

Mrs K Beare
Fitzroy Park Residents Association
C/O Dancers End,
Fitzroy Park,
Highgate,
London
N6 6HT

May 2016
9966/MR

Dear Mrs Karen Beare,

Re: Fitzroy Park CBR Testing

Please find appended the factual data for the works carried out at Fitzroy Park on the 22nd April 2016. The factual data comprises window sample borehole logs, trial pit logs and also laboratory results carried out on the samples taken from site.

I trust this is satisfactory but if you have any queries please do not hesitate to contact us.

Yours sincerely,

Matthew Rust
Soil Consultants Limited

Enc
Factual Data

GENERAL INFORMATION, LIMITATIONS AND EXCEPTIONS

Unless otherwise stated, our Report should be construed as being a Ground Investigation Report [GIR] as defined in BS EN1997-2. Our Report is not intended to be and should not be viewed or treated as a Geotechnical Design Report [GDR] as defined in EN1997-2. Any 'design' recommendations which are provided are for guidance only and are intended to allow the designer to assess the results and implications of our investigation/testing and to permit preliminary design of relevant elements of the proposed scheme.

The methods of investigation used have been chosen taking into account the constraints of the site including but not limited to access and space limitations. Where it has not been possible to reasonably use an EC7 compliant investigation technique we have adopted a practical technique to obtain indicative soil parameters and any interpretation is based upon our engineering experience and relevant published information.

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. The results of any measurements taken may vary spatially or with time and further confirmatory measurements should be made after any significant delay in using this Report.

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. We recommend that if monitoring installations have been included as part of our investigation, continued monitoring should be carried out to maximise the information gained.

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 is identified the designer should provide appropriate contingencies to mitigate the risk through additional exploratory work and/or an engineered solution.

Where a specific risk of ground dissolution features has 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 spread foundations are used, we recommend that all excavations are inspected and approved by suitably experienced personnel; appropriate inspection records should be kept. This should also apply to any structures which are in direct contact with the soil where the soil could have a detrimental effect on performance or integrity of the structure.

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 from third parties; such information has not been independently verified unless stated in our Report.

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.

[Rev_1_08_03_2013]

Harwich Office
Haven House, Albermarle Street
Harwich, Essex
CO12 3HL
t: 01255 241639
e: harwich@soilconsultants.co.uk

Head Office
Chiltern House, Earl Howe Road
Holmer Green, High Wycombe
Buckinghamshire HP15 6QT
t: 01494 712 494
e: mail@soilconsultants.co.uk
w: www.soilconsultants.co.uk

Cardiff Office
23 Romilly Road
Cardiff
CF5 1FH
t: 02920 403575
e: cardiff@soilconsultants.co.uk

Foreword to: Window Sampler Boreholes

Window Sample Boreholes are constructed by driving in steel sample tubes in which long slots have been cut to enable the soil to be examined, tested or sampled. The tubes are either 1m or 2m in length. The borehole commences using a large diameter tube, 70mm or 80mm, with each succeeding tube reducing usually by 10mm in diameter to assist the extraction of the tube from the ground. Thus, it is theoretically possible to obtain a total continuous sample of the soil for examination or testing.

Window Sample boreholes are a means of rapid and economic sampling where access is not necessarily good or where impact of the investigation must be kept to a minimum.

The method is primarily suited to clay soils and can also achieve reasonable penetration into many granular soils. Soil recovery beneath the water table in granular soils can however be reduced.

The open slot in the sample tube allows hand shear vane and pocket penetrometer tests to be carried out. Samples can also be taken where necessary for laboratory testing, including moisture content, index property tests and contamination analyses.

Hand Shear Vane : The shear strength of cohesive soils are reported in kPa.

Pocket Penetrometer : The unconfined compression strengths values are reported in kg/cm².

