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GEO ENGINEERING CONSULTANTS

(An ISO 9001:2015 Certified Company)

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PROJECT NAME

PROPOSED CONSTRUCTION OF NON-HIGH RISE GROUP DEVELOPMENT CONSISTS OF 3 BLOCKS WITH BASEMENT OF BLOCK 3 & COMBINED BASEMENT OF BLOCKS 4 & 5, BLOCK 3 : GROUND + 5 UPPER FLOORS (124 DWELLING UNITS, HEIGHT –18.15M) BLOCK 4: GROUND (PARTLY) + 5 UPPER FLOORS (208 DWELLING UNITS, HEIGHT – 18.15M), WITH CLUBHOUSE :GROUND (PARTLY) + 4 UPPER FLOORS & SWIMMING POOL ON THE GROUND FLOOR BLOCK 5: GROUND + 5 UPPER FLOORS(192 DWELLINGUNITS, HEIGHT–18.15M) TOTALLY 524 DWELLING UNITS COMPRISED IN S.NOS. 240/13 & 240/15A&15B OF KALAVAKKAM VILLAGE, THIRUPORUR TALUK, CHENGALPET DISTRICT.

CLIENT NAME

CASA GRANDE GRACE (P) LIMITED,
NPL DEVI COMPLEX, NO.111, OLD NO. 59,
LB ROAD, THIRUVANMIYUR,
CHENNAI 600 041.

TITLE

GEOTECHNICAL INVESTIGATION REPORT

PROJECT NO: GEC-JC-GT-4017/2022-2023

DATE: 11/09/2023

GEO ENGINEERING CONSULTANTS
G. MANOJ KUMAR
DDTC - No: GTE/TVLR/01/2019
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Dr. Seethapathy Nagar, Velachery
Chennai - 600 042

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REPORT TEXT

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CHAPTER-1

INTRODUCTION

1.0 Project Information Matrix

Nature of project	: Proposed Residential Building (Stilt+5 Floors-Block1 & 2) (1B+G+5 Upper Floors-Block-3,4 & 5)
Project Client	: **M/s Casa Grande Grace Pvt. Ltd.,**
Project Location	: Kalavakkam, Chengalpet District .
Job Code	:JC-GT-4017

1.1 Scope Of Work

1.1.1 Field Work

- Conducting twenty soil investigation bore holes of 150 mm diameter up to 14.0m depth or up to the refusal strata with SPT>100
- Conducting Standard Penetration Test (SPT) within the borehole at every 1.0m depth interval up to 5.0m and thereafter at every 1.5m up to the termination depth
- Collection of soil samples and undisturbed samples from the clayey strata with SPT-value greater than 2 to less than 15 if met within the investigation depth
- Collection of water samples if groundwater table met within the investigation depth

1.1.2 Laboratory Work

- Natural Moisture Content
- Atterberg's limits
- Grain Size Analysis
- Chemical Analysis test on soil and water samples to give pH, Chlorides and Sulphates

1.2 Structure of the Report

- Contents
- Introduction
- Investigation Methodology & Test Results
- Geology &Sub-Surface Stratification
- Foundation System
- Recommendation
- Annexure

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CHAPTER-2

INVESTIGATION METHODOLOGY & TEST RESULTS

2.0 Preamble:

Twenty soil investigation borehole were put as per the planning of the engineer in-charge and these locations are shown in Fig.2.0.The equipment used and the methodology adopted to carry out the fieldwork is described below.

2.1 Methodology of Field Work:

2.1.1 Equipment Used and Method of Drilling:

All the boreholes were sunk by conventional rotary drilling rigs. For borehole Methodology followed for boring conformed to IS: 1892 -2000. Boring was progressed by the cutting action of rotating bit with water circulation and stabilizing the side of the boreholes by using casing pipes/bentonite slurry up to required depth to prevent collapse of sidewall. Boring was continued by normal boring process using MS soil cutter in soil. However Tungsten Carbide (TC) bit drilling was resorted to drill in highly weathered rock stratum where the normal boring process became slow. Diamond Core (DC) bit drilling was adopted in moderately weathered rock formations where penetration using TC bit was became slow.

2.1.2 Standard Penetration Tests:

This is a field test to determine "Penetration Resistance of Stratum at the Test Depth". This has been conducted in the boreholes generally up to refusal depth using procedures described in IS: 2131- 2002. In this test, split spoon sampler (50.8 mm OD and 35 mm ID) has replaced driving bit. Sampler is then driven by dropping 63.5 kg hammer on top of driving collar with free fall of 75 cm. The length of sampler is 60 cm.

The tests were conducted at the depth intervals indicated in Chapter-1 (Sec.1.1.1).

2.1.3 Collection of Soil Samples:

2.1.3.1 Disturbed Samples:

The SPT-samples collected were used as disturbed soil samples. These samples were used for visual and physical identification and for conducting laboratory classification tests as per I.S.1498-1970.

2.1.4 Collection of Ground Water Samples:

One representative water sample from each borehole was collected after 24 hours of completing the borehole if water table met within the investigated depth.

Note on Groundwater Table Record:

- Groundwater table observation in geotechnical report is predominantly to arrive at foundation design criteria and shall not be construed as design guidelines for the design of dewatering systems
- The groundwater level indicated in the bore logs is specific to the duration of investigation and intensity of the monsoon rains during the time of investigation.

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Hence, the level shall be taken as guidelines only to plan the investigation for the dewatering system

- ❖ No foundation excavation or basement excavations if anticipated within the groundwater table zone shall be carried out without implementing groundwater lowering schemes

2.2 Laboratory testing:

2.2.1 On Coarse Grained Soil

On the representative samples, sieve analysis tests were conducted to arrive at grain size distribution. These tests were conducted as per I.S.2720 (part 4)-1985 and the results are presented in Tables-2.1 to 2.20. The graphical representation of grain size distribution curve for the representative samples in each bore is presented in Fig.2.21 to 2.40.

2.2.2 On Fine Grained Soil

On the SPT sample index property tests were conducted to estimate consistency. These test results are presented in Tables-2.1 to 2.20. The graphical representation of hydrometer analyses curve for the representative samples in each bore is presented in Fig.2.41 to 2.49.

2.2.3 Chemical Analysis Tests

On representative soil and water samples chemical analysis tests were conducted to estimate pH, Chloride and Sulphates and these results are presented in Table - 2.21.

2.3 Summary:

The locations of the field investigation boreholes are shown in site plan given in Fig.2.0. The average sub soil profiles encountered at each location along with their classification and engineering properties are presented in Figs.2.1 to 2.20.

