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PROJECT No. RML 6443

CONTAMINATION INVESTIGATION AT 1190 UXBRIDGE ROAD, HAYES

ON BEHALF OF R D KEELER PROPERTIES LIMITED

August 2017

11 OCT 2017

CONTENTS

1.0 INTRODUCTION & SCOPE OF WORKS

2.0 FIELDWORK

3.0 GROUND CONDITIONS

4.0 LABORATORY TESTING

5.0 DISCUSSION

APPENDICES

- *Percussion Borehole Records (BH1-BH3)*
- *Hand Excavated Borehole Records (S1-S6)*
- *Laboratory Test Results*
- *Groundwater/Gas Monitoring Sheet*
- *Fieldwork Location Plan, Drawing No. RML 6443/1*

1.0 INTRODUCTION & SCOPE OF WORKS

1.1 This report has been prepared by Risk Management Limited to the instructions of the Client, Messrs. R D Keeler Properties Limited, under cover of their e-mailed Instructions to Proceed, dated 16th June 2017.

1.2 The site under consideration was the forecourt area to No. 1190 Uxbridge Road, Hayes, London UB4 8JE.

1.3 The site is currently in use as a hand car wash. However, it is understood that due to the past usage of the site as a fuel station, contamination sampling and testing is required by the local authority to assess any potential pollution.

1.4 The current work was therefore commissioned to provide information on the existing ground conditions beneath the site and to test for any contamination within the sub-soils.

1.5 This report presents the work carried out and discusses the findings.

2.0 FIELDWORK

2.1 All fieldwork was generally executed in accordance with the recommendations given in British Standard BS 5930:2015, "Code of Practice for Ground Investigations" and BS ISO 22476-1:2012. Contamination sampling was undertaken in accordance with BS 10175 : 2011, "Code of Practice for the Investigation of Potentially Contaminated Sites".

2.2 Borehole locations are shown on the appended Fieldwork Location Plan, Drawing No. RML 6443/1.

2.3 Fieldwork was undertaken between the 3rd and 7th July 2017 and comprised the following: -

Percussion Boreholes

2.4 Three percussion boreholes (BH1-BH3) were drilled across the site, boreholes BH1 and BH3 to a depth of 4.00m below existing ground level and borehole BH2 to a depth of 2.70m below existing ground level.

2.5 The drilling rig used was a Premier tracked drive-in-sampler rig which includes a 98mm diameter casing system driven into the ground with a series of 1 metre long metal tubes, varying in diameter from 80mm down to 35mm, driven through the casing to obtain disturbed samples at regular depth intervals.

2.6 Small disturbed samples were taken at regular depth intervals down each borehole.

2.7 Upon completion of these three boreholes, combined groundwater/gas monitoring standpipes were installed, comprising a 1m length of plain 50mm diameter HDPE pipe followed by slotted geotextile wrapped HDPE pipe, capped at the base. A cement/bentonite seal was installed from 1.00m depth up to ground level and each installation was finished with a gas valve on top of the pipe and a lockable stopcock cover concreted in flush with ground level.

2.8 Full details of the percussion borehole findings are given on the appended borehole record sheets.

Hand Excavated Boreholes

2.9 In addition to the above, six shallow hand excavated boreholes (S1-S6) were undertaken across the site. Boreholes S1-S5 were all terminated due to a concrete obstruction between 0.30m and 0.80m depth. Borehole S6 was excavated to 1.10m depth.

2.10 Small disturbed samples were taken at regular depths within the boreholes.

2.11 Full details of the hand excavated boreholes are given on the appended borehole record sheets.

Land-Borne Gas Monitoring

2.12 Following the initial site work, six return gas/groundwater monitoring visits were undertaken to the installations fitted within boreholes BH1, BH2 and BH3 on the 14th, 18th and 26th July 2017 and 2nd, 8th and 16th August 2017.

