Site	**10a Oakhill Avenue**	Borehole No:	**WS3**
Location	**London NW3 7RE**		
Client:	**Eli Nathenson**	Sheet	**1 of 2**
Engineer:	**ESI Ltd**	Report No:	**9374/MC**

Comments	Samples Type	Samples Depth[m]	Field Test	Strata Depth[m]		Strata Level[mOD]	Strata Description	Legend
Borehole conducted: 02 May 2013				0.00	0	+92.60	MADE GROUND: Reinforced concrete slab.	0
				0.15		+92.45	Firm, becoming stiff, locally firm, below 1.8m, orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	
	D	0.25						
	D	0.50						
	D	0.70						
	D	1.00			1			1
	D	1.30						
	D	1.60						
	D	1.90			2			2
Groundwater depth 2.20m [10 minutes after completion].	D	2.20						
	D	2.70						
	D	3.00			3			3
	D	3.50						
Groundwater strike around 3.6m depth								
	D	4.00			4			4
	D	4.50						
				4.90		+87.70	Stiff, fissured, dark grey-brown, slightly sandy silty CLAY, with occasional pockets and partings of silty sand.	
				5.00	5	+87.60	End of borehole at 5.00m.	5

Constructed using tracked rig with cased percussive sampling system [plastic liner]

Key: U = Undisturbed B = Bulk D = Small disturbed W = Water S = SPT 'N' [split spoon sampler] C = SPT 'N' [solid cone] HV = Hand Vane [kPa] PP = Pocket Penetrometer [kg/cm^2]

Remarks :- Groundwater monitoring well installed on completion - see Sheet 2 for details

Ground level interpolated from Kings Land and Architectural Surveyors' survey drawing (ref. 95274.0001)

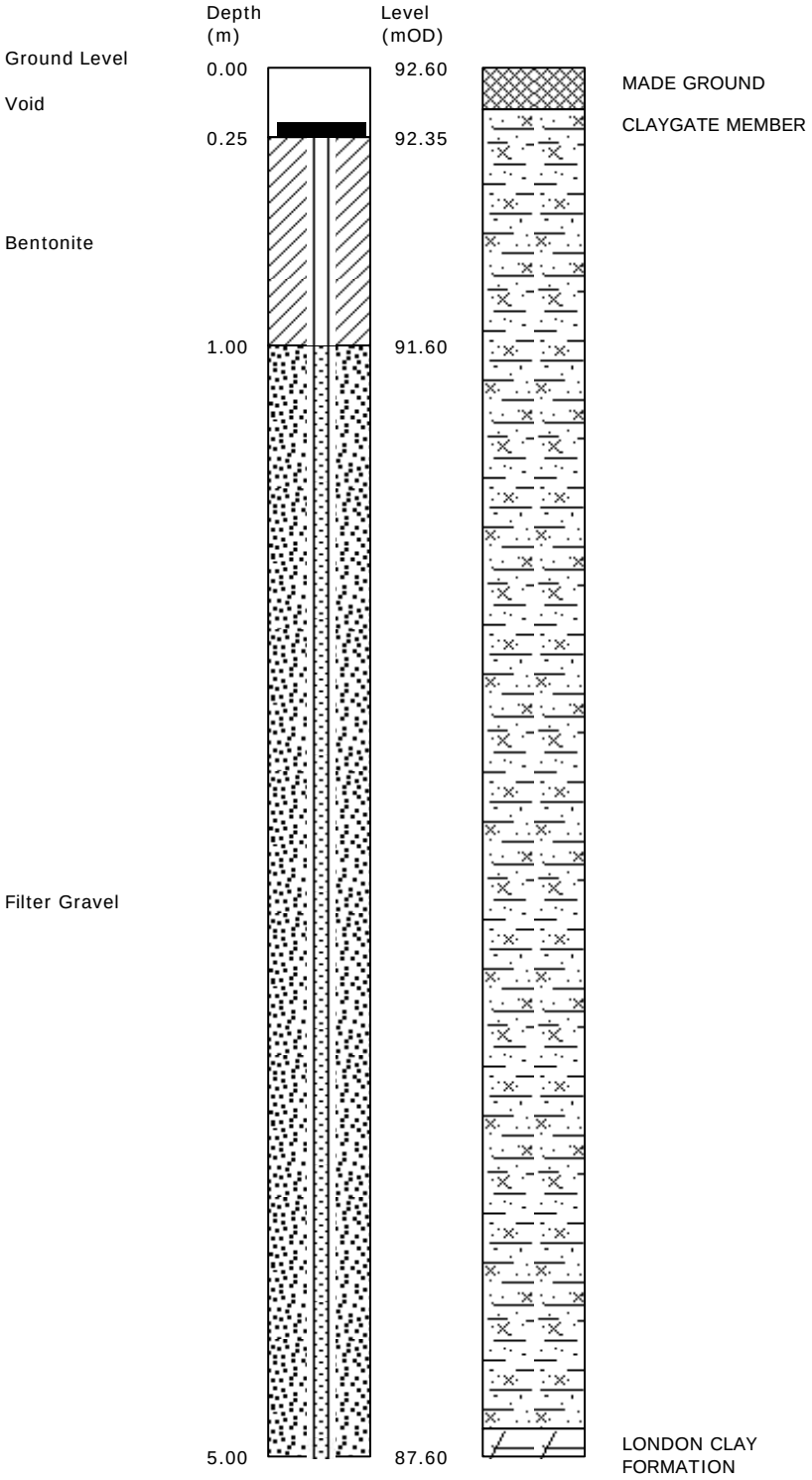
Borehole No: **WS3**

[* = extrapolated SPT 'N' value]

Soil Consultants

Site	**10a Oakhill Avenue**	Borehole No:	**WS3**
Location	**London NW3 7RE**		
Client:	**Eli Nathenson**	Sheet	**2 of 2**
Engineer:	**ESI Ltd**	Report No:	**9374/MC**

Borehole Installation and Backfill Details



Constructed using tracked rig with cased percussive sampling system [plastic liner]

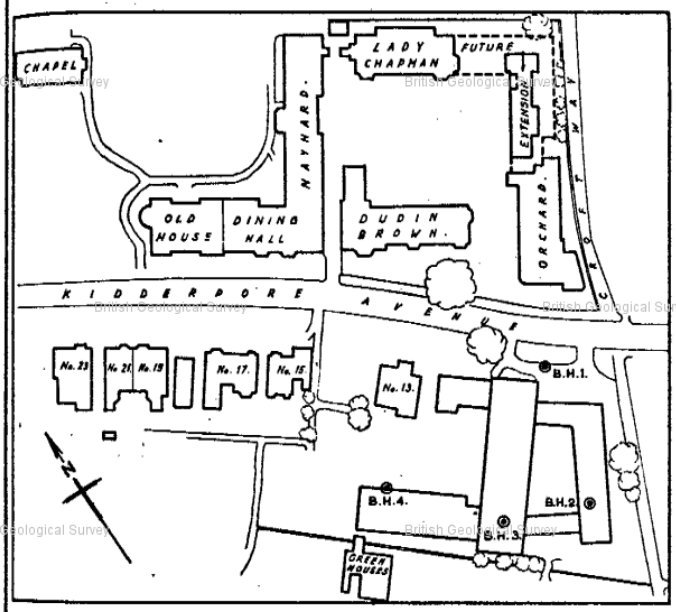
Remarks :- [i] Pipe diameter: 35mm
[ii] Tip at 5m depth [87.6m OD approx]
[iii] Bung fitted

Borehole No: **WS3**

TQ/28NE/119

1" : 256

Fig. 6.



SCALE:- 1:1000

3119

BOREHOLE	DEPTH FT.	GROUND LEVEL Ft.	LONDON CLAY Ft.	WATER LEVEL Ft.	TRIAXIAL TEST RESULTS: SAMPLE DEPTH Ft.	SHEAR STRENGTH OR COHESION (C) lb/sq ft.	ANGLE OF SHEARING RESISTANCE (φ)°
1	50·5	71·7	32·7	51·3	5	(1) 2230	
					15	(2) 2580	0
					21	(3) 2090	
					41	(4) 2598	0
2	35·0	62·0	48·0	37·5	-	-	-
3	50·0	62·3	47·3	55·6	7	(1) 790	
					16	(2) 1080	0
					26	(3) 1800	0
4	35·0	69·1	51·1	62·9	10	(1) 1730	
					30	2230	0

NOTE: ALL LEVELS REFERRED TO CLIENT'S DATUM WHICH IS 326·44 ft. ABOVE N.D.

LOC. 3117. WESTFIELD COLLEGE, HAMPSTEAD N.W.3.
PLAN SHOWING BOREHOLES POSITIONS ON SITE OF NEW SCIENCE BUILDING.

SOIL MECHANICS LTD.
63, OLD CHURCH STREET, LONDON, S.W.3

TQ28NE/119

2587 8575

Fig. 1

BOREHOLE LOG

LOCATION NO. 3117 Westfield College, Hampstead, N.W.3.

