M/s LODHA DWELLERS PVT LTD

MUMBAI

GEOTECHNICAL INVESTIGATION REPORT

FOR

PROPOSED PROJECT 'PALAVA-II'

AT

KHONI, DOMBIVLI

JULY 2012

1236-2012-028

BY

SUB SURFACE CONSULTANTS

THANE (W) - 400 602

FOR

Ochre Drillers India Private Limited

Invest in Investigation

A-1, VIJAY APARTMENTS,
NEAR ARADHANA CINEMA,
L B S MARG, PACHPAKHADI,
THANE (W) - 400 602
022 2537 1020, ochre125@gmail.com

M/s LODHA DWELLERS PVT LTD

MUMBAI

GEOTECHNICAL INVESTIGATION REPORT

FOR

PROPOSED PROJECT 'PALAVA II'

AT

VILLAGE KHONI, DOMBIVLI

1236-2012-028

BY

SUB SURFACE CONSULTANTS

THANE (W) - 400 602

Tel : 022 2538 1168

FOR

OCHRE DRILLERS INDIA PVT LTD

THANE (W) - 400 602

Tel : 022 2537 1020

JULY 2012

M/s LODHA DWELLERS PVT LTD

GEOTECHNICAL INVESTIGATION REPORT

FOR

PROPOSED PROJECT 'PALAVA II'

AT

VILLAGE KHONI, DOMBIVLI

1236-2012-028

CONTENTS

	TABLE OF CONTENT	Page 01
1.0	GENERAL	Page 02
2.0	SCOPE OF INVESTIGATION	Page 03
3.0	METHODOLOGY	Page 04
4.0	FINDINGS OF INVESTIGATION	Page 08
5.0	GEOTECHNICAL ASSESSMENT	Page 12

ENCLOSURES

A)	LOCATION PLAN OF BOREHOLES	Page A1
B)	BOREHOLE LOGS	Page B1-B8
C)	CORE LOGS	Page C1-C30
D)	LABORATORY TEST RESULTS	Page D1-D6
F)	SBC CALCULATIONS	Page E1-E3

GEOTECHNICAL INVESTIGATION REPORT

FOR

PROPOSED PROJECT 'PALAVA II'

AT

VILLAGE KHONI, DOMBIVLI

1236-2012-028

1.0 GENERAL

1.1 **M/s Lodha Dwellers Pvt Ltd**, Mumbai have proposed **Palava II** project at village Khoni, Dombivli. Proposed site is located on plot bearing survey Nos 37(5A), 57(2), 53(4C), 62(C), 68, 154(2C), 60(2), 58(8B) at village Khoni, Anterli & Hedutane, Dombivli. Proposed buildings will be RCC framed structure having ground plus up to seven upper floors.

1.2 Client decided to carry out geotechnical investigation work to determine ground water level and to assess ground water recharge potential and appropriate foundation system for infrastructure in proposed project. **M/s Ochre Drillers India Pvt Ltd**, Thane was entrusted with work of geotechnical investigation.

1.3 Geotechnical investigation consisted of eight boreholes. **M/s Ochre Drillers India Pvt Ltd** carried out fieldwork of eight boreholes from June 05 to July 10, 2012. Selected soil, rock and water samples were tested in laboratory. Laboratory test results of boreholes were received on July 17, 2012.

1.4 This report has been prepared by the undersigned for **M/s Ochre Drillers India Pvt Ltd**. Report covers data collected in fieldwork of eight investigation boreholes and analysis of laboratory test results. Report is limited to defining design parameters and specifying safe bearing capacity. It does not involve any specialist design for any subsurface component or visits by the undersigned to confirm any of the design parameters.

2.0 SCOPE OF INVESTIGATION

2.1 Scope of geotechnical investigation work for proposed infrastructure in **Palava II** project consisted of eight boreholes. Each Borehole was to be drilled through overburden & minimum 5.00 m in bed rock. Depth of each borehole was about 15.00 m from existing ground level. Objective of investigation is to find out the subsoil stratification in project area and collect data for deciding design parameters of foundation.

2.2 To meet above objectives, following items were included in the scope of work:

I) Conduct standard penetration tests in-situ to obtain shear strength parameters of soil at interval of 1.00 to 1.50 metres & collect disturbed soil samples in SPT split spoon.

II) Collect undisturbed soil samples from cohesive soil stratum to determine the engineering properties such as shear strength and compressibility.

III) Determine ground water level in each borehole. It was also required to collect ground water sample from each borehole for chemical analysis.

IV) Collect and transport selected samples in soil & rock testing laboratory and conduct relevant tests to determine engineering properties of different subsoil strata.

V) Prepare a geotechnical investigation report based on the data collected from field and the results of the laboratory tests.

2.3 Fieldwork is summarised in the following table.

TABLE: SUMMARY OF BOREHOLES

Bore Hole No	Reduce Level (m)	Rock Depth (m)	Termination Depth (m)	Ground Water Depth (m)
BH 1	108.265	1.00	15.39	5.50
BH 2	108.630	0.50	15.02	6.00
BH 3	113.770	0.30	15.03	5.38
BH 4	113.700	0.00	14.70	6.46
BH 5	117.310	0.40	14.98	6.50
BH 6	123.000	1.00	15.10	4.50
BH 7	110.759	0.40	15.14	5.25
BH 8	---	4.00	10.18	4.00

3.0 METHODOLOGY

OBJECTIVE

3.1 Geotechnical investigation was planned to obtain subsoil stratification in proposed project area and collect soil, rock and ground water samples for laboratory testing to determine engineering properties such as shear strength, compressibility, along with basic soil classification of subsurface stratum.

3.2 Locations of boreholes were selected in consultation with client. Data and results obtained from this investigation will be used in design of foundation of proposed project.

FIELD INVESTIGATION

3.3 For geotechnical investigation work, standard rotary type drilling rig was used. This rig is coupled with diesel engine and has tripod and all drilling accessories. Drilling rig deployed is suitable for and has arrangement for driving as well as extracting casing, boring drilling by mud circulation method, conducting Standard Penetration Test (SPT) collection of Undisturbed Soil Sample (UDS) and Disturbed or wash Soil Sample (DS).

3.4 Drilling rig was installed at each specified borehole location. Rig was stabilised by making level ground. Initially casing of adequate diameter to suit boring of 100 mm hole was lowered and boring was commenced.

3.5 Sampling in each borehole was carried out generally as per the guidelines given in the IS code. Undisturbed soil samples were to be collected and SPTs were conducted at regular intervals. Undisturbed soil samples were not collected as cohesive stratum is stiff in consistency.

3.6 Standard Penetration Tests (SPT) were conducted in boreholes to obtain SPT ‘N’ values i.e. no. of blows of 63.5 kg hammer falling through 75 cm, required to penetrate 30 cm of SPT split spoon. This test was conducted as per IS-2131. SPT ‘N’ values are correlated with the relative density of non-cohesive soils and consistency of saturated cohesive soils. This test also collected samples in the split spoon assembly, which are treated as disturbed samples.,SPTs were taken @ 1.00 m to 1.50 m interval.

3.7 SPT ‘N’ values are co-related with relative density of non-cohesive stratum and with consistency of cohesive stratum. Co-relations are tabulated below.

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	Above 50 Blows

CO-RELATION FOR SATURATED CLAY/PLASTIC SILT

Consistency	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	Above 32 Blows

3.8 When rock was encountered, size of borehole was changed to Nx (76 mm) diameter. A core barrel and Nx sized bits are used for drilling and recovering rock cores. Recovered rock cores were numbered serially and preserved in good quality sturdy wooden core boxes. Rock core recovery and Rock Quality Designation (RQD) were computed for every run length drilled. Rock samples have been selected based on the probable founding elevation of the proposed structure.

3.9 Rock classification in terms of weathering and state of fractures and strength is carried out in the following manner. Tabulations given in below explain it briefly.

SCALE OF WEATHERING GRADES OF ROCK MASS

Terms	Description	Grade	Interpretation
Fresh	No visible sign of rock material weathering; perhaps slight discoloration on major discontinuity surfaces.	**I**	**CR > 90 %**
Slightly Weathered	Discoloration indicates weathering of rock material and discontinuity surfaces. All the rock material may be discoloured by weathering.	**II**	**CR between 70 % to 90 %**
Moderately Weathered	Less than half of the rock material is decomposed or disintegrated to a soil. Fresh or discolored rock is present either as a continuous framework or as corestones.	**III**	**CR between 51 % to 70 %**
Highly Weathered	More than half of the rock material is decomposed or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones	**IV**	**CR between 11 % to 50 %**
Completely Weathered	All rock material is decomposed and / or disintegrated to soil. The original mass structure is still largely intact.	**V**	**CR between zero to 10 %**
Residual Soil	All rock material is converted to soil. The mass structure and material fabric are destroyed. There is a large change in volume, but the soil has not been significantly transported.	**VI**	**CR = Zero % But N > 50**

As per IS 4464

3.10 It should be understood that all grades of weathering may not be seen in a given rock mass and that in some cases a particular grade may be present to a very small extent. Distribution of the various weathering grades of rock material in the rock mass may be related to the porosity of the rock material and the presence of open discontinuities of all types in the rock mass.

3.11 **'Interpretation'** in above table has been done by Author of this report based on his understanding of above table & experience and is **NOT** a part of original table and observation of entire of rock mass instead of individual rock pieces.

3.12 Rock quality is further measured by frequency of natural joints in rock mass. Rock Quality Designation (RQD) is used to define state of fractures or massiveness of rock. Following table defines the quality of rock mass.

RELATION BETWEEN RQD AND IN-SITU ROCK QUALITY

RQD CLASSIFICATION	RQD (%)
Excellent	91 to 100
Good	76 to 90
Fair	51 to 75
Poor	26 to 50
Very Poor	00 to 25

3.13 Rock is also classified by strength of intact rock cores collected during drilling. Rock compressive strength (UCS) is used to define strength of rock. Following table summarizes classification of rock based on strength.

CLASSIFICATION OF ROCK WRT COMPRESSIVE STRENGTH

ROCK STRENGTH	COMPRESSIVE STRENGTH (MPA)
Extremely weak	< 2.00
Very Weak	2.00 to 10.00
Weak	10.01 to 25.00
Average	25.01 to 50.00
Strong	50.01 to 100.00
Very Strong	100.01 to 250.00
Extremely Strong	> 250.00

3.14 Ground water table was observed after dewatering the borehole and waiting for time gap of 24 hours to allow for recuperation of ground water.

Sr. No	Class	Concentration of Sulphates Expressed as SO_3		
		Soil		Ground Water
		Total SO_3 Percent	SO_3 * g/L	In g/L
I	**1**	Less Than 0.20	Less Than 1.0	Less Than 0.30
II	**2**	0.20 to 0.50	1.0 to 1.90	0.30 to 1.20
III	**3**	0.50 to 1.00	1.90 to 3.10	1.20 to 2.50
IV	**4**	1.00 to 2.00	3.10 to 5.00	2.50 to 5.00
V	**5**	More Than 2.00	More Than 5.00	More Than 5.00

3.15 Boreholes were terminated after drilling in soil and minimum 5.00 m in bed rock. Both boreholes were terminated from 10.18 m to 15.39 m depth from existing ground level. On completion of boreholes, selected soil and rock were taken to laboratory for testing.