SPT : The SPT tests results are reported as field test. Corrected SPT results are presented as an addendum sheet and soil descriptions incorporate the corrected values in accordance with BS EN ISO 22476-3, 2005, National Annex A

Site & Location	Fitzroy Park, Highgate, London N6 6HS	Trial Pit No.	CBR1
Client	Fitzroy Park Residents Association	Report No.	9966/MR

Depth (m)	Strata Description	Samples / Tests		
		Depth (m)	Type	Results
GL to 0.15m	MADE GROUND: reinforced concrete.			
0.15m to 0.65m	MADE GROUND: brown mottled pale red silty, very sandy gravel fill. Gravel is fine to coarse, subangular brick, tile and slate. Rare to occasional live roots.	0.20m to 0.56m	D	
Date of Excavation	22 nd April 2016	Groundwater	None recorded	
Equipment	Hand dug trial pit.	Logged by	MR	
Stability	Stable	Checked by	SCW	
Remarks				
<ul style="list-style-type: none"> - CBR1 test was carried out at 0.56m. - WS1 carried out through the base of trial pit [CBR1]. 				

Key: D = Disturbed B = Bulk V = Hand Shear Vane Test (kN/m) P = Pocket Penetrometer (kg/cm²)

Site & Location: **Fitzroy Park, Highgate, London N6 6HS**

Borehole No: **WS1**

Client: **Fitzroy Park Residents Association** Coordinates: **527900E, 187165N** Sheet 1 of 1

Engineer: Ground Level: Report No: **9966/MR**

Progress & Observations	Samples & Tests		Field Test Results	Strata		Legend	Strata Descriptions	Backfill / Installation
	Type	Depth (m)		Depth (m)	Level (m)			
BH commenced: 22/04/2016							See CBR1 trial pit log for soil descriptions.	
BH diameter: Reducing with depth	D	0.20						
CBR1 test pit to 0.65m				0.65				
	D	0.80					MADE GROUND: firm orange brown mottled brown slightly gravelly, silty clay. Gravel is fine to coarse, subangular brick. Occasional pockets of sand. Occasional live roots.	
	D	1.10						
	D	1.35		1.35			Firm orange brown mottled grey silty clay with localised partings of silt and sand. Occasional live roots. Rare manganese staining.	
	HV	1.40	62					
	PP	1.40	2.5					
	HV	1.55	50					
	PP	1.55	1.2		1.60			
	D	1.60					Soft to firm orange brown slightly sandy, silty CLAY. Occasional live roots. Occasional pockets of manganese staining.	
	HV	1.70	28					
	PP	1.70	1.0					
	D	1.80		1.80		rare claystone at 1.75m	
BH complete: 15/01/2016								
BH depth: 2.00m	HV	1.90	55				Firm orange brown mottled grey silty clay with localised partings of silt and sand. Occasional live roots. Rare manganese staining.	
Water depth: None observed	PP	1.90	2.2		2.00			
							End of hole at 2.00m	

Key: U = Undisturbed B = Bulk D = Small disturbed W = Water ES = glass jar & plastic tub E = glass jar SPT/S = split spoon SPT/C = solid cone PP = Pocket Penetrometer [kg/cm²]
 HV = Hand Vane [kPa] PID = Photo Ionisation Detector [ppm - Isobutylene Equivalent, PhoCheck Tiger, 10.6eV lamp] * = full SPT penetration not achieved - see summary sheet

Remarks: Approximate coordinates interpolated from public domain data.
 CBR1 test was carried out at 0.56m

Borehole type: Window Sampler
 Borehole No: **WS1**



Site & Location	Fitzroy Park, Highgate, London N6 6HS	Trial Pit No.	CBR2
Client	Fitzroy Park Residents Association	Report No.	9966/MR

Depth (m)	Strata Description	Samples / Tests		
		Depth (m)	Type	Results
GL to 0.12m	MADE GROUND: asphalt.			
0.12m to 0.73m	MADE GROUND: pale red silty, very sandy gravel. Gravel is fine to coarse, subangular granite.	0.20m to 0.53m	D	
Date of Excavation	22 nd April 2016	Groundwater	None recorded	
Equipment	Hand dug trial pit	Logged by	MR	
Stability	Stable	Checked by	SCW	
Remarks	<ul style="list-style-type: none"> - CBR2 test was carried out at 0.53m. - WS2 carried out through the base of trial pit [CBR2]. 			