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SITE PLAN

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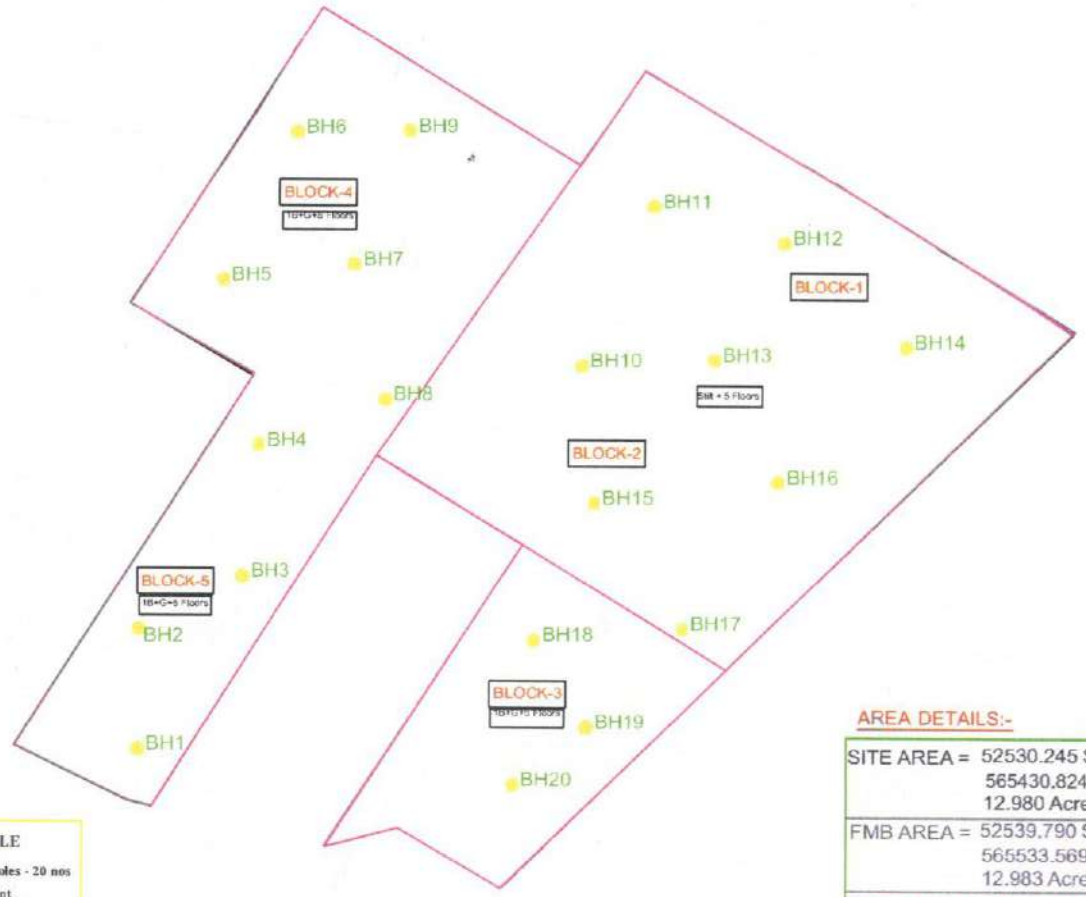
THE COMBINED FMB MAP S.No:240/13,15A&15B KALAVAKKAM VILLAGE THIRUPORUR TALUK,CHENGALPATTU DISTRICT.



BORE HOLE

Total number of bore holes - 20 nos

Building Type- Apartment

B+G+4

AREA DETAILS:-

SITE AREA =	52530.245 Sqm 565430.824 Sqft 12.980 Acres
FMB AREA =	52539.790 Sq m 565533.569 Sq Ft 12.983 Acres
LEAST AREA=	52449.782 Sqm 564564.733 Sqft 12.960 Acre

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SOIL PROFILE

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SITE INVESTIGATION RECORD

BORE HOLE No.	BH-1(Ref:9)		
SHEET	1	OF	2
DIA OF BORE HOLE	150mm ✓		
	NX ✓		
BORE START DATE	03/06/2022		
BORE END DATE	04/06/2022		
TOTAL DRILL DAYS	2		

PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(1B+G+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT				
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-01	CHAINAGE (m)	-
STRUCTURE	1B+G+5 Upper Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite		E -

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
1	03/06/2022	14	30	SC	-	-												
		To																
		14	31				3	7	20	27	1.00	1	SS	-1.0				Brown Grey,Moist,Medium Dense,Poorly Graded,**Clayey Sand(SC)** Sand-Clay mixtures
		14	45								1.45							
		To		SC	-	-												
2		14	46				28	37	50	87	2.00	2	SS	-2.0		L1	2.0	
		15	06								2.45				+ + +			
		To		SC	-	-									+ + +			
		15	09												+ + +			
3		15	32				9 cm Penet. for 50 Blows			>100	3.00	3	SS	-3.0	+ + +			
		To		SC	-	-					3.09				+ + +			
		15	40												+ + +			
4		06	30				5cm Penet. for 50 Blows			>100	4.00	4	SS	-4.0	+ + +			Greyish Brown, Very Dense, **Completely Weathered Rock**, Descent from Hypersthene Granite Rock
		To		SC	-	-					4.05				+ + +			
		06	45												+ + +			
5		08	20				SPT Hammer Rebounded			>100	5.00	5	WS	-5.0	+ + +			
		To		SC	-	-									+ + +			
		08	42												+ + +			
6		09	33				SPT Hammer Rebounded			>100	6.00	6	WS	-6.0	+ + +	L2	6.0	
		To		DB	5	0									+ + +			Greyish Brown, **Highly Weathered Rock**, Descent from Hypersthene Granite Rock
	04/06/2022	10	01												+ + +			
7		10	13				-	-	-	-	7.00	7	CS	-7.0	+ + +	L3	7.0	
		To		DB	11	0									+ +			
		10	45												+ + +			
8		10	55				-	-	-	-	8.00	8	CS	-8.0	+ + +			
		To		DB	10	0									+ + +			
		11	17												+ + +			
9		11	37				-	-	-	-	9.00	9	CS	-9.0	+ + +			Greyish Brown, **Moderately Weathered Rock**, Descent from Hypersthene Granite Rock
		To		DB	15	0									+ + +			
		12	15												+ + +			
10							-	-	-	-	10.00	10	CS	-10.0	+ + +		10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	PANDIRAJAN	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	04/06/2022	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m) 2.60	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m) 0.00	