IS CODES FOLLOWED

3.16 Field work was executed generally in accordance with IS specifications listed below:

a) IS-1892 **:** Code of practice for Subsurface Investigation of Foundations.
b) IS-1498 **:** Classification and Identification of soils for General Engineering Purposes.
c) IS-2131 **:** Method for Standard Penetration Test for Soils
d) IS-2132 **:** Code for practice for Thin Walled Tube Sampling of Soils.
e) IS-5313 **:** Guide for Core Drilling Observations.

3.17 Following Laboratory testing was carried out as per relevant IS codes.

a) Grain size distribution and consistency limits on soil samples for engineering classification as per IS-1498.
b) Crushing strength of rock to decide safe bearing capacity of shallow foundation on the rock and/ or the safe friction and end bearing resistance for deep foundations such as piles, as per IS codes IS-9143 and IS-8764.
c) Chemical analysis of soil and ground water to determine pH, $S0_3$ & CI contents to decide any precautionary measures for protecting foundation concrete and reinforcement, as per IS-2720 (part-26) and IS-3025 (Part 24 and 32).

4.0 FINDINGS OF INVESTIGATION

4.1 Logs of eight boreholes drilled for proposed infrastructure in Palava II project were studied. Following subsoil profile was inferred up to final depth of boreholes.

Stratum One : Overburden Soil
Stratum Two : Completely Weathered Rock
Stratum Three : Highly Weathered Basalt
Stratum Four : Moderately Weathered Basalt
Stratum Five : Slightly Weathered Basalt

STRATUM ONE : OVERBURDEN SOIL

4.2 First stratum of subsoil profile is **filled up soil**. This stratum is present in three boreholes out of eight boreholes. Thickness of this stratum varies from 0.30 to 0.50 m. Thickness of this stratum in each borehole is tabulated below. This stratum consists of clay mixed with yellow silt in varying percentage. Standard penetration test was not conducted in this stratum.

Borehole No	Thickness (m)	Borehole No	Thickness (m)
BH 1	0.50	BH 5	---
BH 2	0.50	BH 6	---
BH 3	0.30	BH 7	---
BH 4	---	BH 8	---

STRATUM TWO : COMPLETELY WEATHERED ROCK

4.3 Second stratum of subsoil profile is **completely weathered rock**. This stratum is present in five boreholes out of eight boreholes. Thickness of this stratum varies from 0.40 to 4.00 m. Thickness of this stratum in each borehole is tabulated below.

Borehole No	Thickness (m)	Borehole No	Thickness (m)
BH 1	0.50	BH 5	0.40
BH 2	---	BH 6	1.00
BH 3	---	BH 7	0.40
BH 4	---	BH 8	4.00

To advance through this hard stratum, drilling was carried out using Nx drilling bits & core barrel. Only small rock pieces and wash samples were recovered in drill runs. One confirmatory Standard penetration test was carried out in this stratum. Reported SPT 'N' value is Refusal of SPT Spoon. Visual examination of wash & SPT samples collected during drilling revealed that it was completely weathered rock having residual rock structure, which is locally known as murrum. One soil samples collected from this stratum were tested in laboratory. Results of same are tabulated below.

Gravel	%	30
Sand	%	31
Fines	%	39
Liquid Limit	%	40
Plastic Limit	%	24
Plasticity Index	%	16
Soil Classifications as per IS-1498		**SC**

STRATUM THREE : HIGHLY WEATHERED BASALT

4.4 Third stratum of subsoil profile is **highly weathered Basalt**. This stratum is present in two boreholes out of eight boreholes. Thickness of this stratum in each borehole is tabulated below.

Borehole No	Thickness (m)	Borehole No	Thickness (m)
BH 1	0.50	BH 5	---
BH 2	---	BH 6	1.00
BH 3	---	BH 7	---
BH 4	---	BH 8	---

Rock core recovery values in this stratum are 16 & 38 percent. These values of rock core recoveries show highly weathered condition of rock mass. Rock quality designation values are zero percent in both drill runs. These values indicate very poor state of fractures in rock stratum.

STRATUM FOUR : MODERATELY WEATHERED BASALT

4.5 Forth stratum of subsoil profile is **moderately weathered Basalt**. This stratum is present in seven boreholes out of eight boreholes. Thickness of this stratum varies from 0.60 to 2.50 m. Thickness of this stratum in each borehole is tabulated below.

Borehole No	Thickness (m)	Borehole No	Thickness (m)
BH 1	2.50	BH 5	0.60
BH 2	1.50	BH 6	1.00
BH 3	---	BH 7	0.60
BH 4	1.00	BH 8	1.00

Rock core recovery values in this stratum are from 49 to 68 percent with one lower value of 48 percent. These values of rock core recoveries show moderately weathered condition of rock mass. Rock quality designation values are 25 to 59 percent with two lower values of zero percent. These values indicate poor to fair state of fractures in rock stratum. Five rock core samples were tested in laboratory. Reported saturated crushing strength values of these rock cores are 54.60, 31.50, 67.70, 19.10 & 82.50 MPa. These values indicate that rock is average to strong in strength. Other test results are tabulated below.

Porosity	%	4.05, 6.12, 4.65, 11.09, 7.67
Water Absorption	%	1.52, 2.25, 1.76, 4.33, 3.09
Dry Density	kN/m^3	26.60, 27.30, 26.40, 25.60, 24.80
Saturated Crushing Strength	MPa	54.60, 31.50, 67.70, 19.10, 82.50

STRATUM FIVE : SLIGHTLY WEATHERED BASALT

4.6 Fifth stratum of subsoil profile is **slightly weathered Basalt**. This stratum is present in all eight boreholes. Drilling was carried out for thickness varies from 5.18 to 14.73 m. Thickness of this stratum in each borehole is tabulated below.

Borehole No	Thickness (m)	Borehole No	Thickness (m)
BH 1	11.39	BH 5	13.98
BH 2	13.02	BH 6	12.10
BH 3	14.73	BH 7	14.14
BH 4	13.70	BH 8	5.18

Rock core recovery values in this stratum are from 73 to 99 percent with one lower value of 65 percent. These values of rock core recoveries show slightly weathered condition of rock mass. Rock quality designation values are from 51 to 99 percent with one lower value of 41 percent. These values indicate very good state of fractures in rock stratum. Twenty Four rock core samples were tested in laboratory. Reported saturated crushing strength value of these rock cores are from 17.10 to 84.40 MPa. These values indicate that rock is average to strong in strength. Other test results are tabulated below.

Porosity	%	2.14 to 12.77
Water Absorption	%	0.76 to 5.17
Dry Density	kN/m^3	24.10 to 28.80
Saturated Crushing Strength	MPa	17.10 to 84.40

WATER LEVEL OBSERVATIONS

4.7 Ground water level was observed in all eight boreholes during fieldwork and after completion of boreholes. At the time of investigation, observed ground water level in each borehole is tabulated below. However, for determination of more reliable ground water level, long term observations in cased holes or open stand pipe piezometers are desirable.

Borehole No	Depth (m)	Borehole No	Depth (m)
BH 1	5.50	BH 5	6.50
BH 2	6.00	BH 6	4.50
BH 3	5.38	BH 7	5.25
BH 4	6.46	BH 8	4.00

4.8 Water loss was observed in five boreholes out of eight boreholes.

Borehole No	Approximate Water Loss (%)	Depth (m)
BH 1	100	0.50 to 1.50
BH 2	75	1.00 to 2.00
BH 6	100	3.00 to 4.50
BH 7	25	3.00 to 5.00
BH 8	50	2.00 to 4.00

4.9 Water level fluctuations due to seasonal variations, amount of rainfall, runoff and other factors were not evident at the time of fieldwork. Trapped or "perched" water could occur within the fill materials and/or above low permeability soil and rock layers. Water level fluctuations and perched water may be considered while developing design and construction drawings and specifications for the project.

CHEMICAL ANALYSIS

4.10 Five water samples collected from boreholes were analysed chemically in the laboratory. Following results are reported.

'pH' Value	6.46	Acidic Water
	7.38, 7.54, 8.64, 8.72	Alkaline Water
Sulphates (ppm)	100, 100, 150, 100, 100	Class I /Table IV/IS 456
Chlorides (ppm)	30, 20, 100, 20, 20	Less than 500 ppm/Table 1/IS 456

Results of chemical analysis indicate that water is not aggressive to concrete and not corrosive to reinforcement steel.

5.0 GEOTECHNICAL ASSESSMENT

5.1 **M/s Lodha Dwellers Pvt Ltd**, Mumbai have proposed **Palava II** project at village Khoni, Dombivli. Proposed buildings will be RCC framed structure having ground plus up to seven upper floors.

FOUNDATION REQUIREMENTS

5.2 Foundation system designed for proposed structure shall satisfy two following independent criteria.

1. Foundation design shall have adequate factor of safety with respect to shear strength of foundation stratum.
2. Vertical deformation (settlement) caused by loading intensity on foundation stratum shall be within permissible limits of the structure. These criteria shall also ensure that magnitude of differential settlement between any two adjoining columns must remain within tolerances. So that finishing of proposed structures does not show distress.

FOUNDATION SYSTEM FOR INFRASTRUCTURE STRUCTURES

5.3 Top stratum of subsoil profile is **overburden soil**. This stratum is present in three boreholes out of eight boreholes. Thickness of this stratum varies from 0.30 to 0.50 m. Engineering properties of this stratum can not be determined reliably. Therefore, foundations shall not be placed in this stratum.

5.4 This stratum is followed by **completely weathered rock**. This stratum is present in five out of eight boreholes. Thickness of this stratum varies from 0.40 to 4.00 m. Reported SPT 'N' value in this stratum is Refusal of SPT spoon. Considering design SPT 'N' value as 32, net safe bearing capacity works out to 250 kN/m^2 (25 T/m^2) for completely weathered rock stratum. However, better founding stratum of bed rock is available within short excavation depth.

5.5 This stratum is followed by **weathered Basalt**. This stratum is present in all boreholes. It continues up to termination depth of boreholes, improving in quality with depth. This stratum is suitable for placing footing foundations. Therefore, it is recommended to place foundations in **weathered Basalt** stratum.

5.6 To evaluate safe bearing capacities of **highly, moderately** & **slightly weathered Basalt**, rock mass rating values were determined. Average rock mass properties were

considered to determine RMR values as per IS 13365 (part I). RMR rating values of **highly, moderately** & **slightly weathered Basalt** for given conditions are 10, 30 & 50 respectively. Using these values and referring to Table 8 of IS 12070-1987, net safe bearing capacity values are work out to **402.05, 812.00** & **1616.25 kN/m^2** respectively. RMR computations are enclosed with this report.

5.7 Recommended founding depths and net SBC values at each borehole are tabulated as below. Foundations shall be placed minimum 50 cm in rock stratum.

