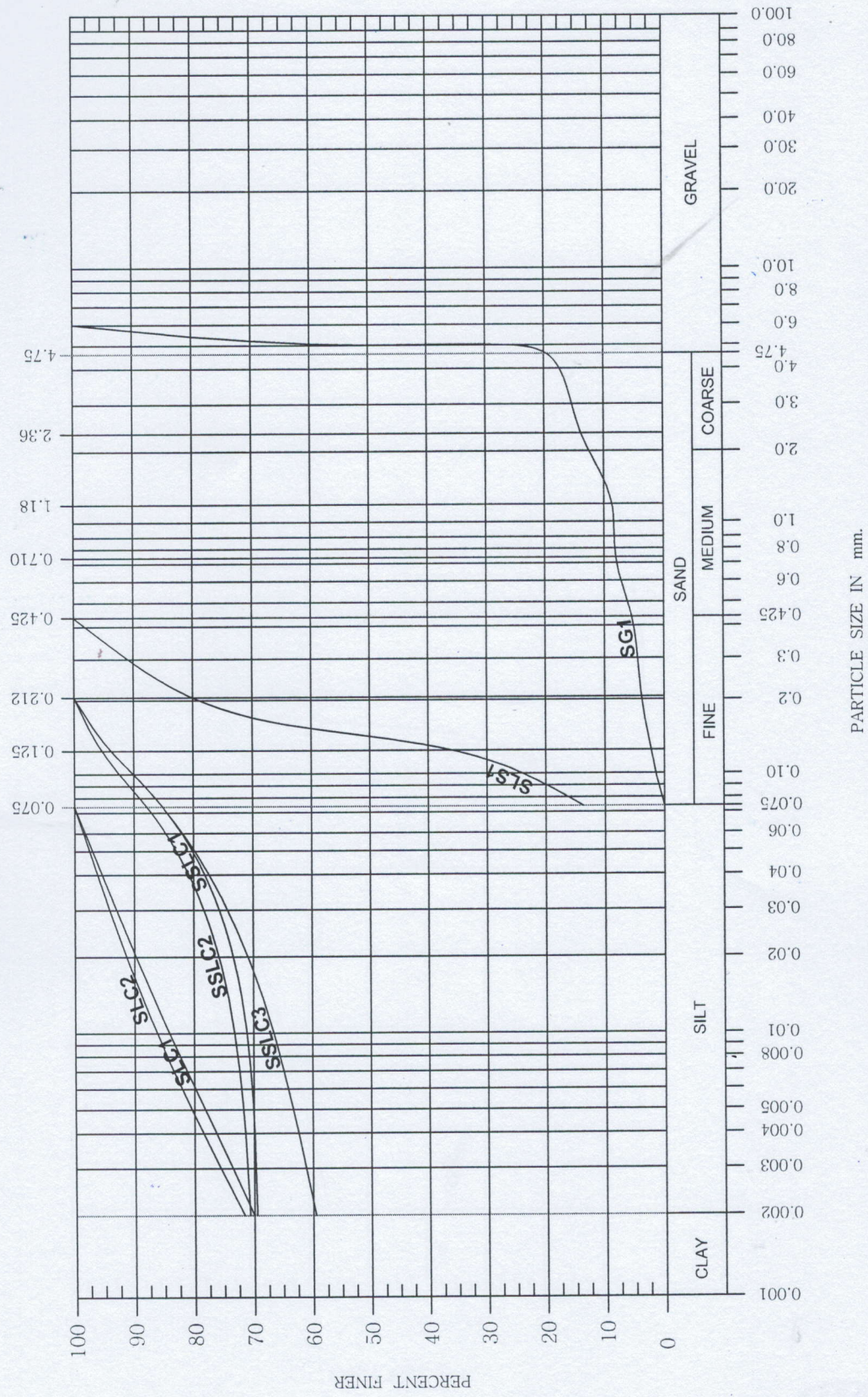


FIG. 4 GRAIN SIZE DISTRIBUTION CURVE-BH-01

Project: Proposed Building at New No. 2, Block No. 93, Sowbhagya Colony, Ashok Pillar Road, Kodambakkam, Chennai-600 078.