2.13 On all six visits the barometric pressure was recorded together with the level of Carbon Dioxide, Oxygen and Methane. In addition, gas flow measurements were taken and the depth to groundwater recorded.

2.14 In addition, on five of the visits, organics were measured using a MiniRAE Lite PID manufactured by RAE System fitted with a 10.6 eV lamp.

2.15 Full details of the readings are included on the appended Gas/Groundwater Monitoring Record Sheet.

3.0 GROUND CONDITIONS

3.1 According to information published by the British Geological Survey (Sheet 255, Beaconsfield) the underlying geology at this site is shown as being Recent, Boyn Hill, Terrace Gravel (River Thames Terrace Deposits) overlying London Clay of the Eocene Period.

3.2 River Thames Terrace Deposits comprise primarily gravels and sand sourced from varying materials within the rivers local catchment area. These Pleistocene deposits are widespread within the London Basin and occur typically as terraces on the valley sides. These terraces represent ancient floodplain deposits that have become isolated as the river has cut downwards to lower levels.

3.3 It is thought that the London Clay formation was deposited during a period of sea inundation in the area up to 200m in depth. The London Clay can be up to 150m thick beneath south Essex thinning across London to about 90m near Reading. The formation consists of mainly dark blue to brown grey clay containing variable amounts of fine-grained sand and silt. London Clay generally weathers to an orange-brown colour with pockets of silty fine sand. The formation is particularly susceptible to swelling and shrinking when subjected to moisture content changes. In addition, gypsum (selenite) crystals and pyrite nodules are commonly found throughout the formation.

3.4 Full details of the ground conditions encountered are presented on the borehole records appended to this report and can be summarised as follows:-

Boreholes BH1-BH3

Depth From (m)	Depth To (m)	Description
0.00	0.18/0.20	Concrete.
0.18/0.20	0.40/1.70	MADE GROUND.
0.40/1.70	4.00 +	Boyn Hill Gravel.

3.5 Groundwater was not encountered during boring. However, water was encountered within the standpipes in all three boreholes (BH1-BH3) on the return monitoring visits. Water in borehole BH1 was recorded as high as 3.05m, in borehole BH2 as high as ground level and in borehole BH3 as high as 2.92m below existing ground level. However, it is considered that the majority, if not all, of this water is associated with the current Car Wash operations.

4.0 LABORATORY TESTING

4.1 The following laboratory tests have been carried out on samples recovered from the boreholes at this site.

4.2 The chemical testing was carried out in accordance with standard industry methods in a UKAS approved laboratory which is also currently accredited in accordance with MCERTS for the majority of its testing. Further information regarding this accreditation is available on request together with a full list of test methods if required.

4.3 *Chemical Analysis*

A total of eight samples of MADE GROUND, from depths of between 0.20m and 1.50m below existing ground level and two samples of shallow natural ground, from 2.70m and 4.00m below existing ground level, were selected and tested for a range of commonly occurring contaminants and indicators of contamination including those given by the Contaminated Land Exposure Assessment (CLEA).

The contamination suite undertaken at this site includes speciated **P**oly**A**romatic **H**ydrocarbon (**PAH**) and speciated **T**otal **P**etroleum **H**ydrocarbon (**TPH**), together with **BTEX**, **B**enzene, **T**oluene, **E**thylbenzene and **X**ylenes.

4.4 *Asbestos Identifications*

The same ten soil samples, as discussed above, were submitted to a UKAS accredited laboratory for asbestos identification and full details of the results are appended.

5.0 DISCUSSION

PROPOSED DEVELOPMENT & SCOPE OF WORKS

5.1 The site is currently in use as a hand car wash and no new development is proposed at this site. However, it is understood that due to the past usage of the site as a fuel station, contamination sampling and testing is required by the local authority to assess any potential pollution.

5.2 The current work was therefore commissioned to provide information on the existing ground conditions beneath the site and to test for any contamination within the sub-soils.

