B.S. Abdur Rahman Crescent Institute of Science & Technology
Deemed to be University u/s 3 of the UGC Act, 1956

SCHOOL OF INFRASTRUCTURE

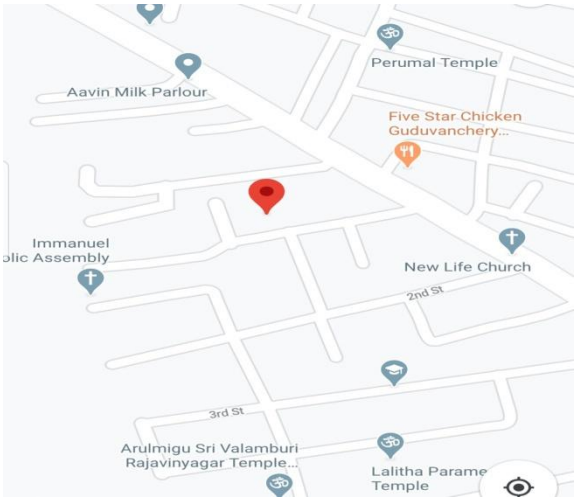
DEPARTMENT OF CIVIL ENGINEERING

GEOTECHNICAL INVESTIGATION CAMP REPORT

OBJECTIVE

The Department of Civil Engineering organized a one day Geotechnical investigation camp in Porur area on 14th February, 2020 for B.Tech. (Civil Engineering) III year A section and in Guduvanchery area on 18th February, 2020 for B.Tech. (Civil Engineering) III year B section. The main objective of this camp is to impart the skill & knowledge to execute real-time soil investigations directly in field.

Porur (Site 1)



Guduvanchery (Site 2)

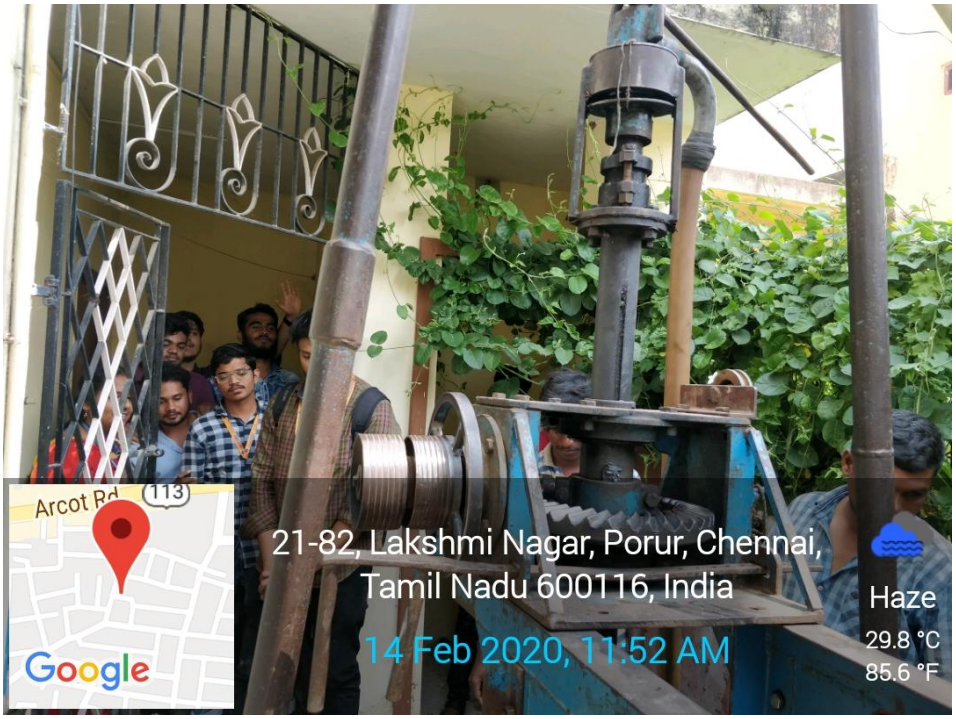
Site Locations

Nearly 70 students along with 2 faculty members attended the camp to visualise the conduct of Standard Penetration Test.

TESTING DETAILS - SITE I

Site Details – Porur:

The site was located in Lakshmi Nagar, 13th street, Porur. The plot area was around 2400 sq. ft.