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SITE INVESTIGATION RECORD

BORE HOLE No.	BH-1(Ref:9)						
SHEET	2	OF	2				
PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(1B+G+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT			DIA OF BORE HOLE	150mm	✓	
					NX	✓	
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-01	CHAINAGE (m)	-	BORE START DATE	04/06/2022
STRUCTURE	1B+G+5 Upper Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	04/06/2022
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	2

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	SPT Details: Blows/cm. 15-30	SPT Details: Blows/cm. 30-45	SPT 'N' Value	Sample Details: Depth	Sample Details: No.	Sample Details: Type	Sample Details: RL (m)	Layer Data: Legend	Layer Data: No	Layer Data: Depth	Geotechnical Description
11	04/06/2022	13	09	DB	12	0	-	-	-	-	11.00	11	CS	-11.0	+ + +			
		To													+ + +			
		13	35												+ + +			
		14	01	DB	15	0									+ + +			
12		To					-	-	-	-	12.00	12	CS	-12.0	+ + +			Greyish Brown, **Moderately Weathered Rock**, Descent from Granite Rock
		14	40												+ + +			
		15	01	DB	20	0									+ + +			
		To													+ + +			
13		15	42				-	-	-	-	13.00	13	CS	-13.0	+ + +	L4	13.0	
14																		
15																		
16																		
17																		
18																		
19																		
20																		

CS - Core Sample	DS - Disturbed Sample	LOGGED	PANDIRAJAN	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	04/06/2022	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m) 2.60	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m) 0.00	

Borehole terminated at 13 m depth below E.G.L

FIG.2.1 Sub Soil Profile at BH-1(Ref:9) Location

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SITE INVESTIGATION RECORD

BORE HOLE No.	BH-2(Ref:6)		
SHEET	1	OF	1
DIA OF BORE HOLE	150mm ✓ / NX ✓		
BORE START DATE	05/06/2022		
BORE END DATE	05/06/2022		
TOTAL DRILL DAYS	1		

PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(1B+G+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT				
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-01	CHAINAGE (m)	-
STRUCTURE	1B+G+5 Upper Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite		E -

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0		09	30													L1	0.5	Brown,Moist, Clayey Sand
		To		SC	-	-												
		09	47															
1							10	37	40	77	1.00	1	SS	-1.0				Greyish Brown, **Clayey Silty Sand/Residual Soil (SC)** Descent from Hypersthene Granite Rock
		10	00								1.45							
		To		SC	-	-												
		10	04															
2							7 cm Penet. for 50 Blows			>100	2.00	2	SS	-2.0		L2	2.0	
		10	25								2.07							
		To		SC	-	-												
		10	27															
3							5 cm Penet. for 50 Blows			>100	3.00	3	SS	-3.0				
		10	42								3.05							
		To		SC	-	-												
		10	45															
4							4cm Penet. for 50 Blows			>100	4.00	4	SS	-4.0				Greyish Brown, **Completely Weathered Rock**, Descent from Hypersthene Granite Rock
		11	02								4.04							
		To		SC	-	-												
		11	10															
5	05/06/2022						SPT Hammer Rebounded			>100	5.00	5	WS	-5.0				
		13	17															
		To		SC	-	-												
		13	47															
6							SPT Hammer Rebounded			>100	6.00	6	WS	-6.0		L3	6.0	
		14	05															
		To		DB	7	0												Greyish Brown, **Highly Weathered Rock**, Descent from Hypersthene Granite Rock
		14	46															
7							-	-	-	-	7.00	7	CS	-7.0		L4	7.0	
		15	01															
		To		DB	14	0												
		15	35															
8							-	-	-	-	8.00	8	CS	-8.0				
		15	47															
		To		DB	17	0												Greyish Brown, **Moderately Weathered Rock**, Descent from Hypersthene Granite Rock
		16	18															
9							-	-	-	-	9.00	9	CS	-9.0				
		16	32															
		To		DB	21	0												
		17	10															
10							-	-	-	-	10.00	10	CS	-10.0		L5	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	PANDIRAJAN	PROJECT SITE DETAILS		REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	05/06/2022	GROUND LEVEL (m)	0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m)	2.80	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m)	0.00	

Borehole terminated at 10 m depth below E.G.L

FIG.2.2 Sub Soil Profile at BH-2(Ref:6) Location

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SITE INVESTIGATION RECORD

BORE HOLE No.	BH-3(Ref:5)		
SHEET	1	OF	1
DIA OF BORE HOLE	150mm ✓ / NX ✓		
BORE START DATE	07/06/2022		
BORE END DATE	07/06/2022		
TOTAL DRILL DAYS	1		

PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(1B+G+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT				
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-01	CHAINAGE (m)	-
STRUCTURE	1B+G+5 Upper Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite		E -

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
1	07/06/2022	07	53	SC	-	-												
		To																
		07	56				3	6	4	10	1.00	1	SS	-1.0				Grey,Moist,Loose,Poorly Graded, **Clayey Sand(SC)** Sand-Clay mixtures
		08	06								1.45							
		To		SC	-	-												
2		08	08				11	35	50	85	2.00	2	SS	-2.0		L1	2.0	
		08	25								2.45				+ + +			
		To		SC	-	-									+ + +			
		08	27												+ + +			
3		08	44				17	35	40	75	3.00	3	SS	-3.0	+ + +			Greyish Brown,Very Dense, **Clayey Silty Sand/Residual Soil (SC)** Descent from Hypersthene Granite Rock
		To		SC	-	-					3.45				+ + +			
		'08	49												+ +	L2	4.0	
4		09	17				3cm Penet. for 50 Blows			>100	4.00	4	SS	-4.0	+ + +			
		To		SC	-	-					4.03				+ + +			
		09	29												+ + +			Greyish Brown, Very Dense, **Completely Weathered Rock,** Descent from Hypersthene Granite Rock
5		09	42				SPT Hammer Rebounded			>100	5.00	5	WS	-5.0	+ + +			
		To		SC	-	-									+ + +			
		09	58												+ +	L3	6.0	
6		10	13				SPT Hammer Rebounded			>100	6.00	6	WS	-6.0	+ + +			
		To		DB	4	0									+ + +			
		10	32												+ + +			Greyish Brown, **Highly Weathered Rock,** Descent from Hypersthene Granite Rock
7		10	44				-	-	-	-	7.00	7	CS	-7.0	+ + +			
		To		DB	7	0									+ + +			
		11	08												+ + +			
8		11	21				-	-	-	-	8.00	8	CS	-8.0	+ + +	L4	8.0	
		To		DB	13	0									+ + +			
		11	45												+ + +			
9		11	58				-	-	-	-	9.00	9	CS	-9.0	+ + +			Greyish Brown, **Moderately Weathered Rock**, Descent from Hypersthene Granite Rock
		To		DB	11	0									+ + +			
		12	30												+ + +			
10							-	-	-	-	10.00	10	CS	-10.0	+ + +	L5	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	PANDIRAJAN	PROJECT SITE DETAILS		REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	07/06/2022	GROUND LEVEL (m)	0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m)	2.90	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m)	0.00	

