West London and Suburban Property Investments Ltd

80 Charlotte Street and 65 Whitfield Street Redevelopment

Ground Contamination Investigation Strategy

REP/207329/C/S001

Issue 2 | 24 September 2012

Job number 207329

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Document Verification

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Job title		80 Charlotte Street and 65 Whitfield Street Redevelopment		Job number 207329
Document title		Ground Contamination Investigation Strategy		File reference
Document ref		REP/207329/C/S001		
Revision	**Date**	**Filename**	Fitzrovia additional GI development strategy.docx	
Draft 1	4 Sep 2012	**Description**	First draft	
			Prepared by	Checked by	Approved by
		Name	Emma Fromant	Chris Barrett	Chris Barrett
		Signature			
Issue	13 Sep 2012	**Filename**	Fitzrovia GI strategy Issue 1.docx	
		Description	First issue to client and DP9 for review	
			Prepared by	Checked by	Approved by
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		Signature			
Issue 2	24 Sep 2012	**Filename**	Fitzrovia GI strategy Issue 2.docx	
		Description	Issue 2 including amendments following Derwent comments	
			Prepared by	Checked by	Approved by
		Name	Emma Fromant	Chris Barrett	Chris Barrett
		Signature	E.Fromant	C.Barrett	C.Barrett
		Filename			
		Description			
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		Name			
		Signature			

Issue Document Verification with Document ✓

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1 Introduction

1.1 Background

West London & Suburban Property Investments Ltd (WLSPIL) (as Derwent London) is redeveloping 80 Charlotte Street and 65 Whitfield Street located to the west of Tottenham Court Road in the Borough of Camden. Make Architects has been engaged as the project architects. Ove Arup & Partners Ltd (Arup) has been appointed to provide structural, geotechnical engineering and ground contamination advice for the development.

An initial ground geotechnical investigation was undertaken at the site during May to June 2012. The extent of ground contamination testing in that investigation was limited due to an assumed low potential for contamination based on desk study. The desk study had identified on-site fuel storage tanks and specific exploratory holes were located close to these tanks. Elevated concentrations of hydrocarbons were reported in the soil and water samples in BH122.

The planning consent conditions (application No: 201 0/6873/P) for the development includes condition 6 which states *"No development shall take place until: a) The applicant has submitted a programme of ground investigation for the presence of soil and groundwater contamination and landfill gas for approval by the Council; and b) The investigation has been carried out in accordance with the approved details and the results and remediation measures (if necessary) have been submitted to and approved by the Council. All approved remediation measures shall be implemented strictly in accordance with the approved details. c) All approved remediation measures shall be implemented strictly in accordance with the approved details and a verification report shall be submitted and approved by the Council."*

This report has been written to describe the scope of the proposed additional ground contamination investigation and to provide the London Borough of Camden with sufficient information to approve the scope of works in accordance with condition 6 part (a).

1.2 Information sources

The information sources used to inform this strategy include desk studies, ground investigation data and site walkover notes as follows:

- Arup (June 2010), Saatchi & Saatchi – 80 Charlotte Street, Geotechnical desk study;
- Arup (October 2010), 80 Charlotte Street and 65 Whitfield Street, Contamination risk assessment;
- Geotechnical Engineering (June 2012), Ground investigation factual report; and
- Arup (August 13th 2012), Site walkover notes and photos taken by an Arup environmental and geotechnical specialist.

1.3 Limitations

This report has been produced by Arup for use by West London & Suburban Property Investments Ltd in connection with the proposed redevelopment of 80 Charlotte Street. It is not intended for, and should not be relied upon by any third party except as provided for in Arup's agreement with West London & Suburban Property Investments Ltd.

Reasonable skill and care has been exercised in preparation of this report in accordance with the technical requirements of the brief. Notwithstanding the efforts made by the professional team in undertaking this contamination assessment, it is possible that the ground conditions other than those potentially indicated by this report may exist at the site.

This interpretative report has been prepared based upon information collected by other parties. Arup has assumed that the factual information provided by others is reliable but does not take any responsibility for the validity of those data.

2 Summary of site conditions

2.1 Site history

A summary of the site history is presented below, which is an extract from the Geotechnical desk study (Arup, 2010) and related appendices.

Historical plans show that the northern part of the site lay within an old quarry. It is likely that this quarry extended over a larger portion of the site and could have possibly extended across the whole of the site. Urban development occurred on the site during the mid 1700s to early 1800s and was mostly residential.

From 1900 to 1927 the use of the area changed to predominantly commercial buildings. Post World War 2 maps show some demolished buildings on site, possibly due to bomb damage. The buildings present at that time had various uses, including small scale metal works, welding facilities, rubber tyres storage, garages, electrical fittings, residential and offices.

By 1957 the buildings present on site are mostly commercial in nature. Some buildings were merged or refurbished by adding one or two floors and a basement level. Ordnance Survey maps dating from the mid 1960s show the site was redeveloped and the site has remained unchanged. The site is currently leased as office space, using the basements for car parking.

2.2 Environmental setting

2.2.1 Environmental context

The site is located in a commercial area in central London. There are no designated ecological receptors such as sites of Sites of Special Scientific Interest, Special Areas of Conservation, Areas of Outstanding Natural Beauty or Local Nature Reserves located within 1km of the site.

2.2.2 Controlled waters and abstractions

The site is not located in a source protection zone (SPZ) for groundwater and no groundwater abstractions are located on the site. There are no groundwater abstractions within 250m of the site recorded in the Envirocheck report. It should be noted that the Envirocheck report does not include unregistered abstractions.

The site is underlain by a shallow aquifer in the River Terrace Deposits (RTD) gravel which is classed as a secondary A aquifer (controlled waters). The gravel deposits in the strata have been extensively truncated or removed by local basement construction or historic extraction industries.

There are no discharge consents within 250m of the site. There is one recorded pollution incident to controlled waters within 250m of the site (dated 1998), which relates to pollution by unknown chemicals. This was from Middlesex hospital which lies 247m southwest of the site.

2.2.3 Environmental permitting and registers

There are no contaminated land register entries and notices, or recorded landfill sites located within 500m of the site. There is one local authority pollution prevention and controls (PPC) permit located within 250m of the site. This is located 239m west of the site and is registered as a petrol filling station.

There are no control of major accident hazards sites or notification of installations handling hazardous substances sites located within 250m of the site.

There are three sites which are registered as storing/using radioactive substances within 250m of the site. The closest is 69m northeast of the site, registered at University College London.

3 Previous risk assessment

3.1 Conceptual model and assessment

A conceptual model was set out in the Arup 2010 contamination risk assessment. The conceptual model identified the sources of contamination on site, the likely receptors and if a plausible pollutant linkages were likely to be present. A brief summary of the sources, receptors and pathways discussed in that report is presented below.

Based on historical uses of the site the model identified the potential contamination sources as follows:

- Material used to backfill the old gravel pit;
- Contamination from light industrial processes on site;
- Asbestos containing material in demolition rubble; and
- Fuel tanks used for heating.

The receptors were identified as humans (site workers, residents and employees), groundwater in the secondary aquifer and building materials and services.

Pollutant linkages were identified between potential contamination and:

- Human health through dermal contact, ingestion and inhalation;
- Secondary aquifer (RTD) through lateral migration through soils (piles will not penetrate to deeper aquifer); and
- Materials and services through aggressive soil conditions.

A preliminary risk assessment was presented based on the Arup 2010 report. In summary it stated:

- No large scale industrial potentially contaminating site use has been identified on site or in its vicinity.
- Some minor/small scale commercial or light industrial activities have been identified. The northern part of the site lay within an old quarry. The material used to backfill the gravel pit is unknown origin and was therefore regarded as a potential source of ground contamination, although of relatively low significance. Organic fill deposits may produce hazardous ground gases.
- The report suggested that if fuel tanks were present there is a potential that these tanks may have leaked or that spills occurred.
- The site was extensively redeveloped in the 1960s which included basement excavation. This will have removed much of the potentially contaminated ground associated with previous use.
- The previous buildings may have contained asbestos containing materials (ACM) which may not have been handled appropriately during demolition of former buildings. Bomb damage from the war may have resulted in building materials containing ACM to be used as backfill for subsequent development.
- The potential for significant contamination at the site was assessed to be low.

- Exposure to contaminated soil and groundwater by site workers may occur during site redevelopment when intrusive works are carried out. The associated issues can be mitigated by appropriate construction practices and design measures based on the results from the ground investigations.
- The results of the ground investigation will be used to select the right mitigation measures required to reduce risk to groundwater and materials and services.

A summary of the findings is presented below.

Pollutant Linkage	Qualitative Assessment
Potential for significant contamination	Low
Sensitivity of development	Low
Risk of harm to human health during development	Low to Very Low
Risk of harm to human health following development	Low to Very Low
Risks of pollution to controlled waters	Low
Risks of harm to building materials and services	Very low
Risk of harm to ecological receptors	Negligible

3.2 2012 Ground investigation

3.3 Scope of recent investigation

A geotechnical ground investigation of 80 Charlotte Street and Asta House was carried out in June 2012 by Geotechnical Engineering Ltd and supervised by Arup. The scope included ground contamination testing at five locations. The extent of the contamination testing was limited based on the desk study which suggested in general a low potential for contamination at the site (refer to section 3). As fuel tanks were identified in the desk study some additional contamination testing was specified in the vicinity of those tanks.

The contaminated land scope of the investigation consisted of six boreholes located in the courtyard area. The location of the boreholes is presented in Figure 1. The borehole logs from this investigation are provided in Appendix A. 12 soil samples from five boreholes (BH113a, BH113c, BH113d, BH104 and BH122) were tested for metals, asbestos, cyanide, chloride, phenols, polyaromatic hydrocarbons (PAH), benzene, toluene, ethylbenzene, and xylenes (BTEX), polychlorinated biphenyls (PCB), total petroleum hydrocarbons (TPH) and total organic carbon (TOC).

Ground gas and groundwater monitoring installations were installed into two boreholes (BH122 and BH114). Six rounds of ground gas monitoring and two rounds of groundwater monitoring were carried out.

3.3.1 Soil results

The soil test results have been initially assessed by comparing them to national published generic assessment criteria for assessing risks to human health in a

residential (without the consumption of home grown produce) setting. A short summary of the results is provided below:

- The majority of the metal concentrations are well below the residential human health assessment criteria. Arsenic and lead concentrations have exceeded the assessment criteria in six samples, at four locations (BH122, BH104, BH113d and BH113c). The exceedances are marginal in most cases, although arsenic levels in BH122 and lead levels in BH104 are roughly double the residential assessment criteria.
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations are below detection limit at in all soil samples, with the exception of BH122 3.10m bgl, where concentrations were elevated although not exceeding the assessment criteria for ethylbenzene (4200µg/kg, m- & p- Xylene 7300µg/kg and o-Xylene 5800µg/kg).
- PAH concentrations were mostly below the detection limit and where present concentrations were mostly very low and almost all were also below residential assessment criteria, with the exception of benzo[a]pyrene in BH113c, 1m bgl, recorded concentration of 1.8mg/kg.
- Concentrations of aliphatic and aromatic petroleum hydrocarbon (TPH) compounds were mostly below the detection limit and where present concentrations are below residential assessment criteria. However concentrations recorded in BH122 3.1m bgl are elevated well above the residential assessment criteria (a summary table of the elevated result is provided below). This sample was taken at the base of the Made Ground/ top of the RTD and indicates free product is present at this depth. The elevated results were accompanied by strong hydrocarbon odours noted during drilling when the borehole reached this depth.

BH122 (3.1m bgl) soil sample TPH results		
Determinants	**Residential assessment criteria**	**Recorded concentration (mg/kg)**
TPH aliphatic >C8-C10	19	1100
TPH aliphatic >C10-C12	93	3800
TPH aliphatic >C12-C16	745	15000
TPH aliphatic >C16-C35	8360	23000
TPH aromatic >C8-C10	33	220
TPH aromatic >C10-C12	177	1100
TPH aromatic >C12-C16	1240	5900
TPH aromatic >C16-C21	971	7000
TPH aromatic >C21-C35	1330	2100
Total Petroleum Hydrocarbons	n/a	59000
Benzene	0.27	0.01
Ethylbenzene	167	4.2
m-&-p-xylene	53.3	7.3
o-Xylene	59.5	5.8

- Asbestos was detected in BH113d, at 0.5m and 1.5m bgl. It was identified as chrysotile and amosite (amphiboles in fines), at a concentration of 0.001%

w/w. This is a low concentration and it is not unusual to occasionally encounter very low concentrations of asbestos fibres in Made Ground

- All phenol concentrations were recorded as below detection limit.