Soil exploration

Purpose of Soil Exploration:

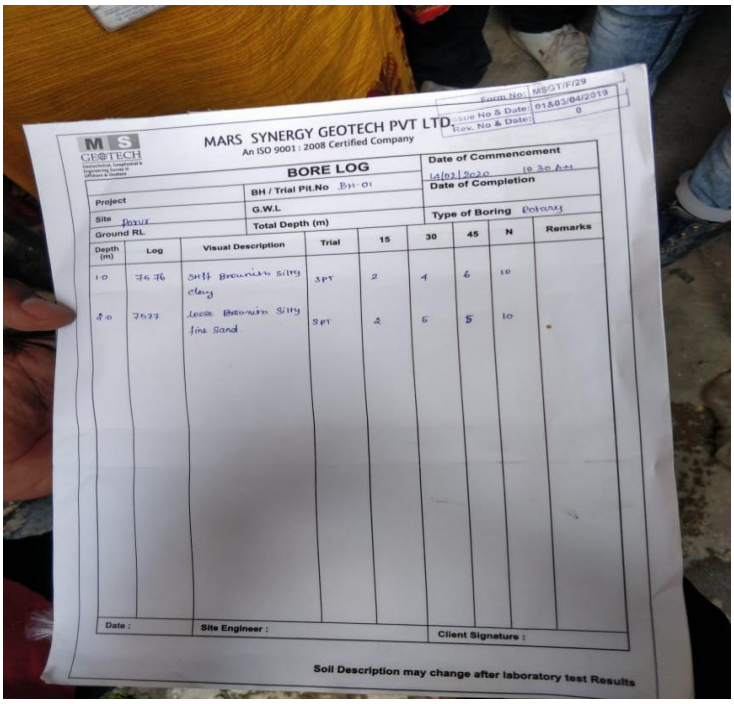
A G+3 building is proposed for construction in that plot area. Hence to design the foundation for building the soil profiles are to be examined. Based on the area of plot and area constraints, the location of boreholes was decided. Two boreholes were planned diagonally opposite to each other.

Method of Soil Exploration:

The students visualised the first borehole (BH 1). The diameter of borehole was 150 mm. The SPT test was conducted for every 1 m depth interval. The boring method adopted was Mechanical Rotary Auger drilling. The ground water table was

encountered at the depth of 2.0 m. The soil exploration consists of three stages i.e., boring, sampling and testing which includes both field and lab tests. Soil samples were collected at every 1.00 m depth of the bore hole and samples were also recovered from the SPT spoon sampler and marked with proper labelling for transporting them to the laboratory for testing. The datas required for bore log particulars were noted down.

Labelling of sample



Bore log particulars

Standard Penetration Test:

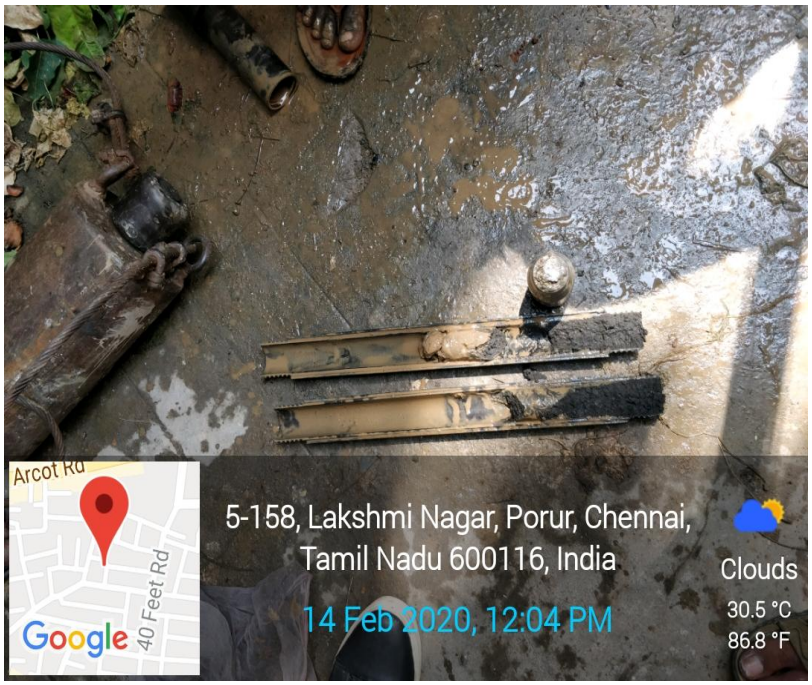
Standard Penetration Test was performed as per I.S. 2131-1981 as an in-situ test. The resistance is empirically correlated with some of the Engineering properties of soil such as density index, consistency, bearing capacity, etc. These tests are useful for general exploration of erratic soil profiles for finding depth to bedrock or hard stratum and to have an approximate indication of the strength and other properties of soils, particularly for cohesion less soil where it is difficult to obtain U.D.S.

