

Date: 07 December 2022
Our ref: R150095/LN
Planning Portal refs: PP-11687689 and PP-11689156

Haringey Council London Borough
Planning, Regeneration & Economy,
Level 6, River Park House,
225 High Road,
Wood Green,
N22 8HQ

Dear Sir/Madam,

Discharge of planning conditions pertaining to Ashley House and Cannon Factory permission ref. HGY/2016/4165 and Reserved Matters Permission ref. HGY/2018/2353 and Ashley Park permission ref. HGY/2019/0108 (Appeal ref. APP/Y5420/W/19/3232707)

On behalf of our client Notting Hill Home Ownership, the following Ground Contamination Reports and Remediation Strategy has been prepared to facilitate the discharge of Part A of Condition 25 of the Ashley House and Cannon Factory permission ref. HGY/2016/4165 and Reserved Matters Permission ref. HGY/2018/2353 and Parts A of Condition 8 of the Ashley Park permission ref. HGY/2019/0108 (Appeal ref. APP/Y5420/W/19/3232707).

Notting Hill Home Ownership (NHHO) intends to progress delivery of the two schemes together on an integrated basis. This single technical report provides the necessary information to cover the conditions attached to the two respective planning permissions. The applicant has agreed this approach to discharge the corresponding conditions attached to both planning permissions in pairs with Officers at Haringey.

Yours faithfully,



Liam Norris MRICS
Partner
For and on behalf of calfordseaden LLP

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**ASHLEY HOUSE & CANNON FACTORY, ASHLEY
ROAD SOUTH, TOTTENHAM HALE, LONDON**

**FACTUAL AND INTERPRETATIVE REPORT ON
GROUND INVESTIGATION**

Report No D8061-18

August 2019

Issue No 1

Carried out for:
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1 INTRODUCTION

SOCOTEC UK Limited (SOCOTEC) was commissioned in January 2019 by Calfordseaden LLP (CS), on behalf of Notting Hill Home Ownership Limited (NHHO), to carry out a ground investigation in Tottenham Hale, London. Waterman Structures Limited (Waterman) was appointed as structural engineer.

The investigation was required to obtain information for a proposed redevelopment of the site, which will include the demolition of existing buildings and the construction of a new retail and residential development comprising three new structures. The site forms two distinct areas; a southern part, known as Ashley House, and a separate area, approximately 100 m to the north-east, known as the Cannon Factory. The proposed development consists of a four storey and a seven storey building at the Ashley House part of the site, together with a new tower of seventeen storeys at the Cannon Factory part of the site.

The current investigation supplements earlier work carried out by RSK Environment Limited (RSK) in 2015, at which time a different development layout was being considered. The two RSK reports, each relating to one part of the site, comprise desk studies, preliminary site investigation and the development of conceptual site models. These reports, copies of which were made available to SOCOTEC prior to the commencement of the current investigation, should be read in conjunction with this current report:

- Report No 27663 R01; *Ashley House, Tottenham Hale. Geo-Environmental Site Assessment.* RSK. February 2015.
- Report No 27782 R01; *Cannon Factory, Ashley Road, Tottenham Hale, London, N17 9LH. Environmental Site Assessment.* RSK. April 2015.

The scope of the current investigation was set out in a Ground Investigation Specification, issued by Waterman in December 2017, and included the following:

- BH1, BH2 and BH3 into the London Clay Formation (25.0mbgl).
- BH5 and BH6 into the Lambeth Group Formation (35.0mbgl – 40.0mbgl).
- PH1 to PH8: Shallow exploratory holes to maximum depths 3.0mbgl.
- Ground gas and groundwater monitoring installations within 4No. boreholes.
- Four vibrating wire piezometers located within the London Clay Formation at varying depths.

- Chemical and geotechnical laboratory testing.
- Preparation of a factual report.

The initial scope was subsequently revised, and an updated Ground Investigation Specification issued by Waterman in June 2018, which included the following:

- BH1 and BH2 into the Lambeth Group Formation (35.0mbgl – 40.0mbgl).
- BH3 and BH4 into the Kempton Park Gravels (8.0mbgl).
- PH1 to PH3: Shallow exploratory holes to maximum depths 3.0mbgl (PH1 – PH8).
- Ground gas and groundwater monitoring installations within 4No. boreholes.
- Chemical and geotechnical laboratory testing.
- Preparation of an interpretative report.

In accordance with the revised requirements, this report presents the factual records of the fieldwork, monitoring and laboratory testing, together with geotechnical and geoenvironmental assessments of the site, based on the investigation findings. Although SOCOTEC was not commissioned to undertake the investigation design, where it is considered that the overall interpretation would benefit from additional works such recommendations are also incorporated into the report.

The factual information is also presented as digital data as defined in AGS (2017).

The investigation was performed in accordance with the contract specification and the general requirements of BS 5930 (2015), BS EN 1997-2 (2007), BS EN ISO 22475-1 (2006). The fieldwork took place between 14 January and 22 February 2019, with monitoring continuing to 22 May 2019.

2 SITE SETTING

2.1 Location and Description

The site comprises two areas of investigation, namely Ashley House and Cannon Factory, as shown on the Site Plan in Appendix A. Ashley House is located approximately 0.20 km northwest of Tottenham Hale Railway Station at National Grid reference TQ 343 896. Cannon Factory is located



approximately 0.25 km north of Tottenham Hale Railway Station at National Grid reference TQ 344 897.

The Ashley House part of the site is approximately rectangular in shape, covering an area of approximately 0.65 hectares, and is generally level at an elevation of approximately 9.00 m AOD. The area is occupied by Ashley House, which comprises a two storey building located along the western site boundary, together with a warehouse along the northern boundary and external hard surfacing used as a yard and parking area. The site is bounded to the east by Ashley Road, to the west by Down Lane Park, to the north by the Cannon Jersey Factory and to the south by terraced housing and a redundant petrol station which fronts onto Hale Road.

The walkover undertaken as part of the RSK investigation (RSK, 2015a) had identified two underground diesel tanks, together with a fuel pump, close to a weighbridge in the south-east part of the site. In addition an effluent tank was identified on the southern edge of the main warehouse building, and a waste oil tank within the building itself. An electrical substation is present on the south side of the site entrance from Ashley Road.

The Cannon Factory site is approximately rectangular in shape, covers an area of approximately 0.25 hectares and is generally level at an elevation of approximately 8.80 m AOD. The site is occupied by Cannon Factory which is a two storey building located along the western boundary of the site, with adjoining warehouses that cover the northern and eastern edges of the site. The remaining area comprises hard surfacing used as a yard and car park. The site is bounded to the east by Watermead Way, to the west by Ashley Road, to the north by Burdock Road and to the south by Berol House. To the east of the site, at a distance of approximately 0.4 km, is the River Lee, with Lockwood Reservoir situated approximately 0.5 km east of the site.

The walkover of the Cannon Factory site, undertaken as part of the RSK investigation (RSK, 2015b), reported that the surface hardstanding was in generally good condition. A small electrical substation, located in the south-west corner of the site, was observed to have some local black staining associated with it.

Full descriptions of the site areas, including walkover records and photographs, are given in the RSK reports (RSK, 2015a and RSK, 2015b).

2.2 Site History

A full history of the Ashley House part of the site is given in RSK (2015a). Significant changes to the site may be summarised as follows:

- **1850-1898:** The site was part of Hale Farm. A railway existed 100 m to the east.
- **1913-1920:** The site was developed as a braid and bootlace factory, a woollen factory and a pencil factory, with buildings covering most of the site area.
- **1936-1967:** The site was occupied by a printing ink and varnish factory, which included various tanks, chimneys and a water cooling tower.
- **1991-Present:** The site is occupied by Ashley House in the western part of the site and a warehouse along the site's northern edge. This includes an electrical substation on the eastern edge.

A history of the Cannon Factory part of the site is given in RSK (2015b). Significant changes to the site may be summarised as follows:

- **1864-1930s:** The site was undeveloped (agricultural land), with a railway line 30m to the east.
- **1940-1960s:** A warehouse in the eastern part of the site (extended in the 1950s) and two rectangular buildings on the southern edge. This was shown to comprise a rubber factory for at least part of this period. Electrical substation in the south-west corner. Small tanks present in the north-east corner of the site.
- **1970-Present:** Partial redevelopment with a large warehouse in the north of the site. A fuel station is present 200 m south-west of the site.

2.3 Published Geology and Previous Ground Investigations

2.3.1 Published Geological Information

The published geological map for the area, BGS Sheet 256 (2006), and the BGS Geology of Britain Viewer (2018), show the site to be underlain by drift deposits comprising the Enfield Silt Member overlying the Kempton Park Gravel Member.



These superficial materials are underlain by solid geology comprising the London Clay Formation, Lambeth Group and Thanet Formation.

2.3.2 Previous Investigations

Exploratory hole logs from the previous investigation on the Ashley House site (RSK, 2015a) indicate that the site surface typically comprises a reinforced concrete slab, generally up to 0.30 m thick. The overall thickness of the Made Ground is between 1.10 m and 2.00 m. It comprises various materials, including layers of sand and gravel and also clay-dominated layers. Fibrous material (possibly asbestos) has been identified locally, together with areas of black staining and hydrocarbon odour (eg WS102 and WS111, in the central part of the site).

The underlying Enfield Silt Member is typically 0.50 m to 1.30 m thick and the Kempton Park Gravel Member is typically encountered at a depth of between 2.00 m and 6.80 m below ground level (bgl).

Beneath the superficial deposits lies the London Clay Formation which is 13.20 m to 16.30 m thick. A number of beds were identified within the Lambeth Group which was encountered down to a depth of approximately 30.00 m bgl.

At the Cannon Factory part of the site, former exploratory hole logs from the RSK report (RSK, 2015b) indicate Made Ground of 0.60 m to 1.30 m in thickness, including a reinforced concrete slab at the surface, up to 0.50 m thick. It comprises various materials, predominantly layers of sand and gravel with occasional clay-dominated layers. Fibrous materials (chrysotile cement board) have been identified in PH1 in the northern part of the site.

The underlying Enfield Silt Member is typically 0.70 m to 1.00 m thick and the Kempton Park Gravel Member is typically encountered at a depth of between 1.60 m and 4.50 m bgl. The deepest exploratory hole in this area achieved a final depth of 4.50 m bgl.



3 FIELDWORK

3.1 General

The proposed exploratory hole locations for the current phase of work were indicated in the Ground Investigation Specification issued by Waterman. The locations were set out on site from local features, during a site visit in December 2018. Locations were adjusted where necessary, in agreement with CS, to accommodate site constraints such as access, buried services and the ongoing use of the site by tenants. The co-ordinates and ground levels of the as-built positions were surveyed by SOCOTEC to National Grid and Ordnance Datum, and are shown on the exploratory hole logs. The as-built exploratory hole locations are also shown on the Site Plan in Appendix A.

3.2 Exploratory Holes

The exploratory holes undertaken for the current investigation are listed in the table below.

The final number of shallow, dynamic sampler boreholes was increased from three to seven due to the necessary relocation of PH1 and PH3 for the following reasons:

- PH1 was terminated at 0.80 m due to a possible concrete pipe and was subsequently relocated to PH1A.
- PH3 and PH3A were terminated at depths of 0.90 m and 0.25 m respectively, due to possible asbestos being encountered; these locations were backfilled immediately and relocated. PH3A was relocated to PH3B, although again this was terminated at a shallow depth (0.70 m) due to a possible concrete obstruction. This was relocated to PH3C.

TABLE 1 : SUMMARY OF EXPLORATORY HOLES

TYPE	QUANTITY	DEPTH RANGE (m)	REMARKS
Cable Percussion Boring	4	8.00 to 40.00	Designated BH01 and BH02 (Cannon Factory) and BH03 and BH04 (Ashley House)
Dynamic Sampler	7	0.25 to 3.00	Designated PH1, PH1A and PH2 (Ashley House) and PH3, PH3A, PH3B and PH3C (Cannon Factory)



The exploratory hole logs are presented in Appendix B. These include descriptions of the strata encountered together with details of the equipment and methods used, sampling and field testing carried out, water depths and other field observations. Explanation of the terms and abbreviations used on the logs is given in the Key to Exploratory Hole Records in Appendix B, along with other explanatory information. Soil descriptions are in accordance with BS EN ISO 14688-1 (2018), BS EN ISO 14689 (2018) and the guidance of BS 5930 (2015).

Standard penetration tests (SPT) in the boreholes were carried out in accordance with BS EN ISO 22476-3+A1 (2011) and the SPT hammer energy ratio certificates are included in Appendix B. The results are presented on the logs as uncorrected N values.

On completion of the fieldwork, geotechnical samples were transported to the Wokingham office of SOCOTEC for temporary retention, with those required for testing being transferred to the SOCOTEC laboratory at Carcroft, near Doncaster. Geoenvironmental samples were transported from site directly to the SOCOTEC laboratory at Bretby, near Burton-on-Trent.

Photographs of the dynamic sample liners and inspection pits are presented in Appendix F.

3.3 Groundwater and Gas Monitoring

Gas and groundwater monitoring instrumentation was installed in all cable percussion boreholes. Installation details were determined by SOCOTEC, based on the specification by Waterman.

Installation details are shown on the logs and summarised in Appendix C.

Records of four gas and groundwater monitoring visits, carried out by SOCOTEC between 7 March and 22 May 2019, are presented in Appendix C.

4 LABORATORY TESTING

4.1 Geotechnical Testing

Geotechnical laboratory testing was scheduled by SOCOTEC and was carried out in accordance with BS 1377 (1990), BS EN ISO 17892 (2014) Part 1 and 2 unless otherwise stated within the test report. The testing is summarised below and the results are presented in Appendix D.

**TABLE 2 : SUMMARY OF GEOTECHNICAL LABORATORY TESTING**

TYPE	QUANTITY	REMARKS
Water Content Determination	13	
Atterberg Limit Determination	13	
Particle Size Distribution Analysis	7	
Unconsolidated Undrained Triaxial Compression Testing	11	
Determination of shear strength by direct shear (small shearbox)	2	
One Dimensional Consolidation Test	6	
pH and Water Soluble Sulphate Content of Soils Magnesium, Chloride, Nitrate, Acid Soluble Sulphate and Total Sulphur	18	Test methods are BS 1377 or others recognised in BRE Special Digest 1 (2005); they are indicated on the results report sheets in Appendix D.

4.2 Geoenvironmental Testing

Geoenvironmental laboratory testing was scheduled on selected recovered during the fieldwork and groundwater samples recovered from the monitoring pipes. The test results are presented in Appendix E. Samples were selected by SOCOTEC, based on the following test suites, as specified by Waterman in the investigation contract:

- **Soils:** Metals suite, chromium hexavalent, cyanide, moisture content, phenol index, pH, 16 PAH, VOC, TPH CWG UK carbon banding, asbestos identification and quantification) and full WAC.
- **Groundwater:** Metals suite, cyanide (total), Phenol Index, pH, 16 PAH, TPH CWG UK carbon banding (including GRO/BTEX) and VOC (target list).

5 GROUND CONDITIONS AND GROUNDWATER

5.1 Strata Encountered – Ashley House Site (AH)

Descriptions of the strata encountered are given on the exploratory hole records. The downward succession encountered is broadly uniform and is summarised below for Ashley House. The downward succession of strata is shown on a cross-section presented as Figure A3a.

**TABLE 3 : SUMMARY OF GROUND CONDITIONS – ASHLEY HOUSE**

STRATUM	TOP (m)	THICKNESS (m)	REMARKS
Made Ground	0.00	0.59 - 1.20	Encountered in all exploratory holes
Enfield Silt Member	0.59 -1.20	1.10 - 1.27	Encountered in PH1A, PH2, BH03 and BH04
Kempton Park Gravel Member	1.86 – 2.30	1.14* - 3.50	Encountered in PH2, BH03 and BH04
London Clay Formation	5.30 – 5.70	2.50* - 2.80*	Encountered in BH03 and BH04.

*The base of the formation not proved.

5.2 Strata Encountered – Cannon Factory Site (CF)

Descriptions of the strata encountered are given on the exploratory hole records. The downward succession encountered is broadly uniform and is summarised below for Cannon Factory site. The downward succession of strata is shown on a cross-section presented as Figure A3b.

TABLE 4 : SUMMARY OF GROUND CONDITIONS – CANNON FACTORY

STRATUM	TOP (m)	THICKNESS (m)	REMARKS
Made Ground	0.00	0.25 – 2.17	Encountered in all exploratory holes
Enfield Silt Member	0.50 – 2.10	0.70 – 1.60	Encountered in BH01 only
Kempton Park Gravel Member	2.10 - 2.20	3.20 – 4.60	Encountered in BH01, BH02 and PH3C
London Clay Formation	5.40 - 6.70	15.80 – 16.30	Encountered in BH01 and BH02
Lambeth Group	21.70 - 22.50	17.45* – 18.70*	Encountered in BH01 and BH02.

*The base of the formation was not proved.

5.3 Made Ground - AH

The Ashley House part of the site was surfaced by a concrete slab typically 0.15 to 0.30 m in thickness. At a depth of 0.22 to 0.90 m a second concrete slab was encountered, typically 0.08 to 0.15 m thick.

The Made Ground material underlying the uppermost concrete slab comprised a 0.07 to 0.40 m thick layer of gravelly sand. The lower concrete slab was underlain by sandy gravelly clay, locally with a low to medium cobble content. The gravel fractions of the materials encountered were



generally angular to rounded, fine to coarse of brick, concrete and siliceous material. A strong hydrocarbon odour was noted in the Made Ground below 0.65 m in PH1A (ie the north-west corner of the Ashley House site).

Two SPTs were undertaken within the Made Ground (see Figure A8) giving N-values of 8 and 22.

No geotechnical testing was undertaken in the Made Ground.

5.4 Made Ground - CF

The Cannon Factory part of the site was surfaced by a concrete slab typically 0.17 to 0.50 m in thickness. Underlying the concrete was a stratum comprising silty, gravelly sand, locally with a low to high cobble content. The gravel fraction was generally angular to subrounded fine to coarse of siliceous material, brick and concrete.

At the base of the sand layer very soft to soft sandy gravelly clay was encountered and occasional pockets of organic matter were recorded in the base of the Made Ground in BH01 and BH02.

A moderate hydrocarbon odour was noted in the base of the Made Ground (below 0.80 m) in BH02. Potential asbestos containing material was noted in the adjacent inspection pits of PH3 and PH3A, which were therefore terminated at shallow depths (0.90 and 0.25 m respectively).

Six SPTs were undertaken within the Made Ground (see Figure A9) giving N-values in the range of 8 to 29.

No geotechnical laboratory testing was undertaken in the Made Ground.

5.5 Enfield Silt Member - AH

The Enfield Silt Member typically consists of very soft to soft, orangish/yellowish brown, locally fissured, slightly sandy gravelly clay, with occasional pockets of amorphous peat. A moderate organic odour was noted in this material in PH2. The gravel fraction of the material is typically angular to rounded, fine to coarse of siliceous material (flint).



Three SPTs were undertaken within the Enfield Silt Member (see Figure A10), giving N-values in the range of 5 to 9.

The results of two moisture content and Atterberg limits tests indicate moisture contents of 12.8 and 18.4%, plastic limits of 15 and 18%, liquid limits of 24 and 35% and plasticity index values of 9 and 17%. The moisture contents are typically at or a little greater than the plastic limits. The plasticity chart (Figure A4) shows that the clays are of low plasticity.

5.6 Enfield Silt Member – CF

In the Cannon Factory area the Enfield Silt Member was similar to the material found at the Ashley House part of the site, comprising very soft to soft, dark brown, slightly sandy, gravelly clay.

It is considered that a nominal bulk density of 1.90 Mg/m³ would be appropriate for the soft clays of the Enfield Silt Member.

5.7 Kempton Park Gravel Member – AH

Materials representing the Kempton Park Gravel Member generally comprised orangish brown very gravelly sand to very sandy gravel. The sand was fine to coarse and the gravel was subangular to well-rounded of flint. In BH03 low cobble content was noted throughout.

The SPTs carried out in the Kempton Park Gravel Member gave N-values ranging from 12 to 61 (Figure A11), with those exceeding 50 being extrapolated. These results indicate that the coarse grained materials are generally medium dense to very dense.

A Particle Size Distribution (PSD) test undertaken at 3.50 m depth in BH03 recorded 83% gravel and 17% sand. A test at 3.20 m in BH04 recorded 63% gravel and 35 % sand. At 5.20m, in BH04, a PSD test indicated 93% gravel and 6 % sand. In PH2, at 2.45 m depth, 70% gravel and 23% sand was recorded. In summary, the gravel fraction ranged from 63% to 93%.

5.8 Kempton Park Gravel Member – CF

Materials representing the Kempton Park Gravel Member generally comprised orangish brown very gravelly sand or very sandy gravel. The sand was fine to coarse and the gravel was subangular to



well-rounded of siliceous material. BH01 was noted to be clayey and with a low cobble content at the top of the material.

In BH02 a moderate to strong hydrocarbon odour, and oily sheen on the samples collected, was noted to a depth of 4.50 m. A weaker hydrocarbon odour was then reported to a depth of 6.80 m.

Seven SPTs were undertaken in the Kempton Gravel Member (see Figure A12) gave ranging N-values from 14 to 28. These results indicate that the coarse grained material are generally medium dense.

A Particle Size Distribution (PSD) test undertaken at 2.90 m depth in BH01 recorded 83% of gravel fraction material and 16 % of sand material. At 4.50m depth, the material is recorded as 92 % of gravel and the reminder as sand.

Based on the description of the materials it is considered that an angle of internal friction of 30 degrees would be appropriate.

It has not been possible to determine bulk density values in situ. However, it is considered that a nominal value of approximately 2.00 Mg/m³ would be appropriate for design purposes.

5.9 London Clay Formation – AH

The London Clay Formation generally comprised of firm fissured to stiff grey and dark brown clay. Locally the clay also contained gravel and sand at the top of the stratum. This may have fallen into the boreholes due to the drilling process.

Claystone, recovered as fine to coarse gravel sized fragments, was encountered between depths of 5.40 and 8.20 m.

The base of the London Clay Formation was not proved at the Ashley House site.

The results of the moisture content and index property test indicate moisture contents in the range of 26.5%, plastic limits of 31%, and liquid limits ranging from 75%. The moisture contents are typically at or a little greater than the plastic limits. The plasticity chart (Figure A5) shows that the clays are of very high plasticity.



The N-values of the SPTs carried out in the London Clay Formation (Figure A13) can be used to estimate undrained shear strength, using a multiplying factor of 4.5 (Stroud, 1975). As shown in Figure A16, there is a reasonable agreement between undrained shear strengths estimated in this way and the laboratory measured values (ie triaxial test results). On the basis of the combined results, the undrained shear strength rises from approximately 40 kPa at 5.5 m depth to at least 55 kPa at 7.5 m depth (Figure A16).

Measurements of bulk density of the triaxial test specimens indicate a typical value of approximately 1.95 Mg/m³.

5.10 London Clay Formation – CF

The material found at the Cannon Factory is similar to the material at Ashley House. The material generally increases in consistency with depth from firm to very stiff. Locally the clay is micaceous or contains lenses of fine sand. Occasional pockets of lignite and partings of grey fine sand and silt are also present.

Claystone was only encountered in BH01, between the depths of 5.40 to 5.80 m.

The results of the moisture content and index property tests indicate moisture contents in the range of 13.8 to 33.9 %, plastic limits of 16 to 34%, liquid limits ranging from 34 to 78% and a plasticity index of 41 to 49%. The moisture contents are typically at or a little greater than the plastic limits. The plasticity chart (Figure A6) shows that the clays are of high to very high plasticity.

The SPT results (Figure A14) have been used to estimate undrained shear strength, as shown in Figure A17. There is a reasonable agreement between undrained shear strengths estimated in this way and the laboratory measured values (ie triaxial test results) and, on the basis of the combined results, a tentative relationship between undrained shear strength and level is shown (as a black line) on Figure A17. This rises linearly from approximately 50 kPa at 6 m depth to 200 kPa at 22 m depth.

Measurements of bulk density of the triaxial test specimens indicate a typical value of approximately 2.00 Mg/m³.



5.11 Lambeth Group – CF

The Lambeth Group comprises a complex profile of units which includes a wide variety of materials. In many instances the full sequence of units is not readily identifiable in cable percussion boreholes and, consequently, such details have not been included on the logs. In general terms, however, the upper levels of the Lambeth Group sequence are typically fine grained, with coarse grained materials dominating the lower units (in particular the Upnor Formation towards the base of the group).

At the Cannon Factory part of the site BH01 encountered stiff to very stiff clay underlain by very dense silty sand. In BH2 a wider variety of materials was encountered, comprising layers of clay, sandy clays and silts and finally a very dense silty sandy (the base of which was not proved).

Measurements of bulk density of the triaxial test specimens indicate a typical value of approximately 2.05 Mg/m³.

Two particle size distribution (PSDs) tests were carried out on the very dense silty sand. A test at 30.10 m depth recorded 87% of sand and 11% of fine grained material (silt and clay).

The results of the moisture content and index property tests indicate moisture contents in the range of 13.8 to 25.0 %, plastic limits of 16 to 34%, and liquid limits ranging from 34 to 76%. The moisture contents are typically at or a little greater than the plastic limits. The plasticity chart (Figure A12) shows that the clays are of high to very high plasticity.

Twenty one SPTs were carried out in the Lambeth Group giving N-values ranging between 42 and greater than 100 (Figure A15). The SPTs carried out in the sand dominated strata all indicate very dense conditions. The tests undertaken in the fine grained materials indicate estimated undrained shear strengths between 195 kPa and greater than 450 kPa (Figure A18).

5.12 Groundwater – AH

No groundwater strikes were encountered in the borehole during their formation. Water was added to the Kempton Park Gravel Member to assist with the drilling process.



Monitoring pipes (for both gas and groundwater) were installed in BH3 and BH4, with response zones within the Kempton Gravel Member. Full details of these instruments, and the results of the associated programme of water level monitoring, are given in Appendix C of this report.

Monitoring of these pipes, undertaken between March and May 2019, indicated ground water levels ranging between 2.39 and 2.59 m (within the Kempton Park Gravel Member).

5.13 Groundwater – CF

No groundwater strikes were encountered in the borehole during their formation. Water was added to the Kempton Park Gravel Member and to the London Clay Formation to assist with the drilling process.

Monitoring pipes (for both gas and groundwater) were installed in BH1 and BH2, with response zones within the Kempton Gravel Member. Monitoring of these pipes, undertaken between March and May 2019, indicated ground water levels ranging between 2.19 and 2.47 m below ground level (i.e. within the Kempton Park Gravel Member).

6 PROPOSED WORKS

From available information (Waterman, 2018), it is understood that the development of the Ashley House site will comprise two buildings, one of 4 storeys and the other of 7 storeys (known respectively as Building 2 and Building 2A). The ground floor of these buildings will be of mixed commercial (retail space) and residential use, with the remaining floors being adopted for residential use. It is understood that Buildings 2 and 2A are likely to impose overall structural loads equivalent to 60 and 100 kPa respectively which, if considered for spread foundations, would translate to typical bearing pressures of approximately 120 kPa for Building 2 and 200 kPa for Building 2A.

On the Cannon Factory site a building of between 9 and 17 storeys (known as Building 3) is proposed. The ground floor will be occupied by commercial space, car parking and residential entrances, with the other floors of the building being residential.

No basements are included in the current development proposals. It is understood that the areas surrounding the buildings will be largely hard surfaced, although there will also be some minor areas of soft landscaping.

7 GEOTECHNICAL ENGINEERING ASSESSMENT

7.1 General

Based on the findings of the investigation, the two areas of the site to be developed are underlain by approximately 2 m of relatively poor materials (Made Ground and the Enfield Silt Member). Due to the typical highly variable nature of the Made Ground, and the soft to very soft consistency of the clays forming the Enfield Silt Member, these units possess generally poor geotechnical properties and should not be considered for foundation purposes.

The superficial materials are underlain by the Kempton Park Gravel Member, which typically comprises gravel. The results of the SPTs undertaken in the gravel indicate a relative density of medium dense, and these represent a suitable founding stratum for moderate foundation loads. However, consideration needs to be given to the fact that groundwater levels are close to the upper boundary of these gravel strata.

Below approximately 5.5 m depth the Kempton Park Gravel Member is underlain by the London Clay Formation. This is of medium strength close to its upper boundary, increasing in strength with depth. Although too deep to be considered for shallow foundations, potential piled foundations would typically extend into the London Clay Formation, and possibly into the underlying Lambeth Group strata, encountered below the Canon Factory part of the site at a depth of approximately 22 m.

The ground conditions encountered in the current investigation agree in general with the findings of the earlier RSK investigations. The scope of works for the current investigation at the Ashley House part of the site comprised boreholes of only limited depth (extending into the upper part of the London Clay Formation). Therefore, the RSK report on this area (RSK, 2015a) should be consulted for information on the ground conditions at greater depth. Conversely, in the Cannon Factory part of the site the initial investigation (RSK, 2015b) focussed on the shallow ground conditions and contaminated land aspects of this area. Information on the ground conditions at greater depth, which are applicable to the current proposal of a larger building in this area, is provided by the deeper boreholes of this current investigation.

Due to the different proposals for the two separate parts of the site, Sections 7.2 and 7.3 below address the Ashley House and Cannon Factory areas in turn.

7.2 Foundations – Ashley House

Based on the provisional bearing pressures outlined in Section 6 above, it is considered that the use of conventional spread foundations could be a potential foundation solution for Building 2. Strip or pad foundations would need to be based within the upper part of the Kempton Park Gravel Member (at a provisional depth of approximately 2.00 to 2.50 m below ground level).

For pad foundations up 2.00 m in width, it is considered that a safe bearing capacity of 120 kPa could be adopted in the medium dense gravel. This bearing pressure is unlikely to result in total settlements in excess of 25 mm, although this will depend on a number of factors, including foundation depth and size, and should be checked in detail as part of the foundation design process.

However, as discussed further below, from a practical perspective it is considered that the adoption of spread foundations for Building 2 is likely to be less cost effective, and offer less control, than a piled foundation, particularly as a larger building, which will certainly need to be founded on piles, is being constructed on the same plot.

Should the construction of shallow foundations be considered then the observations and general recommendations regarding excavations and their stability, presented below in Section 7.4, should be followed. In the Ashley House area, excavations for spread foundations are likely to encounter Made Ground (including local concrete slabs and other buried obstructions), soft clays of the Enfield Silt Member, and gravel of the Kempton Park Gravel. It should also be noted, however, that a foundation depth of, say, 2.50 m may result in the base of foundation excavations being below typical groundwater levels in this part of the site. As such, groundwater control measures need to form part of any design considerations.

Due to the higher bearing pressures envisaged for Building 2A, spread foundations are unlikely to be appropriate and it is recommended that consideration be given to the use of piles. Such piles would need to extend through the Kempton Park Gravel Member to a suitable depth within the underlying London Clay Formation. As the London Clay Formation has not been investigated to a substantial depth by this current investigation, Section 8.3.2 of the RSK report (2015a) should be consulted for further information on the piled foundation solution. In addition, it is essential that the advice of a specialist piling contractor should be sought for final design working loads, and to formulate a suitable piling technique for the ground conditions encountered at this site. The adopted pile design should be confirmed by appropriate pile load tests and integrity testing.



In addition to the greater control over bearing capacity and settlement, a piled foundation solution is considered the preferred option for both Buildings 2 and 2A due to the presence of shallow groundwater at the site. In respect of both practicality and cost, groundwater control is generally more efficient in a piling operation than it is in open excavations for shallow foundations. Also, as a piled foundation solution will need to be adopted for the larger structures (Building 2A on the Ashley Road site and Building 3 on the Cannon Factory site, discussed below), it may be more cost effective to use a common foundation solution for all three proposed buildings, rather than adopting an alternative solution for just one of the structures. Furthermore, the construction of two buildings using different foundation solutions may result in differential settlement between the two, and any shallower foundations potentially imposing additional loads onto nearby deeper foundations. Considering the above factors it is recommended that a piled foundation be adopted for both buildings.

7.3 Foundations – Cannon Factory

Due to the high structural loads that are likely to be imposed by the proposed seventeen storey tower in this part of the site (known as Building 3) the use of shallow foundations is unlikely to be suitable. It is recommended that consideration be given to the use of a piled foundation, with piles probably needing to extend into the lower part of the London Clay Formation. Should particularly high column loads be envisaged, however, deeper piles, extending into the strata of the Lambeth Group, may be required. This should be assessed as part of the detailed design process once structural loads have been finalised.

It is assumed that a bored pile solution would be adopted. Examples of preliminary working loads for various lengths of bored piles are presented below in Table 5. It is considered that support from the Made Ground and Enfield Silt Member is likely to be negligible and, therefore, for the purpose of these preliminary calculations the upper 2.50 m of materials have been ignored.

The preliminary pile calculations have been based on the profile of undrained shear strengths in the London Clay Formation, as shown in Figure A17. This indicates undrained shear strength rising linearly from approximately 50 kPa at 6 m below ground level to 200 kPa at 22 m below ground level. Some additional support is likely to be available from the limited thickness of the Kempton Park Gravel Member that is likely to be present close to the top of the piles. For the purpose of these



preliminary calculations a nominal gravel thickness of 3.5 m has been assumed. All working loads are presented to two significant figures.

The calculations in Table 5 use a global factor of safety of 2.5. They also adopt a constant adhesion factor of 0.5 in the London Clay Formation, although it should be noted that this is a rough approximation and is only suitable for preliminary pile calculations. For final pile design the designer will need to consider the use of lower adhesion values for the very stiff clays at depth, which will reduce the working loads of the deeper piles to some extent. For the deeper piles that extend towards the base of the London Clay Formation, the pile designer will also need to consider the potential influence of the underlying Lambeth Group strata on the base resistance of the piles, and also the settlement characteristics of pile groups. Should a Eurocodes approach be adopted the global factor of safety used in these preliminary calculations would be replaced by partial factors.

**TABLE 5 : PRELIMINARY ESTIMATE OF WORKING LOADS FOR SINGLE BORED PILES
EXTENDING INTO THE KEMPTON PARK GRAVEL AND LONDON CLAY FORMATION**

Pile Depth (below ground level)	Pile working loads (kN) for various pile diameters					
	450 mm	600 mm	750 mm	900 mm	1200 mm	1500 mm
8 m	100	150	200	270	420	600
10 m	160	230	310	400	620	870
14 m	300	430	580	740	1100	1500
18 m	500	700	930	1200	1700	2400

It is emphasised that the pile loads and lengths given are intended to be an indicative guide only. Potential group effects should be taken into account, which may affect the working loads of individual piles. It is essential that the advice of a specialist piling contractor be sought for final design working loads, and to formulate a suitable piling technique for the ground conditions encountered at this site. The adopted pile design should be confirmed by appropriate pile load tests and integrity testing.

It should be noted that claystone layers within the London Clay Formation can create obstructions to piling, at least locally. As indicated in Section 5.10, claystone was only encountered in BH01,



between the depths of 5.40 to 5.80 m. However, such beds are typically nodular and laterally discontinuous and, consequently, observations from a relatively small number of boreholes can often underestimate the frequency of the layers. Larger numbers of piles, on the other hand, are more likely to encounter such obstructions at numerous locations.

7.4 Chemical Considerations for Buried Concrete

Chemical testing, in accordance with the recommendations set out in BRE Special Digest 1 (2005), has been carried out on eighteen selected soil samples (six from the Ashley House area and twelve from the Cannon Factory area), together with two groundwater samples. The soil samples were recovered from depths of between 0.30 and 28.00 m from the Made Ground, the Enfield Silt Member, the London Clay Formation and the Lambeth Group.

The results of these tests indicate water soluble sulphate concentrations of between <10 and 981 mg/l, acid soluble sulphate concentrations of 169 to 5690 mg/kg (i.e. 0.02 to 0.57%), total sulphur of 0.02 to 3.24% and pH levels ranging from 7.8 to 12.2.

Total sulphur was analysed in order to examine the potential for the strata to contain a significant amount of sulphide such as pyrite (a source of sulphate ion which can attack concrete). An estimate of oxidisable sulphide can be made by comparing the measured concentration of total (acid soluble) sulphate with the approximate amount of total potential sulphate (TPS) present.

At this site the oxidisable sulphide concentrations were found to exceed 0.3% in only the samples recovered from the London Clay Formation. As such, it is considered that the presence of pyrite is likely to have an influence on buried concrete in the London Clay Formation, although not in the other strata. However, following recommendations in BRE Special Digest 1, the consideration of oxidisable sulphide concentrations would only apply to concrete in contact with sulphide rich soils that have been exposed to the air (ie in excavations for shallow foundations). For deep foundations, such as piles, concrete design may be based on water soluble sulphate concentrations and pH levels.

Consequently, the concrete design for either shallow foundations constructed within the superficial deposits, and for piled foundations that penetrate the London Clay Formation or Lambeth Group strata, can be based on water soluble sulphate concentrations and pH values.



The characteristic value for water soluble sulphate, based on the mean of the highest 20% of soil sample results, is 700 mg/l (rounded to the nearest 100 mg/l) and the characteristic value for pH is 7.9. Based on the results of the tests on three groundwater samples the characteristic value for water soluble sulphate is 200 mg/l (rounded to the nearest 100 mg/l) and the characteristic value for pH is 7.3. In addition, the site has been assumed to represent a 'brownfield' location and groundwater has been taken as being effectively mobile (although permeability will vary significantly in different strata).

On this basis, the Design Sulphate Class of DS-2. Using a characteristic pH value of 7.3, and assuming a mobile groundwater regime, the Aggressive Chemical Environment Classification (ACEC) would be Class AC-2. This is in agreement with the findings of the former investigations at the site.

The recommendations given in the above BRE digest, with respect to suitable concrete design and other associated precautions against sulphate attack, should be followed for all below ground level concrete.

7.5 Reuse of Excavated Materials as Fill to Structures

Due to their variable nature it is considered unlikely that any of the shallow depth materials present at the site (ie Made Ground and Enfield Silt Member) would represent suitable materials for use as backfill to any structures. Materials from the Kempton Park Gravel Member may be more suitable from a geotechnical perspective, although it would need to be verified that no contamination is present. In general, for small scale applications the use of imported, selected granular fill materials is recommended.

8 GEOENVIRONMENTAL ASSESSMENT

8.1 Introduction

8.1.1 Context of Assessment

The reports for the previous investigations at this site (RSK, 2015a and RSK, 2015b) included the development of conceptual site models and preliminary risk assessments. The findings of this



current investigation have been used to supplement the existing geoenvironmental information and provide an updated risk assessment for the overall site.

The assessment given below therefore draws on the findings of the former RSK investigations together with the data generated by current investigation. Due to the general similarity in the types of development proposed for the two site areas, the following assessment addresses both site areas together.

Based on the current site features and the historical site use (outlined in Section 2), the conceptual site models developed by RSK identified a number of potential contamination sources at the site, summarised as follows:

Ashley House area: “The identified risk is associated with the historical industrial use of the site and current potential contamination sources including two underground diesel tanks, an interceptor, an effluent storage tank, an electrical substation and a waste oil tank”.

Cannon Factory area: “The Preliminary Risk Assessment (PRA) identified a number of current and historical potential sources of contamination on the site, including potential former tanks (associated with the former rubber factory), an electrical substation and the made ground encountered beneath the site. In addition, the site is situated in the industrial estate off Ashley Road. The industrial estate formerly contained a woollen factory, a dry battery factory, a print / ink / varnish factory and a pencil factory.”

8.1.2 Site Observations

During the site work for the current investigation some visual observations of potential contamination were made, including:

- Potential asbestos containing materials in PH3 at 0.90 m. (Cannon Factory)
- Potential asbestos containing materials in PH3a at 0.25 m. (Cannon Factory)
- Hydrocarbon odour in BH02 at 0.80 to 6.80 m. (Cannon Factory)
- Hydrocarbon odour in PH1a at 0.65 to 2.90 m. (Ashley House)



Other observations of potential contamination were made in the initial RSK investigations, including:

- Black staining adjacent to electricity substation in SW part of the Cannon Factory site.
- Local black staining and hydrocarbon odour in the Made Ground (Ashley House, WS111).
- Local black staining and hydrocarbon odour in the Kempton Park Gravel (Ashley House, WS103, WS105, WS109).
- Strong hydrocarbon odour and black discoloration of groundwater in one borehole (although no free product - LNAPL) was encountered (Ashley House).
- Local fibrous material, possibly asbestos, in the Made Ground (Ashley House, WS102 and Cannon Factory).
- Chrysotile cement-board in the Made Ground (Cannon Factory, PH1).

8.2 Human Health Risk Assessment

8.2.1 Technical Approach

The assessment included in this report comprises a GQRA, which is undertaken by comparing soil contaminant concentrations with conservative Generic Assessment Criteria (GAC). Generic Assessment Criteria (GAC) for various land use and exposure scenarios have been selected from the following sources:

- CL:AIRE Category 4 Screening Levels (C4SL);
- LQM Suitable for Use Levels (S4UL); and
- CL:AIRE/EIC/AGS GAC

The GAC have been derived using the Environment Agency Contaminated Land Exposure Assessment (CLEA) model, for a range of land uses and exposure scenarios, including:

- Residential with the consumption of home-grown produce;
- Residential without the consumption of home-grown produce;
- Commercial;
- Allotments;
- Public Open Space near residential housing (POS_{resi}); and
- Public Open Space public park scenario (POS_{park})



For the current assessment, the 'Residential without the consumption of home-grown produce' GAC are considered to be the most appropriate selection to use in the comparison of measured site soil contaminant concentrations. This is because the ground and first floors of the new buildings will be commercial in nature (comprising retail spaces). Residential areas are restricted to the second floor and above and soft landscaping will be for communal use.

Provisional C4SL values for a total of six priority substances (arsenic, benzene, benzo(a)pyrene, cadmium, hexavalent chromium and lead) were produced by CL:AIRE, and published in December 2013. A policy companion document was published by DEFRA in March 2014, which confirmed the final C4SL for these determinands. A further tranche of C4SLs are in preparation.

The final C4SL values are considered to represent 'relevant technical tools', as per paragraph 4.21(c) of the Contaminated Land Part IIA Statutory Guidance. Their purpose is to identify land that falls within Category 4 (Human Health) as defined by the Statutory Guidance, i.e. land that is definitely not Contaminated Land as defined by the Part IIA legislation.

It should be noted that the C4SLs have been derived using toxicological criteria that are presented as posing a 'low level of toxicological concern'. This is in comparison with previous Soil Guidelines Values (SGVs) and LQM GAC, which were derived using toxicological criteria that represent a 'minimal risk' to human health.

The LQM Suitable for Use Levels (S4ULs) have been derived in accordance with the changes in exposure modelling presented within the C4SL framework, whilst still using a set of toxicological criteria that are set within the 'minimal risk' range. The S4ULs were published to offer a set of collated information on the toxicity and transport properties for a number of common contaminants, and should be seen as suitable for use in planning and change of use assessments, as well as Part IIA assessments.

The CL:AIRE/EIC/AGS Generic Assessment Criteria were published in December 2009. Assessment criteria were produced using the CLEA model for a total of 35 No. less common contaminants, in accordance with the CLEA guidance. The GAC were intended to compliment the SGVs produced by the Environment Agency, and the LQM GAC that were current at the time. These have been used in the assessment for contaminants where S4ULs and C4SLs are not available.



The SOCOTEC approach to human health risk assessment in planning and development risk assessments is to use the various assessment criteria in the following order of preference: S4UL > EIC GAC > C4SLs. Note that for some contaminants this will not be possible, for example lead has a C4SL but not an S4UL or a EIC GAC

Where contaminants fail the initial screen against S4UL or EIC GAC, a further assessment may be possible by screening against C4SLs. Where this is undertaken it should be clearly understood that the C4SLs represent 'low risk' rather than 'minimal risk' GAC.

8.2.3 Human Health Risk Assessment Screening

Based on the conclusions of the RSK reports, and the requirements of the Ground Investigation Specification by Waterman, the scope of laboratory testing undertaken for this current investigation has covered a wide range of determinands, including metals, cyanide, phenols, asbestos, carbon banded total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB) and volatile organic compounds (VOC).

Selected samples were also analysed for waste acceptance criteria (WAC).

Twenty two soil samples from the current investigation were selected for laboratory testing. The geoenvironmental samples tested were recovered predominantly from the Made Ground, from depths of generally between 0.40 m and 2.30 m. However, in BH02, due to the presence of a hydrocarbon odour that was noted to the base of the Kempton Park Gravel Member, sampling and testing was extended to a depth of 6.80 m (ie the top of the London Clay Formation).