3.3.2 Groundwater

Four samples of groundwater, from two locations (BH114 and BH122), were tested for metals, TPH, BTEX and PAH. Results from BH114 were below detection limit and where present concentrations were below UK Drinking water standards. However concentrations of BTEX, PAH (particularly naphthalene) and TPH in the two samples taken from BH122 were elevated above Environmental Quality Standards. A summary table presenting groundwater test results is provided in Appendix A. The results indicate the presence of free product in the groundwater.

3.3.3 Ground gas

Elevated ground gases were reported in BH122 and BH114. This included methane up to 14.6 % v/v, carbon dioxide up to 14.2% v/v and hydrocarbon vapours up to 96ppm.

3.3.4 Stratigraphy

The site specific investigation shows the following stratigraphy

Stratum	Thickness (m)	Top surface (mOD)
Made Ground	2.0 to 4.5	+25.2 to +25.6
River Terrace Deposits	1.3 to 5.0	+19 to +23.4
London Clay	15.6 to 16.0	+19.9 to + 18.1
Lambeth Group & Thanet Sands	21.7	+2.8 to +3.0
Chalk	unproven	-18.7

3.3.5 Summary

While many results were low the testing of soil and water at BH122 indicates that elevated hydrocarbon contamination is present at depth. The location of BH122 is shown on Figure 1. It was purposely located close to the above ground storage tank in that area. The results indicate that hydrocarbons may have leaked from this tank and be present in deep soils and groundwater in the area; there was no indication of such contamination in the soil and water from shallow depths (top 3m) at this location.

All the existing results will be assessed in more detail in accordance with nationally published guidance when the additional investigation is completed and that data is also available.

4 Proposed investigation strategy

4.1 Site walkover

In response to the ground investigation findings a site walkover was carried out by an Arup Environmental Consultant and Geotechnical Engineer on 13th August 2012. A summary note is presented in Appendix B. The tank closest to BH122 is referred to as the Chitty Street tank. The key findings from the site walkover are summarised below:

- There are three tanks on site (locations shown in Figure 2), all of which are still in use.
- The Chitty Street tank can store up to 6000 litres of oil and the other two tanks store up to 35,000 litres of oil.
- The oil stored is 35 Second gas oil (also referred to as red diesel) and is used for heating in the associated buildings.
- The tanks would have been installed when the buildings were constructed in the late 1950s. The tanks were last emptied and cleared approximately 12 years ago.

4.2 Proposed investigation strategy

4.2.1 80 Charlotte Street

In order to assess the extent of the contamination at BH122 an additional six exploratory hole locations are suggested focused on the Chitty Street tank. This will consist of two close to the tank (BH203 and BH204), and four further away (BH202, BH205, BH201 and BH208) to demonstrate that the contamination is limited in extent, or assist in the delineation if the hydrocarbon plume if it is more substantial.

Two additional locations, BH206 and BH207 (i.e. a total of eight) have been located to the south of the two other tanks identified on site (to the north of Chitty Street tank.

A plan of the proposed exploratory hole locations is provided as Figure 2. It is proposed to construct the boreholes using a compact rotary "pioneer rig" to provide flexibility, minimise disturbance and allow drilling into the RTD gravels. The exploratory holes are scheduled for an 8m depth, which will provide information of the conditions of the Made Ground and Gravels, and will prove the level of London Clay beneath the gravels.

Soil samples will collected during exploratory hole excavation, and at every location at least two samples will be tested for a range of determinands including metals, inorganic and hydrocarbon compounds.

A standpipe will be installed at each location with the response zone within the gravels in order to carry out water monitoring, sampling and analysis which will be undertaken after construction and following purging of the standpipe. At least two further rounds of groundwater monitoring will be undertaken at each location.

An interface probe will be used during each monitoring round to identify the depth of potential free product on the water (if present).

A review of existing GI information and other studies carried out by Arup in the area suggests that groundwater is likely to flow in a north south direction. Therefore most locations have been located to the south of BH122. One of these locations is proposed for the pavement area outside of Block K (BH208), to the south of the Chitty Street tank, however this exploratory hole is subject to permission from the Local Authority, which will require a detailed method statement for approval that will be submitted prior to ground investigation commencement. Permission for BH208 as a provisional borehole will be sought although if findings from the locations within the site boundary, especially the locations to the south of BH122, do not reveal any visual or olfactory evidence of contamination it will not be necessary to proceed with BH208. This decision will be reviewed by a contaminated land specialist whilst the ground investigation is taking place.

4.2.2 65 Whitfield Street

A major refurbishment is planned of 65 Whitfield Street including addition of two storeys, relocation of the existing cores and a lower level extension in plan. This will involve excavations of the Made Ground and possibly gravels beneath the site.

A geotechnical ground investigation is currently being planned and will take place within 65 Whitfield Street in October 2012. The scope comprises four trial pits, intended to extend 2m deep and two borehole locations, intended to extend 7m deep (top of the London Clay).

The ground investigation will incorporate contaminated land testing on soil samples taken from all the trail pit locations. It is expected that eight soils samples will be tested in the manner, up to two from each location depending on what is encountered. If water is encountered in the pits and/or boreholes then this will be sampled and tested. It is also possible that two standpipes will be installed into the Gravels, in which case two rounds of groundwater sampling and four rounds of gas sampling will take place. However this provision based on what is identified and potential restrictions as the locations are currently active offices.

A review of existing plans for this site indicates that an oil storage tank may be present in southern corner of Asta House. Access to this area didn't occur during the site reconnaissance. This area will be inspected during the ground investigation works and one trial pit and a borehole will be located in this area.

5 Conclusion

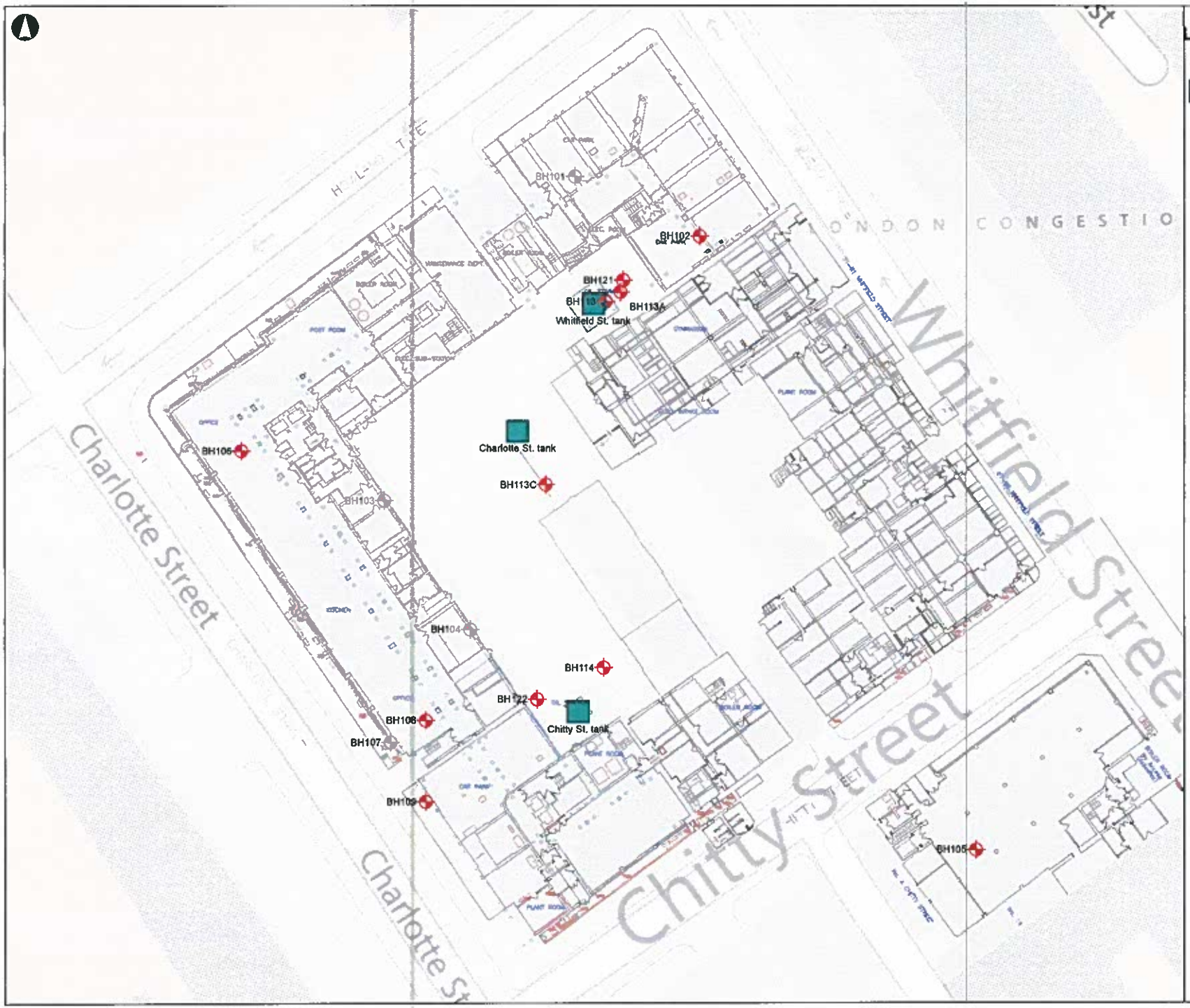
The existing information obtained from ground investigation at the site has indicated that a fuel tank may have leaked and there are elevated concentrations of hydrocarbons at one location on top of the RTD (which is classed as a Secondary A aquifer) local to one tank. The RTD are highly truncated in this area due to neighbouring basement construction and historic extraction activities. It is quite possible that the hydrocarbons are limited in extent; alternatively there may be a wider plume.

The planning consent planning conditions require approval from the local authority for a programme of site investigation. This report sets out a summary of previous work and a strategy for further investigation of the potential contamination at the site in order for the authority to provide such approval.

On completion of the proposed investigation the groundwater monitoring and chemical test results (and existing results) will be assessed using a risk based assessment in accordance with Environment Agency guidance. If the contamination appears to be limited it is unlikely that a remediation scheme will be required due to the proposed form of development which includes further basement excavation etc. The assessment and recommendations will be provided to the London Borough of Camden for approval. If the contamination is more extensive a remediation strategy will be submitted to the London Borough of Camden before development commences. Following the remediation/development process a verification report will be submitted to the London Borough of Camden.

Figures

Figure 1 Existing exploratory hole locations
Figure 2 Proposed exploratory hole locations