Borehole No	Recommended Founding Stratum	Founding Depth (m)	Founding Elevation (m)	Net Safe Bearing Capacity kN/m^2 (T/m^2)
BH 1	Moderately Weathered Basalt	1.50	106.765	800 (80)
	Slightly Weathered Basalt	4.00	104.265	1600 (160)
BH 2	Moderately Weathered Basalt	1.00	107.630	800 (80)
	Slightly Weathered Basalt	2.00	106.630	1600 (160)
BH 3	Slightly Weathered Basalt	0.80	112.970	1600 (160)
BH 4	Moderately Weathered Basalt	0.50	113.200	800 (80)
	Slightly Weathered Basalt	1.00	112.700	1600 (160)
BH 5	Slightly Weathered Basalt	1.00	116.31	1600 (160)
BH 6	Completely Weathered Rock	0.50	122.500	250 (25)
	Highly Weathered Basalt	1.50	121.500	450 (45)
	Moderately Weathered Basalt	2.00	121.000	800 (80)
	Slightly Weathered Basalt	3.00	120.000	1600 (160)
BH 7	Slightly Weathered Basalt	1.00	109.759	1600 (160)
BH 8	Completely Weathered Rock	0.50	---	250 (25)
	Moderately Weathered Basalt	4.50	---	800 (80)
	Slightly Weathered Basalt	5.00	---	1600 (160)

5.8 It will be necessary to place footings of entire structure on rock of similar quality to ensure uniformity of foundation stratum and compatibility of deformation. It will be desirable that structural engineer inspects the founding stratum to confirm that there are no soft pockets in the footing plan area before placing PCC.

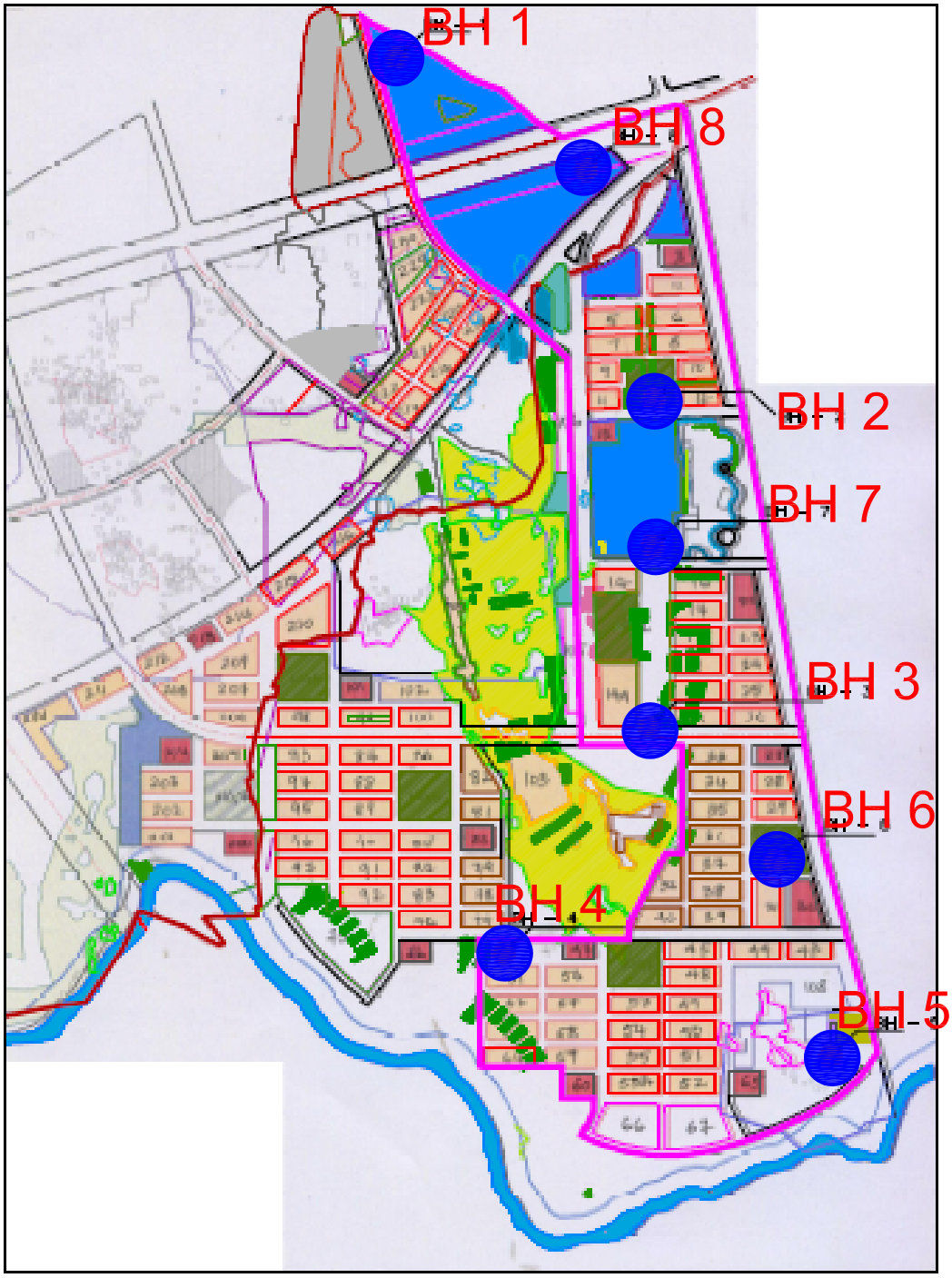
5.9 To account for variation in founding depth thus achieved, only PCC or plum concrete of design strength recommended by structural consultant shall be used make good the difference between founding stratum and bottom of footing foundation at founding depth. **Rubble soling layer shall not be provided below footing foundation on reaching this founding stratum**.

DURABILITY

5.10 Based on the results of chemical analysis of water, it is clear that ground water is **not aggressive** and **not corrosive** to reinforcement steel. Therefore, it is recommended to use **Ordinary Portland Cement**. It is recommended to provide sufficient clear cover to steel reinforcement.

July 18, 2012

SHEKHAR VAISHAMPAYAN
Geotechnical Consultant



N

Client :	**M/s Lodha Dwellers Pvt Ltd**
Project :	Proposed Project 'Palava II' at Village Khoni, Dombivli
Page :	Page A1

Invest in Investigation
Ochre Drillers India Private Limited

Ochre Drillers

BORE LOG

(As per IS : 1892 - 1979, 4453 - 1980, & 4464 - 1967)

Job No. : **1236**
Date : 19/06/2012
Page No. : 1 of 1

Project : **Proposed Project 'Palava II' at Village Khoni, Dombivli**
Client : **M/s Lodha Dwellers Pvt Ltd**

Co-Ordinate : -
R.L. : 108.265 m
Location :
Dia. of Borehole : 100 / Nx
Depth of GWT : 5.50m

Bore Hole No. : **BH 1**
Depth of Bore Hole : 15.39 m
Depth of Casing : 1.00 m
Date of Commencement : 05/06/2012
Date of Completion : 08/06/2012

Scale m	Depth m	R.L. m	Log	Description	Sample No.	Type	Depth (m) From	Depth (m) To	SPT 'N' Value 15	15	15	15	N	CR %	RQD %	P.R. m/hr.	Remarks/ Other Tests
	0.50	107.77		Overburden Soil (GM-GC) (0.50m)													
1	1.00	107.27		Completely Weathered Rock (0.50m)													
	1.50	106.77		Highly Weathered Basalt (0.50m)		DR1	1.00	1.50						38	Nil		Water Loss 50%
2				Moderately Weathered Basalt		DR2	1.50	2.00						60	Nil		
						DR3	2.00	2.50						56	Nil		
3						DR4	2.50	3.00						48	48		
						DR5	3.00	4.00						68	59		
4	4.00	104.27		(2.50m)													
				Slightly Weathered Basalt		DR6	4.00	5.00						84	84		GWT
5																	
						DR7	5.00	6.00						83	83		
6																	
						DR8	6.00	7.00						78	78		
7																	
						DR9	7.00	8.00						85	85		
8																	
						DR10	8.00	9.00						96	96		
9																	
						DR11	9.00	10.00						92	92		
10																	
						DR12	10.00	11.00						87	87		
11																	
						DR13	11.00	12.00						82	82		
12																	
						DR14	12.00	13.00						89	89		
13																	
						DR15	13.00	14.00						95	95		
14																	
						DR16	14.00	15.39						76	76		
15	15.39	92.88		(11.39m)													

DS: Disturbed Sample
UDS : Undisturbed Sample
SPT : Standard Penetration Test
WS : Wash Sample

CR : Core Recovery
RQD : Rock Quality Designation
PR : Rate of Penetration in Rock
VST : Vane Shear Test

K : Permeability of Soil / Rock
PT : Packer Permeability Test
DR : Drill Run
GWT : Ground Water Table

Site Engr.	Drawn By	Chkd. By	Client Rept.

Ochre Drillers India Pvt Ltd
A1, Vijay Apt, Near Aradhana Cinema, LBS Road, Near Panchpakhdi
Thane (W) 400602. Tel: 25339393; chhre125@hotmail.com

Ochre Drillers

BORE LOG

(As per IS : 1892 - 1979, 4453 - 1980, & 4464 - 1967)

Job No. : **1236**
Date : 19/06/2012
Page No. : 1 of 1

Project : **Proposed Project 'Palava II' at Village Khoni, Dombivli**

Client : **M/s Lodha Dwellers Pvt Ltd**

Co-Ordinate : -
R.L. : 108.630 m
Location :
Dia. of Borehole : 100 / Nx
Depth of GWT : 6.00 m

Bore Hole No. : **BH 2**
Depth of Bore Hole : 15.02 m
Depth of Casing : 0.50 m
Date of Commencement : 09/06/2012
Date of Completion : 12/06/2012

Scale m	Depth m	R.L. m	Log	Description	Sample No.	Type	Depth (m) From	Depth (m) To	SPT 'N' Value 15	15	15	15	N	CR %	RQD %	P.R. m/hr.	Remarks/ Other Tests
	0.50	108.13		Overburden Soil (GM-GC) **(0.50m)**													
1				Moderately Weathered Basalt		DR1	0.50	1.00						60	30		Water Loss 75%
						DR2	1.00	2.00						49	25		Water Loss 75%
2	2.00	106.63		**(1.50m)**													
				Slightly Weathered Basalt		DR3	2.00	3.00						87	87		
3																	
						DR4	3.00	4.00						97	97		
4																	
						DR5	4.00	5.00						94	86		
5																	
						DR6	5.00	6.00						98	98		GWT
6																	
						DR7	6.00	7.00						98	98		
7																	
						DR8	7.00	8.00						90	73		
8																	
						DR9	8.00	9.00						96	96		
9																	
						DR10	9.00	10.00						91	76		
10																	
						DR11	10.00	11.00						89	89		
11																	
						DR12	11.00	12.00						98	98		
12																	
						DR13	12.00	13.00						90	90		
13																	
						DR14	13.00	14.00						97	97		
14																	
						DR15	14.00	15.02						92	92		
15	15.02	93.61		**(13.02m)**													

DS: Disturbed Sample
UDS : Undisturbed Sample
SPT : Standard Penetration Test
WS : Wash Sample

CR : Core Recovery
RQD : Rock Quality Designation
PR : Rate of Penetration in Rock
VST : Vane Shear Test

K : Permeability of Soil / Rock
PT : Packer Permeability Test
DR : Drill Run
GWT : Ground Water Table

Site Engr.	Drawn By	Chkd. By	Client Rept.