Borehole terminated at 10 m depth below E.G.L

FIG.2.3 Sub Soil Profile at BH-3(Ref:5) Location

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SITE INVESTIGATION RECORD

BORE HOLE No.	BH-4(Ref:7)		
SHEET	1	OF	1
PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(1B+G+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT	DIA OF BORE HOLE	150mm ✓ / NX ✓
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-01
CHAINAGE (m)	-	BORE START DATE	07/06/2022
STRUCTURE	1B+G+5 Upper Floors	DRILLING METHOD	Rotary
CO-ORDINATES	N - / E -	BORE END DATE	07/06/2022
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite
		TOTAL DRILL DAYS	1

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	Blows/cm. 15-30	Blows/cm. 30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
1	07/06/2022	14	19	SC	-	-												
		To																
		14	21				11	16	15	31	1.00	1	SS	-1.0				Grey,Moist,Dense,Poorly Graded,**Clayey Sand(SC)** Sand-Clay mixtures
		14	33								1.45							
		To		SC	-	-												
2		14	38				16	38	50	88	2.00	2	SS	-2.0		L1	2.0	
		14	55								2.45				+ + +			Greyish Brown, Very Dense, **Clayey Silty Sand/Residual Soil (SC)** Descent from Hypersthene Granite Rock
		To		SC	-	-									+ + +			
		14	57												+ + +	L2	3.0	
3							11 cm Penet. for 50 Blows			>100	3.00	3	SS	-3.0	+ + +			
		15	11								3.11				+ + +			
		To		SC	-	-									+ + +			
		15	14												+ + +			
4							4cm Penet. for 50 Blows			>100	4.00	4	SS	-4.0	+ + +			
		15	28								4.04				+ + +			Greyish Brown, Very Dense, **Completely Weathered Rock,** Descent from Hypersthene Granite Rock
		To		SC	-	-									+ + +			
		15	38												+ + +			
5							SPT Hammer Rebounded			>100	5.00	5	WS	-5.0	+ + +			
		15	58												+ + +			
		To		SC	-	-									+ + +			
6		16	19				SPT Hammer Rebounded			>100	6.00	6	WS	-6.0	+ + +	L3	6.0	
		16	32												+ + +			
		To		DB	6	0									+ + +			
7		16	48				-	-	-	-	7.00	7	CS	-7.0	+ + +			
		17	04												+ + +			Greyish Brown, **Highly Weathered Rock,** Descent from Hypersthene Granite Rock
		To		DB	7	0									+ + +			
8		17	22				-	-	-	-	8.00	8	CS	-8.0	+ + +			
		17	32												+ + +			
		To		DB	6	0									+ + +			
9		17	50				-	-	-	-	9.00	9	CS	-9.0	+ + +	L4	9.0	
		18	03												+ + +			
		To		DB	13	0									+ + +			Greyish Brown, **Moderately Weathered Rock**, Descent from Hypersthene Granite Rock
10		18	32				-	-	-	-	10.00	10	CS	-10.0	+ + +	L5	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	PANDIRAJAN	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	07/06/2022	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m) 2.70	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m) 0.00	

Borehole terminated at 10 m depth below E.G.L

FIG.2.4 Sub Soil Profile at BH-4(Ref:7) Location

For VASA GRANDE GRACE PRIVATE LIMITED

Authorised Signatory

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-5(Ref:8)		
SHEET	1	OF	1
DIA OF BORE HOLE	150mm ✓ / NX ✓		
BORE START DATE	08/06/2022		
BORE END DATE	08/06/2022		
TOTAL DRILL DAYS	1		

PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(1B+G+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT						
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-01	CHAINAGE (m)	-		
STRUCTURE	1B+G+5 Upper Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N	-	
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite		E	-	

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
		09	43															
		To		SC	-	-										L1	0.5	Brown,Moist, Clayey Sand
		09	48															
1							7	9	7	16	1.00	1	SS	-1.0				
		10	08								1.45							Greyish Brown, Medium Dense, **Clayey Silty Sand/Residual Soil (SC)** Descent from Hypersthene Granite Rock
		To		SC	-	-												
		10	10															
2							12cm Penet. for 50 Blows			>100	2.00	2	SS	-2.0		L2	2.0	
		10	28								2.12							
		To		SC	-	-												
		10	37															
3							4cm Penet. for 50 Blows			>100	3.00	3	SS	-3.0				
		10	55								3.04							Greyish Brown, Very Dense, **Completely Weathered Rock**, Descent from Hypersthene Granite Rock
		To		SC	-	-												
		11	12															
4							SPT Hammer Rebounded			>100	4.00	4	WS	-4.0				
		11	25															
		To		SC	-	-												
		11	40															
5	08/06/2022						SPT Hammer Rebounded			>100	5.00	5	WS	-5.0		L3	5.0	
		11	52															
		To		DB	5	0												
6		12	15				-	-	-	-	6.00	6	CS	-6.0				
		12	28															Greyish Brown, **Highly Weathered Rock**, Descent from Hypersthene Granite Rock
		To		DB	5	0												
7		12	45				-	-	-	-	7.00	7	CS	-7.0				
		12	57															
		To		DB	8	0												
8		13	27				-	-	-	-	8.00	8	CS	-8.0		L4	8.0	
		14	25															
		To		DB	17	0												
		15	06															
9							-	-	-	-	9.00	9	CS	-9.0				Greyish Brown, **Moderately Weathered Rock**, Descent from Hypersthene Granite Rock
		15	23															
		To		DB	22	0												
10		16	07				-	-	-	-	10.00	10	CS	-10.0		L5	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	PANDIRAJAN	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	08/06/2022	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m) 2.50	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m) 0.00	

Borehole terminated at 10 m depth below E.G.L

FIG.2.5 Sub Soil Profile at BH-5(Ref:8) Location

For CASA GRANDE GRACE PRIVATE LIMITED

Authorised Signatory

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-6(Ref:11)		
SHEET	1	OF	1
PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(STILT+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT	DIA OF BORE HOLE	150mm ✓ / NX ✓
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-02
CHAINAGE (m)	-	BORE START DATE	08/06/2022
STRUCTURE	Stilt+5 Upper Floors	DRILLING METHOD	Rotary
CO-ORDINATES	N -	BORE END DATE	08/06/2022
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite
CO-ORDINATES	E -	TOTAL DRILL DAYS	1