PRELIMINARY CONTAMINATION ASSESSMENT

5.3 Part IIA of the Environmental Protection Act 1990 contains the legislative framework for the regulation of contaminated land and this was implemented in the Contaminated Land (England) Regulations 2000. This legislation allows for the identification and remediation of land where contamination is causing unacceptable risks to human health or the wider environment. The approach adopted by the UK contaminated land policy is "suitable for use" which implies that the land should be suitable for its current use and made suitable for any known future use.

5.4 For this ***Preliminary Contamination Assessment*** the site has been modelled using the Source-Pathway-Receptor approach to produce a Conceptual Site Model.

Source	(substances or potential contaminants which may cause harm)
Pathway	(a linkage route between the source and receptor)
Receptor	(something which may be harmed by the source e.g. humans, plant, groundwater etc.)

5.5 Source

MADE GROUND was found across the current site up to 1.70m depth, therefore, a total of eight samples of MADE GROUND, and two of the underlying natural ground, were selected and tested for a range of commonly occurring contaminants and indicators of contamination including those given by the Contaminated Land Exposure Assessment (CLEA).

5.6 Pathways

The pathways normally to be considered, would include for, example; soil ingestion, inhalation of vapour and dust, and consumption of home-grown vegetables, where this is applicable. However, in the current case, no new development is proposed at this site.

5.7 Receptors

As no new development is currently proposed at this site there is considered to be only the following potential receptor.

- Neighbours.

5.8 It should be noted that the CLEA software has limited functionality and contains algorithms, which the EA has publicly expressed its intention to update. As a consequence of this, some of the screening values generated by the CLEA software may not adequately reflect specific site conditions and, in some instances, are unduly conservative. In addition, it should also be noted that the figures given in the appended table are based on a 6% soil organic matter content.

5.9 The DEFRA/EA model has been developed on the basis of many critical assumptions about possible exposure to soil contamination and the development of conceptual exposure models to describe different land uses as follows:

- *Residential with consumption of home-grown fruit and vegetables*
- *Residential without consumption of home-grown fruit and vegetables*
- *Allotments*
- *Commercial*

5.10 The Contaminated Land Exposure Assessment (CLEA) model was originally published in March 2002 as joint DEFRA/EA publications; Contaminated Land Research (CLR) Report CLR 10, with Reports CLR7, 8 and 9 as supporting documents, providing toxicity data and human tolerable daily intake (TDI) data to be used with this model. This model enabled the derivation of more site-specific values for contaminants present on a site, rather than the use of 'generic' values, which were previously used.

5.11 DEFRA/EA previously published a number of Soil Guideline Values (SGVs) for certain determinands, (common toxic metals), which were generic guideline criteria for assessing the risks to human health from chronic exposure to soil contamination for standard land-use functions. However, these were withdrawn in late 2008 and DEFRA/EA have now issued a new set of guidance documents. With regard to the Risk Management Limited standard suite of tests, currently SGV figures have only been issued for Arsenic, Cadmium, Mercury, Nickel, Phenols and Selenium.

5.12 In the absence of currently published SGV values for the remaining contaminants, Messrs. W. S. Atkins have derived ATRISK^{soil} Soil Screening Values (SSVs) which have been updated using CLEA v1.071 to incorporate changes to exposure assessment parameters, methodology, and land uses as set out in the Department for Environment, Food and Rural Affairs (Defra) Category 4 Screening Level (C4SL) Project Methodology Report.

5.13 Full details of how the SSVs have been derived and general notes as to their use are given on the ATRISK website and are available from Risk Management Limited upon request. A few of the PAH levels have not been updated and have been left as per the previous CLEA v1.04 derivation.

5.14 The SGV and SSV levels represent "intervention" levels above which the levels of contamination may pose an unacceptable risk to the health of site-users such that further investigation and/or remediation is required.

