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SOIL INVESTIGATION FOR CONSTRUCTION OF RESIDENTIAL BUILDING AT ECR PLOT NO1 TO 27 COMPRISED IN SURVEY NO : 181/3C,3B,3A1,3A2,3B,180/2E21C2A,2F2 OF KALAIGAR KARUNANIDHI SALAI SHOLINGANALLUR CHENNAI 600119

GEO-TECHNICAL INVESTIGATION REPORT

LOCATION : BH - 01 TO BH - 04

«« *Prepared for* »»

Nu - Tech Realty Projects (P) Ltd

«« Prepared by »»

VELCITI CONSULTING ENGINEERS PVT. LTD.
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VELCITI CONSULTING ENGINEERS (P) LTD Velachery Chennai-42

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1. INTRODUCTION

Purpose and scope:

Geo-technical investigation was carried out by Construction of Residential Building ECR Link Road. This work was referred to us by **Nu Tech Realty Projects (P) Ltd**. The primary purpose of this investigation was to obtain data to develop foundation design recommendations for the proposed structure. The location of borings was selected by client's representatives. To accomplish these purposes, the following tasks were performed:

1. Detailed four numbers of soil borings were done up to hard strata to explore the subsurface stratigraphy and obtain soil samples for laboratory testing;
2. Field and laboratory tests were conducted to evaluate the index and engineering properties of the soils;
3. Engineering analyses were performed to develop foundation design information for the proposed structure.



2. FIELD INVESTIGATIONS

Rotary Boring

Rotary boring was performed at four boreholes in accordance with IS: 1892.

In this method, borings is effected by the cutting action of a rotating bit which is kept in firm contact with the bottom of the hole. The bit is attached to the lower end of a hollow drill rod which is rotated by a suitable chuck. Drilling mud [usually Bentonite] is continuously forced down the hollow drill rods. The mud returning upwards through the annular space between the drill rods and the side of the hole brings the cuttings to the surface.

Standard Penetration Test:

It is now the most commonly used in situ test. The test measures the penetration resistance of the split-spoon sampler, when it is driven into the soil, at the bottom of a bore hole in a standard manner. The N-value, which is the number of blows required to achieve 300 mm penetration of the soil, indicates the relative density of a sand or gravel, the consistency of other soils 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 63.5 kg free fall through 750 mm on to an anvil at the top of the rods and ensuring that this amount of dynamic energy is transferred to the sampler as much as possible.

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The number of blows required to achieve each 150 mm penetration is recorded for a full penetration of 450 mm. The initial 150 mm 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 300 mm 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.

Sampling:

The soil that is being removed during drilling of boreholes is regularly examined for changes in the soil stratification. At fixed regular intervals and at levels where there is change in soil type samples are collected for closer examination in the laboratory.

The types of samples collected can be grouped under the following two categories.

1. Disturbed samples
2. Undisturbed samples

In disturbed samples there is considerable disturbance in the natural structural arrangement of the soil particles. For meaningful results to be obtained from disturbed samples they must be **representative samples**. That is, the soil sample must contain all the mineral constituents that are present in the soil at the depth from which the sample has been taken and there should not be intermixing of minerals from various depths. Disturbed soil samples can be collected from split spoon sampler used in standard penetration test and also from soil retained in auger.

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3. LABORATORY INVESTIGATION

The operations to be performed in the laboratory depend upon the type of the nature of data required for the problem at hand. In case of cohesion less material, like sand, the laboratory tests are usually minimum and the design parameters are worked out from field test data such as from SPT-N value, core resistance.

For cohesionless soil

a) Specific gravity
b) Sieve analysis
c) Direct shear test

For cohesive soil

a) Specific gravity
b) Natural moisture content
c) Atterberg's limits
d) Sieve Analysis

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4. FOUNDATION ANALYSIS

Soil profile:

In order to obtain the soil profile of the site, four locations has been bored. The soil profile reveals that it consists of Silty Medium to Fine Sand / Sandy Silt / Clayey Silty Fine to Medium Sand / Weathered Rock Hard rock stratum. The detailed borelog and laboratory test results are enclosed in the annexure.