CARRIED OUT FOR Council of Westfield College.

BOREHOLE NO. 1 DIAMETER : 8 Inch

GROUND LEVEL : 71.7 above Clients arbitrary datum DATE : 14th to 16th March, 1959

Description	Reduced Level	Legend	Sample	Depth	Thickness	M/c %
	+71.7			0'0"		
Rubble, clinker and gravel MADE GROUND	+69.9		1	1'9"	1'9"	
			2			26
Firm mottled grey and brown sandy clayey SILT becoming brown and more sandy below 7 ft. (CLAYGATE BEDS)			3			24
			4			25
			5		12'9"	24
			6			25
	+57.2		7	14'6"		24
Firm becoming stiff light grey-brown sandy clayey SILT, more clayey below 17 ft. (Probably Claygate Beds)			8		4'6"	30
	+52.7		9	19'0"		26
Stiff dark grey silty CLAY fissured and very stiff below 40 ft. Fine gypsum throughout. (LONDON CLAY)			10			29
			11			25
			12			29
			13			27
			14		31'6"	26
			15			25
			16			25
			17			24
			18			25
			19			25
			20			25
			22 21			29
	+21.2			50'6"		

END OF BOREHOLE

Water Level Observations

Date	Time	Depth of Borehole	Depth of Casing	Depth to Water
16 3 59	0730	14'6"	14'6"	7'4"
17 3 59	0730	50'6"	-	20'6"

Scale: 1 in. = 5 ft. • Disturbed Sample ▮ Core Sample △ Water Sample

SOIL MECHANICS LTD., 65 OLD CHURCH ST., S.W.3

3119 3120 312 312 31

TQ28NE/119

2587. 8575

Fig. 2

BOREHOLE LOG

LOCATION NO. 3117 Westfield College, Hampstead

CARRIED OUT FOR Council of Westfield College.

BOREHOLE NO. 2 DIAMETER: 8 inches

GROUND LEVEL: 62.0 ft. above Clients arbitrary datum DATE: 19th March, 1959

DESCRIPTION	REDUCED LEVEL	LEGEND	SAMPLE	DEPTH	THICKNESS	M/c %
TOPSOIL with turf	+62.0 +61.5		No.1	0'10" 0'6"	0'6"	
Soft becoming firm to stiff brown and grey mottled sandy clayey SILT, more sandy below 10 ft. (CLAYGATE BEDS)			3 4 5 6 7		13'6"	25
Coarse gypsum crystals	+48'0		8 9 10	14'0"		30
Firm becoming stiff at 15 ft and very stiff at 28 ft. grey slightly fissured silty CLAY containing fine gypsum (LONDON CLAY)			11 12 13 14 15 17Δ 16		21'0"	27
	+27.0			35'0"	27	

END OF BOREHOLE

Water Level Observations

Date	Time	Depth of Borehole	Depth of Casing	Depth to Water
20-3-59	0730	35'0"	—	24'6"

Scale: 1 in. = 5 ft. • Disturbed Sample | Core Sample Δ Water Sample

SOIL MECHANICS LTD., 65, OLD CHURCH ST., S.W.3.

3119

TQ/28NE/119
2537.8575

Fig. 3

BOREHOLE LOG

LOCATION NO. 3117 Westfield College

CARRIED OUT FOR Council of Westfield College

BOREHOLE NO. 3 DIAMETER : 8 inches

GROUND LEVEL : 62.3 ft. above clients arbitrary datum DATE : 20th and 21st March, 1959

Description	Reduced Level	Legend	Sample	Depth	Thickness	M/C %
SOIL with turf	+62.3 +61.3		1 2	0'0" 1'0" 0.31	1'0"	
Firm becoming stiff brown and grey mottled sandy silty CLAY. Very sandy at 5 ft. 6 in. (CLAYGATE BEDS)			3 4 5 6		14'0"	28
	+47.3		7	15'0" 4.57		29
Stiff grey slightly fissured silty CLAY with fine gypsum (LONDON CLAY)			8 9 10 11 12 13 14 15		35'0"	20
Each find gypsum 39 ft. and 1 large septarian nodule.			16 17 18 19 20			29
	+12.3		21	50'0" 15.24		

END OF BOREHOLE

Water Level Observations

Date	Time	Depth of Borehole	Depth of Casing	Depth to Water
21-3-59	0730	41'0"	20' 0"	6' 6"

Scale: 1 in. = 5 ft. • Disturbed Sample ▮ Core Sample △ Water Sample

SOIL MECHANICS LTD, 65 OLD CHURCH ST, S.W.3.

3119 3120 3123 3124 3125

TQ/28NE/119

2537.8575

Fig. 4

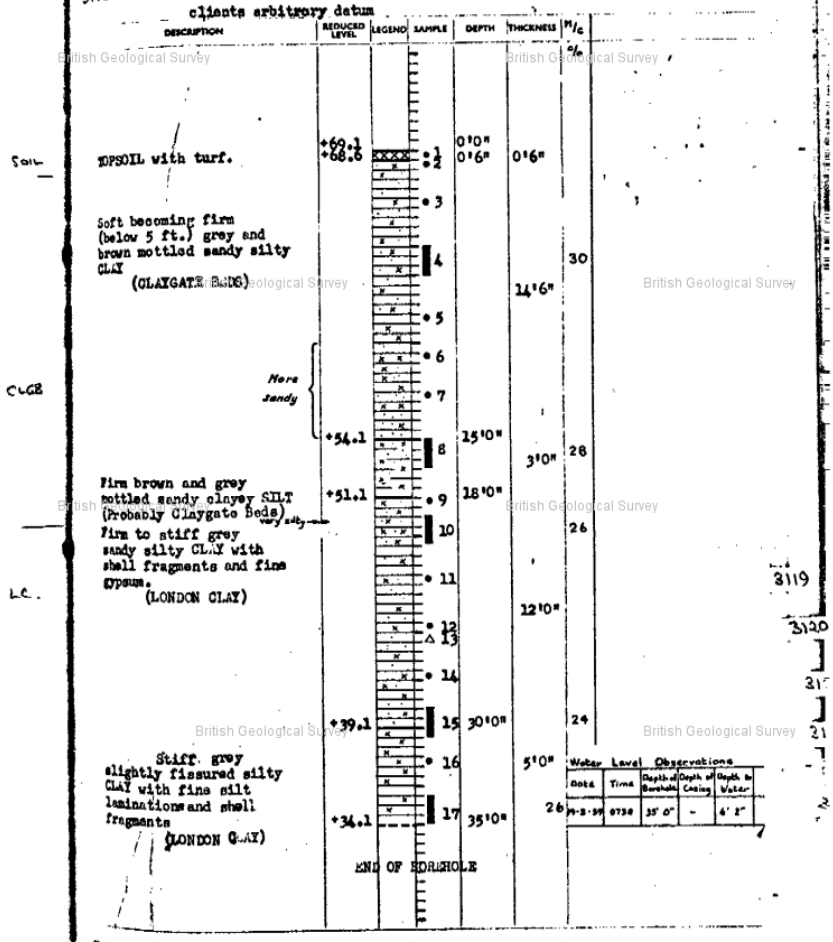
BOREHOLE LOG

LOCATION NO. 3117 Westfield College, Hampstead

CARRIED OUT FOR Council of Westfield College.

BOREHOLE NO. 4 DIAMETER: 8 inches

GROUND LEVEL: 69.1 ft. above clients arbitrary datum DATE: 17th and 18th March, 1959



SOIL MECHANICS LTD., 65, OLD CHURCH ST., S.W.3.

B/1 (1965)

Height 405.08 O.D.

TQ/28NE/103

2608. 8603.

	Thickness (ft)	Depth (ft)
Top Soil	¼	
Brown sand with stones	4½	¼
Brown sandy mottled clay	4¼	4½
Firm brown clay with layers of sand	32	9
Very sandy brown clay	8½	41
Silt with layers of silty clay	11	49½
Soft brown mottled silty clay	2½	60½
Silt with layers of silty clay	8	63
Firm silty blue clay	11	71
Hard blue clay with layers of sand	37½	82
	119½	

? 81 ft Wash

BB

CB

B/HL (1968)

TQ/28NE/104 c. 370'+OD

2603. 8603.

	Thickness (ft)	Depth (ft)
Dirty sand	4	
Silty clayey sand	38	4
Silty grey clay	2	42
Silty sand	6	44
Grey silt (liquid)	10	50
Grey clay	10	60
	70	

BB

CB

KEY PLAN AT BACK OF REPORT.