5.15 Total Petroleum Hydrocarbons are considered in accordance with the fractions proposed by The Environment Agency, drawing on the TPHCWG methodology. These are contained in Table 4.2 – Petroleum hydrocarbon fractions for use in UK human health risk assessment, based on Equivalent Carbon (EC) number, contained in Science Report P5-080/TR3, *The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils.*

5.16 The contamination results have now been compared with the ***Commercial*** criteria, all as shown on the table below.

Determinand (below)		Units	ATRISK Contaminated Land Screening Values (SSV) derived using CLEA v1.071 as set out in DEFRA Category 4 Screening Levels (C4SL) Methodology. 6% SOM Sandy Loam.			
			Residential with consumption of home-grown fruit and vegetables.	Residential without consumption of home-grown fruit and vegetables.	Allotments.	Commercial.
Aliphatic Hydrocarbons (mg/kg)	C5-C6		369	371	6110	29400
	C6-C8		1240	1240	18300	98200
	C8-C10		204	205	2390	14800
	C10-C12		1180	1190	8960	69500
	C12-C16		4130	2710	16300	139000
	C16-C35		210100	212000	477000	3620000
Aromatic Hydrocarbons (mg/kg)	C8-C10		232	332	73.9	20800
	C10-C12		468	1550	95.9	53800
	C12-C16		830	2710	176	65400
	C16-C21		1040	1930	321	28400
	C21-C35		1710	1930	1570	28400
TOTAL TPH						
Naphthalene		mg/kg	12.2	13.1	27.4	1050
Acenaphthylene		mg/kg	-	-	-	-
Acenaphthene		mg/kg	2760	6730	680	106000
Fluorene		mg/kg	2610	4860	796	72000
Phenanthrene		mg/kg	-	-	-	-
Anthracene		mg/kg	26200	37700	11300	544000
Fluoranthene		mg/kg	2980	5050	1010	72600
Pyrene		mg/kg	2120	3780	679	54400
Benz(a)anthracene		mg/kg	8.54	9.04	10.3	10.3
Chrysene		mg/kg	2.64	2.64	2.64	2.64
Benzo(b)fluoranthene		mg/kg	7.29	7.29	7.29	7.29
Benzo(k)fluoranthene		mg/kg	4.12	4.12	4.12	4.12
Benzo(a)pyrene		mg/kg	4.95	5.34	5.72	76.3
Indeno(123-cd)pyrene		mg/kg	9.75	10.3	16.6	144
Dibenz(ah)anthracene		mg/kg	1	1.03	2.57	14.4
Benzo(ghi)perylene		mg/kg	103	104	342	1450
TOTAL PAH						
Cyanide (Free)		mg/kg	34	34	34	373
pH		unit	-	-	-	-
Copper (Total)		mg/kg	4790	9060	1450	106000
Lead (Total)		mg/kg	200	313	79.1	2310
Zinc (Total)		mg/kg	20300	47000	5230	1100000
Chromium III		mg/kg	14300	16700	12600	208000
Chromium (Hexavalent)		mg/kg	20.5	20.5	171	49.1
			CLEA Soil Guideline Values (SGV)			
Benzene		mg/kg	0.33	0.998	0.07	95
Toluene		mg/kg	610	2710	120	4400
Ethylbenzene		mg/kg	350	843	90	2800
Xylenes		mg/kg	230	321	160	2600
Arsenic (Total)		mg/kg	32	35	43	640
Cadmium (Total)		mg/kg	10	83.6	1.8	230
Mercury (Total)		mg/kg	170	238	80	3600
Nickel (Total)		mg/kg	130	130	230	1800
Phenols (Total)		mg/kg	420	519	280	3200
Selenium (Total)		mg/kg	350	595	120	13000

ASSESSMENT OF RESULTS

5.17 An elevated level of Chrysene was noted within two samples of MADE GROUND, from borehole BH1 at 1.50m depth and borehole S6 between 0.50m and 0.70m depth, when compared against the ATRISK Contaminated Land Screening Values (SSV) for ***Commercial*** usage. Furthermore, elevated levels of Benzo(b)fluoranthene and Benzo(k)fluoranthene were noted within the sample of MADE GROUND for borehole BH1 at 1.50m depth.