Ochre Drillers India Pvt Ltd
A1, Vijay Apt, Near Aradhana Cinema, LBS Road, Near Panchpakhdi
Thane (W) 400602. Tel: 25339393; chhre125@hotmail.com

Ochre Drillers

BORE LOG

(As per IS : 1892 - 1979, 4453 - 1980, & 4464 - 1967)

Job No. : **1236**
Date : 19/06/2012

Project : **Proposed Project 'Palava II' at Village Khoni, Dombivli**
Client : **M/s Lodha Dwellers Pvt Ltd**

Co-Ordinate : -
R.L. : 113.770 m
Location :
Dia. of Borehole : 100 / Nx
Depth of GWT : 5.38 m

Bore Hole No. : **BH 3**
Depth of Bore Hole : 15.03 m
Depth of Casing : 0.30 m
Date of Commencement : 14/06/2012
Date of Completion : 17/06/2012

Scale m	Depth m	R.L. m	Log	Description	Sample No.	Type	Depth (m) From	Depth (m) To	SPT 'N' Value 15	15	15	15	N	CR %	RQD %	P.R. m/hr.	Remarks/ Other Tests
	0.30	113.47		Overburden Soil (0.30 m)													
				Slightly Weathered Basalt		DR1	0.30	1.00						75	75		
1						DR2	1.00	2.00						79	79		
2						DR3	2.00	3.00						84	84		
3						DR4	3.00	4.00						81	74		
4						DR5	4.00	5.00						91	83		
5						DR6	5.00	6.00						92	92		GWT
6						DR7	6.00	7.00						90	90		
7						DR8	7.00	8.00						94	94		
8						DR9	8.00	9.00						97	97		
9						DR10	9.00	10.00						94	94		
10						DR11	10.00	11.00						97	97		
11						DR12	11.00	12.00						83	74		
12						DR13	12.00	13.00						93	93		
13						DR14	13.00	14.00						90	71		
14						DR15	14.00	15.03						89	89		
15	15.03	98.73		(14.73 m)													

DS: Disturbed Sample
UDS : Undisturbed Sample
SPT : Standard Penetration Test
WS : Wash Sample

CR : Core Recovery
RQD : Rock Quality Designation
PR : Rate of Penetration in Rock
VST : Vane Shear Test

K : Permeability of Soil / Rock
PT : Packer Permeability Test
DR : Drill Run
GWT : Ground Water Table

Site Engr.	Drawn By	Chkd. By	Client Rept.

Ochre Drillers India Pvt Ltd
A1, Vijay Apt, Near Aradhana Cinema, LBS Road, Near Panchpakhdi
Thane (W) 400602. Tel: 25339393; chhre125@hotmail.com

Ochre Drillers

BORE LOG

(As per IS : 1892 - 1979, 4453 - 1980, & 4464 - 1967)

Job No. : **1236**
Date : 19/06/2012
Page No. : 1 of 1

Project : **Proposed Project 'Palava II' at Village Khoni, Dombivli**
Client : **M/s Lodha Dwellers Pvt Ltd**

Co-Ordinate : -
R.L. : 113.770 m
Location :
Dia. of Borehole : 100 / Nx
Depth of GWT : 6.46 m

Bore Hole No. : **BH 4**
Depth of Bore Hole : 14.70 m
Depth of Casing : 0.30 m
Date of Commencement : 14/06/2012
Date of Completion : 17/06/2012

Scale m	Depth m	R.L. m	Log	Description	Sample No.	Type	Depth (m) From	Depth (m) To	SPT 'N' Value 15	15	15	15	N	CR %	RQD %	P.R. m/hr.	Remarks/ Other Tests
1	1.00	112.77		Moderately Weathered Basalt **(1.00m)**		DR1	0.50	1.00						65	56		
				Slightly Weathered Basalt		DR2	1.00	2.00						88	75		
2						DR3	2.00	3.00						95	95		
3						DR4	3.00	4.00						96	96		
4						DR5	4.00	5.00						89	89		
5						DR6	5.00	6.00						65	53		
6						DR7	6.00	7.00						76	42		GWT
7						DR8	7.00	8.00						99	99		
8						DR9	8.00	9.00						94	86		
9						DR10	9.00	10.00						99	99		
10						DR11	10.00	11.00						84	84		
11						DR12	11.00	12.00						96	96		
12						DR13	12.00	13.00						89	89		
13						DR14	13.00	14.00						95	95		
14	14.70	99.07		**(13.70m)**		DR15	14.00	14.70						98	98		
15																	

DS: Disturbed Sample
UDS : Undisturbed Sample
SPT : Standard Penetration Test
WS : Wash Sample

CR : Core Recovery
RQD : Rock Quality Designation
PR : Rate of Penetration in Rock
VST : Vane Shear Test

K : Permeability of Soil / Rock
PT : Packer Permeability Test
DR : Drill Run
GWT : Ground Water Table

Site Engr.	Drawn By	Chkd. By	Client Rept.

Ochre Drillers India Pvt Ltd
A1, Vijay Apt, Near Aradhana Cinema, LBS Road, Near Panchpakhdi
Thane (W) 400602. Tel: 25339393; chhre125@hotmail.com

Ochre Drillers

BORE LOG

(As per IS : 1892 - 1979, 4453 - 1980, & 4464 - 1967)

Job No. : **1236**
Date : 19/06/2012
Page No. : 1 of 1

Project : **Proposed Project 'Palava II' at Village Khoni, Dombivli**
Client : **M/s Lodha Dwellers Pvt Ltd**

Co-Ordinate : -
R.L. : 117.310 m
Location :
Dia. of Borehole : 100 / Nx
Depth of GWT : 6.50 m

Bore Hole No. : **BH 5**
Depth of Bore Hole : 14.98 m
Depth of Casing : 0.40 m
Date of Commencement : 22/06/2012
Date of Completion : 25/06/2012

Scale m	Depth m	R.L. m	Log	Description	Sample No.	Type	Depth (m) From	Depth (m) To	SPT 'N' Value 15	15	15	15	N	CR %	RQD %	P.R. m/hr.	Remarks/ Other Tests
	0.40	116.91		Overburden Soil (GM,GC) (0.40m)													
1	1.00	116.31		Moderately Weathered Basalt (0.60m)		DR1	0.50	1.00						52	29		
				Slightly Weathered Basalt		DR2	1.00	2.00						80	66		
2																	
						DR3	2.00	3.00						90	83		
3																	
						DR4	3.00	4.00						89	73		
4																	
						DR5	4.00	5.00						88	88		
5																	
						DR6	5.00	6.00						87	87		
6																	
						DR7	6.00	7.00						84	67		GWT
7																	
						DR8	7.00	8.00						95	90		
8																	
						DR9	8.00	9.00						86	86		
9																	
						DR10	9.00	10.00						86	83		
10																	
						DR11	10.00	11.00						79	79		
11																	
						DR12	11.00	12.00						84	67		
12																	
						DR13	12.00	13.00						98	98		
13																	
						DR14	13.00	14.00						89	89		
14																	
						DR15	14.00	14.98						84	84		
15	14.98	102.33		(13.98m)													

DS: Disturbed Sample
UDS : Undisturbed Sample
SPT : Standard Penetration Test
WS : Wash Sample

CR : Core Recovery
RQD : Rock Quality Designation
PR : Rate of Penetration in Rock
VST : Vane Shear Test

K : Permeability of Soil / Rock
PT : Packer Permeability Test
DR : Drill Run
GWT : Ground Water Table

Site Engr.	Drawn By	Chkd. By	Client Rept.

Ochre Drillers India Pvt Ltd
A1, Vijay Apt, Near Aradhana Cinema, LBS Road, Near Panchpakhdi
Thane (W) 400602. Tel: 25339393; chhre125@hotmail.com

Ochre Drillers

BORE LOG

(As per IS : 1892 - 1979, 4453 - 1980, & 4464 - 1967)

Job No. : **1236**
Date : 19/06/2012
Page No. : 1 of 1

Project : **Proposed Project 'Palava II' at Village Khoni, Dombivli**
Client : **M/s Lodha Dwellers Pvt Ltd**

Co-Ordinate : -
R.L. : 123.00 m
Location :
Dia. of Borehole : 100 / Nx
Depth of GWT : 4.50 m

Bore Hole No. : **BH 6**
Depth of Bore Hole : 15.10 m
Depth of Casing : 1.00 m
Date of Commencement : 27/06/2012
Date of Completion : 30/06/2012

Scale m	Depth m	R.L. m	Log	Description	Sample No.	Type	Depth (m) From	Depth (m) To	SPT 'N' Value 15	15	15	15	N	CR %	RQD %	P.R. m/hr.	Remarks/ Other Tests
1	1.00	122.00		Completely Weathered Rock **(1.00m)**													
2	2.00	121.00		Highly Weathered Basalt **(1.00m)**		DR1	1.00	2.00						16	Nil		
3	3.00	120.00		Moderately Weathered Basalt **(1.00m)**		DR2	2.00	3.00						64	54		
4				Slightly Weathered Basalt		DR3	3.00	4.00						73	64		Water Loss 100%
5						DR4	4.00	5.00						98	87		Water Lost GWT 10[illegible]%
6						DR5	5.00	6.00						85	85		
7						DR6	6.00	7.00						82	51		
8						DR7	7.00	8.00						96	84		
9						DR8	8.00	9.00						92	83		
10						DR9	9.00	10.00						91	91		
11						DR10	10.00	11.00						89	80		
12						DR11	11.00	12.00						96	96		
13						DR12	12.00	13.00						92	92		
14						DR13	13.00	14.00						88	80		
15	15.10	107.90		**(12.10m)**		DR14	14.00	15.10						78	78		

DS: Disturbed Sample
UDS : Undisturbed Sample
SPT : Standard Penetration Test
WS : Wash Sample

CR : Core Recovery
RQD : Rock Quality Designation
PR : Rate of Penetration in Rock
VST : Vane Shear Test

K : Permeability of Soil / Rock
PT : Packer Permeability Test
DR : Drill Run
GWT : Ground Water Table

Site Engr.	Drawn By	Chkd. By	Client Rept.