Note :

The silty clay / silty clay / Clayey silty fine to medium sand are top soil in observed in this location ,Liquefaction analysis also obtains in this location.

Recommendation :

Shollow Foundation not suitable at this location.
Pile Foundation Recommended.

For Velciti Consulting Engineers Pvt Ltd

Managing Director

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ANNEXURE

»» LOG OF BORING

»» LABORATORY TEST RESULTS

»» GRADATION CURVES

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(Soil Exploration and Foundation Design Division)

BORE LOG

Client	**: Nu - Tech Realty Projects (P) Ltd**	**Date of Started :13-05-2023**	
Project	**: Geotechnical Investigation Work @ ECR Link Road, Sholinganallur**	**Date of Completed: 13-05-2023**	
Location	**: BH - 01**	**Ground Water Level : 2.80m**	

Depth Below G.L.	Soil Profile	Description of Soil	Thickness of layer (m)	Standard Penetration Test Data: Depth at which test is conducted	Standard Penetration Test Data: N-Value	Standard Penetration Test Data: Relative density /Consistency	Graphical Representation of Penetration Resistance	Remarks
							0 20 40 60 80 100	
1.00		Filled Up Soil	1.00	0.00 to 1.00				
		Brown Silty Medium to Fine Medium Sand		2.00	05 [02/02/03]	Loose		
		Greyish Brown Medium to Fine sand		3.00	03 [01/01/02]	Very Loose		
		Grey Medium to Fine sand		4.50	01 [0/0/01]	Very Loose		
		Grey medium to coarse fine sand		6.00	02 [0/01/01]	Very Loose		
		Grey Silty Medium to Fine Sand		7.50	02 [0/01/01]	Very Loose		
		Grey Medium to Fine Sand With Shale		9.00	02 [01/01/01]	Very Loose		
		Grey Silty Medium to Fine Sand		10.50	08 [02/03/05]	Loose		
13.50		Grey Silty Medium to Fine Sand	12.50	12.00	10 [03/04/06]	Medium		

Contd…

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BORE LOG

Client	**: Nu - Tech Realty Projects (P) Ltd**	**Date of Started :13-05-2023**	
Project	**: Geotechnical Investigation Work @ ECR Link Road, Sholinganallur**	**Date of Completed: 13-05-2023**	
Location	**: BH - 01**	**Ground Water Level : 2.80m**	

Depth Below G.L.	Soil Profile	Description of Soil	Thickness of layer (m)	Standard Penetration Test Data: Depth at which test is conducted	Standard Penetration Test Data: N-Value	Standard Penetration Test Data: Relative density /Consistency	Graphical Representation of Penetration Resistance	Remarks
							0 20 40 60 80 100	
		Weathered Rock		13.50	>100 50_{2cm}	Very Dense		
15.00		Hard rock	1.50	13.50 to 15.00				
Borehole Terminated @ 15.00m								

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BORE LOG

Client	: Nu - Tech Realty Projects (P) Ltd	**Date of Started :16-05-2023**	
Project	: Geotechnical Investigation Work @ ECR Link Road, Sholinganallur	**Date of Completed: 16-05-2023**	
Location	: BH - 02	**Ground Water Level : 2.85m**	