5.18 ***Discussion***

It is understood that three previous buried petrol tanks were filled with Britfoam to render them fully decommissioned. This work was undertaken by Messrs. A J Bayliss Petroleum engineers and the Client holds full details of the work undertaken together with Completion Certificates etc.

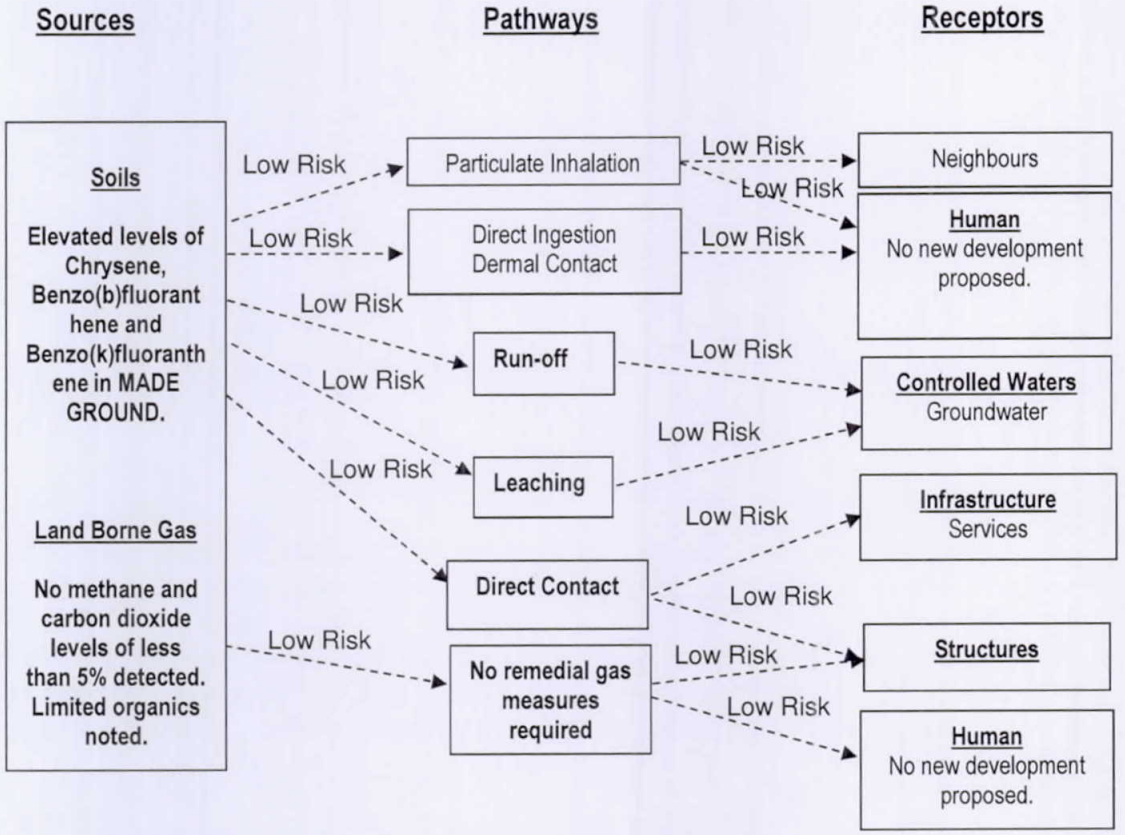
Therefore, the potential "sources" of contamination from the previous usage as a petrol station have now been removed.

There is a small amount of residual PAH contamination left within the underlying MADE GROUND but this is not considered to be detrimental to the current usage of the site as a Car Wash and given that no new development is currently proposed.

Notwithstanding this, should any new work be undertaken we would recommend that Health and Safety precautions be taken with regard to ground workers at this site and these should include, as a minimum, PPE equipment such as gloves, overalls etc. and normal washing facilities available on-site.