APPENDIX C

Thames Water Sewer Flooding History Enquiry

Sewer Flooding

History Enquiry

Thames Water Property Searches
12
Vastern Road
Reading
RG1 8DB

Search address supplied 10 A
Oakhill Avenue
London
NW3 7RE

Your reference N/A

Our reference SFH_SFH_Standard_2013_2460512

Search date **29 April 2013**

Thames Water Utilities Ltd

Property Searches
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504
F 0118 923 6655/57
E searches@thameswater.co.uk
I www.thameswater-propertysearches.co.uk

Registered in England and Wales
No. 2366661, Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

Sewer Flooding

History Enquiry

Search address supplied: 10 A, Oakhill Avenue, London, NW3 7RE

This search is recommended to check for any sewer flooding in a specific address or area

TWUL, trading as Property Searches, are responsible in respect of the following:-

(i) any negligent or incorrect entry in the records searched;

(ii) any negligent or incorrect interpretation of the records searched;

(iii) and any negligent or incorrect recording of that interpretation in the search report

(iv) compensation payments

Thames Water Utilities Ltd

Property Searches
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504
F 0118 923 6655/57
E searches@thameswater.co.uk
I www.thameswater-propertysearches.co.uk

Registered in England and Wales
No. 2366661, Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

Sewer Flooding

History Enquiry

History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

Although Thames Water does not have records of public sewer flooding within the vicinity, please be aware that property owners are not legally obliged to report this flooding to Thames Water. In addition flooding from private sewers, watercourses and highways drains are not the responsibility of Thames Water, and such incidents may not be noted in our records. We therefore strongly advise you to contact the current owners and occupiers of the premises and inquire about sewer flooding.

For your guidance:

- A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- "At Risk" properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company's reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0845 9200 800 or website www.thameswater.co.uk

Thames Water Utilities Ltd

Property Searches
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504
F 0118 923 6655/57
E searches@thameswater.co.uk
I www.thameswater-propertysearches.co.uk

Registered in England and Wales
No. 2366661, Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

APPENDIX D

Site Investigation Report

Report Reference: 61458R1D1
Report Status: First Draft

Soil Consultants
Ground Investigation
Geotechnical Analysis
Contamination Assessment

FACTUAL REPORT ON GROUND INVESTIGATION

PROPOSED REDEVELOPMENT:

10a OAKHILL AVENUE, LONDON NW3 7RE

Client:	**Eli Nathenson** **43 Burghley Road** **London** **NW5 1UH**
Environment Specialists:	**ESI Ltd** **New Zealand House** **160 Abbey Foregate** **Shrewsbury** **SY2 6FD**
Report ref:	**9374/MC/AW**
Date:	**24th May 2013 [Rev 0]**

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Holmer Green, High Wycombe
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Registered in England No 1814762 – 36 Harefield Road, Uxbridge, Middlesex UB8 1PH
VAT No 491 8249 15

FACTUAL REPORT ON GROUND INVESTIGATION

PROPOSED REDEVELOPMENT:

10a OAKHILL AVENUE, LONDON NW3 7RE

DOCUMENT ISSUE STATUS:

Issue	Date	Description	Author	Checked / approved
Rev 0	24 May 2013	First issue	Matthew Clarke BSc(Hons) MSc(Dipl) CGeol FGS	Alan Watson BSc (Eng) CEnv CEng MICE

TABLE OF CONTENTS

APPENDIX

1.0 INTRODUCTION

It is proposed to demolish the existing buildings of No. 10a Oakhill Avenue, London NW3 7RE, and to construct a new residential building with four storeys above ground. The design will extend the existing front-aspect lower ground floor level to become a rear-aspect basement and, across some of the existing footprint, extend down for an additional basement level and a swimming pool.

This report presents the findings of a geotechnical ground investigation.

The site is also the subject of a further report: Soil Consultants Limited's, 'Land Stability Report' [Ref 9374A/MC/TSR, dated May 2013].

This Report has been prepared for the benefit of the Client and associated parties directly involved with the design and construction of the project under direction of the Client. No reliance can be assumed by others without written agreement from Soil Consultants Limited.

2.0 SITE DESCRIPTION

The site of our investigation comprises the existing residential buildings, at number 10a Oakhill Avenue, in the Frognal and Fitzjohns district of the London Borough of Camden, at postcode NW3 7RE and approximate National Grid Reference 525690E, 185715N.

The site, which is approximately rectangular on plan, extends for some 23m along the northern side of Oakhill Avenue and 60m towards the north-west - covering an area of around 1135m². The existing buildings have a maximum of four above-ground storeys, including the front-aspect lower ground floor and are set amidst hardstanding with peripheral soft landscaping to the front and a garden to the rear. The site is bounded by further residential properties along Oakhill Avenue to the front and side and also to the rear, on Heath Drive.

The general topography slopes gently down, from Parliament Hill 500m to the NE, towards the River Westbourne, some 2.9km to the SW. The site is at an approximate elevation of +93mOD, although there are various elevation changes across the site: from a maximum of +96.25mOD near to the northern corner of the existing building, to +92.20mOD at the southern street boundary. Oakhill Avenue descends the hill along the steepest gradient and there is a fall across the length of the property of around 2.0m. The property is partially cut into the hillside and the southern half has been cut [by some 2.5m] to form an area of level hardstanding, providing access to lower ground floor garages, that are at street level at that end of the site. The northern half of the property is fronted by a terrace garden, which is accessed by stairway; rising from street level to the general 'ground floor' level of +96.2mOD. This general level extends, apart from a western corner of the rear garden which is at a lower elevation, to a point approximately mid-way along the property's length. From here the site slopes down by around 2.0m to the northern boundary.

There are rows of mature trees within the pavement on both sides of Oakhill Avenue and several mature trees, including oaks, within the gardens of the property and neighbouring properties. It is understood that the site has been the subject of an arboricultural survey and it is recommended that this be consulted with regard to tree locations, conditions, height and species.

The current site features are shown on the Site Plan which is included in the Appendix.

3.0 EXPLORATORY WORK

The ground investigation was carried out in May 2013 and the property was in residential occupancy. Potential locations for exploratory holes were therefore limited to those deemed suitable to avoid impeding site usage.

Our investigation comprised the following elements.

Window sample boreholes

Three window sample boreholes [WS1 to WS3] were completed using hand held/operated equipment under the supervision of an experienced geotechnical engineer. This technique involves driving hollow tubes of gradually reducing diameter into the ground using a hydraulically driven jackhammer. After each tube reaches the desired depth, it is removed using hydraulic jacks and the next tube is then driven. This method provides a near-continuous profile of the soil. Pocket penetrometer shear strength testing was performed at various depths and representative samples were taken for geotechnical and environmental testing. Monitoring pipes were installed in each borehole.

Groundwater monitoring

Water monitoring was carried out on two occasions following completion of the site works on 16th May and 24th May 2013.

Geotechnical laboratory testing

The following geotechnical laboratory testing was completed:

- moisture content profiling
- index properties tests [Atterberg Limits]
- pH and water-soluble sulphate tests [by QTS Environmental]

The engineering logs of the exploratory holes and the laboratory testing results to-date are included in the Appendix. The pH and sulphate results are pending and will be appended.

4.0 GROUND CONDITIONS

The geological survey map of the area indicates that the site is underlain by horizons of the London Clay Formation, with the uppermost unit, the Claygate Member at surface. Our investigation confirmed this sequence, beneath a thin cover of topsoil and made ground.

4.1 Made ground

Boreholes WS2 and WS3 were located in areas of existing hard-standing, which was 0.10m and 0.15m thick and comprised paving slabs and tarmac hardstanding, respectively.

4.2 Topsoil

Beneath the paving slab in WS2 and from surface in WS1 was soft, very dark grey-brown, slightly sandy and gravelly, organic silt topsoil. This extended to 0.30m in WS1 and included gravel-size pieces of ash, glass and slate; and in WS2 it extended to 0.70m and included gravel of brick and flint.

4.3 Claygate Member

The Claygate Member was met beneath the made ground and topsoil and, where proven, extended to depths of between 5.95m [+90.20mOD] and 4.90m [+87.70mOD]. This deposit comprised orange-brown and light orange-brown, sandy, silty clay, with pockets and partings of silty sand.

The Claygate Member was of soft, locally firm, becoming stiff consistency, but was locally soft and firm amidst the stiff. Atterberg Limits tests show these to be of low to intermediate plasticity in the Casagrande classification and, in the NHBC definition, to be soils of low volume-change potential.

Live rootlets were observed only within WS2, at a depth of 2.5m.

4.4 London Clay

The London Clay comprised fissured, dark grey-brown, slightly sandy, silty clay, with occasional pockets and partings of silty sand. The proportion of sand was lower than in the Claygate Member and the sandy pockets less frequent. Where proven the upper surface was present at depths of 4.90m and 5.95m. The London Clay was of stiff consistency.

This formation extended to the base of boreholes WS1 and WS3, at depths of 7.00m [89.15mOD] and 5.00m [87.60mOD].

4.5 Ground-water

Ground-water was encountered within the Claygate Member and rest levels of between 1.07m and 4.14m were measured during monitoring of the standpipes. The range in depths reflects the topographical variation across the site.