Key: D = Disturbed B = Bulk V = Hand Shear Vane Test (kN/m²) P = Pocket Penetrometer (kg/cm²)


Site Location		Fitzroy Park, Highgate, London N6 6HS			Report No:	9966/MR
IN SITU CALIFORNIA BEARING RATIO TEST RESULTS						
Sample Location	Depth [m]	Sample Description	Moisture Content [%]	CBR [%]		CBR Value [%]
				2.5mm Penetration	5.0mm Penetration	
CBR1	0.56	MADE GROUND: brown mottled pale red silty, very sandy gravel fill. Gravel is fine to coarse, subangular brick, flint and tile. Rare to occasional live roots.	22.0	4.0	4.0	4.0
CBR2	0.53	MADE GROUND: pale red silty, very sandy gravel. Gravel is fine to coarse, subangular granite.	4.0	3.9	3.9	3.9
CBR3	0.43	Firm grey mottled brown slightly sandy CLAY with rare partings of silt and sand. Organic odour. (Possible Made Ground)	31.0	4.8	4.6	4.8
CBR4	0.46	Stiff grey brown slightly sandy, silty CLAY with occasional pockets of silt and sand. Occasional pockets of manganese staining.	45.0	2.5	2.7	2.7

Tests carried out to the following standards:

- Laboratory California Bearing Ratio BS 1377:Part 4 [1990] Clause 7
- In-situ California Bearing Ratio BS 1377:Part 9 [1990] Clause 4.3

Sample examined by **MR** (Engineer)