CONCEPTUAL SITE MODEL

5.19 The following diagram summaries the potential pollution linkages identified for this site in the form of a diagrammatic Conceptual Site Model (CSM).



5.20 As always, the above recommendations are based on a selected number of representative samples and further testing may be required if any significant contamination is suspected or encountered during ground works.

SOIL SAMPLES

5.21 All soil samples will be kept for a period of 28 days after the date of the invoice for this project unless otherwise notified to Risk Management Limited in writing. Should samples be required to be stored for longer than 28 days then a storage charge may be levied.

Prepared By :	Richard Price B.Sc. Project Engineer
Checked By :	Malcolm S. Price B.Sc., M.Sc., M.I.C.E., C.Eng. Director
Distribution :	RDK Properties Limited - 1 copy + pdf

The recommendations made and the opinions expressed in this report are based on the borehole records, examination of samples and the results of site and laboratory tests.

The report is issued on the condition that Risk Management Limited will under no circumstances be liable for any loss arising directly or indirectly from ground conditions between the boreholes or trial pits which have not been shown by the boreholes, trial pits or other tests carried out during the investigation.

In addition, Risk Management Limited will not be liable for any loss whatsoever arising directly or indirectly from any opinion given on the possible configuration of strata both between the borehole and/or trial pit positions and/or below the maximum depth of the investigation. Such opinions, where given, are for guidance only.

Groundwater levels may also vary with time from those reported during our site investigation due to factors such as tidal conditions, heavy pumping from nearby wells or seasonal changes.

No person other than the client to whom this report is addressed, shall rely on it in any respect and no duty of care shall be owed to any such third party.

Copyright of this Report remains with Risk Management Limited and in addition we will not accept any responsibility for the report and recommendations given until our invoice is settled in full.

Risk Management Limited
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Borehole Log

Borehole No.
BH1
Sheet 1 of 1

Project No.	RML 6443	Coordinates:	508845E - 181868N	Drilling Technique:	Premier Percussion Rig	Level (m):	
Site Address:	1190 Uxbridge Road, Hayes UB4 8JE	Date:	07/07/2017	Diameter (mm):	98	Scale:	1:50

Stratum Description	Legend	Depth (m)	Level (m)	Samples and In Situ Testing				Water Strikes	Well
				Depth (m)	Sample Type	Test Type	Results		
Concrete		0.20		0.20	D1				
MADE GROUND (brown, slightly clayey, sand with sub-angular gravel, brick fragments and concrete).				0.50	D2				
				1.00	D3				
dark black organic material between 1.50m and 1.70m depth				1.50	D4				
		1.70							
Boyn Hill Gravel Orange-brown SAND and sub-angular GRAVEL.				2.00	D5				
				2.50	D6				
				3.00	D7				
				3.50	D8				
Borehole terminated at 4.00m depth		4.00		4.00	D9				

Remarks: Service Pit excavated to 1.20m depth. Groundwater not noted during boring. Standpipe installed to 4.00m depth.

KEY

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
W = Water Sample

CPT = Cone Penetration Test
SPT = Standard Penetration Test
V = Vane Test
PP = Pocket Penetrometer
MEXE = Insitu CBR test

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Borehole Log

Borehole No. **BH2**

Sheet 1 of 1

Project No.	RML 6443	Coordinates:		Drilling Technique: Premier Percussion Rig	Level (m):
Site Address:	1190 Uxbridge Road, Hayes UB4 8JE	Date:	03/07/2017	Diameter (mm): 98	Scale: 1:50

Stratum Description	Legend	Depth (m)	Level (m)	Samples and In Situ Testing: Depth (m)	Sample Type	Test Type	Results	Water Strikes	Well
Concrete		0.18		0.20	D1				
MADE GROUND (fine to coarse gravel with brown sand and brick fragments).		0.40		0.50	D2				
Boyn Hill Gravel Orange-brown SAND and sub-angular GRAVEL.				1.00	D3				
				1.50	D4				
				2.00	D5				
				2.50	D6				
Borehole terminated at 2.70m depth		2.70							

Remarks: Service Pit excavated to 1.20m depth. Groundwater not noted during boring. Standpipe installed to 2.70m depth. Borehole terminated at 2.70m depth due to a concrete obstruction.