Depth Below G.L.	Soil Profile	Description of Soil	Thickness of layer (m)	Standard Penetration Test Data: Depth at which test is conducted	Standard Penetration Test Data: N-Value	Standard Penetration Test Data: Relative density /Consistency	Graphical Representation of Penetration Resistance	Remarks
							0 20 40 60 80 100	
1.00		Filled Up Soil	1.00	0.00 to 1.00				
		Greyish Brown Fine to Medium Sand		2.00	04 [01/02/02]	Medium		
		Greyish Brown Silt With Medium to Fine Sand		3.00	05 [01/02/03]	Medium		
		Greyish Brown Silt With Fine to Medium Sand		4.50	UDS			
		Greyish Brown Silty Fine Sand		6.00	02 [0/01/01]			
		Greyish Brown Silt With Medium to Fine Sand		7.50	02 [0/01/01]	Medium		
10.00		Greyish Brown Silt With Medium to Fine Sand	7.00	UDS				
		Greyish Brown Silty Clay		10.50	05 [02/02/03]	Stiff		
		Greyish Brown Silty Clay		12.00	34 [09/15/19]	Stiff		

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BORE LOG

Client	**: Nu - Tech Realty Projects (P) Ltd**	**Date of Started :13-05-2023**	
Project	**: Geotechnical Investigation Work @ ECR Link Road, Sholinganallur**	**Date of Completed: 13-05-2023**	
Location	**: BH - 02**	**Ground Water Level : 2.80m**	

Depth Below G.L.	Soil Profile	Description of Soil	Thickness of layer (m)	Standard Penetration Test Data: Depth at which test is conducted	Standard Penetration Test Data: N-Value	Standard Penetration Test Data: Relative density /Consistency	Graphical Representation of Penetration Resistance	Remarks
							0 20 40 60 80 100	
		Weathered rock		13.50	>100 50_{0cm}	Very Dense		
14.50		Soft rock	4.50	13.50 to 14.50				
Borehole Terminated @ 14.50m								

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BORE LOG

Client	**: Nu - Tech Realty Projects (P) Ltd**	**Date of Started :13-05-2023**	
Project	**: Geotechnical Investigation Work @ ECR Link Road, Sholinganallur**	**Date of Completed: 13-05-2023**	
Location	**: BH - 03**	**Ground Water Level : 2.80m**	

Depth Below G.L.	Soil Profile	Description of Soil	Thickness of layer (m)	Standard Penetration Test Data: Depth at which test is conducted	Standard Penetration Test Data: N-Value	Standard Penetration Test Data: Relative density /Consistency	Graphical Representation of Penetration Resistance (0 20 40 60 80 100)	Remarks
1.00		Filled Up Soil	1.00	0.00 to 1.00				
		Greyish Brown Clayey Sand		1.00	02 [01/01/01]	Very Loose		
		Grey Sandy Silt		2.00	03 [01/01/02]	Very Loose		
4.00		Grey clayey medium to fine sand	3.00	3.00	01 [0/0/01]	Very Loose		
		Grey clayey medium to fine sand		4.50	01 [0/00/01]	Very Loose		
		Grey Silty Fine sand		6.00	02 [0/01/01]	Very Loose		
		Grey Silty Fine sand		7.50	02 [00/01/01]	Very Loose		
		Grey Silty Fine sand		9.00	03 [01/01/02]	Very Loose		
11.50		Grey Silty Fine sand	7.50	10.50	09 [02/04/05]	Loose		

Contd…

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VELCITI CONSULTING ENGINEERS PVT. LTD.,

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BORE LOG

Client	**: Nu - Tech Realty Projects (P) Ltd**	**Date of Started :13-05-2023**	
Project	**: Geotechnical Investigation Work @ ECR Link Road, Sholinganallur**	**Date of Completed: 13-05-2023**	
Location	**: BH - 03**	**Ground Water Level : 2.80m**	

Depth Below G.L.	Soil Profile	Description of Soil	Thickness of layer (m)	Standard Penetration Test Data: Depth at which test is conducted	Standard Penetration Test Data: N-Value	Standard Penetration Test Data: Relative density /Consistency	Graphical Representation of Penetration Resistance	Remarks
							0 20 40 60 80 100	
		Weather Rock	5.00	12.00	45 [17/21/24]	Dense		
		Weather Rock		13.50	54 [20/25/29]	Very Dense		
		Weather Rock		15.00	>100 50_{2cm}	Very Dense		
16.50		Soft rock [TCR-27% RQD-NIL]		15.00 to 16.50				
Borehole Terminated @ 16.50m								