The chemical analysis results from both the current investigation and the former RSK investigations are summarised in the table below, together with Soil Guideline Values (SGVs) and Generic Assessment Criteria (GACs). The derivation of SGVs and GACs is discussed in Section 8.2.1 above. A soil organic matter (SOM) content of 1% has been assumed in this table.

Only the results of the VOCs that exceeded their limits of detection are included.



TABLE 6: SUMMARY OF CHEMICAL ANALYSIS RESULTS FOR SOILS

Determinand	Maximum Measured Concentration (mg/kg)	Generic Assessment Criterion (GAC) (mg/kg)	No. of results exceeding GAC (no. of tests in brackets)
Metals & semi- metals			
Arsenic	118.3	40 ¹	1 (43) BH4 (0.40m)
Cadmium	2.51	85 ¹	0 (43)
Chromium III	159.6	910 ¹	0 (43)
Chromium VI	0.8	6 ¹	0 (25)
Copper	803.5	7100 ¹	0 (43)
Lead	2100	310 ²	8 (43) BH4 (0.40m), PH1 (0.60m), PH1A (1.20m), PH2 (0.50m), WS102 (RSK) at 1.00m, WS105 (RSK) at 0.50m and 1.00m, and WS107 (RSK) at 0.85m.
Mercury	2	1.2 ¹	1 (43) - PH1 (0.60m)
Nickel	479.7	180 ¹	1 (43) - BH4 (0.40m)
Selenium	13	430 ¹	0 (43)
Vanadium	366.7	1200 ¹	0 (18)
Zinc	923.1	40000 ¹	0 (43)
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	12.4	3000 ¹	0 (45)
Acenaphthylene	4.51	2900 ¹	0 (45)
Anthracene	7.92	31000 ¹	0 (45)
Benzo(a)anthracene	5.57	11 ¹	0 (45)
Benzo(a)pyrene	3.52	3.2 ¹	2 (45) WS105 (RSK) at 1.00m, and WS111 (RSK) at 1.00m
Benzo(b)fluoranthene	4.05	3.9 ¹	1 (45) WS111 (RSK) at 1.00m
Benzo(g,h,i)perylene	4.98	360 ¹	0 (45)
Benzo(k)fluoranthene	1.60	110 ¹	0 (45)
Chrysene	8.98	30 ¹	0 (44)
Dibenzo(a,h)anthracene	0.94	0.31 ¹	6 (45) BH2 (0.70m), BH4 (0.90m), PH1 (0.60m), WS102 (RSK) at 1.00m, WS105 (RSK) at 1.00m and WS111 (RSK) at 1.00m
Fluoranthene	11.9	1500 ¹	0 (45)
Fluorene	17.4	2800 ¹	0 (45)
Indeno(1,2,3,c,d)pyrene	4.38	45 ¹	0 (45)
Naphthalene	34.7	2.3 ¹	1 (45) WS102 (RSK) at 1.00m
Phenanthrene	46.1	1300 ¹	0 (45)



Determinand	Maximum Measured Concentration (mg/kg)	Generic Assessment Criterion (GAC) (mg/kg)	No. of results exceeding GAC (no. of tests in brackets)
Pyrene	15.1	3700 ¹	0 (45)
Total Petroleum Hydrocarbons			
TPH – Aliph >C05-C06	<1.587	42 ¹	0 (45)
TPH – Aliph >C06-C08	2.86	100 ¹	0 (45)
TPH – Aliph >C08-C10	14.2	27 ¹	0 (45)
TPH – Aliph >C10-C12	864	130 ¹	2 (45) WS102 (RSK) at 1.00m and WS103 (RSK) at 2.50m
TPH – Aliph >C12-C16	2110	1100 ¹	2 (45) WS102 (RSK) at 1.00m and WS103 (RSK) at 2.50m
TPH – Aliph >C16-C35	5980	65000 ¹	0 (45)
TPH – Aliph >C35-C44	119	65000 ¹	0 (33)
TPH – Arom >C05-C07	0.13	370 ¹	0 (45)
TPH – Arom >C07-C08	0.08	860 ¹	0 (45)
TPH – Arom >C08-C10	12.01	47 ¹	0 (45)
TPH – Arom >C10-C12	511	250 ¹	1 (45) WS102 (RSK) at 1.00m
TPH – Arom >C12-C16	2960	1800 ¹	1 (45) WS102 (RSK) at 1.00m
TPH – Arom >C16-C21	2960	1900 ¹	1 (45) WS102 (RSK) at 1.00m
TPH – Arom >C21-C35	6190	1900 ¹	1 (45) WS102 (RSK) at 1.00m
TPH – Arom >C35-C44	59.5	1900 ¹	0 (20)
Benzene	0.27	0.38 ¹	0 (45)
Ethylbenzene	0.73	83 ¹	0 (45)
Toluene	0.08	880 ¹	0 (45)
o Xylene	0.33	88 ¹	0 (45)
m/p Xylenes	1.48	79 ¹	0 (45)
Xylenes	0.107	79 ¹	0 (22)
MTBE	<0.027	73 ¹	0 (35)
Other Compounds			
Asbestos	AM, CH	presence of fibres ³	5 (33) AM / CH at 0.60m in PH1 (Ashley House) CH at 1.20m in PH1a (Ashley House) CH at 0.90m in PH3 (Cannon Factory) CH at 0.80m in PH1 (RSK) (Cannon Factory) CH at 0.90m in PH1 (RSK) (Cannon Factory)
Cyanide (total)	27	22 ⁴	1 (23) WS101 (RSK) at 2.00m
1,1,2,2-Tetrachloroethane	0.002	3.9 ¹	0 (20)
1,2,4-Trichlorobenzene	0.032	2.6 ¹	0 (20)



Determinand	Maximum Measured Concentration (mg/kg)	Generic Assessment Criterion (GAC) (mg/kg)	No. of results exceeding GAC (no. of tests in brackets)
1,2,4-Trimethylbenzene	0.048	0.41 ⁵	0 (20)
1,2-Dichlorobenzene	0.183	24 ¹	0 (20)
1,3-Dichlorobenzene	0.198	0.44 ¹	0 (20)
1,4-Dichlorobenzene	0.191	61 ¹	0 (20)
cis 1,2-Dichloroethene	0.016	0.12 ⁵	0 (20)
Isopropyl benzene	0.042	12 ⁵	0 (21)
Styrene	0.003	35 ⁵	0 (20)
Trichloroethene	0.026	0.017 ¹	1 (20) BH4 at 1.20m
Tetrachloroethene	0.006	0.18 ¹	0 (20)
trans 1,2-Dichloroethene	0.003	0.19 ⁵	0 (20)
Phenol Index	<0.700	750 ¹	0 (20)
PCBs (non-dioxin like)	<0.047	0.39 ³	0 (11)

¹ S4UL;² C4SL;³ SOCOTEC GAC;⁴ SOCOTEC GAC_{acute};⁵ EIC GAC

As detailed in Table 6, several potential contaminants were found to exceed the relevant GAC assuming a residential without the consumption of home-grown produce end use. The recorded exceedances of GACs are set out in Table 7 below.

TABLE 7: SUMMARY OF GAC EXCEEDANCES IN SOIL SAMPLES

Site Area	Exploratory Hole	Stratum and Depth	Determinand
ASHLEY HOUSE	BH4 (SOCOTEC)	Made Ground at 0.40 m	Arsenic Lead Nickel
ASHLEY HOUSE	BH4 (SOCOTEC)	Made Ground at 0.90 m	PAH (Dibenzo(a,h)anthracene)
ASHLEY HOUSE	BH4 (SOCOTEC)	Made Ground at 1.20 m	Trichloroethene
ASHLEY HOUSE	PH1 (SOCOTEC)	Made Ground at 0.60 m	Lead Mercury PAH (Dibenzo(a,h)anthracene), Asbestos (Amosite and chrysotile)
ASHLEY HOUSE	PH1A (SOCOTEC)	Made Ground at 1.20 m	Lead, Asbestos (Chrysotile)
ASHLEY HOUSE	PH2 (SOCOTEC)	Made Ground at 0.50 m	Lead
ASHLEY HOUSE	WS101 (RSK)	Made Ground at 2.00 m	Cyanide (total)
ASHLEY HOUSE	WS102 (RSK)	Made Ground at 1.00 m	Lead, PAH (Dibenzo(a,h)anthracene), Naphthalene, TPH – Aliph >C10-C12 TPH – Aliph >C12-C16 TPH – Arom >C10-C12 TPH – Arom >C12-C16 TPH – Arom >C16-C21 TPH – Arom >C21-C35



Site Area	Exploratory Hole	Stratum and Depth	Determinand
ASHLEY HOUSE	WS103 (RSK)	Kempton Park Gravel at 2.50 m	TPH – Aliph >C10-C12 TPH – Aliph >C12-C16
ASHLEY HOUSE	WS105 (RSK)	Made Ground at 0.50 m	Lead
ASHLEY HOUSE	WS105 (RSK)	Made Ground at 1.00 m	Lead PAH (Benzo(a)pyrene), PAH (Dibenzo(a,h)anthracene),
ASHLEY HOUSE	WS107 (RSK)	Made Ground at 0.85 m	Lead
ASHLEY HOUSE	WS111 (RSK)	Made Ground at 1.00 m	PAH (Benzo(a)pyrene), PAH (Benzo(b)fluoranthene), PAH (Dibenzo(a,h)anthracene),
CANNON FACTORY	BH2 (SOCOTEC)	Made Ground at 0.70 m	PAH (Dibenzo(a,h)anthracene)
CANNON FACTORY	PH3 (SOCOTEC)	Made Ground at 0.90 m	Asbestos (Chrysotile)
CANNON FACTORY	PH1 (RSK)	Made Ground at 0.80 m	Asbestos (Chrysotile)
CANNON FACTORY	PH1 (RSK)	Made Ground at 0.90 m	Asbestos (Chrysotile)

The majority of the chemical exceedances were recorded in samples obtained from the Made Ground within the Ashley House site. Exceedances were recorded for heavy metals, PAHs, TPHs, cyanide, trichloroethene and asbestos. In addition, an elevated concentration of TPH was encountered in the RSK borehole WS103 within the Kempton Park Gravel at 2.50 m depth.

With the exception of asbestos, which was identified in three samples, and a slight exceedance of dibenzo(a,h)anthracene, the soil samples within the Canon Factory site were found to be below the relevant GAC values.

The exceedance of a GAC does not automatically indicate that an unacceptable risk exists, but represents a point at which further investigation is required. Therefore, additional investigation and risk assessment will be required to ensure that the risks associated with all areas of the site have been fully evaluated. In this respect, provision should be made to undertake further sampling and testing during or after the demolition phase, once access to areas of the site currently covered by buildings, has been made available.

Furthermore, validation testing will also be required in order to verify that remedial measures are completed effectively during the redevelopment of the site, and that the completed development is suitable for use and does not pose any unacceptable risks to future site users.

8.2.4 Human Health Risk Assessment Screening of Groundwater Samples

To assess the potential risk from groundwater contamination to future site users, via the indoor vapour inhalation pathway, the concentrations of selected hydrocarbons have been compared to the

groundwater screening values in Tables 8 and 9 below, for petroleum hydrocarbons and halogenated organics, as set out in the SoBRA report *Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater* (SoBRA, 2017).

TABLE 8: SUMMARY OF TPH ANALYSIS RESULTS AGAINST SoBRA GUIDE VALUES

DETERMINAND	MAXIMUM CONC. (µg/l)	SOBRA GAC _{GWVAP} (µg/l)	NUMBER EXCEEDING GUIDE VALUE (TOTAL NUMBER OF TESTS IN BRACKETS)
Benzene	30	210	0 (10)
Isopropylbenzene	1	850	0 (4)
Toluene	14	230000	0 (10)
TPH – Arom >C08-C10	131	1900	0 (10)
TPH – Arom >C10-C12	590	6800	0 (10)
TPH – Arom >C12-C16	78	39000	0 (8)
TPH – Aliph >C05-C06	251	1900	0 (10)
TPH – Aliph >C06-C08	412	1500	0 (10)
TPH – Aliph >C08-C10	11	57	0 (10)
TPH – Aliph >C10-C12	15	37	0 (8)

TABLE 9: SUMMARY OF HALOGENATED ORGANICS RESULTS vs SoBRA GUIDE VALUES

DETERMINAND	MAXIMUM CONC. (µg/l)	SOBRA GAC _{GWVAP} (µg/l)	NUMBER EXCEEDING GUIDE VALUE (TOTAL NUMBER OF TESTS IN BRACKETS)
1,1,2-Trichloroethane	33	520	0 (9)
cis-1,2-Dichloroethene	2	130	0 (9)

The determinands recorded within the groundwater samples found to be below the SoBRA Guide values, indicating that the groundwater underlying the site is unlikely to pose an unacceptable risk to future site users via the indoor inhalation pathway based on the test results.

8.2.5 Construction Worker Risk Assessment

The CLEA model cannot be used to assess the acute risks to construction and/or maintenance workers from soil contamination. CLEA only deals with chronic long term risks.

Based on the findings of the laboratory analyses, together with observations made on site, it may be concluded that there is a risk to construction and/or maintenance workers from contaminated soil and groundwater. As indicated in Table 8 above, local areas of contamination includes asbestos, cyanide, metals and hydrocarbons in the Made Ground and also locally hydrocarbons in the



superficial natural materials (Kempton Park Gravel), particularly in the area of WS103 in the Ashley House part of the site.

Contact with soil and groundwater should always be avoided where possible, and standard site hygiene procedures should always be implemented, such as wearing gloves and overalls and providing adequate washing facilities. Eating, drinking and smoking should be excluded from any working areas to prevent inadvertent ingestion of soil or groundwater.

It should be noted that in the Ashley House part of the site the RSK investigation records the presence of underground diesel tanks (with an associated fuel pump), together with an effluent tank and a waste oil tank. These redundant tanks represent enclosed spaces within which vapours or ground gases may have accumulated. As discussed in Section 8.9 these tanks, together with any associated pipework, will need to be removed as part of the demolition / construction phases of work. It is essential that the tanks are decommissioned and removed by a specialist contractor, who will for example ensure that the tanks are emptied of any liquids and gases prior to their removal.

Further investigation around these tanks should be made prior to or during demolition, in order to delineate the extent of material surrounding the tanks that are likely to require excavation. In addition, a watching brief by an independent environmental consultant should be maintained during the tank removal process and a discovery and verification strategy should be carried out to ensure any residual contamination associated with historical leaks or spills are identified and remediated. SOCOTEC could provide such services if required.

A full risk assessment for the demolition and construction workers should be carried out, particularly in relation to the potential exposure to asbestos and hydrocarbons, and also in relation to the removal of existing tanks on the site. Due to the presence of asbestos, an asbestos management plan will also be required as any works that disturb the asbestos are likely to be classified as 'working with asbestos' and fall within the Control of Asbestos Regulations 2012 (CAR, 2013).

8.3 Controlled Waters Risk Assessment

8.3.1 Technical Approach

The assessment of risks to controlled waters follows guidance provided by the EA (Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination (2006) and DEFRA in the Contaminated Land (England) Regulations 2006 (SI 2006/1380) and consolidated regulations.

As with the human health risk assessment, the controlled waters assessment should take into account the receptors that may be at risk from any sources of contamination present within the site boundary. This could include underlying groundwater aquifers, or nearby surface waters, or both. The generic assessment criteria (or Target Concentrations) used to assess the potential risks should then be selected based on the primary receptors of concern.

The baseline desk study reports (RSK, 2015a&b) indicate the Superficial Deposits (Kempton Park Gravel Member) underlying the site is classified as a Secondary A Aquifer and the nearest surface water body is the River Lee, 360 m east of the site.

It should be noted that the site lies within a Zone 2 Source Protection Zone (SPZ). However, this relates to a significantly deeper aquifer in the lower part of the Lambeth Group/Thanet Formation/Chalk, which in the site area is overlain by approximately 20 m of unproductive strata (clay and silt of the London Clay Formation and upper part of the Lambeth Group).

Based on the above information, the most sensitive controlled water feature is considered to be the River Lee and therefore, it is considered appropriate to compare the available groundwater results from within the Kempton Park Gravel Member with the Environmental Quality Standards (EQS) for fresh waters assessments. Additional screening has been carried out against UK Drinking Water Standards (DWS) and WHO guideline values for TPH.

8.31 Controlled Waters Risk Assessment Screening

In order to assess the potential risk of pollution of controlled waters, from the shallow groundwater at the site, groundwater samples recovered on 24 April 2019 from the standpipes in the following boreholes (all within the Kempton Park Gravel Member):

- BH01 at 2.29 m depth.
- BH02 at 2.41 m depth.
- BH03 at 2.48 m depth.
- BH04 at 2.55 m depth.

These samples were analysed for metals, phenols, cyanide and organic compounds, including total petroleum hydrocarbons (TPH), benzene / toluene / ethylbenzene / xylene (BTEX), polycyclic aromatic hydrocarbons (PAH) and volatile organic compounds (VOC).

The results of the chemical analyses for the current investigation, together with those from the RSK investigations, are summarised in Tables 10 and 11 below. It should be noted that the majority of VOC did not exceed their detection limits and so are not included in the table. This table also shows the Environmental Quality Standards (EQS) for fresh water published by the EA (EA, 2015) as part of the Water Framework Directive, and the UK Drinking Water Standards (UKDWS) presented in the Water Supply (Water Quality) Regulations (DETR, 2000).

TABLE 10: SUMMARY OF CHEMICAL ANALYSIS RESULTS FOR GROUND WATER

Determinand	Maximum conc. (µg/l)	EQS (µg/l)	Number exceeding EQS (TOTAL Number of tests in brackets)	UKDWS (µg/l)	number exceeding UKDWS (TOTAL Number of tests in brackets)
Arsenic	60	50	1 (10) – WS101	10	2 (10) – WS101, WS107
Cadmium	0.2	0.08	1 (10) – BH03	5	0 (10)
Chromium III	7	4.7	2 (10) – WS104, BH102	50	0 (10)
Copper	2	1**	1 (10) – BH03	2000	0 (10)
Lead	1	14	0 (10)	10	0 (10)
Mercury	0.2	0.07	5 (10)***	1	0 (10)
Nickel	10	4**	2 (10) – WS104, BH101	20	0 (10)
Selenium	3	-	n/a	10	0 (10)
Zinc	11	10.9	1 (10) – BH03	-	n/a
Cyanide (Total)	0.08	1	0 (4)	50	0 (4)



Determinand	Maximum conc. (µg/l)	EQS (µg/l)	Number exceeding EQS (TOTAL Number of tests in brackets)	UKDWS (µg/l)	number exceeding UKDWS (TOTAL Number of tests in brackets)
Phenol	<0.5	7.7	0 (4)	-	n/a
Anthracene	0.17	0.1	1 (10) – WS104	-	n/a
Naphthalene	14	22.4	0 (10)	-	n/a
Benzo(a)pyrene	<0.01	0.00017	10 (10)***	0.01	0 (10)
Benzo [b] fluoranthene	<0.01	0.00017	10 (10)***	-	n/a
Benzo (g,h,i) perylene	<0.01	0.00017	10 (10)***	-	n/a
Benzo [k] fluoranthene	<0.01	0.00017	10 (10)***	-	n/a
Indeno(1,2,3-cd)-pyrene	<0.01	0.00017	10 (10)***	-	n/a
Fluoranthene	0.02	0.0063	2 (4) – BH02 & BH04	-	n/a
PAH (sum of 4)*	<0.04	-	n/a	0.1	0 (10)
Diethyl phthalate	3	200	0 (5)	-	n/a
m & p Xylene	160	30	1 (5) – WS107	-	n/a

Notes: * PAH (sum of 4) based on benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene.
 ** EQS based on bioavailability.
 *** EQS exceeded by limit of detection.

The published EQS and UK Drinking Water Standards indicated above do not include TPH values, but these determinands should be considered with respect to potential impact on controlled waters. Therefore, the TPH analysis results are summarised in Table 12 below, together with currently available water quality standards for petroleum hydrocarbons published by the World Health Organisation (WHO) (CL:AIRE, 2017).

TABLE 11: SUMMARY OF TPH ANALYSIS RESULTS AGAINST WHO GUIDE VALUES

Determinand	Maximum Conc. (µg/l)	WHO Guide values (µg/l)	Number exceeding Guide value (TOTAL Number of tests in brackets)
TPH – Arom >C05-C06 (Benzene)	30	10	2 (10) – BH04, WS107
TPH – Arom >C06-C08 (toluene)	14	700	0 (10)
TPH – Arom >C08-C10 (ethylbenzene)	131	300	0 (10)
TPH – Arom >C08-C10 (xylenes)	1350	500	1 (10) – WS107
TPH – Arom >C10-C12	590	90	1 (8) – WS107
TPH – Arom >C12-C16	78	90	0 (8)
TPH – Arom >C16-C21	22	90	0 (8)
TPH – Arom >C21-C35	168	90	1 (8) – BH02
TPH – Aliph >C05-C06	251	15000	0 (10)
TPH – Aliph >C06-C08	412	15000	0 (10)
TPH – Aliph >C08-C10	11	300	0 (10)
TPH – Aliph >C10-C12	15	300	0 (8)
TPH – Aliph >C12-C16	<10	300	0 (8)



The results of the laboratory tests indicate that the concentrations of a number of determinands exceed the EQS, UKDWS or WHO values. These may be summarised as follows:

- **Metals (Arsenic, cadmium, chromium, copper, mercury, nickel and zinc)**, exceeding the EQS in the groundwater samples from BH03, BH101, BH102, WS101 and WS104. It should be noted, however, that the EQS for copper is based on the fraction of bioavailable copper, which was not part of the analysis undertaken on the initial set of groundwater samples. Whether the bioavailable copper would exceed the EQS therefore remains unconfirmed. Furthermore, the maximum recorded value for zinc was 11 µg/l, which slightly exceeds the GAC of 10.9 µg/l.
- **PAH (Anthracene, fluoranthene)**, exceeding the EQS in groundwater samples from BH02, BH04 and WS104 (with the limits of detection of a number of other PAH exceeding the relevant GAC).
- **Xylene**, exceeding the EQS in a groundwater sample from WS107.
- **Arsenic**, exceeding the UK DWS guideline value in WS101 and WS107.
- **Benzene**, exceeding the WHO guideline value in BH04.
- **TPH (Aromatic >C05-06, >C08-10, >10-12 and >C21-C35)**, exceeding various WHO guideline values in BH02, BH04 and WS107.

In summary, the elevated concentrations of some metals were found only in the Ashley House part of the site, whereas the elevated concentrations of the organic compounds were encountered in both site areas.

The groundwater within the Kempton Park Gravel Member represents an unconfined Secondary A aquifer which, at least in some parts of the site, is in direct contact with overlying layers of Made Ground. There is therefore a potential that contaminants could have migrated to this aquifer from shallow depth sources on site. Otherwise contamination may have originated from nearby off-site sources, such as the petrol filling station immediately to the south of the Ashley House site boundary.

Black staining and a hydrocarbon odour was also noted within the shallow groundwater during the RSK investigation at Ashley House. Given the potential for significant hydrocarbon contamination to be present within the site soils and shallow groundwater at the Ashley House site, associated with the historical and existing underground fuel storage tanks, the shallow soils and groundwater at the



site has the potential to pose an unacceptable risk to controlled waters. Therefore, additional investigation and risk assessment will be required to ensure that remedial measures are completed and verified during the redevelopment of the site and that the completed development is suitable for use and does not pose any unacceptable risks to controlled waters.

Based on the test results, the risk of the shallow groundwater at the Cannon Factory causing unacceptable pollution of controlled waters is considered to be low.

Due to the thickness of the aquiclude (London Clay Formation and cohesive Lambeth Group), the risk of contaminated groundwater from either site impacting on the deep aquifer is considered to be low. However, a piling risk assessment should be completed to ensure the design of any piles does not break the aquiclude and generate a potential pathway between the shallow soils and groundwater at the site and the underlying deep aquifer.

8.4 Conceptual Site Model and Risk Assessment

As discussed in Section 8.2, various exceedances of metals, cyanide, PAH, TPH, trichloroethene and asbestos were encountered in the soils predominantly beneath the Ashley House part of the site, but also locally beneath the Cannon Factory part of the site.

Section 8.3 provides an outline of the analyses undertaken on groundwater samples (again, comprising data from both the current investigation and the former RSK investigations). These results indicate the presence of metals, PAH and TPH exceeding the EQS, UKDWS or WHO guideline values.

These exceedances were predominantly found in the groundwater below the Ashley House part of the site, although the organic contaminants were encountered beneath both site areas.

Initial conceptual site models, and associated preliminary risk assessments, were presented in the RSK reports for the Ashley House and Cannon Factory site areas. These can be refined in the light of the findings of the current investigation. As such, in the conceptual site model the contaminants of concern presented in Table 13 have been revised to include only those found to be exceeding their relevant GACs, and in the risk assessment the potential contaminant, likelihood and risk columns have been revised, as appropriate, in the light of the updated investigation findings.

TABLE 12: POTENTIAL SOURCES AND TYPES OF CONTAMINATION

Site Area	Potential Sources	Contaminants of Concern
Ashley House (historical on site)	Part of a woollen factory (early 1900s –1930s) Part of a braid and bootlace factory (early 1900s – 1930s) Part of a pencil factory (early 1900s –1970s) Part of a printing ink works (1930s –1970s) Part of a dry battery factory (1930s – 1970s)	Arsenic, lead, nickel, mercury, fuel oils, solvents, lubricating oils, polycyclic aromatic hydrocarbons (PAHs) and asbestos.
Ashley House (historical on site)	Storage tanks and chimneys (1930s – 1970s)	Petroleum hydrocarbons, chlorinated solvents, cyanides, metals, PAH.
Ashley House (current on site)	Warehouse and civil engineering depot	Asbestos, hydrocarbons
	Potential storage of chemicals on site	Lubricating oil, kerosene, trichloroethylene (TCE)
	Made ground (i.e. fill material)	Arsenic, lead, nickel, mercury, cyanide, TPH, PAH and asbestos.
	Diesel storage tanks (1985 – present)	Petroleum hydrocarbons, including fuels and oils
	Three compartment interceptor	Petroleum hydrocarbons
	Effluent storage tank (the effluent is produced during the vehicle and equipment washing)	Petroleum hydrocarbons, solvents
Ashley House (off site)	Petrol filling station adjacent to the southern boundary	Hydrocarbons, oil and waste oil, solvents, asbestos, metals and metal compounds
Ashley House (off site)	Various industrial land uses including: Waste disposal services 6m east, clothing and fabric manufacturer 46m north east, car body repair shop / car dealers 56m south and car dealers 137m north west.	Arsenic, lead, nickel, mercury, fuel oils, lubricating oils, PAH, solvents.
Ashley House (off site)	Adjacent and nearby former and current industrial activities, including printing works	Arsenic, lead, nickel, mercury, fuels, oils and solvents
Ashley House (off site)	Railway, 100m east of site (late 1800s to present)	Arsenic, lead, nickel, mercury, fuel oils, lubricating oils, PAHs, ash and asbestos
Ashley House (off site)	Landfill (1955 to 1962) 601m to northeast	Landfill gases, leachate
Cannon Factory (historical on site)	Cannon factory (Rubber) (1950s>) and small tanks.	Polycyclic aromatic hydrocarbons (PAHs) and asbestos.
Cannon Factory (historical on site)	Former commercial and light industrial use.	Ash, clinker, polycyclic aromatic hydrocarbons (PAHs) and asbestos. Possible soil gases including methane and carbon dioxide.
Cannon Factory (historical on site)	Made ground (i.e. fill material).	Polycyclic aromatic hydrocarbons (PAHs) and asbestos
Cannon Factory (current on site)	Futon factory.	Polycyclic aromatic hydrocarbons (PAHs) and asbestos
Cannon Factory (off site)	Railway.	Polycyclic aromatic hydrocarbons (PAHs) and asbestos
Cannon Factory (off site)	Various commercial and industrial land uses.	Polycyclic aromatic hydrocarbons (PAHs) and asbestos

Sensitive receptors at this site include:

- future site occupants
- adjacent site's users
- vegetation (soft landscaping)
- potable water supply pipes
- groundwater within the underlying Secondary A Aquifer within the Superficial Deposits (Kempton Park Gravel Member)
- ecological receptors (including SSSI located to the east)
- surface watercourses (Pymme's Brook and River Lee).

Summary of plausible pathways:

- direct contact (soil, dust ingestion, dermal contact, dust and fibre inhalation)
- ground gas and soil gas inhalation
- leaching of mobile contaminants within the Made Ground soils and subsequent vertical and lateral migration of contaminants within the groundwater
- chemical attack of infrastructure (including water supply pipes) and buildings.

TABLE 13: REVISED CONCEPTUAL SITE MODEL AND RISK ASSESSMENT

Potential Contaminant	Potential Receptor	Possible Pathway	Likelihood	Severity	Risk and Justification
ASHLEY HOUSE AREA: On site historical factory and works: Fuel oils, heavy metals, solvents, lubricating oils, PAHs, asbestos, cyanides.	Future site occupants	Exposure to ground gases	Likely	Medium	High: Gas monitoring has demonstrated CS2 at the Ashley House area and CS1 at the Cannon Factory area (see Section 9). Remedial action will be required in the Ashley House part of the site.
		Direct contact (ingestion, dermal contact, dust and fibre inhalation)			High: The results of the laboratory testing programmes indicate numerous exceedances of metals, PAH, TPH and the local presence of asbestos. Remedial action will be required.



Potential Contaminant	Potential Receptor	Possible Pathway	Likelihood	Severity	Risk and Justification
On site historical and current storage tanks and other point sources (1930s–current): Current two diesel tanks and interceptor – petroleum hydrocarbons (fuels oils) Historical tanks – petroleum hydrocarbons, chlorinated solvents, cyanides, metals. Current warehouses and potential chemical storage onsite: Asbestos, hydrocarbons lube oil, kerosene, trichloroethylene (TCE). Made Ground associated with previous phases of development: Unknown fill material (but potentially including heavy metals, ash, clinker, PAHs, asbestos etc.) Off-site current BP filling station to immediate south of site: Petroleum hydrocarbons. CANNON FACTORY AREA: Various current and historic industrial land uses on and off site, tanks, electrical substation, railway land, landfill and made ground		Vapour inhalation			Moderate: The in situ and laboratory test results indicate a generally low risk from vapours in the ground. However, it should be noted that in the Ashley House part of the site the RSK report records the presence of underground diesel tanks (with associated fuel pump), together with an effluent tank and a waste oil tank. These redundant tanks represent enclosed spaced within which vapours or ground gases may have accumulated.
	Adjacent site users (commercial)	Direct contact (ingestion, dermal contact, dust and fibre inhalation)	Unlikely	Medium	Low: The results of the laboratory testing programmes indicate numerous exceedances of metals, PAH, TPH and the local presence of asbestos on site. It is considered unlikely, however, that these would affect occupants of nearby sites.
	Adjacent site users (residential)	Exposure to ground gases and vapours	Unlikely	Medium	Moderate: Gas monitoring has demonstrated CS2 at the Ashley House area and CS1 at the Cannon Factory area. Although the gas source has not been determined, it is possible that gases within the ground beneath the site could migrate laterally to neighbouring sites.
		Direct contact (ingestion, dermal contact, dust and fibre inhalation)	Unlikely	Medium	Low: The results of the laboratory testing programmes indicate numerous exceedances of metals, PAH, TPH and the local presence of asbestos on site. It is considered unlikely, however, that these would affect occupants of nearby sites.
	Potable water supply pipes and buildings	Chemical attack on the proposed infrastructure (water supply pipes and buildings)	Likely	Medium	High: The results of the laboratory testing programmes indicate numerous exceedances of metals, PAH and TPH which can affect potable water supplies and pipework. Appropriate remedial action will need to be considered during the design of any new water supply pipes.
	Groundwater beneath the site (deep aquifer)	Vertical and lateral migration	Unlikely	Medium	Low: Due to a substantial thickness (20m) of clay strata between the shallow (contaminated) groundwater and the deeper aquifer, migration of contaminants to the deeper aquifer is considered unlikely.



Potential Contaminant	Potential Receptor	Possible Pathway	Likelihood	Severity	Risk and Justification
from previous phases of development: PAHs, asbestos	Groundwater beneath the site (shallow aquifer)	Lateral migration	Likely	Medium	High: The results of the laboratory testing programmes on groundwater samples indicate numerous exceedances of metals, PAH and TPH in the groundwater within the Kempton Park Gravel (ie shallow aquifer) beneath the site.
	Surface watercourses and SSSI located to the east of the site	Migration of chemicals through the shallow unsaturated zone and lateral migration in the groundwater	Unlikely	Medium	Low to Moderate: The results of the laboratory testing programmes on groundwater samples indicate numerous exceedances of metals, PAH and TPH in the groundwater within the Kempton Park Gravel (ie shallow aquifer) beneath the site. Nevertheless, due to the distance of the nearest surface water feature (360m east of the site) and SSSI site (560m east of the site), the risk of contamination from this site affecting the surface water feature or the groundwater at the SSSI site is considered low to moderate.
ASHLEY HOUSE AREA: Railway ~100m east of the site (late 1800s to present): Fuel oils, lubricating oils, heavy metals, PAHs, ash and asbestos.	Future site occupants (residential)	Exposure to ground gases	Likely	Medium	High: Gas monitoring has demonstrated CS2 at the Ashley House area and CS1 at the Cannon Factory area (see Section 9). Remedial action will be required in the Ashley House part of the site.
		Direct contact (ingestion, dermal contact, dust and fibre inhalation)	Likely	Medium	High: The results of the laboratory testing programmes indicate numerous exceedances of metals, PAH, TPH and the local presence of asbestos. Remedial action will be required.
	Potable water supply pipes	Chemical attack on infrastructure (water supply pipes)	Likely	Medium	High: The results of the laboratory testing programmes indicate numerous exceedances of metals, PAH and TPH which can affect potable water supplies and pipework. Appropriate remedial action will need to be considered during the design of any new water supply pipes.
ASHLEY HOUSE AREA: Landfill (1955 to 1962) 601m to northeast: Landfill gases, leachate	Future site occupants (residential)	Exposure to hazardous ground gases and vapours from landfill and leachate	Likely	Medium	High: Gas monitoring has demonstrated CS2 at the Ashley House area and CS1 at the Cannon Factory area (see Section 9). Remedial action will be required in the Ashley House part of the site. Due to the distance of the nearest landfill, it is considered unlikely that it represents the source of the ground gas, or the contaminants encountered in the groundwater.

8.5 Remedial Measures

Based on the risk assessment presented above, there is potential for unacceptable risks to a number of receptors to be present associated with historical contamination sources at the site. Therefore, additional investigation, assessment and the design of appropriate remedial measures and subsequent verification of remediation will be required to ensure the final development is suitable for use and does not pose an unacceptable risk to future users or controlled waters. A particular focus of any additional investigation should be the significant site based potential sources of contamination, including the tanks and the ground in the vicinity of the tanks, and also significant off-site sources such as the filling station adjacent to the Ashley House part of the site.

The additional site investigation and assessment could be carried out during or following the demolition phase, once access to all site areas has been made available. The possibility of there being additional tanks or associated pipework beneath the existing structures should be investigated, and fire service records should be examined for supplementary information. Due to the multiple potential sources of contamination, all areas of the site that have not been covered in the main investigations should be checked at this stage, so that the preliminary remediation proposals can be adjusted as necessary. This work would constitute an inspection and discovery strategy, following the demolition of the existing buildings, and prior to the commencement of the groundworks phase of the construction project. Details of the inspection and discovery strategy and chasing out and removal of any contamination hot spots (likely to be asbestos caches or grossly hydrocarbon impacted soils and groundwater) should be presented in a Remediation Method Statement (RMS) report that would require Regulatory Approval.

The RMS should also include detail on the decommissioning and verification of the removal of the underground fuel tanks infrastructure at the Ashley House site.

Due to the presence of asbestos within the soil at both sites, groundwork associated with the redevelopment of the site is likely to be considered as 'working with asbestos' under the Control of Asbestos Regulations 2012 (CAR, 2012) and therefore an Asbestos Management Plan for the construction phase of should be prepared prior to commencing site work.

9 GROUND GAS

9.1 General

Ground gas is largely generated by the decomposition of organic matter, both in natural soils such as peat, and man-made deposits such as landfill or other fill materials. The gases that are normally associated with these materials, and which can pose a risk to health, are predominantly methane and carbon dioxide. Oxygen depletion typically occurs as a consequence of the generation of these other gases. An increase in gas concentrations can also be associated with temporary dewatering during construction.

For the assessment of sites, in terms of the potential for ground gas to present a hazard, the risk based methodology detailed in CIRIA Report C665 (2007) is used. This is primarily based on the main method of characterising a site proposed by Wilson and Card (1999). This method can be used for all types of development, except conventional low-rise housing, and is therefore applicable to the proposed development.

The potential risk associated with gases being generated in the ground depends on the concentrations of gas by volume and its rate of flow to the ground surface. These factors are assessed by monitoring of the gas installations in boreholes. The variable nature of gas generation, and the effect of barometric pressure on gas flow, means that the volume of gas potentially reaching the ground surface is normally inconsistent over time. It is therefore preferable to undertake a number of monitoring visits, if possible with varying atmospheric pressure conditions.

The following Gas Monitoring Assessment relates to the data generated during the current investigation only. However, it should be read in conjunction with the findings and conclusions of the previous phases of investigations at the site, and any remediation strategy that is subsequently developed should draw on the combined recommendations provided by the various phases of work completed at the site.

9.2 Gas Monitoring Assessment

9.2.1 General

The monitoring pipes of the current investigation were installed within the Kempton Park Gravel Member. The objective of this was to supplement the monitoring that had been carried out in the previous investigations at the site which had been largely concentrated at shallower depths, within the Made Ground. It also allowed groundwater samples to be recovered from the shallow aquifer in the Kempton Park Gravel Member. It should be noted, however, that a substantial part of each monitoring pipe response zone was saturated by groundwater, which can influence gas readings.

For the current investigation, four post-fieldwork gas monitoring visits were undertaken, on 7 and 21 March, 24 April and 22 May 2019, during which the barometric pressure ranged from 992 to 1030 mbar.

The gas monitoring data obtained for the current investigation supplements the results of the former investigations by RSK. In the RSK investigations the upper part of the response zones were within the Made Ground and the monitoring results are therefore likely to be more representative of the worst case scenario. Due to differences between the results obtained in the Ashley House and Cannon Factory parts of the site, these two areas are assessed separately below.

9.2.2 Ashley House Gas Assessment

During the monitoring visits carried out for the current investigation, methane remained below the limit of detection. Carbon dioxide was measured at concentrations of generally below 2%, although with a maximum reading of 5.2% by volume in BH03 on 22 May 2019. Oxygen concentrations generally ranged between approximately 17 and 21% by volume, although with a lowest value of 11.1% (coinciding with the highest carbon dioxide reading). Gas flow rates remained below the detection limit of 0.1 litres per hour throughout the monitoring period.

Total VOC were also recorded during the monitoring visits, giving a maximum value of 2.1 ppm (in BH04).



Based on the conditions measured during the four monitoring visits carried out as part of the current investigation, a 'worst case' preliminary Gas Screening Value (GSV) has been calculated using the following formula in line with CIRIA 665 guidance and British Standard BS 8485:2015, '*Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*'.

$$Q_{hg} = C_{hg} / 100 \times q$$

Where Q_{hg} is the hazardous gas flow rate; C_{hg} is the measured hazardous gas concentration (in percentage by volume) and q is the flow rate (in litres per hour) of combined gasses from the standpipe found by direct measurement.

The highest hazardous gas concentration was 5.2%v/v (carbon dioxide). The maximum flow rate will be taken as the detection limit of 0.1 l/hr. Therefore, $Q_{hg} = 5.1 / 100 \times 0.1 = 0.0051$

The value derived above is the highest hazardous gas flow rate calculated over the duration of the gas monitoring period undertaken as part of the current investigation.

It should be noted, however, that the gas monitoring exercise undertaken by RSK at the Ashley House part of the site identified significantly higher methane readings, with a maximum concentration of 16.3%.

The maximum concentration of carbon dioxide was 5.1%. Based on a maximum gas flow rate of 0.9 l/hr, the calculated GSV for methane was 0.0965 l/hr and the GSV for carbon dioxide was 0.0255 l/hr.

Considering the highest GSVs of 0.0965 l/hr (recorded by the RSK investigation), the gas characterisation approach set out in BS8485:2015, replicated in Table 14 below, would mean that the site should be characterised as Characteristic Situation CS2.

With regard to potential vapours, the PID readings during the fieldwork period did not detect substantially elevated VOCs (maximum of 2.1 ppm). In addition, there were no elevated VOCs in the laboratory analyses on the soil or groundwater samples. As such it is not considered that VOCs will present a significant risk, following the decommissioning and removal of the underground fuel storage tanks.

TABLE 14: ASSESSMENT OF GAS CHARACTERISATION



Characteristic Situation	Hazardous Potential	Site Characteristic Gas Screening Value L/h	Additional Factors
CS1	Very Low	<0.07	Typically <1% methane concentration and < 5% carbon dioxide concentration (otherwise consider an increase to CS2)
CS2	Low	0.07 to <0.7	Typical measured flow rate <70 L/h (otherwise consider an increase to CS3)
CS3	Moderate	0.7 to <3.5	-
CS4	Moderate to High	3.5 to <15	-
CS5	High	15 to <70	-
CS6	Very High	>70	-

9.2.3 Cannon Factory Gas Assessment

The monitoring visits in the Cannon Factory area found methane to remain below the limit of detection. Carbon dioxide was measured at a maximum concentration of 2.4%, and oxygen concentrations ranged between approximately 18.9 and 21.3% by volume. Gas flow rates remained below the detection limit of 0.1 litres per hour throughout the monitoring period.

Total VOC were also recorded during the monitoring visits, giving a maximum value of 1 ppm.

Based on the highest hazardous gas concentration of 2.4%v/v (carbon dioxide), and a maximum flow rate of 0.1 l/hr, $Q_{hg} = 2.4 / 100 \times 0.1 = 0.0024$.

Gas monitoring readings undertaken by RSK at the Cannon Factory part of the site identified methane concentrations less than the detection limit and a maximum concentration of carbon dioxide of 0.3%. Based on a maximum gas flow rate of 0.1 l/hr the calculated GSV for carbon dioxide is 0.0003 l/hr.

Considering the highest GSVs of 0.0024 l/hr (recorded by the current investigation), the gas characterisation approach set out in BS8485:2015, replicated in Table 14 above, would mean that the site should be characterised as Characteristic Situation CS1.



