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SOIL EXPLORATION REPORT

For

M/s. ST ANGELO'S VNCT VENTURES LLP

Ref: GEO – 202– 2019 - 20

Date: 16.03.2020

PROJECT NAME:

SOIL INVESTIGATION FOR THE PROPOSED CONSTRUCTION OF INDIVIDUAL VILLAS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 (18 VILLAS) WITH AREA 1 ACRE @ OLD SF. NO. : 473/PT, NEW TS. NO. : 32/3, BLOCK NO – 03, WARD NO. : AK (37), SINGANALLUR VILLAGE, COIMBATORE DISTRICT - 641005.

GEODESIGN INDIA PRIVATE LIMITED

(An ISO 9001 : 2008 Certified Company)

Soil Investigations, SPT Test, DTH, Diamond core drilling, & Grouting works

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1. INTRODUCTION

1.1 PURPOSE AND SCOPE

Geo-technical site investigation work for "SOIL INVESTIGATION FOR THE PROPOSED CONSTRUCTION OF INDIVIDUAL VILLAS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 (18 VILLAS) WITH AREA 1 ACRE @ OLD SF. NO. : 473/PT, NEW TS. NO. : 32/3, BLOCK NO – 03, WARD NO. : AK (37), SINGANALLUR VILLAGE, COIMBATORE DISTRICT - 641005." The primary purpose of our investigation is to obtain data to develop foundation design recommendations for the above work. At, first instance, Five points was excavated at site. Client's representatives selected the locations of points. To accomplish these purposes, the following tasks were performed:

1. Field and laboratory tests were conducted to evaluate the index and engineering properties of the soils.
2. Engineering analysis was performed to develop foundation design information for proposed structure.

1.2 THE SITE

"SOIL INVESTIGATION FOR THE PROPOSED CONSTRUCTION OF INDIVIDUAL VILLAS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 (18 VILLAS) WITH AREA 1 ACRE @ OLD SF. NO. : 473/PT, NEW TS. NO. : 32/3, BLOCK NO – 03, WARD NO. : AK (37), SINGANALLUR VILLAGE, COIMBATORE DISTRICT - 641005."

2.1 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 borehole 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 hole.

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

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300mm 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.

2.2. SAMPLING

Soil samples were collected through Split spoon.

3. FOUNDATION ANALYSIS

3.1 Soil Profile

The profile of the area as observed in the points is given in the chart. The soil layer up to 3.25m depth POORLY GRADED GRAVEL was obtained.

3.2 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 = Corrected N value N1

B = Width of Foundation = constant 1

RW = Water Correction = constant 0.5

FD = Depth of Factor = constant 1

P = Over Burden Pressure

3.3 SOIL STRATIGRAPH

The soil stratigraphy is based on classification of soil samples recovered from the Pits and our observations during Investigation. A generalized summary of the major soil strata is tabulated below:

POINT - 1 – DATE: 16.03.2020

STRATUM	FROM (m)	TO (m)	DESCRIPTION	SAFE BEARING CAPACITY (SBC) IN T/m^2
1	0.00	3.15	SILTY CLAY	**3.26 T/m^2 @ 1.50m** **7.06 T/m^2 @ 2.70m**

POINT - 2 – DATE: 16.03.2020

STRATUM	FROM (m)	TO (m)	DESCRIPTION	SAFE BEARING CAPACITY (SBC) IN T/m^2
1	0.00	2.45	SILTY CLAY	**5.13 T/m^2 @ 1.00m** **7.31 T/m^2 @ 2.00m**

POINT - 3 – DATE: 16.03.2020

STRATUM	FROM (m)	TO (m)	DESCRIPTION	SAFE BEARING CAPACITY (SBC) IN T/m^2
1	0.00	0.30	FILLING SOIL	
2	0.30	2.95	CLAY	**6.22 T/m^2 @ 1.50m** **9.88 T/m^2 @ 2.50m**