KEY

D = Disturbed Sample
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Borehole Log

Borehole No.
BH3
Sheet 1 of 1

Project No.	RML 6443	Coordinates:	508859E - 181853N	Drilling Technique:	Premier Percussion Rig	Level (m):	
Site Address:	1190 Uxbridge Road, Hayes UB4 8JE	Date:	05/07/2017	Diameter (mm):	98	Scale:	1:50

Stratum Description	Legend	Depth (m)	Level (m)	Samples and In Situ Testing: Depth (m)	Sample Type	Test Type	Results	Water Strikes	Well
Concrete		0.20		0.15	D1				
MADE GROUND (brown sandy clay with sub-angular gravel and brick fragments).				0.50	D2				
				1.00	D3				
Boyn Hill Gravel Orange SAND and sub-angular GRAVEL.		1.40		1.50	D4				
				2.00	D5				
				2.50	D6				
				3.00	D7				
				3.50	D8				
Borehole terminated at 4.00m depth		4.00		4.00	D9				

Remarks: Service Pit excavated to 1.20m depth. Groundwater not noted during boring. Standpipe installed to 4.00m depth.

KEY

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Borehole Log

Borehole No. **S1**

Sheet 1 of 1

Project No.	RML 6443	**Coordinates:**	508843E - 181860N	**Drilling Technique:** Hand Excavated	**Level (m):**
Site Address:	1190 Uxbridge Road, Hayes UB4 8JE	**Date:**	03/07/2017	**Diameter (mm):**	**Scale:** 1:50

Stratum Description	Legend	Depth (m)	Level (m)	Samples and In Situ Testing				Water Strikes	Well
				Depth (m)	Sample Type	Test Type	Results		
Concrete with 10mm rebar.		0.28		0.30	D1				
MADE GROUND (fine to coarse sub-angular gravel with orange-brown sand and brick fragments).		0.50							
Borehole terminated at 0.50m depth									

Remarks: Service Pit excavated to 0.50m depth before terminating due to a concrete obstruction.

KEY

D = Disturbed Sample
U = Undisturbed Sample
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W = Water Sample

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SPT = Standard Penetration Test
V = Vane Test
PP = Pocket Penetrometer
MEXE = Insitu CBR test

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Borehole Log

Borehole No. **S2**

Sheet 1 of 1

Project No.	RML 6443	Coordinates:	508841E - 181858N	Drilling Technique:	Hand Excavated	Level (m):	
Site Address:	1190 Uxbridge Road, Hayes UB4 8JE	Date:	03/07/2017	Diameter (mm):		Scale:	1:50

Stratum Description	Legend	Depth (m)	Level (m)	Samples and In Situ Testing				Water Strikes	Well
				Depth (m)	Sample Type	Test Type	Results		
Concrete with 10mm rebar.		0.24							
MADE GROUND (fine to coarse sub-angular gravel with orange-brown, clayey, sand and brick fragments).		0.75		0.50	D1				
Borehole terminated at 0.75m depth									

1 2 3 4 5 6 7 8 9 10

Remarks: Service Pit excavated to 0.75m depth before terminating due to a concrete obstruction.