10 REFERENCES

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- BGS England and Wales Sheet 256 : 2006 : North London. 1:50000 geological map (solid and drift) (Bedrock and Superficials). British Geological Survey.
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- BS 1377 : 1990 : Methods of test for soils for civil engineering purposes. British Standards Institution.
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- BS EN ISO 22475-1 : 2006 : Geotechnical investigation and testing – Sampling methods and groundwater measurements - Part 1 Technical principles for execution. British Standards Institution.
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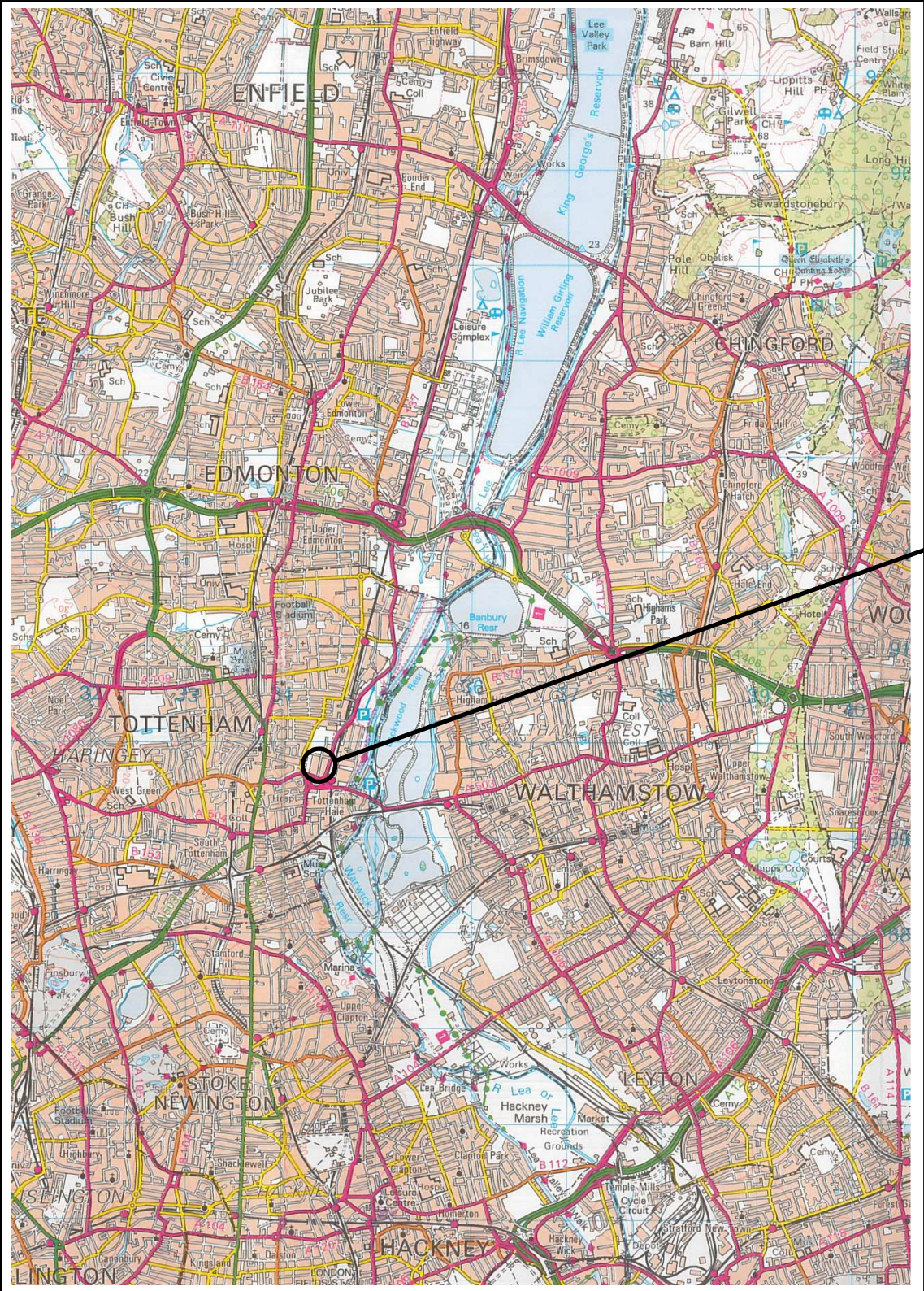


APPENDIX A

FIGURES AND DRAWINGS

Site Location Plan	A1
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Ashley House Site Cross Section	A3a
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SPT 'N' Values – Made Ground (AH)	A8
SPT 'N' Values – Made Ground (CF)	A9
SPT 'N' Values – Enfield Silt Member (AH)	A10
SPT 'N' Values – Kempton Park Gravel (AH)	A11
SPT 'N' Values – Kempton Park Gravel (CF)	A12
SPT 'N' Values – London Clay Formation (AH)	A13
SPT 'N' Values – London Clay Formation (CF)	A14
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Undrained Shear Strength – London Clay Formation (AH)	A16
Undrained Shear Strength – London Clay Formation (CF)	A17
Undrained Shear Strength – Lambeth Group (CF)	A18

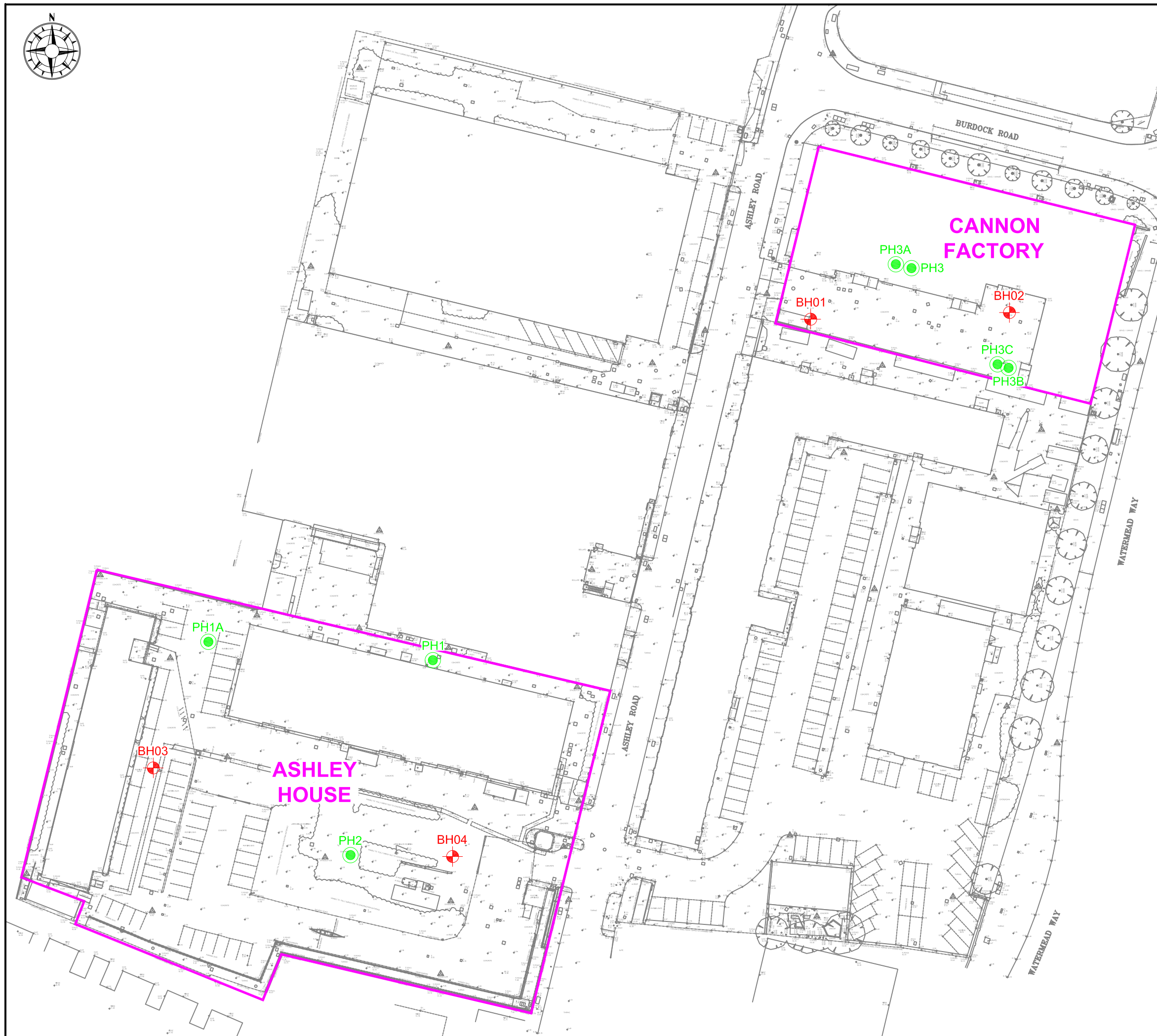
Site Location Plan



THE
SITE

Reproduced from the 2012 Ordnance Survey 1:50 000 scale Landranger map No 177 by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office, © Crown copyright, SOCOTEC UK Limited. All rights reserved. Licence Number 100006060

Notes: Scale 1:50 000	Project Project No. Carried out for ASHLEY HOUSE & CANNON FACTORY, ASHLEY ROAD SOUTH, TOTTENHAM HALE, LONDON D8061-18 NOTTING HILL HOME OWNERSHIP LTD	Figure A1
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GENERAL NOTES

1. Reproduced from Lane & Frankham Limited's Drawing No. LF684-Ashley Road-Site Survey-01 & LF684-Ashley Road-Site Survey-02.
2. Hole Locations to National Grid Co-ordinate Reference System.

LEGEND TO SYMBOLS

- Borehole
- Window Sample

Scale: 1:750



x	x	x	x	x	x
Rev	Drawn	Date	Approv.	Date	Modification Details

AMENDMENTS

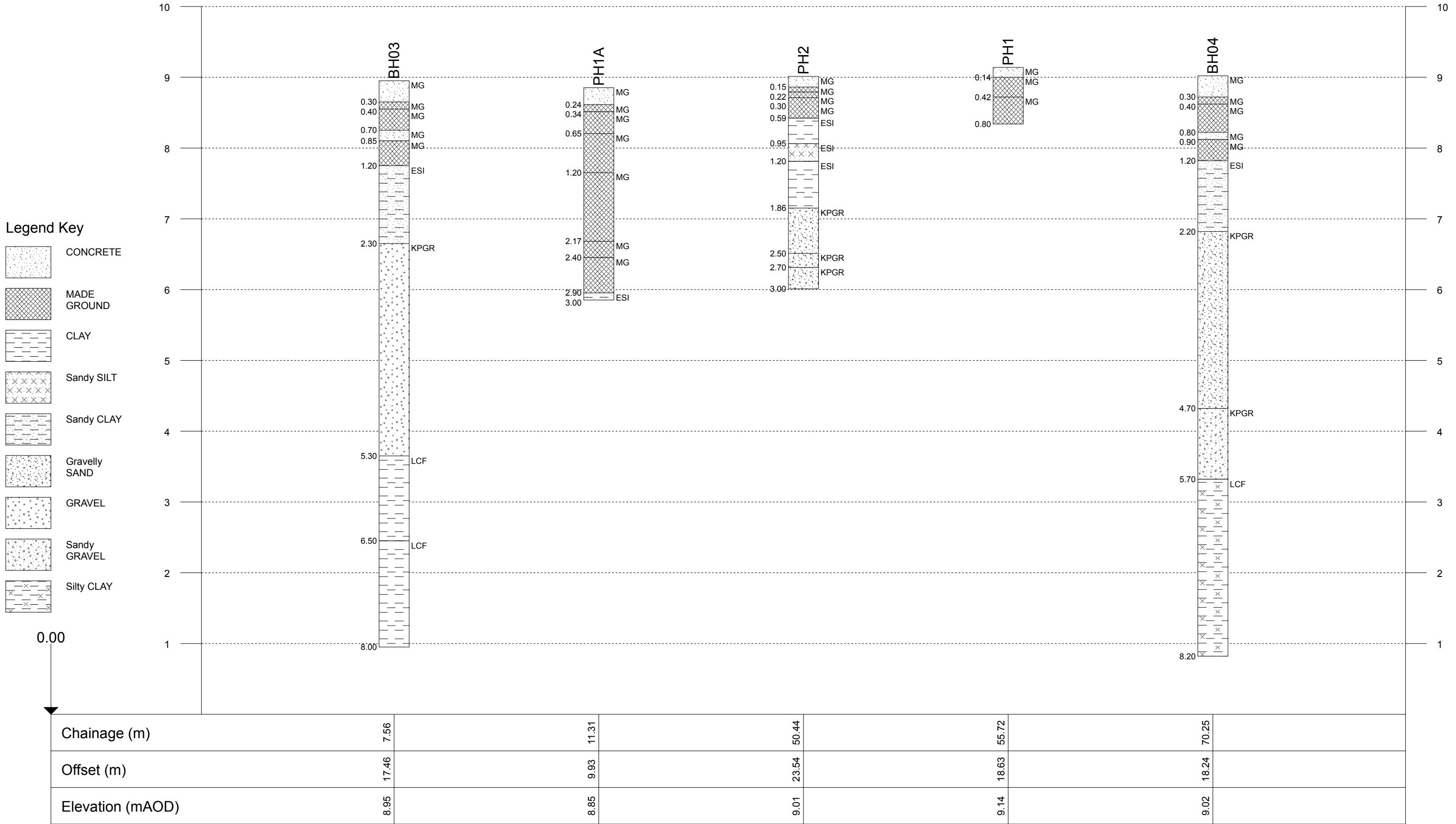
Title
EXPLORATORY HOLE LOCATION PLAN

Project
**ASHLEY HOUSE & CANNON FACTORY,
ASHLEY ROAD SOUTH,
TOTTENHAM HALE, LONDON**

Client
**NOTTING HILL
HOME OWNERSHIP LTD**



Date 11/03/2019	Drawn By BS	Approv. By PK
Sheet Size A3	Scale 1:750	Project No D8061-18
Drawing No A2	Rev 0	

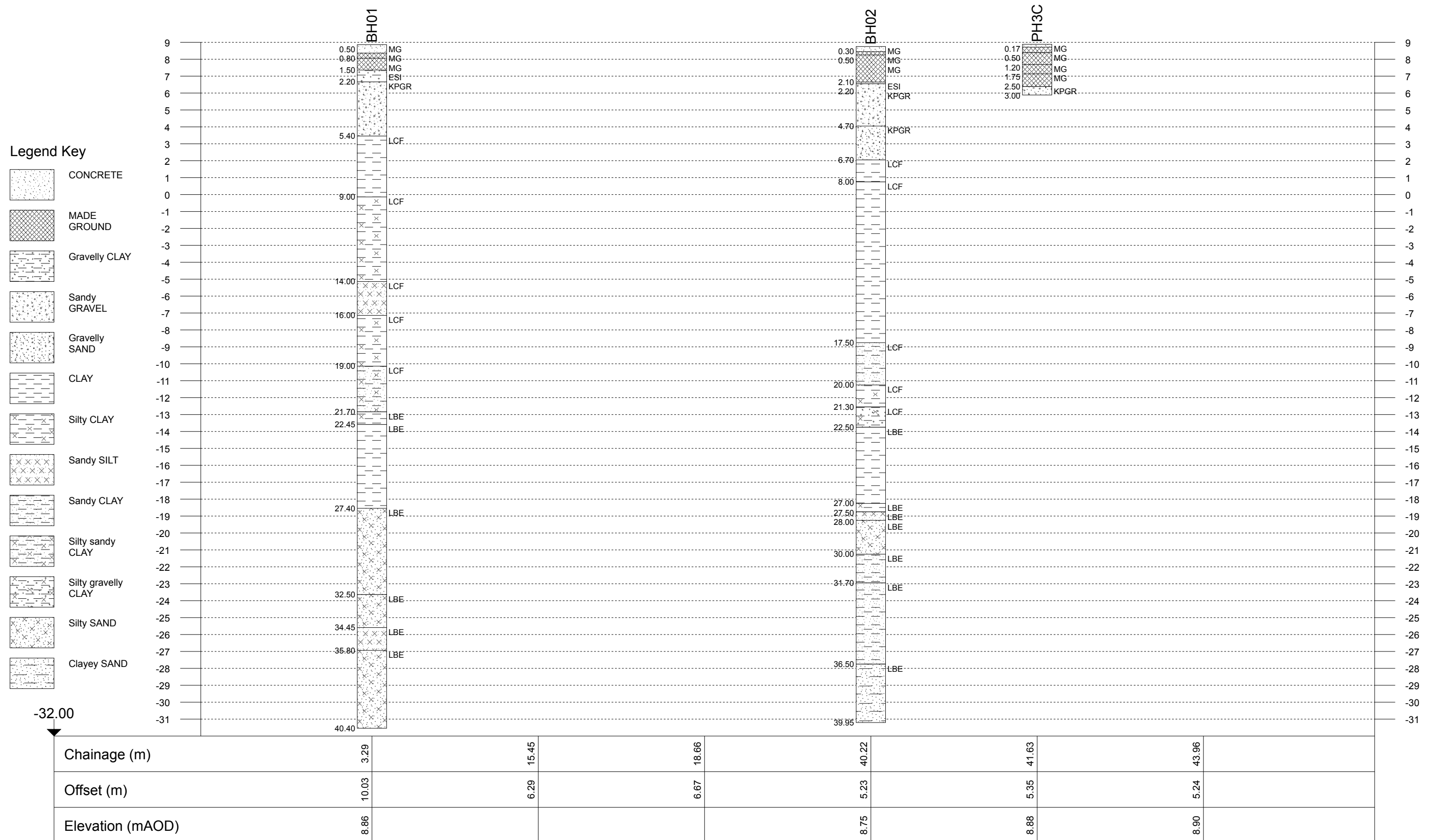


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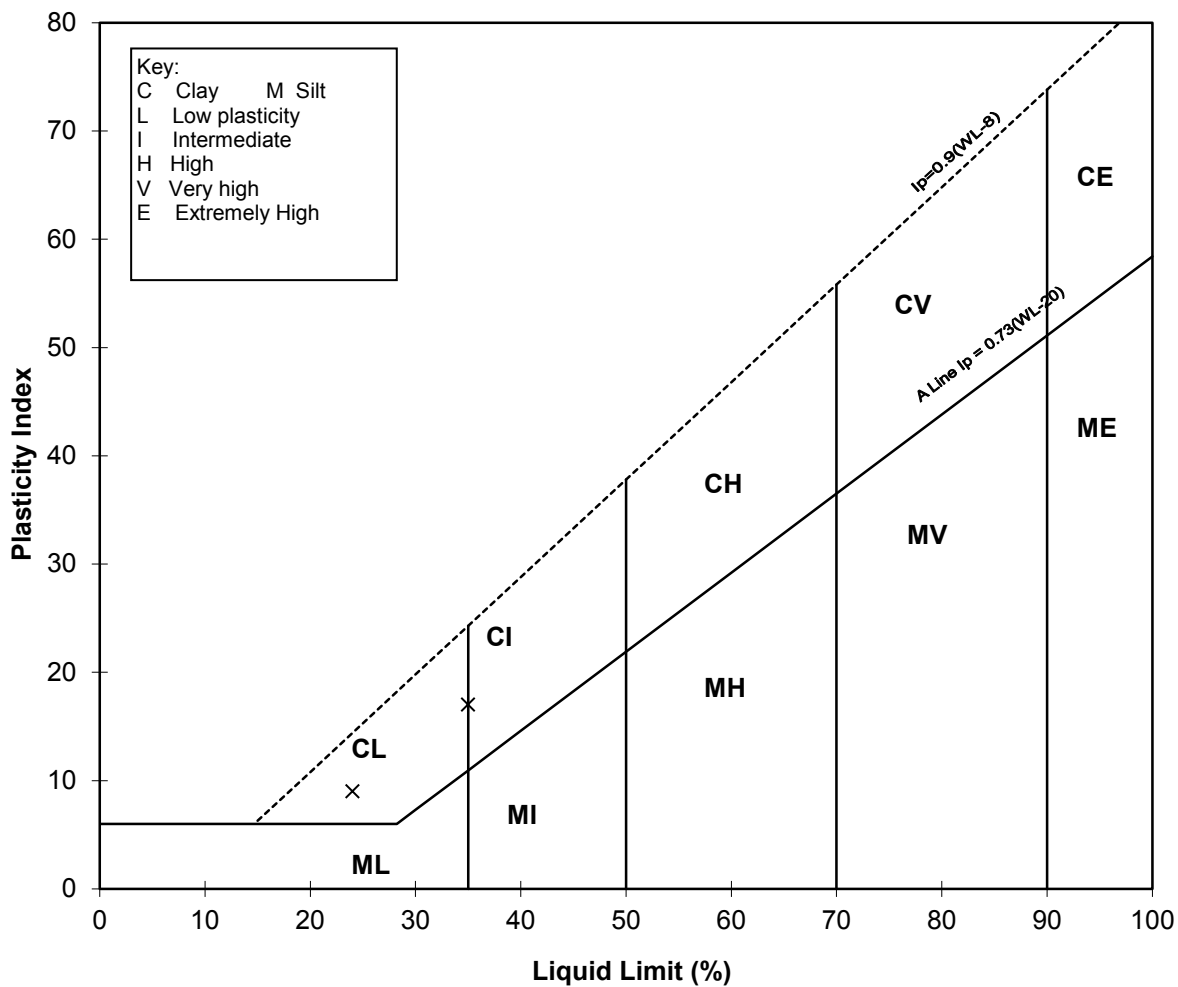
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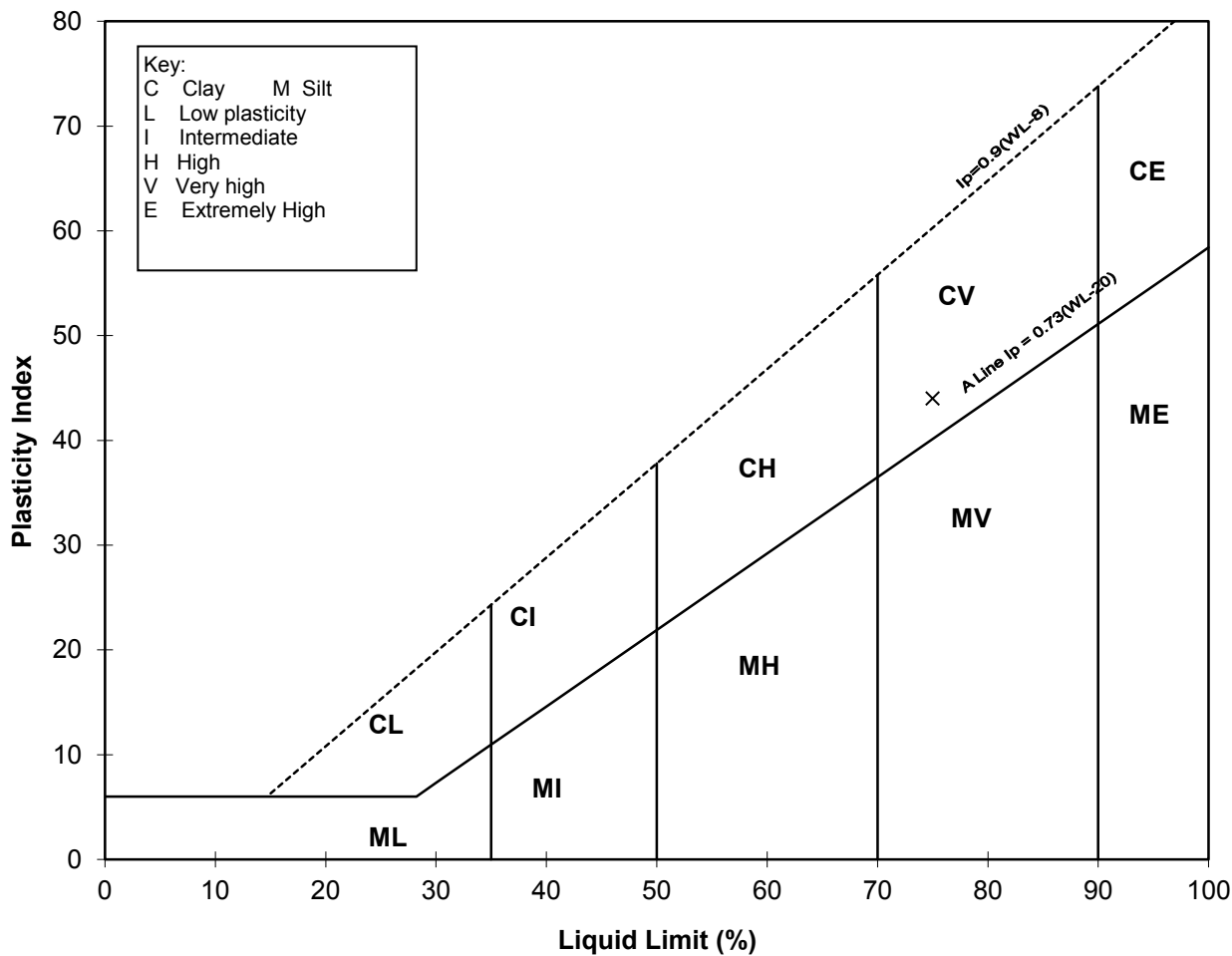
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Plasticity Chart - Enfield Silt Member (AH)



Plasticity Chart - London Clay Fmn (AH)



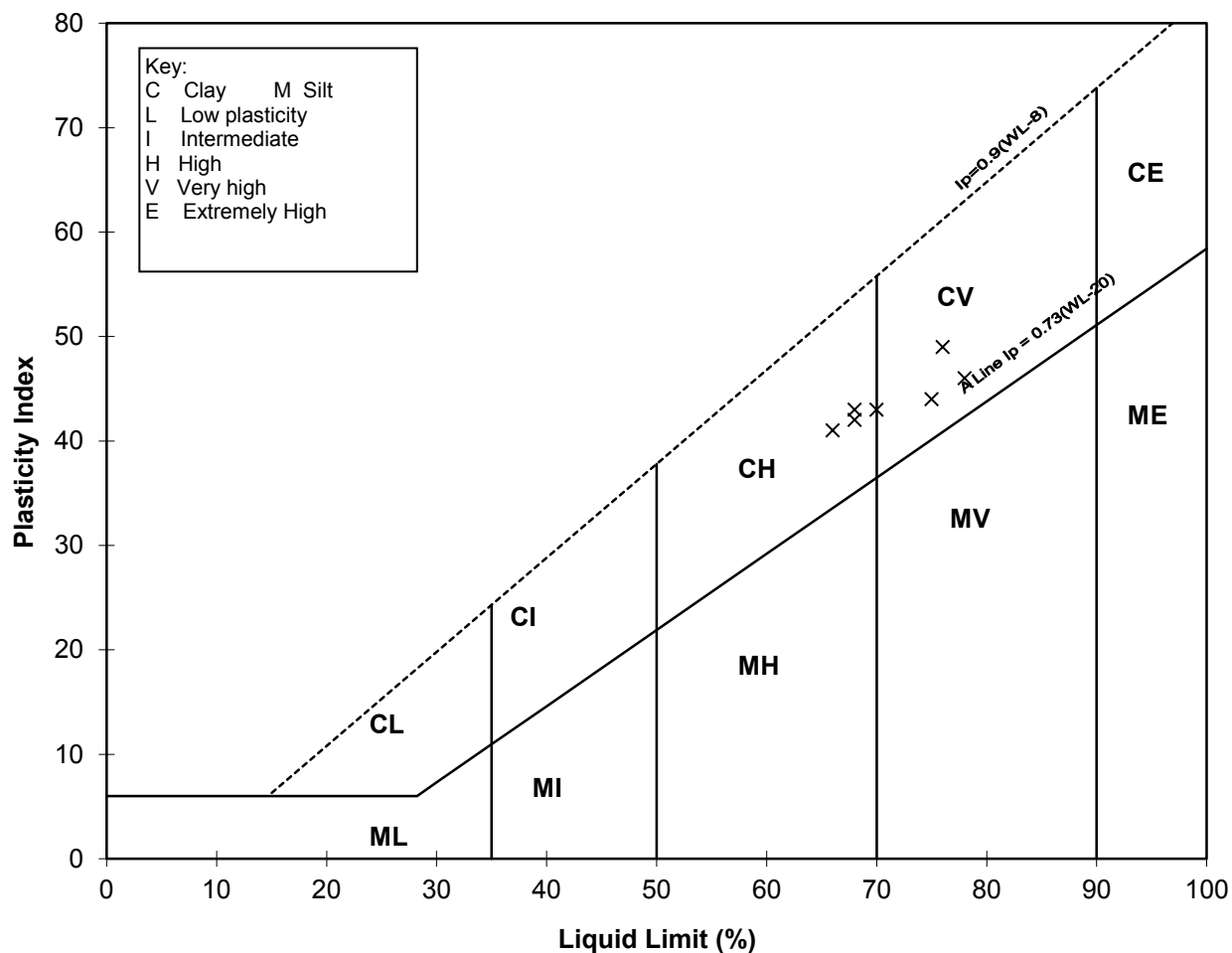
Notes:

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Figure
A5

Plasticity Chart - London Clay Fmn (CF)



Notes:

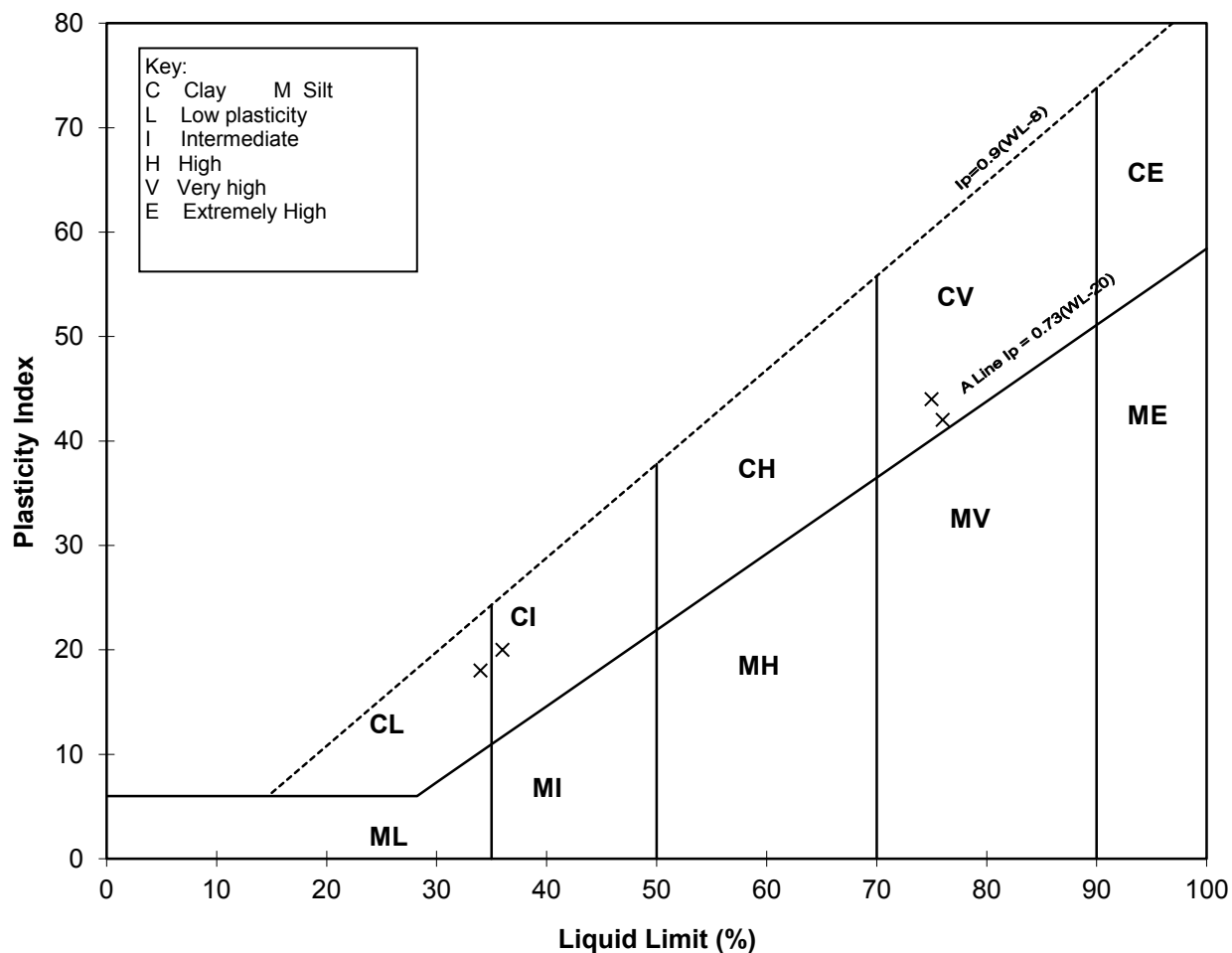
Project
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Figure

A6

Plasticity Chart - Lambeth Group (CF)



Notes:

Project

Project No.

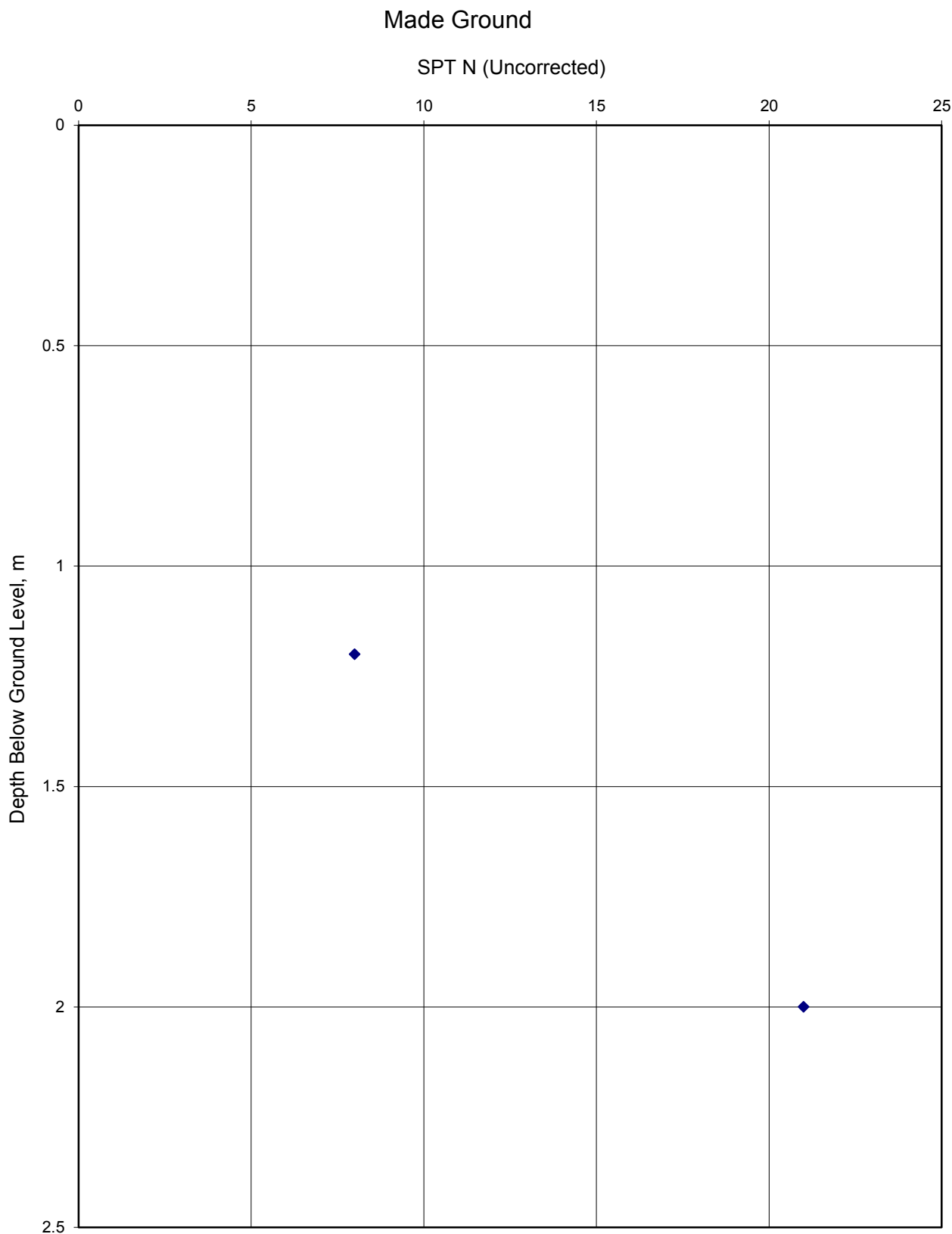
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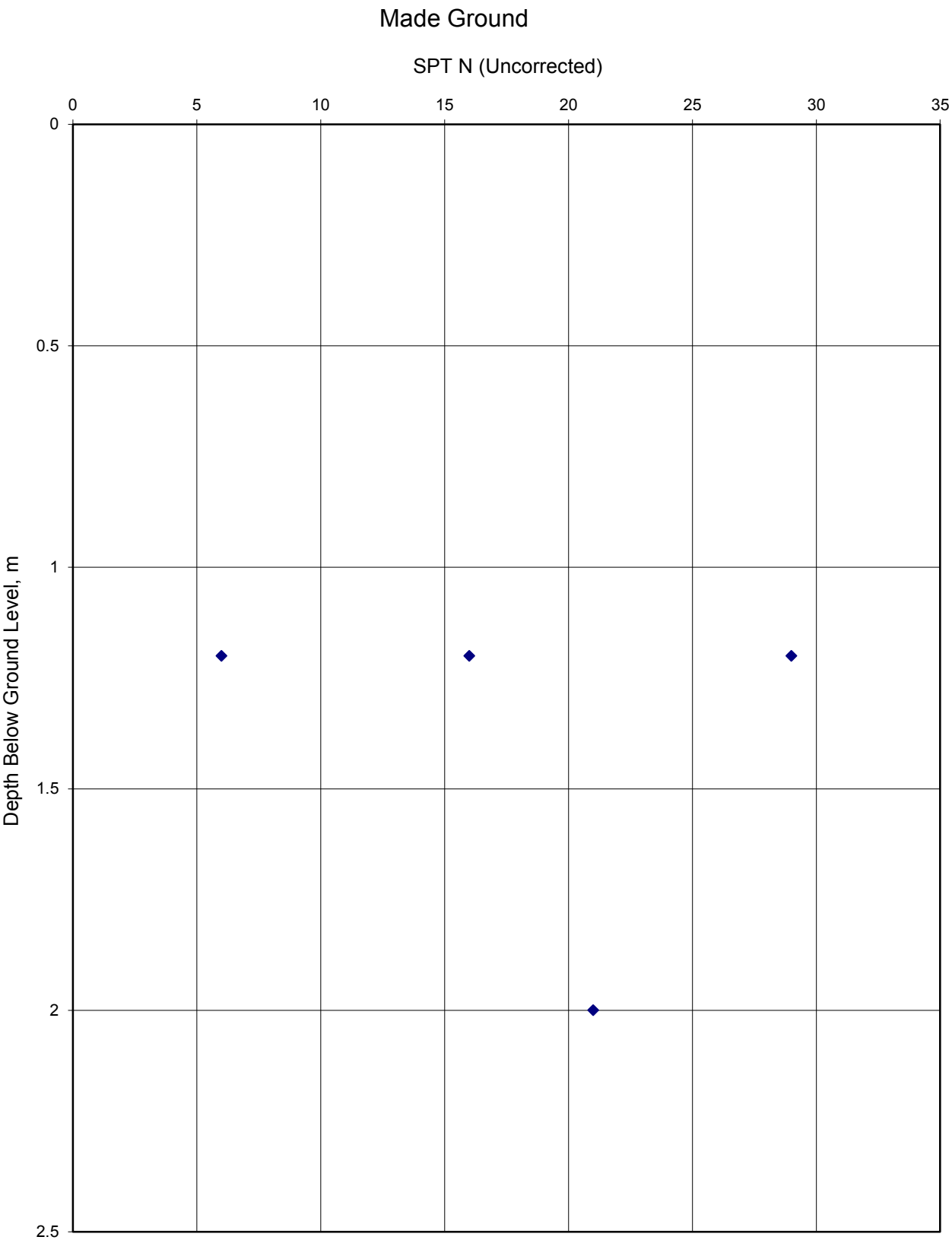
Figure

A7

SPT N Depth Profile - Made Ground (AH)

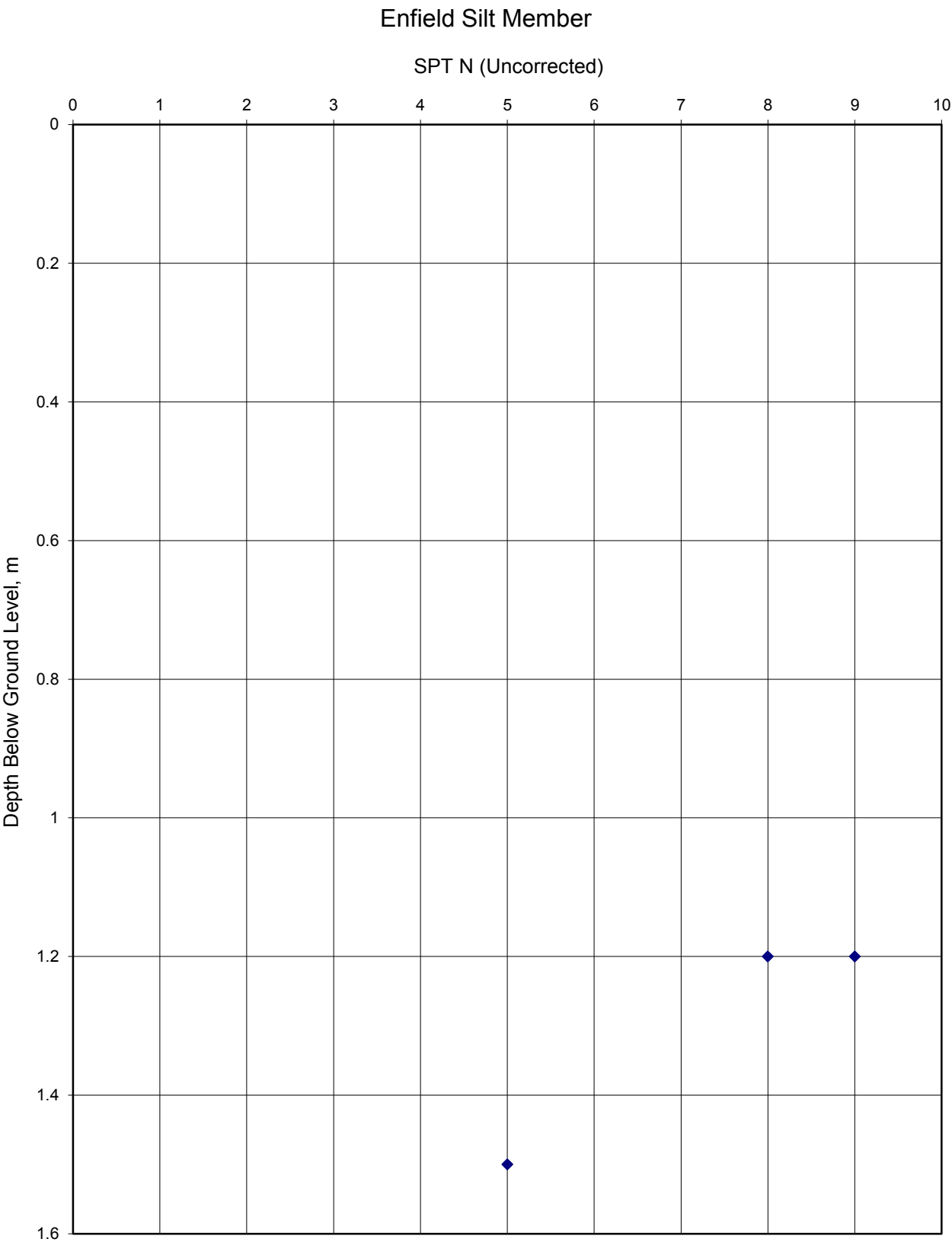


SPT N Depth Profile - Made Ground (CF)

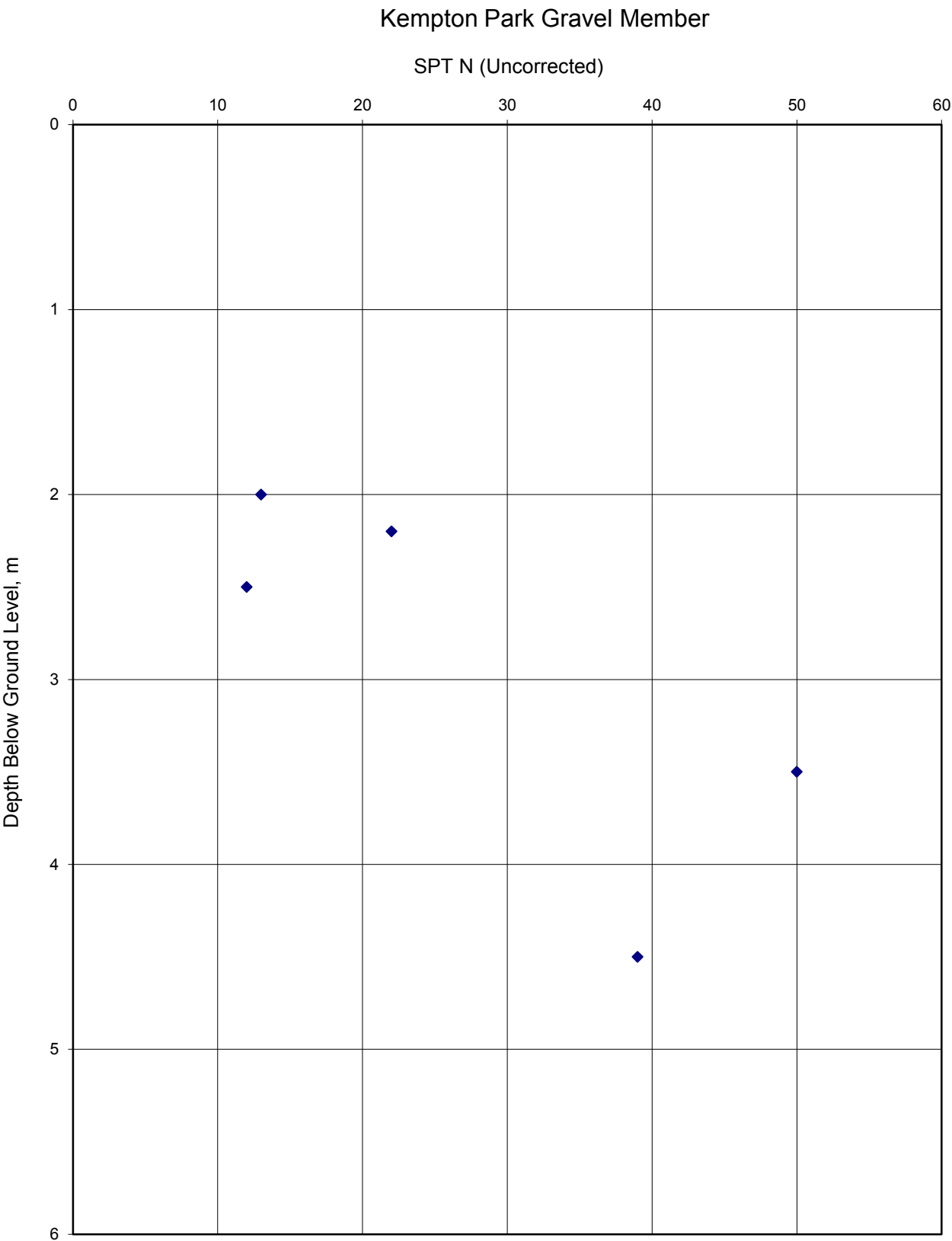


Notes:	Project Project No. Carried out for	Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London D8061-18 Notting Hill Home Ownership Ltd	Figure A9
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SPT N Depth Profile - Enfield Silt Mbr (AH)