Results checked by **SCW** (Engineer) Certificate date : 25 April 2016

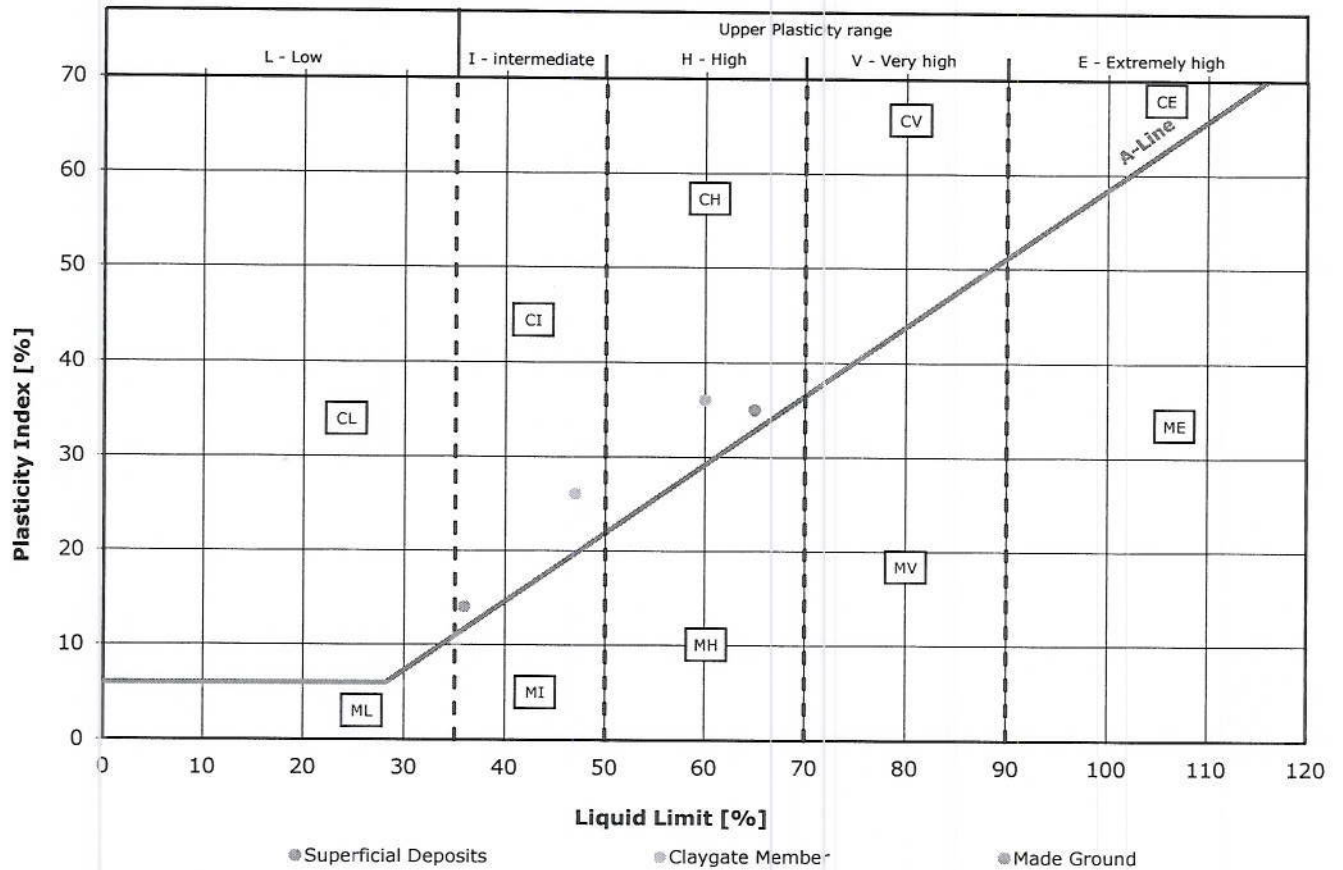


SUMMARY OF CLASSIFICATION TEST RESULTS

BH ID	Depth (m)	Type	w (%)	wL (%)	wP (%)	Pass 425 (%)	IP (%)	Mod IP (%)	IL (%)	LOI (%)	Description
CBR1 / TP1	0.20	D	22								MADE GROUND: brown mottled pale red silty, very sandy gravel fill.
WS1	0.80	D	19	36	22	60.1**	14	8	-0.23		MADE GROUND: orange brown mottled brown slightly gravelly, silty clay.
	1.10	D	18								MADE GROUND: orange brown mottled brown slightly gravelly, silty clay.
	1.35	D	26								Orange brown mottled grey silty clay with localised partings of silt and sand.
	1.60	D	25								Orange brown slightly sandy, silty CLAY. Occasional live roots. Occasional pockets of manganese staining.
	1.80	D	23								Orange brown mottled grey silty clay with localised partings of silt and sand. Rare manganese staining.
	CBR2 / TP2	0.20	D	4							
WS2	0.90	D	24	47	21	>95	26		0.13		Orange brown mottled grey slightly sandy, slightly gravelly, silty CLAY.
	1.30	D	23								Orange brown mottled grey slightly sandy, slightly gravelly, silty CLAY.
	1.50	D	23								Orange brown mottled grey slightly sandy, slightly gravelly, silty CLAY.
	1.70	D	24								Orange brown mottled grey slightly sandy, slightly gravelly, silty CLAY.
CBR3 / TP3	0.20	D	9								MADE GROUND: dark grey silty, very sandy gravel fill.
WS3	0.40	D	31	65	30	>95	35		0.0		Grey mottled brown CLAY with occasional parting of silt and sand.
	0.60	D	26								Grey mottled brown CLAY with occasional parting of silt and sand.
	0.80	D	24								Grey mottled brown CLAY with occasional parting of silt and sand.
	0.90	D	23								Grey mottled brown CLAY with occasional parting of silt and sand.
	1.00	D	22								Grey mottled brown CLAY with occasional parting of silt and sand.
	1.20	D	25								Grey mottled brown CLAY with occasional parting of silt and sand.
	1.40	D	26								Grey mottled brown CLAY with occasional parting of silt and sand.
CBR4 / TP4	0.40	D	26	60	24	>95	36		0.00		Grey brown slightly sandy, silty CLAY. Occasional pockets of manganese staining.

Testing in accordance with BS EN ISO 17892 unless specified otherwise Date: 09 May 16
 Modified Plasticity Index calculated in accordance with NHBC Standards Chapter 4.2 (reported if %passing 425mm <95%)
 Percent passing 425µm: by estimation, by hand* or by sieving** (Classification Sheet 1 of 2)