Legend

- Existing exploratory hole locations
- Tanks

Issue	Date	By	Chkd	Appd
P1	13-09-12	EF	CB	CB

Metres
0 5 10 20

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Client

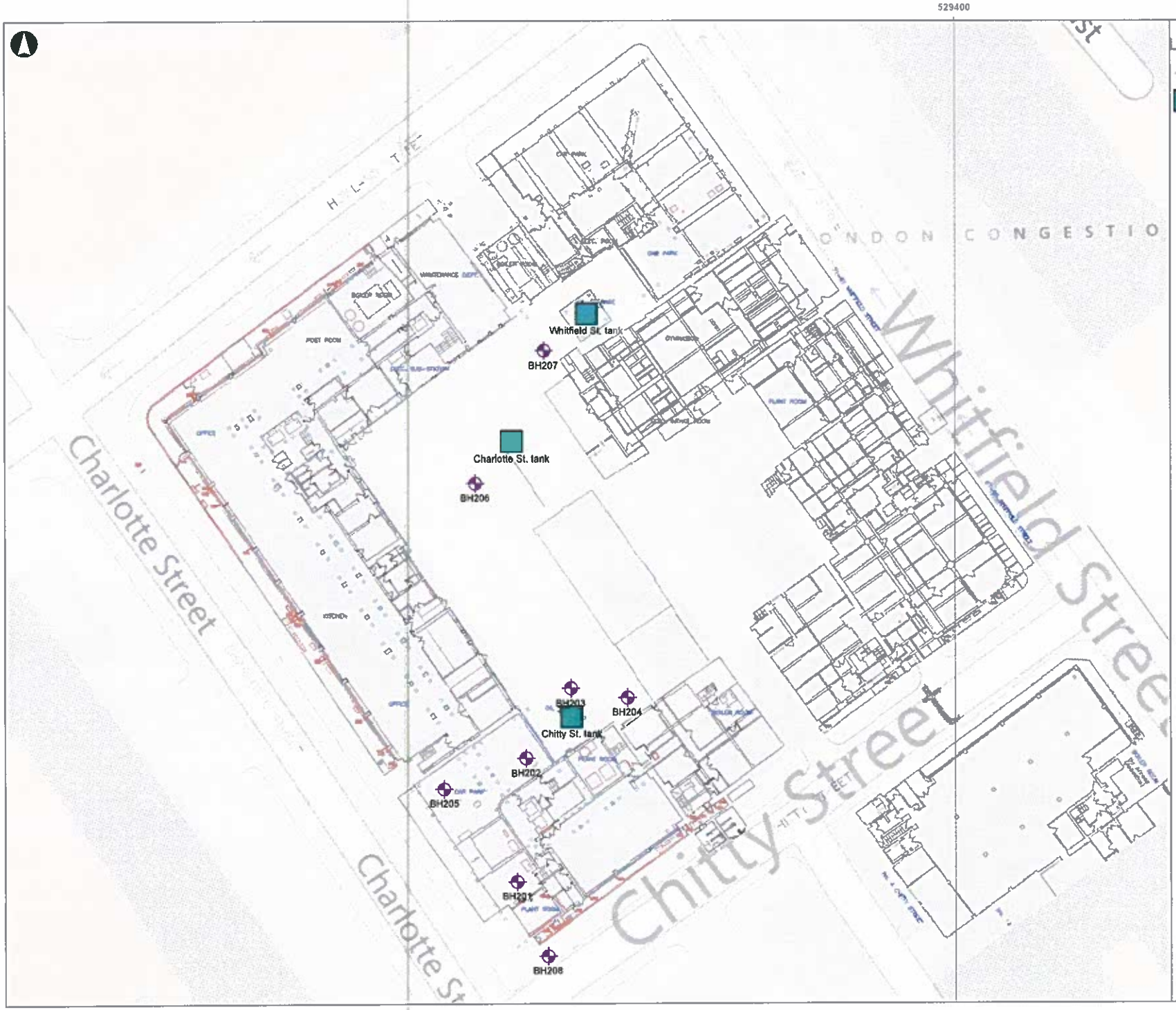
Job Title
Fitzrovia Development

Drawing Title
Existing exploratory hole locations

Scale at A3
1:400

Drawing Status
Issue

Job No	Drawing No	Issue
207329	Figure 1	P1



Legend

- Proposed exploratory hole locations
- Tanks

Issue	Date	By	Chkd	Appd
P1	13-09-12	EF	CB	CB

Metres 0 5 10 20

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Client

Job Title
Fitzrovia Development

Drawing Title
Proposed exploratory hole locations

Scale at A3
1:400

Drawing Status
Issue

Job No	Drawing No	Issue
207329	Figure 2	P1

Appendix A

Existing ground investigation data

Geotechnical Engineering Limited

BOREHOLE LOG

BH104

CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT — Sheet 1 of 3

Start Date 24 May 2012 — Easting 529343.6 — Scale 1 : 50

End Date 27 May 2012 — Northing 181894.5 — Ground level 25.29mOD — Depth 20.00 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
24/05/12 2100hrs								Black TARMACADAM (MADE GROUND)	0.15	25.14	
								Light grey and off-white CONCRETE. (MADE GROUND) 0.30m: Steel re-bar grid (5mm diam) 0.50m: 100mm OD ceramic drain running N-S (redundant). 0.60m: 2 no. 100mm steel rebar across N edge of pit.	0.75	24.54	
	1D*	0.80			Vo 0.00						
	2D*	1.00			Vo 0.00			Brown locally reddish brown clayey gravelly fine to coarse SAND with occasional subangular medium gravel sized bone, metal and shell fragments and occasional subangular brick and concrete cobbles. Gravel is angular to subrounded fine to coarse flint, charcoal, brick and concrete. (MADE GROUND)	1.75	23.54	
	3D*	1.50			Vo 0.00				2.00	23.29	
	4B	2.00	2.50					Soft dark brown and greyish brown slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse brick and concrete. (MADE GROUND)	2.50	22.79	
		2.50	2.95	2.00	C 5			Soft dark brown and greyish brown slightly sandy gravelly CLAY. Gravel is angular to subrounded fine to coarse brick and concrete. (MADE GROUND)			
	5D*	2.50			Vo 0.00						
	6B	2.50	3.00								
25/05/12 0200hrs Dry								Loose dark greyish brown clayey gravelly locally very gravelly fine to coarse SAND with rare brick cobbles. Gravel is angular to subrounded fine to coarse brick, concrete and flint. (MADE GROUND)	3.50	21.79	
25/05/12 1830hrs Dry		3.50	3.95	3.50	C 2			Very loose dark orangish brown and greyish brown slightly clayey sandy locally very sandy subangular to rounded fine to coarse flint GRAVEL with occasional cobble sized pockets of fine and medium sand.			
	7D*	3.50			Vo 0.00						
	8B	3.50	4.00						4.50	20.79	
		4.50	4.95	4.50	C 24			Medium dense dark orangish brown slightly clayey sandy locally very sandy subangular to rounded fine to coarse flint GRAVEL.			
	9D*	4.50			Vo 0.00						
	10D	4.50									
	11B	4.50	5.00								
	12D	5.50									
		6.00	6.45	6.00	C 58			6.00m: Becomes very dense.			
	13B	6.00	6.50						6.80	18.49	
	14D*	7.00			Vo 0.00			Stiff rarely extremely closely fissured dark orangish brown tending to dark brownish grey frequently mottled orange slightly sandy CLAY.			
	15D	7.00			H 117						
	16U	7.50	7.95	7.00	Blows 22						
								Continued Next Page	8.00 (8.00)	17.29	

EQUIPMENT: Concrete cutter, hydraulic breaker and light cable percussive (shell and auger) rig.

METHOD: Hand dug inspection pit 0.00-2.00m. Cable percussion (150mm) 2.00-20.00m.

CASING: 150mm diam to 7.00m.

BACKFILL: On completion, a plain pipe (50mm ID) was installed 2.00-20.00m, cement:bentonite grout 20.00-2.00m.

REMARKS: Water added to assist boring throughout borehole.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
3.50	2.50	3.20	20	

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BOREHOLE LOG

BH104

CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT — Sheet 2 of 3

Start Date 24 May 2012 — Easting 529343.6 — Scale 1 : 50

End Date 27 May 2012 — Northing 181894.5 — Ground level 25.29mOD — Depth 20.00 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
	17D	8.00			H Re*			Stiff extremely closely and very closely fissured dark brownish grey slightly sandy CLAY with rare fine and medium sand sized selenite crystals.			
	18D	9.00	9.45	7.00	S 24						
	19D	9.50			H 125						
		10.00			H Re*				10.00	15.29	
								Very stiff extremely closely and very closely fissured dark brownish grey slightly sandy CLAY with frequent fine and medium sand sized selenite crystals and randomly orientated lenses (<3mm) of dark grey silt.			
26/05/12 0230hrs Dry	20U	10.50	10.95	7.00	Blows 44						
26/05/12 1830hrs Dry	21D	11.00									
	22D	12.00	12.45	7.00	S 30						
	23D	12.50						12.50m: Rare fine gravel sized shell fragments.			
	24U	13.50	13.95	7.00	Blows 50						
	25D	14.00			H Re*						
	26D	15.00	15.45	7.00	S 29						
	27D	15.50									
	28U	16.50	16.95	7.00	Blows 50						
	29D	17.00							17.00	8.29	
								Very stiff locally extremely closely and very closely fissured dark grey slightly sandy CLAY with frequent fine and medium sand sized selenite crystals and rare randomly orientated lenses (<2mm) of dark grey silt.			
								Continued Next Page	{18.00}		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

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BOREHOLE LOG

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CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT — Sheet 3 of 3

Start Date 24 May 2012 — Easting 529343.6 — Scale 1 : 50

End Date 27 May 2012 — Northing 181894.5 — Ground level 25.29mOD — Depth 20.00 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
	30D	18.00	18.45	7.00	S 31						
	31D	18.50			H 109						
26/05/12 2330hrs Dry	32U	19.50	19.95	7.00	Blows 50						
	33D	20.00						Borehole completed at 20.00m.	20.00	5.29	
									{28.00}		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

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BOREHOLE LOG

BH113

CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT — Sheet 1 of 1

Start Date 11 June 2012 — Easting 529359.0 — Scale 1 : 50

End Date 12 June 2012 — Northing 181931.6 — Ground level 26.26mOD — Depth 1.10 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range		instru -ment	description	depth (m)	reduced level (m)	legend
11/06/12 2310hrs									Tarmacadam. (MADE GROUND)	0.05	26.21	
	1B	0.30							Concrete comprising 60% angular to subrounded fine to coarse flint gravel and 40% light grey concrete matrix with frequent re-bar (5mm and 10mm diameter.) at 100mm spacings and rare coarse sand and fine gravel sized vesicles. (MADE GROUND)	0.20	26.06	
12/06/12 0230hrs Dry	2B	0.50										
	3B	1.00							Light brownish grey slightly silty gravelly fine to coarse SAND with rare red brick cobbles and fragments (<200mm length) of corroded cast iron. Gravel is subangular and subrounded fine to coarse brick, concrete, flint and rare bone. (MADE GROUND)	1.10	25.16	
									1.10m: Concrete obstruction. Borehole completed at 1.10m.	(8.00)		

EQUIPMENT: Hydraulic breaker and hand tools.

METHOD: Hand dug inspection pit 0.00-1.10m.

REMARKS: Inspection pit terminated upon encountering concrete obstruction at 1.10m (Possible oil storage tank). Borehole relocated 2.00m 70° East.

BACKFILL: On termination, hole backfilled with materials arising and the surface reinstated with coldlay tarmacadam.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

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BOREHOLE LOG

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CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT

Sheet 1 of 1

Start Date 12 June 2012 Easting 529360.7 Scale 1 : 50

End Date 12 June 2012 Northing 181932.7 Ground level 26.05mOD Depth 2.10 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range		instru -ment	description	depth (m)	reduced level (m)	legend
12/06/12 1830hrs									Tarmacadam. (MADE GROUND)	0.05	26.00	
	1B	0.40							Concrete comprising 60% angular to subrounded fine to coarse flint gravel and 40% light grey concrete matrix with frequent re-bar (5mm and 10mm diameter.) at 100mm spacings and rare coarse sand and fine gravel sized vesicles. (MADE GROUND)	0.30	25.75	
	2D*	0.40										
	3B	0.50										
	4D	1.00										
		1.20 - 1.65		Nil	1				Light brownish grey slightly silty sandy subangular and subrounded fine to coarse brick, concrete and flint GRAVEL with rare red brick cobbles and fragments (<100mm length) of corroded cast iron. (MADE GROUND)			
	5B	1.20										
12/06/12 2100hrs Dry	6D*	1.20								2.10	23.95	
		2.00 - 2.15		1.80	C**				2.10m: Concrete obstruction. Borehole completed at 2.10m.			
										{8.00}		

EQUIPMENT: Hydraulic breaker and light cable percussive (shell and auger) rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Cable percussion (250mm) 1.20-2.00m.

CASING: 250mm diam. to 1.80m.

REMARKS: Cable (approx 30mm diam.) noted running approximately 50°-230° across base of pit at 0.90m. Inspection pit extended 400mm Northwest.

Cable (approx 50mm diam.) noted running approximately 110°-290° in Northwest wall of inspection pit at 0.50m.

Hole advanced by chiselling 2.00-2.10m (1hr).

Borehole terminated upon encountering concrete obstruction at 2.10m.

BACKFILL: On termination, hole backfilled with materials arising and the surface reinstated with coldlay tarmacadam.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

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BOREHOLE LOG

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CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT

Start Date 12 June 2012

End Date 12 June 2012

Sheet 1 of 1

Scale 1 : 50

mOD

Depth 2.10 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range		instru -ment	description	depth (m)	reduced level (m)	legend
12/06/12 2100hrs									Tarmacadam. (MADE GROUND)	0.05		
									Concrete comprising 60% angular to subrounded fine to coarse flint gravel and 40% light grey concrete matrix with frequent re-bar (5mm and 10mm diameter.) at 100mm spacings and rare coarse sand and fine gravel sized vesicles. (MADE GROUND)	0.30		
12/06/12 2240hrs Dry									Light brownish grey slightly silty gravelly fine to coarse SAND with rare red brick cobbles and fragments (<100mm length) of corroded cast iron. Gravel is subangular and subrounded fine to coarse brick, concrete and flint. (MADE GROUND)	2.10		
		2.10	2.12	Nil	C**				2.10m: Concrete obstruction. Borehole completed at 2.10m.	(8.00)		

EQUIPMENT: Hydraulic breaker and light cable percussive (shell and auger) rig.

METHOD: Hand dug inspection pit 0.00-1.30m. Cable percussion (150mm) 1.30-2.10m.

CASING: None used.

REMARKS: Borehole terminated upon encountering concrete obstruction at 2.10m.