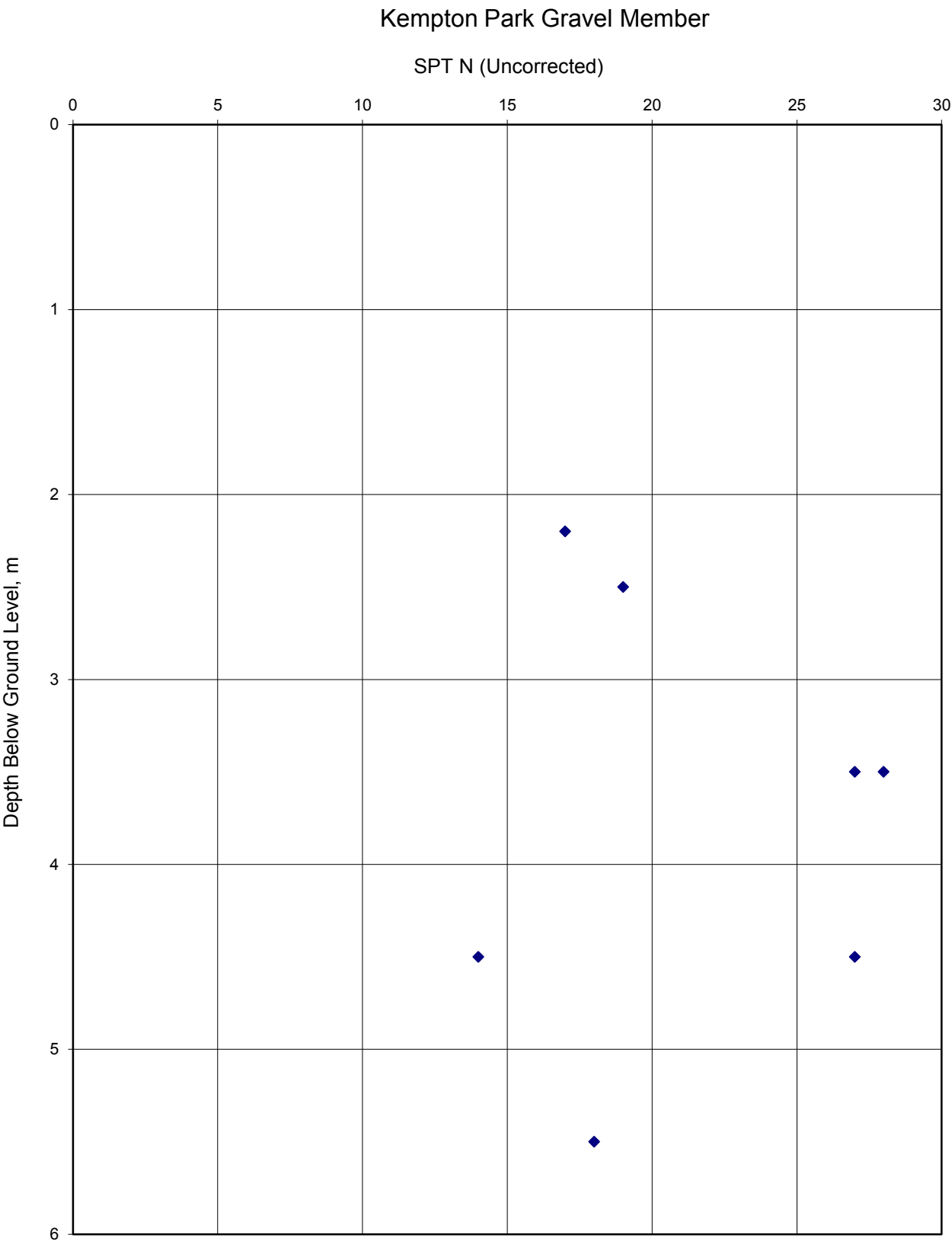


SPT N Profile - Kempton Park Gravel (AH)

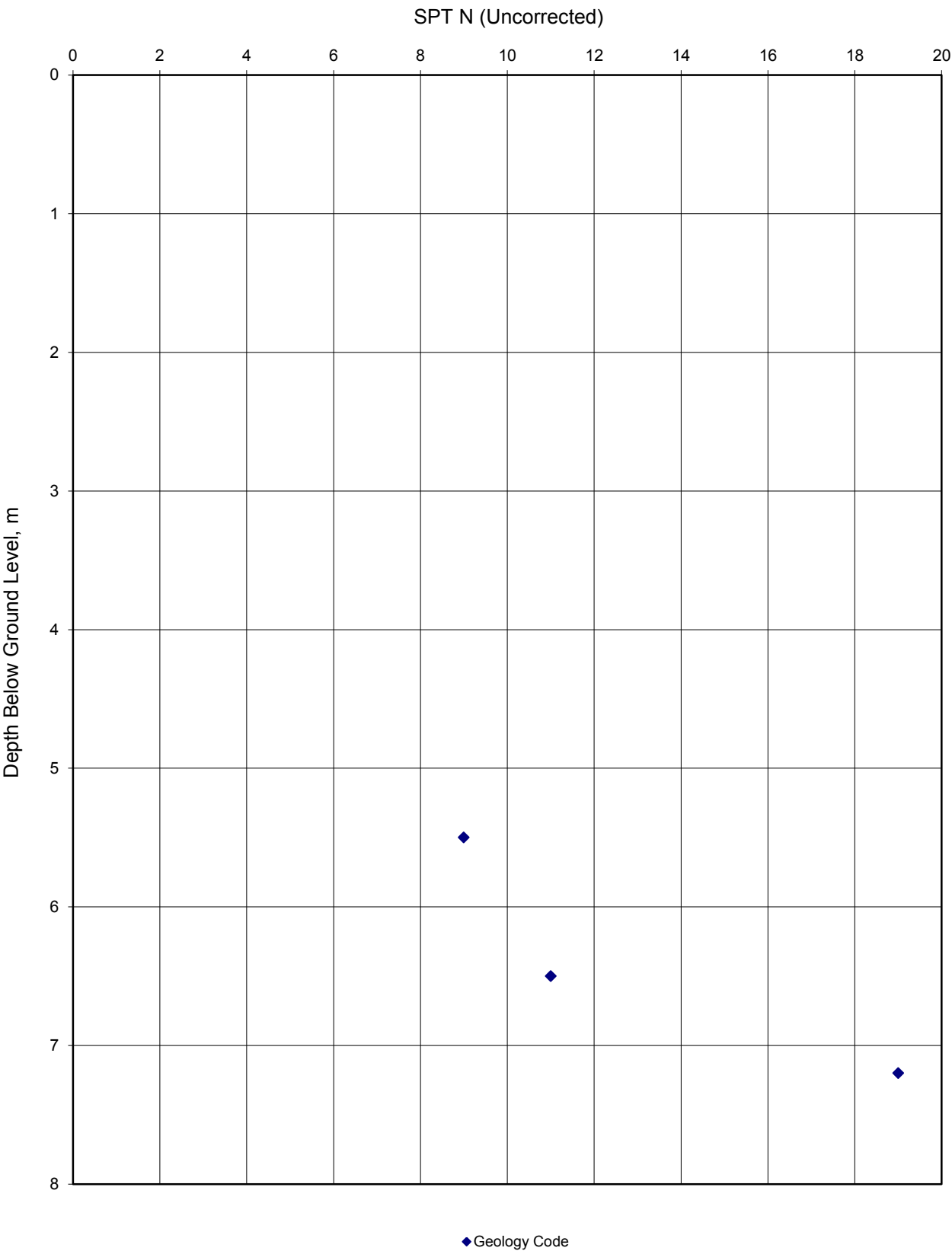


Notes:	Project Project No. Carried out for	Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London D8061-18 Notting Hill Home Ownership Ltd	Figure A11
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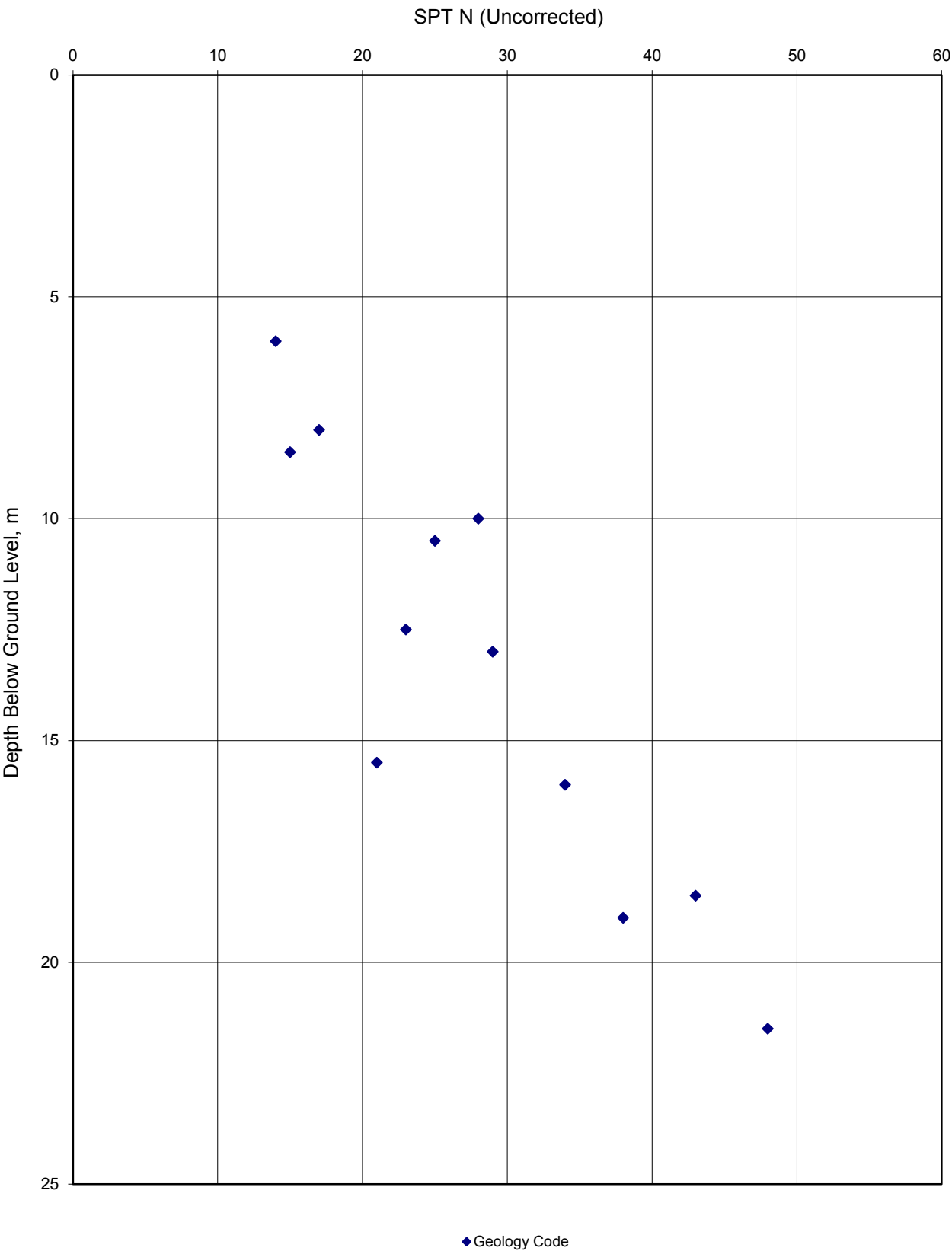
SPT N Profile - Kempton Park Gravel (CF)



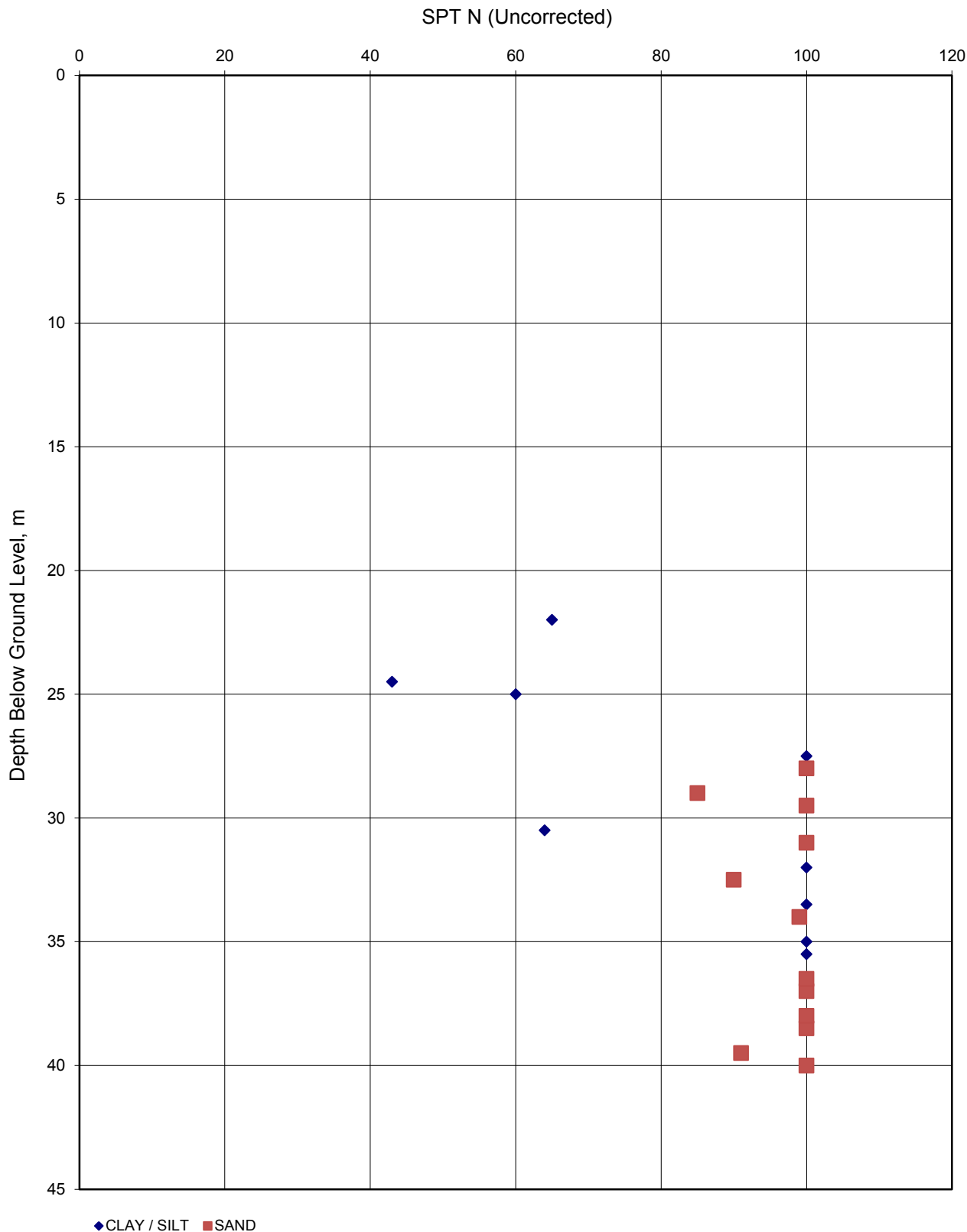
SPT N Profile - London Clay Fmn (AH)



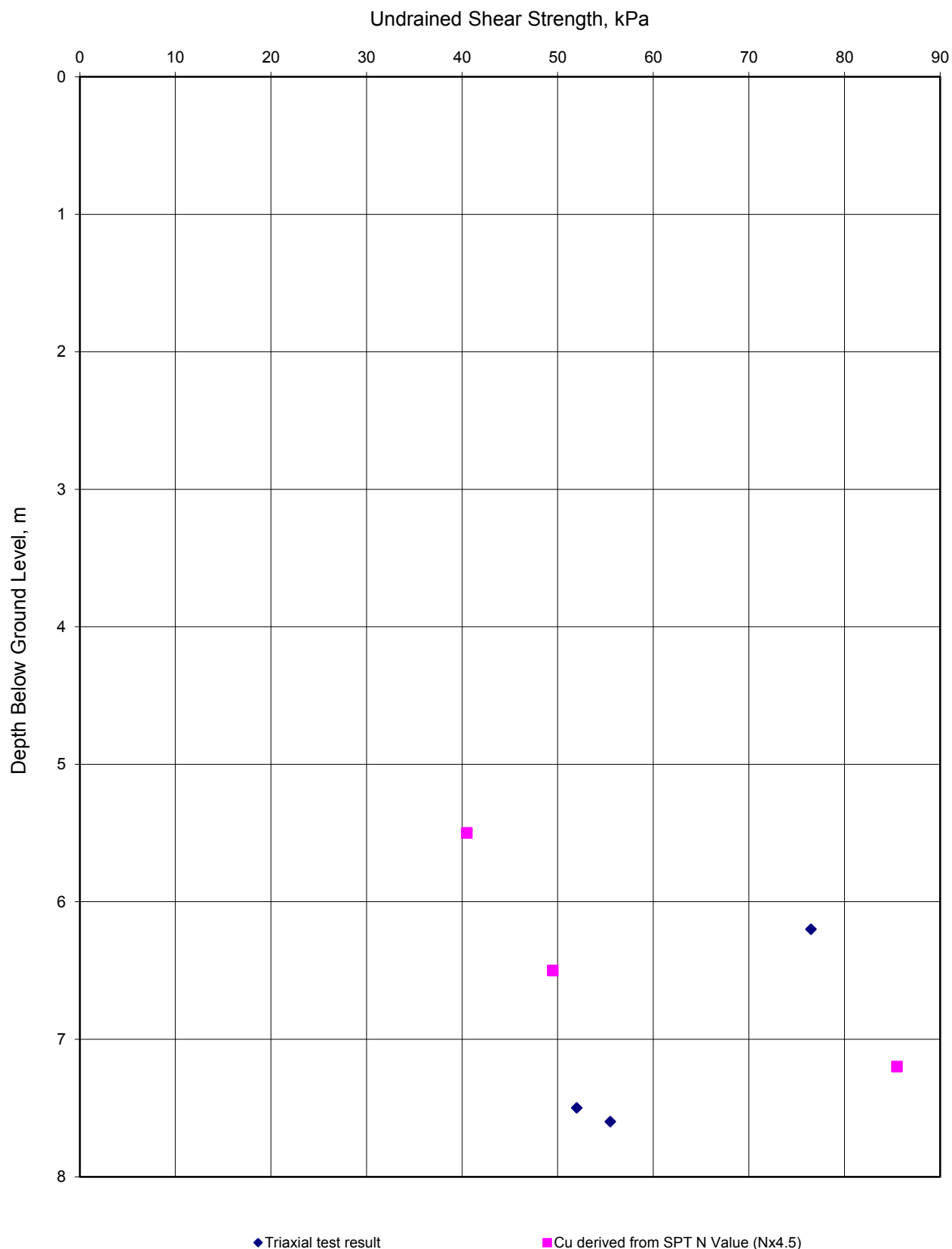
SPT N Profile - London Clay Fmn (CF)



SPT N Profile - Lambeth Group (CF)



Undrained Shear Strength Profile - LCF (AH)



Prepared: 24/11/2004 09:23

Notes:

Project

Project No.

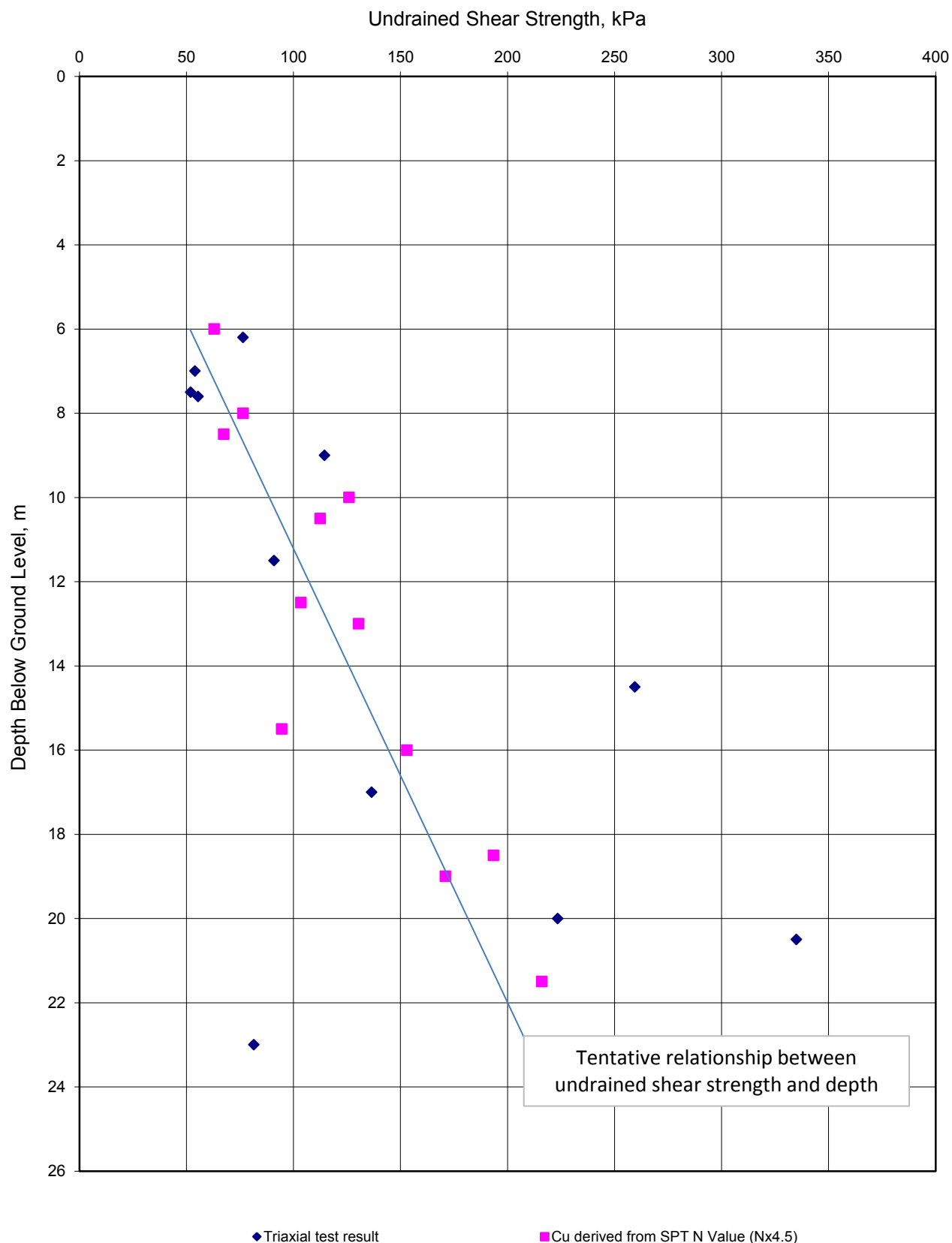
Carried out for

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Road South, Tottenham Hale, London
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Figure

A16

Undrained Shear Strength Profile - LCF (CF)



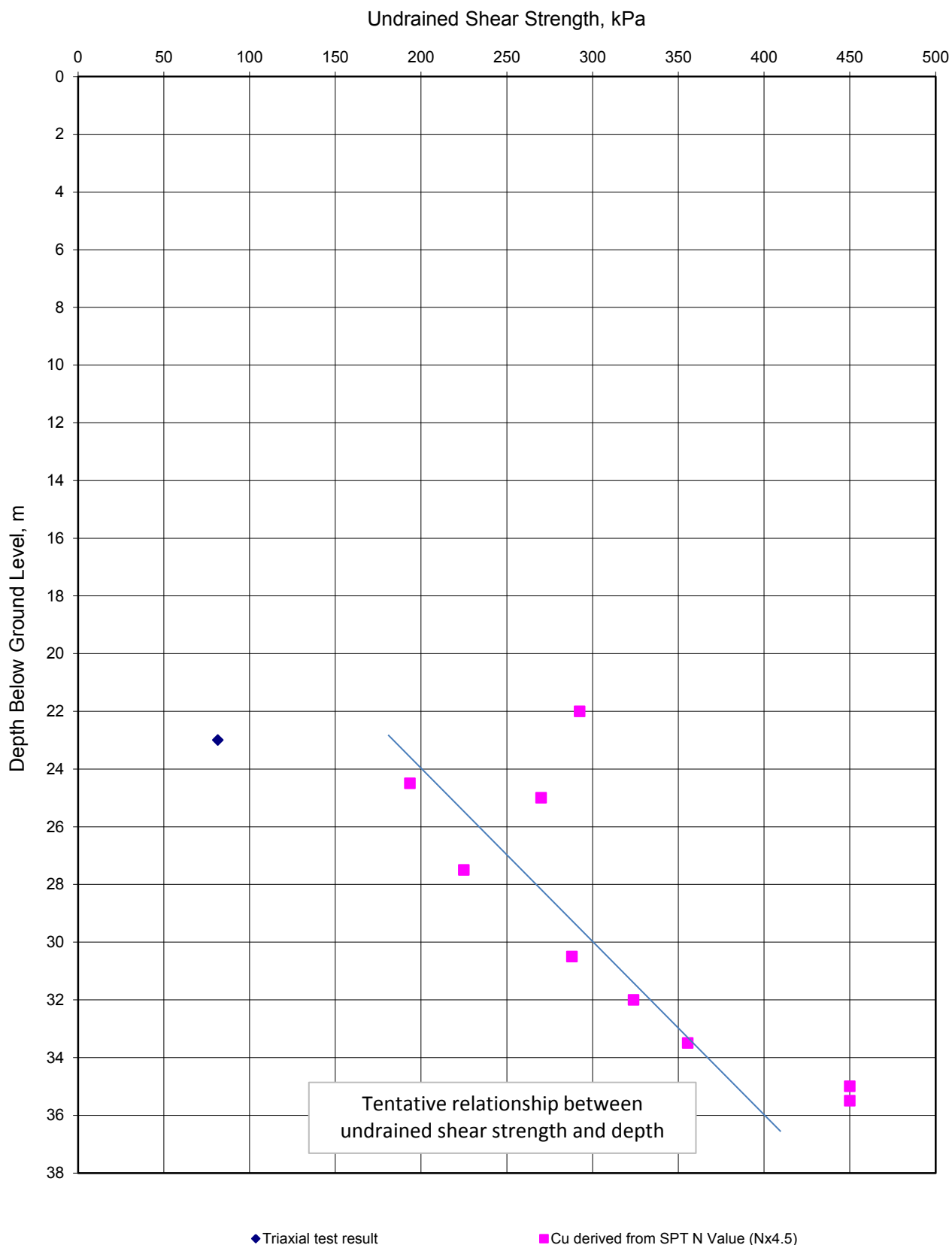
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Notes:

Project Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London
 Project No. D8061-18
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Figure **A17**

Undrained Shear Strength Profile - LG (CF)



Prepared: 24/11/2004 09:23

Notes:

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 Project No.
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Figure

A18



APPENDIX B

EXPLORATORY HOLE RECORDS

Key to Exploratory Hole Records		Key
SPT Hammer Energy Ratio Reports	SPT Hammer Reference BHDS01, SN105, TH01 and TH05	
Borehole Logs		BH01 to BH04
Dynamic Sample Hole Logs	PH1, PH1A, PH2, PH3, PH3A, PH3B and PH3C	

**SOCOTEC**

Key to Exploratory Hole Records

SAMPLES

Undisturbed

U	Driven tube sample	} nominally 100 mm diameter and full recovery unless otherwise stated
UT	Driven thin wall tube sample	
TW	Pushed thin wall tube sample	
P	Pushed piston sample	
L	Liner sample from dynamic (windowless) sampling. Full recovery unless otherwise stated	
CBR	CBR mould sample	
BLK	Block sample	
C / CS	Core sample (from rotary core) taken for laboratory testing.	
AMAL	Amalgamated sample	

Disturbed

D	Small sample
B	Bulk sample

Other

W	Water sample
G	Gas sample

	Environmental chemistry samples (in more than one container where appropriate)
ES	Soil sample
EW	Water sample

Comments

Sample reference numbers are assigned to every sample taken. A sample reference of 'NR' indicates that, while an attempt was made to take a tube sample, there was no recovery.

Samples taken from borehole installations (ie water or gas) after hole construction are not shown on the exploratory hole logs.

Specimens for point load testing undertaken on site (or other non-lab location) are not shown on the log.

IN SITU TESTS

SPT S or SPT C	Standard Penetration Test, open shoe (S) or solid cone (C)
----------------	--

The Standard Penetration Test is defined in BS EN ISO 22476-3:2005+A1:2011.

The incremental blow counts are given in the Field Records column; each increment is 75 mm unless stated otherwise and any penetration under self-weight in mm (SW) is noted. Where the full 300 mm test drive is achieved the total number of blows for the test drive is presented as N = ** in the Test column. Where the test drive blows reach 50 the total blow count beyond the seating drive is given (without the N = prefix).

IV	<i>in situ</i> vane shear strength, peak (p) and remoulded (r)
HV	Hand vane shear strength, peak (p) and remoulded (r)
PP	Pocket penetrometer test, converted to shear strength
KFH, KRH, KPI	Permeability tests (KFH = falling head, KRH = rising head; KPI = packer inflow); results provided in Field Records column (one value per stage for packer tests)

DRILLING RECORDS

The mechanical indices (TCR/SCR/RQD & If) are defined in BS 5930:2015

TCR	Total Core Recovery, %
SCR	Solid Core Recovery, %
RQD	Rock Quality Designation, %
If	Fracture spacing, mm. Minimum, typical and maximum spacing measurements are presented.
NI	The term non-intact (NI) is used where the core is fragmented.
NA	Used where a measurement is not applicable (eg. If, SCR and RQD in non-rock materials).

Flush returns, estimated percentage with colour where relevant, are given in the Records column

CRF	Core recovered (length in m) in the following run
AZCL	Assessed zone of core loss

GROUNDWATER



Groundwater entry



Depth to groundwater after standing period

Notes:

See report text for full references of standards.

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Project

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D8061-18

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Sheet 1 of 3

Key to Exploratory Hole Records

INSTALLATION

Details of standpipe/piezometer installations are given on the Record. Legend column shows installed instrument depths including slotted pipe section or tip depth, response zone filter material type and layers of backfill.

Standpipe/ piezometer

The type of instrument installed is indicated by a code in the Legend column at the depth of the response zone:

SP	Standpipe				
SPIE	Standpipe piezometer	Plain		Slotted	Piezometer
PPIE	Pneumatic piezometer	Pipe		Pipe	Tip
EPIE	Electronic piezometer				

Inclinometer or Slip Indicator

The installation of vertical profiling instruments is indicated on the Record. The base of tubing is shown in the Legend column.

ICE	The type of instrument installed is indicated by a code in the Legend column at the base of the tubing:
ICM	Biaxial inclinometer
SLIP	Inclinometer tubing for use with probe Slip indicator

Settlement Points or Pressure Cells

The installation of single point instruments is indicated on the Record. The location of the measuring device is shown in the Legend column.

	The type of instrument installed is indicated by a code in the Legend column:
ESET	Electronic settlement cell/gauge
ETM	Magnetic extensometer settlement point
EPCE	Electronic embedment pressure cell
PPCE	Electronic push in pressure cell

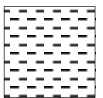
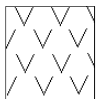
INSTALLATION / BACKFILL LEGENDS

A legend describing the installation is shown in the rightmost column. Legend symbols used to describe the backfill materials are indicated below.

Macadam	Concrete	Grout	Bentonite	Sand	Gravel	Arising
						

STRATUM LEGENDS

The legend symbols used for graphical representation of soils, rocks and other materials on the borehole logs are shown below. For soils with significant proportions of secondary soil types, a combination of two or more symbols may be used.

Macadam	Concrete	Topsoil	Made Ground / Fill	Peat	Void or No Information	
						
Clay	Silt	Sand	Gravel	Cobbles	Boulders	Coal
						
Mudstone	Siltstone	Sandstone	Conglomerate	Breccia	Limestone	Chalk
						
Igneous (Fine)	Igneous (Med)	Igneous (Coarse)	Metamorphic (Fine)	Metamorphic (Med)	Metamorphic (Coarse)	Tuff
						

Notes:

See report text for full references of standards.

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Sheet 2 of 3



Key to Exploratory Hole Records

NOTES

- 1 Soils and rocks are described in accordance with BS EN ISO 14688-1:2002+A1:2013 and 14689-1:2003 respectively as amplified by BS 5930:2015.
- 2 For fine soils, consistency determined during description is reported for those strata where undisturbed samples are available. Where the logger considers that the sample may not be representative of the condition in situ, for whatever reason, the reported consistency is given in brackets. The reliability of the sample is indicated by Probably or Possibly as appropriate. Hence (Probably firm) indicates the logger is reasonably confident of the assessment, but (Possibly firm) means less certainty. Where the samples available are too disturbed to allow a reasonable assessment of the in situ condition, no consistency is given.
- 3 Evidence of the occurrence of very coarse particles (cobbles and boulders) is presented on the logs. However, because of their size in relation to the exploratory hole these records may not be fully representative of their size and frequency in the ground mass.
- 4 The declination of bedding and joints is given with respect to the normal to the core axis. Thus in a vertical borehole this will be the dip.
- 5 The assessment of SCR, RQD and Fracture Spacing excludes artificial fractures.
- 6 Observations of discernible groundwater entries during the advancement of the exploratory hole are given at the foot of the log and in the Legend column. The absence of a recorded groundwater entry should not, however, be interpreted as a groundwater level below the base of the borehole. Under certain conditions groundwater entry may not be observed, for instance, drilling with water flush or overwater, or boring at a rate faster than water can accumulate in the borehole. Similarly, where water entry observations do exist, groundwater may also be present at higher elevations in the ground than where recorded in the borehole. In addition, where appropriate, water levels in the hole at the time of recovering individual samples or carrying out in situ tests and at shift changes are given in the Records column.
- 7 The borehole logs present the results of Standard Penetration Tests recorded in the field without correction or interpretation. However, in certain ground conditions (eg high hydraulic head or where very coarse particles are present) some judgement may be necessary in considering whether the results are representative of in situ mass conditions.

REFERENCES

- 1 BS EN ISO 14688-1:2002+A1 : 2013 : Geotechnical investigation and testing - Identification and classification of soil. Part 1 Identification and description. British Standards Institution
- 2 BS EN ISO 14689-1 : 2003 : Geotechnical investigation and testing - Identification and classification of rock. Part 1 Identification and description. British Standards Institution
- 3 BS EN ISO 22476-3:2005+A1 : 2011 : Geotechnical investigation and testing - Field testing. Part 3 Standard penetration test. British Standards Institution
- 4 BS 5930 : 2015 : Code of practice for ground investigations. British Standards Institution

Notes:

See report text for full references of standards.

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Sheet 3 of 3

Neil Burrows
Southern Testing Laboratories
Unit 11
Charlwoods Road
East Grinstead
RH19 2HU

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Test Date: 31/03/2018
Report Date: 04/04/2018
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Test Operator: CHARLWOODS

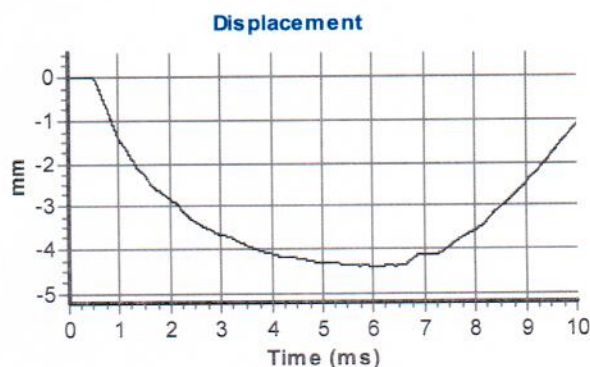
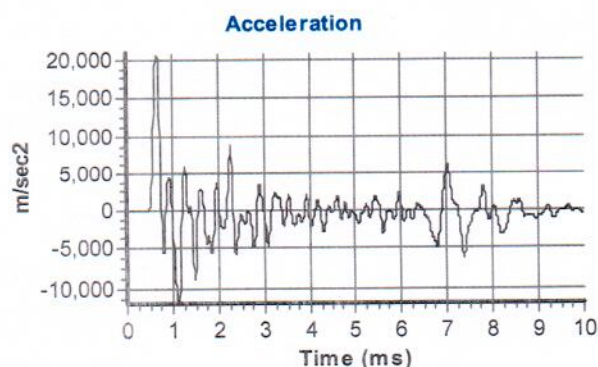
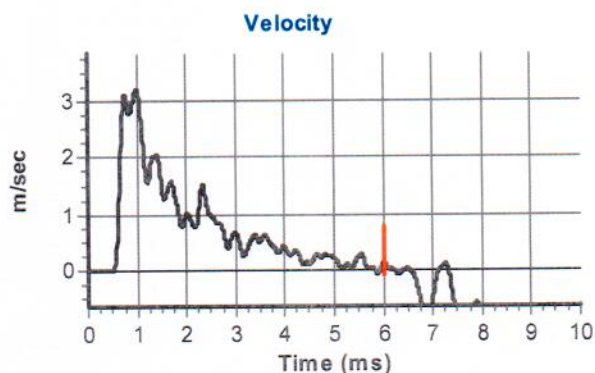
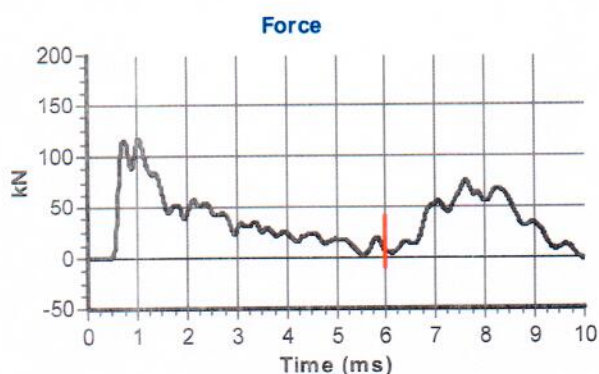
Instrumented Rod Data

Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.0
Assumed Modulus E_a (GPa): 200
Accelerometer No.1: 6458
Accelerometer No.2: 9607

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 14.5

Comments / Location SETTINGS



Calculations

Area of Rod A (mm²): 905
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 329

Energy Ratio E_r (%): **70**

Signed: N P Burrows
Title: Field Operations Manager

The recommended calibration interval is 12 months

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Stuart Simmonds
Southern Testing Laboratories
Unit 11
Charlwoods Road
East Grinstead
RH19 2HU

SPT Hammer Ref: SN105
Test Date: 02/01/2019
Report Date: 02/01/2019
File Name: SN105.spt
Test Operator: N P BURROWS

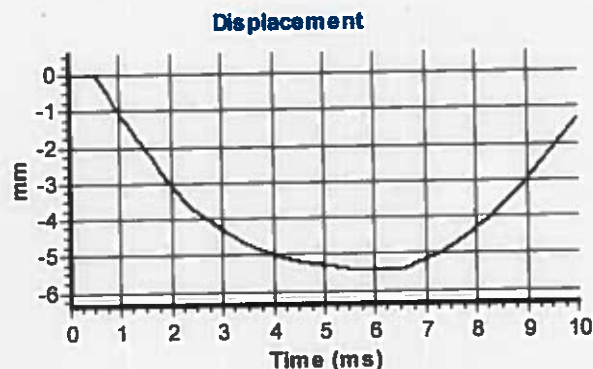
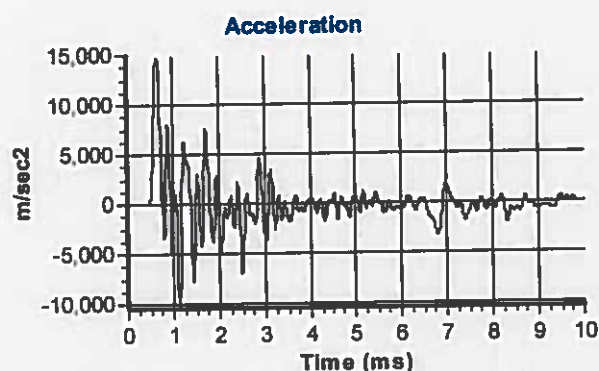
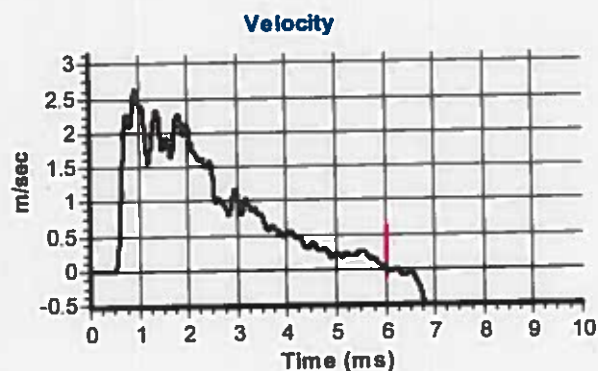
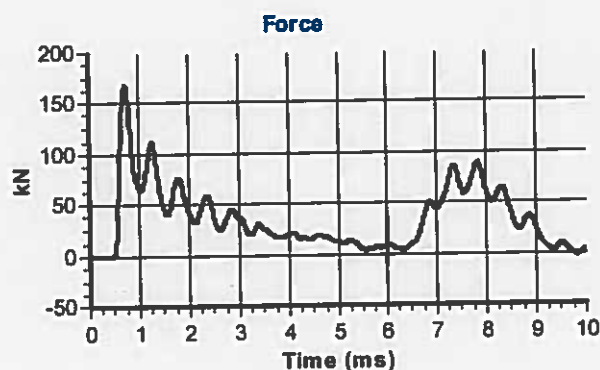
Instrumented Rod Data

Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.0
Assumed Modulus E_a (GPa): 200
Accelerometer No.1: 6458
Accelerometer No.2: 9607

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 14.5

Comments / Location
CHARLWOODS



Calculations

Area of Rod A (mm²): 905
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 367

Energy Ratio E_r (%): **78**

Signed: 
Title: Field Operations Technician

The recommended calibration interval is 12 months

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Neil Burrows
Southern Testing Laboratories
Unit 11
Charlwoods Road
East Grinstead
RH19 2HU

SPT Hammer Ref: TH01
Test Date: 02/01/2019
Report Date: 02/01/2019
File Name: TH01.spt
Test Operator: N P BURROWS