Water data are summarised in the table below:

BH WS	Inflows [depth & level]	Monitoring results [depth and level] 2 May 2013	16 May 2013	24 May 2013
1	Around 4.4m [+91.75mOD]	3.55m [+92.60mOD]	4.14m [+92.01mOD]	3.62m [+92.53mOD]
2	Dry	4.55m [+90.20mOD]	3.19m [+91.56mOD]	3.27m [+91.48mOD]
3	Around 3.6m [+89.00mOD]	2.20m [+90.40mOD]	1.07m [+91.53mOD]	1.29m [+91.31mOD]

GENERAL LIMITATIONS AND EXCEPTIONS

The recommendations made and opinions expressed in this report are based on exploratory techniques such as borehole/probes/trial pits, published information, examination of samples and the results of in-situ and laboratory tests.

The report is issued on the condition that Soil Consultants Ltd will under no circumstances be liable for any loss arising directly or indirectly from ground conditions between the exploratory points which differ from those identified during our investigation. In addition Soil Consultants Ltd will not be liable for any loss arising directly or indirectly from any opinion given on the possible configuration of strata both between the exploratory points and/or below the maximum depth of the investigation; such opinions, where given, are for guidance only and no liability can be accepted as to their accuracy.

Comments made relating to ground-water or ground-gas are based upon observations made during our investigation unless otherwise stated. Ground-water and ground-gas conditions may vary with time from those reported due to factors such as seasonal effects, atmospheric effects and and/or tidal conditions.

Specific geotechnical features/hazards such as [but not limited to] areas of root-related desiccation and dissolution features in chalk/soluble rock can exist in discrete localised areas - there can be no certainty that any or all of such features/hazards have been located, sampled or identified.

Where a risk of ground dissolution features as been identified in our report [anything above a 'low' risk rating], reference should be made to the local building control to establish whether there are any specific local requirements for foundation design and appropriate allowances should be incorporated into the design. If such a risk assessment was not within the scope of our investigation and where it is deemed that the ground sequence may give rise to such a risk [for example near-surface chalk strata] it is recommended that an appropriate assessment should be undertaken prior to design of foundations.

Where inspection of foundation excavations is recommended, this should be undertaken by a suitably experienced and qualified ground specialist in a comprehensive and thorough manner; appropriate inspection records should be kept.

Ground contamination often exists in small discrete areas - there can be no certainty that any or all such areas have been located, sampled or identified.

The findings and opinions conveyed in this report may be based on information from a variety of sources such as previous desk studies, investigations or chemical analyses. Soil Consultants Limited cannot and does not provide any guarantee as to the authenticity, accuracy or reliability of such information.

Our report is written in the context of an agreed scope of work between Soil Consultants Ltd and the Client and should not be used in any different context. In light of additional information becoming available, improved practices and changes in legislation, amendment or re-interpretation of the assessment or the report in part or in whole may be necessary after its original publication.

Unless otherwise stated our investigation does not include an arboricultural survey, asbestos survey, ecological survey or flood risk assessment and these should be deemed to be outside the scope of our investigation.

APPENDIX

Fieldwork, in-situ testing and monitoring

- Window sample borehole records
- Pocket Penetrometer Test results
- Ground-water monitoring results

Laboratory testing

- Index property testing
- Plasticity chart
- Volume-change potential chart

Plans and drawings

- Site Plan
- Location Maps

Site	**10a Oakhill Avenue**	Borehole No:	**WS1**
Location	**London NW3 7RE**		
Client:	**Eli Nathenson**	Sheet	**1 of 3**
Engineer:	**ESI Ltd**	Report No:	**9374/MC**

Comments	Samples Type	Samples Depth[m]	Field Test	Strata Depth[m]		Strata Level[mOD]	Strata Description
Borehole conducted: 02 May 2013				0.00	0	+96.15	Grey stone dressing over TOPSOIL: Soft, very dark grey-brown, slightly sandy and gravelly, organic silt. Gravel is of ash, glass and slate.
	D	0.20		0.30		+95.85	Soft, locally firm, becoming stiff, locally soft and firm, below 2.7m, orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.
	D	0.50					
	D	0.90			1		
	D	1.20					
	D	1.50					
	D	1.80			2		
	D	2.10					
	D	2.40					
	D	2.70			3		
	D	3.00					
	D	3.30					
Groundwater depth 3.55m [60 minutes after completion].							
	D	3.80			4		
	D	4.30					
Groundwater strike around 4.4m depth							
	D	4.80					
					5		

Legend: 0, 1, 2, 3, 4, 5

Constructed using tracked rig with cased percussive sampling system [plastic liner]

Key: U = Undisturbed B = Bulk D = Small disturbed W = Water S = SPT 'N' [split spoon sampler] C = SPT 'N' [solid cone] HV = Hand Vane [kPa] PP = Pocket Penetrometer [kg/cm^2]

Remarks :- Groundwater monitoring well installed on completion - see Sheet 3 for details

Ground level interpolated from Kings Land and Architectural Surveyors' survey drawing (ref. 95274.0001)

Borehole No: **WS1**

[* = extrapolated SPT 'N' value]

Soil Consultants

Site	10a Oakhill Avenue	Borehole No:	WS1
Location	London NW3 7RE		
Client:	Eli Nathenson	Sheet	2 of 3
Engineer:	ESI Ltd	Report No:	9374/MC

Comments	Samples Type	Samples Depth[m]	Field Test	Strata Depth[m]		Strata Level[mOD]	Strata Description	Legend
					5		*...continued from previous* Stiff, locally soft and firm, orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	5
	D	5.30						
	D	5.80						
				5.95	6	+90.20	Stiff, fissured, dark grey-brown, slightly sandy silty CLAY, with occasional pockets and partings of silty sand.	6
	D	6.30						
	D	6.80						
				7.00	7	+89.15	End of borehole at 7.00m.	7
					8			8
					9			9
					10			10

Constructed using tracked rig with cased percussive sampling system [plastic liner]

Key: U = Undisturbed B = Bulk D = Small disturbed W = Water S = SPT 'N' [split spoon sampler] C = SPT 'N' [solid cone] HV = Hand Vane [kPa] PP = Pocket Penetrometer [kg/cm^2]

Remarks :-

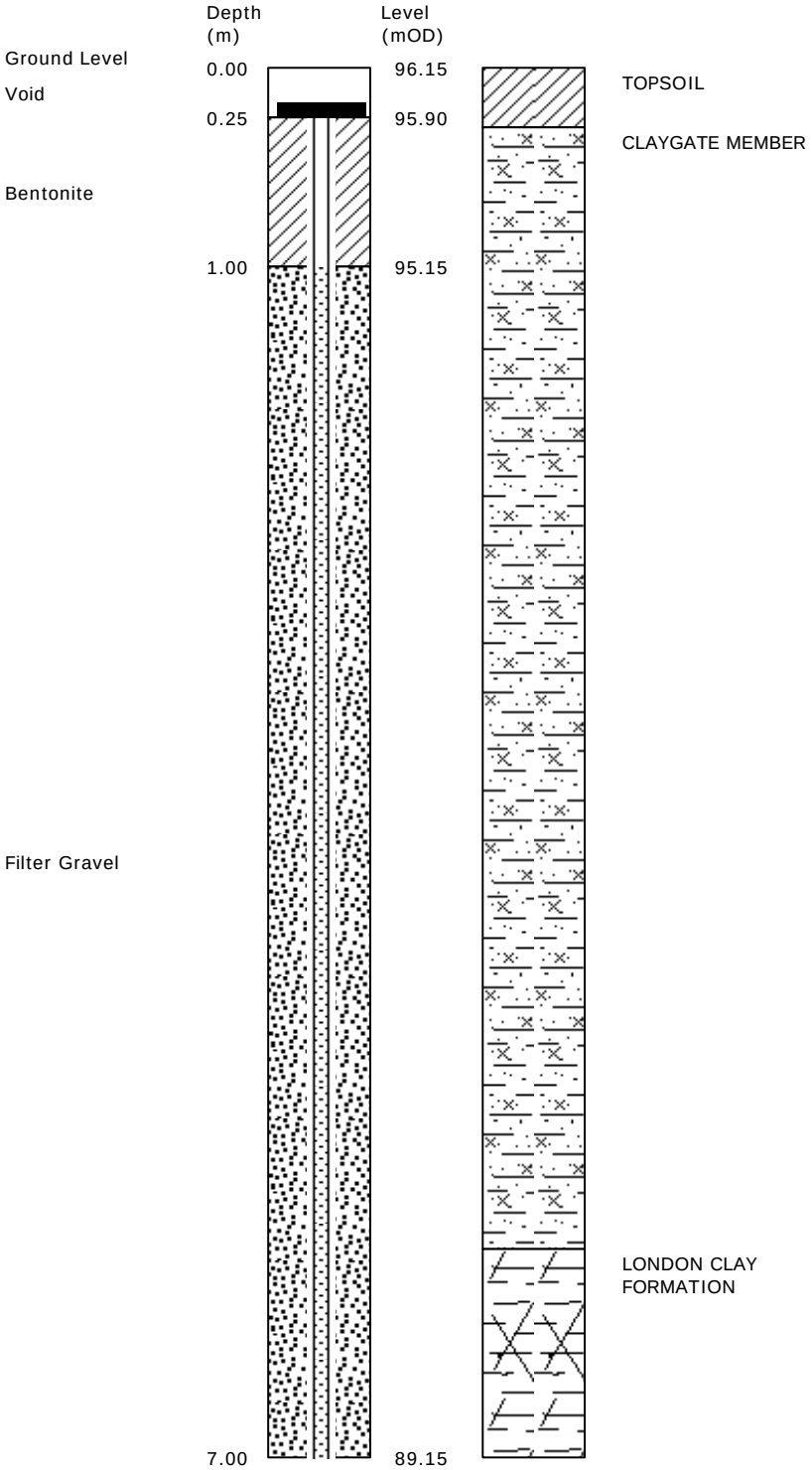
Borehole No: WS1

[* = extrapolated SPT 'N' value]