Ochre Drillers India Pvt Ltd
A1, Vijay Apt, Near Aradhana Cinema, LBS Road, Near Panchpakhdi
Thane (W) 400602. Tel: 25339393; chhre125@hotmail.com

Ochre Drillers

BORE LOG

(As per IS : 1892 - 1979, 4453 - 1980, & 4464 - 1967)

Job No. : **1236**
Date : 19/06/2012
Page No. : 1 of 1

Project : **Proposed Project 'Palava II' at Village Khoni, Dombivli**
Client : **M/s Lodha Dwellers Pvt Ltd**

Co-Ordinate : -
R.L. : 110.759 m
Location :
Dia. of Borehole : 100 / Nx
Depth of GWT : 5.25 m

Bore Hole No. : **BH 7**
Depth of Bore Hole : 15.14 m
Depth of Casing : 0.40 m
Date of Commencement : 02/07/2012
Date of Completion : 04/07/2012

Scale m	Depth m	R.L. m	Log	Description	Sample No.	Type	Depth (m) From	Depth (m) To	SPT 'N' Value 15	15	15	15	N	CR %	RQD %	P.R. m/hr.	Remarks/ Other Tests
	0.40	110.36		Overburden Soil (GM,GC) (0.40m)													
1	1.00	109.76		Moderately Weathered Basalt (0.60m)		DR1	0.50	1.00						62	50		
				Slightly Weathered Basalt		DR2	1.00	2.00						84	84		
2																	
						DR3	2.00	3.00						93	93		
3																	
						DR4	3.00	4.00						94	94		Water Loss 25%
4																	
						DR5	4.00	5.00						82	82		Water Loss 25%
5																	GWT
						DR6	5.00	6.00						88	88		
6																	
						DR7	6.00	7.00						82	74		
7																	
						DR8	7.00	8.00						79	79		
8																	
						DR9	8.00	9.00						85	85		
9																	
						DR10	9.00	10.00						82	82		
10																	
						DR11	10.00	11.00						88	79		
11																	
						DR12	11.00	12.00						88	80		
12																	
						DR13	12.00	13.00						83	83		
13																	
						DR14	13.00	14.00						84	84		
14																	
						DR15	14.00	15.14						86	86		
15	15.14	95.62		(14.14m)													

DS: Disturbed Sample
UDS : Undisturbed Sample
SPT : Standard Penetration Test
WS : Wash Sample

CR : Core Recovery
RQD : Rock Quality Designation
PR : Rate of Penetration in Rock
VST : Vane Shear Test

K : Permeability of Soil / Rock
PT : Packer Permeability Test
DR : Drill Run
GWT : Ground Water Table

Site Engr.	Drawn By	Chkd. By	Client Rept.

Ochre Drillers India Pvt Ltd
A1, Vijay Apt, Near Aradhana Cinema, LBS Road, Near Panchpakhdi
Thane (W) 400602. Tel: 25339393; chhre125@hotmail.com

Ochre Drillers

BORE LOG

(As per IS : 1892 - 1979, 4453 - 1980, & 4464 - 1967)

Job No. : **1236**
Date : 19/06/2012
Page No. : 1 of 1

Project : **Proposed Project 'Palava II' at Village Khoni, Dombivli**
Client : **M/s Lodha Dwellers Pvt Ltd**

Co-Ordinate : -
R.L. : 100 m
Location :
Dia. of Borehole : 100 / Nx
Depth of GWT : 4.00 m

Bore Hole No. : **BH 8**
Depth of Bore Hole : 10.18 m
Depth of Casing : 2.00 m
Date of Commencement : 09/07/2012
Date of Completion : 10/07/2012

Scale m	Depth m	R.L. m	Log	Description	Sample No.	Type	Depth (m) From	Depth (m) To	SPT 'N' Value 15	15	15	15	N	CR %	RQD %	P.R. m/hr.	Remarks/ Other Tests
1				Completely Weathered Rock													
					1	SPT-1	1.00	1.35	5	7	5/9		R				
2	2.00	98.00		**(2.00m)**													
				Moderately Weathered Basalt		DR1	2.00	3.00						58	35		Water Loss 50%
3																	
						DR2	3.00	4.00						Nil	Nil		Water Loss 50%
4																	GWT
						DR3	4.00	5.00						49	49		
5	5.00	95.00		**(3.00m)**													
				Slightly Weathered Basalt		DR4	5.00	6.00						80	73		
6																	
						DR5	6.00	7.00						92	92		
7																	
						DR6	7.00	8.00						94	94		
8																	
						DR7	8.00	9.00						78	78		
9																	
						DR8	9.00	10.18						83	76		
10	10.18	89.82		**(5.18m)**													
				The Bore Hole is Terminated at 10.18 m depth													
11																	
12																	
13																	
14																	
15																	

DS: Disturbed Sample
UDS : Undisturbed Sample
SPT : Standard Penetration Test
WS : Wash Sample

CR : Core Recovery
RQD : Rock Quality Designation
PR : Rate of Penetration in Rock
VST : Vane Shear Test

K : Permeability of Soil / Rock
PT : Packer Permeability Test
DR : Drill Run
GWT : Ground Water Table

Site Engr.	Drawn By	Chkd. By	Client Rept.

Ochre Drillers India Pvt Ltd
A1, Vijay Apt, Near Aradhana Cinema, LBS Road, Near Panchpakhdi
Thane (W) 400602. Tel: 25339393; chhre125@hotmail.com

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx

Water Table : 5.50 m BGL

Date of Commence: 5/06/2012

Date of Completion : 8/06/2012

Bore Hole No : **BH 1**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
0.00	1.00											Overburden				
1.00	1.50	50	1	4	19	1	5	J	V	38	Nil	**Piece No 1 to 4**	Grey	Nil		
						2	5	J	V			Highly				
						3	4	J	V			Weathered Bsalt				
						4	5	J	V							
1.50	2.00	50	5	10	30	5	5	J	V	60	Nil	**Piece No 5 to 15**	Grey	Nil		
						6	5	J	H			Moderately				
						7	7	J	H			Weathered Bsalt				
						8	4	J	H							
						9	3	J	V							
						10	6	J	H							
2.00	2.50	50	11	15	28	11	4	J	V	56	Nil		Grey	Nil		
						12	3	J	V							
						13	3	J	V							
						14	9	J	V							
						15	9	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx

Water Table : 5.50 m BGL

Date of Commence: 5/06/2012

Date of Completion : 8/06/2012

Bore Hole No : **BH 1**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
2.50	3.00	50	16	17	24	16	10	J	H	48	48	**Piece No 16 to 22**	Grey	Nil		
						17	14	J	H			Moderately				
												Weathered Bsalt				
3.00	4.00	100	18	22	68	18	10	J	H	68	59		Grey	Nil		
						19	6	J	H							
						20	3	J	V							
						21	12	J	H							
						22	37	J	H							
4.00	5.00	100	23	25	51	23	13	J	H	51	51	**Piece No 23 to 32**	Grey	Nil		
						24	25	J	H			Slightly				
						25	13	J	30°			Weathered Bsalt				
5.00	6.00	100	26	28	83	26	35	J	H	83	83		Grey	Nil		
						27	11	J	H							
						28	37	J	H							
6.00	7.00	100	29	32	78	29	21	J	H	78	78		Grey	Nil		
						30	29	J	H							
						31	11	J	H							
						32	17	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx

Water Table : 5.50 m BGL

Date of Commence: 5/06/2012

Date of Completion : 8/06/2012

Bore Hole No : **BH 1**

A-1, Vijay Apartments, Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
7.00	8.00	100	33	33	85	33	85	J	H	85	85	**Piece No 33 to 46**	Grey	Nil		
												Slightly				
8.00	9.00	100	34	37	96	34	34	J	H	96	96	Weathered Bsalt	Grey	Nil		
						35	14	J	H							
						36	15	J	H							
						37	33	J	H							
9.00	10.00	100	38	41	92	38	25	J	H	92	92		Grey	Nil		
						39	25	J	H							
						40	19	J	H							
						41	23	J	30°							
10.00	11.00	100	42	44	87	42	21	J	H	87	87		Grey	Nil		
						43	26	J	H							
						44	40	J	H							
11.00	12.00	100	45	46	82	45	60	J	H	82	82		Grey	Nil		
						46	22	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx

Water Table : 5.50 m BGL

Date of Commence: 5/06/2012

Date of Completion : 8/06/2012

Bore Hole No : **BH 1**

A-1, Vijay Apartments, Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
12.00	13.00	100	47	48	89	47	65	J	H	89	89	**Piece No 47 to 51**	Grey	Nil		
						48	24	J	H			Slightly				
												Weathered Bsalt				
13.00	14.00	100	49	49	95	49	95	J	H	95	95		Grey	Nil		
								J	H							
14.00	15.39	139	50	51	107	50	33	J	H	77	77		Grey	Nil		
						51	74	J	H							
						Borehole BH 1 terminated at 15.39 m B.G.L										

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx

Water Table : 6.00 m BGL

Date of Commence: 9/06/2012

Date of Completion : 12/06/2012

Bore Hole No : **BH 2**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
0.00	0.50											Overburden				
0.50	1.00	50	1	3	30	1	7	J	V	60	30	**Piece No 1 to 10**	Grey	Nil		
						2	15	J	H			Moderately				
						3	8	J	H			Weathered Bsalt				
1.00	2.00	100	4	10	49	4	5	J	V	49	25		Grey	Nil		
						5	3	J	V							
						6	5	J	V							
						7	4	J	V							
						8	10	J	V							
						9	15	J	H							
						10	7	J	H							
2.00	3.00	100	11	13	87	11	21	J	H	87	87	**Piece No 11 to 13**	Grey	Nil		
						12	39	J	H			Slightly				
						13	27	J	H			Weathered Bsalt				

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 6.00 m BGL

Date of Commence: 9/06/2012
Date of Completion : 12/06/2012

Bore Hole No : **BH 2**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
3.00	4.00	100	14	16	97	14	34	J	H	97	97	**Piece No 14 to 33**	Grey	Nil		
						15	39	J	H			Slightly				
						16	24	J	H			Weathered Bsalt				
4.00	5.00	100	17	20	94	17	8	J	H	94	86		Grey	Nil		
						18	39	J	H							
						19	31	J	H							
						20	16	J	H							
5.00	6.00	100	21	24	98	21	22	J	H	98	98		Grey	Nil		
						22	14	J	H							
						23	15	J	H							
						24	47	J	H							
6.00	7.00	100	25	27	98	25	22	J	H	98	98		Grey	Nil		
						26	46	J	H							
						27	30	J	H							
7.00	8.00	100	29	33	90	29	30	J	H	90	73		Grey	Nil		
						30	30	J	H							
						31	8	J	H							
						32	9	J	H							
						33	13	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 6.00 m BGL

Date of Commence: 9/06/2012
Date of Completion : 12/06/2012

Bore Hole No : **BH 2**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
8.00	9.00	100	34	37	66	34	26	J	H	66	66	**Piece No 34 to 49**	Grey	Nil		
						35	10	J	H			Slightly				
						36	16	J	H			Weathered Bsalt				
						37	14	J	H							
9.00	10.00	100	38	41	82	38	20	J	H	82	76		Grey	Nil		
						39	46	J	H							
						40	10	J	H							
						41	6	J	H							
10.00	11.00	100	42	43	89	42	55	J	H	89	89		Grey	Nil		
						43	34	J	H							
11.00	12.00	100	44	46	98	44	27	J	H	98	98		Grey	Nil		
						45	40	J	H							
						46	31	J	H							
12.00	13.00	100	47	49	90	47	40	J	H	90	90		Grey	Nil		
						48	20	J	H							
						49	30	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 6.00 m BGL

Date of Commence: 9/06/2012
Date of Completion : 12/06/2012

Bore Hole No : **BH 2**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
13.00	14.00	100	50	51	97	50	49	J	H	97	97	**Piece No 50 to 54**	Grey	Nil		
						51	48	J	H			Slightly				
												Weathered Bsalt				
14.00	15.02	102	52	54	94	52	28	J	H	92	92		Grey	Nil		
						53	26	J	H							
						54	40	J	H							
						Borehole BH 2 terminated at 15.02 m B.G.L										