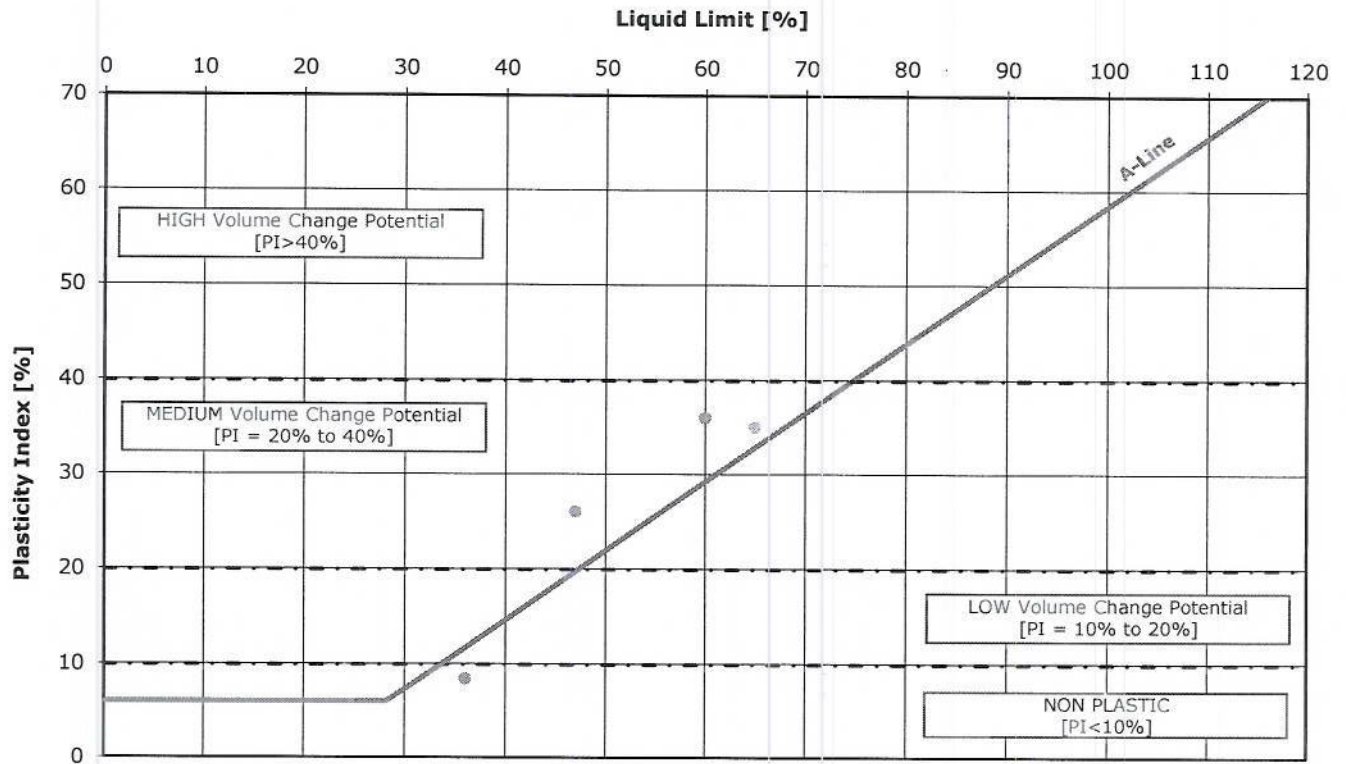
Plasticity Chart



M - SILT [plots below the A-Line]
 C - CLAY [plots above the A-Line]

Classification in accordance with BS5930:1999+A2:2010 "Code of practice for site investigations"