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BORE LOG

Client	**: Nu - Tech Realty Projects (P) Ltd**	**Date of Started :15-05-2023**	
Project	**: Geotechnical Investigation Work @ ECR Link Road, Sholinganallur**	**Date of Completed: 15-05-2023**	
Location	**: BH - 04**	**Ground Water Level :3.00m**	

Depth Below G.L.	Soil Profile	Description of Soil	Thickness of layer (m)	Standard Penetration Test Data: Depth at which test is conducted	Standard Penetration Test Data: N-Value	Standard Penetration Test Data: Relative density /Consistency	Graphical Representation of Penetration Resistance	Remarks
							0 20 40 60 80 100	
1.00		Filled Up Soil	1.00	0.00 to 1.00				
		Greyish Brown Fine to Medium Sand		1.00	01 [0/0/01]	Very Loose		
		Greyish Brown Silt With Medium to Fine Sand		2.00	01 [0/0/01]	Very Loose		
		Greyish Brown Silt With Fine to Medium Sand		3.00	01 [0/0/01]	Very Loose		
		Greyish Brown Silty Fine Sand		4.50	01 [0/01/01]	Very Loose		
		Greyish Brown Silt With Medium to Fine Sand		6.00	03 [01/01/02]	Very Loose		
		Greyish Brown Silt With Medium to Fine Sand		7.50	UDS			
		Grey Clayey Silty Fine to Medium Sand		9.00	08 [02/03/05]	Medium		
11.00		Grey Clayey Silty Fine to Medium Sand	10.00	10.50	20 [05/08/12]	Medium		

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BORE LOG

Client	**: Nu - Tech Realty Projects (P) Ltd**	**Date of Started :15-05-2023**	
Project	**: Geotechnical Investigation Work @ ECR Link Road, Sholinganallur**	**Date of Completed: 15-05-2023**	
Location	**: BH - 04**	**Ground Water Level : 3.00m**	

Depth Below G.L.	Soil Profile	Description of Soil	Thickness of layer (m)	Standard Penetration Test Data: Depth at which test is conducted	Standard Penetration Test Data: N-Value	Standard Penetration Test Data: Relative density /Consistency	Graphical Representation of Penetration Resistance	Remarks
							0 20 40 60 80 100	
		Weathered rock		12.00	43 [11/19/24]	Dense		
		Weathered rock		13.50	52 [18/24/28]	Very Dense		
		Weathered rock		15.00	>100 50_{0cm}	Very Dense		
16.00		Hard rock	5.00	15.00 to 16.00				
Borehole Terminated @ 16.00m								

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LABORATORY TEST RESULTS

CLIENT: Nu - Tech Realty Projects (P) Ltd

NAME OF THE WORK: GEOTECHNICAL INVESTIGATION WORK @ ECR Link Road, Sholinganallur

LOCATION : BH - 01 | **GROUND WATER LEVEL : 2.00m** | **LAB WORK COMMENCED ON : 22/05/2023** | **LAB WORK COMPLETED ON : 25/05/2023**