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx

Water Table : 5.38 m BGL

Date of Commence: 14/06/2012

Date of Completion : 17/06/2012

Bore Hole No : **BH 3**

A-1, Vijay Apartments, Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
0.00	0.30											Overburden				
0.30	1.00	70	1	4	53	1	7	J	H	76	66	**Piece No 1 to 15**	Grey	Nil		
						2	17	J	H			Slightly				
						3	14	J	H			Weathered Bsalt				
						4	15	J	H							
1.00	2.00	100	5	8	79	5	20	J	H	79	79		Grey	Nil		
						6	32	J	H							
						7	15	J	H							
						8	12	J	H							
2.00	3.00	100	9	10	84	9	20	J	H	84	84		Grey	Nil		
						10	64	J	H							
3.00	4.00	100	11	15	75	11	15	J	H	75	68		Grey	Nil		
						12	15	J	H							
						13	7	J	H							
						14	18	J	H							
						15	20	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 5.38 m BGL

Date of Commence: 14/06/2012
Date of Completion : 17/06/2012

Bore Hole No : **BH 3**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
4.00	5.00	100	16	19	91	16	19	J	H	91	83	**Piece No 16 to 29**	Grey	Nil		
						17	36	J	H			Slightly				
						18	8	J	H			Weathered Bsalt				
						19	28	J	H							
5.00	6.00	100	20	21	29	20	11	J	H	29	29		Grey	Nil		
						21	18	J	H							
6.00	7.00	100	22	25	90	22	13	J	H	90	90		Grey	Nil		
						23	23	J	H							
						24	19	J	H							
						25	35	J	H							
7.00	8.00	100	26	26	94	26	94	J	H	94	94		Grey	Nil		
8.00	9.00	100	27	28	97	27	84	J	H	97	97		Grey	Nil		
						28	13	J	H							
9.00	10.00	100	29	29	94	29	94	J	H	94	94		Grey	Nil		

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 5.38 m BGL

Date of Commence: 14/06/2012
Date of Completion : 17/06/2012

Bore Hole No : **BH 3**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
10.00	11.00	100	30	33	97	30	16	J	H	97	97	**Piece No 30 to 47**	Grey	Nil		
						31	15	J	H			Slightly				
						32	18	J	H			Weathered Bsalt				
						33	48	J	H							
11.00	12.00	100	34	39	83	34	17	J	H	83	74		Grey	Nil		
						35	17	J	H							
						36	13	J	H							
						37	14	J	H							
						38	9	J	H							
						39	13	J	H							
12.00	13.00	100	40	43	93	40	20	J	H	93	93		Grey	Nil		
						41	25	J	H							
						42	23	J	H							
						43	25	J	H							
13.00	14.00	100	44	50	90	44	7	J	H	90	71		Grey	Nil		
						45	14	J	H							
						46	22	J	H							
						47	25	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 5.38 m BGL

Date of Commence: 14/06/2012
Date of Completion : 17/06/2012

Bore Hole No : **BH 3**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
						48	10	J	H			**Piece No 48 to 52**				
						49	5	J	H			Slightly				
						50	7	J	H			Weathered Bsalt				
14.00	15.03	103	51	52	92	51	48	J	H	89			Grey	Nil		
						52	44	J	H							
						Borehole BH 3 terminated at 15.03 m B.G.L										

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx

Water Table : 6.46 m BGL

Date of Commence: 18/06/2012

Date of Completion : 20/06/2012

Bore Hole No : **BH 4**

A-1, Vijay Apartments, Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
0.00	1.00					1	15	J	H			**Piece No 1 to 5**				
						2	9	J	H			Moderately				
						3	17	J	H			Weathered Bsalt				
						4	12	J	H							
						5	12	J	H							
1.00	2.00	100	6	10	88	6	38	J	H	88	75	**Piece No 6 to 15**	Grey	Nil		
						7	19	J	H			Slightly				
						8	18	J	H			Weathered Bsalt				
						9	9	J	H							
						10	4	M	M							
2.00	3.00	100	11	12	95	11	32	J	H	95	95		Grey	Nil		
						12	63	J	H							
3.00	4.00	100	13	15	96	13	46	J	H	96	96		Grey	Nil		
						14	15	J	H							
						15	35	M	M							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 6.46 m BGL

Date of Commence: 18/06/2012
Date of Completion : 20/06/2012

Bore Hole No : **BH 4**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
4.00	5.00	100	16	20	89	16	23	J	H	89	89	**Piece No 16 to 36**	Grey	Nil		
						17	11	J	H			Slightly				
						18	23	J	H			Weathered Bsalt				
						19	12	J	V							
						20	20	J	H							
5.00	6.00	100	21	26	65	21	11	J	H	65	53		Grey	Nil		
						22	5	J	H							
						23	13	J	H							
						24	15	J	H							
						25	7	J	H							
						26	14	M	M							
6.00	7.00	100	27	36	76	27	14	J	H	76	42		Grey	Nil		
						28	8	J	H							
						29	9	J	H							
						30	1	J	H							
						31	1	J	H							
						32	5	J	H							
						33	4	J	H							
						34	16	J	H							
						35	12	J	H							
						36	6	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx

Water Table : 6.46 m BGL

Date of Commence: 18/06/2012

Date of Completion : 20/06/2012

Bore Hole No : **BH 4**

A-1, Vijay Apartments, Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
7.00	8.00	100	37	39	99	37	55	J	H	99	99	**Piece No 37 to 52**	Grey	Nil		
						38	30	J	H			Slightly				
						39	14	J	H			Weathered Bsalt				
								J	H							
8.00	9.00	100	40	42	94	40	8	J	H	94	86		Grey	Nil		
						41	48	J	H							
						42	38	J	H							
9.00	10.00	100	43	46	99	43	34	J	H	99	99		Grey	Nil		
						44	22	J	H							
						45	25	J	V							
						46	18	J	V							
10.00	11.00	100	47	49	84	47	31	J	H	84	84		Grey	Nil		
						48	17	J	H							
						49	36	J	H							
								J	H							
11.00	12.00	100	50	52	96	50	29	J	H	96	96		Grey	Nil		
						51	25	J	H							
						52	42	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation

Ochre Drillers India Private Limited

A-1, Vijay Apartments, Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Bore Hole Dia. : 100mm/ Nx

Water Table : 6.46 m BGL

Date of Commence: 18/06/2012

Date of Completion : 20/06/2012

Bore Hole No : **BH 4**

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
12.00	13.00	100	53	55	89	53	54	J	H	89	89	**Piece No 53 to 62**	Grey	Nil		
						54	21	J	H			Slightly				
						55	14	J	H			Weathered Bsalt				
13.00	14.00	100	56	58	95	56	14	M	M	95	95		Grey	Nil		
						57	46	J	H							
						58	35	J	H							
14.00	14.70	70	59	62	68	59	10	J	V	97	97		Grey	Nil		
						60	15	J	V							
						61	25	J	H							
						62	18	J	H							
						Borehole BH 4 terminated at 14.07 m B.G.L										

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx

Water Table : 6.50 m BGL

Date of Commence: 22/06/2012

Date of Completion : 25/06/2012

Bore Hole No : **BH 5**

A-1, Vijay Apartments, Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
0.00	0.40											Overburden				
0.40	1.00	60	1	3	31	1	17	J	H	52	28	**Piece No 1 to 3**	Grey	Nil		
						2	9	M	M			Moderately				
						3	5	J	V			Weathered Bsalt				
1.00	2.00	100	4	7	80	4	7	J	V	80	66	**Piece No 4 to 16**	Grey	Nil		
						5	7	J	H			Slightly				
						6	21	J	H			Weathered Bsalt				
						7	45	J	H							
2.00	3.00	100	8	10	90	8	16	J	H	90	83		Grey	Nil		
						9	7	M	M							
						10	67	J	H							
3.00	4.00	100	11	16	89	11	8	J	V	89	73		Grey	Nil		
						12	19	J	H							
						13	26	J	H							
						14	13	J	H							
						15	8	J	H							
						16	15	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

A-1, Vijay Apartments, Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Bore Hole Dia. : 100mm/ Nx
Water Table : 6.50 m BGL

Date of Commence: 22/06/2012
Date of Completion : 25/06/2012

Bore Hole No : **BH 5**

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
4.00	5.00	100	17	20	88	17	24	J	H	88	88	**Piece No 17 to 32**	Grey	Nil		
						18	15	J	H			Slightly				
						19	39	J	V			Weathered Bsalt				
						20	10	J	H							
5.00	6.00	100	21	22	87	21	28	J	H	87	87		Grey	Nil		
						22	59	J	H							
6.00	7.00	100	23	27	84	23	27	J	H	84	67		Grey	Nil		
						24	24	J	H							
						25	16	J	H							
						26	9	J	H							
						27	8	J	H							
7.00	8.00	100	28	32	95	28	5	J	H	95	90		Grey	Nil		
						29	18	J	H							
						30	33	J	H							
						31	27	J	H							
						32	12	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx

Water Table : 6.50 m BGL

Date of Commence: 22/06/2012

Date of Completion : 25/06/2012

Bore Hole No : **BH 5**

A-1, Vijay Apartments, Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
8.00	9.00	100	33	36	86	33	34	J	H	86	86	**Piece No 33 to 48**	Grey	Nil		
						34	18	J	H			Slightly				
						35	24	J	H			Weathered Bsalt				
						36	10	M	M							
9.00	10.00	100	37	41	86	37	22	J	H	86	83		Grey	Nil		
						38	3	J	H							
						39	15	J	H							
						40	28	J	H							
						41	18	J	H							
10.00	11.00	100	42	43	79	42	16	J	H	79	79		Grey	Nil		
						43	63	J	H							
11.00	12.00	100	44	48	84	44	33	J	H	84	67		Grey	Nil		
						45	12	J	H							
						46	8	J	V							
						47	22	J	H							
						48	9	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 6.50 m BGL

Date of Commence: 22/06/2012
Date of Completion : 25/06/2012

Bore Hole No : **BH 5**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
12.00	13.00	100	49	52	98	49	24	J	H	98	98	**Piece No 49 to 59**	Grey	Nil		
						50	27	J	H			Slightly				
						51	34	J	H			Weathered Bsalt				
						52	13	J	H							
13.00	14.00	100	53	56	89	53	28	J	H	89	89		Grey	Nil		
						54	24	J	H							
						55	12	M	M							
						56	25	J	H							
14.00	14.98	98	57	59	82	57	32	J	H	84	84		Grey	Nil		
						58	34	J	H							
						59	16	J	H							
						Borehole BH 5 terminated at 14.98 m B.G.L										

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 4.50 m BGL

Date of Commence: 27/06/2012
Date of Completion : 30/06/2012

Bore Hole No : **BH 6**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
0.00	1.00											Overburden				
1.00	2.00	100	1	6	16	1	3	J	H	16	Nil	**Piece No 1 to 6**	Grey	Nil		
						2	5	J	H			Highly				
						3	2	J	H			Weathered Bsalt				
						4	3	J	H							
						5	2	J	H							
						6	1	J	H							
2.00	3.00	100	7	12	64	7	16	J	H	64	54	**Piece No 7 to 12**	Grey	Nil		
						8	3	J	H			Moderately				
						9	23	J	H			Weathered Bsalt				
						10	3	J	H							
						11	4	J	H							
						12	15	J	H							
3.00	4.00	100	13	18	79	13	6	J	H	79	64	**Piece No 13 to 18**	Grey	Nil		
						14	21	J	H			Slightly				
						15	3	J	H			Weathered Bsalt				
						16	6	J	H							
						17	14	J	H							
						18	29	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