Soil Consultants

Site	**10a Oakhill Avenue**	Borehole No:	**WS1**
Location	**London NW3 7RE**		
Client:	**Eli Nathenson**	Sheet	**3 of 3**
Engineer:	**ESI Ltd**	Report No:	**9374/MC**

Borehole Installation and Backfill Details



Constructed using tracked rig with cased percussive sampling system [plastic liner]

Remarks :- [i] Pipe diameter: 19mm
[ii] Tip at 7m depth [89.15m OD approx]
[iii] Bung fitted

Borehole No: **WS1**

Site	**10a Oakhill Avenue**	Borehole No:	**WS2**
Location	**London NW3 7RE**		
Client:	**Eli Nathenson**	Sheet	**1 of 2**
Engineer:	**ESI Ltd**	Report No:	**9374/MC**

Comments	Samples Type	Samples Depth[m]	Field Test	Strata Depth[m]		Strata Level[mOD]	Strata Description	Legend
Borehole conducted: 02 May 2013				0.00	0	+94.75	MADE GROUND: Paving slab over light orange-brown, slightly silty sand.	0
				0.10		+94.65	TOPSOIL: Soft, very dark grey-brown, slightly sandy and gravelly, organic silt. Gravel is of brick and flint.	
	D	0.25						
	D	0.50						
				0.70		+94.05	Soft, locally firm, becoming stiff, locally soft and firm, below 3.4m, orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	
	D	0.80			1			1
	D	1.10						
	D	1.40						
	D	1.70						
	D	2.00			2			2
	D	2.30						
Rootlets at 2.5m depth.	D	2.60						
	D	2.90			3			3
	D	3.40						
	D	3.90			4			4
	D	4.40						
Groundwater depth 4.55m [10 minutes after completion].								
Borehole dry throughout boring	D	4.90						
				5.00	5	+89.75	End of borehole at 5.00m.	5

Constructed using tracked rig with cased percussive sampling system [plastic liner]

Key: U = Undisturbed B = Bulk D = Small disturbed W = Water S = SPT 'N' [split spoon sampler] C = SPT 'N' [solid cone] HV = Hand Vane [kPa] PP = Pocket Penetrometer [kg/cm^2]

Remarks :- Groundwater monitoring well installed on completion - see Sheet 2 for details

Ground level interpolated from Kings Land and Architectural Surveyors' survey drawing (ref. 95274.0001)

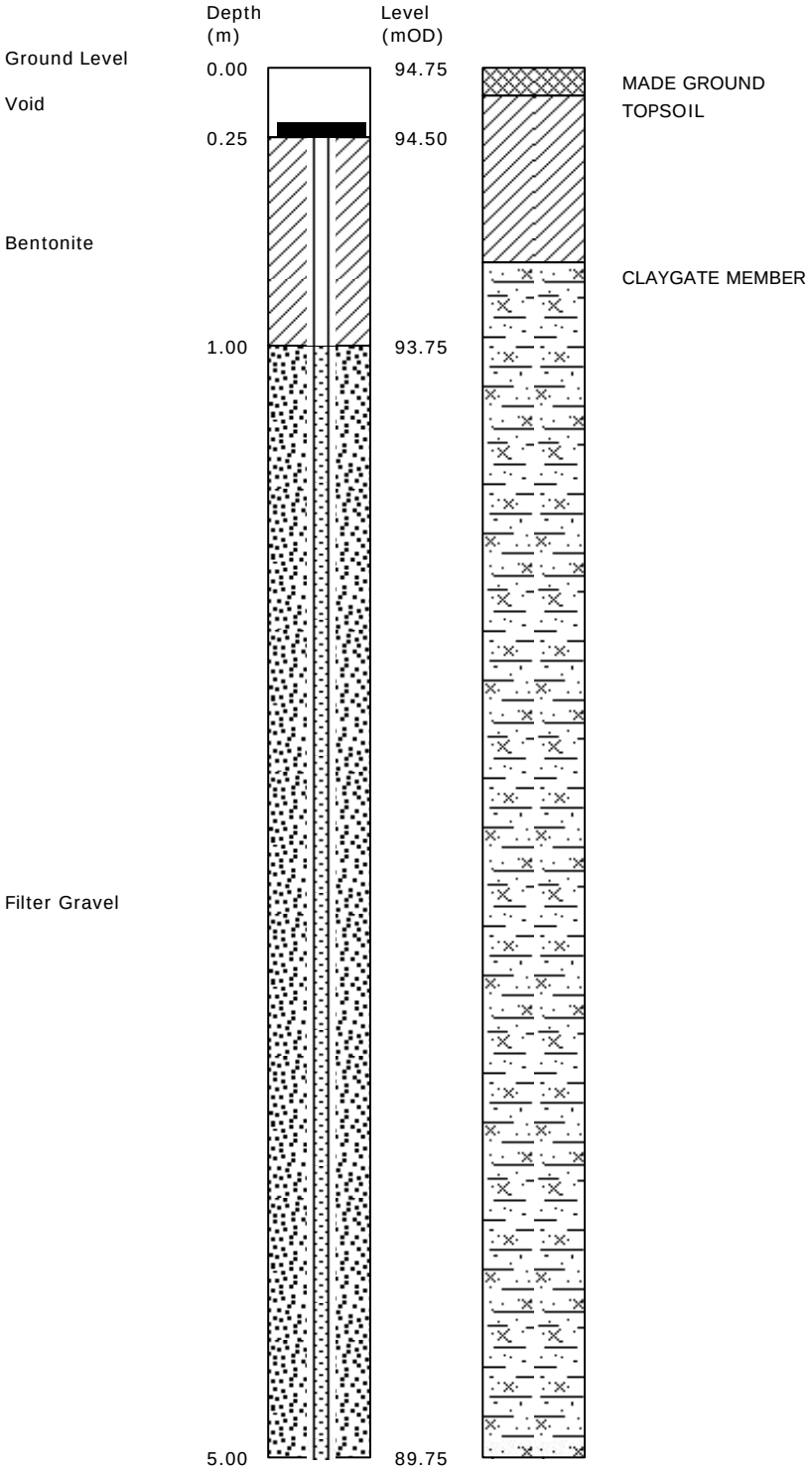
Borehole No: **WS2**

[* = extrapolated SPT 'N' value]

Soil Consultants

Site	**10a Oakhill Avenue**	Borehole No:	**WS2**
Location	**London NW3 7RE**		
Client:	**Eli Nathenson**	Sheet	**2 of 2**
Engineer:	**ESI Ltd**	Report No:	**9374/MC**

Borehole Installation and Backfill Details



Constructed using tracked rig with cased percussive sampling system [plastic liner]

Remarks :- [i] Pipe diameter: 35mm
[ii] Tip at 5m depth [89.75m OD approx]
[iii] Bung fitted

Borehole No: **WS2**

Soil Consultants

Site	**10a Oakhill Avenue**	Borehole No:	**WS3**
Location	**London NW3 7RE**		
Client:	**Eli Nathenson**	Sheet	**1 of 2**
Engineer:	**ESI Ltd**	Report No:	**9374/MC**

Comments	Samples Type	Samples Depth[m]	Field Test	Strata Depth[m]		Strata Level[mOD]	Strata Description	Legend
Borehole conducted: 02 May 2013				0.00	0	+92.60	MADE GROUND: Reinforced concrete slab.	0
				0.15		+92.45	Firm, becoming stiff, locally firm, below 1.8m, orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	
	D	0.25						
	D	0.50						
	D	0.70						
	D	1.00			1			1
	D	1.30						
	D	1.60						
	D	1.90			2			2
Groundwater depth 2.20m [10 minutes after completion].	D	2.20						
	D	2.70						
	D	3.00			3			3
	D	3.50						
Groundwater strike around 3.6m depth								
	D	4.00			4			4
	D	4.50						
				4.90		+87.70	Stiff, fissured, dark grey-brown, slightly sandy silty CLAY, with occasional pockets and partings of silty sand.	
				5.00	5	+87.60	End of borehole at 5.00m.	5