Instrumented Rod Data

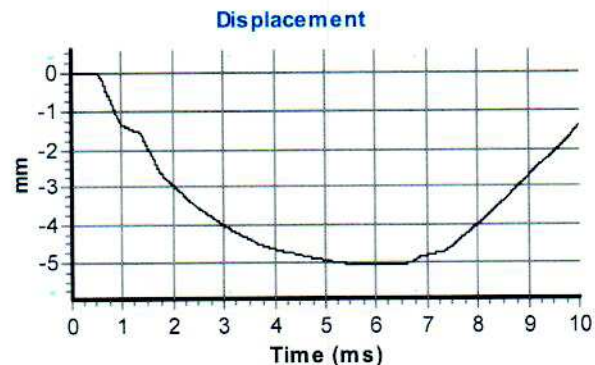
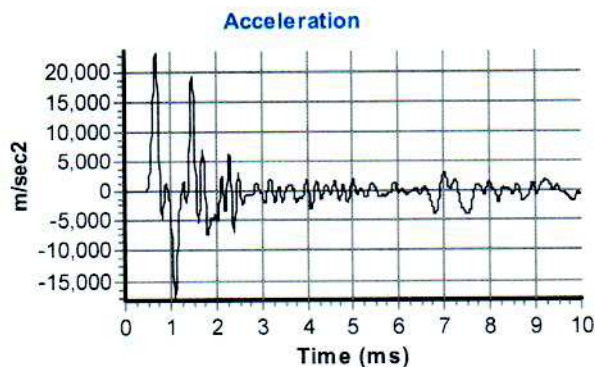
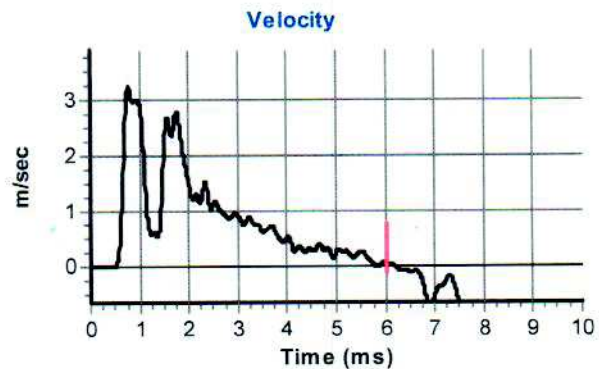
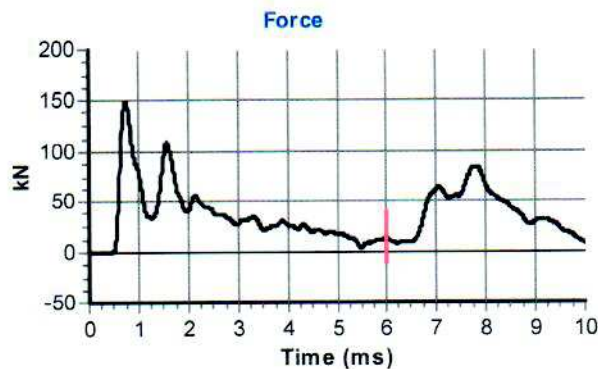
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.0
Assumed Modulus E_a (GPa): 200
Accelerometer No.1: 6458
Accelerometer No.2: 9607

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 14.5

Comments / Location

CHARLWOODS



Calculations

Area of Rod A (mm²): 905
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 330

Energy Ratio E_r (%): **70**

Signed: N P Burrows
Title: Field Operations Manager

The recommended calibration interval is 12 months

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Neil Burrows
Southern Testing Laboratories
Unit 11
Charlwoods Road
East Grinstead
RH19 2HU

SPT Hammer Ref: TH05
Test Date: 02/01/2019
Report Date: 02/01/2019
File Name: TH05.spt
Test Operator: N P BURROWS

Instrumented Rod Data

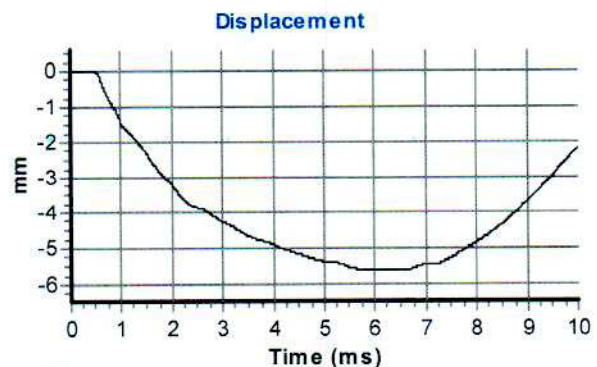
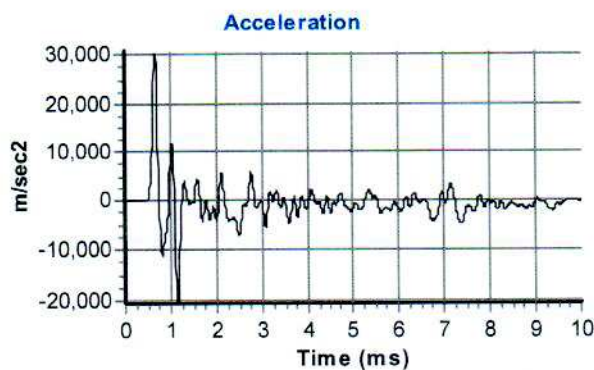
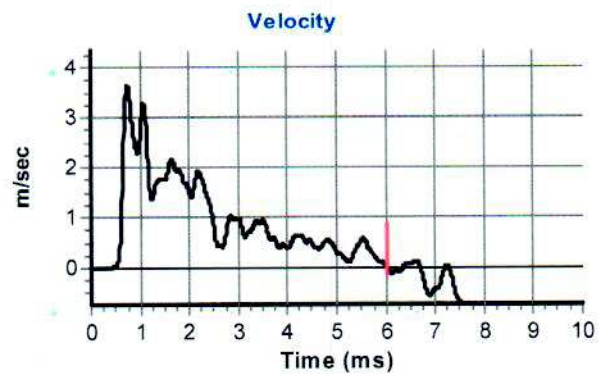
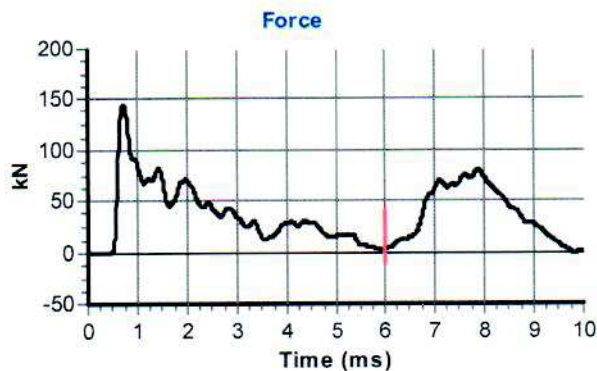
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.0
Assumed Modulus E_a (GPa): 200
Accelerometer No.1: 6458
Accelerometer No.2: 9607

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 14.5

Comments / Location

CHARLWOODS



Calculations

Area of Rod A (mm²): 905
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 356

Energy Ratio E_r (%): **75**

Signed: N P Burrows

Title: Field Operations Manager

The recommended calibration interval is 12 months

Drilled RB/KS		Start		Equipment, Methods and Remarks				Depth from (m) to (m)		Diameter (mm)		Casing Depth (m)		Ground Level		8.86 mOD			
Logged LSP		05/02/2019		Dando 3000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 40.40m.				0.00 12.00 12.00 30.50 30.50 40.40		250 200 150		5.50 30.40 39.80		Coordinates (m)		E 534424.67			
Checked EC		End												National Grid		N 189757.12			
Approved MM		19/02/2019																	
Samples and Tests								Strata Description											
Depth		Type & No.		Records		Date Casing Water		Main		Detail		Depth, Level (Thickness)		Legend		Backfill			
0.50 - 0.70 0.60 0.60		B 1 ES 2		PID=0.0 ppmv		06/02/19 0808 Dry		(MADE GROUND) Light grey reinforced CONCRETE. 40% aggregate of angular to rounded fine to coarse siliceous gravel with up to 10% small to medium voids.				(0.50)							
0.80 - 1.00 0.90 0.90 1.00		B 3 ES 4 D 5		PID=0.0 ppmv				(MADE GROUND) Yellowish dark brown gravelly fine to coarse SAND with low cobble content. Gravel is angular to rounded fine to coarse of brick, concrete and siliceous material. Cobbles are very angular to subangular of brick and concrete.				(0.30)							
1.20 - 1.65 1.20 - 1.65		SPTS D 6		N=6 (1,0/1,1,1,3)		Dry				1.20-1.50 Occasional pockets (up to 15mm) of black plastic amorphous peat.		(0.70)							
1.50 1.50		ES 7 B 8		PID=0.0 ppmv				(MADE GROUND) Very soft reddish brown slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is very angular to rounded fine to coarse of siliceous material and clinker.				1.50 +7.36							
1.50 - 1.70												(0.70)							
2.00		D 9						Very soft reddish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of siliceous material. Occasional pockets (up to 30mm) of dark grey plastic clayey amorphous peat.		2.00 Gravelly clayey fine to coarse sand.		2.20 +6.66							
2.20 - 2.65 2.20 - 2.65 2.20 - 2.50 2.50 2.50		SPTS D 10 B 11 ES 12		N=17 (2,2/3,4,4,6) PID=0.0 ppmv		06/02/19 1735 2.50 0.95		(ENFIELD SILT MEMBER) Medium dense orangish brown sandy very angular to rounded fine to coarse GRAVEL of siliceous material. Sand is fine to coarse. (KEMPTON PARK GRAVEL MEMBER)		2.20-2.50 Clayey with low cobble content. Cobbles are subangular to rounded of siliceous material.									
2.90 - 3.10		B 13				07/02/19 0747 2.50 0.95													
3.50 - 3.95 3.50 - 3.80		SPTC B 14		N=28 (1,3/4,5,8,11)		3.50 0.65						(3.20)							
4.50 - 4.95 4.50 - 4.80		SPTC B 15		N=14 (4,5/5,4,2,3)		4.50 1.20													
5.40 - 5.80		B 16						Firm to stiff dark grey slightly silty CLAY. (LONDON CLAY FORMATION)		5.40-5.80 Soft to firm slightly gravelly and slightly sandy. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of siliceous material and claystone with low cobble content. Cobbles are subangular of claystone. 6.00-6.45 Soft.		5.40 +3.46							
6.00 - 6.45 6.00 6.00 - 6.45		SPTS D 17 D 18		N=14 (1,2/2,3,4,5)		5.50 Damp						(3.60)							
7.00		D 19																	
7.50 - 7.95		UT 20		29 blows 22% rec		5.50 Dry													
8.00 - 8.45 8.00 8.00 - 8.45		SPTS D 21 D 22		N=17 (1,1/3,4,4,6)		5.50 Dry													
9.00 - 9.50 9.00		UT 24 D 23		51 blows 84% rec		5.50 Dry		Firm to stiff dark greyish brown silty CLAY. Occasional micaceous pockets (up to 4mm). (LONDON CLAY FORMATION)				9.00 -0.14							
9.50		D 25																	
Groundwater Entries								Depth Related Remarks				Hard Boring							
No.		Depth Strike (m)		Remarks		Depth Sealed (m)		Depths (m)		Remarks		Depths (m)		Duration (mins)		Tools used			
								1.20 - 40.00 2.20 - 19.00		SPT Hammer ID TH01 (Er= 70%) Water added to assist drilling.		0.00 - 0.50		195					
Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.								Project Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London				Borehole							
© Copyright SOCOTEC UK Limited								Project No. D8061-18				BH01							
Scale 1:50								Carried out for Notting Hill Home Ownership Ltd				Sheet 1 of 5							

Drilled RB/KS		Start		Equipment, Methods and Remarks				Depth from (m)		to (m)		Diameter (mm)		Casing Depth (m)		Ground Level		8.86 mOD			
Logged LSP		05/02/2019		Dando 3000				0.00		12.00		250		5.50		Coordinates (m)		E 534424.67			
Checked EC		End		Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 40.40m.				12.00		30.50		200		30.40		National Grid		N 189757.12			
Approved MM		19/02/2019						30.50		40.40		150		39.80							
Samples and Tests								Strata Description													
Depth		Type & No.		Records		Date Casing		Time Water		Main				Detail		Depth, Level (Thickness)		Legend		Backfill	
10.00 - 10.45		SPTS		N=28 (3,4/5,8,7,8)		5.50		Dry		Firm to stiff dark greyish brown silty CLAY. Occasional micaceous pockets (up to 4mm). (LONDON CLAY FORMATION)						(5.00)					
10.00		D 26																			
10.00 - 10.45		D 27																			
11.00		D 28																			
11.50 - 11.95		UT 29		45 blows 100% rec		5.50		Dry		Dark brown sandy clayey SILT. Sand is fine to medium. Occasional pockets (up to 25mm) of fine to medium light greyish brown sand. (LONDON CLAY FORMATION)				13.00-13.45 Occasional silt filled bioturbations (up to 25mm).		14.00 -5.14					
12.00		D 30				07/02/19 5.50 Dry															
						08/02/19 5.50 Dry															
13.00 - 13.45		SPTS		N=29 (5,5/7,7,7,8)		5.50		Dry													
13.00		D 31																			
13.00 - 13.45		D 32																			
14.00		D 33																			
14.50 - 14.95		UT 34		39 blows 96% rec		5.50		Dry								(2.00)					
15.00		D 35																			
16.00 - 16.45		SPTS		N=34 (5,7/8,8,9,9)		5.50		Dry		Firm to stiff dark greyish brown slightly sandy silty CLAY. Sand is fine. Occasional fine to medium sand partings (up to 3mm). (LONDON CLAY FORMATION)				18.00 Very stiff. Occasional fine sand and clay filled bioturbations (up to 2mm across).		16.00 -7.14					
16.00		D 36																			
16.00 - 16.45		D 37																			
17.00		D 38																			
17.50 - 17.95		UT 39		50 blows 100% rec		5.50		Dry								(3.00)					
18.00		D 40																			
19.00 - 19.45		SPTS		N=38 (7,7/8,9,10,11)		08/02/19 18.00		1658 Dry		Firm to stiff dark greyish brown sandy silty CLAY. Sand is fine to medium. (LONDON CLAY FORMATION)				19.00 Slightly sandy and slightly micaceous with occasional pockets (up to 5mm) of fine to medium sand. 1No. pyritised wood fragment (19x5x3mm).		19.00 -10.14					
19.00		D 41				5.50 Dry															
19.00 - 19.45		D 42				11/02/19 18.00 1237 11.70															
Groundwater Entries								Depth Related Remarks								Hard Boring					
No.		Depth Strike (m)		Remarks		Depth Sealed (m)		Depths (m)		Remarks		Depths (m)		Duration (mins)		Tools used					
Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.								Project Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London								Borehole					
© Copyright SOCOTEC UK Limited								Project No. D8061-18								BH01					
Scale 1:50								Carried out for Notting Hill Home Ownership Ltd								Sheet 2 of 5					

Borehole Log

Drilled	RB/KS	Start	Equipment, Methods and Remarks				Depth from	to	Diameter	Casing Depth	Ground Level	8.86 mOD				
Logged	LSP	05/02/2019	Dando 3000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 40.40m.				(m)	(m)	(mm)	(m)	Coordinates (m)	E 534424.67				
Checked	EC	End					0.00	12.00	250	5.50	National Grid	N 189757.12				
Approved	MM	19/02/2019					12.00	30.50	200	30.40						
							30.50	40.40	150	39.80						
Samples and Tests							Strata Description									
Depth	Type & No.	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill							
20.00	D 43				Firm to stiff dark greyish brown sandy silty CLAY. Sand is fine to medium. (LONDON CLAY FORMATION)	20.00 Slightly gravelly. Gravel is angular to subangular fine of claystone.	(2.70)									
20.50 - 20.95	UT 44	62 blows 100% rec	18.00	Damp		20.00-20.95 Occasional pockets (up to 8mm) of fine to medium sand and rare partings of fine sand and silt.										
21.00	D 45					20.96-20.99 Firm bluish dark grey. Occasional shell fragments (up to 15mm).										
21.70	D 46		11/02/19 23.00	1701 Damp	Stiff to very stiff multicoloured dark brown, greenish grey and light brown slightly gravelly silty CLAY. Gravel is rounded fine to medium of flint. (LAMBETH GROUP)	21.70 Slightly sandy. 1No. pyritised wood fragment (15x14x10mm).	21.70 -12.84									
22.00 - 22.45	SPTS D 47	N=65 (11,13/13,15,16,21)	18.00	Damp			(0.75)									
22.00 - 22.45	D 48		12/02/19 23.00	0738 Damp												
23.00	D 49				Stiff to very stiff bluish grey mottled yellowish brown CLAY. (LAMBETH GROUP)	23.00-23.95 Mottled red.	22.45 -13.59									
23.50 - 23.95	UT 50	50 blows 100% rec	22.50	Damp												
24.00	D 51															
25.00 - 25.45	SPTS D 52	N=60 (12,13/13,15,15,17)	25.00	Damp		25.00 Locally mottled red.	(4.95)									
25.00 - 25.45	D 53															
26.00	D 54															
26.50 - 26.80	UT 55	75 blows 60% rec	24.00	Damp		26.00 Firm to stiff whitish grey and light yellowish brown mottled becoming sandy and silty. Sand is fine to medium.										
26.90	D 56					26.50-26.80 Very soft light greenish grey with light yellowish brown mottling.										
27.40	D 57					26.90-27.40 Very stiff whitish grey with white mottling clayey silt (possible calcrete).	27.40 -18.54									
28.00 - 28.30	SPTS D 58	100 (14,11 for 35mm/26,45,29 for 45mm)	12/02/19 27.40	1700 Damp	Very dense greenish grey to greenish brown silty fine to coarse SAND. (LAMBETH GROUP)	27.40-28.00 Light reddish brown mottling.										
28.00 - 28.45	D 59		14/02/19 27.40	0737 Damp		28.00-28.45 Multicoloured greenish grey, yellowish brown, white and reddish brown. Occasional pockets (up to 5mm) of reddish brown silt.										
29.00	D 60															
29.50 - 29.80	SPTS D 61	100 (17,8 for 15mm/29,41,30 for 55mm)	29.50	Damp		29.50-29.80 Yellowish brown, white and reddish brown. Occasional pockets (up to 5mm) of reddish brown silt.	(5.10)									
29.50 - 29.80																
Groundwater Entries					Depth Related Remarks				Hard Boring							
No.	Depth Strike (m)	Remarks	Depth Sealed (m)		Depths (m)	Remarks			Depths (m)	Duration (mins)	Tools used					
									26.80 - 27.40	65						
									28.00 - 30.10	130						
Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London				Borehole							
Scale 1:50 © Copyright SOCOTEC UK Limited					Project No. D8061-18				BH01							
12/03/2019 10:47:07					Carried out for Notting Hill Home Ownership Ltd											

BH01

Sheet 3 of 5

Borehole Log



Drilled	RB/KS	Start	Equipment, Methods and Remarks		Depth from	to	Diameter	Casing Depth	Ground Level	8.86 mOD
Logged	LSP	05/02/2019	Dando 3000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 40.40m.		0.00	12.00	250	5.50	Coordinates (m)	E 534424.67
Checked	EC	End			12.00	30.50	200	30.40	National Grid	N 189757.12
Approved	MM	19/02/2019			30.50	40.40	150	39.80		

Samples and Tests					Strata Description				
Depth	Type & No.	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
30.10 - 30.40	B 62		14/02/19 30.40	1716 Damp	Very dense greenish grey to greenish brown silty fine to coarse SAND. (LAMBETH GROUP)	30.10-30.40 Slightly silty and slightly gravelly. Gravel is subangular to rounded fine to coarse of siliceous material and claystone.			
			15/02/19 30.40	0727 19.60		31.00-32.00 Black mottling.			
31.00 - 31.26 31.00 - 31.20	SPTC B 63	50 (19,6 for 65mm/27,23 for 48mm)	31.00	19.60					
31.50 - 32.00	B 64								
32.50 - 32.95 32.50 - 32.95 32.50 - 32.80	SPTS D 65 B 66	N=90 (12,13/18,25,24,23)	32.50	18.70	Very dense dark brown silty fine to coarse SAND. (LAMBETH GROUP)	32.50-32.80 Black mottling and sandy clay pockets (up to 120mm). 32.50-32.95 2No. light grey sand partings (up to 10mm thick).	32.50 -23.64		
33.00	D 67						(1.95)		
34.00 - 34.43 34.00 34.00 - 34.45	SPTS D 68 D 69	N=99 (10,15 for 55mm/19,24,27,29)	15/02/19 34.00 19/02/19 34.00	1542 18.60 0730 16.00		34.00-34.45 Frequent light grey fine to coarse sand partings (up to 4mm thick).	34.45 -25.59		
35.00	D 70				Soft to firm dark brown slightly clayey sandy SILT. Sand is fine to coarse. Occasional pockets (up to 12mm) of fine to coarse sand. (LAMBETH GROUP)		(1.35)		
35.50 - 35.70 35.50 - 35.80	SPTS D 71	100 (23,2 for 5mm/52,48 for 40mm)	35.50	19.00					
35.80 - 36.10	B 72				Very dense dark brown silty fine to coarse SAND. (LAMBETH GROUP - UPNOR FORMATION)		35.80 -26.94		
36.80 - 37.00 37.00 - 37.40 37.00 - 37.45 37.10	B 73 SPTS D 74 D 75	100 (15,10 for 40mm/18,24,37,21 for 55mm)	37.00	19.00		36.80-37.00 Slightly clayey, slightly gravelly. Gravel is angular to subangular fine to coarse of claystone. 37.00-37.45 Stiff to very stiff dark brown slightly sandy silty clay with frequent sand partings (up to 5mm thick). 37.80-38.00 Slightly clayey, Slightly gravelly. Gravel is rounded fine to coarse of black flint.	(4.60)		
37.80 - 38.00	B 76								
38.50 - 38.71 38.50 - 38.80	SPTS D 77	50 (15,10 for 15mm/27,23 for 45mm)	38.50	19.00					
39.50 - 39.80	B 78					39.50-39.80 Slightly clayey and slightly gravelly. Gravel is subangular fine to medium of claystone.			

Groundwater Entries			Depth Related Remarks		Hard Boring			
No.	Depth Strike (m)	Remarks	Depth Sealed (m)	Depths (m)	Remarks	Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.	Project Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London	Borehole BH01
Scale 1:50 © Copyright SOCOTEC UK Limited 12/03/2019 10:47:07	Project No. D8061-18 Carried out for Notting Hill Home Ownership Ltd	Sheet 4 of 5

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[illegible]

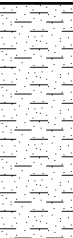
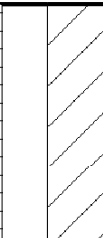
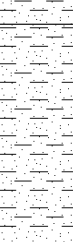
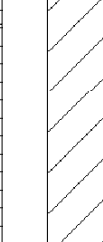
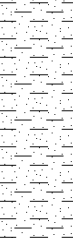
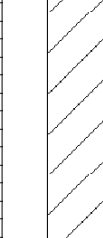
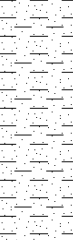
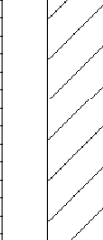
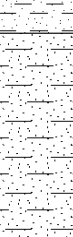
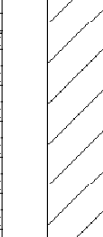
Drilled	RB/JS	Start	Equipment, Methods and Remarks			Depth from	to	Diameter	Casing Depth	Ground Level	8.75 mOD
Logged	LP/JE/ME	17/01/2019	Dando 3000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 39.95m.			(m)	(m)	(mm)	(m)	Coordinates (m)	E 534464.60
Checked	EC	End				0.00	7.00	250	7.00	National Grid	N 189758.45
Approved	MM	04/02/2019				7.00	29.00	200	24.50		
Samples and Tests						Strata Description					
Depth	Type & No.	Records	Date	Time	Main	Detail	Depth, Level (Thickness)	Legend	Backfill		
			Casing	Water							
0.30	ES 1	PID=0.0 ppmv	17/01/19	1130	(MADE GROUND) Light grey CONCRETE.	0.60-0.80 Rare cobbles of very angular to subangular concrete and brick.	(0.30)				
0.30 - 0.50	B 2			Dry			+8.45				
0.60 - 0.80	B 4	PID=0.2 ppmv			(MADE GROUND) Brown slightly silty gravelly fine to coarse SAND with low cobble content. Gravel is angular to subrounded fine to coarse of siliceous material, brick, clinker and concrete. Cobbles are angular to subrounded of brick and concrete.	2.50-4.50 Moderate to strong hydrocarbon odour.	(0.20)				
0.70	ES 3						+8.25				
0.70	B 5	PID=0.3 ppmv			(MADE GROUND) Very soft dark brown mottled black slightly sandy locally sandy, gravelly locally very gravelly CLAY. Gravel is very angular to subrounded fine to coarse of brick, clinker, siliceous material and chert. Driller notes ash.	Occasional black organic matter and moderate hydrocarbon odour. 1.20 Strong hydrocarbon odour.	(1.60)				
0.80 - 1.10	ES 6			Dry							
0.90	SPTS	N=29 (2,3/6,10,7,6)				2.50-4.50 Moderate to strong hydrocarbon odour.	(1.60)				
0.90	D 7										
1.20 - 1.65		PID=0.4 ppmv				2.50-4.50 Moderate to strong hydrocarbon odour.	(1.60)				
1.20	ES 8										
1.60			17/01/19	1646	Brown with dark grey mottled brown slightly silty gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of siliceous material. Moderate to strong hydrocarbon odour. Driller notes contamination. (KEMPTON PARK GRAVEL MEMBER)	2.50-4.50 Moderate to strong hydrocarbon odour.	2.10				
1.60			2.20	Dry			(0.10)			+6.65	
2.10 - 2.20	B 9	PID=0.3 ppmv	18/01/19	1715	Medium dense greyish brown mottled orangish brown sandy subangular to well rounded fine to coarse GRAVEL of siliceous material with low cobble content. Cobbles are subangular to well rounded of siliceous material. Driller notes oily contamination. (KEMPTON PARK GRAVEL MEMBER)	4.50-6.80 Weak hydrocarbon odour.	2.20				
2.20	ES 10		2.50	0.95			(0.10)			+6.55	
2.50 - 2.95	SPTC	N=19 (3,4/5,4,5,5)	18/01/19	0812	Medium dense orangish brown gravelly fine to coarse SAND with low cobble content. Gravel is angular to well rounded fine to coarse of siliceous material. Cobbles are subangular to subrounded of siliceous material (up to 100mm). (KEMPTON PARK GRAVEL MEMBER)	4.50-6.80 Weak hydrocarbon odour.	(2.50)				
2.50	ES 11	PID=0.0 ppmv	2.20	Dry							
2.50	EW 12		2.50	1.70		4.50-6.80 Weak hydrocarbon odour.	(2.50)				
2.50	B 13		25/01/19	0806							
2.50 - 2.70			2.50	1.30		4.50-6.80 Weak hydrocarbon odour.	(2.50)				
3.50 - 3.95	SPTC	N=27 (3,4/5,7,7,8)	3.50	2.80	Firm dark greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to medium of siliceous material. Occasional lenses (up to 40mm) of yellowish brown medium to coarse sand. (LONDON CLAY FORMATION)	6.70-7.00 Locally thinly laminated.	(2.50)				
3.50	ES 14	PID=0.1 ppmv									
3.50	B 15					6.70-7.00 Locally thinly laminated.	(2.50)				
3.50 - 3.70											
4.50 - 4.95	SPTC	N=27 (2,3/5,6,7,9)	4.50	2.70	Stiff locally thinly laminated bluish grey slightly sandy CLAY. Sand is fine to coarse. (LONDON CLAY FORMATION)	6.70-7.00 Locally thinly laminated.	(2.50)				
4.50	ES 17	PID=0.2 ppmv									
4.50	B 16					6.70-7.00 Locally thinly laminated.	(2.50)				
4.50 - 4.70											
5.50 - 5.95	SPTC	N=18 (2,5/6,4,3,5)	5.50	1.90	Stiff locally thinly laminated bluish grey slightly sandy CLAY. Sand is fine to coarse. (LONDON CLAY FORMATION)	6.70-7.00 Locally thinly laminated.	(2.00)				
5.50	ES 18	PID=0.0 ppmv									
5.50	B 19					6.70-7.00 Locally thinly laminated.	(2.00)				
5.50 - 5.70											
6.70 - 7.00	B 20	PID=0.0 ppmv			Stiff locally thinly laminated bluish grey slightly sandy CLAY. Sand is fine to coarse. (LONDON CLAY FORMATION)	6.70-7.00 Locally thinly laminated.	(2.00)				
6.80	ES 21										
6.80	UT 22	24 blows 100% rec	6.90	Damp		6.70-7.00 Locally thinly laminated.	(1.30)				
7.00 - 7.45			25/01/19	1645							
			7.00	Dry		6.70-7.00 Locally thinly laminated.	(1.30)				
7.50	D 23		28/01/19	0751							
			7.00	Dry		6.70-7.00 Locally thinly laminated.	(1.30)				
8.00	D 24										
8.50 - 8.95	SPTS	N=15 (2,2/3,3,4,5)	8.00	Dry	Stiff locally thinly laminated bluish grey slightly sandy CLAY. Sand is fine to coarse. (LONDON CLAY FORMATION)	6.70-7.00 Locally thinly laminated.	(1.30)				
8.50	D 25										
9.00	D 26					6.70-7.00 Locally thinly laminated.	(1.30)				
9.50 - 9.95	UT 27	48 blows 31% rec	9.00	Dry		6.70-7.00 Locally thinly laminated.	(1.30)				
Groundwater Entries					Depth Related Remarks			Hard Boring			
No.	Depth	Strike (m)	Remarks	Depth Sealed (m)	Depths (m)	Remarks	Depths (m)	Duration (mins)	Tools used		
					1.20 - 39.50	SPT Hammer ID TH01 (Er= 70%)	0.00 - 0.30	80			
					2.20 - 6.70	Water added to assist drilling.	0.30 - 1.20	70			
					6.50 - 7.50	Bentonite seal.					
					7.50 - 17.00	Water added to assist drilling.					
Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London			Borehole			
© Copyright SOCOTEC UK Limited					Project No. D8061-18			BH02			
Scale 1:50					Carried out for Notting Hill Home Ownership Ltd			Sheet 1 of 4			

Drilled	RB/JS	Start	Equipment, Methods and Remarks			Depth from	to	Diameter	Casing Depth	Ground Level	8.75 mOD
Logged	LP/JE/ME	17/01/2019	Dando 3000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 39.95m.			(m)	(m)	(mm)	(m)	Coordinates (m)	E 534464.60
Checked	EC	End				0.00	7.00	250	7.00	National Grid	N 189758.45
Approved	MM	04/02/2019				7.00	29.00	200	24.50		
Samples and Tests						Strata Description					
Depth	Type & No.	Records	Date	Time	Main	Detail	Depth, Level (Thickness)	Legend	Backfill		
			Casing	Water							
10.00	D 28				Stiff locally thinly laminated bluish grey slightly sandy CLAY. Sand is fine to coarse. (LONDON CLAY FORMATION)						
10.50 - 10.95 10.50 - 10.95	SPTS D 29	N=25 (4,5/5,6,6,8)	9.00	Dry							
11.00	D 30										
11.50 - 11.95	UT 31	49 blows 31% rec	9.00	Dry							
12.00	D 32				12.00-16.00 occasional pockets (up to 5mm) of fine sand.						
12.50 - 12.95 12.50 - 12.95	SPTS D 33	N=23 (3,4/4,5,6,8)	9.00	Dry				(9.50)			
13.50	D 34										
14.50 - 14.95 14.50	UT 35 D 36	50 blows 31% rec	9.00	Dry							
15.00	D 37				16.00 Becoming brownish grey with occasional lenses (up to 30mm) of fine sand.						
15.50 - 15.95 15.50 - 15.95	SPTS D 38	N=21 (3,4/4,5,6,6)	9.00	Dry							
16.00	D 39										
17.00 - 17.45	UT 40	50 blows 100% rec	9.00	Dry							
17.50	D 41		28/01/19 9.00	1705 Dry	Firm to stiff brownish grey to dark grey sandy CLAY. Occasional pockets (up to 5mm) of fine to medium sand. (LONDON CLAY FORMATION)			17.50	-8.75		
18.00	D 42		29/01/19 9.00	0800 Damp							
18.50 - 18.95 18.50 - 18.95	SPTS D 43	N=43 (6,8/8,10,11,14)	15.00	Dry							
19.00	D 44										
Groundwater Entries					Depth Related Remarks			Hard Boring			
No.	Depth	Strike (m)	Remarks	Depth Sealed (m)	Depths (m)	Remarks	Depths (m)	Duration (mins)	Tools used		
Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London			Borehole			
Scale 1:50 © Copyright SOCOTEC UK Limited 12/03/2019 10:47:08					Project No. D8061-18 Carried out for Notting Hill Home Ownership Ltd			BH02 Sheet 2 of 4			

Borehole Log



Drilled RB/JS Logged LP/JE/ME Checked EC Approved MM	Start 17/01/2019 End 04/02/2019	Equipment, Methods and Remarks Dando 3000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 39.95m.	Depth from (m) 0.00 7.00 29.00	to (m) 7.00 29.00 39.95	Diameter (mm) 250 200 150	Casing Depth (m) 7.00 24.50	Ground Level 8.75 mOD Coordinates (m) E 534464.60 National Grid N 189758.45		
Samples and Tests			Strata Description						
Depth 20.00 - 20.45 20.00 20.50 21.30 21.50 - 21.95 21.50 - 21.95 22.50 - 23.00 23.00 - 23.45 23.50 24.00 24.50 - 24.95 24.50 - 24.95 25.00 26.00 - 26.45 26.00 26.00 - 26.50 27.00 27.50 - 27.65 27.50 - 27.70 28.00 28.70 28.70 - 29.00 29.00 - 29.45 29.00 - 29.45	Type & No. UT 46 D 45 D 47 D 48 SPTS D 49 B 50 UT 51 D 52 D 53 SPTS D 54 D 55 UT NR D 56 B 57 D 58 SPTS D 59 D 60 EW 61 B 62 SPTS D 63	Records 50 blows 100% rec N=48 (8,10/10,11,12,15) 74 blows 95% rec N=43 (7,9/9,10,11,13) 75 blows No Recovery 50 (25 for 72mm, 0 for 0mm/43, 7 for 5mm) N=85 (6,6/17,20,22,26)	Date 18.00 18.00 18.00 29/01/19 24.50 30/01/19 24.50 24.50 24.50 30/01/19 24.50 31/01/19 24.50	Time Dry Dry Damp Damp Damp Damp Damp Damp Damp Damp Damp	Main Stiff dark greyish brown silty CLAY. (LONDON CLAY FORMATION) Stiff fissured dark greyish brown gravelly silty CLAY. Gravel is angular to subrounded fine to coarse of siliceous material. Fissures are randomly orientated and extremely closely spaced. (LONDON CLAY FORMATION) Very stiff fissured light greenish grey mottled red and dark brown CLAY. Fissures are randomly orientated and extremely closely spaced. (LAMBETH GROUP - LOWER MOTTLED BEDS) Firm to stiff fissured light whitish grey silty CLAY. Fissures are randomly orientated extremely closely spaced. (LAMBETH GROUP - LOWER MOTTLED BEDS) Firm to stiff greenish grey to grey with mottled light brown slightly clayey sandy SILT. Sand is fine to coarse. (LAMBETH GROUP - LOWER MOTTLED BEDS) Very dense greenish dark brown mottled white slightly clayey fine to coarse SAND. (LAMBETH GROUP - LOWER MOTTLED BEDS) 28.70 Grey. 29.00 Rare orangish brown mottling.	Detail 20.50 Becoming slightly sandy and bioturbation. 22.50-23.00 Slightly gravelly. Gravel is subrounded to rounded fine to coarse of siliceous material. 23.50 Grey mottled yellowish brown and reddish brown. 25.00-26.00 Light greenish grey. 25.00-27.00 Becoming silty. 27.00 Rare pockets (up to 20mm) of light grey clay. 28.00 Rare pocket (up to 40mm) of white silt. 29.00 Rare orangish brown mottling.	Depth, Level (Thickness) (1.30) 21.30 -12.55 (1.20) 22.50 -13.75 (4.50) 27.00 -18.25 (0.50) 27.50 -18.75 (0.50) 28.00 -19.25 (2.00) 30.00 -21.25	Legend 	Backfill
Groundwater Entries No. 1 Depth Strike (m) 28.70 Remarks Rose to 27.10 m after 20 minutes.			Depth Related Remarks Depth Sealed (m)			Hard Boring Depths (m) Duration (mins) Tools used			
Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. Scale 1:50 © Copyright SOCOTEC UK Limited 12/03/2019 10:47:08			Project Project No. D8061-18 Carried out for Notting Hill Home Ownership Ltd			Borehole BH02 Sheet 3 of 4			

Drilled	RB/JS	Start	Equipment, Methods and Remarks			Depth from	to	Diameter	Casing Depth	Ground Level	8.75 mOD	
Logged	LP/JE/ME	17/01/2019	Dando 3000			(m)	(m)	(mm)	(m)	Coordinates (m)	E 534464.60	
Checked	EC	End	Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 39.95m.			0.00	7.00	250	7.00	National Grid	N 189758.45	
Approved	MM	04/02/2019				7.00	29.00	200	24.50			
Samples and Tests						Strata Description						
Depth	Type & No.	Records	Date	Time	Main	Detail	Depth, Level (Thickness)	Legend	Backfill			
			Casing	Water								
30.00	D 64				Firm greenish grey mottled light orangish brown sandy CLAY. (LAMBETH GROUP - LOWER MOTTLED BEDS)	30.50 Occasional lenses (up to 40mm) of off-white silt.	(1.70)					
30.50 - 30.95 30.50 - 30.95	SPTS D 65	N=64 (7,10/11,12,20,21)	30.00	26.60								
31.00 - 32.00	B 66											
32.00 - 32.23 32.00 - 32.40	SPTS D 67	72 (19,6 for 10mm/22,50 for 70mm)	32.00	26.60	Firm dark grey sandy CLAY. Sand is fine to coarse. Driller notes frequent black speckling. (LAMBETH GROUP - LOWER MOTTLED BEDS)	34.00 1No. grey claystone recovered as subangular coarse gravel.	(4.80)					
32.80 - 33.20	B 68											
33.50 - 33.79 33.50 - 33.80	SPTS D 69	79 (21,4 for 70mm/29,50 for 70mm)	33.50	22.50								
34.00	D 70		31/01/19 34.50	1653 22.50	Very dense dark grey clayey fine to coarse SAND. (LAMBETH GROUP - LOWER MOTTLED BEDS)	36.00 Occasional pockets (up to 4mm) of light grey sand.	(3.45)					
35.00 - 35.38 35.00 - 35.20	SPTS D 71	100 (25,0/27,34,38,1 for 1mm)	35.00	27.00								
36.00	D 72											
36.50 - 36.84 36.50 - 36.70	SPTS D 73	100 (25,0/29,36,35 for 40mm)	35.00	27.00	END OF EXPLORATORY HOLE		39.95	-31.20				
37.00	D 74											
38.00 - 38.37 38.00 - 38.45	SPTS D 75	100 (21,4 for 15mm/29,26,25,20 for 55mm)	35.00	27.00								
39.00	D 76				END OF EXPLORATORY HOLE		39.95	-31.20				
39.50 - 39.90 39.50 - 39.95	SPTS D 77	N=91 (19,6 for 20mm/21,22,24,24)	35.00	27.00								
			04/02/19 35.50	1708 24.20								
					END OF EXPLORATORY HOLE							
Groundwater Entries					Depth Related Remarks						Hard Boring	
No.	Depth	Strike (m)	Remarks	Depth Sealed (m)	Depths (m)	Remarks	Depths (m)	Duration (mins)	Tools used			
Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project						Borehole	
Scale 1:50					Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London						BH02	
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AGS					D8061-18							
12/03/2019 10:47:08					Notting Hill Home Ownership Ltd						Sheet 4 of 4	

Borehole Log



Drilled TL/BH Logged LSP Checked EC Approved MM	Start 31/01/2019 End 19/02/2019	Equipment, Methods and Remarks Dando 150 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 8.00m.	Depth from (m) 0.00 to (m) 8.00 Diameter (mm) 150 Casing Depth (m) 5.60	Ground Level 8.95 mOD Coordinates (m) E 534292.59 National Grid N 189666.98				
Samples and Tests			Strata Description					
Depth (m)	Type & No.	Records	Date Casing Time Water	Main	Detail	Depth, Level (Thickness) (m)	Legend	Backfill
0.30	ES 1	PID=0.1 ppmv	13/01/19 1715	(MADE GROUND)		(0.30)		
0.30	B 2		31/01/19 1520	Strong light grey CONCRETE. 40-50% aggregate of angular to subrounded fine to coarse siliceous gravel with 10% small to medium voids.		0.30 (0.10) +8.65		
0.30 - 0.40	ES 3	PID=0.0 ppmv	01/02/19 0745	(MADE GROUND)		(0.30)		
0.40	B 4			Yellowish brown gravelly fine to coarse SAND. Gravel is angular to rounded fine to coarse of siliceous material, brick and concrete.		0.70 (0.15) +8.25		
0.40 - 0.60	ES 5	PID=0.0 ppmv	01/02/19 1545	(MADE GROUND)		0.85 (0.15) +8.10		
0.90			1.20	Dark brown to black gravelly clayey fine to coarse SAND. Gravel is very angular to subrounded fine to coarse of brick and concrete.		(0.35)		
0.90			1.20	(MADE GROUND) CONCRETE.		1.20 +7.75		
1.50 - 1.95	SPTS	N=5 (1/1,1,1,2)	19/02/19 0730	(MADE GROUND)		(1.10)		
1.50	ES 7	PID=1.3 ppmv	1.20	Very soft dark brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to rounded of siliceous material, concrete, brick and clinker. Cobbles are angular to subangular of concrete.	2.10-2.20 Gravel is subangular to rounded fine to coarse of siliceous material.	2.30 +6.65		
1.50 - 1.60	D 6		1.20	Very soft orangish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to medium of siliceous material. Occasional pockets (up to 5mm) of black plastic clayey amorphous peat.	2.50-2.95 Slightly clayey.			
1.50 - 1.95	B 8	N=12 (2,5/3,3,1)		(ENFIELD SILT MEMBER)				
1.50 - 2.00				Medium dense to dense orangish brown sandy subangular to well rounded fine to coarse GRAVEL of siliceous material. Sand is fine to coarse.	3.50-3.95 Low cobble content. Cobbles are subrounded of siliceous material.	(3.00)		
2.10 - 2.20	D 9		2.40	(KEMPTON PARK GRAVEL MEMBER)				
2.30	ES 11	PID=2.5 ppmv						
2.30 - 2.50	B 10							
2.30 - 2.50	SPTC							
2.50 - 2.95	B 12							
2.50 - 2.95								
3.00 - 3.10	D 13							
3.50 - 3.93	SPTC	50 (4,7/10,15,13,12 for 55mm)	3.40					
3.50 - 3.95	B 14							
4.00 - 4.10	D 15							
4.50 - 4.95	SPTC	N=39 (4,4/6,8,10,15)	4.40					
4.50 - 4.95	B 16							
5.00 - 5.10	D 17							
5.30 - 5.50	B 18							
5.50 - 5.95	SPTS	N=9 (1,2/2,2,2,3)	5.40	Soft to firm dark greyish brown to dark brown slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of claystone.	5.30-5.50 Sandy. Sand is fine to coarse and. Gravel is angular to rounded fine to coarse of siliceous material.	5.30 +3.65		
5.50 - 5.95	D 19			(LONDON CLAY FORMATION)		(1.20)		
6.00 - 6.10	D 20							
6.30 - 6.40	D 21							
6.50 - 6.95	SPTS	N=11 (1,2/2,2,3,4)	5.60	Firm to stiff dark brown CLAY.	6.30-6.40 Weak light grey claystone band recovered as gravel.	6.50 +2.45		
6.50 - 6.95	D 22			(LONDON CLAY FORMATION)				
7.00 - 7.10	D 23							
7.50 - 7.95	UT 24	35 blows 100% rec	5.60		7.00-7.10 Slightly gravelly. Gravel is angular to subangular fine to medium of claystone.	(1.50)		
7.95 - 8.00	D 25		19/02/19 1700		7.95-8.00 Sheared. Shears are extremely closely spaced and randomly orientated.	8.00 +0.95		
				END OF EXPLORATORY HOLE				
Groundwater Entries No. Depth Strike (m) Remarks			Depth Sealed (m)	Depth Related Remarks Depths (m) Remarks 1.50 - 6.50 SPT Hammer ID BHDS01 (Er= 70%) 2.30 - 5.30 Water added to assist drilling.		Hard Boring Depths (m) Duration (mins) Tools used		
Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.				Project Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London Project No. D8061-18 Carried out for Notting Hill Home Ownership Ltd		Borehole BH03 Sheet 1 of 1		



Borehole Log

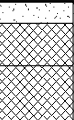
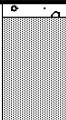


Drilled	TL/JS	Start	Equipment, Methods and Remarks		Depth from	to	Diameter	Casing Depth	Ground Level	9.02 mOD
Logged	LP	29/01/2019	Dando 3000 Hand dug inspection pit from GL to 1.20m. Cable percussion drilling from 1.20m to 8.20m.		(m)	(m)	(mm)	(m)	Coordinates (m)	E 534352.71
Checked	EC	End							National Grid	N 189649.18
Approved	MM	31/01/2019								