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	SPT Details: Blows/cm. 15-30	SPT Details: Blows/cm. 30-45	SPT 'N' Value	Sample Details: Depth	Sample Details: No.	Sample Details: Type	Sample Details: RL (m)	Layer Data: Legend	Layer Data: No	Layer Data: Depth	Geotechnical Description
0	08/06/2022	14	00															
		To																
		14	02	SC	-	-												
1		14	10				6	5	9	14	1.00	1	SS	-1.0				Grey,Moist,Medium Dense,Poorly Graded,**Clayey Sand(SC)** Sand-Clay mixtures
		To		SC	-	-					1.45							
		14	13															
2		14	23				16	13cm Penet. for 50 Blows		>100	2.00 / 2.28	2	SS	-2.0		L1	2.0	
		To		SC	-	-									+ + +			Greyish Brown, Very Dense, **Completely Weathered Rock**, Descent from Hypersthene Granite Rock
		14	26												+ + +			
3		14	39				30	3cm Penet. for 50 Blows		>100	3.00 / 3.18	3	SS	-3.0	+ + +			
		To		SC	-	-									+ + +	L2	3.5	
		14	43												+ + +			
4		15	00				SPT Hammer Rebounded			>100	4.00	4	WS	-4.0	+ + +			Greyish Brown, **Highly Weathered Rock**, Descent from Hypersthene Granite Rock
		To		DB	10	0									+ + +			
		15	26												+ + +			
5							-	-	-	-	5.00	5	CS	-5.0	+ + +	L3	5.0	
		15	37												+ + +			
		To		DB	20	0									+ + +			
6		16	10												+ + +			
							-	-	-	-	6.50	6	CS	-6.5	+ + +			
7		16	25												+ + +			
		To		DB	23	0									+ + +			
		17	00												+ + +			Greyish Brown, **Moderately Weathered Rock**, Descent from Hypersthene Granite Rock
8							-	-	-	-	8.00	7	CS	-8.0	+ + +			
		17	12												+ + +			
		To		DB	30	0									+ + +			
		17	40												+ + +			
9							-	-	-	-	9.00	8	CS	-9.0	+ + +			
		17	50												+ + +			
		To		DB	31	15									+ + +			
		18	28												+ + +			
10							-	-	-	-	10.00	9	CS	-10.0	+ + +	L4	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	VINOD PRADAP	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	08/06/2022	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m) 2.20	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m) 0.00	

Borehole terminated at 10 m depth below E.G.L

FIG.2.6 Sub Soil Profile at BH-6(Ref:11) Location

PRASANNA HONDE GRACE PRIVATE LIMITED

Authorised Signatory

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-7(Ref:12)		
SHEET	1	OF	1
PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(STILT+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT	DIA OF BORE HOLE	150mm ✓ / NX ✓
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-02
CHAINAGE (m)	-	BORE START DATE	09/06/2022
STRUCTURE	Stilt+5 Upper Floors	DRILLING METHOD	Rotary
CO-ORDINATES	N -	BORE END DATE	09/06/2022
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite
CO-ORDINATES	E -	TOTAL DRILL DAYS	1

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0	09/06/2022	07	00 To 07	03 SC	-	-										L1	0.5	Brown,Moist, Clayey Sand
1		07	03 To 07	11 SC	-	-	8	23	35	58	1.00 ↓ 1.45	1	SS	-1.0	+ + +			Greyish, Moist, Very Dense, **Clayey Silty Sand/Residual Soil (SC)** Descent from Hypersthene Granite Rock
2		07	11 To 07	13 SC	-	-	13	47	55	102	2.00 ↓ 2.45	2	SS	-2.0	+ + +	L2	2.0	
3		07	28 To 07	30 SC	-	-	42	8cm Penet. for 50 Blows		>100	3.00 ↓ 3.23	3	SS	-3.0	+ + +			Greyish Brown, Very Dense, **Completely Weathered Rock,** Descent from Hypersthene Granite Rock
4		07	50 To 07	53 SC	-	-		4cm Penet. for 50 Blows		>100	4.00 ↓ 4.04	4	SS	-4.0	+ + +			
5		08	06 To 08	10 SC	-	-		SPT Hammer Rebounded		>100	5.00 ↓	5	WS	-5.0	+ + +	L3	5.0	
6		09	10 To 09	33 DB	10	0									+ + +	L4	6.5	Greyish Brown, **Highly Weathered Rock,** Descent from Hypersthene Granite Rock
7		09	46 To 10	15 DB	15	0	-	-	-	-	6.50 ↓	6	CS	-6.5	+ + +			
8		10	33 To 11	02 DB	27	8	-	-	-	-	8.00 ↓	7	CS	-8.0	+ + +			Greyish Brown, **Moderately Weathered Rock,** Descent from Hypersthene Granite Rock
9		11	21 To 12	06 DB	35	10	-	-	-	-	9.00 ↓	8	CS	-9.0	+ + +			
10							-	-	-	-	10.00	9	CS	-10.0	+ + +	L5	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	VINOD PRADAP	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	09/06/2022	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m) 2.10	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m) 0.00	

Borehole terminated at 10 m depth below E.G.L

FIG.2.7 Sub Soil Profile at BH-7(Ref:12) Location

For GEO GRACE PRIVATE LIMITED

Authorised Signatory

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-8(Ref:4)		
SHEET	1	OF	1
DIA OF BORE HOLE	150mm ✓ / NX ✓		
BORE START DATE	09/06/2022		
BORE END DATE	09/06/2022		
TOTAL DRILL DAYS	1		

PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(1B+G+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT				
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-01	CHAINAGE (m)	-
STRUCTURE	1B+G+5 Upper Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite		E -

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
		10	36															
		To		SC	-	-										L1	0.5	Brown,Moist, Clayey Sand
		10	37															
1							3	7	17	24	1.00	1	SS	-1.0				
		10	49								1.45							Brownish White,Medium Dense, **Clayey Silty Sand/Residual Soil (SC)** Descent from Hypersthene Granite Rock
		To		SC	-	-												
		10	51															
2							39	6cm Penet. for 50 Blows		>100	2.00	2	SS	-2.0		L2	2.0	
		11	07								2.21							
		To		SC	-	-												
		11	12															
3							4cm Penet. for 50 Blows			>100	3.00	3	SS	-3.0				
											3.04							Greyish Brown, Very Dense, **Completely Weathered Rock,** Descent from Hypersthene Granite Rock
		11	33															
		To		SC	-	-												
		11	35															
4							SPT Hammer Rebounded			>100	4.00	4	WS	-4.0				
		11	48															
		To		SC	-	-												
		11	55															
5	09/06/2022						SPT Hammer Rebounded			>100	5.00	5	WS	-5.0		L3	5.0	
		12	19															
		To		DB	6	0												
		13	05															
6																		
							-	-	-	-	6.50	6	CS	-6.5				Greyish Brown, **Highly Weathered Rock,** Descent from Hypersthene Granite Rock
7																		
		14	00															
		To		DB	10	0												
		14	32															
8							-	-	-	-	8.00	7	CS	-8.0		L4	8.0	
		14	50															
		To		DB	18	0												
		15	22															
9							-	-	-	-	9.00	8	CS	-9.0				Greyish Brown, **Moderately Weathered Rock**, Descent from Hypersthene Granite Rock
		15	33															
		To		DB	23	0												
		16	17															
10							-	-	-	-	10.00	9	CS	-10.0		L5	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	PANDIRAJAN	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	09/06/2022	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m) 2.90	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m) 0.00	