Constructed using tracked rig with cased percussive sampling system [plastic liner]

Key: U = Undisturbed B = Bulk D = Small disturbed W = Water S = SPT 'N' [split spoon sampler] C = SPT 'N' [solid cone] HV = Hand Vane [kPa] PP = Pocket Penetrometer [kg/cm^2]

Remarks :- Groundwater monitoring well installed on completion - see Sheet 2 for details

Ground level interpolated from Kings Land and Architectural Surveyors' survey drawing (ref. 95274.0001)

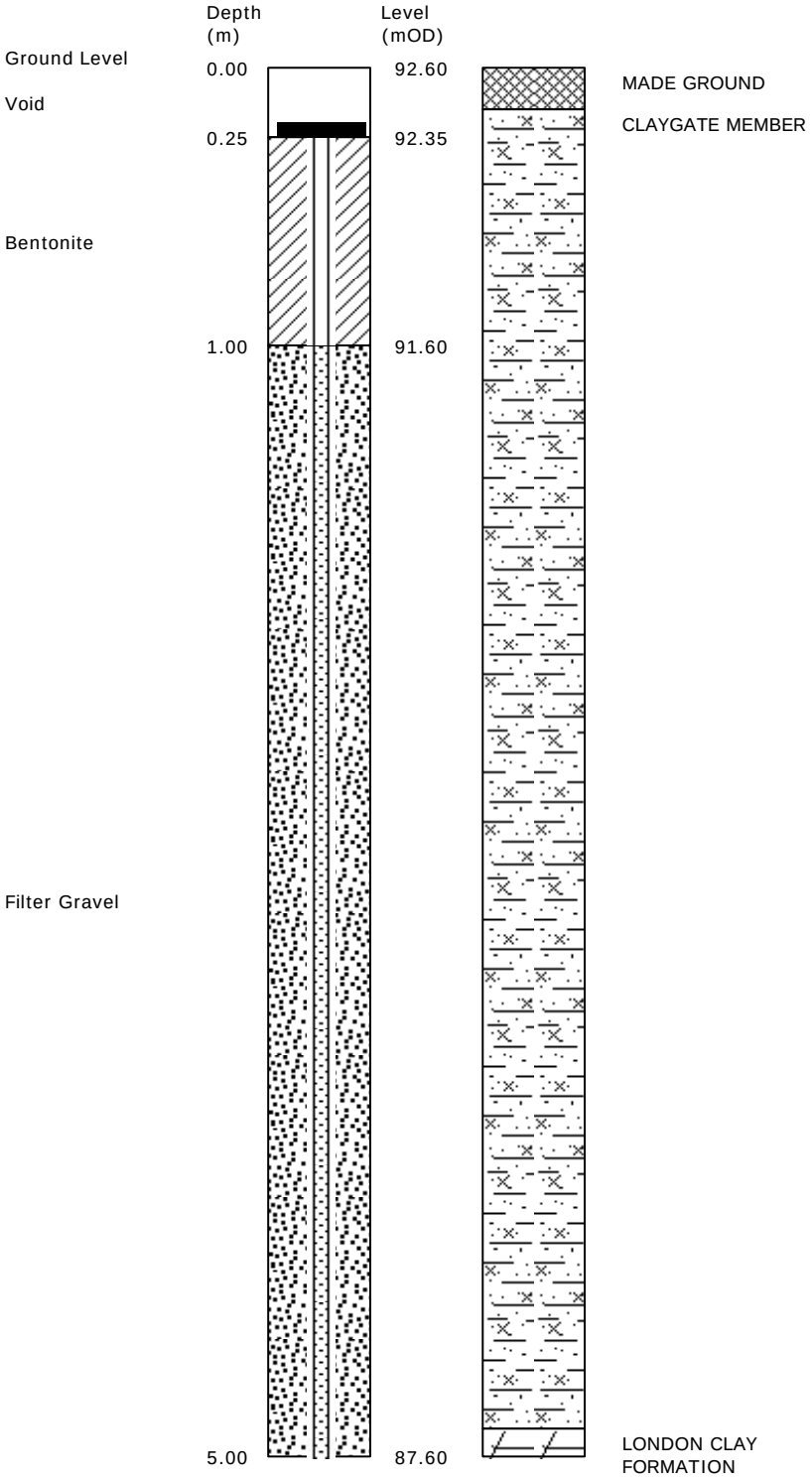
Borehole No: **WS3**

[* = extrapolated SPT 'N' value]

Soil Consultants

Site	**10a Oakhill Avenue**	Borehole No:	**WS3**
Location	**London NW3 7RE**		
Client:	**Eli Nathenson**	Sheet	**2 of 2**
Engineer:	**ESI Ltd**	Report No:	**9374/MC**

Borehole Installation and Backfill Details



Constructed using tracked rig with cased percussive sampling system [plastic liner]

Remarks :- [i] Pipe diameter: 35mm
[ii] Tip at 5m depth [87.6m OD approx]
[iii] Bung fitted

Borehole No: **WS3**

Site Location	**10a Oakhill Avenue London NW3 7RE**	Report No:	**9374/MC**

Pocket Penetrometer Test Results

WS1		WS2		WS3							
Depth [m]	Value [kg/cm²]	Depth [m]	Value [kg/cm²]	Depth [m]	Value [kg/cm²]	Depth [m]	Value [kg/cm²]	Depth [m]	Value [kg/cm²]	Depth [m]	Value [kg/cm²]
0.50	1.7	0.90	1.5	0.60	1.8						
0.75	1.2	1.20	1.3	0.90	1.6						
1.00	1.0	1.50	1.7	1.20	1.8						
1.25	0.7	1.80	1.8	1.50	1.3						
1.50	1.7	2.10	1.8	1.80	2.7						
1.75	1.7	2.40	2.0	2.10	1.9						
2.00	1.5	2.70	1.8	2.40	2.5						
2.25	1.1	3.00	1.8	2.70	2.9						
2.50	1.7	3.30	1.5	3.00	2.8						
2.75	1.9	3.60	2.2	3.30	2.4						
3.00	1.5	3.90	2.2	3.60	1.8						
3.25	1.4	4.20	2.7	3.90	2.2						
3.50	1.6	4.50	1.8	4.40	1.6						
3.75	1.4	4.80	3.4	4.90	1.6						
4.00	2.2	5.00	3.4								
4.25	2.0										
4.50	0.8										
4.75	1.2										
5.00	2.0										
5.25	2.9										
5.50	3.2										
5.75	2.6										
6.00	2.6										
6.25	1.7										
6.50	1.7										
6.75	1.6										
7.00	1.8										

Notes

Soil Consultants

Site Location: **10a Oakhill Avenue, London NW3 7RE**

Ref: **9374/MC**

Record of groundwater monitoring

Date	Time	Well Ref	Groundwater depth from surface [m]	Depth of base of monitoring pipe from surface [m]	Comments	Recorded by
16/05/2013	10:45	WS1	4.14	6.15		AC
		WS2	3.19	4.95		
		WS3	1.07	3.40		
24/05/2013	12:00	WS1	3.62	-		MvR
		WS2	3.27	-		
		WS3	1.29	-		

Site Location	**10a Oakhill Avenue London NW3 7RE**	Report No:	**9374/MC**

Index Property Test Results

Sample Location	Depth (m)	Sample Description	Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Percent Passing [%]	Remarks
WS1	0.90	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	25	33	17	16	100	
	1.20	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	26					
	1.50	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	28					
	1.80	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	28					
	2.10	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	29					
	2.40	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	26					
	2.70	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	29					
	3.00	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	29	33	19	14	100	
	3.30	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	30					
	3.80	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	30					
	4.30	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	27					
	4.80	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	30					
	5.30	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	29					

Notes

- Moisture content test: BS 1377:Part 2 [1990] Clause 3.2 [value in brackets = calculated matrix moisture content for comparison with LL and PL]
- Liquid and Plastic Limit: BS 1377:Part 2 [1990] Clauses 4.4, 5.2, 5.3, 5.4 is carried out on fine grained soil matrix
- Percent passing 425 micron sieve is by estimation, by hand* or by wet sieving**
- LOI = Loss on Ignition

Sample examined by MC (Engineer)

Results checked by MC (Engineer) Certificate date : 24/05/2013

Soil Consultants

Site Location	**10a Oakhill Avenue London NW3 7RE**	Report No:	**9374/MC**

Index Property Test Results

Sample Location	Depth (m)	Sample Description	Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Percent Passing [%]	Remarks
WS1	5.80	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	31	39	20	19	100	
	6.30	Dark grey-brown, slightly sandy silty CLAY, with occasional pockets and partings of silty sand.	29					
	6.80	Dark grey-brown, slightly sandy silty CLAY, with occasional pockets and partings of silty sand.	26					
WS2	0.80	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	25					
	1.10	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	24					
	1.40	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	24					
	1.70	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	27					
	2.00	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	27					
	2.30	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	28					
	2.60	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	26					
	2.90	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	27					
	3.40	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	25					
	3.90	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	26					