Plasticity Chart



● Superficial Deposits ● Claygate Member ● Made Ground

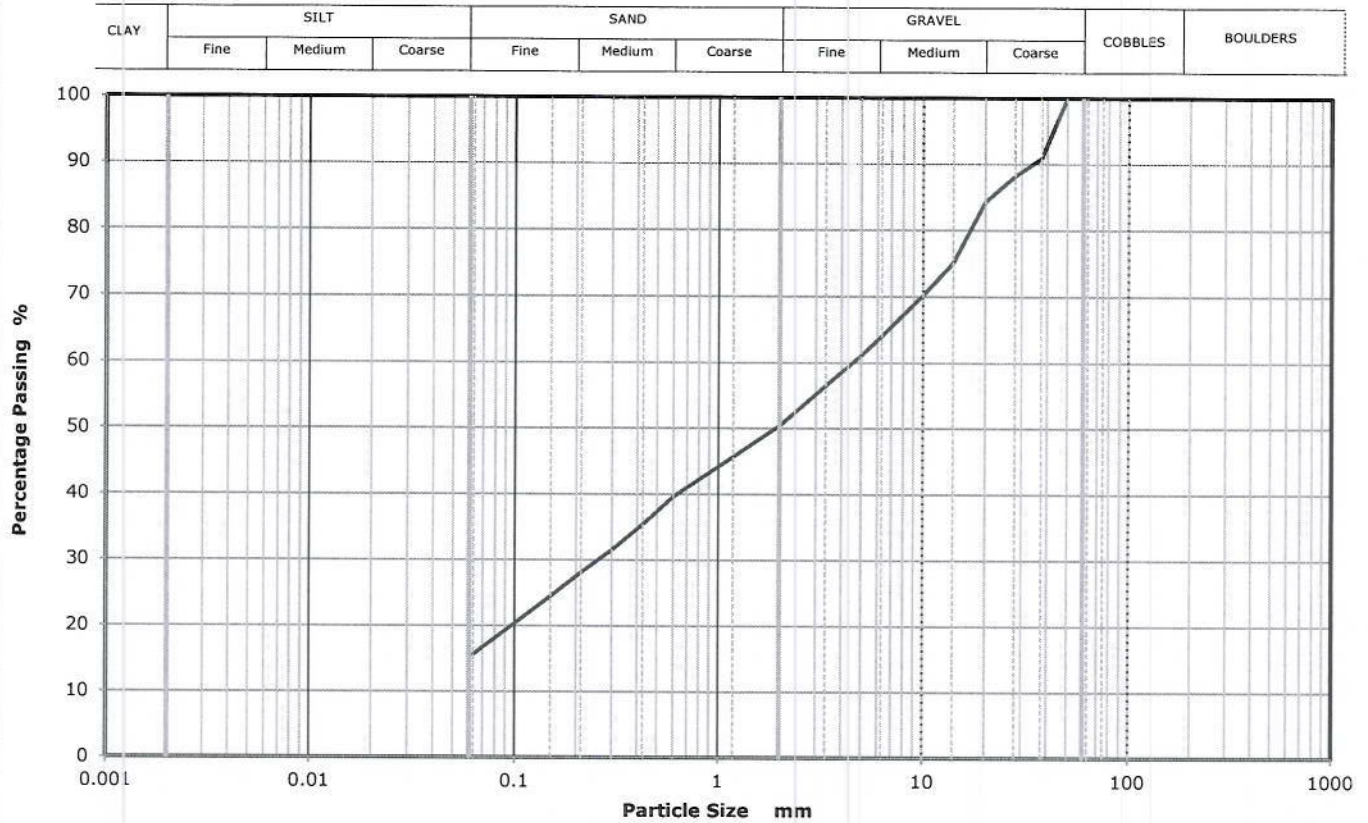
Modified Plasticity Index, I'p:

$$I'p = \frac{I_p \times (\% \text{ passing } 425\text{mm})}{100\%} \quad [\text{where } I_p = \text{Plasticity Index}]$$

Classification in accordance with NHBC Standards, Part 4 'Foundations', Chapter 4.2 'Building near trees'

PARTICLE SIZE DISTRIBUTION

Hole ID: TP1	Description: MADE GROUND: brown mottled pale red silty, very sandy gravel fill.
Depth [m]: 0.20	



Sieving	
Size [mm]	% passing
75	100
63	100
50	100
37.5	90.9
28	88.2
20	84.3
14	75.1
10	70.2
6.3	64
5	61.1
3.35	56.5
2	50.4
1.18	45.7
0.6	39.6
0.425	35.4
0.3	31.5
0.212	28.1
0.15	24.5
0.063	15.6