Borehole terminated at 10 m depth below E.G.L

FIG.2.8 Sub Soil Profile at BH-8(Ref:4) Location

For GEO GRANDE GRACE PRIVATE LIMITED

Authorised Signatory

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-8(Ref:14)		
SHEET	1	OF	1
DIA OF BORE HOLE	150mm ✓ / NX ✓		
BORE START DATE	09/06/2022		
BORE END DATE	09/06/2022		
TOTAL DRILL DAYS	1		

PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(STILT+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT				
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-02	CHAINAGE (m)	-
STRUCTURE	Stilt+5 Upper Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite		E -

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	Blows/cm. 15-30	Blows/cm. 30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
		15	00															
		To		SC	-	-										L1	0.5	Brown,Moist, Clayey Sand
		15	02															
1		15	10				3	5	8	13	1.00	1	SS	-1.0				
		To		SC	-	-					1.45							Greyish Brown, Moist, Very Dense, **Clayey Silty Sand (SC)** Sand -Silt Mixture
		15	13															
2		15	27				25	30	62	92	2.00	2	SS	-2.0		L2	2.0	
		To		SC	-	-					2.45							
		15	29															
3		15	40				13cm Penet. for 50 Blows			>100	3.00	3	SS	-3.0				
		To		SC	-	-					3.13							Greyish Brown, Very Dense, **Completely Weathered Rock,** Descent from Hypersthene Granite Rock
		15	43															
4		15	55				5cm Penet. for 50 Blows			>100	4.00	4	SS	-4.0				
		To		SC	-	-					4.05							
		15	57															
5	09/06/2022						SPT Hammer Rebounded			>100	5.00	5	WS	-5.0		L3	5.0	
		16	10															
		To		DB	9	0												Greyish Brown, **Highly Weathered Rock,** Descent from Hypersthene Granite Rock
6		16	33															
							-	-	-	-	6.50	6	CS	-6.5		L4	6.5	
7		16	45															
		To		DB	19	0												
		17	10															
8							-	-	-	-	8.00	7	CS	-8.0				
		17	22															
		To		DB	23	0												Greyish Brown, **Moderately Weathered Rock,** Descent from Hypersthene Granite Rock
		17	44															
9							-	-	-	-	9.00	8	CS	-9.0				
		17	55															
		To		DB	27	0												
		18	30															
10							-	-	-	-	10.00	9	CS	-10.0		L5	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	VINOD PRADAP	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	09/06/2022	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m) 1.80	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m) 0.00	

Borehole terminated at 10 m depth below E.G.L

FIG.2.9 Sub Soil Profile at BH-8(Ref:14) Location

For CASA GRANDE GRACE PRIVATE LIMITED

Authorised Signatory

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-10(Ref:3)		
SHEET	1	OF	1
DIA OF BORE HOLE	150mm ✓	NX ✓	

PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(1B+G+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT					BORE START DATE	10/06/2022
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-01	CHAINAGE (m)	-	BORE END DATE	10/06/2022
STRUCTURE	1B+G+5 Upper Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	TOTAL DRILL DAYS	1
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite		E -		

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
		08	05															
		To		SC	-	-										L1	0.5	Brown,Moist, Clayey Sand
		08	08															
1							4cm Penet. for 50 Blows			>100	1.00 ↓ 1.04	1	SS	-1.0				
		08	15															
		To		SC	-	-												Brown,Very Dense, **Clayey Silty Sand/Residual Soil (SC)** Descent from Hypersthene Granite Rock
		08	19															
2							10cm Penet. for 50 Blows			>100	2.00 ↓ 2.10	2	SS	-2.0				
		8	31															
		To		SC	-	-										L2	2.5	
		08	55															
3							5cm Penet. for 50 Blows			>100	3.00 ↓ 3.05	3	SS	-3.0				
		09	42															
		To		SC	-	-												Greyish Brown,Very Dense, **Completely Weathered Rock**, Descent from Hypersthene Granite Rock
		10	23															
4							SPT Hammer Rebounded			>100	4.00	4	WS	-4.0				
		10	45								↓							
		To		DB	6	0										L3	4.0	
		11	15															
5	10/06/2022						-	-	-	-	5.00	5	CS	-5.0				Greyish Brown, **Highly Weathered Rock**, Descent from Hypersthene Granite Rock
		11	30								↓							
		To		DB	8	0												
6		12	10															
							-	-	-	-	6.50	6	CS	-6.5		L4	6.5	
7											↓							
		12	22															
		To		DB	14	0												
		13	10															
8							-	-	-	-	8.00	7	CS	-8.0				
		13	32								↓							
		To		DB	15	0												Greyish Brown, **Moderately Weathered Rock**, Descent from Hypersthene Granite Rock
		14	05															
9							-	-	-	-	9.00	8	CS	-9.0				
		14	25								↓							
		To		DB	21	0												
		14	59															
10							-	-	-	-	10.00	9	CS	-10.0		L5	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	PANDIRAJAN	PROJECT SITE DETAILS		REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	10/06/2022	GROUND LEVEL (m)	0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m)	3.30	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m)	0.00	

Borehole terminated at 10 m depth below E.G.L

FIG.2.10 Sub Soil Profile at BH-10(Ref:3) Location

For GEOTECHNIDE GRACE PRIVATE LIMITED

Authorised Signatory

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-11(Ref:16)						
SHEET	1	OF	1				
PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(STILT+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT			DIA OF BORE HOLE	150mm	✓	
					NX	✓	
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-02	CHAINAGE (m)	-	BORE START DATE	10/06/2022
STRUCTURE	Stilt+5 Upper Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	10/06/2022
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	1