Notes

- Moisture content test: BS 1377:Part 2 [1990] Clause 3.2 [value in brackets = calculated matrix moisture content for comparison with LL and PL]
- Liquid and Plastic Limit: BS 1377:Part 2 [1990] Clauses 4.4, 5.2, 5.3, 5.4 is carried out on fine grained soil matrix
- Percent passing 425 micron sieve is by estimation, by hand* or by wet sieving**
- LOI = Loss on Ignition

Sample examined by MC (Engineer)

Results checked by MC (Engineer) Certificate date : 24/05/2013

Soil Consultants

Site Location	**10a Oakhill Avenue London NW3 7RE**	Report No:	**9374/MC**

Index Property Test Results

Sample Location	Depth (m)	Sample Description	Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Percent Passing [%]	Remarks
WS2	4.40	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	30					
	4.90	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	27					
WS3	0.70	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	28					
	1.00	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	24					
	1.30	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	27					
	1.60	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	27					
	1.90	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	27					
	2.20	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	30					
	2.70	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	26					
	3.00	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	25					
	3.50	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	31					
	4.00	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	29					
	4.50	Orange-brown and light orange-brown, sandy silty CLAY, with pockets and partings of silty sand.	27					

Notes

- Moisture content test: BS 1377:Part 2 [1990] Clause 3.2 [value in brackets = calculated matrix moisture content for comparison with LL and PL]
- Liquid and Plastic Limit: BS 1377:Part 2 [1990] Clauses 4.4, 5.2, 5.3, 5.4 is carried out on fine grained soil matrix
- Percent passing 425 micron sieve is by estimation, by hand* or by wet sieving**
- LOI = Loss on Ignition

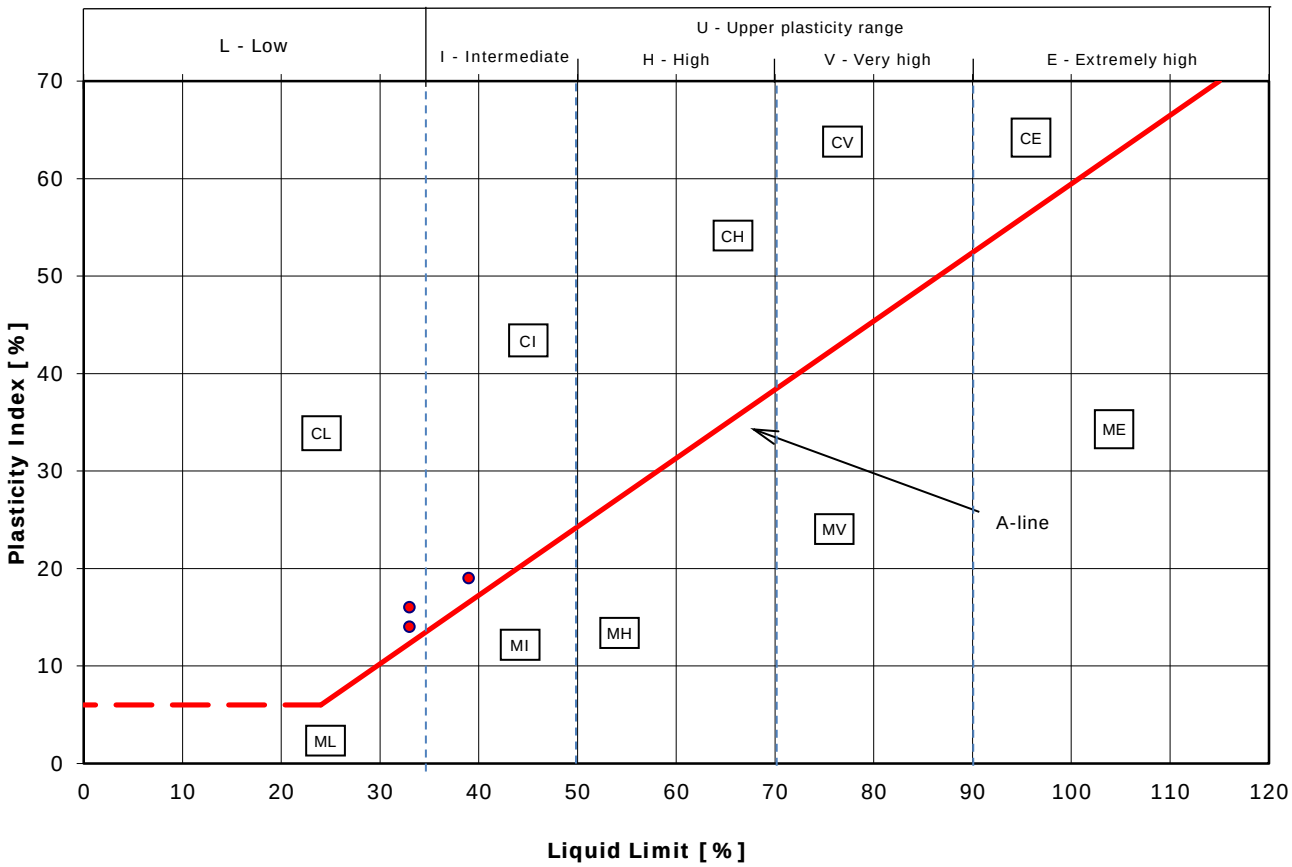
Sample examined by MC (Engineer)

Results checked by MC (Engineer) Certificate date : 24/05/2013

Soil Consultants

Site Location	**10a Oakhill Avenue London NW3 7RE**	Report No:	**9374/MC**

PLASTICITY CHART - BS5930 classification



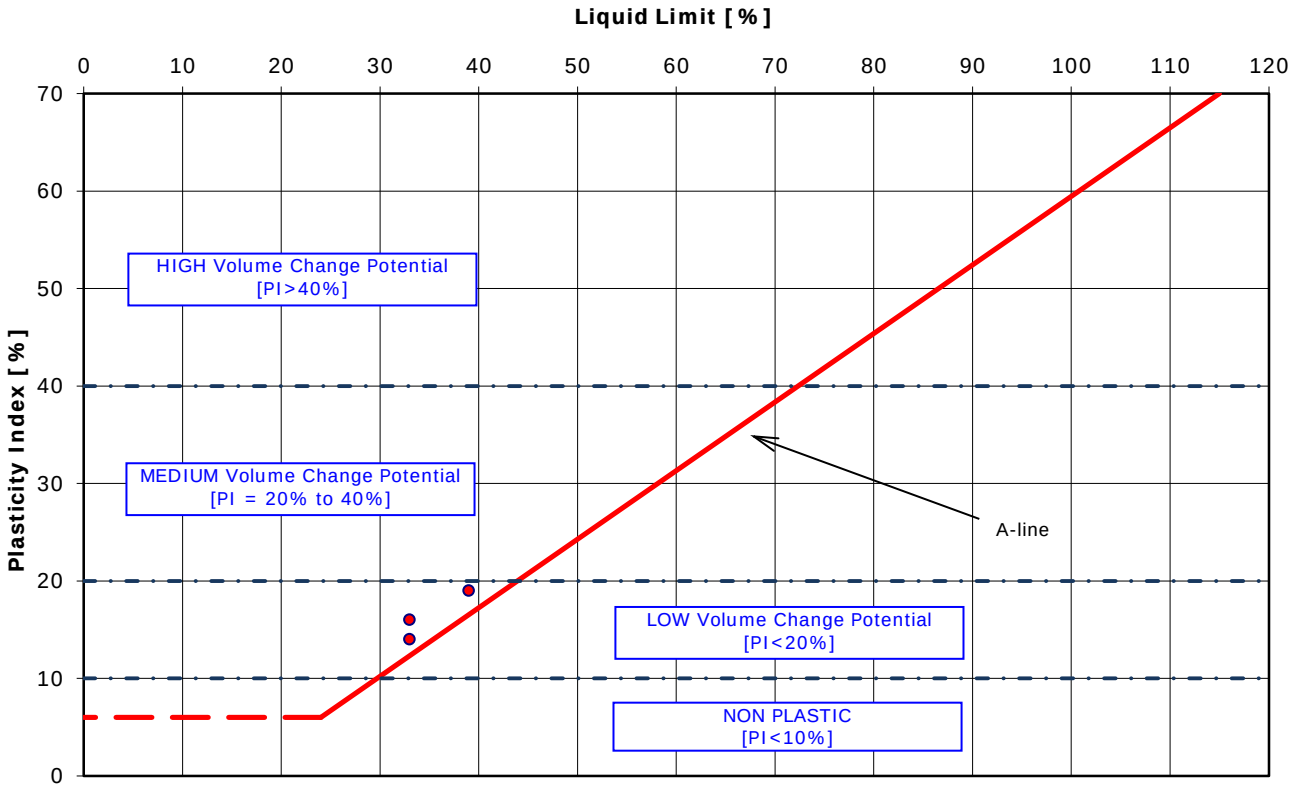
M - Silt [M-soil] plots below the A-line
C - Clay plots above the A-line