DEPTH OF (LAYERS)	I.S.SOIL CLASSIFICATION	IS CLASSIFICATION	NATURAL MOISTURE CONTENT (%)	DENSITY OF ROCK (GM/CC)	COMPRESSIVE STRENGTH (Kg/cm²)	INDEX TEST			GRAIN SIZE DISTRIBUTION						FREE SWELL INDEX (%)	SPECIFIC GRAVITY	SHEAR TEST		STANDARD PENETRATION TEST		
										SAND			FINES								
						LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	GRAVEL (%)	COARSE (%)	MEDIUM (%)	FINE (%)	SILT (%)	CLAY (%)			COHESION (kN/m²)	ANGLE OF INTERNAL FRICTION	DEPTH OF TESTING (M)	OBSERVED N VALUE	CONSISTENCY / RELATIVE DENSITY
0.00 to 2.00	Wash Sample																		0.00 to 1.00		
	Brown Silty Medium to Fine Medium Sand		20						1	2	27	61	10			2.607			2.00	5	Loose
	Greyish Brown Medium to Fine sand		32						0	2	25	64	9			2.652			3.00	3	Very Loose
	Grey Medium to Fine sand		18						2	5	34	56	3			2.629			4.50	1	Very Loose
	Grey medium to coarse fine sand		21						3	12	28	53	4			2.619			6.00	2	Very Loose
	Grey Silty Medium to Fine Sand		27						1	1	29	50	19			2.599			7.50	2	Very Loose
	Grey Medium to Fine Sand With Shale		26						2	8	20	70	0			2.608			9.00	2	Very Loose

Cont...

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LABORATORY TEST RESULTS

CLIENT: Nu - Tech Realty Projects (P) Ltd

NAME OF THE WORK: GEOTECHNICAL INVESTIGATION WORK @ ECR Link Road, Sholinganallur

LOCATION : BH - 01 | **GROUND WATER LEVEL : 2.00m** | **LAB WORK COMMENCED ON : 22/05/2023** | **LAB WORK COMPLETED ON : 25/05/2023**

DEPTH OF (LAYERS)	I.S.SOIL CLASSIFICATION	IS CLASSIFICATION	NATURAL MOISTURE CONTENT (%)	DENSITY OF ROCK (GM/CC)	COMPRESSIVE STRENGTH (Kg/cm²)	INDEX TEST			GRAIN SIZE DISTRIBUTION						FREE SWELL INDEX (%)	SPECIFIC GRAVITY	SHEAR TEST		STANDARD PENETRATION TEST		
										SAND			FINES								
						LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	GRAVEL (%)	COARSE (%)	MEDIUM (%)	FINE (%)	SILT (%)	CLAY (%)			COHESION (kN/m²)	ANGLE OF INTERNAL FRICTION	DEPTH OF TESTING (M)	OBSERVED N VALUE	CONSISTENCY / RELATIVE DENSITY
2.00 to 13.50	Grey Silty Medium to Fine Sand		22						0	1	18	75	6			2.600			10.50	8	Loose
	Grey Silty Medium to Fine Sand		9						2	0	47	32	20			2.743			12.00	10	Medium
13.50 to 15.00	Weathered Rock																		13.50	>100	Very Dense
	Hard rock			2.736															13.50 to 15.00		

Borehole Terminated @ 15.00m

VELCITI CONSULTING ENGINEERS (P) LTD Velachery Chennai-42

LABORATORY TEST RESULTS

CLIENT: Nu - Tech Realty Projects (P) Ltd

NAME OF THE WORK: GEOTECHNICAL INVESTIGATION WORK @ ECR Link Road, Sholinganallur

LOCATION : BH - 03 | **GROUND WATER LEVEL : 2.00m** | **LAB WORK COMMENCED ON : 22/05/2023** | **LAB WORK COMPLETED ON : 25/05/2023**