Depth below E.G.L. (m)	Date	Drilling progress per metre: Time Hr.	Time Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	Blows/cm. 15-30	Blows/cm. 30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0	10/06/2022	10	00															
		To		SC	-	-												
		10	02															
1		10	08				3	4	6	10	1.00	1	SS	-1.0				
		To		SC	-	-					1.45							Greyish Brown, Moist, Loose to Medium Dense, **Clayey Silty Sand (SC)** Sand -Silt Mixture
		10	10															
2		10	17				6	12	14	26	2.00	2	SS	-2.0				
		To		SC	-	-					2.45							
		10	19															
3		10	28				10	14	20	34	3.00	3	SS	-3.0		L1	3.0	
		To		SC	-	-					3.45				+ + + + + + + + +			Brown, Dense, **Clayey Silty Sand/Residual Soil (SC)** Descent from Hypersthene Granite Rock
		10	29															
4		10	40				31	8cm Penet. for 50 Blows		>100	4.00	4	SS	-4.0		L2	4.0	
		To		SC	-	-					4.23							
		10	43															
5							SPT Hammer Rebounded			>100	5.00	5	WS	-5.0				Greyish Brown, Very Dense, **Completely Weathered Rock**, Descent from Hypersthene Granite Rock
		10	55															
		To		SC	-	-												
6		10	58															
							SPT Hammer Rebounded			>100	6.50	6	WS	-6.5		L3	6.5	
7		11	08															
		To		DB	3	0												Greyish Brown, **Highly Weathered Rock**, Descent from Hypersthene Granite Rock
		11	20															
8		11	32				-	-	-	-	8.00	7	CS	-8.0		L4	8.0	
		To		DB	11	0												
		11	50															
9		12	05				-	-	-	-	9.00	8	CS	-9.0				Greyish Brown, **Moderately Weathered Rock**, Descent from Hypersthene Granite Rock
		To		DB	21	0												
		12	30															
10							-	-	-	-	10.00	9	CS	-10.0		L5	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	VINOD PRADAP	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	10/06/2022	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m) 2.40	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m) 0.00	

Borehole terminated at 10 m depth below E.G.L

FIG.2.11 Sub Soil Profile at BH-11(Ref:16) Location

For GEOTECHSANDE GRACE PRIVATE LIMITED

Authorised Signatory

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-12(Ref:2)						
SHEET	1	OF	1				
PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(1B+G+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT			DIA OF BORE HOLE	150mm	✓	
					NX	✓	
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-01	CHAINAGE (m)	-	BORE START DATE	10/06/2022
STRUCTURE	1B+G+5 Upper Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	11/06/2022
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	2

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0	10/06/2022	15	23															
		To		SC	-	-										L1	0.5	Brown,Moist, Clayey Sand
		15	24															
1							6	26	63	89	1.00	1	SS	-1.0				
		15	42								1.45							Greyish,Very Dense, **Clayey Silty Sand/Residual Soil (SC)** Descent from Hypersthene Granite Rock
		To		SC	-	-												
		15	54															
2							8cm Penet. for 50 Blows			>100	2.00	2	SS	-2.0		L2	2.0	
		16	12								2.08							
		To		SC	-	-												
		16	21															
3							4cm Penet. for 50 Blows			>100	3.00	3	SS	-3.0				Greyish Brown,Very Dense, **Completely Weathered Rock,** Descent from Hypersthene Granite Rock
		16	47								3.04							
		To		SC	-	-												
		17	15															
4							SPT Hammer Rebounded			>100	4.00	4	WS	-4.0		L3	4.0	
		07	10															
		To		DB	9	0												Greyish Brown, **Highly Weathered Rock,** Descent from Hypersthene Granite Rock
		07	47													L4	5.0	
5							-	-	-	-	5.00	5	CS	-5.0				
		08	12															
		To		DB	20	0												
6		09	01															
							-	-	-	-	6.50	6	CS	-6.5				
7	11/06/2022	09	32															
		To		DB	22	0												
		09	58															Greyish Brown, **Moderately Weathered Rock,** Descent from Hypersthene Granite Rock
8							-	-	-	-	8.00	7	CS	-8.0				
		10	16															
		To		DB	17	0												
		11	02															
9							-	-	-	-	9.00	8	CS	-9.0				
		11	35															
		To		DB	34	10												
		12	22															
10							-	-	-	-	10.00	9	CS	-10.0		L5	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	PANDIRAJAN	PROJECT SITE DETAILS		REMARKS	
SS - Split Spoon Sample	SC - Soil Cutter	DATE	11/06/2022	GROUND LEVEL (m)	0.00		
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m)	3.50		
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m)	0.00		

Borehole terminated at 10 m depth below E.G.L

FIG.2.12 Sub Soil Profile at BH-12(Ref:2) Location

For CASA GRANDE GRACE PRIVATE LIMITED

Authorised Signatory

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-13(Ref:13)		
SHEET	1	OF	1
DIA OF BORE HOLE	150mm ✓ / NX ✓		
BORE START DATE	10/06/2022		
BORE END DATE	11/06/2022		
TOTAL DRILL DAYS	1		

PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(STILT+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT						
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-02	CHAINAGE (m)	-		
STRUCTURE	Stilt+5 Upper Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N	-	
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite		E	-	

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	Blows/cm. 15-30	Blows/cm. 30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
1	10/06/2022	15	30	SC	-	-	8	10	13	23	1.00	1	SS	-1.0				Greyish Brown, Moist, Loose to Medium Dense, **Clayey Silty Sand (SC)** Sand -Silt Mixture
		To									1.45							
		15	32															
		15	40	SC	-	-												
2		To					31	45	64	109	2.00	2	SS	-2.0		L1	2.0	
		15	42															
		15	55								2.45							
		To		SC	-	-												
3		15	57				13cm Penet. for 50 Blows			>100	3.00	3	SS	-3.0				
		16	10								3.13							
		To		SC	-	-												
4		16	14				10cm Penet. for 50 Blows			>100	4.00	4	SS	-4.0				Greyish Brown, Very Dense, **Completely Weathered Rock**, Descent from Hypersthene Granite Rock
		16	25								4.10							
		To		SC	-	-												
5		16	27				5cm Penet. for 50 Blows			>100	5.00	5	WS	-5.0				
		16	37								5.05							
		To		SC	-	-												
6		16	39				SPT Hammer Rebounded			>100	6.50	6	WS	-6.5		L2	6.5	
7		16	55															
		To		DB	19	0												
8		17	20				-	-	-	-	8.00	7	CS	-8.0				
		17	30															Greyish Brown, **Moderately Weathered Rock**, Descent from Hypersthene Granite Rock
		To		DB	21	0												
9		17	56				-	-	-	-	9.00	8	CS	-9.0				
	11/6/2022	06	30															
		To		DB	29	10												
10		07	00				-	-	-	-	10.00	9	CS	-10.0		L3	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	VINOD PRADAP	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	11/6/2022	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m) 1.90	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m) 0.00	