In the field test the Split Spoon sampler is driven by the free fall of a hammer weighing 63.5kg dropped from a height of 75cm.The sampler is initially driven through 15cm as a seating drive. It is further driven through 30cm. The number of blows required to drive the sampler 30cm below the seating drive is termed the penetration resistance 'N'.

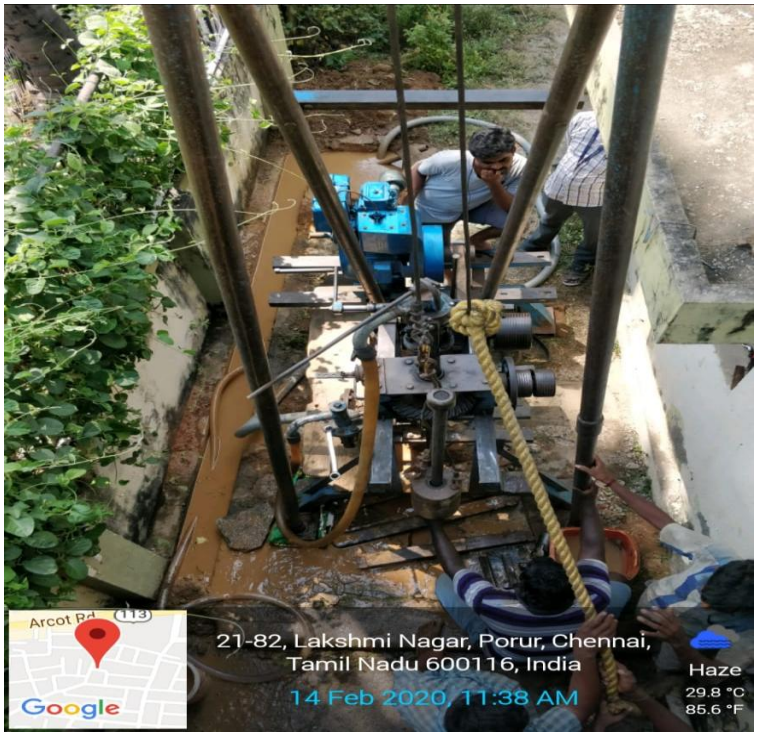
The SPT was carried out and the penetration value was obtained as follows.

Depth (in m)	Trial			N value
	15 cm	30 cm	45 cm	
1	2	4	6	10
2	3	5	5	10
3	4	6	6	12
4	4	5	7	12
5	5	7	6	13
6	6	5	5	10
7	6	7	6	13
8	7	7	6	13

From the field visit, we were able to understand the method of exploring the soil, determination of N value from the SPT, sample collection and preservation.



Sample in Split Spoon Sampler



Standard Penetration Test

TESTING DETAILS - SITE II

Site Details – Guduvanchery:

The site was located in 1st Main Rd, Pankaja Ammal Nagar, Madambakkam, Guduvanchery. The plot area was around 1200 sq. ft.

Soil exploration

Standard Penetration Test:

The SPT was carried out and the penetration value was obtained as follows.

Depth (in m)	Trial			N value	Remarks
	15 cm	30 cm	45 cm		
1	10	11	13	24	-
2	40`	>50	-	10	50 blows for 12 cm penetration

From the field visit, we were able to understand the method of exploring the soil, determination of N value from the SPT, sample collection and preservation. From the N value obtained, the bearing capacity of soil can be determined. Based on the bearing capacity of soil the suitable foundations can be recommended.

Labelling of sample

Sample in Split Spoon Sampler

Standard Penetration Test

OUTCOME

Thus by this visit we were able to understand the real time execution of soil investigation programme, sketching the soil profile (bore log) and also the method to compute the safe bearing capacity of the soil based on N value.