DEPTH OF (LAYERS)	I.S.SOIL CLASSIFICATION	IS CLASSIFICATION	NATURAL MOISTURE CONTENT (%)	DENSITY OF ROCK (GM/CC)	COMPRESSIVE STRENGTH (Kg/cm²)	INDEX TEST			GRAIN SIZE DISTRIBUTION						FREE SWELL INDEX (%)	SPECIFIC GRAVITY	SHEAR TEST		STANDARD PENETRATION TEST		
										SAND			FINES								
						LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	GRAVEL (%)	COARSE (%)	MEDIUM (%)	FINE (%)	SILT (%)	CLAY (%)			COHESION (kN/m²)	ANGLE OF INTERNAL FRICTION	DEPTH OF TESTING (M)	OBSERVED N VALUE	CONSISTENCY / RELATIVE DENSITY
0.00 to 1.00	Wash Sample																		0.00 to 1.00		
1.00 to 12.00	Greyish Brown Clayey Sand		22						13	3	12	25	47			2.623			1.00	2	Very Loose
	Grey Sandy Silt		13						3	0	19	53	25			2.644			2.00	3	Very Loose
	Grey clayey medium to fine sand		32			26	10	16	1	1	17	52	30		17	2.620			3.00	1	Very Loose
	Grey clayey medium to fine sand		30			24	14	10	1	0	9	51	38		14	2.639			4.50	1	Very Loose
	Grey Silty Fine sand								1	1	8	57	34			2.610			6.00	2	Very Loose

Cont...

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LABORATORY TEST RESULTS

CLIENT: Nu - Tech Realty Projects (P) Ltd

NAME OF THE WORK: GEOTECHNICAL INVESTIGATION WORK @ ECR Link Road, Sholinganallur

LOCATION : BH - 03 | **GROUND WATER LEVEL : 2.00m** | **LAB WORK COMMENCED ON : 22/05/2023** | **LAB WORK COMPLETED ON : 25/05/2023**

DEPTH OF (LAYERS)	I.S.SOIL CLASSIFICATION	IS CLASSIFICATION	NATURAL MOISTURE CONTENT (%)	DENSITY OF ROCK (GM/CC)	COMPRESSIVE STRENGTH (Kg/cm²)	INDEX TEST			GRAIN SIZE DISTRIBUTION						FREE SWELL INDEX (%)	SPECIFIC GRAVITY	SHEAR TEST		STANDARD PENETRATION TEST		
										SAND			FINES								
						LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	GRAVEL (%)	COARSE (%)	MEDIUM (%)	FINE (%)	SILT (%)	CLAY (%)			COHESION (kN/m²)	ANGLE OF INTERNAL FRICTION	DEPTH OF TESTING (M)	OBSERVED N VALUE	CONSISTENCY / RELATIVE DENSITY
	Grey Silty Fine sand								0	0	15	54	31			2.657			9.00	3	Very Loose
	Grey clayey silty fine to medium sand					34	14	20	7	0	31	26	35		25	2.664			10.50	9	Loose
12.00 to 16.50	Weather Rock								12	3	22	58	5			2.664			12.00	45	Dense
	Weather Rock								21	7	34	36	2			2.607			13.50	54	Very Dense
	Weather Rock																		15.00	>100	Very Dense
	Soft rock		2.746																15.00 to 16.50		

Borehole Terminated @ 16.50m

VELCITI CONSULTING ENGINEERS (P) LTD Velachery Chennai-42

LABORATORY TEST RESULTS

CLIENT: Nu - Tech Realty Projects (P) Ltd

NAME OF THE WORK: GEOTECHNICAL INVESTIGATION WORK @ ECR Link Road, Sholinganallur

LOCATION : BH - 04 | **GROUND WATER LEVEL : 2.00m** | **LAB WORK COMMENCED ON : 22/05/2023** | **LAB WORK COMPLETED ON : 25/05/2023**