POINT - 4 – DATE: 16.03.2020

STRATUM	FROM (m)	TO (m)	DESCRIPTION	SAFE BEARING CAPACITY (SBC) IN T/m^2
1	0.00	2.80	CLAY	
2	2.80	3.25	POORLY GRADED GRAVEL	**11.54 T/m^2 @ 1.70m** **23.40 T/m^2 @ 2.80m**

POINT - 5 – DATE: 16.03.2020

STRATUM	FROM (m)	TO (m)	DESCRIPTION	SAFE BEARING CAPACITY (SBC) IN T/m^2
1	0.00	2.80	CLAY	
2	2.80	3.25	POORLY GRADED GRAVEL	**7.84 T/m^2 @ 1.70m** **29.31 T/m^2 @ 2.80m**

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4. RECOMMENDATION

For the site "SOIL INVESTIGATION FOR THE PROPOSED CONSTRUCTION OF INDIVIDUAL VILLAS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 (18 VILLAS) WITH AREA 1 ACRE @ OLD SF. NO. : 473/PT, NEW TS. NO. : 32/3, BLOCK NO – 03, WARD NO. : AK (37), SINGANALLUR VILLAGE, COIMBATORE DISTRICT - 641005," Standard penetration test was conducted and SBC was determined.

- In this site up to 3.25m, depth POORLY GRADED GRAVEL is obtained.
- The **ISOLATED FOOTING** is recommended for this site.
- **The open excavations shall be carried out up to a depth of 3.00m below existing ground level and back-filled with 1.00m thick well compacted CNS soil (Or) locally available Gravel over which the footing can be located.**
- **Rest the Foundation at 2.00m (above CNS layer) from the Existing Ground Level.**
- The **SBC at 2.00m is 7.06 Ton/m^2** is determined in All Locations @ Foundation Level.

Note :

Considering the uniformity in sub-soil stratifications at shallow depths, their varying shear strength characteristics, high plasticity nature of fine-grained soil encountered at shallow depths and underlying relatively weak soil layer encountered at 2.00m depth from existing ground level, open foundation system of isolated column footing type located at a design depth of 2.00m below existing ground level over 1.00m thick well compacted cohesive non-swelling (CNS) soil surface can be adopted.

Hence, the open excavations shall be carried out up to a depth of 3.00m below existing ground level and back-filled with 1.00m thick well compacted **CNS soil (Or) locally available Gravel** over which the footing can be located.

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5. REFERENCES

1. **IS: 1892-1979** – Indian Standard Code of Practice for Determination of Bearing Capacity Of Shallow Foundation

2. **IS: 1892-1979** - Indian Standard Code of Practice for Subsurface Investigation for Foundations

3. **IS: 2131-1981** - Indian Standard Method for Standard Penetration Test for Soils

4. **IS: 8009 (Part 1) - 1976** - Indian Standard Code of Practice for Calculation of Settlements of Foundations

5. **IS: 2720 (Part-2) - 1973** - Indian Standard Methods of Test for Soils, Determination of Water Content

6. **IS: 2720 (Part-4) - 1985** - Indian Standard Methods of Test for Soils, Grain Size Analysis

7. **IS: 2720 (Part-5) – 1985** - Indian Standard Method of Test for Soils, Determination of Liquid and Plastic Limit

8. **IS: 2720 (Part-3/Sec-1)1980** - Indian Standard Methods of Test for Soils, Determination of Specific Gravity.