A-1, Vijay Apartments, Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Bore Hole Dia. : 100mm/ Nx
Water Table : 4.50 m BGL

Date of Commence: 27/06/2012
Date of Completion : 30/06/2012

Bore Hole No : **BH 6**

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
4.00	5.00	100	19	25	98	19	21	J	H	98	87	**Piece No 19 to 34A**	Grey	Nil		
						20	5	J	H			Slightly				
						21	16	J	H			Weathered Bsalt				
						22	6	J	H							
						23	19	J	H							
						24	19	J	H							
						25	12	J	H							
5.00	6.00	100	26	29	85	26	34	J	35°	85	85		Grey	Nil		
						27	11	J	V							
						28	18	J	H							
						29	22	J	H							
6.00	7.00	100	30	34A	82	30	38	J	H	82	51		Grey	Nil		
						31	13	J	H							
						32	9	J	H							
						33	7	J	35°							
						34	8	J	V							
						34A	7	J	V							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 4.50 m BGL

Date of Commence: 27/06/2012
Date of Completion : 30/06/2012

Bore Hole No : **BH 6**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
7.00	8.00	100	35	41	96	35	3	J	H	96	84	**Piece No 35 to 52**	Grey	Nil		
						36	9	J	H			Slightly				
						37	15	J	H			Weathered Bsalt				
						38	18	J	H							
						39	14	J	H							
						40	11	J	H							
						41	26	J	H							
8.00	9.00	100	42	46	92	42	9	J	V	92	83		Grey	Nil		
						43	12	J	H							
						44	22	J	H							
						45	31	J	H							
						46	18	J	H							
9.00	10.00	100	47	49	91	47	33	J	H	91	91		Grey	Nil		
						48	33	J	H							
						49	25	J	H							
10.00	11.00	100	50	52	119	50	9	J	H	119	110		Grey	Nil		
						51	54	J	H							
						52	56	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 4.50 m BGL

Date of Commence: 27/06/2012
Date of Completion : 30/06/2012

Bore Hole No : **BH 6**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
11.00	12.00	100	53	57	96	53	12	J	H	96	96	**Piece No 53 to 70**	Grey	Nil		
						54	18	J	H			Slightly				
						55	20	J	H			Weathered Bsalt				
						56	13	J	H							
						57	33	J	V							
12.00	13.00	100	58	61	92	58	34	J	H	92	92		Grey	Nil		
						59	18	J	V							
						60	28	J	H							
						61	12	J	H							
13.00	14.00	100	62	65	88	62	32	J	V	88	80		Grey	Nil		
						63	8	J	H							
						64	33	J	H							
						65	15	J	H							
14.00	15.10	110	66	70	78	66	25	J	H	71	71		Grey	Nil		
						67	13	J	H							
						68	11	J	H							
						69	12	J	H							
						70	17	J	H							
						Borehole BH 6 terminated at 15.10 m B.G.L										

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx

Water Table : 5.25 m BGL

Date of Commence: 2/07/2012

Date of Completion : 4/07/2012

Bore Hole No : **BH 7**

A-1, Vijay Apartments, Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
0.00	0.40											Overburden				
0.40	1.00	60	1	4	37	1	5	J	H	62	50	**Piece No 1 to 4**	Grey	Nil		
						2	2	J	H			Moderately				
						3	19	J	V			Weathered Bsalt				
						4	11	J	H							
1.00	2.00	100	5	7	84	5	12	J	H	84	84	**Piece No 5 to 14**	Grey	Nil		
						6	38	J	V			Slightly				
						7	34	J	H			Weathered Bsalt				
2.00	3.00	100	8	11	93	8	31	J	H	93	93		Grey	Nil		
						9	30	J	H							
						10	13	J	H							
						11	19	J	H							
3.00	4.00	100	12	14	94	12	50	J	H	94	94		Grey	Nil		
						13	24	J	H							
						14	20	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 5.25 m BGL

Date of Commence: 2/07/2012
Date of Completion : 4/07/2012

Bore Hole No : **BH 7**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
4.00	5.00	100	15	16	82	15	53	J	H	82	82	**Piece No 15 to 30**	Grey	Nil		
						16	29	J	H			Slightly				
												Weathered Bsalt				
5.00	6.00	100	17	19	88	17	13	J	H	88	88		Grey	Nil		
						18	48	J	H							
						19	27	J	H							
6.00	7.00	100	20	23	82	20	32	J	H	82	74		Grey	Nil		
						21	8	J	H							
						22	32	J	V							
						23	10	J	H							
7.00	8.00	100	24	27	79	24	27	J	H	79	79		Grey	Nil		
						25	19	J	H							
						26	21	J	H							
						27	12	J	H							
8.00	9.00	100	28	30	85	28	21	J	H	85	85		Grey	Nil		
						29	47	J	H							
						30	17	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx

Water Table : 5.25 m BGL

Date of Commence: 2/07/2012

Date of Completion : 4/07/2012

Bore Hole No : **BH 7**

A-1, Vijay Apartments, Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
9.00	10.00	100	31	31	82	31	82	J	H	82	82	**Piece No 31 to 46**	Grey	Nil		
												Slightly				
10.00	11.00	100	32	36	88	32	14	J	H	88	79	Weathered Bsalt	Grey	Nil		
						33	28	J	H							
						34	13	J	H							
						35	9	J	H							
						36	24	M	M							
11.00	12.00	100	37	41	88	37	14	J	45.00	88	80		Grey	Nil		
						38	8	J	H							
						39	28	J	H							
						40	16	J	H							
						41	22	J	H							
12.00	13.00	100	42	43	83	42	37	J	H	83	83		Grey	Nil		
						43	46	J	H							
13.00	14.00	100	44	46	84	44	22	J	H	84	84		Grey	Nil		
						45	26	J	H							
						46	36	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 5.25 m BGL

Date of Commence: 2/07/2012
Date of Completion : 4/07/2012

Bore Hole No : **BH 7**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
14.00	15.14	114	47	50	98	47	31	J	H	86	86	**Piece No 47 to 50**	Grey	Nil		
						48	14	J	H			Slightly				
						49	13	J	H			Weathered Bsalt				
						50	40	J	H							
						Borehole BH 7 terminated at 15.14 m B.G.L										

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation — Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx

Water Table : 4.00 m BGL

Date of Commence: 6/07/2012

Date of Completion : 10/07/2012

Bore Hole No : **BH 8**

A-1, Vijay Apartments, Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
0.00	4.00											Overburden				
4.00	5.00	100	1	3	49	1	15	J	V	49	49	**Piece No 1 to 3**	Grey	Nil		
						2	10	J	H			Moderately				
						3	24	J	H			Weathered Basalt				
5.00	6.00	100	4	7	80	4	7	J	H	80	73	**Piece No 4 to 14**	Grey	Nil		
						5	45	J	H			Slightly				
						6	15	J	H			Weathered Basalt				
						7	13	J	H							
6.00	7.00	100	8	10	92	8	16	J	H	92	92		Grey	Nil		
						9	41	J	H							
						10	35	J	V							
7.00	8.00	100	11	12	94	11	25	J	H	94	94		Grey	Nil		
						12	69	J	H							
8.00	9.00	100	13	14	78	13	39	J	H	78	78		Grey	Nil		
						14	39	J	H							

CORE LOG

Client : M/s Lodha Dwellers Pvt Ltd

Project : Proposed Project **Palava -II** at Village Khoni, Dombivli

Invest in Investigation
Ochre Drillers India Private Limited

Bore Hole Dia. : 100mm/ Nx
Water Table : 4.00 m BGL

Date of Commence: 6/07/2012
Date of Completion : 10/07/2012

Bore Hole No : **BH 8**

A-1, Vijay Apartments,
Pachpakhadi, Thane (W)
Tel : 022 - 2537 1020

Depth (m)		Drill Run Length	No of Core Pieces		Total Length of Core Recovered	Piece No	Piece Length	Nature of Fracture	Angle of Joint with Vertical	Rock Core Recovery	Rock Quality Designation	Description	Wash Water Colour	Water Loss	Core Loss	Remarks
From	To	(cm)	From	To	(cm)		(cm)	(M/J)	(Deg)	(%)	(%)			(%)	(%)	
9.00	10.18	118	15	18	98	15	52	J	H	83	76	**Piece No 15 to 18**	Grey	Nil		
						16	8	J	H			Slightly				
						17	21	J	H			Weathered Basalt				
						18	17	J	H							
						Borehole BH 8 terminated at 10.18 m B.G.L										

SOIL TEST DATA SHEET

Client : **M/s Lodha Dwellers Pvt Ltd**

Contractor : **M/s Ochre Drillers India Pvt Ltd, Thane**

Project : Proposed project '**Palava-II**' At Khoni, Dombivli

BORE HOLE / PIT NO.	DEPTH (m)	SAMPLE TYPE UD / D	DENSITY		NATURAL MOISTURE CONTENT, w %	MECHANICAL ANALYSIS				CONSISTENCY LIMITS			SOIL CLASSIFICATION (I.S)				CONSOLIDATION TEST		SPECIFIC GRAVITY	REMARKS
			WET gm/cm^3	DRY gm/cm^3		GRAVEL %	SAND %	SILT %	CLAY %	LIQUID %	PLASTIC %	PLASTICITY INDEX, I_p %		SHRINKAGE %	Swelling Pressure Kg/cm^2	Free Swell Index %	COMP. INDEX C_c (Lab)	INITAL VOID RATIO %		
BH 8	1.00 - 1.35	**SPT**				30	31	39		40	24	16	**SC**						2.87	

CHEM CHEMICAL ANALYSIS
COMP COMPACTION TEST
DS :- DIRECT SHEAR
K :- PERMEABILITY TEST
FS :- FREE SWELL TEST

Tuu :- TRIAXIAL TEST UNCONSOLIDATED UNDRAINED
Tcu :- TRIAXIAL TEST CONSOLIDATED UNDRAINED
Tcd :- TRIAXIAL TEST CONSOLIDATED DRAINED
NP :- NON PLASTIC
SL :- SHRINKAGE LIMIT TEST

SP :- SWELLING PRESSURE OR SWEELING POTENTIAL TEST
RM :- REMOULDED
VL :- LABORATORY VANE SHEAR TEST
UC :- UNCONFINED COMPRESSION TEST

f :- ANGLE OF INTERNAL FRICTION
Cc :- UNDRAINED COHESION
f' :- EFFECTIVE ANGLE OF INTERNAL FRICTION
Cc' :- EFFECTIVE COHESION