BACKFILL: On termination, hole backfilled with materials arising and the surface reinstated with coldlay tarmacadam.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
				Groundwater not encountered.

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BOREHOLE LOG

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CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT — Sheet 1 of 6

Start Date 20 June 2012 — Easting 529352.2 — Scale 1 : 50

End Date 28 June 2012 — Northing 181910.7 — Ground level 26.40mOD — Depth 49.50 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
20/06/12 1930hrs								Tarmacadam (MADE GROUND)	0.10	26.30	
								Light grey concrete comprising 60% angular and subangular fine to coarse flint gravel and 40% light grey matrix with rebar (5mm diameter.) at 100mm spacings and rare fine and medium gravel sized vesicles. (MADE GROUND)	0.30	26.10	
	1D	0.40									
	2D*	0.40			Vo 0.00						
	3D	1.00									
	4D*	1.00			Vo 0.00						
		1.20	1.65	Nil	C 1			Very loose dark brown and greyish brown slightly silty gravelly fine to coarse SAND with rare brick and concrete cobbles, rare fragments (<100mm) of animal hair and rare rootlets. Gravel is angular to subrounded fine to coarse brick, concrete, flint and rare bone. (MADE GROUND)			
	5B	1.20	1.60								
		2.00	2.45	Nil	C 19				2.00	24.40	
	6B	2.00	2.60					Firm dark brownish grey slightly gravelly sandy SILT with organic odour. Gravel is angular to subrounded fine to coarse brick and flint. (MADE GROUND)			
	7D*	2.00			Vo 0.00						
	8B	2.70	3.00						3.00	23.40	
		3.00	3.45	2.90	C 28			Medium dense dark orangish brown and reddish brown gravelly locally very gravelly fine to coarse SAND. Gravel is angular and subangular fine to coarse flint.			
	9B	3.00	3.50					3.50 - 5.80m: Water added to assist boring.			
	10D*	3.00			Vo 0.00						
		4.00	4.45	3.90	C 17			4.00m: Becomes dark orangish brown with frequent cobble sized pockets of soft to firm light orangish brown sandy clay.			
	11B	4.00									
	12D*	4.00			Vo 0.00				5.00	21.40	
		5.00	5.45	4.90	C 13			Medium dense dark orangish brown sandy locally very sandy angular and subrounded fine to coarse flint GRAVEL.			
	13B	5.00									
	14D*	5.00			Vo 0.00						
	15W	6.00									
	16D	6.00									
		6.50	6.95	6.40	C 13			6.50m: Becomes predominantly fine and medium gravel.			
	17	6.50									
	18D*	6.50			Vo 0.00						
21/06/12 0230hrs 6.80m	19D	7.80							7.80	18.60	
								Continued Next Page	(8.00)		

EQUIPMENT: Light cable percussive (shell and auger) rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Cable percussion (250mm) 1.20-25.00m, (200mm) 25.00-36.50 and (150mm) 36.50-49.50m.

CASING: 250mm diam to 7.90m and 200mm diam to 31.50m.

BACKFILL: On completion, a standpipe piezometer (19mm) was installed with tip at 48.50m, granular response zone 49.50-47.50m, bentonite seal 47.50-0.20m, concrete and stopcock cover 0.20-0.00m.

REMARKS: Water added to assist boring 3.50-5.80m, 37.20-38.50m, 42.50-45.00m and 45.50-48.50m

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
6.00	5.90	4.35	20	

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CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT — Sheet 2 of 6

Start Date 20 June 2012 — Easting 529352.2 — Scale 1 : 50

End Date 28 June 2012 — Northing 181910.7 — Ground level 26.40mOD — Depth 49.50 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
21/06/12 1830hrs 6.50m	20D	8.00	8.45	7.90	S 19			Stiff extremely closely fissured dark orangish brown frequently mottled dark reddish brown locally slightly gravelly sandy CLAY. Gravel is angular and subangular fine to coarse flint.			
									9.00	17.40	
	21D	9.00			H 135			Very stiff extremely closely fissured dark brownish grey slightly sandy CLAY with rare fine sand sized selenite crystals.			
	22B	9.00	9.50								
	23D*	9.00			Vo 0.00						
	24U	9.50	9.95	7.90	Blows 35						
	25D	10.00						10.00m: Becomes extremely and very closely fissured.			
	26D	11.00	11.45	7.90	S 22			11.00 - 11.45m: Rare subangular and subrounded fine and medium mudstone lithorelicts (?).			
	27D	12.00						12.00m: With rare randomly orientated lenses (<2mm) of dark grey silt.			
	28U	12.50	12.95	7.90	Blows 40						
	29D	13.00						13.00m: Selenite crystals become frequent.			
	30D	14.00	14.45	7.90	S 28						
	31D	15.00							15.00	11.40	
								Very stiff dark brownish grey slightly sandy silty CLAY with frequent fine and medium sand sized selenite and rare randomly orientated lenses (<2mm) dark grey silt.			
	32U	15.50	15.95	7.90	Blows 45						
	33D	16.00									
									17.00	9.40	
	34D	17.00	17.45	7.90	S 30			Very stiff locally extremely closely fissured slightly sandy CLAY with frequent fine and medium sand sized selenite crystals.			
									18.00	8.40	
								Continued Next Page	(18.00)		

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water strike (m) casing (m) rose to (m) time to rise (m) remarks

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CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT — Sheet 3 of 6

Start Date 20 June 2012 — Easting 529352.2 — Scale 1 : 50

End Date 28 June 2012 — Northing 181910.7 — Ground level 26.40mOD — Depth 49.50 m

progress date/time water depth	sample no & type	depth (m) from	to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
	35D	18.00						Very stiff locally extremely closely fissured dark brownish grey slightly sandy silty CLAY with frequent fine and medium sand sized selenite crystals and rare randomly orientated lenses (<1mm) of dark grey silt.			
	36U	18.50	18.95	7.90	Blows 50						
	37D	19.00						19.00m: With rare subhorizontal lenses (<1mm) of selenite.			
22/06/12 0200hrs Dry											
24/06/12 1830hrs 13.30m	38D	20.00	20.45	7.90	S 37						
	39D	21.00			H Re*						
	40U	21.50	21.95	7.90	Blows 50						
	41D	22.00			H Re*			22.00 - 23.00m: With frequent fine to coarse gravel sized shell fragments and rare medium and coarse gravel sized organic fragments including decomposed wood remains.			
	42D	23.00	23.45	7.90	S 35				23.45	2.95	
	43B	23.50						Very stiff extremely closely locally very closely fissured dark brownish grey frequently mottled light bluish grey and red slightly sandy CLAY. Tends to light bluish grey frequently mottled dark brownish grey and red.			
	44D	24.00									
	45U	24.50	24.95	7.90	Blows 60						
	46D	25.00			H Re*				25.00	1.40	
25/06/12 0230hrs 21.40m								Very stiff light bluish grey frequently mottled dark brownish red rarely mottled brown slightly sandy silty CLAY with rare fine and medium sand sized selenite crystals. 25.50 - 26.00m: Becomes extremely closely and very closely fissured.	26.00	0.40	
25/06/12 1830hrs 21.50m	47D	26.00	26.45	25.80	S*56			Hard stiff locally extremely closely fissured dark brown frequently mottled dark reddish brown rarely mottled light bluish grey slightly sandy CLAY with rare fine sand sized selenite crystals.			
	48D	27.00						27.00m: Bluish grey mottling becomes frequent. 27.00 - 28.00m: Fine sand sized selenite crystals concentrations to bluish grey mottled fissure surfaces. 27.00m: Bluish grey mottling becomes frequent.			
	49U	27.50	27.95	26.70	Blows 100						
								Continued Next Page	(28.00)		

water strike (m) | casing (m) | rose to (m) | time to rise (m) | remarks

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CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT — Sheet 4 of 6

Start Date 20 June 2012 — Easting 529352.2 — Scale 1 : 50

End Date 28 June 2012 — Northing 181910.7 — Ground level 26.40mOD — Depth 49.50 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
	50D	28.00			H Re*						
	51D	29.00	29.45	28.00	S 32			Very stiff friable extremely closely and very closely fissured dark bluish grey rarely mottled dark brown CLAY.	29.00	-2.60	
	52D	30.00			H Re*						
	53U	30.50	30.95	30.00	Blows 70						
	54D	31.00						30.80m: Approx. 200mm band of very stiff dark grey and black slightly sandy silt with rare subhorizontal lenses (<1mm) of light grey silt.	31.00	-4.60	
	55D	31.50						Very stiff friable indistinctly thinly laminated dark grey slightly sandy clayey SILT with frequent coarse sand to coarse gravel sized shell fragments and rare coarse gravel sized fragments of ironstone.	31.20	-4.80	
	56D	32.00	32.43	30.00	S*55			Very stiff very closely fissured light grey silty CLAY. 31.40m: Becomes frequently mottled light yellowish brown and dark brownish red.	32.60	-6.20	
	57D	33.00						Hard very closely fissured multicoloured (brownish red, yellowish grey, light green, yellowish brown, purple and rarely light bluish grey) slightly sandy CLAY with rare fine and medium sand sized selenite crystals.	33.00	-6.60	
	58U	33.50	33.95	31.50	Blows 75			Very stiff light bluish grey frequently mottled light yellowish brown and dark brownish red slightly sandy silty CLAY locally tending to clayey SILT. 33.20m: With rare coarse gravel sized pockets of bluish grey and greenish grey fine to coarse sand. 33.30m: Approx. 100mm band of light greenish grey and bluish grey slightly clayey fine to coarse sand. 33.40m: Becomes sandy.	34.20	-7.80	
	59D	34.00									
	60D	34.20									
	61D	34.40									
	62D	35.00	35.23	31.50	S*183			Very dense light greenish grey rarely light bluish grey locally clayey fine and medium SAND. 35.00m: Tends to light yellowish brown.			
	63B	35.00									
26/06/12 0230hrs Dry	64D	36.00							36.40	-10.00	
26/06/12 1830hrs 35.50m	65D	36.50	35.64	31.50	S*333			Very dense light greenish grey and off-whitish grey fine and medium SAND with rare medium and coarse gravel sized pockets of dark brownish grey clay. 37.20 - 38.50m: Water added to assist boring.			
								Continued Next Page	{38.00}		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

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CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT — Sheet 5 of 6

Start Date 20 June 2012 — Easting 529352.2 — Scale 1 : 50

End Date 28 June 2012 — Northing 181910.7 — Ground level 26.40mOD — Depth 49.50 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
	66D	38.00	38.12	31.50	S*429						
	67D	38.70						Hard light greenish grey frequently mottled light orangish brown rarely mottled dark bluish grey very sandy CLAY tending locally to a very clayey glauconitic fine and medium sand.	38.70	-12.30	
	68U	39.50	39.85	31.50	Blows 100						
	69D	39.85						Light greyish green rarely mottled dark orangish brown silty locally very silty fine glauconitic SAND.	39.85	-13.45	
	70D	41.00	41.24	31.50	S*120			Hard dark bluish grey sandy locally very sandy CLAY with frequent fine and medium sand sized selenite crystals and subhorizontal lenses (<3mm) of selenite.	41.00	-14.60	
27/06/12 0230hrs Dry	71D	42.00									
27/06/12 1830hrs 41.00m	72D	42.50	42.65	31.50	S*333			Very dense dark greyish green locally slightly gravelly fine and medium glauconitic SAND with rare coarse gravel sized pockets of dark grey clay. 42.50 - 45.00m: Water added to assist boring.	42.40	-16.00	
	73D	44.00	44.16	31.50	S*231			44.00m: Tends locally to light grey.			
	74B	44.50	45.00								
	75D	45.00									
	76D	45.10						CHALK: recovered as locally slightly gravelly slightly sandy silt. Gravel is subangular and subrounded fine to coarse very weak chalk. 45.50 - 48.50m: Water added to assist boring.	45.10	-18.70	
	77D	45.50	45.65	31.50	S*500			46.00m: Chalk gravel becomes weak. Rare angular and subangular fine to coarse flint gravel noted.			
	78D	46.50									
	79D	47.00	47.05	31.50	S**						
								Continued Next Page	{48.00}		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

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BOREHOLE LOG

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CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT

Sheet 6 of 6

Start Date 20 June 2012 Easting 529352.2 Scale 1 : 50

End Date 28 June 2012 Northing 181910.7 Ground level 26.40mOD Depth 49.50 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
	80D	48.00									
	81D	48.50	48.62	31.50	S*300			CHALK: recovered as locally slightly sandy silty CLAY with rare angular and subangular fine to coarse flint fragments.	48.50	-22.10	
28/06/12 0230hrs 48.00m											
								Borehole completed at 49.50m.	49.50	-23.10	
									{58.00}		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