DEPTH OF (LAYERS)	I.S.SOIL CLASSIFICATION	IS CLASSIFICATION	NATURAL MOISTURE CONTENT (%)	DENSITY OF ROCK (GM/CC)	COMPRESSIVE STRENGTH (Kg/cm²)	INDEX TEST			GRAIN SIZE DISTRIBUTION						FREE SWELL INDEX (%)	SPECIFIC GRAVITY	SHEAR TEST		STANDARD PENETRATION TEST		
										SAND			FINES								
						LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	GRAVEL (%)	COARSE (%)	MEDIUM (%)	FINE (%)	SILT (%)	CLAY (%)			COHESION (kN/m²)	ANGLE OF INTERNAL FRICTION	DEPTH OF TESTING (M)	OBSERVED N VALUE	CONSISTENCY / RELATIVE DENSITY
0.00 to 1.00	Wash Sample																		0.00 to 1.00		
1.00 to 2.00	Grey Sandy Silty Clay					29	15	14	7	2	14	22	55		18	2.636			1.00	1	Very Loose
2.00 to 11.00	Brown clayey medium to fine sand					26	15	11	1	1	9	53	36		17	2.624			2.00	1	Very Loose
	Grey Clayey Silty Fine to Medium Sand								0	1	12	61	26			2.640			3.00	1	Very Loose
	Grey Clayey Silty Fine to Medium Sand								6	2	11	53	28			2.634			4.50	1	Very Loose
	Grey Clayey Silty Fine to Medium Sand								0	0	14	63	23			2.646			6.00	3	Very Loose
	Grey Clayey Silty Fine to Medium Sand								0	0	22	61	16			2.666			7.50	UDS	

Cont...

VELCITI CONSULTING ENGINEERS (P) LTD Velachery Chennai-42

LABORATORY TEST RESULTS

CLIENT: Nu - Tech Realty Projects (P) Ltd

NAME OF THE WORK: GEOTECHNICAL INVESTIGATION WORK @ ECR Link Road, Sholinganallur

LOCATION : BH - 04 | **GROUND WATER LEVEL : 2.00m** | **LAB WORK COMMENCED ON : 22/05/2023** | **LAB WORK COMPLETED ON : 25/05/2023**

DEPTH OF (LAYERS)	I.S.SOIL CLASSIFICATION	IS CLASSIFICATION	NATURAL MOISTURE CONTENT (%)	DENSITY OF ROCK (GM/CC)	COMPRESSIVE STRENGTH (Kg/cm²)	INDEX TEST			GRAIN SIZE DISTRIBUTION						FREE SWELL INDEX (%)	SPECIFIC GRAVITY	SHEAR TEST		STANDARD PENETRATION TEST		
										SAND			FINES								
						LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	GRAVEL (%)	COARSE (%)	MEDIUM (%)	FINE (%)	SILT (%)	CLAY (%)			COHESION (kN/m²)	ANGLE OF INTERNAL FRICTION	DEPTH OF TESTING (M)	OBSERVED N VALUE	CONSISTENCY / RELATIVE DENSITY
	Grey Clayey Silty Fine to Medium Sand					46	24	22	3	0	30	32	35		27	2.620			9.00	8	Medium
	Grey Clayey Silty Fine to Medium Sand								4	2	13	55	26			2.688			10.50	20	Medium
11.00 to 16.00	Weathered rock								21	12	37	18	12			2.657			12.00	43	Dense
	Weathered rock								23	19	28	7	22			2.640			13.50	52	Very Dense
	Weathered rock																		15.00	>100	Very Dense
	Hard rock			2.658															15.00 to 16.00		

Borehole Terminated @ 16.00m

For Velciti Consulting Engineers Pvt Ltd

Managing Director

VELCITI CONSULTING ENGINEERS (P) LTD. VELACHERY, CHENNAI-42.

Site Photo


15:05:2023
12°53'50"N 80°14'41"E
Tamil Nadu
BH 04
13.50m
Nu Tech
Foundation at ECR Link Road
Sholinganallur



REFERENCES

1 IS : 6403 - 1981

2 IS : 2720 (Methods of test of soils)

3 IS : 2911 - (Part / Sec-2) - 1979

4 IS : 2131 - 1981

5 IS:8009 (Part-1) 1976

6 IRC 78 : 2000

7 Wayne C.Teng (1992), Foundation design, 13th reprint, Prentice- Hall of India Pvt. Ltd.,

8 Bowles J.E,(1982) Foundation Analysis and design, 3rd edition, McGraw Hill International Book co.

9 Tomlinson M.J. (1995) Foundation Design and Construction, 6th edition, Longman Group.

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