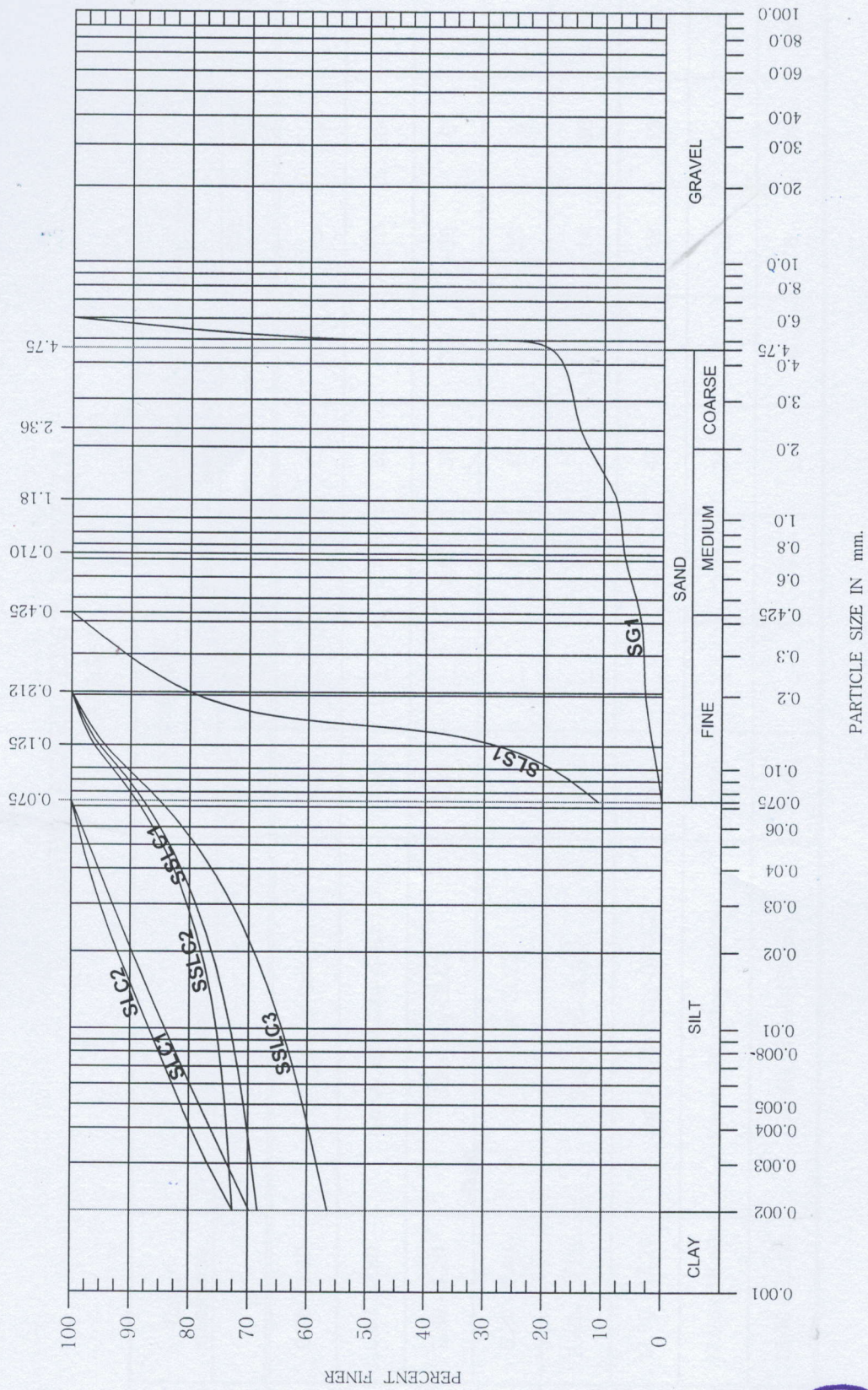
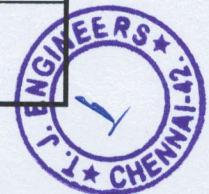


FIG. 5 GRAIN SIZE DISTRIBUTION CURVE-BH-02

LABORATORY TEST RESULTS
TABLE-1a

B.H No	Layer thickness m	Soil classification	Depth of sample collected		SP. gravity	% of free swell	Grain size distribution				Remarks
			DS / SPT m	UDS m			Clay %	Silt %	Sand %	Gravel %	
1	0.00 - 0.60	Filled Up Soil	-	-	-	-	-	-	-	-	-
	0.60 - 2.80	Sandy Silty Clay-SSLc1	1.50	-	2.66	35	68	18	14	0	-
	2.80 - 5.20	Silty Clay-SLC1	3.00	-	2.66	39	70	30	0	0	-
	5.20 - 8.40	Silty Clay-SLC2	6.00	-	2.70	45	72	28	0	0	-
	8.40 - 12.80	Silty Sand-SLS1	9.00	-	2.63	-	0	14	86	0	-
	12.80 - 17.20	Sandy Silty Clay-SSLc2	15.00	-	2.70	43	71	16	13	0	-
	17.20 - 18.40	Sandy Silty Clay-SSLc3	18.00	-	2.65	34	58	28	14	0	-
	18.40 - 21.00	Sandy Gravel-(Slate)	21.00	-	2.63	-	0	0	19	81	-