6. PHOTOS

Trial Pit Location – 1



Trial Pit Location – 2



Trial Pit Location – 3



Trial Pit Location – 4



Trial Pit Location – 5

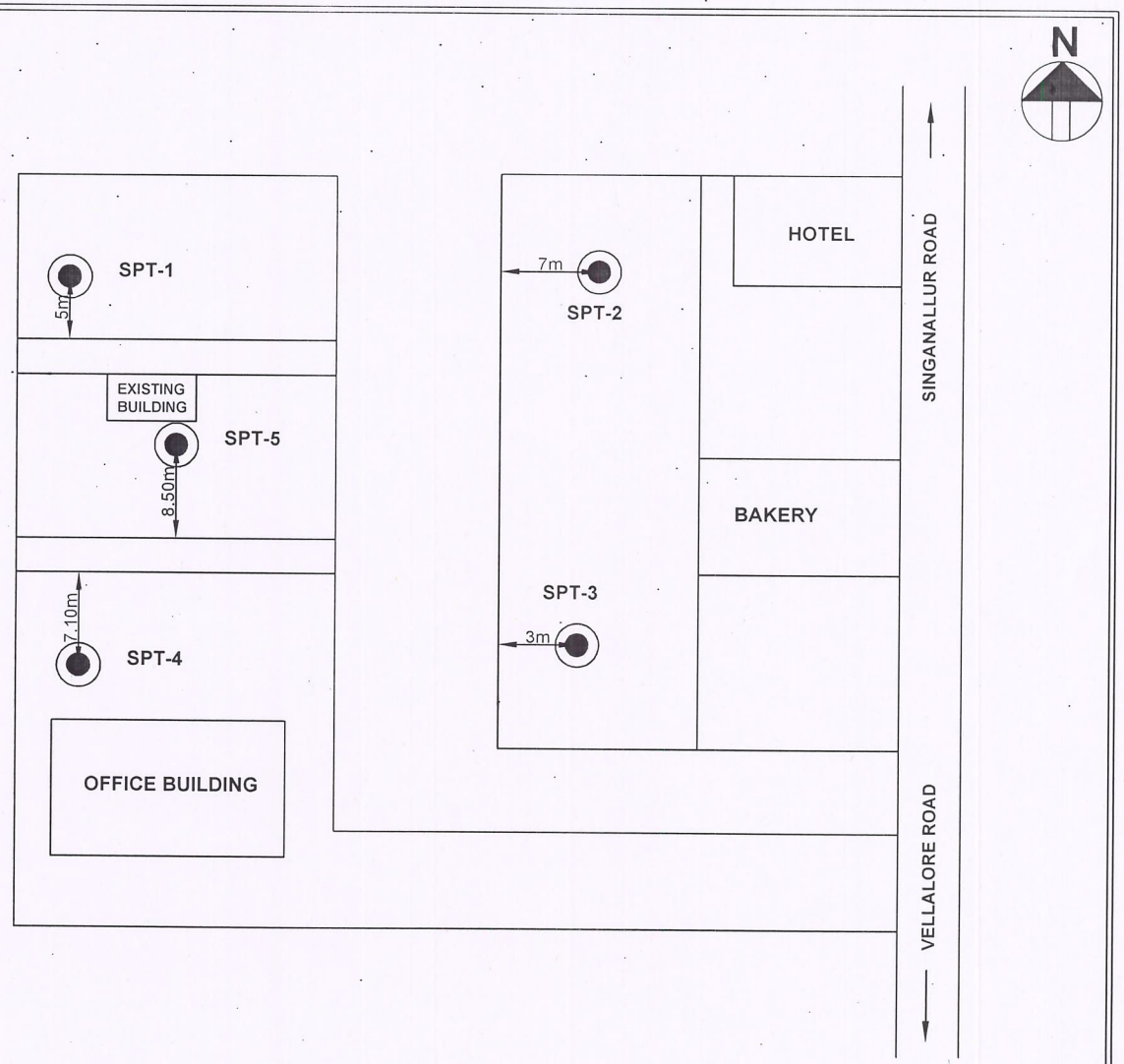


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PREPARED: D. Ryt

ENGINEER:

DATE:16.03.2020

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Zoning & Land Use Analysis

Land Use Zone Finder, CRZ Zone Check, Aquifer Zone Check, CBA Check, EWS Check, Road Width Check, Proposed Road Widening Check, FSI Calculator

Property Documentation & Workflow Tools

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