Notes:

Classification based upon BS5930:1999 'Code of practice for site investigations'

Site Location	**10a Oakhill Avenue London NW3 7RE**	Report No:	**9374/MC**

PLASTICITY CHART - NHBC classification



Notes:

Classification based upon NHBC Standards, Part 4 'Foundations', Chapter 4.2 'Building near trees'

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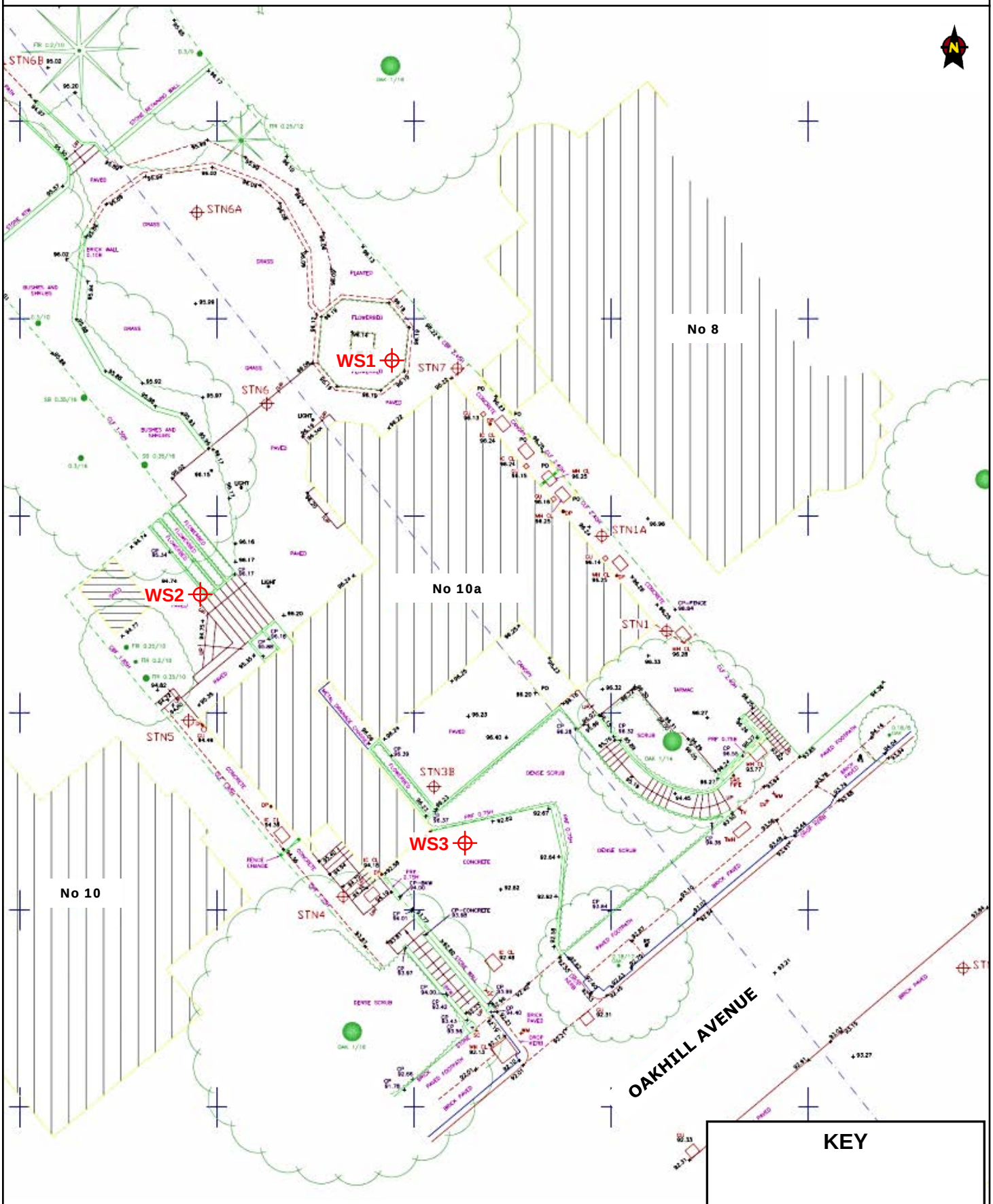
Site & Location	10a Oakhill Avenue London NW3 7RE	Report No: 9374/MC

Site Plan – showing locations of exploratory holes



Based on extract from Kings Land and Architectural Surveyors' drawing 95274.0001, dated April 2013

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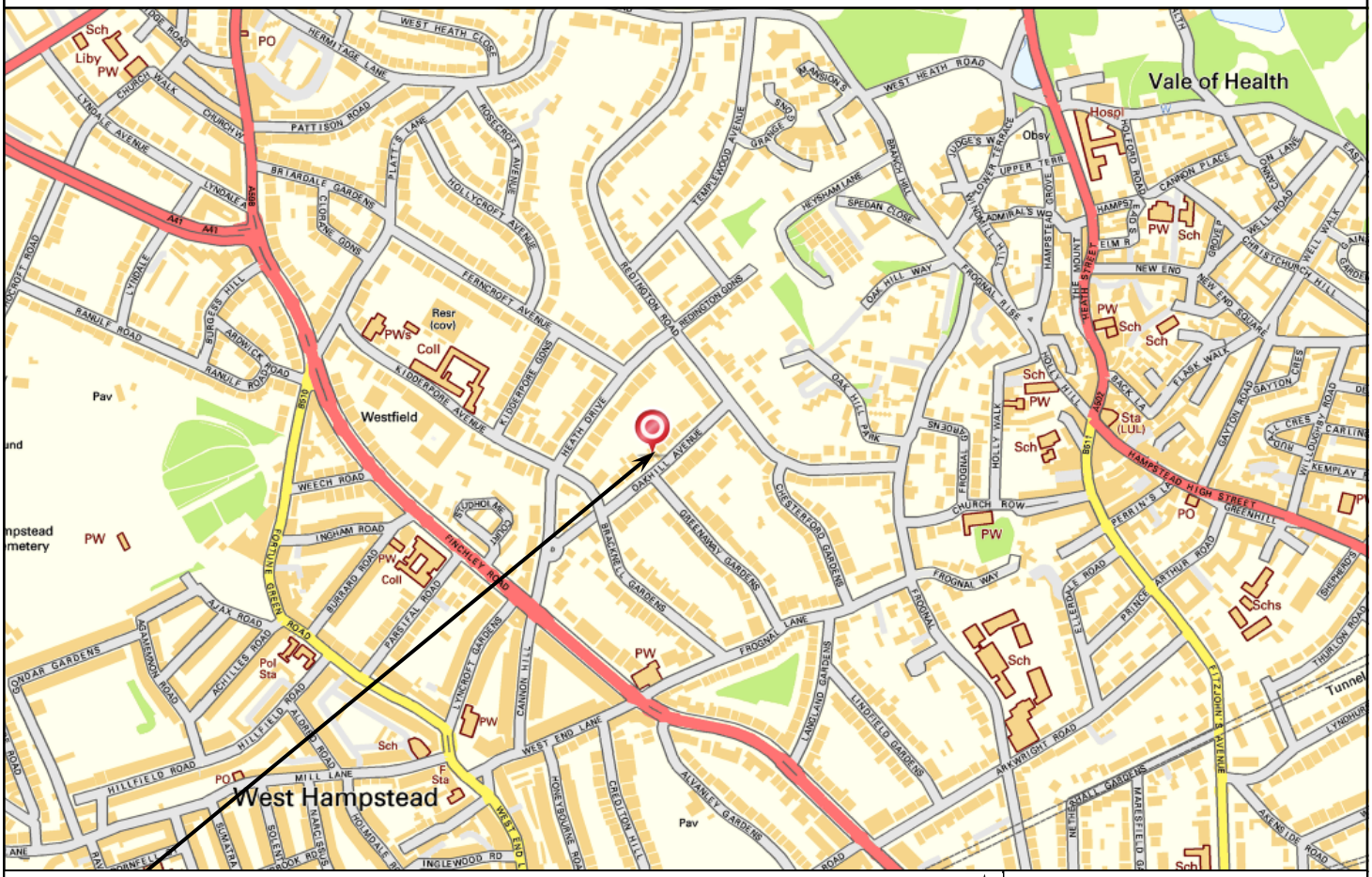
Soil Consultants

Site & Location

10a Oakhill Avenue
London NW3 7RE

Report No:
9374/MC

Location Maps



SITE LOCATION: approximate NGR 525690E, 185715N

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