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Soil Report/Surrya Builders/2023-2024/05/011

PROJECT NAME

GEOTECHNICAL INVESTIGATION WORK FOR THE PROPOSED CONSTRUCTION OF STILT +5 FLOORS PLAN OF RESIDENTIAL APARTMENT BUILDING (DWELLING UNITS-25 Nos) IN OLD S.F.NO -84/11Bpt, NEW WARD -F,BLOCK -12, T.S.NO -2/24, 2/26, AYYAMPERUMAM PATTY, SALEM CITY MUNICIPAL CORPORATION, SALEM.

To

Mr.K.M.PONNAM POOSARI S/o Late P.MURUGEASN.

PURPOSE AND SCOPE

Geo-technical site investigation work for **PROPOSED CONSTRUCTION OF STILT +5 FLOORS PLAN OF RESIDENTIAL APARTMENT BUILDING (DWELLING UNITS-25Nos) IN OLD S.F.NO-84/11Bpt, NEW WARD-F, BLOCK-12, T.S.NO-2/24, 2/26, AYYAMPERUMAM PATTY, SALEM CITY MUNICIPAL CORPORATION, SALEM.** The primary purpose of our investigation is to obtain data to develop foundation design recommendations for the above work. At, first instance, Two Trial Pit is excavated at site. Client's representatives selected the locations of trail pits. To accomplish these purposes, the following tasks were performed:

1. Detailed soil borings were done up to stratum to explore the sub surface stratiography and obtain soil samples for testing
2. Field and laboratory tests were conducted to evaluate the index and engineering properties of the soils
3. Engineering analysis was performed to develop foundation design information for proposed structure.

THE SITE:

GEOTECHNICAL INVESTIGATION WORK FOR THE PROPOSED CONSTRUCTION OF STILT +5 FLOORS PLAN OF RESIDENTIAL APARTMENT BUILDING (DWELLING UNITS-25Nos) IN OLD S.F.NO-84/11Bpt, NEW WARD-F, BLOCK-12, T.S.NO-2/24, 2/26, AYYAMPERUMAM PATTY, SALEM CITY MUNICIPAL CORPORATION, SALEM

STANDARD PENETRATION TEST:

It is now most commonly used in site test. The test measures the penetration resistance of the split spoon sampler, when it is driven into the soil, at the bottom of a Trial Pit in a standard manner. The N-value, which is the number of blow required to achieve 300mm penetration of the soil, indicates the relative density of sand or gravel, the consistency of other soil such as silts or clays and the strength of weak rocks. The test is described in IS 2131 - 1981. The split spoon sampler is attached to stiff drill rod and lowered to the bottom of the bore hold. A standard blow consists of dropping a mass of 63.5kg free fall through 750 mm on to an anvil at the top of the rods and ensuing that this amount of dynamic energy is transferred to the sampler as much as possible.

The number of blows required to achieve each 150mm penetration is recorded for a fall penetration of 450mm. The initial 150mm penetration is referred to as seating drive and the blows required for this penetration are not considered as this zone is in disturbed soil. The next 303mm of penetration is referred to as the test drive and the number of blows required to achieve this fully is termed the penetration resistance or N-value.

The total number of blows (N) required, to advance the spoon into the bore, for another two successive 15cm (a total of 30 cm) is recorded as a measure of the soil relative density or consistency as given in Table.

CO – RELATION FOR SATURATED SAND/NON – PLASTIC SILT

RELATIVE DENSITY	PENETRATION VALUE (BLOWS/FT)
Very loose	0 to 4 Blows
Loose	5 to 10 Blows
Medium	11 to 30 Blows
Dense	31 To 50 Blows
Very Dense	< 50 Blows

CO – RELATION FOR SATURATED CLAY/PLASTIC SILT

RELATIVE DENSITY	PENETRATION VALUE (BLOWS/FT)
Very Soft	0 to 2 Blows
Soft	3 to 4 Blows
Medium Stiff	5 to 8 Blows
Stiff	9 To 16 Blows
Very Stiff	17 To 32 Blows
Hard	< 32 Blows

RECOVERY %	DESCRIPTION OF ROCK
0 – 20	Rock is treated as soil
20 – 35 with SPT > 50 blows / 30 cm	Soft or disintegrated rock
35 – 50	Intermediate rock
50 – 85	Medium rock
>85	Sound rock

The fieldwork was carried out under the close supervision of our engineer in accordance with Indian Standard mentioned earlier.

FOUNDATION ANALYSIS

1 Soil Profile

The profile of the area as observed in the bore hole is given in the chart. The trail pit maximum depth of **1.90 m**.

2 Safe Bearing Capacity:

The bearing capacity of granular soil depends upon the unit weight and angle of internal friction of the soil. These two properties of granular soils are determined by standard penetration tests.

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

Safe bearing capacity (SBC) = $3.5\ (N-3)\ \{(B+0.3)/2B\}^2$ X RW X FD +P

Where,

N = Collected N value N2

B = Width of Foundation = constant 1

RW = Water Correction = constant 0.5

FD = Depth of Factor = constant 1

P = Over Burden Pressure

DESIGN CRITERIA:

1 Design of Foundations

As per the client's information the proposed project **PROPOSED CONSTRUCTION OF STILT +5 FLOORS PLAN OF RESIDENTIAL APARTMENT BUILDING (DWELLING UNITS-25Nos) IN OLD S.F.NO-84/11Bpt, NEW WARD-F, BLOCK-12, T.S.NO-2/24, 2/26, AYYAMPERUMAM PATTY, SALEM CITY MUNICIPAL CORPORATION, SALEM.**

- The design of foundation depends upon the founding strata, loading intensity at the foundation level and configuration at loading points.
- For the above conditions, open foundations are recommended for the proposed structure shown below.