Borehole terminated at 10 m depth below E.G.L

FIG.2.13 Sub Soil Profile at BH-13(Ref:13) Location

FOR GEO GRANDE GRACE PRIVATE LIMITED

Authorised Signatory

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-14(Ref:1)		
SHEET	1	OF	1
DIA OF BORE HOLE	150mm ✓ / NX ✓		
BORE START DATE	11/06/2022		
BORE END DATE	12/06/2022		
TOTAL DRILL DAYS	2		

PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(1B+G+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT				
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-01	CHAINAGE (m)	-
STRUCTURE	1B+G+5 Upper Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite		E -

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	Blows/cm. 15-30	Blows/cm. 30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
	11/06/2022	14	58															
		To		SC	-	-										L1	0.5	Brown,Moist, Clayey Sand
		15	01															
1		15	12				27	35	38	73	1.00	1	SS	-1.0				
		To		SC	-	-					1.45							Greyish,Very Dense, **Clayey Silty Sand/Residual Soil (SC)** Descent from Hypersthene Granite Rock
		15	13															
2		15	29				8	11	14	25	2.00	2	SS	-2.0		L2	2.0	
		To		SC	-	-					2.45							Greyish,Medium Dense, **Clayey Silty Sand/Residual Soil (SC)** Descent from Hypersthene Granite Rock
		15	30															
3		15	47				11	20	26	46	3.00	3	SS	-3.0		L3	3.0	
		To		SC	-	-					3.45							Greyish,Very Dense, **Clayey Silty Sand/Residual Soil (SC)** Descent from Hypersthene Granite Rock
		15	52															
4		16	15				18	26	13	39	4.00	4	SS	-4.0				
		To		SC	-	-					4.45					L4	4.5	
		16	18															
5							5cm Penet. for 50 Blows			>100	5.00	5	SS	-5.0				
		16	37								5.05							Greyish Brown,Very Dense, **Completely Weathered Rock,** Descent from Hypersthene Granite Rock
		To		SC	-	-												
6		16	45															
		17	05				7cm Penet. for 50 Blows			>100	6.50	6	SS	-6.5				
		To		SC	-	-					6.57							
7		17	10				SPT Hammer Rebounded			>100	7.00	7	WS	-7.0		L5	7.0	
	12/06/2022	06	30															
		To		SC	5	0												
8		07	21				-	-	-	-	8.00	8	CS	-8.0				Greyish Brown, **Highly Weathered Rock,** Descent from Hypersthene Granite Rock
		07	38															
		To		DB	8	0										L6	9.0	
9		08	11				-	-	-	-	9.00	9	CS	-9.0				
		08	23															
		To		DB	12	0												
10		08	51				-	-	-	-	10.00	10	CS	-10.0				Greyish Brown, **Moderately Weathered Rock**, Descent from Hypersthene Granite Rock

CS - Core Sample	DS - Disturbed Sample	LOGGED	PANDIRAJAN	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	12/06/2022	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m) 3.70	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m) 0.00	

For CASA GRANDE GRACE PRIVATE LIMITED

Authorised Signatory

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-14(Ref:1)		
SHEET	2	OF	2
DIA OF BORE HOLE	150mm ✓		
	NX ✓		
BORE START DATE	11/06/2022		
BORE END DATE	12/06/2022		
TOTAL DRILL DAYS	2		

PROJECT NAME	PROPOSED CONSTRUCTION OF RESIDENTIAL BUILDING(1B+G+5 UPPER FLOORS) AT KALAVAKKAM, CHENNGALPET DISTRICT						
LOCATION	Kalavakkam, Chengalpet District	MACHINE No.	CR-01	CHAINAGE (m)	-		
STRUCTURE	1B+G+5 Upper Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N	-	
JOB CODE	GEC-JC-GT-4017	FLUSHING MEDIUM	Bentonite		E	-	

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	SPT Details: Blows/cm. 15-30	SPT Details: Blows/cm. 30-45	SPT 'N' Value	Sample Details: Depth	Sample Details: No.	Sample Details: Type	Sample Details: RL (m)	Layer Data: Legend	Layer Data: No	Layer Data: Depth	Geotechnical Description
11	12/06/2022	09	07	DB	22	0	-	-	-	-	11.00	11	CS	-11.0	+ +			Greyish Brown, **Moderately Weathered Rock**, Descent from Granite Rock
		To																
		09	29															
		09	46	DB	25	0												
		To																
12		10	25				-	-	-	-	12.00	12	CS	-12.0		L7	12.0	
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		

CS - Core Sample	DS - Disturbed Sample	LOGGED	PANDIRAJAN	PROJECT SITE DETAILS		REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	12/06/2022	GROUND LEVEL (m)	0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	JALEEL YASIN	WATER TABLE (m)	3.70	
WS - Wash Sample	DB - Diamond Bit	DATE	22/06/2022	CASING DEPTH (m)	0.00	

Borehole terminated at 12 m depth below E.G.L

FIG.2.14 Sub Soil Profile at BH-14(Ref:1) Location

For CASA GRANDE GRACE PRIVATE LIMITED

Authorised Signatory

our services doesn't just end there

Buying & Selling Services

Property Buying Assistance, Property Selling Support, Market Price Analysis, Owner Outreach and Negotiation.

Legal & Documentation Services

Certified EC, Patta, legal opinions, property verification, due diligence, litigation solutions, and legal heir certificates.

Property Development & Approvals

Building plan approvals, construction, layout and sub-division approvals, zone conversion, and occupancy certification.

NRI & Investment Services

Escrow Services, Rentals, Litigation Solutions, Property Valuation and Property Management

Compliance & Special Services

Demolition, Vaasthu checks, regularization of unauthorized buildings, and office space solutions.

empowering your real estate decisions with smart tools

Property Valuation & Cost Estimation

Guideline Value, Apartment Composite Value, Stamp Duty & Registration Fees Calculator, Building Value Calculator, Capital Gains Calculator, Area Unit Converter, Length Unit Converter

Ownership, Compliance & Legal Verification

Encumbrance Certificate (EC) Search, Find Your SRO, Temple Property Check, WAQF Property Check, View Patta/Chitta, View FMB, Patta Analyzer, EC Analyzer

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

Forms & Templates, Document Generator, Document Translation, Dictionary

Vastu & Property Management Tools

Home Vastu Shastra, Plot Vastu Shastra, Property Management

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