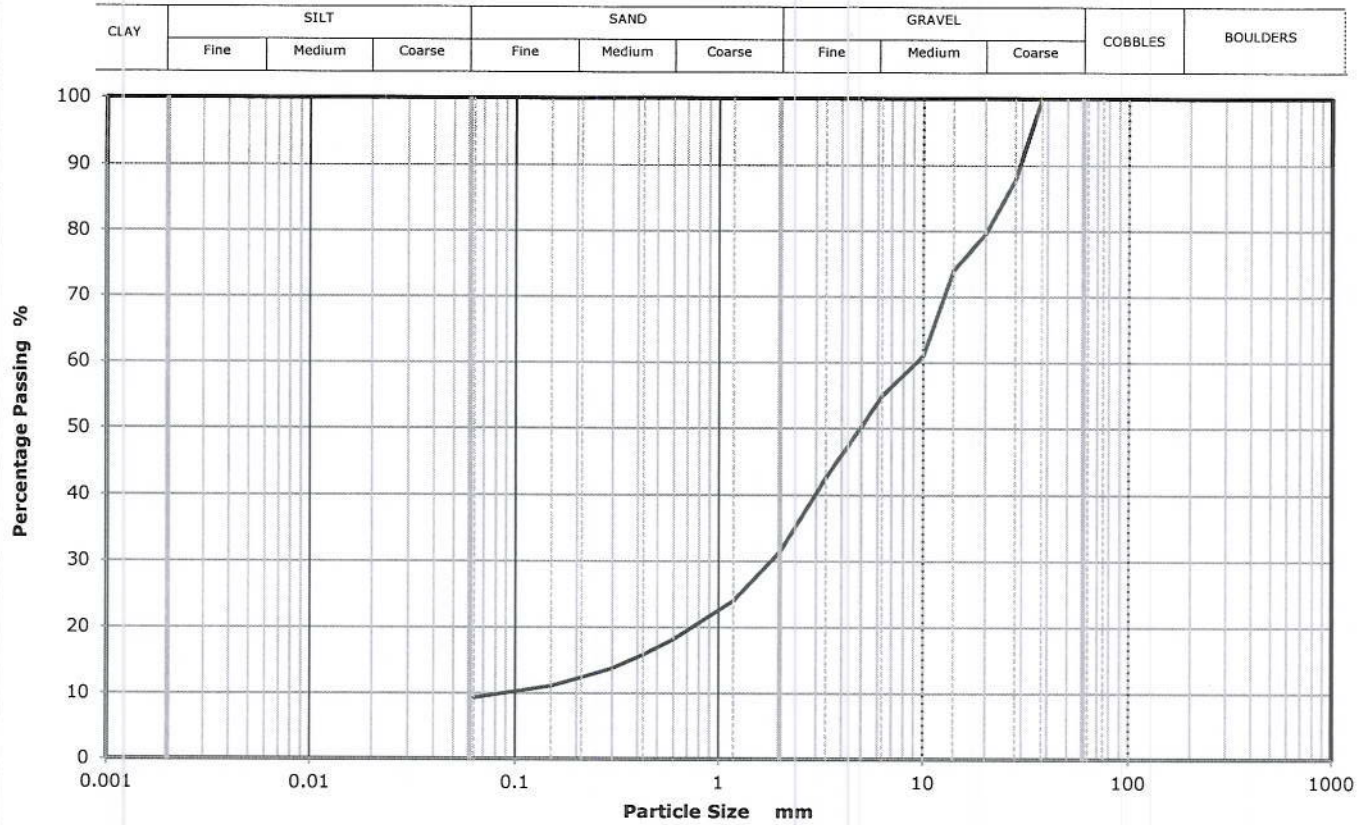
Sample proportions	%
Cobbles	0
Gravel	50
Sand	35
Fines <0.063mm	16

Grading analysis		
D60	mm	4.5
D30	mm	0.3
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Test method and date	
Testing in accordance with BS EN ISO 17892:	
Wet sieving method	
Reporting date:	09 May 16

PARTICLE SIZE DISTRIBUTION

Hole ID: TP2	Description: MADE GROUND: pale red silty, very sandy gravel.
Depth [m]: 0.20	