Samples and Tests					Strata Description				
Depth	Type & No.	Records	Date	Time	Main	Detail	Depth, Level	Legend	Backfill
			Casing	Water			(Thickness)		
0.30	ES 1	PID=0.0 ppmv	29/01/19	0730	(MADE GROUND)		(0.30)		
0.30	B 2		0.00	Dry	Strong light grey CONCRETE, 40-50% aggregate of angular to subrounded fine to coarse siliceous gravel with 10% small to medium voids.		0.30 (0.10) +8.72		
0.30 - 0.40	ES 3	PID=0.0 ppmv			(MADE GROUND)		0.40 (0.10) +8.62		
0.40	B 4				Yellowish brown gravelly fine to coarse SAND. Gravel is angular to rounded fine to coarse of siliceous material, concrete and brick.		(0.40)		
0.40					(MADE GROUND)		0.80 (0.10) +8.22		
0.40 - 0.80	ES 5	PID=0.0 ppmv	29/01/19	1730	(MADE GROUND)		0.90 (0.10) +8.12		
0.90	B 6		0.00	Dry	Dark brown to black gravelly silty fine to coarse SAND. Gravel is very angular to subrounded fine to coarse of brick and concrete. Occasional brick fragments (up to 90mm).	1.20 Occasional pockets (up to 4mm) of black plastic clayey amorphous peat.	(0.30)		
0.90 - 1.20	SPTS	N=8 (1,1/2,1,2,3)	30/01/19	0745	(MADE GROUND)		1.20 +7.82		
1.20 - 1.65	ES 8	PID=0.0 ppmv	0.00	Damp	CONCRETE.	1.60-2.20 Becoming slightly sandy with dark brown mottling.	(1.00)		
1.20	D 7			Dry	(MADE GROUND)				
1.20	B 9				Very soft dark brown slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of siliceous material, concrete, brick and clinker. Cobbles are angular to subrounded of concrete. Occasional tile fragments (up to 60mm).	2.20-2.60 Slightly silty.	2.20 +6.82		
1.20 - 1.60	ES 10	PID=0.0 ppmv			(MADE GROUND)				
1.60	B 11				Soft orangish brown slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of siliceous material.				
1.60 - 1.80	D 12				(ENFIELD SILT MEMBER)	3.20-3.70 Dark greyish brown.	(2.50)		
1.90	ES 13	PID=0.0 ppmv	2.20	Dry	Medium dense becoming very dense dark brown gravelly fine to coarse SAND. Gravel is very angular to rounded fine to coarse of siliceous material.				
2.10	SPTS	N=22 (5,5/5,5,6,6)			(KEMPTON PARK GRAVEL MEMBER)				
2.10	ES 15	PID=0.0 ppmv							
2.20 - 2.65	D 14								
2.20	B 16								
2.20	ES 17	PID=0.1 ppmv							
2.20 - 2.60	D 18								
2.70									
2.70									
2.70									
3.20 - 3.60	SPTS	50 (11,8/14,14,16,6 for 20mm)	3.20	2.20					
3.20	D 19	PID=0.0 ppmv							
3.20	B 21								
3.20	W 22								
3.20 - 3.60	D 23								
3.60									
3.70									
4.20 - 4.63	SPTS	50 (6,6/12,14,13,11 for 55mm)	4.20	2.80					
4.20	D 24								
4.20 - 4.60	B 25								
4.70	D 26				Very dense dark brown sandy angular to well rounded fine to coarse GRAVEL of siliceous material. Sand is fine to coarse. (KEMPTON PARK GRAVEL MEMBER)	4.70 Clayey.	4.70 +4.32		
5.20 - 5.62	SPTC	50 (9,10/12,13,13,12 for 50mm)	5.20	4.00					
5.20 - 5.60	B 27					5.20-5.60 Medium cobble content. Cobbles are subangular to rounded of siliceous material.	(1.00)		
5.70	D 28					5.70-6.60 Slightly sandy.	5.70 +3.32		
5.70 - 6.00	B 29				Soft dark grey slightly gravelly silty CLAY. Gravel is angular to well rounded fine to coarse of siliceous material and possible clastone. (LONDON CLAY FORMATION)				
6.20 - 6.60	UT 30	45 blows 100% rec	6.10	5.00					
6.50	D 31		30/01/19	1745					
			6.10	5.10					
6.90	D 32		31/01/19	0800					
			6.10	2.30					
7.20 - 7.65	SPTS	N=19 (2,3/3,5,5,6)	6.10	4.00					
7.20	D 33					7.20 Slightly sandy. 7.20-8.10 Locally thinly laminated.	(2.50)		
7.60 - 8.10	UT 34	50 blows 89% rec	6.10	5.00					
8.10	D 35		31/01/19	1500					
			8.10	Dry		8.10 Becoming firm to stiff.	8.20 +0.82		
					END OF EXPLORATORY HOLE				

Groundwater Entries			Depth Related Remarks		Hard Boring		
No.	Depth Strike (m)	Remarks	Depth Sealed (m)	Depths (m)	Remarks	Depths (m)	Duration (mins)
				1.20 - 7.20	SPT Hammer ID TH05 (Er= 75%)		
				2.50 - 5.70	Water added to assist drilling.		
						Tools used	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.	Project	Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London		Borehole
Scale 1:50	Project No.	D8061-18		BH04
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12/03/2019 10:47:10				Sheet 1 of 1

Drilled	DR/RM	Start	Equipment, Methods and Remarks				Depth from	to	Diameter	Casing Depth	Ground Level	9.14 mOD
Logged	LSP	16/01/2019	Hand tools Hand dug inspection pit from GL to 0.80m. Pit terminated at 0.80m due to possible concrete pipe obstruction. Relocated to PH1A.				0.00	0.80	300		Coordinates (m)	E 534348.75
Checked	EC	End									National Grid	N 189688.61
Approved	MM	16/01/2019										
Samples and Tests							Strata Description					
Depth	Type & No.	Records	Date	Time	Main	Detail	Depth, Level	Legend	Backfill			
			Casing	Water			(Thickness)					
0.60 0.60	ES 1	PID=0.1 ppmv			(MADE GROUND) Light grey CONCRETE. 50% aggregate of siliceous gravel. Gravel is angular to rounded medium to coarse. (MADE GROUND) Light brown to brown sandy angular to rounded fine to coarse GRAVEL of siliceous material with high cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of red bricks. (MADE GROUND) Very soft yellowish brown to dark brown slightly sandy gravelly CLAY with low cobble content. Sand id fine to coarse. Gravel is angular to rounded fine to coarse of brick and siliceous material. Cobbles are subrounded of siliceous material and brick. END OF EXPLORATORY HOLE		0.14 +9.00 (0.28) 0.42 +8.72 (0.38) 0.80 +8.34					

Borehole Log

Drilled DR/BL Logged LP/JE Checked EC Approved MM	Start 11/02/2019 End 11/02/2019	Equipment, Methods and Remarks C130 Dart Hand dug inspection pit from GL to 1.20m. Dynamic sampling from 1.20m to 3.00m.	Depth from (m) 0.00 1.20 2.00	to (m) 1.20 2.00 3.00	Diameter (mm) 300 88 78	Casing Depth (m)	Ground Level 8.85 mOD Coordinates (m) E 534303.65 National Grid N 189692.31	
Samples and Tests			Strata Description					
Depth 0.30 0.30 0.65 0.65 0.65 - 1.20 0.70 1.20 - 1.65 1.20 1.20 1.20 - 1.65 1.20 - 2.00 1.20 - 2.00 1.70 2.00 - 2.45 2.00 - 2.17 2.00 - 2.45 2.00 - 3.00 2.30 2.30 2.70 2.70 3.00	Type & No. ES 1 ES 2 B 12 D 3 SPTS ES 4 D 5 B 6 L ES 7 SPTS D 11 D 13 L ES 8 ES 9 D 10	Records PID=0.8 ppmv PID=1.1 ppmv N=8 (1,1/2,2,2,2) PID=7.5 ppmv 100% rec, diameter 88mm PID=28.5 ppmv N=21 (2,3/4,5,6,6) 75% rec, diameter 78mm PID=30.2 ppmv PID=9.6 ppmv	Date 11/02/19 Casing 11/02/19 Time 0800 1700 Water Dry Wet	Main (MADE GROUND) Grey CONCRETE. (MADE GROUND) Yellowish brown gravelly fine to coarse SAND. Gravel is angular to rounded fine to coarse of silicious material, brick and concrete. (MADE GROUND) Dark brown silty gravelly fine to coarse SAND with low cobble content. Gravel is very angular to rounded fine to coarse of silicious material, brick and concrete. Cobbles are very angular to angular of brick. (MADE GROUND) Very soft dark brown to black slightly gravelly silty CLAY. Gravel is subangular to rounded fine to coarse of silicious material, brick and clinker. Strong hydrocarbon odour. (MADE GROUND) Soft dark grey to black slightly sandy silty CLAY. Sand is fine to coarse. Hydrocarbon odour. (MADE GROUND) Medium dense dark grey to black sandy silty subangular to subrounded fine to coarse GRAVEL of flint. Hydrocarbon odour. (MADE GROUND) Orangish brown sandy subangular to subrounded fine to coarse GRAVEL of flint. Hydrocarbon odour. Soft brown sandy CLAY (Possible ENFIELD MEMEBER) END OF EXPLORATORY HOLE	Detail	Depth, Level (Thickness) (0.24) 0.24 (0.10) 0.34 (0.31) 0.65 +8.20 (0.55) 1.20 +7.65 (0.97) 2.17 +6.68 (0.23) 2.40 +6.45 (0.50) 2.90 +5.95 3.00 (0.10) +5.85	Legend	Backfill
Groundwater Entries No. Depth Strike (m) Remarks 1 3.00 Remained at 3.00 m after 20 minutes.			Depth Sealed (m) 3.00	Depth Related Remarks Depths (m) Remarks 1.20 - 2.00 SPT Hammer ID SN105 (Er= 78%)		Hard Boring Depths (m) Duration (mins) Tools used		
Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. Scale 1:50 © Copyright SOCOTEC UK Limited 12/03/2019 10:47:11				Project Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London Project No. D8061-18 Carried out for Notting Hill Home Ownership Ltd		Borehole PH1A Sheet 1 of 1		

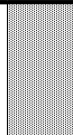
Borehole Log



Drilled	DR/RM	Start	Equipment, Methods and Remarks		Depth from	to	Diameter	Casing Depth	Ground Level	9.01 mOD	
Logged	LSP	16/01/2019	C130 Dart rig Hand dug inspection pit from GL to 1.20m. Dynamic sampling from 1.20m to 3.00m.		1.20	2.00	87	(m)	Coordinates (m)	E 534332.20	
Checked	EC	End			2.00	3.00	77		National Grid	N 189649.46	
Approved	MM	16/01/2019									
Samples and Tests					Strata Description						
Depth	Type & No.	Records	Date	Time	Main	Detail	Depth, Level (Thickness)	Legend	Backfill		
			Casing	Water							
					(MADE GROUND) Strong light grey CONCRETE. 40-50% aggregate of angular to subrounded fine to coarse siliceous gravel (10%) small to medium voids.		0.15 0.22 0.30 (0.07) (0.08) +8.86 +8.86 +8.71				
0.50	ES 1	PID=0.3 ppmv			(MADE GROUND) Yellowish brown gravelly medium to coarse SAND. Gravel is angular to subrounded fine to coarse of siliceous material. Occasional red tile fragments (up to 15mm).		(0.29) 0.59 (0.36) +8.42				
0.50	ES 2	PID=0.2 ppmv			(MADE GROUND) Strong grey CONCRETE. 40% aggregate of angular to subrounded fine to coarse siliceous gravel. 10% small to medium voids.		(0.25) 0.95 (0.25) +8.06 +7.81				
0.65					(MADE GROUND) Greyish brown gravelly medium to coarse SAND. Gravel is angular to rounded fine to coarse of siliceous material and concrete.		1.20 (0.66) +7.15				
0.65					Very soft fissured orangish brown slightly sandy CLAY. Sand is fine. Fissures are randomly orientated and extremely closely spaced.		(0.64) 1.86 (0.64) +6.51				
1.00	B 3				(ENFIELD SILT MEMBER) Fissured dark brown sandy SILT. Sand is fine. Rare pockets (4x4x2mm) of black plastic clayey amorphous peat. Fissures are randomly orientated and extremely closely spaced.		(0.20) 2.50 (0.30) +6.31				
1.20 - 1.65	SPTS	N=9 (1,2/2,3,2,2)		Dry	(ENFIELD SILT MEMBER) Soft yellowish brown and dark grey mottled slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular to rounded medium to coarse of siliceous material. Moderate organic odour.		2.70 (0.30) +6.01				
1.20 - 2.00	L	100% rec, diameter 87mm			(KEMPTON PARK GRAVEL MEMBER) Medium dense brown slightly gravelly fine to coarse SAND with low cobble content. Gravel is very angular to subangular fine to coarse of flint and chert. Cobbles are very angular to subangular of flint and chert. Frequent shell fragments (up to 4x3x1mm).						
1.50	D 4				(KEMPTON PARK GRAVEL MEMBER) Brown slightly gravelly clayey fine to coarse SAND. Gravel is very angular to subrounded medium to coarse of flint and chert. Frequent shell fragments (up to 2mm).						
1.80	D 5				(KEMPTON PARK GRAVEL MEMBER) Yellowish brown slightly silty gravelly fine to coarse SAND. Gravel is very angular to subrounded fine to coarse of flint and chert. Frequent shell fragments (up to 2mm).						
2.00 - 2.45	SPTC	N=13 (3,4/5,4,3,1)		Damp	END OF EXPLORATORY HOLE						
2.00	D 9	90% rec, diameter 77mm									
2.00 - 3.00	L										
2.45	B 6										
2.60	D 7										
2.80	D 8										
Groundwater Entries					Depth Related Remarks			Hard Boring			
No.	Depth Strike (m)	Remarks	Depth Sealed (m)		Depths (m)	Remarks	Depths (m)	Duration (mins)	Tools used		
1	3.00	Damp.			1.20 - 2.00	SPT Hammer ID SN105 (Er= 86%)					
Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project			Borehole			
Scale 1:50					Project No.			PH2			
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12/03/2019 10:47:11					Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London						
					D8061-18						
					Notting Hill Home Ownership Ltd						

Borehole Log



Drilled Logged Checked Approved	DR/RM LSP EC MM	Start 16/01/2019 End 16/01/2019	Equipment, Methods and Remarks C130 Dart rig Hand dug inspection pit from GL to 0.90m. Pit terminated at 0.90m due to possible asbestos. Moved to PH3A.		Depth from (m) 0.00	to (m) 0.90	Diameter (mm) 300	Casing Depth (m)	Ground Level Coordinates (m) E 534444.92 National Grid N 189767.36			
Samples and Tests					Strata Description							
Depth	Type & No.	Records	Date Casing	Time Water	Main		Detail	Depth, Level (Thickness)	Legend	Backfill		
0.90 0.90	ES 1 ES 2	Possible ACM Possible ACM			(MADE GROUND) Light grey CONCRETE. 50% aggregate of angular to subrounded fine to coarse siliceous gravel with 10% small voids. (MADE GROUND) Red and grey angular fine to coarse GRAVEL and COBBLES of brick and concrete possible asbestos fragments. END OF EXPLORATORY HOLE		0.20 Fine to coarse sand.	(0.40) 0.40 (0.50) 0.90	 			
Groundwater Entries					Depth Related Remarks				Hard Boring			
No.	Depth	Strike (m)	Remarks	Depth Sealed (m)	Depths (m)		Remarks	Depths (m)	Duration (mins)	Tools used		
Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. Scale 1:50 © Copyright SOCOTEC UK Limited 12/03/2019 10:47:12					Project Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London Project No. D8061-18 Carried out for Notting Hill Home Ownership Ltd				Borehole PH3 Sheet 1 of 1			

Borehole Log



Drilled Logged Checked Approved	DR/RM LSP EC MM	Start 16/01/2019 End 16/01/2019	Equipment, Methods and Remarks C130 Dart rig Hand dug inspection pit from GL to 0.25m. Pit terminated at 0.25m due to possible asbestos. Relocated to PH3C.		Depth from (m) 0.00	to (m) 0.25	Diameter (mm) 300	Casing Depth (m)	Ground Level Coordinates (m) E 534441.78 National Grid N 189768.14		
Samples and Tests					Strata Description						
Depth	Type & No.	Records	Date Casing	Time Water	Main	Detail		Depth, Level (Thickness)	Legend	Backfill	
					(MADE GROUND) Light grey CONCRETE 40-50% aggregate of angular to subrounded fine to coarse siliceous gravel with up to 10% small to medium voids. (MADE GROUND) Brownish grey sandy very angular to subangular fine to coarse GRAVEL of brick and concrete. Frequent tile fragments of possible asbestos. END OF EXPLORATORY HOLE			0.15 (0.15) 0.25 (0.10)	 		
Groundwater Entries					Depth Related Remarks				Hard Boring		
No.	Depth	Strike (m)	Remarks	Depth Sealed (m)	Depths (m) Remarks				Depths (m)	Duration (mins)	Tools used
Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column. Scale 1:50 © Copyright SOCOTEC UK Limited 12/03/2019 10:47:12					Project Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London Project No. D8061-18 Carried out for Notting Hill Home Ownership Ltd				Borehole PH3A Sheet 1 of 1		

Drilled	DR/RM	Start	Equipment, Methods and Remarks				Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)	Ground Level	8.90 mOD
Logged	LSP	06/02/2019	C130 Dart rig Hand dug inspection pit from GL to 0.60m. Pit terminated due to concrete obstruction.				0.00	0.60	300		Coordinates (m)	E 534464.43
Checked	EC	End									National Grid	N 189747.33
Approved	MM	06/02/2019										
Samples and Tests							Strata Description					
Depth	Type & No.	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill			
0.20	ES 1	PID=0.1 ppmv			(MADE GROUND) Strong light grey CONCRETE 40-50% aggregate of angular to subrounded fine to coarse of siliceous gravel with up to 10% small to medium voids.		(0.20) +8.70					
0.20					(MADE GROUND) Greyish brown slightly silty gravelly fine to coarse SAND. Gravel is angular to subrounded of brick, clinker, concrete and siliceous material.		(0.10) +8.60					
					(MADE GROUND) Strong light grey CONCRETE 40-50% aggregate of angular to subrounded fine to coarse of siliceous gravel with up to 10% small to medium voids.		(0.30) +8.30					
					END OF EXPLORATORY HOLE							
Groundwater Entries					Depth Related Remarks			Hard Boring				
No.	Depth	Strike (m)	Remarks	Depth Sealed (m)	Depths (m)	Remarks	Depths (m)	Duration (mins)	Tools used			
Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.					Project			Borehole				
Scale 1:50					Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London			PH3B				
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12/03/2019 10:47:13					Carried out for			Notting Hill Home Ownership Ltd				
AGS								Sheet 1 of 1				

Borehole Log

Drilled	DR+BL	Start	Equipment, Methods and Remarks	Depth from	to	Diameter	Casing Depth	Ground Level	8.88 mOD
Logged	JE	11/02/2019	C130 Dart Hand dug inspection pit from GL to 1.20m. Dynamic sampling from 1.20m to 3.00m	(m)	(m)	(mm)	(m)	Coordinates (m)	E 534462.21
Checked	EC	End		0.00	1.20	300		National Grid	N 189748.04
Approved	MM	12/02/2019		1.20	2.00	88			
				2.00	3.00	78			

Samples and Tests				Strata Description					
Depth	Type & No.	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
0.20	ES 1	PID=0.0 ppmv			Grey Concrete (CONCRETE)		0.17 (0.17) +8.71		
0.20	D 4				Dark brown slightly silty gravelly fine coarse SAND with high cobble content. Gravel is very angular to rounded fine to coarse of brick, concrete and silicious material. Cobbles are subangular brick.		(0.33) +8.38		
0.50	ES 3	PID=0.0 ppmv			(MADE GROUND)		0.50 (0.70)		
0.50	B 2				Brown slightly silty sandy angular to subrounded fine to coarse of flint, brick and concrete GRAVEL. Sand is fine to coarse.		(0.55) +7.68		
0.50 - 1.00					(MADE GROUND)		1.20 (0.75)		
1.20 - 1.65	SPTS	N=16 (1,2/2,2,6,6)			Soft brown slightly sandy gravelly CLAY with rare iron staining. Rare pockets (up to 7mm) of dark grey fine to coarse sand. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse flint.		1.75 +7.13		
1.20	ES 7	PID=0.0 ppmv			(MADE GROUND)		(0.75)		
1.20	D 5				Medium dense orangish brown gravelly fine to coarse SAND with closely spaced bands (up to 50mm thick) of soft dark grey clay. Gravel is angular to subrounded fine to coarse of flint.		2.50 +6.38		
1.20 - 1.65	D 8				(MADE GROUND)		(0.50)		
1.20 - 1.75	L				Medium Dense orangish brown fine coarse gravelly SAND. Gravel is angular to subrounded fine to coarse of flint.		3.00 +5.88		
1.20 - 2.00	B 9	100% rec, diameter 88mm			(KEMPTON PARK GRAVEL MEMBER)				
1.75 - 2.00					END OF EXPLORATORY HOLE				
2.00 - 2.45	SPTS	N=21 (5,4/4,4,6,7)				2.30-2.40 becoming brownish grey			
2.00 - 2.30	D 10					2.40-2.50 becoming very dark grey and clayey with fine gravel sized brick fragments and burnt			
2.00 - 2.45	D 6					odour			
2.00 - 3.00	L	80% rec, diameter 78mm				2.50-2.80 Becoming grey			
2.30 - 2.40	D 11								
2.40	D 12	PID=0.1 ppmv							
2.40 - 2.50	D 13								
2.50 - 2.80	D 14								
2.80 - 3.00									

Groundwater Entries				Depth Related Remarks				Hard Boring		
No.	Depth Strike (m)	Remarks	Depth Sealed (m)	Depths (m)	Remarks	Depths (m)	Duration (mins)	Tools used		
1	3.00	Remained at 3.00 m after 20 minutes.	3.00	1.20 - 2.00	SPT Hammer ID SN105 (Er= 78%)					

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.			Project			Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London			Borehole	
Scale 1:50			Project No.			D8061-18			PH3C	
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SOCOTEC

APPENDIX C

INSTRUMENTATION AND MONITORING

Monitoring Installation Details	C1
Groundwater Monitoring	C2
Gas Monitoring	C3

Groundwater Monitoring Installations Summary

Instrument Reference	Instrument Type (See Notes)	Installation Date, dd/mm/yyyy	Pipe Diameter, mm	Instrument Base, mbgl	Response Zone Range, mbgl	Pipe Top Details	Headworks	Remarks
BH01 (S)	SP	20/02/2019	50	5.50	2.10 to 5.50	Gas tap	Flush cover	
BH02 (S)	SP	05/02/2019	50	6.70	2.60 to 7.00	Gas tap	Flush cover	
BH03 (S)	SP	19/02/2019	50	5.30	2.00 to 5.30	Gas tap	Flush cover	
BH04 (S)	SP	31/01/2019	50	4.50	2.50 to 4.50	Gas tap	Flush cover	

Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Vibrating Wire Piezometer, PWEL - Pumping Well



Project Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London
Project No. D8061-18
Carried out for Notting Hill Home Ownership Ltd

Table

C1

Groundwater Monitoring

Instrument Reference	Instrument Type	Instrument Base, mbgl	Date Time dd/mm/yyyy hh:mm:ss	Groundwater depth, mbgl	Comments
BH01 (S)	SP	5.50	07/03/2019 11:15:00	2.24	
BH01 (S)	SP	5.50	21/03/2019 15:30:00	2.19	
BH01 (S)	SP	5.50	21/03/2019 15:30:00	2.19	
BH01 (S)	SP	5.50	24/04/2019 11:30:00	2.29	
BH01 (S)	SP	5.50	22/05/2019 15:20:00	2.35	
BH02 (S)	SP	6.70	07/03/2019 11:25:00	2.35	
BH02 (S)	SP	6.70	21/03/2019 15:45:00	2.30	
BH02 (S)	SP	6.70	21/03/2019 15:45:00	2.30	
BH02 (S)	SP	6.70	24/04/2019 11:05:00	2.41	
BH02 (S)	SP	6.70	22/05/2019 15:45:00	2.47	
BH03 (S)	SP	5.30	07/03/2019 11:00:00	2.40	
BH03 (S)	SP	5.30	21/03/2019 14:45:00	2.39	
BH03 (S)	SP	5.30	21/03/2019 14:45:00	2.39	
BH03 (S)	SP	5.30	24/04/2019 09:45:00	2.48	
BH03 (S)	SP	5.30	22/05/2019 14:30:00	2.54	
BH04 (S)	SP	4.50	07/03/2019 12:10:00	2.47	
BH04 (S)	SP	4.50	21/03/2019 15:05:00	2.46	
BH04 (S)	SP	4.50	21/03/2019 15:05:00	2.46	
BH04 (S)	SP	4.50	24/04/2019 09:15:00	2.55	
BH04 (S)	SP	4.50	22/05/2019 15:00:00	2.59	

Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Vibrating Wire Piezometer, PWEL - Pumping Well



Project Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London
Project No. D8061-18
Carried out for Notting Hill Home Ownership Ltd

Figure
C2

Gas Monitoring

							Gas Concentrations						
Instrument Reference	Instrument Base, mbgl	Date Time dd/mm/yyyy hh:mm:ss	Air Temperature, oC	Barometric Pressure, mbar	Gas Differential Pressure, Pa	Gas Flow Rate, l/hr	Carbon Dioxide, %vol	Carbon Monoxide, ppm	Hydrogen Sulphide, ppm	Methane, %LEL	Oxygen, %vol	Total VOCs,	Methane, %vol
BH01 (S)	5.50	07/03/2019 11:15:00	10.0	992	0.0	<0.1	<0.1	<1	<1	<0.1	21.3		<0.1
BH01 (S)	5.50	07/03/2019 11:15:30			0.0	<0.1	1.3	<1	<1	<0.1	19.6		<0.1
BH01 (S)	5.50	07/03/2019 11:16:00			0.0	<0.1	1.3	<1	<1	<0.1	19.5		<0.1
BH01 (S)	5.50	07/03/2019 11:16:30			0.0	<0.1	1.3	<1	<1	<0.1	19.5		<0.1
BH01 (S)	5.50	07/03/2019 11:17:00			0.0	<0.1	1.3	<1	<1	<0.1	19.5		<0.1
BH01 (S)	5.50	07/03/2019 11:17:30			0.0	<0.1	1.3	<1	<1	<0.1	19.5		<0.1
BH01 (S)	5.50	07/03/2019 11:18:00			0.0	<0.1	1.3	<1	<1	<0.1	19.5		<0.1
BH01 (S)	5.50	07/03/2019 11:19:00			0.0	<0.1	1.3	<1	<1	<0.1	19.5		<0.1
BH01 (S)	5.50	07/03/2019 11:20:00			0.0	<0.1	1.3	<1	<1	<0.1	19.5		<0.1
BH01 (S)	5.50	21/03/2019 15:30:00	12.0	1029	0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH01 (S)	5.50	21/03/2019 15:30:30			0.0	<0.1	1.0	<1	<1	<0.1	19.8	1.0	<0.1
BH01 (S)	5.50	21/03/2019 15:31:00			0.0	<0.1	1.2	<1	<1	<0.1	19.5	1.2	<0.1
BH01 (S)	5.50	21/03/2019 15:31:30			0.0	<0.1	1.5	<1	<1	<0.1	19.3	1.3	<0.1
BH01 (S)	5.50	21/03/2019 15:32:00			0.0	<0.1	1.5	<1	<1	<0.1	19.3	1.3	<0.1
BH01 (S)	5.50	21/03/2019 15:32:30			0.0	<0.1	1.5	<1	<1	<0.1	19.3	1.3	<0.1
BH01 (S)	5.50	21/03/2019 15:33:00			0.0	<0.1	1.5	<1	<1	<0.1	19.3	1.3	<0.1
BH01 (S)	5.50	21/03/2019 15:34:00			0.0	<0.1	1.5	<1	<1	<0.1	19.3	1.3	<0.1
BH01 (S)	5.50	21/03/2019 15:35:00			0.0	<0.1	1.5	<1	<1	<0.1	19.3	1.3	<0.1
BH01 (S)	5.50	24/04/2019 11:30:00	16.0	992	0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH01 (S)	5.50	24/04/2019 11:30:30			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH01 (S)	5.50	24/04/2019 11:31:00			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH01 (S)	5.50	24/04/2019 11:31:30			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH01 (S)	5.50	24/04/2019 11:32:00			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH01 (S)	5.50	24/04/2019 11:32:30			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH01 (S)	5.50	24/04/2019 11:33:00			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH01 (S)	5.50	24/04/2019 11:34:00			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH01 (S)	5.50	24/04/2019 11:35:00			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH01 (S)	5.50	22/05/2019 15:20:00	20.0	1018	0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH01 (S)	5.50	22/05/2019 15:20:30			0.0	<0.1	0.6	<1	<1	<0.1	20.0	0.4	<0.1
BH01 (S)	5.50	22/05/2019 15:21:00			0.0	<0.1	1.2	<1	<1	<0.1	19.0	0.5	<0.1
BH01 (S)	5.50	22/05/2019 15:21:30			0.0	<0.1	1.2	<1	<1	<0.1	18.9	0.6	<0.1
Notes: ND - not detected													
		Project		Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London D8061-18						Figure			
		Project No. Carried out for		Notting Hill Home Ownership Ltd						C3			

Gas Monitoring

							Gas Concentrations						
Instrument Reference	Instrument Base, mbgl	Date Time dd/mm/yyyy hh:mm:ss	Air Temperature, oC	Barometric Pressure, mbar	Gas Differential Pressure, Pa	Gas Flow Rate, l/hr	Carbon Dioxide, %vol	Carbon Monoxide, ppm	Hydrogen Sulphide, ppm	Methane, %LEL	Oxygen, %vol	Total VOCs,	Methane, %vol
BH01 (S)	5.50	22/05/2019 15:22:00			0.0	<0.1	1.2	<1	<1	<0.1	18.9	0.6	<0.1
BH01 (S)	5.50	22/05/2019 15:22:30			0.0	<0.1	1.2	<1	<1	<0.1	18.9	0.6	<0.1
BH01 (S)	5.50	22/05/2019 15:23:00			0.0	<0.1	1.2	<1	<1	<0.1	18.9	0.6	<0.1
BH01 (S)	5.50	22/05/2019 15:24:00			0.0	<0.1	1.2	<1	<1	<0.1	18.9	0.6	<0.1
BH01 (S)	5.50	22/05/2019 15:25:00			0.0	<0.1	1.2	<1	<1	<0.1	18.9	0.6	<0.1
BH02 (S)	6.70	07/03/2019 11:25:00	10.0	992	0.0	<0.1	<0.1	<1	<1	<0.1	21.3		<0.1
BH02 (S)	6.70	07/03/2019 11:25:30			0.0	<0.1	2.4	<1	<1	<0.1	20.4		<0.1
BH02 (S)	6.70	07/03/2019 11:26:00			0.0	<0.1	2.2	<1	<1	<0.1	20.4		<0.1
BH02 (S)	6.70	07/03/2019 11:26:30			0.0	<0.1	2.1	<1	<1	<0.1	20.6		<0.1
BH02 (S)	6.70	07/03/2019 11:27:00			0.0	<0.1	1.6	<1	<1	<0.1	20.8		<0.1
BH02 (S)	6.70	07/03/2019 11:27:30			0.0	<0.1	1.2	<1	<1	<0.1	20.9		<0.1
BH02 (S)	6.70	07/03/2019 11:28:00			0.0	<0.1	1.2	<1	<1	<0.1	20.9		<0.1
BH02 (S)	6.70	07/03/2019 11:29:00			0.0	<0.1	1.2	<1	<1	<0.1	20.9		<0.1
BH02 (S)	6.70	07/03/2019 11:30:00			0.0	<0.1	1.2	<1	<1	<0.1	20.9		<0.1
BH02 (S)	6.70	21/03/2019 15:45:00	12.0	1029	0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH02 (S)	6.70	21/03/2019 15:45:30			0.0	<0.1	1.2	<1	<1	<0.1	20.1	0.9	<0.1
BH02 (S)	6.70	21/03/2019 15:46:00			0.0	<0.1	1.3	<1	<1	<0.1	19.8	1.0	<0.1
BH02 (S)	6.70	21/03/2019 15:46:30			0.0	<0.1	1.3	<1	<1	<0.1	19.8	1.0	<0.1
BH02 (S)	6.70	21/03/2019 15:47:00			0.0	<0.1	1.3	<1	<1	<0.1	19.8	1.0	<0.1
BH02 (S)	6.70	21/03/2019 15:47:30			0.0	<0.1	1.3	<1	<1	<0.1	19.8	1.0	<0.1
BH02 (S)	6.70	21/03/2019 15:48:00			0.0	<0.1	1.3	<1	<1	<0.1	19.8	1.0	<0.1
BH02 (S)	6.70	21/03/2019 15:49:00			0.0	<0.1	1.3	<1	<1	<0.1	19.8	1.0	<0.1
BH02 (S)	6.70	21/03/2019 15:50:00			0.0	<0.1	1.3	<1	<1	<0.1	19.8	1.0	<0.1
BH02 (S)	6.70	24/04/2019 11:05:00	17.0	993	0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH02 (S)	6.70	24/04/2019 11:05:30			0.0	<0.1	0.1	<1	<1	<0.1	20.8	<0.1	<0.1
BH02 (S)	6.70	24/04/2019 11:06:00			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH02 (S)	6.70	24/04/2019 11:06:30			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH02 (S)	6.70	24/04/2019 11:07:00			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH02 (S)	6.70	24/04/2019 11:07:30			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH02 (S)	6.70	24/04/2019 11:08:00			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH02 (S)	6.70	24/04/2019 11:09:00			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
Notes: ND - not detected													
Project		Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London D8061-18 Notting Hill Home Ownership Ltd									Figure		
Project No. Carried out for											C3		

Gas Monitoring

							Gas Concentrations						
Instrument Reference	Instrument Base, mbgl	Date Time dd/mm/yyyy hh:mm:ss	Air Temperature, oC	Barometric Pressure, mbar	Gas Differential Pressure, Pa	Gas Flow Rate, l/hr	Carbon Dioxide, %vol	Carbon Monoxide, ppm	Hydrogen Sulphide, ppm	Methane, %LEL	Oxygen, %vol	Total VOCs,	Methane, %vol
BH02 (S)	6.70	24/04/2019 11:10:00			0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH02 (S)	6.70	22/05/2019 15:45:00	20.0	1018	0.0	<0.1	<0.1	<0.1	<0.1	<0.1	20.9	<0.1	<0.1
BH02 (S)	6.70	22/05/2019 15:45:30			0.0	<0.1	1.8	<0.1	<0.1	<0.1	19.4	0.6	<0.1
BH02 (S)	6.70	22/05/2019 15:46:00			0.0	<0.1	2.0	<0.1	<0.1	<0.1	19.0	0.7	<0.1
BH02 (S)	6.70	22/05/2019 15:46:30			0.0	<0.1	2.4	<0.1	<0.1	<0.1	18.9	0.8	<0.1
BH02 (S)	6.70	22/05/2019 15:47:00			0.0	<0.1	2.4	<0.1	<0.1	<0.1	18.9	0.8	<0.1
BH02 (S)	6.70	22/05/2019 15:47:30			0.0	<0.1	2.4	<0.1	<0.1	<0.1	18.9	0.8	<0.1
BH02 (S)	6.70	22/05/2019 15:48:00			0.0	<0.1	2.4	<0.1	<0.1	<0.1	18.9	0.8	<0.1
BH02 (S)	6.70	22/05/2019 15:49:00			0.0	<0.1	2.4	<0.1	<0.1	<0.1	18.9	0.8	<0.1
BH02 (S)	6.70	22/05/2019 15:50:00			0.0	<0.1	2.4	<0.1	<0.1	<0.1	18.9	0.8	<0.1
BH03 (S)	5.30	07/03/2019 11:00:00	10.0	992	0.0	<0.1	<0.1	<1	<1	<0.1	21.3		<0.1
BH03 (S)	5.30	07/03/2019 11:00:30			0.0	<0.1	2.3	<1	<1	<0.1	17.9		<0.1
BH03 (S)	5.30	07/03/2019 11:01:00			0.0	<0.1	2.1	<1	<1	<0.1	18.4		<0.1
BH03 (S)	5.30	07/03/2019 11:01:30			0.0	<0.1	1.9	<1	<1	<0.1	18.9		<0.1
BH03 (S)	5.30	07/03/2019 11:02:00			0.0	<0.1	1.0	<1	<1	<0.1	19.1		<0.1
BH03 (S)	5.30	07/03/2019 11:02:30			0.0	<0.1	1.0	<1	<1	<0.1	19.1		<0.1
BH03 (S)	5.30	07/03/2019 11:03:00			0.0	<0.1	1.0	<1	<1	<0.1	19.1		<0.1
BH03 (S)	5.30	07/03/2019 11:04:00			0.0	<0.1	1.0	<1	<1	<0.1	19.1		<0.1
BH03 (S)	5.30	07/03/2019 11:05:00			0.0	<0.1	1.0	<1	<1	<0.1	19.1		<0.1
BH03 (S)	5.30	21/03/2019 14:45:00	12.0	1030	0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH03 (S)	5.30	21/03/2019 14:45:30			0.0	<0.1	2.0	<1	<1	<0.1	18.9	0.2	<0.1
BH03 (S)	5.30	21/03/2019 14:46:00			0.0	<0.1	2.2	<1	<1	<0.1	18.0	0.3	<0.1
BH03 (S)	5.30	21/03/2019 14:46:30			0.0	<0.1	2.3	<1	<1	<0.1	17.9	0.4	<0.1
BH03 (S)	5.30	21/03/2019 14:47:00			0.0	<0.1	2.3	<1	<1	<0.1	17.9	0.4	<0.1
BH03 (S)	5.30	21/03/2019 14:47:30			0.0	<0.1	2.3	<1	<1	<0.1	17.9	0.4	<0.1
BH03 (S)	5.30	21/03/2019 14:48:00			0.0	<0.1	2.3	<1	<1	<0.1	17.9	0.4	<0.1
BH03 (S)	5.30	21/03/2019 14:49:00			0.0	<0.1	2.3	<1	<1	<0.1	17.9	0.4	<0.1
BH03 (S)	5.30	21/03/2019 14:50:00			0.0	<0.1	2.3	<1	<1	<0.1	17.9	0.4	<0.1
BH03 (S)	5.30	24/04/2019 09:45:00	15.0	993	0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH03 (S)	5.30	24/04/2019 09:45:30			0.0	<0.1	1.2	<1	<1	<0.1	19.7	<0.1	<0.1
BH03 (S)	5.30	24/04/2019 09:46:00			0.0	<0.1	2.0	<1	<1	<0.1	18.9	<0.1	<0.1
Notes: ND - not detected													
Project		Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London D8061-18									Figure		
Project No.		Notting Hill Home Ownership Ltd									C3		
Carried out for													

Gas Monitoring

							Gas Concentrations						
Instrument Reference	Instrument Base, mbgl	Date Time dd/mm/yyyy hh:mm:ss	Air Temperature, oC	Barometric Pressure, mbar	Gas Differential Pressure, Pa	Gas Flow Rate, l/hr	Carbon Dioxide, %vol	Carbon Monoxide, ppm	Hydrogen Sulphide, ppm	Methane, %LEL	Oxygen, %vol	Total VOCs,	Methane, %vol
BH03 (S)	5.30	24/04/2019 09:46:30			0.0	<0.1	2.4	<1	<1	<0.1	18.5	<0.1	<0.1
BH03 (S)	5.30	24/04/2019 09:47:00			0.0	<0.1	2.5	<1	<1	<0.1	18.5	<0.1	<0.1
BH03 (S)	5.30	24/04/2019 09:47:30			0.0	<0.1	2.6	<1	<1	<0.1	18.3	<0.1	<0.1
BH03 (S)	5.30	24/04/2019 09:48:00			0.0	<0.1	2.7	<1	<1	<0.1	18.2	<0.1	<0.1
BH03 (S)	5.30	24/04/2019 09:49:00			0.0	<0.1	2.7	<1	<1	<0.1	18.2	<0.1	<0.1
BH03 (S)	5.30	24/04/2019 09:50:00			0.0	<0.1	2.7	<1	<1	<0.1	18.2	<0.1	<0.1
BH03 (S)	5.30	22/05/2019 14:30:00	20.0	1018	0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH03 (S)	5.30	22/05/2019 14:30:30			0.0	<0.1	5.0	<1	<1	<0.1	11.5	0.8	<0.1
BH03 (S)	5.30	22/05/2019 14:31:00			0.0	<0.1	5.2	<1	<1	<0.1	11.1	1.1	<0.1
BH03 (S)	5.30	22/05/2019 14:31:30			0.0	<0.1	5.2	<1	<1	<0.1	11.1	1.1	<0.1
BH03 (S)	5.30	22/05/2019 14:32:00			0.0	<0.1	5.2	<1	<1	<0.1	11.1	1.1	<0.1
BH03 (S)	5.30	22/05/2019 14:32:30			0.0	<0.1	5.2	<1	<1	<0.1	11.1	1.1	<0.1
BH03 (S)	5.30	22/05/2019 14:33:00			0.0	<0.1	5.2	<1	<1	<0.1	11.1	1.1	<0.1
BH03 (S)	5.30	22/05/2019 14:34:00			0.0	<0.1	5.2	<1	<1	<0.1	11.1	0.1	<0.1
BH03 (S)	5.30	22/05/2019 14:35:00			0.0	<0.1	5.2	<1	<1	<0.1	11.1	1.1	<0.1
BH04 (S)	4.50	07/03/2019 12:10:00	10.0	992	0.0	<0.1	<0.1	<1	<1	<0.1	21.3		<0.1
BH04 (S)	4.50	07/03/2019 12:10:30			0.0	<0.1	0.9	<1	<1	<0.1	16.5		<0.1
BH04 (S)	4.50	07/03/2019 12:11:00			0.0	<0.1	0.7	<1	<1	<0.1	17.5		<0.1
BH04 (S)	4.50	07/03/2019 12:11:30			0.0	<0.1	0.7	<1	<1	<0.1	17.6		<0.1
BH04 (S)	4.50	07/03/2019 12:12:00			0.0	<0.1	0.7	<1	<1	<0.1	17.7		<0.1
BH04 (S)	4.50	07/03/2019 12:12:30			0.0	<0.1	0.7	<1	<1	<0.1	17.7		<0.1
BH04 (S)	4.50	07/03/2019 12:13:00			0.0	<0.1	0.7	<1	<1	<0.1	17.7		<0.1
BH04 (S)	4.50	07/03/2019 12:14:00			0.0	<0.1	0.7	<1	<1	<0.1	17.7		<0.1
BH04 (S)	4.50	07/03/2019 12:15:00			0.0	<0.1	0.7	<1	<1	<0.1	17.7		<0.1
BH04 (S)	4.50	21/03/2019 15:05:00	12.0	1030	0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH04 (S)	4.50	21/03/2019 15:05:30			0.0	<0.1	1.0	<1	<1	<0.1	18.9	0.9	<0.1
BH04 (S)	4.50	21/03/2019 15:06:00			0.0	<0.1	1.2	<1	<1	<0.1	17.2	1.1	<0.1
BH04 (S)	4.50	21/03/2019 15:06:30			0.0	<0.1	1.2	<1	<1	<0.1	17.1	1.2	<0.1
BH04 (S)	4.50	21/03/2019 15:07:00			0.0	<0.1	1.2	<1	<1	<0.1	17.1	1.2	<0.1
BH04 (S)	4.50	21/03/2019 15:07:30			0.0	<0.1	1.2	<1	<1	<0.1	17.1	1.2	<0.1
BH04 (S)	4.50	21/03/2019 15:08:00			0.0	<0.1	1.2	<1	<1	<0.1	17.1	1.2	<0.1

Notes: ND - not detected	Project Project No. Carried out for	Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London D8061-18 Notting Hill Home Ownership Ltd	Figure C3
--------------------------	---	--	------------------