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CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT — Sheet 1 of 4

Start Date 6 June 2012 — Easting 529358.7 — Scale 1 : 50

End Date 11 June 2012 — Northing 181890.1 — Ground level 26.14mOD — Depth 30.50 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
06/06/12 1830hrs								Tarmacadam (MADE GROUND)	0.05	26.09	
								Concrete comprising 60% angular to subrounded fine to coarse flint gravel and 40% light grey concrete matrix with frequent re-bar (5mm diameter.) at 100mm spacings and rare coarse sand and fine gravel sized vesicles. (MADE GROUND)	0.30	25.84	
	1D	0.50									
	2D*	0.50			Vo 0.00						
	3D	1.00									
	4D*	1.00			Vo 0.00						
		1.20	1.65	Nil	C 3			Very loose dark greyish brown slightly clayey locally clayey gravelly fine to coarse SAND with rare brick cobbles. Gravel is angular to subrounded fine to coarse brick, concrete and flint. (MADE GROUND)			
	5B	1.20						0.80 - 0.90m: Timber fragment extended across base of pit.			
								0.90 - 1.00m: Frequent brick cobbles.	2.00	24.14	
		2.00	2.45	Nil	C 9			Soft dark greyish brown slightly gravelly locally gravelly sandy CLAY with faint organic odour. Gravel is angular and subangular fine to coarse brick, concrete and flint. (MADE GROUND)			
	6B	2.00									
	7D*	2.50			Vo 0.10						
		3.00	3.45	2.40	C 20				3.10	23.04	
	8D	3.10						Medium dense dark orangish brown slightly clayey slightly gravelly locally gravelly fine and medium with rare coarse SAND. Gravel is angular to subrounded fine to coarse flint. (Possible loss of fines)			
	9B	3.10									
	10D*	3.50			Vo 0.60						
		4.00	4.45	3.90	C 16			4.00m: Becomes very gravelly.			
	11B	4.00									
	12W	4.20									
	13D*	4.50			Vo 0.00						
		5.00	5.45	4.90	C 20				5.00	21.14	
	14B	5.00						Medium dense dark orangish brown slightly clayey sandy angular to subrounded fine to coarse flint GRAVEL.			
	15D	6.00									
	16D*	6.00			Vo 0.70						
		6.50	6.95	6.40	C 30			6.50m: Becomes medium dense to dense.			
	17B	6.50									
	18D	7.00							7.20	18.94	
	19D	7.20						Firm dark orangish brown locally slightly gravelly slightly sandy CLAY. Gravel is subangular and subrounded fine flint.			
	20D*	7.20			Vo 0.00						
07/06/12 0200hrs 7.70m									8.00	18.14	
								Continued Next Page	(8.00)		

EQUIPMENT: Hydraulic breaker and light cable percussive (shell and auger) rig.

METHOD: Hand dug inspection pit 0.00-1.20m. Cable percussion (250mm) 1.20-23.00m and (150mm) 23.00-30.50m.

CASING: 250mm diam to 8.20m.

BACKFILL: On completion, a slotted standpipe (50mm) was installed to 7.00m, granular response zone 3.00-7.00m, bentonite seal 30.50-7.00m and 3.00m-0.10m, concrete and stopcock cover 0.10-0.00m.

REMARKS: Water added to assist boring throughout borehole.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
5.00	5.00	4.10	20	

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CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT — Sheet 2 of 4

Start Date 6 June 2012 — Easting 529358.7 — Scale 1 : 50

End Date 11 June 2012 — Northing 181890.1 — Ground level 26.14mOD — Depth 30.50 m

progress date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
07/06/12 2000hrs 5.80m	21D	8.00 - 8.45	7.70	S 18			Stiff extremely closely and very closely fissured slightly sandy CLAY with frequent fine and medium sand sized selenite crystals.			
	22D	9.00		H 115						
	23U	9.50 - 9.95	7.70	Blows 40						
	24D	10.00		H Re*						
	25D	10.50						10.50	15.64	
							Weak light grey MUDSTONE recovered as: cobbles with (15-20%) slightly clayey slightly sandy subangular and subrounded fine to coarse gravel matrix.	11.00	15.14	
	26D	11.00 - 11.45	7.70	S 24			Stiff extremely closely and very closely fissured dark brownish grey slightly sandy CLAY with rare fine and medium sand sized selenite crystals.			
	27D	12.00		H Re*			12.00m: Selenite crystals become frequent.			
	28U	12.50 - 12.95	7.70	Blows 40			12.50m: Very stiff.			
	29D	13.00								
		14.00		H Re*				14.00	12.14	
	30D	14.00 - 14.45	8.20	S 29			Very stiff dark grey slightly sandy CLAY with frequent fine and medium sand sized selenite crystals.			
	31D	15.00						15.00	11.14	
							Very stiff friable extremely closely fissured dark grey slightly sandy silty CLAY with frequent fine and medium sand sized selenite crystals.			
	32U	15.50 - 15.95	8.20	Blows 50						
	33D	16.00								
	34D	17.00 - 17.45	8.20	S 33						
							Continued Next Page	{18.00}		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

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Geotechnical Engineering Limited

BOREHOLE LOG

BH114

CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT — Sheet 3 of 4

Start Date 6 June 2012 — Easting 529358.7 — Scale 1 : 50

End Date 11 June 2012 — Northing 181890.1 — Ground level 26.14mOD — Depth 30.50 m

progress date/time water depth	sample no & type	depth (m) from	to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
	35D	18.00						18.00 - 20.00m: With rare coarse sand and fine gravel sized pockets of selenite crystals.			
		18.50			H Re*						
	36U	18.50	18.95	8.20	Blows 55						
	37D	19.00									
									20.00	6.14	
	38D	20.00	20.45	8.20	S 29			Very stiff very closely fissured dark grey slightly sandy silty CLAY with rare fine and medium sand sized selenite crystals and randomly orientated lenses (<2mm) of dark grey silt and selenite crystals.			
	39D	21.00			H 137						
	40U	21.50	21.95	8.20	Blows 60						
08/06/12 0400hrs Dry											
		23.00			H Re*						
10/06/12 1830hrs 14.70m	42D	23.00	23.45	8.20	S 44						
									23.45	2.69	
	43D	23.50						Very stiff extremely closely and very closely fissured light bluish grey frequently mottled dark brownish red and purplish red locally slightly sandy CLAY.			
	44U	24.50	24.95	8.20	Blows 100						
	45D	25.00			H Re*						
	46D	26.00	26.38	8.20	S*65			26.00m: Becomes friable. Frequently mottled yellowish brown.			
	47D	27.00						27.00 - 28.50m: Tends to light brown frequently mottled light bluish grey.			
	48U	27.50	27.95	8.20	Blows 100			27.50m: Hard.			
								Continued Next Page	(28.00)		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

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CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT

Sheet 4 of 4

Start Date 6 June 2012 Easting 529358.7 Scale 1 : 50

End Date 11 June 2012 Northing 181890.1 Ground level 26.14mOD Depth 30.50 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
	49D	28.00			H Re*						
								Very stiff light bluish grey frequently mottled light brown and yellowish brown slightly sandy silty CLAY.	28.50	-2.36	
	50D	29.00	29.43	8.20	S*55						
11/06/12 0200hrs 25.80m	51U	30.00	30.45	8.20	Blows 100						
	52D	30.50			H Re*				30.50	-4.36	
								Borehole completed at 30.50m.			
									{38.00}		

water strike (m) casing (m) rose to (m) time to rise (m) remarks

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BOREHOLE LOG

BH122

CLIENT WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE FITZROVIA REDEVELOPMENT — Sheet 1 of 1

Start Date 21 June 2012 — Easting 529351.2 — Scale 1 : 50

End Date 22 June 2012 — Northing 181886.6 — Ground level 25.31mOD — Depth 4.20 m

progress date/time water depth	sample no & type	depth (m) from	depth (m) to	casing depth (m)	test type & value	samp. /core range	instru -ment	description	depth (m)	reduced level (m)	legend
21/06/12 2300hrs								Tarmacadam. (MADE GROUND)	0.10	25.21	
	1B	0.40	0.80					Light grey concrete comprising (60%) angular and subangular fine to coarse flint gravel in light grey matrix (40%) with rare fine gravel sized vesicles (0.10-0.18m) underlain by light grey concrete comprising (50%) angular and subangular fine to coarse flint gravel in light grey matrix (50%) with rare fine and medium gravel sized vesicles (0.18-0.38m). (MADE GROUND)	0.38	24.93	
	2D*	0.40	0.80		Vo 0.00						
	3B	0.80	1.20								
	4D*	0.80	1.20		Vo 0.00						
	5X	1.20	2.70	2.70							
	6D*	1.50			Vo 0.00			Light tending to dark greyish brown slightly clayey locally clayey gravelly fine to coarse SAND with rare red brick cobbles. Gravel is angular to subrounded fine to coarse brick, concrete and flint. (MADE GROUND) 1.60 - 1.80m: Frequent red brick cobbles.	1.80	23.51	
	7D*	2.00			Vo 0.00				2.20	23.11	
	8D*	2.30			Vo 0.00			Dark greyish brown slightly gravelly clayey locally very clayey fine to coarse SAND. Gravel is angular to subrounded fine to coarse brick and flint. (MADE GROUND) 2.00 - 2.10m: Locally light yellowish brown.	2.45	22.86	
	9D*	2.65			Vo 11.6				2.60	22.71	
	10X	2.70	4.20	4.20							
	11D*	3.10			Vo 172			Firm light orangish brown mottled light grey and dark orangish brown slightly gravelly slightly sandy CLAY. Gravel is subangular and subrounded fine to coarse brick, flint and rare charcoal. (MADE GROUND)	3.05	22.26	
	12D*	3.50			Vo 145			Light orangish brown slightly clayey gravelly fine and medium rarely coarse SAND. Gravel is angular to subrounded fine to coarse brick, flint and charcoal. (MADE GROUND)	3.20	22.11	
22/06/12 1330hrs 3.20m	13D*	3.90			Vo 85.3				3.70	21.61	
								Soft dark greyish brown slightly gravelly slightly sandy CLAY with faint organic odour. Gravel is subangular and subrounded fine to coarse brick and rare flint. (MADE GROUND)	4.20	21.11	
								Dark grey and black fine and medium SAND with strong hydrocarbon odour. (MADE GROUND?)			
								Dark brownish grey and black sandy locally very sandy angular and subrounded fine and medium flint GRAVEL with strong hydrocarbon odour.			
								Dark yellowish brown locally clayey fine and medium SAND. 4.00 - 4.10m: Very gravelly. Gravel is angular and subangular fine and medium flint.			
								Borehole completed at 4.20m.	(8.00)		

EQUIPMENT: Geotechnical Pioneer rig.

METHOD: Concrete cored 0.00-0.35m. Hand dug inspection pit 0.38-1.20m. Dynamic sampled (113mm) 1.20-4.20m.

CASING: 140mm diam to 4.20m.

BACKFILL: On completion, a slotted standpipe (50mm) was installed to 4.20m, granular response zone 4.20-1.00m, bentonite seal 1.00-0.10m, concrete and stopcock cover 0.10-0.00m.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks
3.20				Struck during run 2.70-4.20m.