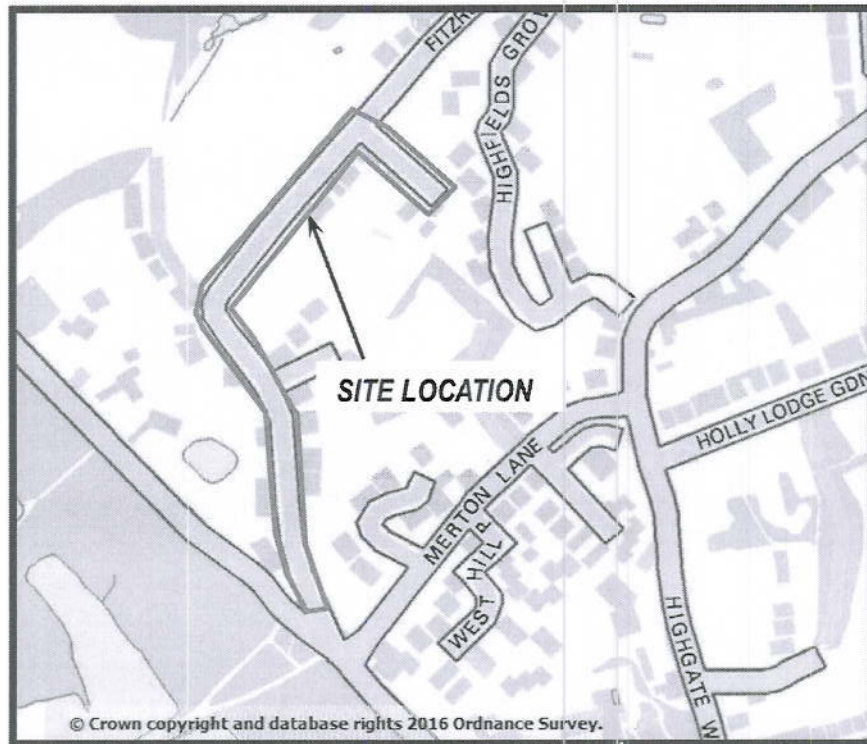
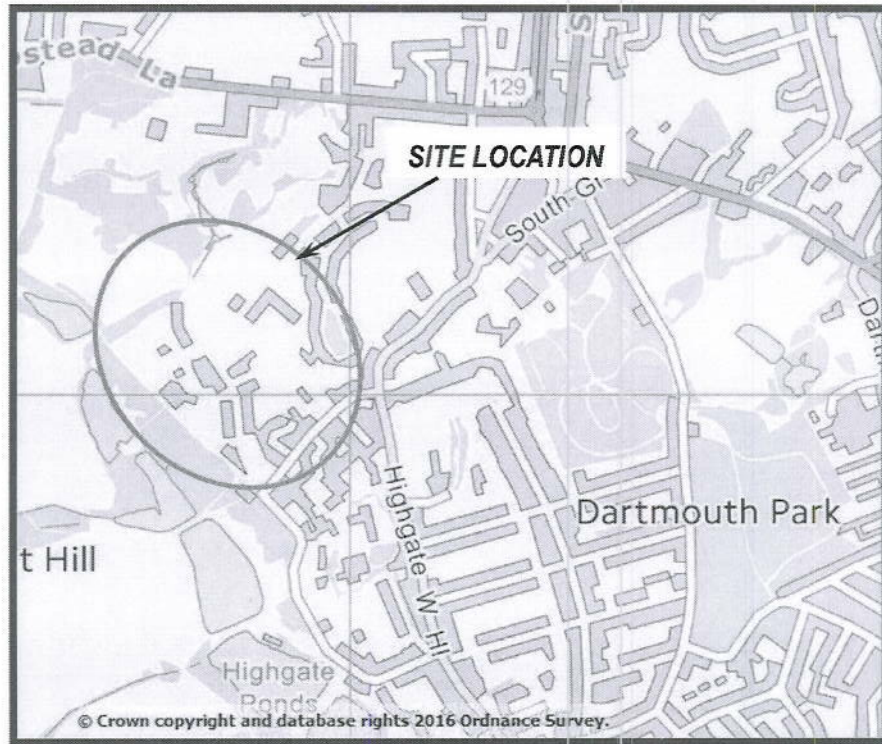
Sieving	
Size [mm]	% passing
75	100
63	100
50	100
37.5	100
28	87.8
20	79.6
14	74
10	61
6.3	54.9
5	50.3
3.35	42.6
2	31.4
1.18	24
0.6	18.2
0.425	15.9
0.3	13.8
0.212	12.4
0.15	11.1
0.063	9.3

Sample proportions	%
Cobbles	0
Gravel	69
Sand	22
Fines <0.063mm	9

Grading analysis		
D60	mm	9.3
D30	mm	1.8
D10	mm	0.1
Uniformity Coefficient		105.0
Curvature Coefficient		4.0

Test method and date	
Testing in accordance with BS EN ISO 17892:	
Wet sieving method	
Reporting date:	09 May 16

Location Plan



Approx NGR of site 527790E 187120N