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Borehole Log

Borehole No.
S3
Sheet 1 of 1

Project No.	RML 6443	Coordinates:	508838E - 181861N	Drilling Technique: Hand Excavated	Level (m):
Site Address:	1190 Uxbridge Road, Hayes UB4 8JE	Date:	05/07/2017	Diameter (mm):	Scale: 1:50

Stratum Description	Legend	Depth (m)	Level (m)	Samples and In Situ Testing				Water Strikes	Well
				Depth (m)	Sample Type	Test Type	Results		
Concrete with 10mm rebar.		0.25							
MADE GROUND (fine to coarse sub-angular gravel with orange-brown, clayey, sand and brick fragments).		0.80		0.60	D1				
Borehole terminated at 0.80m depth									

1 2 3 4 5 6 7 8 9 10

Remarks: Service Pit excavated to 0.80m depth before terminating due to a concrete obstruction.

KEY

D = Disturbed Sample
U = Undisturbed Sample
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PP = Pocket Penetrometer
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Borehole Log

Borehole No.
S4
Sheet 1 of 1

Project No.	RML 6443	Coordinates:	508850E - 181862N	Drilling Technique:	Hand Excavated	Level (m):	
Site Address:	1190 Uxbridge Road, Hayes UB4 8JE	Date:	05/07/2017	Diameter (mm):		Scale:	1:50

Stratum Description	Legend	Depth (m)	Level (m)	Samples and In Situ Testing				Water Strikes	Well
				Depth (m)	Sample Type	Test Type	Results		
Concrete with 10mm rebar.		0.20 0.30		0.20	D1				
MADE GROUND (fine to coarse sub-angular gravel with orange-brown, clayey, sand and brick fragments).									
Borehole terminated at 0.30m depth									

Remarks: Service Pit excavated to 0.30m depth before terminating due to a concrete obstruction.

KEY

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
W = Water Sample

CPT = Cone Penetration Test
SPT = Standard Penetration Test
V = Vane Test
PP = Pocket Penetrometer
MEXE = Insitu CBR test

AGS

Risk Management Limited Unit 8 Paddock Barn Farm Godstone Road Caterham Surrey CR3 6SF	**Borehole Log**	Borehole No. **S5** Sheet 1 of 1

Project No. RML 6443	**Coordinates:** 508848E - 181867N	**Drilling Technique:** Hand Excavated	**Level (m):**
Site Address: 1190 Uxbridge Road, Hayes UB4 8JE	**Date:** 07/07/2017	**Diameter (mm):**	**Scale:** 1:50

Stratum Description	Legend	Depth (m)	Level (m)	Samples and In Situ Testing				Water Strikes	Well
				Depth (m)	Sample Type	Test Type	Results		
Concrete		0.20		0.20	D1				
MADE GROUND (fine to coarse sub-angular gravel with orange-brown, clayey, sand and brick fragments).		0.30							
Borehole terminated at 0.30m depth									

Remarks: Service Pit excavated to 0.30m depth before terminating due to a concrete obstruction.

KEY

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
W = Water Sample

CPT = Cone Penetration Test
SPT = Standard Penetration Test
V = Vane Test
PP = Pocket Penetrometer
MEXE = Insitu CBR test

AGS

Risk Management

Risk Management Limited
Unit 8 Paddock Barn Farm
Godstone Road
Caterham
Surrey CR3 6SF

Borehole Log

Borehole No.
S6
Sheet 1 of 1

Project No.	RML 6443	Coordinates:	508862E - 181862N	Drilling Technique: Hand Excavated	Level (m):
Site Address:	1190 Uxbridge Road, Hayes UB4 8JE	Date:	07/07/2017	Diameter (mm):	Scale: 1:50

Stratum Description	Legend	Depth (m)	Level (m)	Samples and In Situ Testing				Water Strikes	Well
				Depth (m)	Sample Type	Test Type	Results		
Concrete		0.20		0.15	D1				
MADE GROUND (brown silty clay with fragments of brick and concrete). *dark black organic material between 0.50m and 0.70m depth*		1.10		0.50	D2				
Borehole terminated at 1.10m depth									

Remarks: Service Pit excavated to 1.10m depth.

KEY

D = Disturbed Sample
U = Undisturbed Sample
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W = Water Sample

CPT = Cone Penetration Test
SPT = Standard Penetration Test
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