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Soil Sample			BH122	BH122	BH122	BH104	BH104	BH113d	BH113d	BH113c	BH113c	BH113c	BH113a	BH113a
Depth (m)			1.5	3.1	3.9	0.8	1.5	0.5	1.5	1	2	4	0.4	2
Determinants	Units	Screening Criteria Residential no plant uptake 1%												
pH		nc	9.3	8.4	8.1	8.3	8.2	10.4	11.9	8	8	8.1	10.8	10
Cyanide (total)	mg kg^{-1}	nc	<0.5	<50	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Organic Carbon	%	nc	3.1	0.41	<0.20	3.2	3.2	0.85	0.45	8.7	6	0.28	1.2	0.73
Chloride (extractable)	g l^{-1}	nc	<0.010	0.076	<0.010	0.015	0.017	0.067	0.059	0.025	0.021	<0.010	0.043	0.03
Arsenic	mg kg^{-1}	35	61	33	85	25	19	36	30	17	19	<2.0	12	5.5
Beryllium	mg kg^{-1}	51	11	2.8	3.9	<1.00	<1.00	3.7	2.6	1.6	1.5	<1.00	<1.00	<1.00
Cadmium	mg kg^{-1}	85	0.46	0.58	<0.10	<0.10	<0.10	1	0.52	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium	mg kg^{-1}	3010	16	15	33	16	12	15	29	12	12	12	15	22
Copper	mg kg^{-1}	6200	120	79	180	110	64	150	100	32	160	5.6	8.9	9.6
Mercury	mg kg^{-1}	238	0.37	0.29	0.43	9.6	5.8	0.33	0.47	<0.10	2.4	<0.10	<0.10	<0.10
Nickel	mg kg^{-1}	130	<5.0	<5.0	<5.0	20	16	<5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Lead	mg kg^{-1}	369	680	350	800	1600	1600	660	330	79	870	13	120	84
Selenium	mg kg^{-1}	595	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vanadium	mg kg^{-1}	188	19	8.3	17	28	23	6.5	7.2	<5.0	14	<5.0	<5.0	<5.0
Zinc	mg kg^{-1}	40300	350	280	460	480	300	660	310	89	130	23	110	86
TPH aliphatic >C5-C6	mg kg^{-1}	30	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aliphatic >C6-C8	mg kg^{-1}	73	<0.1	13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aliphatic >C8-C10	mg kg^{-1}	19	<0.1	1100	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aliphatic >C10-C12	mg kg^{-1}	93	<1	3800	6.9	<1	<1	<1	<1	<1	<1	<1	<1	<1
TPH aliphatic >C12-C16	mg kg^{-1}	745	<1	15000	110	<1	<1	<1	<1	<1	<1	<1	<1	<1
TPH aliphatic >C16-C21	mg kg^{-1}	746	<1	17000	140	<1	<1	<1	<1	<1	<1	<1	<1	<1
TPH aliphatic >C21-C35	mg kg^{-1}	8360	<1	6000	52	<1	<1	<1	<1	340	<1	<1	<1	<1
TPH aliphatic >C35-C44	mg kg^{-1}	8360	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TPH aromatic >C5-C7	mg kg^{-1}	283	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aromatic >C7-C8	mg kg^{-1}	607	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aromatic >C8-C10	mg kg^{-1}	33	<0.1	220	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aromatic >C10-C12	mg kg^{-1}	177	<1	1100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TPH aromatic >C12-C16	mg kg^{-1}	1240	<1	5900	77	<1	<1	<1	<1	<1	<1	<1	<1	<1
TPH aromatic >C16-C21	mg kg^{-1}	971	<1	7000	68	<1	<1	<1	<1	<1	<1	<1	<1	<1
TPH aromatic >C21-C35	mg kg^{-1}	1330	<1	2100	15	<1	<1	<1	<1	99	<1	<1	<1	<1
TPH aromatic >C35-C44	mg kg^{-1}	1330	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Total Petroleum Hydrocarbons	mg kg^{-1}	nc	<10	59000	470	<10	<10	<10	<10	440	<10	<10	<10	<10
Benzene	mg kg^{-1}	0.27	<1.0	0.01	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	mg kg^{-1}	867	<1.0	0.02	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	mg kg^{-1}	167	<1.0	4.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
m- & p-Xylene	mg kg^{-1}	53.3	<1.0	7.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
o-Xylene	mg kg^{-1}	59.5	<1.0	5.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene	mg kg^{-1}	1.6	<0.1	<0.1	<0.1	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg kg^{-1}	1950	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg kg^{-1}	2020	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg kg^{-1}	1850	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg kg^{-1}	834	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.2	0.7	0.4	<0.1	0.4	0.5
Anthracene	mg kg^{-1}	19800	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.2	<0.1	<0.1	0.1	0.2
Fluoranthene	mg kg^{-1}	972	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.3	1.3	<0.1	<0.1	0.3	0.4
Pyrene	mg kg^{-1}	2330	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.1	1.3	<0.1	<0.1	0.3	0.4
Benzo(a)anthracene	mg kg^{-1}	3.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1	1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg kg^{-1}	8.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.9	1.3	0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	mg kg^{-1}	7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.3	3.3	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthne	mg kg^{-1}	10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	1.2	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg kg^{-1}	1	<0.1	<0.1	<0.1	<0.1	<0.1	0.8	<0.1	1.8	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg kg^{-1}	nc	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg kg^{-1}	4.2	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	1.7	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg kg^{-1}	46.7	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	2.2	<0.1	<0.1	<0.1	<0.1
Total (of 16) PAHs	mg kg^{-1}	nc	<2	<2	<2	<2	<2	12	<2	16	<2	<2	<2	<2
3,3',4,4'-Tetrachlorobiphenyl	mg kg^{-1}	nc	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
3,4,4',5-Tetrachlorobiphenyl	mg kg^{-1}	nc	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2,3,3',4,4'-Pentachlorobiphenyl	mg kg^{-1}	nc	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2,3,4,4',5-Pentachlorobiphenyl	mg kg^{-1}	nc	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2,3',4,4',5-Pentachlorobiphenyl	mg kg^{-1}	nc	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2,3',4,4',5'-Pentachlorobiphenyl	mg kg^{-1}	nc	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
3,3',4,4',5-Pentachlorobiphenyl	mg kg^{-1}	nc	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2,3,3',4,4',5-Hexachlorobiphenyl	mg kg^{-1}	nc	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2,3,3',4,4',5'-Hexachlorobiphenyl	mg kg^{-1}	nc	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2,3',4,4',5,5'-Hexachlorobiphenyl	mg kg^{-1}	nc	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
3,3',4,4',5,5'-Hexachlorobiphenyl	mg kg^{-1}	nc	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2,3,3',4,4',5,5'-Heptachlorobiphenyl	mg kg^{-1}	nc	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Catechols	mg kg^{-1}	nc	<0.05	<0.05	<0.05			<0.05	<0.05	<0.05	<0.05	<0.05		
Phenol	mg kg^{-1}	310	<0.05	<0.05	<0.05			<0.05	<0.05	<0.05	<0.05	<0.05		
Cresols	mg kg^{-1}	nc	<0.05	<0.05	<0.05			<0.05	<0.05	<0.05	<0.05	<0.05		
Xylenols	mg kg^{-1}	nc	<0.05	<0.05	<0.05			<0.05	<0.05	<0.05	<0.05	<0.05		
Naphthols	mg kg^{-1}	nc	<0.05	<0.05	<0.05			<0.05	<0.05	<0.05	<0.05	<0.05		
Trimethyl phenols	mg kg^{-1}	nc	<0.05	<0.05	<0.05			<0.05	<0.05	<0.05	<0.05	<0.05		
Phenols (total)	mg kg^{-1}	nc	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Asbestos	%							0.001 Chrysotile, Amosite	0.001 Amosite					

Round					1	1	2	2
Location					BH114	BH122	BH122	BH114
depth					4.1	3.36	3.6	4.12
date					17/07/2012	17/07/2012	06/08/2012	06/08/2012
Analytical Parameter (Water Analysis)	Units	Limit of detection	ing criteria					
pH	pH Units	N/A	nc		7.3	7.3	7.1	7
Chloride	mg/l	4	200	EQS	70	38	28	78
Ammoniacal Nitrogen as N	mg/l	15	nc		0.21	0.3	0.14	0.19
Total Cyanide	mg/l	10	0.05	EQS	<0.05	<0.05	<0.05	<0.05
Total Organic Carbon (TOC)	mg/l	0.1	nc		11	15	10	21
Hardness	mg CaCO3 l-1		nc		590	1100	2600	1700
Arsenic (dissolved)	mg/l	1	0.05	EUDWS	0.007	0.0067	0.01	0.0042
Beryllium (dissolved)	mg/l	0.2	nc		0.11	0.21	<0.001	<0.001
Cadmium (dissolved)	mg/l	0.1	0.005	EUDWS	0.00009	0.00014	0.0017	0.0001
Chromium (dissolved)	mg/l	0.4	0.05	EUDWS	0.015	0.02	0.049	0.065
Copper (dissolved)	mg/l	0.7	0.02	EQS	0.002	0.0091	0.0067	0.0029
Nickel (dissolved)	mg/l	0.3	0.05	EQS	0.023	0.024	0.01	0.019
Lead (dissolved)	mg/l	1	0.05	EUDWS	<0.0001	<0.0001	<0.001	<0.001
Selenium (dissolved)	mg/l	4	0.01	EUDWS	0.021	0.01	<0.001	0.0014
Vanadium (dissolved)	mg/l	1.7	0.1	EQS	0.0025	0.0019	<0.001	<0.001
Zinc (dissolved)	mg/l	0.4	3	EQS	0.005	0.43	0.18	0.015
Mercury (dissolved)	mg/l	0.5	0.001	EUDWS	0.000041	<0.00001	<0.00001	<0.00001
TPH-CWG - Aliphatic >C5 - C8	mg/l	10	0.05	EQS	<0.0001	<0.0001	<0.001	<0.001
TPH-CWG - Aliphatic >C6 - C8	mg/l	10	0.05	EQS	<0.0001	<0.0001	<0.001	<0.001
TPH-CWG - Aliphatic >C8 - C10	mg/l	10	0.05	EQS	<0.0001	0.54	0.0085	0.02
TPH-CWG - Aliphatic >C10 - C12	mg/l	10	0.05	EQS	<0.0001	1.1	0.44	0.061
TPH-CWG - Aliphatic >C12 - C16	mg/l	10	0.05	EQS	<0.0001	1.9	0.86	0.23
TPH-CWG - Aliphatic >C16 - C21	mg/l	10	0.05	EQS	<0.0001	2.5	0.87	0.31
TPH-CWG - Aliphatic >C21 - C35	mg/l	10	0.05	EQS	<0.0001	0.79	0.17	0.097
TPH-CWG - Aliphatic >C35- C44	mg/l	11	0.05	EQS	<0.0001	<0.0001	<0.001	<0.001
TPH-CWG - Aromatic >C5 - C7	mg/l	10	0.05	EQS	<0.0001	0.038	0.018	<0.001
TPH-CWG - Aromatic >C7 - C8	mg/l	10	0.05	EQS	<0.0001	0.012	0.0069	<0.001
TPH-CWG - Aromatic >C8 - C10	mg/l	10	0.05	EQS	0.011	0.72	0.72	0.018
TPH-CWG - Aromatic >C10 - C12	mg/l	10	0.05	EQS	0.058	0.82	0.95	0.033
TPH-CWG - Aromatic >C12 - C16	mg/l	10	0.05	EQS	0.17	1.7	1.1	0.12
TPH-CWG - Aromatic >C16 - C21	mg/l	10	0.05	EQS	0.14	0.91	0.38	0.075
TPH-CWG - Aromatic >C21 - C35	mg/l	10	0.05	EQS	0.041	0.24	0.013	0.018
TPH-CWG - Aromatic >C35 - C44	mg/l	10	0.05	EQS	<0.0001	<0.0001	<0.001	<0.001
Total Petroleum Hydrocarbons	mg/l	10	nc		0.42	11	5.5	0.98
Total Aliphatic Hydrocarbons	mg/l	10	nc		<0.005	6.8	2.3	0.72
Total Aromatic Hydrocarbons	mg/l	10	nc		0.42	4.4	3.2	0.26
Benzene	mg/l	1	0.03	EUDWS	<0.001	0.021	0.013	0.0012
Toluene	mg/l	1	0.5	EQS	<0.001	0.018	0.0068	<0.001
Ethylbenzene	mg/l	1	0.2	EQS	<0.001	14	0.24	<0.001
p & m-xylene	mg/l	1	0.03	EQS	<0.001	43	1.2	<0.001
o-xylene	mg/l	1	0.03		<0.001	25	0.68	<0.001
Naphthalene	mg/l	0.01	0.01		<0.00001	5.5	0.11	<0.00001
Acenaphthylene	mg/l	0.01	nc		<0.00001	<0.00001	<0.00001	<0.00001
Acenaphthene	mg/l	0.01	nc		<0.00001	<0.00001	0.0063	<0.00001
Fluorene	mg/l	0.01	nc		<0.00001	0.22	0.0084	<0.00001
Phenanthrene	mg/l	0.01	nc		<0.00001	0.37	0.014	<0.00001
Anthracene	mg/l	0.01	nc		<0.00001	<0.00001	0.0019	<0.00001
Fluoranthene	mg/l	0.01	nc		<0.00001	<0.00001	0.0012	<0.00001
Pyrene	mg/l	0.01	nc		<0.00001	<0.00001	0.0013	<0.00001
Benzo(a)anthracene	mg/l	0.01	nc		<0.00001	<0.00001	0.0023	<0.00001
Chrysene	mg/l	0.01	nc		<0.00001	<0.00001	0.0019	<0.00001
Benzo(b)fluoranthene	mg/l	0.01	nc		<0.00001	<0.00001	0.0028	<0.00001
Benzo(k)fluoranthene	mg/l	0.01	nc		<0.00001	<0.00001	0.00073	<0.00001
Benzo(a)pyrene	mg/l	0.01	0.01	UKDWS	<0.00001	<0.00001	0.0024	<0.00001
Dibenz(a,h)anthracene	mg/l	0.01	nc		<0.00001	<0.00001	0.00057	<0.00001
Indeno(1,2,3-cd)pyrene	mg/l	0.01	nc		<0.00001	<0.00001	0.0021	<0.00001
Benzo(ghi)perylene	mg/l	0.01	nc		<0.00001	<0.00001	0.002	<0.00001
Total EPA-16 PAHs	mg/l	0.2	0.0002		<0.002	6.1	0.16	<0.002
Phenols (total)	mg/l		nc		<0.00003	<0.00003	<0.00003	<0.00003

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GAS AND GROUNDWATER LEVELS

CLIENT: WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH113C	18/07/12 09:25:00												48.36	
BH113C	30/07/12 14:00:00												48.35	
BH113C	06/08/12 13:00:00												48.35	
BH113C	13/08/12 14:30:00												48.35	

remarks
# denotes result exceeding capacity of gas monitoring equipment
VOC - Photoionisation Detector Mini RAE 2000 measures VOC vapours with 10.6eV lamp calibrated against isobutylene.
Piezometer tip located at 48.60m.