Gas Monitoring

Instrument Reference	Instrument Base, mbgl	Date Time dd/mm/yyyy hh:mm:ss	Air Temperature, oC	Barometric Pressure, mbar	Gas Differential Pressure, Pa	Gas Flow Rate, l/hr	Gas Concentrations						
							Carbon Dioxide, %vol	Carbon Monoxide, ppm	Hydrogen Sulphide, ppm	Methane, %LEL	Oxygen, %vol	Total VOCs,	Methane, %vol
BH04 (S)	4.50	21/03/2019 15:09:00			0.0	<0.1	1.2	<1	<1	<0.1	17.1	1.2	<0.1
BH04 (S)	4.50	21/03/2019 15:10:00			0.0	<0.1	1.2	<1	<1	<0.1	17.1	1.2	<0.1
BH04 (S)	4.50	24/04/2019 09:15:00	15.0	993	0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH04 (S)	4.50	24/04/2019 09:15:30			0.0	<0.1	1.5	<1	<1	<0.1	19.4	<0.1	<0.1
BH04 (S)	4.50	24/04/2019 09:16:00			0.0	<0.1	1.0	<1	<1	<0.1	19.9	<0.1	<0.1
BH04 (S)	4.50	24/04/2019 09:16:30			0.0	<0.1	0.7	<1	<1	<0.1	20.2	<0.1	<0.1
BH04 (S)	4.50	24/04/2019 09:17:00			0.0	<0.1	0.5	<1	<1	<0.1	20.4	<0.1	<0.1
BH04 (S)	4.50	24/04/2019 09:17:30			0.0	<0.1	0.4	<1	<1	<0.1	20.5	<0.1	<0.1
BH04 (S)	4.50	24/04/2019 09:18:00			0.0	<0.1	0.2	<1	<1	<0.1	20.7	<0.1	<0.1
BH04 (S)	4.50	24/04/2019 09:19:00			0.0	<0.1	0.2	<1	<1	<0.1	20.7	<0.1	<0.1
BH04 (S)	4.50	24/04/2019 09:20:00			0.0	<0.1	0.2	<1	<1	<0.1	20.7	<0.1	<0.1
BH04 (S)	4.50	22/05/2019 15:00:00	20.0	1018	0.0	<0.1	<0.1	<1	<1	<0.1	20.9	<0.1	<0.1
BH04 (S)	4.50	22/05/2019 15:00:30			0.0	<0.1	1.9	<1	<1	<0.1	19.4	1.2	<0.1
BH04 (S)	4.50	22/05/2019 15:01:00			0.0	<0.1	1.9	<1	<1	<0.1	19.4	1.8	<0.1
BH04 (S)	4.50	22/05/2019 15:01:30			0.0	<0.1	1.9	<1	<1	<0.1	19.4	2.1	<0.1
BH04 (S)	4.50	22/05/2019 15:02:00			0.0	<0.1	1.9	<1	<1	<0.1	19.4	2.1	<0.1
BH04 (S)	4.50	22/05/2019 15:02:30			0.0	<0.1	1.9	<1	<1	<0.1	19.4	2.1	<0.1
BH04 (S)	4.50	22/05/2019 15:03:00			0.0	<0.1	1.9	<1	<1	<0.1	19.4	2.1	<0.1
BH04 (S)	4.50	22/05/2019 15:04:00			0.0	<0.1	1.9	<1	<1	<0.1	19.4	2.1	<0.1
BH04 (S)	4.50	22/05/2019 15:05:00			0.0	<0.1	1.9	<1	<1	<0.1	19.4	2.1	<0.1

Notes: ND - not detected

Project Site investigation at Ashley House & Cannon Factory, Ashley Road
 South, Tottenham Hale, London
 Project No. D8061-18
 Carried out for Notting Hill Home Ownership Ltd

Figure

C3



SOCOTEC

APPENDIX D
GEOTECHNICAL LABORATORY TEST RESULTS

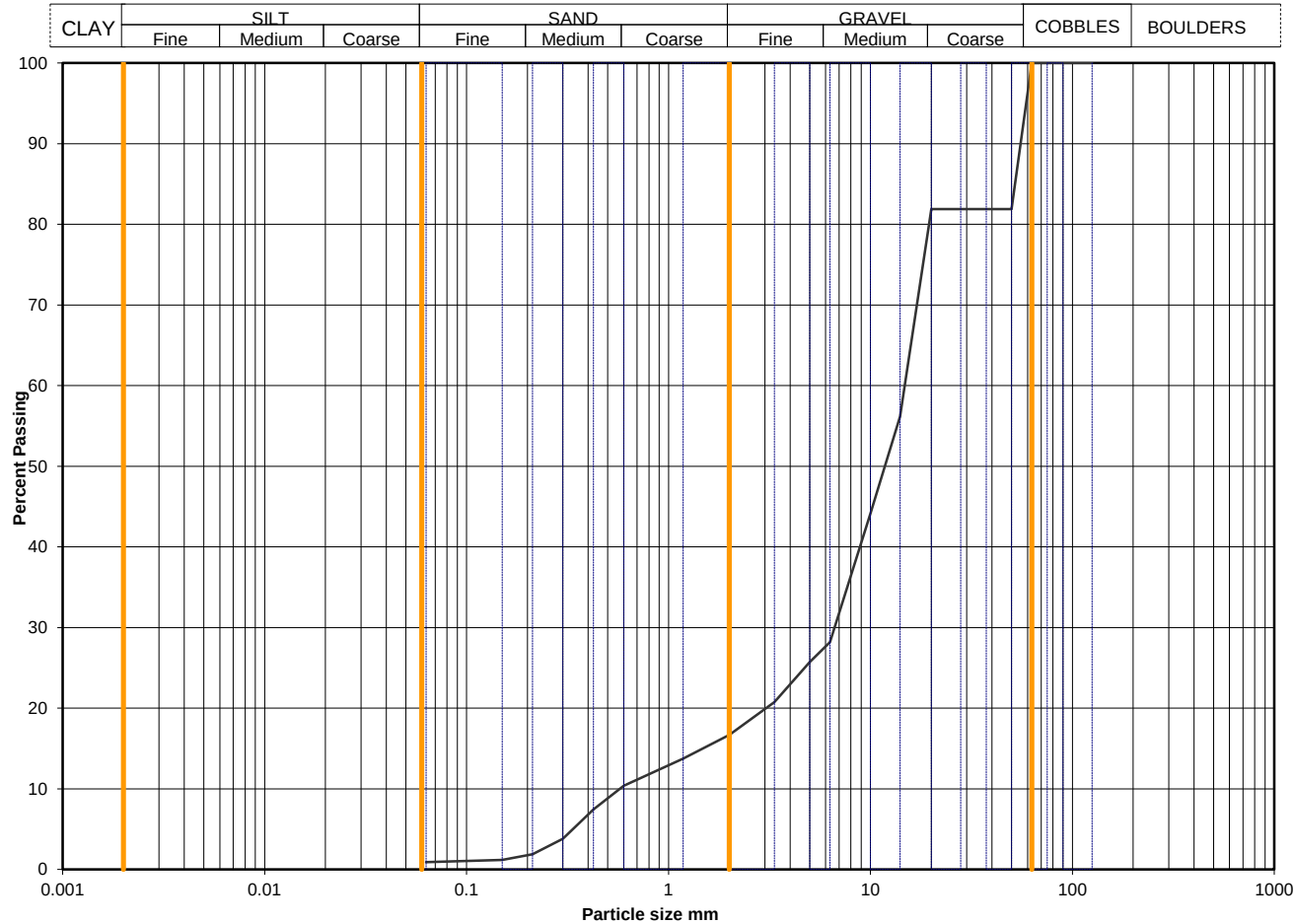
Index Properties – Summary of Results	INDX (1 sheets)
Particle Size Distribution Analyses	PSD (7 sheets)
Unconsolidated Undrained Triaxial Compression Tests – Summary of Results	UUSUM (1 sheets)
One Dimensional Consolidation Tests	OED (6 sheets)
Geotechnical Chemical Tests - Test Report	EFS/196678
	EFS/196680
	EFS/196808
	EFS/196951
	EXR/277131
	EXR/277842

[illegible]

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Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH01
	D8061-1820190218121501	Sample Depth (m BGL)	2.90 - 3.10
		Sample Type and No	B13
		Specimen Ref	



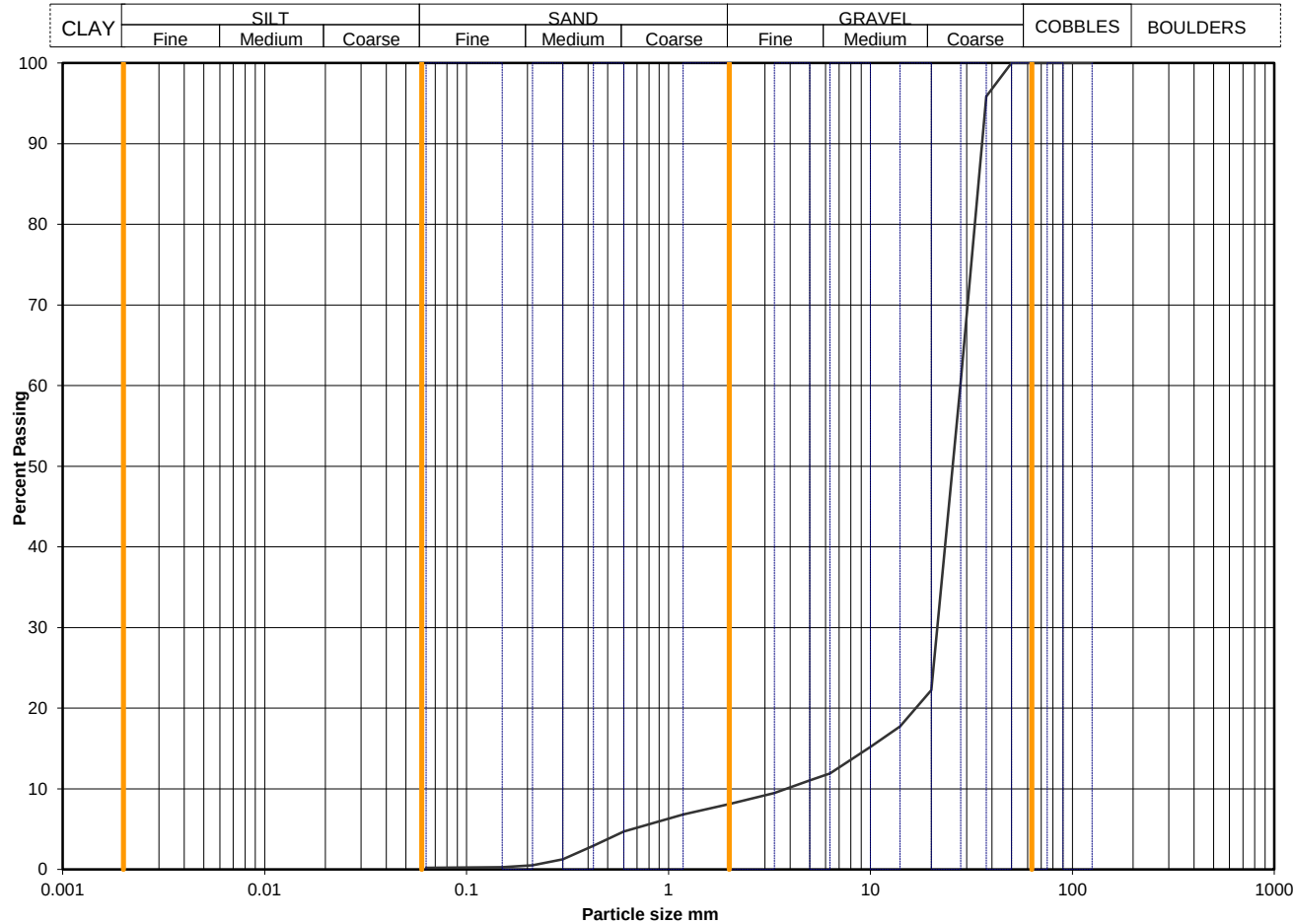
Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	82		
37.5	82		
28	82		
20	82		
14	56		
10	44		
6.3	28		
5.0	26		
3.35	21		
2.00	17		
1.18	14		
0.600	10		
0.425	7		
0.300	4		
0.212	2		
0.150	1		
0.063	1		

Dry mass of sample, kg	
19.7	

Soil description	Light brown sandy GRAVEL.		
Preparation / Pretreatment	Sieve: pre dried,		
Remarks			
Sample Proportions	Cobbles / boulders Gravel Sand Silt Clay	Whole	*<60mm
		0	0
		83	83
		16	16
		silt+clay =	
		1	1
*<60mm values to aid description only			
Uniformity Coefficient		D60 / D10	26
Test Method	BS 1377 : Part 2 : 1990		
	Sieving	9.2 wet sieve	
	Sedimentation	none	

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH01
		Sample Depth (m BGL)	4.50 - 4.80
	D8061-1820190218121527	Sample Type and No	B15
		Specimen Ref	



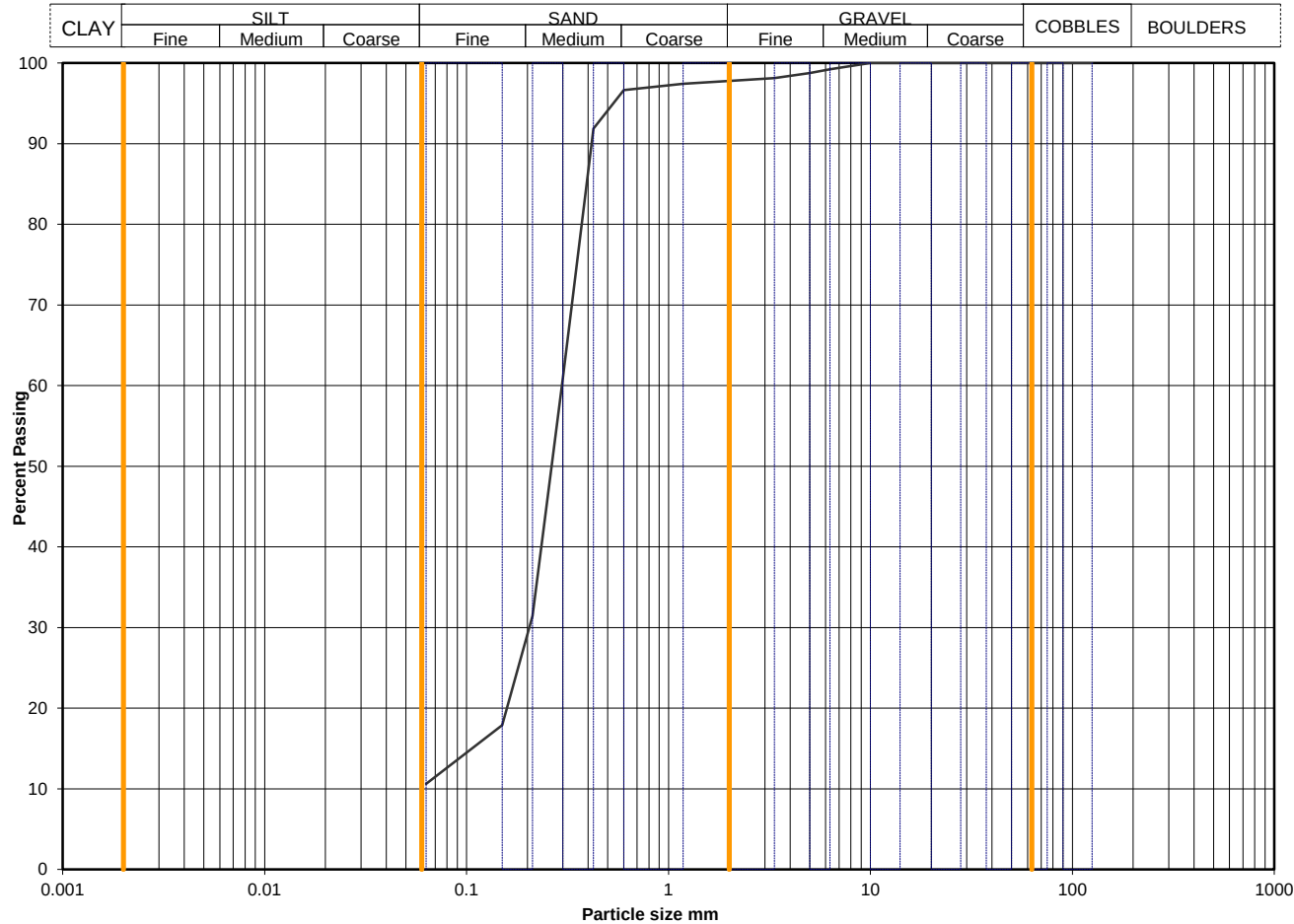
Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	60		
20	22		
14	18		
10	15		
6.3	12		
5.0	11		
3.35	9		
2.00	8		
1.18	7		
0.600	5		
0.425	3		
0.300	1		
0.212	1		
0.150	0		
0.063	0		

Dry mass of sample, kg	
7.2	

Soil description	Brown sandy GRAVEL		
Preparation / Pretreatment	Sieve: pre dried,		
Remarks			
Sample Proportions	Cobbles / boulders Gravel Sand Silt Clay	Whole	* $\leq$ 60mm
		0	0
		92	92
		8	8
		silt+clay =	
		0	0
* $\leq$ 60mm values to aid description only			
Uniformity Coefficient		D60 / D10	7
Test Method	BS 1377 : Part 2 : 1990		
	Sieving	9.2 wet sieve	
	Sedimentation	none	

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH01
		Sample Depth (m BGL)	30.10 - 30.40
	D8061-1820190218123012	Sample Type and No	B62
		Specimen Ref	



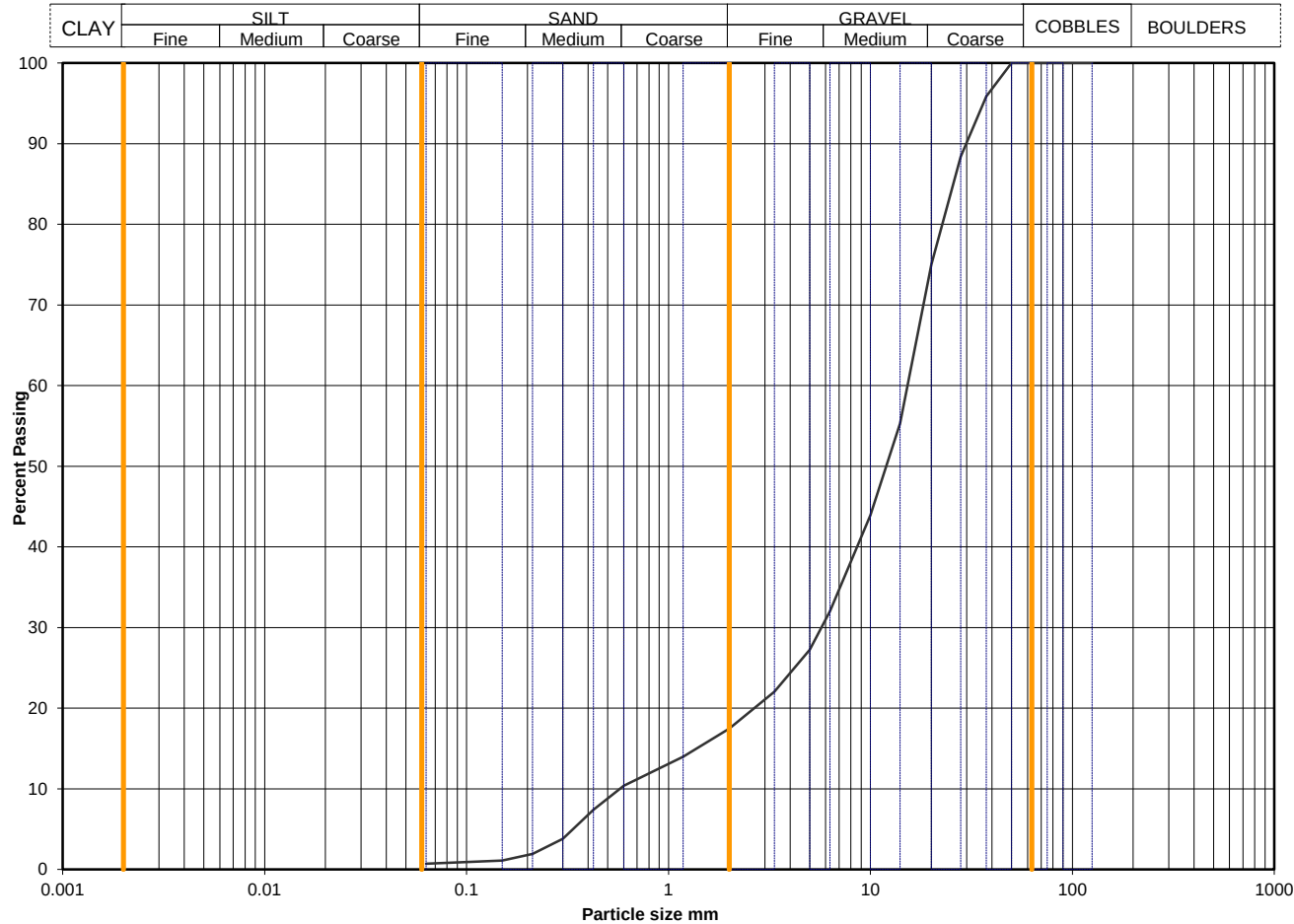
Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5.0	99		
3.35	98		
2.00	98		
1.18	97		
0.600	97		
0.425	92		
0.300	61		
0.212	31		
0.150	18		
0.063	11		

Dry mass of sample, kg	
16.1	

Soil description	Greyish green slightly gravelly SAND with rare fine gravel sized pockets of clay.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions	Cobbles / boulders Gravel Sand Silt Clay	Whole	*<60mm
		0	0
		2	2
		87	87
		silt+clay =	
		11	11
*<60mm values to aid description only			
Uniformity Coefficient		D60 / D10	Not applicable
Test Method	BS 1377 : Part 2 : 1990		
	Sieving	9.2 wet sieve	
	Sedimentation	none	

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH03
	D8061-1820190226101501	Sample Depth (m BGL)	3.50 - 3.95
		Sample Type and No	B14
		Specimen Ref	



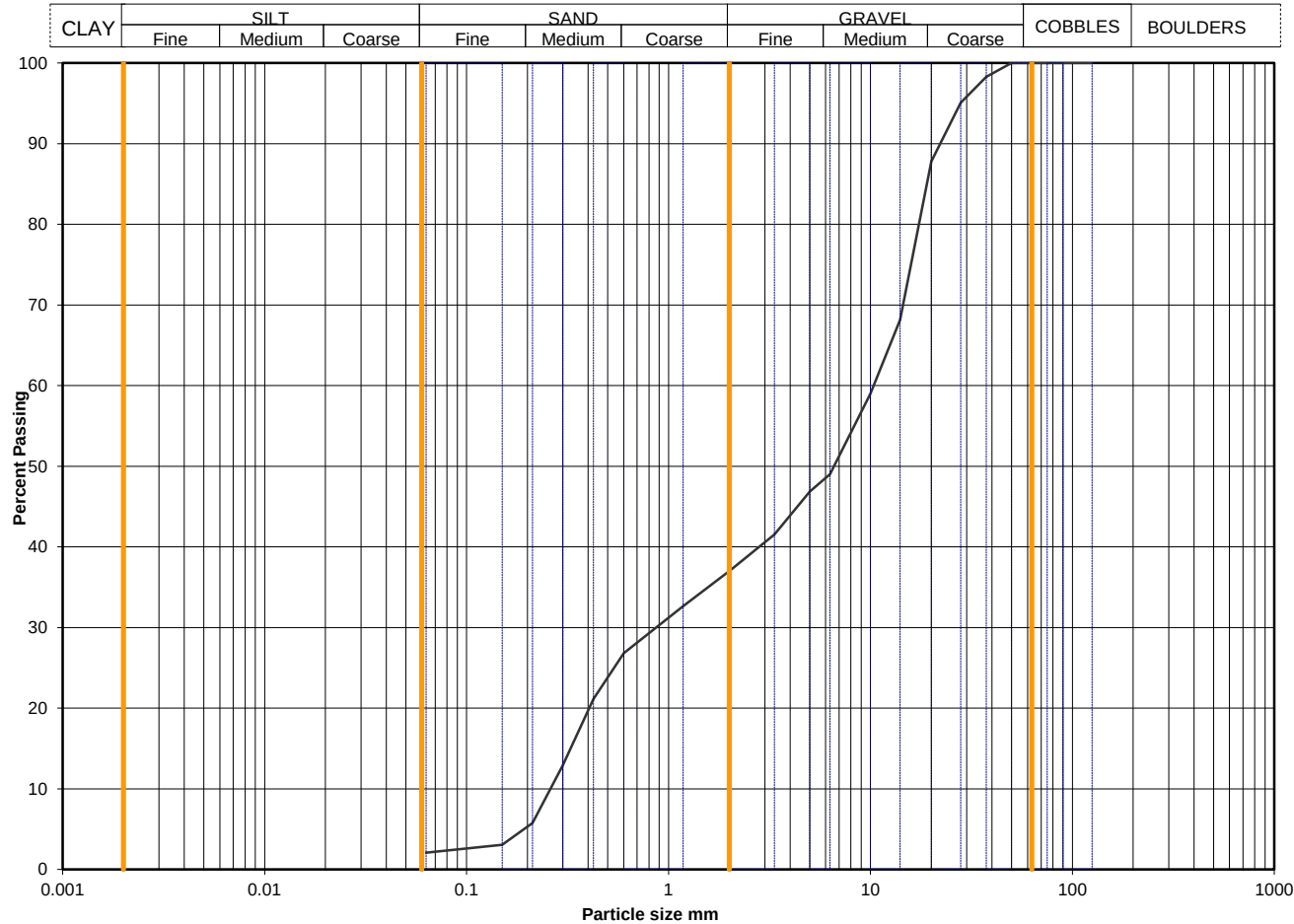
Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	88		
20	75		
14	55		
10	44		
6.3	32		
5.0	27		
3.35	22		
2.00	17		
1.18	14		
0.600	10		
0.425	7		
0.300	4		
0.212	2		
0.150	1		
0.063	1		

Dry mass of sample, kg	
18.0	

Soil description	Brown sandy GRAVEL		
Preparation / Pretreatment	Sieve: pre dried,		
Remarks			
Sample Proportions	Cobbles / boulders	Whole	*<60mm
	Gravel	0	0
	Sand	83	83
	Silt	17	17
	Clay	silt+clay =	
*<60mm values to aid description only		1	1
Uniformity Coefficient		D60 / D10	27
Test Method	BS 1377 : Part 2 : 1990		
	Sieving	9.2 wet sieve	
	Sedimentation	none	

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH04
		Sample Depth (m BGL)	3.20 - 3.60
	D8061-1820190130025121	Sample Type and No	B21
		Specimen Ref	



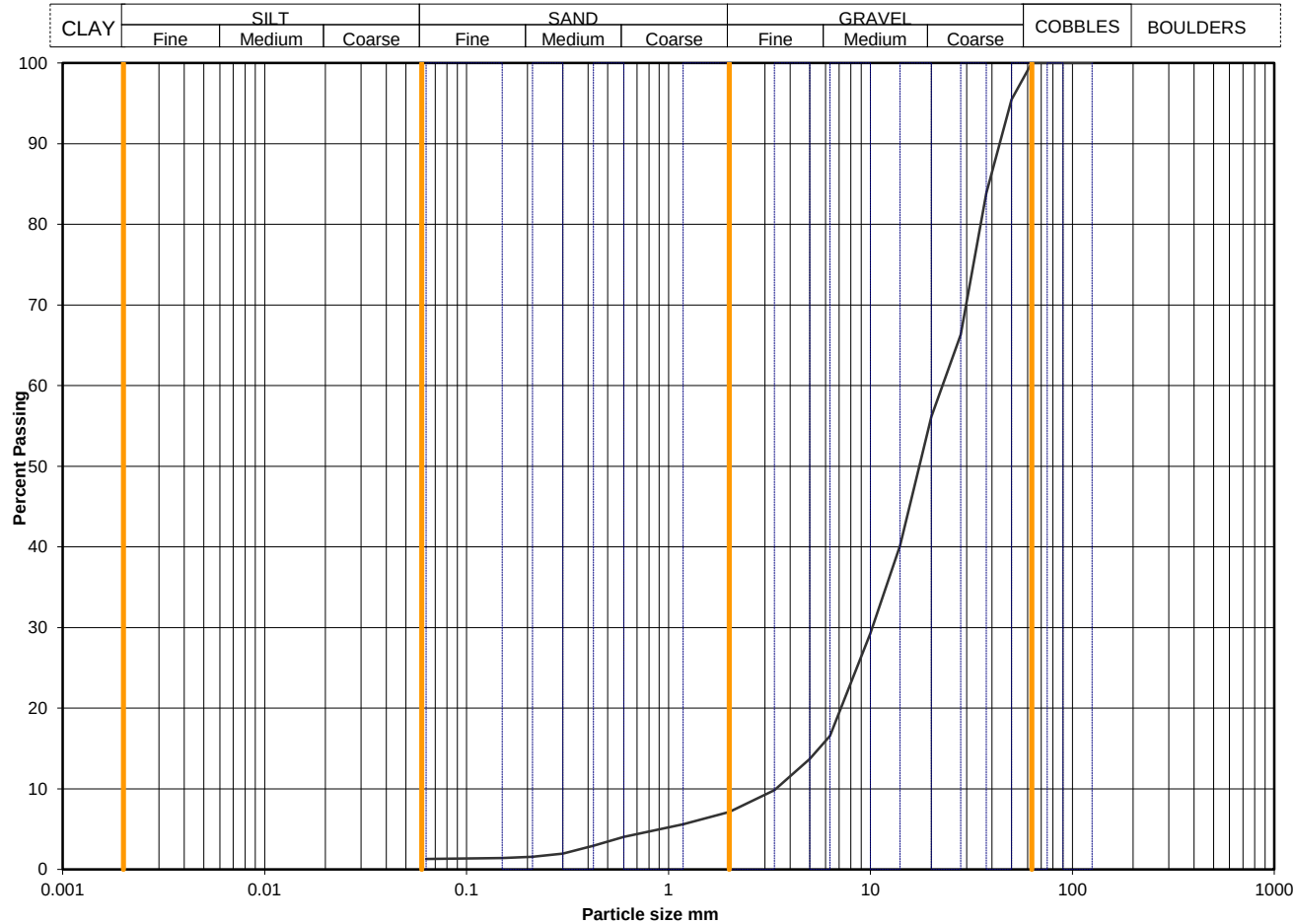
Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	98		
28	95		
20	88		
14	68		
10	59		
6.3	49		
5.0	47		
3.35	42		
2.00	37		
1.18	33		
0.600	27		
0.425	21		
0.300	13		
0.212	6		
0.150	3		
0.063	2		

Dry mass of sample, kg	
19.3	

Soil description	Brown very sandy slightly silty GRAVEL.		
Preparation / Pretreatment	Sieve: pre dried,		
Remarks			
Sample Proportions	Cobbles / boulders	Whole	*<60mm
	Gravel	0	0
	Sand	63	63
	Silt	35	35
	Clay	silt+clay =	
*<60mm values to aid description only		2	2
Uniformity Coefficient		D60 / D10	40
Test Method	BS 1377 : Part 2 : 1990		
	Sieving	9.2	wet sieve
	Sedimentation		none

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH04
	D8061-1820190130050623	Sample Depth (m BGL)	5.20 - 5.60
		Sample Type and No	B27
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	95		
37.5	84		
28	66		
20	56		
14	40		
10	29		
6.3	17		
5.0	14		
3.35	10		
2.00	7		
1.18	6		
0.600	4		
0.425	3		
0.300	2		
0.212	2		
0.150	1		
0.063	1		

Dry mass of sample, kg	
15.7	

Soil description	Brown sandy GRAVEL.		
Preparation / Pretreatment	Sieve: pre dried,		
Remarks			
Sample Proportions	Cobbles / boulders Gravel Sand Silt Clay	Whole	*<60mm
		0	0
		93	93
		6	6
		silt+clay =	
		1	1
*<60mm values to aid description only			
Uniformity Coefficient		D60 / D10	7
Test Method	BS 1377 : Part 2 : 1990		
	Sieving	9.2 wet sieve	
	Sedimentation	none	

QA Ref
SLR 2.9
Rev 2.21
Jul 17



Project No D8061-18
Project Name Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London

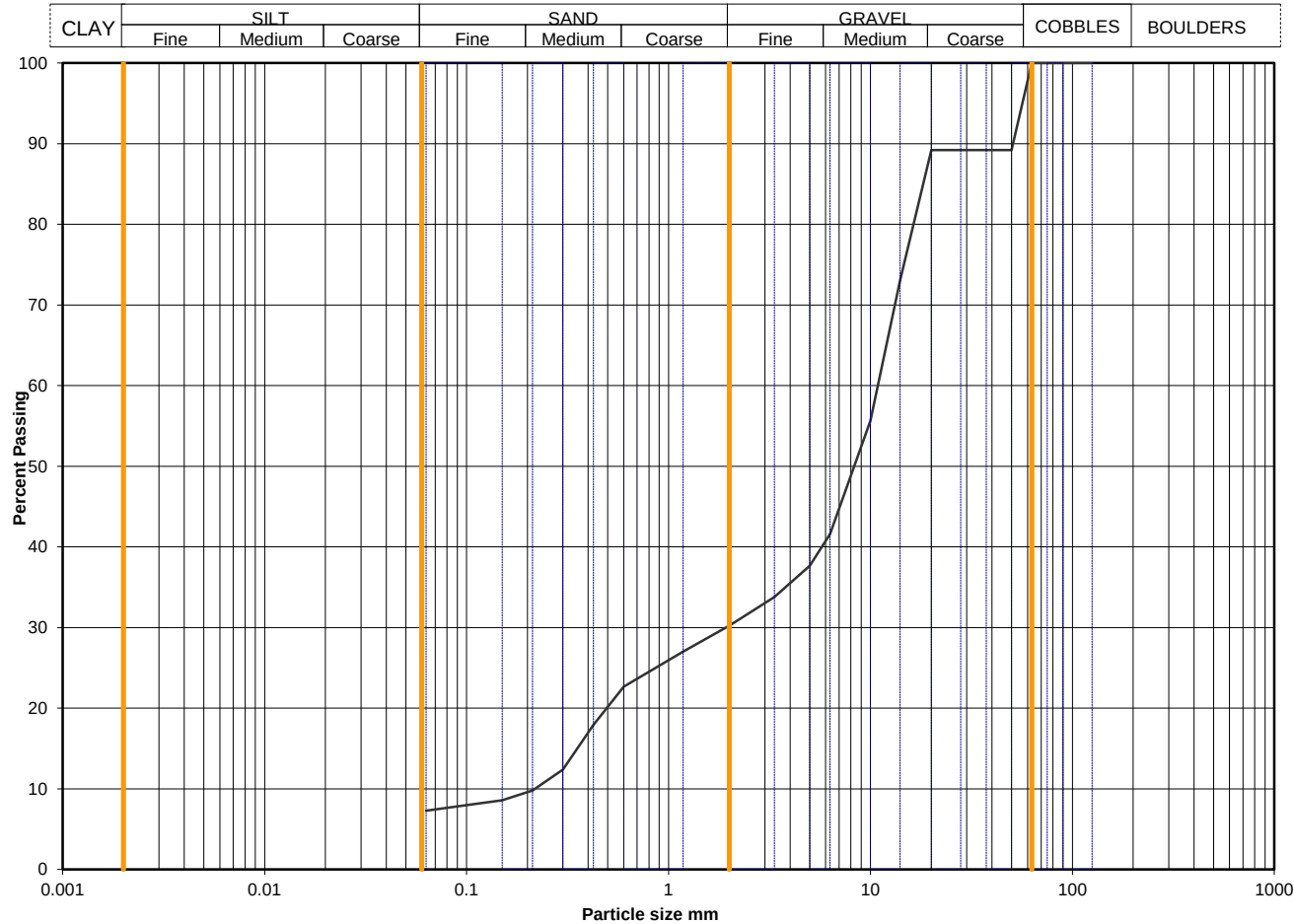
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Figure
PSD

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Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	PH2
		Sample Depth (m BGL)	2.45
	D8061-1820190204095455	Sample Type and No	B6
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	89		
37.5	89		
28	89		
20	89		
14	73		
10	56		
6.3	42		
5.0	38		
3.35	34		
2.00	30		
1.18	27		
0.600	23		
0.425	18		
0.300	12		
0.212	10		
0.150	9		
0.063	7		

Dry mass of sample, kg	
2.5	

Soil description	Light brown very sandy clayey GRAVEL.		
Preparation / Pretreatment	Sieve: pre dried,		
Remarks			
Sample Proportions	Cobbles / boulders Gravel Sand Silt Clay	Whole	*<60mm
		0	0
		70	70
		23	23
		silt+clay =	
		7	7
*<60mm values to aid description only			
Uniformity Coefficient		D60 / D10	50
Test Method	BS 1377 : Part 2 : 1990		
	Sieving	9.2 wet sieve	
	Sedimentation	none	

[illegible]

Legend	UU - single stage test (may be in sets of specimens)	ó3	cell pressure	Mode of failure	P	plastic
	UUM - multistage test on a single specimen	ó1 - ó3	deviator stress		B	brittle
	suffix R - remoulded or recompacted	CU	undrained shear strength		C	compound

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BS 1377 : Part 5 : 1990 : clause 3

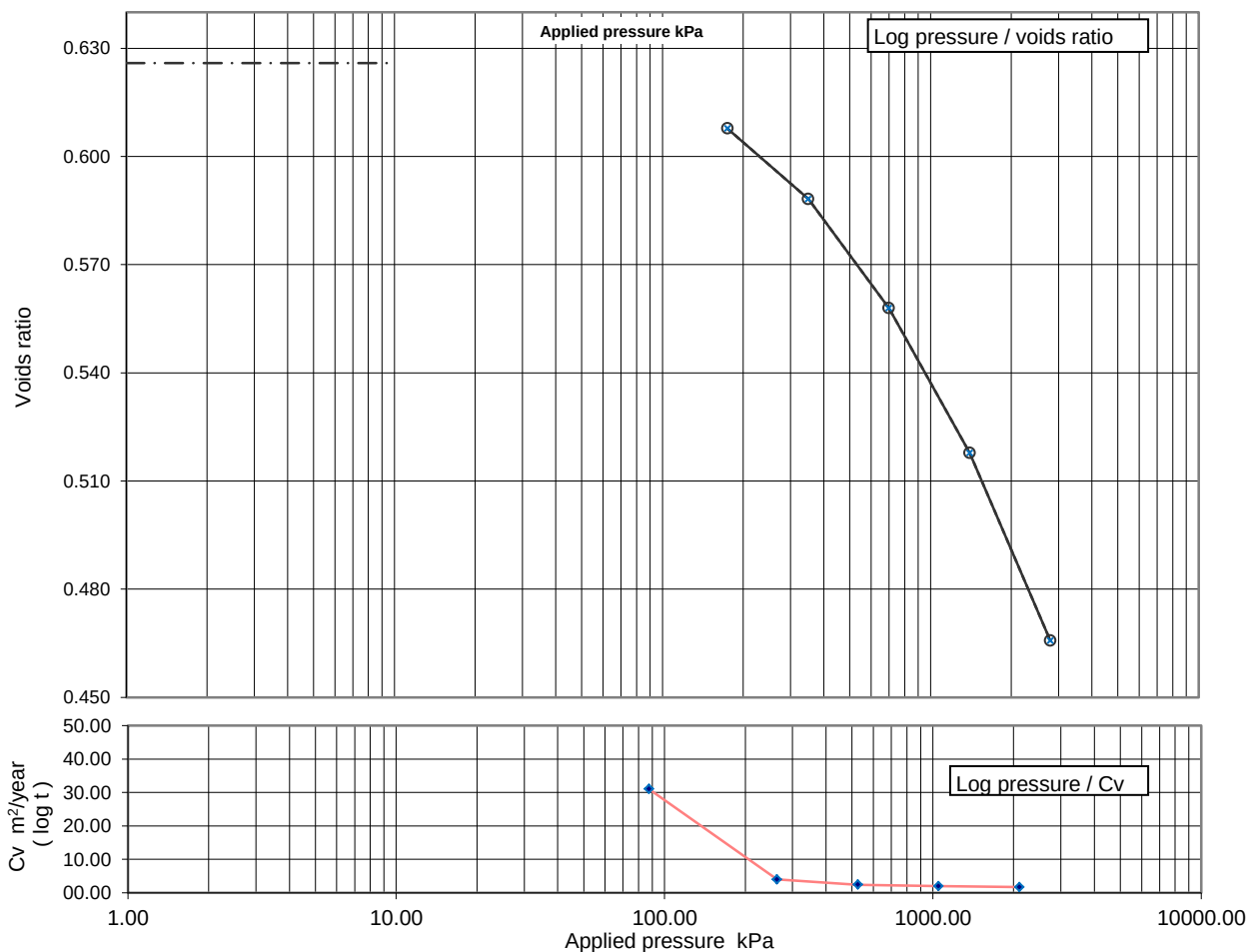
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28/03/2019 17:00

BS 1377 : Part 5 : 1990 : clause 3

Printed:
28/03/2019 17:00

BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:	Hole No	BH02
	D8061-1820190214105042	Sample Depth (m BGL)	14.50 - 14.95
		Sample Type and No	UT35
		Specimen Ref	



Soil description

Firm to stiff brown slightly sandy silty CLAY.

Preparation

Undisturbed

Index properties

Liquid limit %		Plastic limit %	
----------------	--	-----------------	--

(if available)

Specimen details

Initial	Final	
2.65	assumed	Mg/m ³
75.05		mm
18.80	16.95	mm
0.626	0.466	
22	18	%
1.99	2.14	Mg/m ³
1.63	1.81	Mg/m ³
94	105	%
19		oC

Voids ratio

Moisture content

Bulk density

Dry density

Saturation

Average te

Swelling pressure

not measured	kPa
--------------	-----

Notes :

[illegible]

Specimen taken 10 mm from base of sample

QA Ref
SLR 5.3
Rev 2.21
Feb 19



1157

SOCOTEC

Project No

D8061-18

Project Name

Site investigation at Ashley House &
Cannon Factory, Ashley Road South,
Tottenham Hale, London

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Figure

OED

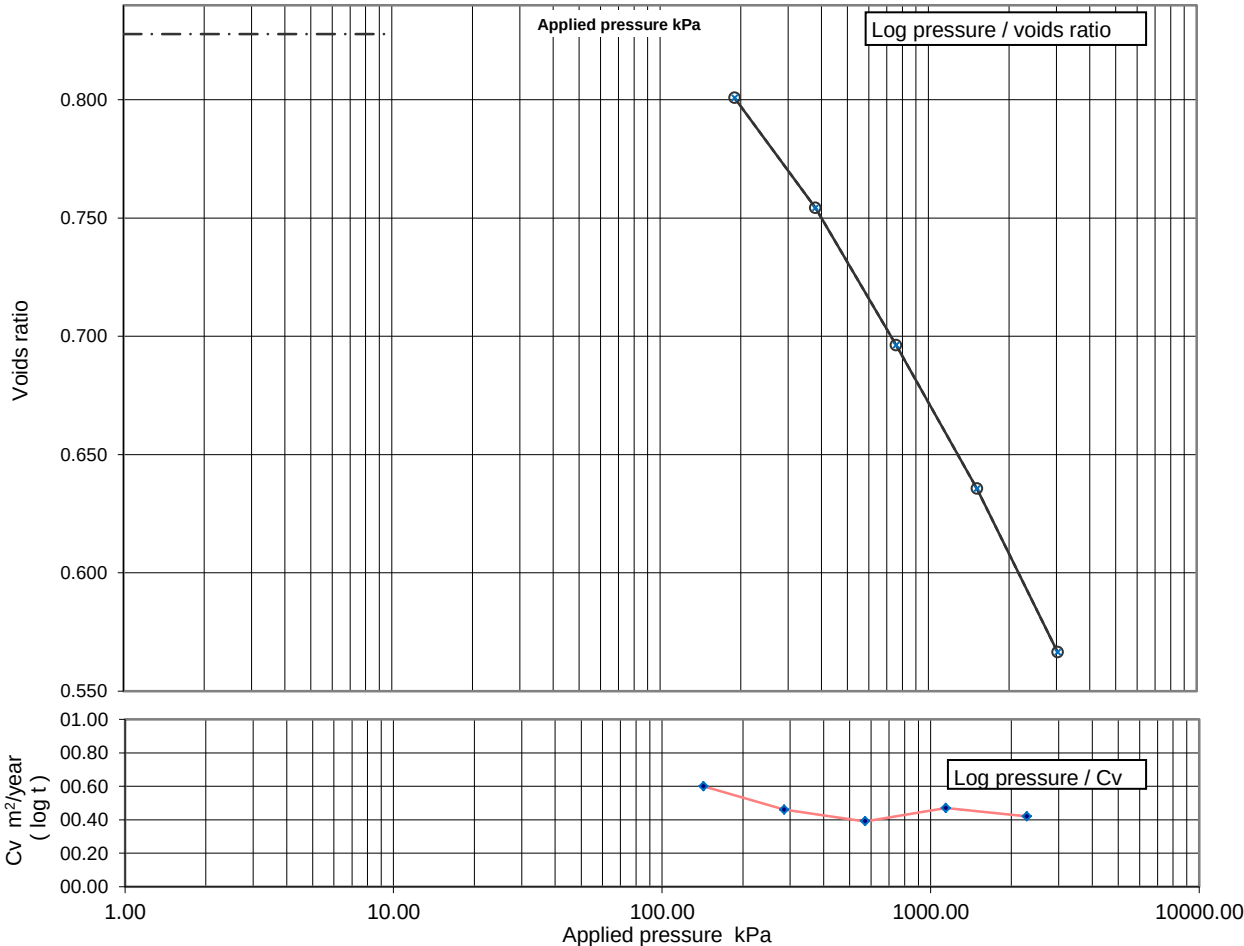
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28/03/2019 17:00

BS 1377 : Part 5 : 1990 : clause 3

Printed:
28/03/2019 17:00

BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:	Hole No	BH04
	D8061-1820190130051245	Sample Depth (m BGL)	6.20 - 6.60
		Sample Type and No	UT30
		Specimen Ref	



Soil description

Stiff thinly laminated greyish brown slightly sandy CLAY.