LABORATORY TEST RESULTS
TABLE - 1b

B.H No	Layer thickness m	Soil classification	Depth of sample collected		SP. gravity	% of free swell	Grain size distribution				Remarks
			DS / SPT m	UDS m			Clay %	Silt %	Sand %	Gravel %	
2	0.00 - 0.30	Filled Up Soil	-	-	-	-	-	-	-	-	-
	0.30 - 2.50	Sandy Silty Clay-SSLC1	1.50	-	2.66	34	67	20	13	0	-
	2.50 - 5.30	Silty Clay-SLC1	3.00	-	2.66	39	69	31	0	0	-
	5.30 - 8.10	Silty Clay-SLC2	6.00	-	2.70	45	73	27	0	0	-
	8.10 - 11.50	Silty Sand-SLS1	9.00	-	2.63	-	0	13	87	0	-
	11.50 - 17.00	Sandy Silty Clay-SSLC2	12.00	-	2.70	45	73	15	12	0	-
	17.00 - 18.60	Sandy Silty Clay-SSLC3	18.00	-	2.65	34	56	30	14	0	-
	18.60 - 21.00	Sandy Gravel-(Slate)	21.00	-	2.63	-	0	0	12	88	-



LABORATORY TEST RESULTS

TABLE - 2a

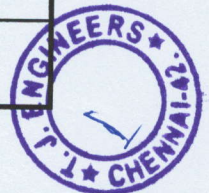
B.H No	Layer thickness m	Soil classification	Depth of sample collected		LL %	PL %	Bulk density t/m ³	Consolidation Parameters		Shear Strength Parameters		Remarks
			DS / SPT m	UDS m				e _o	Cc	Cu t/m ²	φ degree	
1	0.00 - 0.60	Filled Up Soil	-	-	-	-	-	-	-	-	-	-
	0.60 - 2.80	Sandy Silty Clay-SSLC1	1.50	-	66	24	1.50	1.80	0.35	3.68	-	-
	2.80 - 5.20	Silty Clay-SLC1	3.00	-	69	26	1.52	1.62	0.33	4.88	-	-
	5.20 - 8.40	Silty Clay-SLC2	6.00	-	70	27	1.52	1.63	0.33	4.27	-	-
	8.40 - 12.80	Silty Sand-SLS1	9.00	-	-	-	1.54	-	-	-	33	-
	12.80 - 17.20	Sandy Silty Clay-SSLC2	15.00	-	69	27	1.50	1.90	0.37	2.10	-	-
	17.20 - 18.40	Sandy Silty Clay-SSLC3	18.00	-	56	19	1.55	-	-	33.50	-	-
	18.40 - 21.00	Sandy Gravel-(Slate)	21.00	-	-	-	1.61	-	-	-	41	-

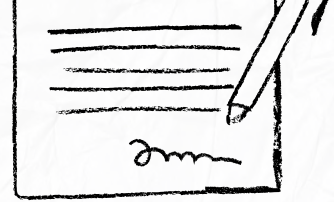


LABORATORY TEST RESULTS

TABLE - 2b

B.H No	Layer thickness m	Soil classification	Depth of sample collected		LL %	PL %	Bulk density t/m ³	Consolidation Parameters		Shear Strength Parameters		Remarks
			DS / SPT m	UDS m				e _o	Cc	Cu t/m ²	φ degree	
2	0.00 - 0.30	Filled Up Soil	-	-	-	-	-	-	-	-	-	-
	0.30 - 2.50	Sandy Silty Clay-SSLc1	1.50	-	65	24	1.50	1.80	0.35	3.68	-	-
	2.50 - 5.30	Silty Clay-SLC1	3.00	-	68	25	1.52	1.62	0.33	4.27	-	-
	5.30 - 8.10	Silty Clay-SLC2	6.00	-	71	27	1.52	1.63	0.33	4.88	-	-
	8.10 - 11.50	Silty Sand-SLS1	9.00	-	-	-	1.53	-	-	-	32	-
	11.50 - 17.00	Sandy Silty Clay-SSLC2	12.00	-	70	27	1.50	1.85	0.36	2.68	-	-
	17.00 - 18.60	Sandy Silty Clay-SSLC3	18.00	-	54	18	1.56	-	-	36.85	-	-
	18.60 - 21.00	Sandy Gravel-I-(Slate)	21.00	-	-	-	1.61	-	-	-	41	-





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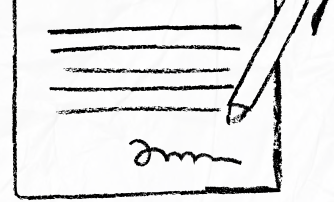
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