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GAS AND GROUNDWATER LEVELS

CLIENT: WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH114	18/07/12 08:05:00	1014	0.31								0.1			
BH114	18/07/12 08:06:00										0.1			
BH114	18/07/12 08:07:00										0.1			
BH114	18/07/12 08:08:00										-0.1			
BH114	18/07/12 08:09:00										0.0			
BH114	18/07/12 08:10:00										0.1			
BH114	18/07/12 08:11:00			13.9	2.0	0.9	40.0	0	3					
BH114	18/07/12 08:12:00			13.7	2.0	1.0	38.0	0	1					
BH114	18/07/12 08:13:00			13.4	2.0	1.5	40.0	0	2					
BH114	18/07/12 08:14:00			12.9	2.0	2.2	40.0	0	1					
BH114	18/07/12 08:15:00			12.8	2.0	2.2	40.0	0	0					
BH114	18/07/12 08:16:00			12.4	2.1	2.6	41.0	0	2					
BH114	18/07/12 08:17:00			12.7	2.1	2.4	41.0	0	2					
BH114	18/07/12 08:18:00			12.0	2.1	3.6	42.0	0	1					
BH114	18/07/12 08:19:00			12.0	2.2	3.0	45.0	0	4					
BH114	18/07/12 08:20:00			12.2	2.3	3.1	46.0	0	3				4.05	7.15m Total depth
BH114	30/07/12 12:30:00	1013	0.16								0.0	15		
BH114	30/07/12 12:31:00										0.1			

remarks
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VOC - Photoionisation Detector Mini RAE 2000 measures VOC vapours with 10.6eV lamp calibrated against isobutylene.

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GAS AND GROUNDWATER LEVELS

CLIENT: WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH114	30/07/12 12:32:00										0.1			
BH114	30/07/12 12:33:00										0.1			
BH114	30/07/12 12:34:00										0.0			
BH114	30/07/12 12:35:00										0.1			
BH114	30/07/12 12:36:00										0.2			
BH114	30/07/12 12:37:00										0.3			
BH114	30/07/12 12:38:00										0.2			
BH114	30/07/12 12:39:00										0.2			
BH114	30/07/12 12:40:00			5.9	0.7	11.8	22.0	0	2					
BH114	30/07/12 12:41:00			13.5	1.9	1.2	37.0	0	3					
BH114	30/07/12 12:42:00			13.9	2.0	0.3	39.0	0	3					
BH114	30/07/12 12:43:00			14.1	2.0	0.0	39.0	0	2					
BH114	30/07/12 12:44:00			14.1	2.0	0.0	39.0	0	1					
BH114	30/07/12 12:45:00			14.2	2.0	0.0	39.0	0	1					
BH114	30/07/12 12:46:00			14.2	2.0	0.0	38.0	0	1					
BH114	30/07/12 12:47:00			14.2	1.9	0.0	38.0	0	2					
BH114	30/07/12 12:48:00			14.2	1.9	0.0	38.0	0	2					
BH114	30/07/12 12:49:00			14.2	1.9	0.0	38.0	0	1				4.14	7.00m total depth

remarks
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GAS AND GROUNDWATER LEVELS

CLIENT: WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH114	06/08/12 14:00:00	1007	+0.19								0.0			
BH114	06/08/12 14:01:00										0.0			
BH114	06/08/12 14:02:00										-0.1			
BH114	06/08/12 14:03:00										0.0			
BH114	06/08/12 14:04:00										0.0			
BH114	06/08/12 14:05:00										0.0			
BH114	06/08/12 14:06:00										0.0			
BH114	06/08/12 14:07:00										0.0			
BH114	06/08/12 14:08:00										0.0			
BH114	06/08/12 14:09:00										0.1			
BH114	06/08/12 14:10:00										0.0			
BH114	06/08/12 14:11:00			13.5	3.6	0.6	71.0	0	0					
BH114	06/08/12 14:12:00			13.6	3.6	0.4	72.0	0	0					
BH114	06/08/12 14:13:00			13.6	3.6	0.3	72.0	0	0					
BH114	06/08/12 14:14:00			13.7	3.6	0.3	72.0	0	0					
BH114	06/08/12 14:15:00			13.7	3.6	0.3	72.0	0	0					
BH114	06/08/12 14:16:00			13.7	3.6	0.2	72.0	0	0					
BH114	06/08/12 14:17:00			13.8	3.6	0.2	71.0	0	0					

remarks
# denotes result exceeding capacity of gas monitoring equipment
VOC - Photoionisation Detector Mini RAE 2000 measures VOC vapours with 10.6eV lamp calibrated against isobutylene.

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GAS AND GROUNDWATER LEVELS

CLIENT: WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH114	06/08/12 14:18:00			13.8	3.5	0.2	70.0	0	0					
BH114	06/08/12 14:19:00			13.9	3.5	0.2	68.0	0	0					
BH114	06/08/12 14:20:00			13.9	3.4	0.1	67.0	0	0					
BH114	06/08/12 14:21:00												4.12	
BH114	13/08/12 14:52:00	1008	+0.38								0.0			
BH114	13/08/12 14:53:00										0.0			
BH114	13/08/12 14:54:00										0.0			
BH114	13/08/12 14:55:00										-0.1			
BH114	13/08/12 14:56:00										0.0			
BH114	13/08/12 14:57:00										-0.1			
BH114	13/08/12 14:58:00										0.0			
BH114	13/08/12 14:59:00										-0.1			
BH114	13/08/12 15:00:00										-0.1			
BH114	13/08/12 15:01:00										0.0			
BH114	13/08/12 15:02:00			12.8	3.5	1.0	69.0	0	0	0.3				Tedlar gas sample taken.
BH114	13/08/12 15:03:00			12.9	3.5	0.8	70.0	0	1	0.3				
BH114	13/08/12 15:04:00			13.0	3.5	0.7	70.0	0	1	0.3				
BH114	13/08/12 15:05:00			13.1	3.6	0.6	71.0	0	1	0.3				

remarks
# denotes result exceeding capacity of gas monitoring equipment
VOC - Photoionisation Detector Mini RAE 2000 measures VOC vapours with 10.6eV lamp calibrated against isobutylene.

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GAS AND GROUNDWATER LEVELS

CLIENT: WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH114	13/08/12 15:06:00			13.3	3.6	0.5	72.0	0	1	0.3				
BH114	13/08/12 15:07:00			13.4	3.7	0.4	73.0	0	0	0.3				
BH114	13/08/12 15:08:00			13.6	3.7	0.3	74.0	0	0	0.3				
BH114	13/08/12 15:09:00			13.7	3.8	0.2	75.0	0	0	0.3				
BH114	13/08/12 15:10:00			13.8	3.8	0.1	76.0	0	0	0.3				
BH114	13/08/12 15:11:00			14.0	3.9	0.1	78.0	0	0	0.3				
BH114	13/08/12 15:12:00												4.16	

remarks
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GAS AND GROUNDWATER LEVELS

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SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH121	30/07/12 13:40:00	1013	0.04								0.0	15		
BH121	30/07/12 13:41:00										-0.1			
BH121	30/07/12 13:42:00										0.0			
BH121	30/07/12 13:43:00										-0.1			
BH121	30/07/12 13:44:00										0.0			
BH121	30/07/12 13:45:00										0.0			
BH121	30/07/12 13:46:00										0.0			
BH121	30/07/12 13:47:00										-0.1			
BH121	30/07/12 13:48:00										0.1			
BH121	30/07/12 13:49:00										0.0			
BH121	30/07/12 13:50:00			0.0	0.0	20.4	0.0	0	2					
BH121	30/07/12 13:51:00			0.0	0.0	20.4	0.0	0	2					
BH121	30/07/12 13:52:00			0.0	0.0	20.4	0.0	0	0					
BH121	30/07/12 13:53:00			0.0	0.0	20.4	0.0	0	1					
BH121	30/07/12 13:54:00			0.0	0.0	20.4	0.0	0	1					
BH121	30/07/12 13:55:00			0.0	0.0	20.4	0.0	0	1					
BH121	30/07/12 13:56:00			0.0	0.0	20.4	0.0	0	2					
BH121	30/07/12 13:57:00			0.0	0.0	20.4	0.0	0	1					

remarks
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VOC - Photoionisation Detector Mini RAE 2000 measures VOC vapours with 10.6eV lamp calibrated against isobutylene.

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GAS AND GROUNDWATER LEVELS

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SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH121	30/07/12 13:58:00			0.0	0.0	20.4	0.0	0	2					
BH121	30/07/12 13:59:00			0.0	0.0	20.4	0.0	0	3				Dry	2.15m total depth
BH121	06/08/12 13:15:00	1008	-000.21								0.0			
BH121	06/08/12 13:16:00										-0.1			
BH121	06/08/12 13:17:00										-0.1			
BH121	06/08/12 13:18:00										0.0			
BH121	06/08/12 13:19:00										0.0			
BH121	06/08/12 13:20:00										-0.1			
BH121	06/08/12 13:21:00										-0.1			
BH121	06/08/12 13:22:00										-0.1			
BH121	06/08/12 13:23:00										-0.1			
BH121	06/08/12 13:24:00										-0.1			
BH121	06/08/12 13:25:00										-0.1			
BH121	06/08/12 13:26:00			0.0	0.0	20.5	0.0	0	0					
BH121	06/08/12 13:27:00			0.0	0.0	20.5	0.0	0	0					
BH121	06/08/12 13:28:00			0.0	0.0	20.5	0.0	0	0					
BH121	06/08/12 13:29:00			0.0	0.0	20.5	0.0	0	0					
BH121	06/08/12 13:30:00			0.0	0.0	20.5	0.0	0	0					

remarks
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VOC - Photoionisation Detector Mini RAE 2000 measures VOC vapours with 10.6eV lamp calibrated against isobutylene.

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GAS AND GROUNDWATER LEVELS

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SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH121	06/08/12 13:31:00			0.0	0.0	20.5	0.0	0	0					
BH121	06/08/12 13:32:00			0.0	0.0	20.5	0.0	0	0					
BH121	06/08/12 13:33:00			0.0	0.0	20.5	0.0	0	0					
BH121	06/08/12 13:34:00			0.0	0.0	20.6	0.0	0	0					
BH121	06/08/12 13:35:00			0.0	0.0	20.6	0.0	0	0				Dry.	
BH121	13/08/12 14:31:00	1008	+0.32								0.1			
BH121	13/08/12 14:32:00										0.1			
BH121	13/08/12 14:33:00										0.0			
BH121	13/08/12 14:34:00										0.0			
BH121	13/08/12 14:35:00										0.1			
BH121	13/08/12 14:36:00										0.0			
BH121	13/08/12 14:37:00										-0.2			
BH121	13/08/12 14:38:00										0.1			
BH121	13/08/12 14:39:00										0.1			
BH121	13/08/12 14:40:00										0.0			
BH121	13/08/12 14:41:00			0.0	0.1	20.7	1.0	0	0	0.2				
BH121	13/08/12 14:42:00			0.0	0.1	20.8	1.0	0	0	0.2				
BH121	13/08/12 14:43:00			0.0	0.0	20.8	0.0	0	0	0.2				

remarks
# denotes result exceeding capacity of gas monitoring equipment
VOC - Photoionisation Detector Mini RAE 2000 measures VOC vapours with 10.6eV lamp calibrated against isobutylene.