2 .Depth of Foundation

Minimum depth of foundations is governed by the following factors:

- Top loose zone.
- Adequate depth of soil above founding level, to ensure mobilization of full safe bearing capacity
- Adequate depth of soil strata below founding level of requisite strength to mobilize the safe bearing capacity and at the same time restricts the total and differential settlements within the allowable limits.
- The type and depth of foundation shall be decided by the design engineer.

FOUNDATION RECOMMENDATIONS

The Site Building The Standard Penetration Test Was Conducted And SBC Was Determined. **The Recommended SBC In The Site Is 25.00t/M^2.** The **ISOLATED FOOTING Is Recommended For This Site.** Rest **The Foundation 2.00m From The Natural Ground Level.** Design Engineer May Change The Foundation Depth And Foundation Type Depends Upon The Structure Load And Design Of The Building.

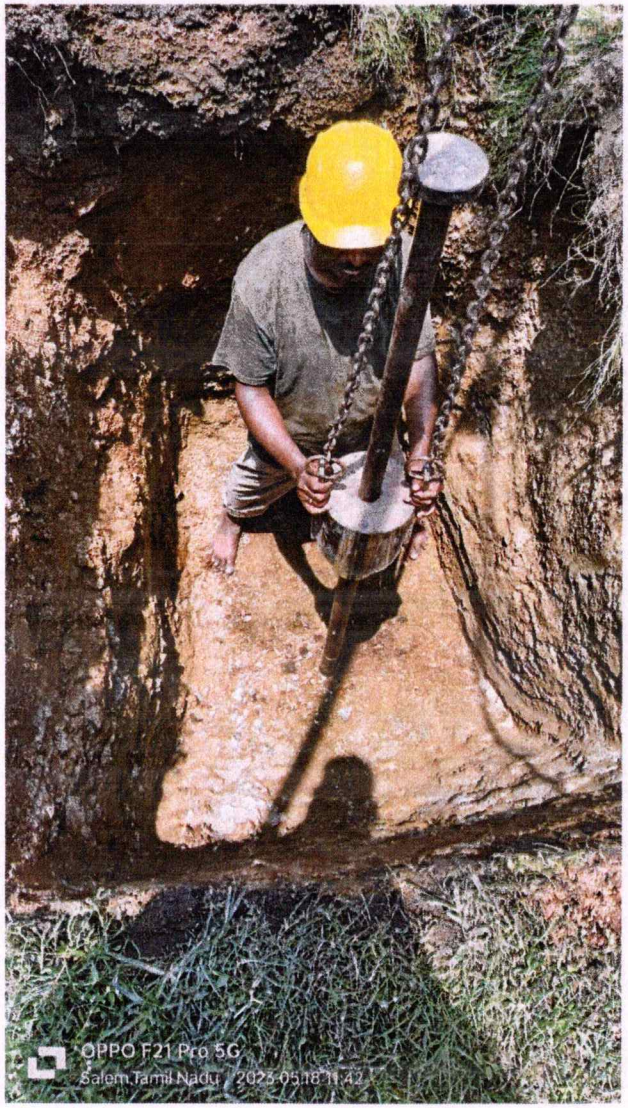
- **REFERENCES**

1. IS: 6403-1981
2. IS: 2911-(part1/sec-2 0-1979
3. IS: 2131-1980 82123999
4. IS: 8009 (Part-1) 1976
5. IRC 78:2000

GEOTECHNICAL ENGINEER

Er. K. PRAKASH M.E., MIGS.,
Geotechnical Consultant
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PHOTOS - PIT- I


OPPO F21 Pro 5G
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OPPO F21 Pro 5G
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PHOTOS - PIT-II





COIMBATORE LOCAL PLANNING AUTHORITY

Corporation Complex, Sivanandha Colony, Coimbatore-641012

Phone : 0422-2492700, E-mail: clpams@gmail.com

PROFESSIONAL REGISTRATION CERTIFICATE

This is to Certify that the Thiru. **K.PRAKASH** has enrolled as **Geo-Technical Engineer (GTE)** with Coimbatore Local Planning Authority (CLPA) who has the qualification of **M.E (Geo Technical Engineering)** and experience in the relevant field for **7 Years**.

He has been given the Registration No. **Coimbatore LPA/GTE/19/05/003** on **15.05.2019**. He shall be required to comply with the duties and responsibilities prescribed by the Government of Tamil Nadu in Part V, "Registration of Professionals", Tamil Nadu Combined Development and Building Rules, 2019 approved vide G.O.(Ms) No.18 MAWS (MA1) Dept. Dated. 04.02.2019.

This Registration is valid upto **14.05.2024**.



16 MAY 2019

Member Secretary, (I/C).,
Coimbatore Local Planning Authority
Coimbatore - 641012.

Er. K. PRAKASH M.E., MIGS.,
Geotechnical Consultant
Reg. No : LPA/GTE/19/05/003
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