Job. No. :- 1236

Prepd. By. :- Surekha

TEST RESULTS OF ROCK CORES

Client : **M/s Lodha Dwellers Pvt Ltd**

Contractor : **M/s Ochre Drillers India Pvt Ltd, Thane**

Project : Proposed project '**Palava-II**' At Khoni, Dombivli

Sr. No.	Bore Hole No.	Core No.	Depth m	Diameter cm	Height cm	H : D (1:H/D)	Failure Load Tonnes	Uniaxial Compressive Strength Kg / cm^2	Porosity %	Water Absorption %	Dry Density gm / cm^3	Point Load Index Kg / cm^2	Remarks
1	BH 1	17	2.50 - 3.00	5.5	10.6	1.93		546	4.05	1.52	2.66		
2	BH 1	29	6.00 - 7.00	5.4	10.8	2.00		683	4.41	1.64	2.68		
3	BH 1	40	9.00 - 10.00	5.5	10.7	1.95		801	4.51	1.58	2.86		
4	BH 1	48	12.00 - 13.00	5.4	10.6	1.96		179	3.91	1.36	2.88		*
5	BH 2	9	1.00 - 2.00	5.5	10.6	1.93		315	6.12	2.25	2.73		
6	BH 2	20	4.00 - 5.00	5.4	11.0	2.04		275	4.37	1.62	2.69		
7	BH 2	37	9.00 - 10.00	5.4	10.8	2.00		171	8.25	3.05	2.70		*
8	BH 2	53	14.00 - 15.02	5.4	10.9	2.02		671	3.06	1.09	2.82		

mple failed along joints

** All Samples were Soaked for 24 Hours Before the Test

Job No :-	1236
Prepd By :-	Surekha

TEST RESULTS OF ROCK CORES

Client : **M/s Lodha Dwellers Pvt Ltd**

Contractor : **M/s Ochre Drillers India Pvt Ltd, Thane**

Project : Proposed project '**Palava-II**' At Khoni, Dombivli

Sr. No.	Bore Hole No.	Core No.	Depth m	Diameter cm	Height cm	H : D (1:H/D)	Failure Load Tonnes	Uniaxial Compressive Strength Kg / cm^2	Porosity %	Water Absorption %	Dry Density gm / cm^3	Point Load Index Kg / cm^2	Remarks
9	BH 3	2	0.30 - 1.00	5.4	10.8	2.00		704	4.13	1.55	2.66		
10	BH 3	11	3.00 - 4.00	5.5	10.4	1.89		708	6.31	2.31	2.73		
11	BH 3	24	6.00 - 7.00	5.5	11.0	2.00		692	7.43	2.79	2.66		
12	BH 3	31	10.00 - 11.00	5.5	11.2	2.04		685	4.25	1.55	2.74		
13	BH 3	46	13.00 - 14.00	5.5	10.7	1.95		693	8.56	3.43	2.49		
14	BH 4	8	1.00 - 2.00	5.40	10.80	2.00		616	3.76	1.44	2.61		
15	BH 4	20	4.00 - 5.00	5.50	10.80	1.96		255	7.68	3.01	2.55		
16	BH 4	60	14.00 - 14.70	5.50	10.70	1.95		762	2.14	0.76	2.80		

* indicates the sample failed along joints

** All Samples were Soaked for 24 Hours Before the Test

Job No :-	1236
Prepd By :-	Surekha

TEST RESULTS OF ROCK CORES

Client : **M/s Lodha Dwellers Pvt Ltd**

Contractor : **M/s Ochre Drillers India Pvt Ltd, Thane**

Project : Proposed project '**Palava-II**' At Khoni, Dombivli

Sr. No.	Bore Hole No.	Core No.	Depth m	Diameter cm	Height cm	H : D (1:H/D)	Failure Load Tonnes	Uniaxial Compressive Strength Kg / cm^2	Porosity %	Water Absorption %	Dry Density gm / cm^3	Point Load Index Kg / cm^2	Remarks
17	BH 5	1	0.60 - 1.00	5.4	11.1	2.06		677	4.65	1.76	2.64		
18	BH 5	16	3.00 - 4.00	5.5	11.3	2.05		344	8.04	3.06	2.63		
19	BH 5	25	6.00 - 7.00	5.4	11.4	2.11		616	9.21	3.82	2.41		
20	BH 5	42	10.00 - 11.00	5.5	11.4	2.07		354	12.77	5.17	2.47		
21	BH 5	59	14.00 - 14.98	5.4	11.2	2.07		481	5.30	2.00	2.64		
22	BH 6	7	2.00 - 3.00	5.00	11.00	2.20		191	11.09	4.33	2.56		*
23	BH 6	39	7.00 - 8.00	5.50	10.90	1.98		261	3.34	1.21	2.76		*
24	BH 6	54	11.00 - 12.00	5.40	11.20	2.07		649	4.56	1.61	2.84		
25	BH 7	3	0.40 - 1.00	5.40	10.70	1.98		825	7.67	3.09	2.48		
26	BH 7	17	5.00 - 6.00	5.40	10.90	2.02		621	2.51	0.89	2.82		
27	BH 7	40	11.00 - 12.00	5.50	10.50	1.91		834	5.46	2.07	2.64		

* indicates the sample failed along joints

** All Samples were Soaked for 24 Hours Before the Test

Job No :-	1236
Prepd By :-	Surekha

TEST RESULTS OF ROCK CORES

Client : **M/s Lodha Dwellers Pvt Ltd**

Contractor : **M/s Ochre Drillers India Pvt Ltd, Thane**

Project : Proposed project '**Palava-II**' At Khoni, Dombivli

Sr. No.	Bore Hole No.	Core No.	Depth m	Diameter cm	Height cm	H : D (1:H/D)	Failure Load Tonnes	Uniaxial Compressive Strength Kg / cm^2	Porosity %	Water Absorption %	Dry Density gm / cm^3	Point Load Index Kg / cm^2	Remarks
28	BH 8	8	6.00 - 7.00	5.60	10.50	1.88		815	11.38	4.55	2.50		
29	BH 8	18	9.00 - 10.18	5.40	11.40	2.11		844	8.64	3.33	2.60		

* indicates the sample failed along joints

** All Samples were Soaked for 24 Hours Before the Test

Job No :-	1236
Prepd By :-	Surekha

Chemical Analysis of Water

Client : **M/s Lodha Dwellers Pvt Ltd**
Project : Proposed project '**Palava-II**' At Khoni, Dombivli
Contractor : **M/s Ochre Drillers India Pvt Ltd, Thane**

Serial No	Bore Hole No	Depth	pH' Value	Sulphates as SO_3^-	Chlorides as Cl^-
		(m)		(ppm)	(ppm)
1	BH 1	6.00	6.46	100	30
2	BH 2	6.50	7.38	100	20
3	BH 3	6.50	7.54	150	100
4	BH 7	5.50	8.64	100	20
5	BH 8	6.00	8.72	100	20
				Job No :-	1236
				Prepd By :-	Surekha

Date :	July 18, 2012	Dsgn By :	Mandar	*Invest in Investigation* Ochre Drillers India Private Limited	
Job No. :	1236	Chkd By :	Shekhar		
Client :	**M/s Lodha Dwellers Pvt Ltd**				
Project :	Proposed **Palava II** project at village Khoni				
Location :	at village Khoni, Dombivli			Rev. No. :	R_0
Subject :	Safe Bearing Capacity by RMR Method_**Highly Weathered Basalt**				

To determine the net safe bearing of rock stratum, strength of rock core alone is not used. Overall characteristics of rock mass which are covered by five parameters used below are studied and net safe bearing capacity of rock mass instead of rock stratum is evaluated.

Average rock mass parameters as obtained from boreholes are used below.

ESTIMATION OF ROCK MASS RATING

Rock Mass Rating (RMR) of jointed rock masses, has been worked out based on IS 13365 (part I).

Parameters	Classifi-cation	Field Values	Rating
Strength of Intact rock Material (Mpa)	Average	45	4
Rock Quality Designation(RQD)	Very Poor	0	3
Spacing of Discontinuities	Very Close	< 0.06	5
Condition of Discontinuities		5	0
Ground Water Condition	Flowing	5	0
		Total Rating	12

As per IS 12070 -1987

Description of rock with RMR Values between **: Very Poor**

0	and	20
RMR :	0	20
Q (T/m^2) :	40	55

Safe Bearing Capacity = **49.00** T/m^2 **490.00** kN/m^2

However considering the variation in rock mass over the entire plan area, it is recommended to adopt Net SBC of **450.80** kN/m^2

Date :	July 18, 2012	Dsgn By :	Mandar	*Invest in Investigation* Ochre Drillers India Private Limited	
Job No. :	1236	Chkd By :	Shekhar		
Client :	**M/s Lodha Dwellers Pvt Ltd**				
Project :	Proposed **Palava II** project at village Khoni				
Location :	at village Khoni, Dombivli			Rev. No. :	R_0
Subject :	Safe Bearing Capacity by RMR Method_**Moderately Weathered Basalt**				

To determine the net safe bearing of rock stratum, strength of rock core alone is not used. Overall characteristics of rock mass which are covered by five parameters used below are studied and net safe bearing capacity of rock mass instead of rock stratum is evaluated.

Average rock mass parameters as obtained from boreholes are used below.

ESTIMATION OF ROCK MASS RATING

Rock Mass Rating (RMR) of jointed rock masses, has been worked out based on IS 13365 (part I).

Parameters	Classification	Field Values	Rating
Strength of Intact rock Material (Mpa)	Average	45	4
Rock Quality Designation(RQD)	Poor	35	8
Spacing of Discontinuities	Close	0.06-0.2	8
Condition of Discontinuities		4	10
Ground Water Condition	Flowing	5	0
		Total Rating	30

As per IS 12070 -1987

Description of rock with RMR Values between **: Fair**

20	and	40
RMR :	20	40
Q (T/m^2) :	58	145

Safe Bearing Capacity = **101.50** T/m^2 **1015.00** kN/m^2

However considering the variation in rock mass over the entire plan area, it is recommended to adopt Net SBC of **812.00** kN/m^2

Date :	July 18, 2012	Dsgn By :	Mandar	*Invest in Investigation* Ochre Drillers India Private Limited	
Job No. :	1236	Chkd By :	Shekhar		
Client :	**M/s Lodha Dwellers Pvt Ltd**				
Project :	Proposed **Palava II** project at village Khoni				
Location :	at village Khoni, Dombivli			Rev. No. :	R_0
Subject :	Safe Bearing Capacity by RMR Method_**Slightly Weathered Basalt**				

To determine the net safe bearing of rock stratum, strength of rock core alone is not used. Overall characteristics of rock mass which are covered by five parameters used below are studied and net safe bearing capacity of rock mass instead of rock stratum is evaluated.

Average rock mass parameters as obtained from boreholes are used below.

ESTIMATION OF ROCK MASS RATING

Rock Mass Rating (RMR) of jointed rock masses, has been worked out based on IS 13365 (part I).

Parameters	Classification	Field Values	Rating
Strength of Intact rock Material (Mpa)	Average	55	7
Rock Quality Designation(RQD)	Fair	65	13
Spacing of Discontinuities	Moderate	0.2-0.6	10
Condition of Discontinuities		3	20
Ground Water Condition	Flowing	5	0
		Total Rating	50

As per IS 12070 -1987

Description of rock with RMR Values between **: Fair**

40	and	60
RMR :	40	60
Q (T/m^2) :	151	280

Safe Bearing Capacity = **215.50** T/m^2 **2155.00** KN/m^2

However considering the variation in rock mass over the entire plan area, it is recommended to adopt Net SBC of **1616.25** KN/m^2