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Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH121	13/08/12 14:44:00			0.0	0.0	20.8	0.0	0	0	0.1				
BH121	13/08/12 14:45:00			0.0	0.0	20.8	0.0	0	0	0.0				
BH121	13/08/12 14:46:00			0.0	0.0	20.8	0.0	0	0	0.0				
BH121	13/08/12 14:47:00			0.0	0.0	20.9	0.0	0	0	0.0				
BH121	13/08/12 14:48:00			0.0	0.0	20.9	0.0	0	0	0.0				
BH121	13/08/12 14:49:00			0.0	0.0	20.9	0.0	0	0	0.0				
BH121	13/08/12 14:50:00			0.0	0.0	20.9	0.0	0	0	0.0				
BH121	13/08/12 14:51:00												Dry	

remarks
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GAS AND GROUNDWATER LEVELS

CLIENT: WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH122	18/07/12 09:00:00	1014	+0.31								0.1			
BH122	18/07/12 09:01:00										0.1			
BH122	18/07/12 09:02:00										0.1			
BH122	18/07/12 09:03:00										-0.1			
BH122	18/07/12 09:04:00										0.0			
BH122	18/07/12 09:05:00										-0.1			
BH122	18/07/12 09:06:00										0.1			
BH122	18/07/12 09:07:00										0.1			
BH122	18/07/12 09:08:00										-0.1			
BH122	18/07/12 09:09:00										-0.1			
BH122	18/07/12 09:10:00										0.0			
BH122	18/07/12 09:11:00			13.9	14.1	0.1	#	0	2					
BH122	18/07/12 09:12:00			13.7	14.1	1.0	#	0	1					
BH122	18/07/12 09:13:00			13.4	14.0	1.5	#	0	0					
BH122	18/07/12 09:14:00			12.9	14.0	2.2	#	0	2					
BH122	18/07/12 09:15:00			12.8	14.0	2.2	#	0	0					
BH122	18/07/12 09:16:00			12.4	14.0	2.3	#	0	4					
BH122	18/07/12 09:17:00			12.0	14.0	2.4	#	0	2					

remarks
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GAS AND GROUNDWATER LEVELS

CLIENT: WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH122	18/07/12 09:18:00			12.0	14.1	3.5	#	0	5					
BH122	18/07/12 09:19:00			12.0	14.1	3.0	#	0	2					
BH122	18/07/12 09:20:00			12.2	14.1	3.1	#	0	3					
BH122	18/07/12 09:21:00												4.05	
BH122	30/07/12 13:00:00	1013	+000.12								-0.1	19		
BH122	30/07/12 13:01:00										0.0			
BH122	30/07/12 13:02:00										-0.1			
BH122	30/07/12 13:03:00										0.0			
BH122	30/07/12 13:04:00										-0.1			
BH122	30/07/12 13:05:00										-0.1			
BH122	30/07/12 13:06:00										-0.1			
BH122	30/07/12 13:07:00										-0.1			
BH122	30/07/12 13:08:00										0.0			
BH122	30/07/12 13:09:00										0.0			
BH122	30/07/12 13:10:00										-0.1			
BH122	30/07/12 13:11:00			12.3	14.1	0.0	#	0	0					
BH122	30/07/12 13:12:00			12.2	14.1	0.0	#	0	2					
BH122	30/07/12 13:13:00			12.3	14.2	0.0	#	0	2					

remarks
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VOC - Photoionisation Detector Mini RAE 2000 measures VOC vapours with 10.6eV lamp calibrated against isobutylene.

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Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH122	30/07/12 13:14:00			12.4	14.3	0.0	#	0	1					
BH122	30/07/12 13:15:00			12.4	14.5	0.0	#	0	2					
BH122	30/07/12 13:16:00			12.4	14.5	0.0	#	0	2					
BH122	30/07/12 13:17:00			12.4	14.6	0.0	#	0	2					
BH122	30/07/12 13:18:00			12.4	14.7	0.0	#	0	2					
BH122	30/07/12 13:19:00			12.3	14.6	0.0	#	0	0					
BH122	30/07/12 13:20:00			12.3	14.6	0.0	#	0	2					
BH122	30/07/12 13:21:00												3.41	
BH122	06/08/12 13:40:00	1007	-0.04								0.0			
BH122	06/08/12 13:41:00										0.0			
BH122	06/08/12 13:42:00										0.0			
BH122	06/08/12 13:43:00										0.0			
BH122	06/08/12 13:44:00										0.1			
BH122	06/08/12 13:45:00										0.1			
BH122	06/08/12 13:46:00										0.0			
BH122	06/08/12 13:47:00										0.0			
BH122	06/08/12 13:48:00										0.0			
BH122	06/08/12 13:49:00										0.1			

remarks
# denotes result exceeding capacity of gas monitoring equipment
VOC - Photoionisation Detector Mini RAE 2000 measures VOC vapours with 10.6eV lamp calibrated against isobutylene.

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Geotechnical Engineering Limited

GAS AND GROUNDWATER LEVELS

CLIENT: WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH122	06/08/12 13:50:00			12.2	14.0	0.3	#	0	0					
BH122	06/08/12 13:51:00			12.3	14.1	0.2	#	0	0					
BH122	06/08/12 13:52:00			12.3	14.1	0.1	#	0	0					
BH122	06/08/12 13:53:00			12.3	14.1	0.1	#	0	0					
BH122	06/08/12 13:54:00			12.2	14.0	0.1	#	0	0					
BH122	06/08/12 13:55:00			12.2	14.2	0.1	#	0	0					
BH122	06/08/12 13:56:00			12.2	14.2	0.1	#	0	0					
BH122	06/08/12 13:57:00			12.2	14.2	0.0	#	0	0					
BH122	06/08/12 13:58:00			12.2	14.3	0.0	#	0	0					
BH122	06/08/12 13:59:00			12.2	14.3	0.0	#	0	0					
BH122	06/08/12 14:00:00												3.50	
BH122	13/08/12 15:12:00	+1009	-0.10								0.0			
BH122	13/08/12 15:13:00										0.1			
BH122	13/08/12 15:14:00										0.1			
BH122	13/08/12 15:15:00										0.1			
BH122	13/08/12 15:16:00										0.0			
BH122	13/08/12 15:17:00										0.1			
BH122	13/08/12 15:18:00										0.0			

remarks
# denotes result exceeding capacity of gas monitoring equipment
VOC - Photoionisation Detector Mini RAE 2000 measures VOC vapours with 10.6eV lamp calibrated against isobutylene.

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GAS AND GROUNDWATER LEVELS

CLIENT: WEST LONDON AND SUBURBAN PROPERTY INVESTMENTS LIMITED

SITE: FITZROVIA REDEVELOPMENT

Borehole /trial pit no.	date and time	barometric pressure (mb)	pressure differentiation (mm H_2O)	carbon dioxide (%)	methane (%)	oxygen (%)	LEL (%)	hydrogen sulphide (ppm)	carbon monoxide (ppm)	VOC (ppm)	gas flow (ltr/hr)	temperature (°C)	water level (m - bgl)	remarks
BH122	13/08/12 15:19:00										0.1			
BH122	13/08/12 15:20:00										0.1			
BH122	13/08/12 15:21:00			12.4	14.2	0.3	#	0	0	86.5				Tedlar gas sample taken.
BH122	13/08/12 15:22:00			12.5	14.2	0.2	#	0	0	93.7				
BH122	13/08/12 15:23:00			12.5	14.5	0.1	#	1	0	95.9				
BH122	13/08/12 15:24:00			12.5	14.5	0.1	#	1	0	92.8				
BH122	13/08/12 15:25:00			12.5	14.5	0.1	#	2	0	89.2				
BH122	13/08/12 15:26:00			12.5	14.5	0.1	#	2	0	78.0				
BH122	13/08/12 15:27:00			12.5	14.6	0.1	#	2	0	75.8				
BH122	13/08/12 15:28:00			12.5	14.6	0.1	#	2	0	73.9				
BH122	13/08/12 15:29:00			12.5	14.6	0.1	#	2	0	72.9				
BH122	13/08/12 15:30:00			12.5	14.6	0.0	#	2	0	71.7				
BH122	13/08/12 15:31:00			12.5	14.6	0.0	#	2	0	71.5				
BH122	13/08/12 15:32:00												3.50	

remarks
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Appendix B

Site walkover note

Record of Site Visit

ARUP

Project title	Fitzrovia Redevelopment			Job number 207329
Visit made by	Emma Fromant, Rena Maguire and Alex Chen	Place visited	Saatchi building - courtyard area	File reference
Copy to	Chris Barrett	Person visited		Date of visit 13th August 2012
Purpose of visit	Site walkover to look at courtyard tanks Plan of Tank locations is attached as Figure 1			

Notes	Action by
~14:00 – 14:30 Met with Richard Cage, Saatchi maintenance supervisor, on site to discuss tank status and conditions. **Chitty Street tank (Southern corner of courtyard)** (Photograph 1)**:** • Tanks is still in use, it stores 6000 litres of oil. • The oil used is called 35 Seconds Gas Oil. • The oil in this tank is used for heating the Chitty Street portion of the building (Block K) • The tank is filled at a separate filling point (**Error! Reference source not found.**). • The tank would have been installed when the building was constructed in the late 1950s. • About 12 years ago the tank was emptied for inspection as it was thought water was infiltrating into the tank. • BH122 is located 3.9m south-west of the tank (Photograph 3).	

Photograph 1: Chitty Street tank

Record of Site Visit

Project title	Fitzrovia Redevelopment			Job number 207329
Visit made by	Emma Fromant, Rena Maguire and Alex Chen	Place visited	Saatchi building - courtyard area	File reference
Copy to	Chris Barrett	Person visited		Date of visit 13th August 2012
Purpose of visit	Site walkover to look at courtyard tanks Plan of Tank locations is attached as Figure 1			

Notes	Action by
 **Photograph 2: Oil fill point**	
 **Photograph 3: BH122 (3.9m south west of tank**	

Record of Site Visit

Project title	Fitzrovia Redevelopment			Job number 207329
Visit made by	Emma Fromant, Rena Maguire and Alex Chen	Place visited	Saatchi building - courtyard area	File reference
Copy to	Chris Barrett	Person visited		Date of visit 13th August 2012
Purpose of visit	Site walkover to look at courtyard tanks Plan of Tank locations is attached as Figure 1			

Notes	Action by
Charlotte Street Tank (North-west in court yard) Photograph 4 • This tank stores 35,000 litres of 35 second gas oil. It is still in use. • The oil of this tank generates heating for the largest proportion of the Saatchi building (Block H). • The boiler room generated by this tank if located on the Howland Road side of the building. • There will be extensive pipe work connecting this tank to the boiler room. • It was emptied 12 years ago as it was thought the tank was losing oil. • The filling point is separate and is located behind a car park separator wall Photograph 5.	

Photograph 4: Charlotte Street Tank

Record of Site Visit

Project title	Fitzrovia Redevelopment			Job number 207329
Visit made by	Emma Fromant, Rena Maguire and Alex Chen	Place visited	Saatchi building - courtyard area	File reference
Copy to	Chris Barrett	Person visited		Date of visit 13th August 2012
Purpose of visit	Site walkover to look at courtyard tanks Plan of Tank locations is attached as Figure 1			

Notes	Action by
 **Photograph 5: Filling point for Charlotte Street tank**	
Whitfield Street Tank (Northern corner of courtyard) Photograph 6 • This tank has a 35,000 litre capacity and is still in use. • The oil is 35 second gas oil. • The oil from this is used to generate heat for the buildings in the northern corner (Block G). • The boiler room this tank supplies is close to the tank and the connector pipe is shown by a metal over ground cover. • It was also emptied about 12 years ago during the tank maintenance. • Several attempts were made for an exploratory hole near to this tank but were discarded due to obstructions Photograph 7. • There is an installation nearby BH121, Photograph 8. • Photograph 8 also shows an overflow pipe located in the corner next to the car park. This pipe would indicate if the tank was ever over filled.	

Record of Site Visit

Project title	Fitzrovia Redevelopment			Job number 207329
Visit made by	Emma Fromant, Rena Maguire and Alex Chen	Place visited	Saatchi building - courtyard area	File reference
Copy to	Chris Barrett	Person visited		Date of visit 13th August 2012
Purpose of visit	Site walkover to look at courtyard tanks Plan of Tank locations is attached as Figure 1			

Notes	Action by
 Photograph 6: Whitfield street tank, and connecting pipe metal cover	

Record of Site Visit

Project title	Fitzrovia Redevelopment			Job number 207329
Visit made by	Emma Fromant, Rena Maguire and Alex Chen	Place visited	Saatchi building - courtyard area	File reference
Copy to	Chris Barrett	Person visited		Date of visit 13th August 2012
Purpose of visit	Site walkover to look at courtyard tanks Plan of Tank locations is attached as Figure 1			

Notes	Action by

Photograph 7: Aborted attempts of exploratory hole locations

Photograph 8: BH121 installation cover