Preparation

Undisturbed

Index properties

Liquid limit %		Plastic limit %	
----------------	--	-----------------	--

(if available)

Specimen details

Particle density

Diameter

Height

Voids ratio

Moisture content

Bulk density

Dry density

Saturation

Average te

Swelling pressure

>95 kPa

Notes :

[illegible]

Specimen taken 10 mm from base of sample

QA Ref
SLR 5.3
Rev 2.21
Feb 19



1157



SOCOTEC

Project No

D8061-18

Project Name

Site investigation at Ashley House & Cannon Factory, Ashley Road South, Tottenham Hale, London

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Figure

OED

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28/03/2019 17:00

TEST REPORT



1252

Report No. EFS/196678 (Ver. 1)

SOCOTEC UK Wokingham
Glossop House
Hogwood Lane
Finchamstead
Wokingham
Berkshire
RG40 4QW

Site: D8061-18 Site Investigation at Ashby House & Canno

The 9 samples described in this report were registered for analysis by SOCOTEC UK Limited on 08-Mar-2019. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 19-Mar-2019

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS accredited. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

The following tables are contained in this report:

Table 1 Main Analysis Results (Page 2)
Analytical and Deviating Sample Overview (Page 3)
Table of Method Descriptions (Page 4)
Table of Report Notes (Page 5)
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of
SOCOTEC UK Lim
Becky Batham

Operations Manager
Energy & Waste Services

Date of Issue: 19-Mar-2019

Tests marked '^' have been subcontracted to another laboratory.

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected.

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

CustomerSOCOTEC UK Wokingham
SiteD8061-18 Site Investigation at Ashby House & Cannock
Report NoS196678

Consignment No S83366
Date Logged 08-Mar-2019
In-House Report Due 19-Mar-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	CustServ	Dep Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	TSBRE1	WSLMS0
		Sampled											
			REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	Total Sulphur.	pH (BS1377)
							✓		✓				
CL/1950032	BH01 0.50-0.70	D	D	D	D	D	D	D	D	D	D	D	D
CL/1950033	BH01 1.00	D	D				D	D	D	D	D	D	D
CL/1950034	BH01 9.50	D	D				D	D	D	D	D	D	D
CL/1950035	BH01 24.00	D	D				D	D	D	D	D	D	D
CL/1950036	BH01 28.00	D	D				D	D	D	D	D	D	D
CL/1950037	BH02 0.30-0.50	D	D				D	D	D	D	D	D	D
CL/1950038	BH02 18.50-18.95	D	D				D	D	D	D	D	D	D
CL/1950039	BH02 21.30	D	D				D	D	D	D	D	D	D
CL/1950040	BH02 27.50-27.70	D	D				D	D	D	D	D	D	D

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key

A

The sample was received in an inappropriate container for this analysis

B

The sample was received without the correct preservation for this analysis

C

Headspace present in the sample container

D

The sampling date was not supplied so holding time may be compromised - applicable to all analysis

E

Sample processing did not commence within the appropriate holding time

F

Sample processing did not commence within the appropriate handling time

Requested Analysis Key

Analysis Required

Analysis dependant upon trigger result - **Note: due date may be affected if triggered**

No analysis scheduled

^

Analysis Subcontracted - **Note: due date may vary**

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Oven Dried @ < 35°C	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPWSS	Oven Dried @ < 35°C	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	TSBRE1	Oven Dried @ < 35°C	Determination of Total Carbon and/or Total Sulphur in solid samples by high temperature combustion/infrared detection
Soil	WSLM50	Oven Dried @ < 35°C	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³@ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

▯ Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Site Investigation at Ashby House & Canno
Report Number : S19_6678

Note: major constituent in upper case

[illegible]

TEST REPORT



Report No. EFS/196680 (Ver. 1)

SOCOTEC UK Wokingham
Glossop House
Hogwood Lane
Finchamstead
Wokingham
Berkshire
RG40 4QW

Site: D8061-18 Site Investigation at Ashby House & Canno

The 4 samples described in this report were registered for analysis by SOCOTEC UK Limited on 08-Mar-2019. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 18-Mar-2019

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS accredited. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

The following tables are contained in this report:

Table 1 Main Analysis Results (Page 2)
Analytical and Deviating Sample Overview (Page 3)
Table of Method Descriptions (Page 4)
Table of Report Notes (Page 5)
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of
SOCOTEC UK Lim
Becky Batham

A handwritten signature in black ink, appearing to read 'R. Batham'.

Operations Manager
Energy & Waste Services

Date of Issue: 18-Mar-2019

Tests marked '^' have been subcontracted to another laboratory.

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected.

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

Customer SOCOTEC UK Wokingham

Site D8061-18 Site Investigation at Ashby House & Cannock

Report No S196680

Consignment No S83365

Date Logged 08-Mar-2019

In-House Report Due 19-Mar-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	CustServ	Dep Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	Sub022	WSLMS0
		Sampled											
			REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	^Sulphur (total)	pH (BS1377)
							✓		✓				
CL/1950061	BH03 5.50-5.95	D	D	D	D	D	D	D	D	D	D	D	D
CL/1950062	BH03 7.00-7.10	D	D				D	D	D	D	D	D	D
CL/1950063	BH04 1.20	D	D				D	D	D	D	D	D	D
CL/1950064	BH04 1.90	D	D				D	D	D	D	D	D	D

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key

- A The sample was received in an inappropriate container for this analysis
- B The sample was received without the correct preservation for this analysis
- C Headspace present in the sample container
- D The sampling date was not supplied so holding time may be compromised - applicable to all analysis
- E Sample processing did not commence within the appropriate holding time
- F Sample processing did not commence within the appropriate handling time

Requested Analysis Key

- ☐ Analysis Required
- ☐ Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
- ☐ No analysis scheduled
- ☒ Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Oven Dried @ < 35°C	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPWSS	Oven Dried @ < 35°C	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
Soil	WSLM50	Oven Dried @ < 35°C	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³@ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

▯ Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Site Investigation at Ashby House & Canno
Report Number : S19_6680

Note: major constituent in upper case

TEST REPORT



1252

Report No. EFS/196808 (Ver. 1)

SOCOTEC UK Wokingham
Glossop House
Hogwood Lane
Finchamstead
Wokingham
Berkshire
RG40 4QW

Site: D8061-18 Site Investigation at Ashby House & Canno

The 4 samples described in this report were registered for analysis by SOCOTEC UK Limited on 13-Mar-2019. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 20-Mar-2019

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS accredited. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

The following tables are contained in this report:

Table 1 Main Analysis Results (Page 2)
Analytical and Deviating Sample Overview (Page 3)
Table of Method Descriptions (Page 4)
Table of Report Notes (Page 5)
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of
SOCOTEC UK Lim
Becky Batham

Operations Manager
Energy & Waste Services

Date of Issue: 20-Mar-2019

Tests marked '^' have been subcontracted to another laboratory.

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected.

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

CustomerSOCOTEC UK Wokingham
SiteD8061-18 Site Investigation at Ashby House & Cannock
Report NoS196808

Consignment No S83447
Date Logged 13-Mar-2019
In-House Report Due 21-Mar-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	CustServ	Dep Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	Sub022	WSLMS0
		Sampled											
			REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	^Sulphur (total)	pH (BS1377)
							✓		✓				
CL/1950865	BH1 1.50-1.70	D	D	D	D	D	D	D	D	D	D	D	D
CL/1950866	BH2 8.50	D	D				D	D	D	D	D	D	D
CL/1950867	BH3 0.30-0.40	D	D				D	D	D	D	D	D	D
CL/1950868	BH3 2.10-2.20	D	D				D	D	D	D	D	D	D

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key

AThe sample was received in an inappropriate container for this analysis
BThe sample was received without the correct preservation for this analysis
CHeadspace present in the sample container
DThe sampling date was not supplied so holding time may be compromised - applicable to all analysis
ESample processing did not commence within the appropriate holding time
FSample processing did not commence within the appropriate handling time

Requested Analysis Key

Analysis Required
Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
No analysis scheduled

^

Analysis Subcontracted - **Note: due date may vary**

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Oven Dried @ < 35°C	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPWSS	Oven Dried @ < 35°C	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
Soil	WSLM50	Oven Dried @ < 35°C	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³@ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

▮ Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Site Investigation at Ashby House & Canno
Report Number : S19_6808

Note: major constituent in upper case

TEST REPORT



1252

Report No. EFS/196951 (Ver. 1)

SOCOTEC UK Wokingham
Glossop House
Hogwood Lane
Finchamstead
Wokingham
Berkshire
RG40 4QW

Site: D8061-18 Site Investigation at Ashby House & Canno

The 1 sample described in this report were registered for analysis by SOCOTEC UK Limited on 15-Mar-2019. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 22-Mar-2019

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS accredited. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

The following tables are contained in this report:

Table 1 Main Analysis Results (Page 2)
Analytical and Deviating Sample Overview (Page 3)
Table of Method Descriptions (Page 4)
Table of Report Notes (Page 5)
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of
SOCOTEC UK Lim
Becky Batham

Operations Manager
Energy & Waste Services

Date of Issue: 22-Mar-2019

Tests marked '^' have been subcontracted to another laboratory.

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected.

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

CustomerSOCOTEC UK Wokingham
SiteD8061-18 Site Investigation at Ashby House & Cannock
Report NoS196951

Consignment No S83535
Date Logged 15-Mar-2019
In-House Report Due 26-Mar-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	CustServ	Dep Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	TSBRE1	WSLMS0
		Sampled											
			REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	Total Sulphur.	pH (BS1377)
							✓		✓				
CL/1951470	BH01 6.00-6.45	D	D	D	D	D	D	D	D	D	D	D	D

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key

AThe sample was received in an inappropriate container for this analysis
BThe sample was received without the correct preservation for this analysis
CHeadspace present in the sample container
DThe sampling date was not supplied so holding time may be compromised - applicable to all analysis
ESample processing did not commence within the appropriate holding time
FSample processing did not commence within the appropriate handling time

Requested Analysis Key

Analysis Required
Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
No analysis scheduled

^

Analysis Subcontracted - **Note: due date may vary**

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Oven Dried @ < 35°C	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPWSS	Oven Dried @ < 35°C	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	TSBRE1	Oven Dried @ < 35°C	Determination of Total Carbon and/or Total Sulphur in solid samples by high temperature combustion/infrared detection
Soil	WSLM50	Oven Dried @ < 35°C	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³@ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

▮ Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Site Investigation at Ashby House & Canno
Report Number : S19_6951

Note: major constituent in upper case

TEST REPORT

Report No. EXR/277131 (Ver. 1)

SOCOTEC UK Wokingham
SOCOTEC UK Limited Wokingham
Glossop House
Hogwood Lane
Wokingham
RG40 4QW

Site: D8061-18 Ashley Road South

The 1 sample described in this report were registered for analysis by SOCOTEC UK Limited on 21-Jan-2019. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 30-Jan-2019

The following tables are contained in this report:

Table 1 Main Analysis Results (Page 2)
Analytical and Deviating Sample Overview (Page 3)
Table of Method Descriptions (Page 4)
Table of Report Notes (Page 5)
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of
SOCOTEC UK Lim
Becky Batham



Operations Manager
Energy & Waste Services

Date of Issue: 30-Jan-2019

Tests marked '^' have been subcontracted to another laboratory.

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected.

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

Units : Method Codes : Method Reporting Limits :			mg/l ICPWATVAR 3	pH units WSLM3																	
LAB ID Number EX/	Client Sample Description	Sample Date	Total Sulphur as SO4 (Dissolved) a	pH units w																	
					SOCOTEC  Bretby Business Park, Ashby Road Burton-on-Trent, Staffordshire, DE15 0YZ Tel +44 (0) 1283 554400 Fax +44 (0) 1283 554422			Client Name Contact	SOCOTEC UK Wokingham Platon Kostelletos	Sample Analysis											
										Date Printed	30-Jan-2019										
										Report Number	EXR/277131										
					Table Number	1															

Sample Analysis

SOCOTEC UK Ltd Environmental Chemistry Analytical and Deviating Sample Overview

W277131

Customer SOCOTEC UK Wokingham
Site D8061-18 Ashley Road South
Report No W277131

Consignment No W149289
Date Logged 21-Jan-2019
In-House Report Due 01-Feb-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID		QUEST	ICMATTAR	WSLM3
		Matrix Type	Sampled	Report A	Total Sulphur as SO ₄ (Diss) VAR	pH units
EX/1947301	BH2 2.50	Unclassified	17/01/19			

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key

- A The sample was received in an inappropriate container for this analysis
- B The sample was received without the correct preservation for this analysis
- C Headspace present in the sample container
- D The sampling date was not supplied so holding time may be compromised - applicable to all analysis
- E Sample processing did not commence within the appropriate holding time
- F Sample processing did not commence within the appropriate handling time

Requested Analysis Key

- ☐ Analysis Required
- ☐ Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
- ☐ No analysis scheduled
- ☐ Analysis Subcontracted - **Note: due date may vary**

The integrity of data for samples/analysis that have been categorised as Deviating may be compromised. Data may not be representative of the sample at the time of sampling. Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	ICPWATVAR	As Received	Direct determination of Metals and Sulphate in water samples using ICPOES
Water	WSLM3	As Received	Determination of the pH of water samples by pH probe

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³@ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

▮ Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Ashley Road South
Report Number : W27_7131

Sample Analysis

SOCOTEC UK Ltd Environmental Chemistry Analytical and Deviating Sample Overview

W277842

Customer SOCOTEC UK Wokingham
Site D8061-18 Ashley Road South
Report No W277842

Consignment No W149882
Date Logged 01-Feb-2019
In-House Report Due 12-Feb-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID		QUISTERN	ICPMA/TYAR	WSLM3
		Matrix Type	Sampled	Report A	Total Sulphur as SO ₄ (Diss) VAR	pH units
					✓	✓
EX/1950207	BH4 3.60	Groundwater	30/01/19			
EX/1950208	BH2 28.70	Groundwater	30/01/19			

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key

- A The sample was received in an inappropriate container for this analysis
- B The sample was received without the correct preservation for this analysis
- C Headspace present in the sample container
- D The sampling date was not supplied so holding time may be compromised - applicable to all analysis
- E Sample processing did not commence within the appropriate holding time
- F Sample processing did not commence within the appropriate handling time

Requested Analysis Key

- Analysis Required
- Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
- No analysis scheduled
- Analysis Subcontracted - **Note: due date may vary**

The integrity of data for samples/analysis that have been categorised as Deviating may be compromised. Data may not be representative of the sample at the time of sampling. Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	ICPWATVAR	As Received	Direct determination of Metals and Sulphate in water samples using ICPOES
Water	WSLM3	As Received	Determination of the pH of water samples by pH probe

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³@ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

▮ Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Ashley Road South
Report Number : W27_7842



SOCOTEC

APPENDIX E
GEOENVIRONMENTAL LABORATORY TEST RESULTS

Test Reports - Soil

EFS/195079M

EFS/195219M

EFS/195445M

EFS/195626M

EFS/195788M

EFS/196224M

Test Reports - Groundwater

EXR/282715

TEST REPORT



Report No. EFS/195079M (Ver. 1)

SOCOTEC UK Wokingham
Glossop House
Hogwood Lane
Finchamstead
Wokingham
Berkshire
RG40 4QW

Site: D8061-18 Ashley Road South

The 8 samples described in this report were registered for analysis by SOCOTEC UK Limited on 25-Jan-2019. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 05-Feb-2019

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS or MCERTS accredited. Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by SOCOTEC UK Limited.

The following tables are contained in this report:

Table 1 Main Analysis Results (Pages 2 to 10)
Table of WAC Analysis Results (Pages 11 to 12)
Subcontracted Analysis Reports (Page 13)
The accreditation status of subcontracted analysis is displayed on the appended subcontracted analysis reports.
Table of Asbestos Screening Results (Page 14)
Analytical and Deviating Sample Overview (Pages 15 to 16)
Table of Additional Report Notes (Page 17)
Table of Method Descriptions (Pages 18 to 19)
Table of Report Notes (Page 20)
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of
SOCOTEC UK Lim
Becky Batham

Operations Manager
Energy & Waste Services

Date of Issue: 05-Feb-2019

Accreditation Codes: **N** (Not Accredited), **U** (UKAS), **UM** (UKAS & MCERTS)

Tests marked '^' have been subcontracted to another laboratory.

(NVM) - denotes the sample matrix is dissimilar to matrices upon which the MCERTS validation was based, and is therefore not accredited for MCERTS.

All results are reported on a dry weight basis at 105°C unless otherwise stated. (except QC samples)

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

WASTE ACCEPTANCE CRITERIA TESTING BSEN 12457/2

Client	SOCOTEC UK Wokingham				Leaching Data	
					Weight of sample (kg)	0.101
Contact	Platon Kostelletos				Moisture content @ 105°C (% of Wet Weight)	8.8
					Equivalent Weight based on drying at 105°C (kg)	0.090
Site	D8061-18 Ashley Road South				Volume of water required to carry out 10:1 stage (litres)	0.889
					Fraction of sample above 4 mm %	6.100
Sample Description		Report No	Sample No	Issue Date	Fraction of non-crushable material %	0.000
BH2 ES 8 1.60		s19_5079M	CL/1943333	05-Feb-19		

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	0.64	3	5	6
N	LOI450	Loss on Ignition (%)	1.6			10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.0659	6		
U	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	4420	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.90	100		
U	PHSOIL	pH (pH units)	7.6		>6	
N	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7	0.63		To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Calculated cumulative amount	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/2 @ L/S 10 litre kg-1		
			mg/l except °°	mg/kg (dry weight)			
U	WSLM3	pH (pH units) °°	8.8	Calculated data not UKAS Accredited			
U	WSLM2	Conductivity (µs/cm) °°	245				
U	ICPMSW	Arsenic	0.006	0.06	0.5	2	25
U	ICPWATVAR	Barium	0.02	0.2	20	100	300
U	ICPMSW	Cadmium	<0.0001	<0.001	0.04	1	5
U	ICPMSW	Chromium	0.008	0.08	0.5	10	70
U	ICPMSW	Copper	0.01	0.1	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.01	0.1	0.5	10	30
U	ICPMSW	Nickel	0.001	0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.014	0.14	0.06	0.7	5
U	ICPMSW	Selenium	0.001	0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	16	160	800	15000	25000
U	ISEF	Fluoride	0.8	8	10	150	500
U	ICPWATVAR	Sulphate as SO4	64	640	1000	20000	50000
N	WSLM27	Total Dissolved Solids	191	1910	4000	60000	100000
U	SFAP1	Phenol Index	<0.05	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	8.3	83	500	800	1000

Template Ver. 1 Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.
Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

WASTE ACCEPTANCE CRITERIA TESTING BSEN 12457/2

Client	SOCOTEC UK Wokingham				Leaching Data	
					Weight of sample (kg)	0.101
Contact	Platon Kostelletos				Moisture content @ 105°C (% of Wet Weight)	5.6
					Equivalent Weight based on drying at 105°C (kg)	0.090
Site	D8061-18 Ashley Road South				Volume of water required to carry out 10:1 stage (litres)	0.889
					Fraction of sample above 4 mm %	45.000
Sample Description		Report No	Sample No	Issue Date	Fraction of non-crushable material %	0.000
BH2 ES 11 2.50		s19_5079M	CL/1943336	05-Feb-19		

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	0.57	3	5	6
N	LOI450	Loss on Ignition (%)	1.5			10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.0636	6		
U	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	710	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.44	100		
U	PHSOIL	pH (pH units)	8.6		>6	
N	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7	0.74		To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Calculated cumulative amount	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/2 @ L/S 10 litre kg-1		
			mg/l except °°	mg/kg (dry weight)			
U	WSLM3	pH (pH units) °°	11.2	Calculated data not UKAS Accredited			
U	WSLM2	Conductivity (µs/cm) °°	537				
U	ICPMSW	Arsenic	0.005	0.05	0.5	2	25
U	ICPWATVAR	Barium	0.04	0.4	20	100	300
U	ICPMSW	Cadmium	<0.0001	<0.001	0.04	1	5
U	ICPMSW	Chromium	0.01	0.1	0.5	10	70
U	ICPMSW	Copper	0.03	0.3	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.01	0.1	0.5	10	30
U	ICPMSW	Nickel	0.002	0.02	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.012	0.12	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.004	0.04	4	50	200
U	KONENS	Chloride	22	220	800	15000	25000
U	ISEF	Fluoride	0.4	4	10	150	500
U	ICPWATVAR	Sulphate as SO4	46	460	1000	20000	50000
N	WSLM27	Total Dissolved Solids	419	4190	4000	60000	100000
U	SFAP1	Phenol Index	<0.05	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	4.1	41	500	800	1000

Template Ver. 1 Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.
Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

CERTIFICATE FOR IDENTIFICATION OF ASBESTOS FIBRES

SOCOTEC Asbestos Limited

Bretby Business Park,
Ashby Road, Burton upon Trent,
Staffordshire
DE15 0YZ

Telephone: 01283 554499
E-mail: ecs.bretby@socotec.com

Client	Environmental Chemistry	Delivered/Collected	Collected
Address	PO Box 100, Bretby Business Park, Ashby Road, Burton on Trent, Staffs, DE15 0XD	Analysis Report No	B130488
Attention		Report Date	31/Jan/2019
Site Address	SOCOTEC UK Wokingham, D8061 - 18 Ashley Road South	Site Ref No	2130-S195079
Date Sample Taken		Page No	1 of 1
Date Sample Received	30/01/2019	No of Samples	1
Date of Analysis	31/01/2019		

SOCOTEC Asbestos SAMPLE No	CLIENT SAMPLE No	SAMPLE LOCATION & DESCRIPTION*	FIBRE TYPE DETECTED	ANALYSIS No
001	CL/1943335	Sample - PH3 0.90, KF514, S82086 - Cement	CHRYSTOTILE	2130-S195079-001-001

KEY: NADIS - No Asbestos Detected in Sample.
All samples will be retained for a minimum of 6 Months.

Analysed by:	Name: Nathan Benson	Authorised signatory:	Name: TOM PRATT
	Position: Lab Analyst		Position: Laboratory Assistant

BULK005-VER 15 18-OCT 2017

Samples of material referenced above have been examined using our internal procedure SCI/ASB/007, based on HSE's HSG248, Asbestos: The Analysts guide for sampling, analysis and clearance procedures. If samples have been DELIVERED, the site address and actual sample location is as given by the client at the time of delivery. SOCOTEC Asbestos Limited is not responsible for the accuracy or competence of the sampling by third parties, and can therefore not be held responsible for any interpretation of the results shown. The inspection report shall not be reproduced except in full without the approval of the inspection body and the client. *Please note that the sample description, material type and comments/observations are opinions and therefore not within the scope of UKAS accreditation.

ASBESTOS ANALYSIS RESULTS							 1089		Detection limit of Method SCI-ASB-020 is 0.001% Sampling has been carried out by a third party			
SOCOTEC Asbestos Limited Certificate of Analysis for Asbestos in Soils, Sediments and Aggregates												
Client:			SOCOTEC Environmental Chemistry					Page 1 of 1				
Address:			Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent					Report No:		ANO-0503-20142		
For the attention of:			SOCOTEC UK Wokingham					Report Date:		01/02/2019		
Site Address:			D8061-18 Ashley Road South					Project Number:		S195079		
Sample Number	Sample Date	Sample Location & Matrix	Test Date	Total Sample Dry Weight (g)	Weight of <10mm Fraction (g)	Asbestos(g) in >10mm	Asbestos(g) in < 10mm	% Asbestos by weight of Total Dried Sample	Moisture Content	Asbestos Fibre Types Identified		
CL/1943329	16/01/19	PH1 0.60 Soils	01/02/2019	570.6	570.5			Identification		Amosite & Chrysotile(Insulating Board, Free Fibres)		
CL/1943330	16/01/19	PH2 0.50 Soils	01/02/2019	664.8	463.2			Identification		NAIIS		
CL/1943331	16/01/19	PH2 0.65 Soils	01/02/2019	660.2	658.4			Identification		NAIIS		
CL/1943332	17/01/19	BH2 0.70 Soils	01/02/2019	579.3	298.8			Identification		NAIIS		
CL/1943333	17/01/19	BH2 1.60 Soils	01/02/2019	1208.2	897.7			Identification		NAIIS		
CL/1943334	17/01/19	BH2 2.20 Soils	01/02/2019	1895.1	1318.8			Identification		NAIIS		
CL/1943336	17/01/19	BH2 2.50 Soils	01/02/2019	1561.4	761.9			Identification		NAIIS		
Keys	NAACR = Not Analysed at Clients Request				NAIIS = No Asbestos Identified in Sample (Identification Only)				Name:	Tom Pratt	Authorised Signatory:	
	* visible to naked eye				NADIS = No Asbestos Detected in Sample (ID & Quant Only)				Position:	Lab Coordinator		
The sample analysis for the above results was carried out using the procedures detailed in SOCOTEC Asbestos Limited in house method (SCI-ASB-020) based on EA document Quantification of asbestos in soil and associated materials - Draft 2017. Fibre identification was carried out using SOCOTEC Asbestos Limited in house method of transmitted/polarised light microscopy and centre stop dispersion staining (SCI-ASB-007), based on HSE's HSG 248. The analysis of the < 10mm fraction for asbestos content only includes ACMs and fibres and does not discriminate non-asbestos fibres. All fibres are assumed, unless specified, to be amphiboles. All tests were carried out at a SOCOTEC Asbestos Ltd laboratory, UKAS Testing Number 1089. Recommended sample weight is 1kg-2kg, samples less than 1kg are classified as deviating samples.												

Customer SOCOTEC UK Wokingham
 Site D8061-18 Ashley Road South
 Report No S195079M

Consignment No S82086
 Date Logged 25-Jan-2019
 In-House Report Due 05-Feb-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	ANC	BTEXHSA	CEN Leac(P)C	Cu/Serv	GROHSA	ICPMSS	Chromium vi:	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Phenol Index:(AR)	SFAPI	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS	MCErTS	LOI(%MM)	KONECR	Zinc (MS)	Vanadium (MS)	Selenium (MS)	Nickel (MS)	Mercury (MS)	Lead (MS)	Copper (MS)	Chromium (MS)	Cadmium (MS)	Arsenic (MS)	GRO (AA-UK) HSA-GCFID	REPORT A	CEN Leac(P)C	MTBE (µg/kg)	BTEX-HSA + MTBE analysis	Acid Neut. Capacity	PHSOIL	PCBECD	PAHMSUS</
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Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key

- A The sample was received in an inappropriate container for this analysis
- B The sample was received without the correct preservation for this analysis
- C Headspace present in the sample container
- D The sampling date was not supplied so holding time may be compromised - applicable to all analysis
- E Sample processing did not commence within the appropriate holding time
- F Sample processing did not commence within the appropriate handling time

Requested Analysis Key

- Analysis Required
- Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
- No analysis scheduled
- Analysis Subcontracted - **Note: due date may vary**

Sample Analysis

SOCOTEC UK Ltd Environmental Chemistry Analytical and Deviating Sample Overview

S195079M

Customer SOCOTEC UK Wokingham
Site D8061-18 Ashley Road South
Report No S195079M

Consignment No S82086
Date Logged 25-Jan-2019
In-House Report Due 05-Feb-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	Sub002	Sub002a	TMS	TPH005	TPH005I	VOC005	WLS005
		Sampled	^Asbestos Screen & ID (Stage 1)	^Asbestos Bulk ID	Tot.Moisture @ 105C	TPH Band (>C10-C40)	TPH by GC/FID (AR)	TPH by GC/FID (Si-UKCWG)>44	VOC HSA-GCMS
			✓	✓	✓	✓	✓	✓	✓
CL/1943329	PH1 0.60	16/01/19							
CL/1943330	PH2 0.50	16/01/19							
CL/1943331	PH2 0.65	16/01/19							
CL/1943332	BH2 0.70	17/01/19							
CL/1943333	BH2 1.60	17/01/19							
CL/1943334	BH2 2.20	17/01/19							
CL/1943335	PH3 0.90	15/01/19							
CL/1943336	BH2 2.50	17/01/19							

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key

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Requested Analysis Key

- Analysis Required
- Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
- No analysis scheduled
- Analysis Subcontracted - **Note: due date may vary**

Additional Report Notes

Method Code	Sample ID	The following information should be taken into consideration when using the data contained within this report
VOCHSAS	CL1943329 TO CL1943334 CL1943336	The Primary process control data associated with this Test has not wholly met the requirements of the Laboratory Quality Management System QMS with one or more target analytes falling outside acceptable limits. However the remaining data gives the Laboratory confidence that the test has performed satisfactorily and that the validity of the data may not have been significantly affected. However in line with our QMS policy we have removed accreditation, where applicable, from the affected analytes (Chloroethane, 1,2-Dichloropropane, Toluene, 1,2,3-Trichlorobenzene) . These circumstances should be taken into consideration when utilising the data.
VOCHSAS	CL1943330	Due to matrix interference, the Surrogate (Dibromofluoromethane) recovery for this Test is below the required QMS specification. This has been confirmed by testing the pH of the sample which was above pH7.0. Surrogate is known to degrade in alkaline samples. All other Laboratory Process Controls meet the requirements of the QMS unless otherwise stated. These circumstances should be taken into consideration when utilising the data
VOCHSAS	CL1943334	Due to matrix interference, the Internal Standard recovery for this Test is below the required QMS specification. This has been confirmed by repeating the analysis. All other Laboratory Process Controls meet the requirements of the QMS unless otherwise stated. These circumstances should be taken into consideration when utilising the data.
BTEXHSA	CL1943333 CL1943336	The Secondary process control data associated with this Test has not wholly met the requirements of the Laboratory Quality Management System QMS with one or more target analytes falling outside acceptable limits. However the remaining data gives the Laboratory confidence that the test has performed satisfactorily (including the Primary Process Control) and that the validity of the data may not have been significantly affected. However in line with our QMS policy we have removed accreditation , where applicable, from the affected analytes (MTBE) . These circumstances should be taken into consideration when utilising the data.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ANC	Oven Dried @ < 35°C	Quantitative digestion with Hydrochloric Acid back titration with 1M Sodium Hydroxide to pH 7
Soil	BTEXHSA	As Received	Determination of Benzene, Toluene, Ethyl benzene and Xylenes (BTEX) by Headspace GCFID
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPMSS	Oven Dried @ < 35°C	Determination of Metals in Marine Sediments and Soil samples by aqua regia digestion followed by ICPMS detection
Soil	KONECR	Oven Dried @ < 35°C	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	LOI(%MM)	Oven Dried @ < 35°C	Determination of loss on ignition for soil samples at specified temperature by gravimetry
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PCBECD	As Received	Determination of Polychlorinated Biphenyl (PCB) congeners/aroclor by hexane/acetone extraction followed by GCECD detection
Soil	PHSOIL	As Received	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.
Soil	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Soil	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
Soil	TMSS	As Received	Determination of the Total Moisture content at 105°C by loss on oven drying gravimetric analysis (% based upon wet weight)
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection.
Soil	TPHUSSI	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection including quantitation of Aromatic and Aliphatic fractions.
Soil	VOCHSAS	As Received	Determination of Volatile Organic Compounds (VOC) by Headspace GCMS
Soil	WSLM59	Oven Dried @ < 35°C	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection
Water	ICPMSW	As Received	Direct quantitative determination of Metals in water samples using ICPMS
Water	ICPWATVAR	As Received	Direct determination of Metals and Sulphate in water samples using ICPOES
Water	ISEF	As Received	Determination of Fluoride in water samples by Ion Selective Electrode (ISE)

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Water	WSLM13	As Received	Instrumental analysis using acid/persulphate digestion and non-dispersive IR detection
Water	WSLM2	As Received	Determination of the Electrical Conductivity ($\mu\text{S}/\text{cm}$) by electrical conductivity probe.
Water	WSLM27	As Received	Gravimetric Determination
Water	WSLM3	As Received	Determination of the pH of water samples by pH probe

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³ @ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

p Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Ashley Road South
Report Number : S19_5079

Note: major constituent in upper case

[illegible]

TEST REPORT



Report No. EFS/195219M (Ver. 1)

SOCOTEC UK Wokingham
Glossop House
Hogwood Lane
Finchamstead
Wokingham
Berkshire
RG40 4QW

Site: D8061-18 Ashley Road South

The 3 samples described in this report were registered for analysis by SOCOTEC UK Limited on 30-Jan-2019. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 07-Feb-2019

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS or MCERTS accredited. Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by SOCOTEC UK Limited.

The following tables are contained in this report:

Table 1 Main Analysis Results (Pages 2 to 10)
Table of WAC Analysis Results (Pages 11 to 12)
Subcontracted Analysis Reports (Pages 13 to 14)
The accreditation status of subcontracted analysis is displayed on the appended subcontracted analysis reports.
Analytical and Deviating Sample Overview (Pages 15 to 16)
Table of Additional Report Notes (Page 17)
Table of Method Descriptions (Pages 18 to 19)
Table of Report Notes (Page 20)
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of
SOCOTEC UK Lim
Becky Batham

Operations Manager
Energy & Waste Services

Date of Issue: 07-Feb-2019

Accreditation Codes: **N** (Not Accredited), **U** (UKAS), **UM** (UKAS & MCERTS)

Tests marked '^' have been subcontracted to another laboratory.

(NVM) - denotes the sample matrix is dissimilar to matrices upon which the MCERTS validation was based, and is therefore not accredited for MCERTS.

All results are reported on a dry weight basis at 105°C unless otherwise stated. (except QC samples)

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

WASTE ACCEPTANCE CRITERIA TESTING

BSEN 12457/3

Client	SOCOTEC UK Wokingham				Leaching Data	
					Weight of sample (kg)	0.230
Contact	Platon Kostelletos				Moisture content @ 105°C (% of Wet Weight)	6.7
					Equivalent Weight based on drying at 105°C (kg)	0.225
Site	D8061-18 Ashley Road South				Volume of water required to carry out 2:1 stage (litres)	0.445
					Fraction of sample above 4 mm %	0.000
Sample Description		Report No	Sample No	Issue Date	Fraction of non-crushable material %	0.000
BH2 ES 14 3.50		s19_5219M	CL/1943941	07-Feb-19	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	0.096§	3	5	6
N	LOI450	Loss on Ignition (%)	0.8			10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.0642	6		
U	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
N	TPHFIDUS	Mineral Oil (mg/kg)	253§	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.46	100		
N	PHSOIL	pH (pH units)	7.4 §		>6	
N	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7	0.69		To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1		
			mg/l except ^{oo}		mg/kg (dry weight)		mg/kg (dry weight)		
U	WSLM3	pH (pH units) ^{oo}	9.8	8.8	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ^{oo}	352	121					
U	ICPMSW	Arsenic	0.011	0.007	0.022	0.08	0.5	2	25
U	ICPWATVAR	Barium	0.03	0.02	0.06	0.2	20	100	300
U	ICPMSW	Cadmium	<0.0001	<0.0001	<0.0002	<0.001	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.001	<0.002	<0.01	0.5	10	70
U	ICPMSW	Copper	0.003	<0.001	0.006	<0.01	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.006	<0.001	0.012	<0.02	0.5	10	30
U	ICPMSW	Nickel	0.001	<0.001	0.002	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.001	<0.002	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.002	<0.001	0.004	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	0.001	<0.001	0.002	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.002	<0.004	<0.02	4	50	200
U	KONENS	Chloride	2	<1	4	<11	800	15000	25000
U	ISEF	Fluoride	0.5	0.2	1	2	10	150	500
U	ICPWATVAR	Sulphate as SO4	121	<3	242	<187	1000	20000	50000
N	WSLM27	Total Dissolved Solids	274	94.6	548	1185	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	3.2	0.91	6.4	12	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

WASTE ACCEPTANCE CRITERIA TESTING

BSEN 12457/3

Client	SOCOTEC UK Wokingham				Leaching Data	
					Weight of sample (kg)	0.296
Contact	Platon Kostelletos				Moisture content @ 105°C (% of Wet Weight)	24.8
					Equivalent Weight based on drying at 105°C (kg)	0.225
Site	D8061-18 Ashley Road South				Volume of water required to carry out 2:1 stage (litres)	0.379
					Fraction of sample above 4 mm %	0.000
Sample Description		Report No	Sample No	Issue Date	Fraction of non-crushable material %	
BH2 ES 21 6.80		s19_5219M	CL/1943943	07-Feb-19	Volume to undertake analysis (2:1 Stage) (litres)	
					Weight of Deionised water to carry out 8:1 stage (kg)	
					1.650	

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	0.49	3	5	6
N	LOI450	Loss on Ignition (%)	4.2			10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.0798	6		
U	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.049	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	17.2	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.81	100		
U	PHSOIL	pH (pH units)	8.2		>6	
N	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7	0.09		To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1		
			mg/l except °°		mg/kg (dry weight)		mg/kg (dry weight)		
U	WSLM3	pH (pH units) °°	7.6	8	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) °°	308	126					
U	ICPMSW	Arsenic	0.001	0.001	0.002	0.01	0.5	2	25
U	ICPWATVAR	Barium	0.01	<0.01	0.02	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.0001	<0.0001	<0.0002	<0.001	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.001	<0.002	<0.01	0.5	10	70
U	ICPMSW	Copper	<0.001	<0.001	<0.002	<0.01	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.017	0.005	0.034	0.07	0.5	10	30
U	ICPMSW	Nickel	<0.001	<0.001	<0.002	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.001	<0.002	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.002	0.003	0.004	0.03	0.06	0.7	5
U	ICPMSW	Selenium	0.028	0.021	0.056	0.22	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	0.002	<0.004	<0.02	4	50	200
U	KONENS	Chloride	15	3	30	46	800	15000	25000
U	ISEF	Fluoride	1	0.6	2	7	10	150	500
U	ICPWATVAR	Sulphate as SO4	68	<3	136	<117	1000	20000	50000
N	WSLM27	Total Dissolved Solids	240	98.3	480	1172	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	0.06	<0.1	<0.6	1		
N	WSLM13	Dissolved Organic Carbon	1.1	0.83	2.2	9	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

CustomerSOCOTEC UK Wokingham
SiteD8061-18 Ashley Road South
Report NoS195219M

Consignment No S82329
Date Logged 30-Jan-2019
In-House Report Due 07-Feb-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	ANC	BTEXHSA	CEN Leach(P)1	CEN Leach(P)2	REPORT A	GROHSA	ICPMSS	Chromium (MS)	Copper (MS)	Lead (MS)	Mercury (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Chromium vi:	L.O.I. % @ 450C	MCerts	PAH (16) by GCMS	PAH (17) by GCMS	PCB-7 Congeners Analysis	pH units (AR)	Cyanide(Total) (AR)
		Sampled	Acid Neut. Capacity	BTEX-HSA + MTBE analysis	MTBE (µg/kg)			GRO (AA-UK) HSA-GCFID	Arsenic (MS)	Cadmium (MS)															
				✓	✓			✓	✓	✓	✓	✓	✓	✓	✓		✓				✓	✓	✓	✓	✓
CL/1943941	BH2 3.50	25/01/19																							
CL/1943942	BH2 5.50	25/01/19																							
CL/1943943	BH2 6.80	25/01/19																							

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key

AThe sample was received in an inappropriate container for this analysis
BThe sample was received without the correct preservation for this analysis
CHeadspace present in the sample container
DThe sampling date was not supplied so holding time may be compromised - applicable to all analysis
ESample processing did not commence within the appropriate holding time
FSample processing did not commence within the appropriate handling time

Requested Analysis Key

Analysis Required
Analysis dependant upon trigger result - Note: due date may be affected if triggered
No analysis scheduled

^

Analysis Subcontracted - Note: due date may vary

CustomerSOCOTEC UK Wokingham
SiteD8061-18 Ashley Road South
Report NoS195219M

Consignment No S82329
Date Logged 30-Jan-2019
In-House Report Due 07-Feb-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	SCAPI	SubID20	TMSS	TPHIDUS	TPHUSI	VOCHSAS	WSLMS9
		Sampled	Phenol Index (AR)	Asbestos ID and Quant (1 & 2)	Tot.Moisture @ 105C	TPH Band (>C10-C40)	TPH by GC/FID (AR)	TPH by GC/FID (Si-UKCWSG)>44	Total Organic Carbon
			✓	✓	✓	✓	✓	✓	✓
CL/1943941	BH2 3.50	25/01/19							
CL/1943942	BH2 5.50	25/01/19							
CL/1943943	BH2 6.80	25/01/19							

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key

AThe sample was received in an inappropriate container for this analysis
BThe sample was received without the correct preservation for this analysis
CHeadspace present in the sample container
DThe sampling date was not supplied so holding time may be compromised - applicable to all analysis
ESample processing did not commence within the appropriate holding time
FSample processing did not commence within the appropriate handling time

Requested Analysis Key

Analysis Required
Analysis dependant upon trigger result - Note: due date may be affected if triggered
No analysis scheduled

^

Analysis Subcontracted - Note: due date may vary

Additional Report Notes

Method Code	Sample ID	The following information should be taken into consideration when using the data contained within this report
TPHUSSI	CL1943941 TO CL1943943	The Secondary process control data associated with this Test has not wholly met the requirements of the Laboratory Quality Management System QMS with one or more target analytes falling outside acceptable limits. However the remaining data gives the Laboratory confidence that the test has performed satisfactorily (including the Primary Process Control) and that the validity of the data may not have been significantly affected. However in line with our QMS policy we have removed accreditation , where applicable, from the affected analytes (Banding C10-C12 on the Aliphatic fraction) . These circumstances should be taken into consideration when utilising the data.
VOCHSAW	CL/1943941 TO CL/1943943	The Primary process control data associated with this Test has not wholly met the requirements of the Laboratory Quality Management System QMS with one or more target analytes falling outside acceptable limits. However the remaining data gives the Laboratory confidence that the test has performed satisfactorily and that the validity of the data may not have been significantly affected. However in line with our QMS policy we have removed accreditation, where applicable, from the affected analytes (Dichlorodifluoromethane, Naphthalene) . These circumstances should be taken into consideration when utilising the data.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ANC	Oven Dried @ < 35°C	Quantitative digestion with Hydrochloric Acid back titration with 1M Sodium Hydroxide to pH 7
Soil	BTEXHSA	As Received	Determination of Benzene, Toluene, Ethyl benzene and Xylenes (BTEX) by Headspace GCFID
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPMSS	Oven Dried @ < 35°C	Determination of Metals in Marine Sediments and Soil samples by aqua regia digestion followed by ICPMS detection
Soil	KONECR	Oven Dried @ < 35°C	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	LOI(%MM)	Oven Dried @ < 35°C	Determination of loss on ignition for soil samples at specified temperature by gravimetry
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PCBECD	As Received	Determination of Polychlorinated Biphenyl (PCB) congeners/arocloris by hexane/acetone extraction followed by GCECD detection
Soil	PHSOIL	As Received	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.
Soil	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Soil	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
Soil	TMSS	As Received	Determination of the Total Moisture content at 105°C by loss on oven drying gravimetric analysis (% based upon wet weight)
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection.
Soil	TPHUSSI	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection including quantitation of Aromatic and Aliphatic fractions.
Soil	VOCHSAS	As Received	Determination of Volatile Organic Compounds (VOC) by Headspace GCMS
Soil	WSLM59	Oven Dried @ < 35°C	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection
Water	ICPMSW	As Received	Direct quantitative determination of Metals in water samples using ICPMS
Water	ICPWATVAR	As Received	Direct determination of Metals and Sulphate in water samples using ICPOES
Water	ISEF	As Received	Determination of Fluoride in water samples by Ion Selective Electrode (ISE)

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAP1	As Received	Segmented flow analysis with colorimetric detection
Water	WSLM13	As Received	Instrumental analysis using acid/persulphate digestion and non-dispersive IR detection
Water	WSLM2	As Received	Determination of the Electrical Conductivity ($\mu\text{S}/\text{cm}$) by electrical conductivity probe.
Water	WSLM27	As Received	Gravimetric Determination
Water	WSLM3	As Received	Determination of the pH of water samples by pH probe

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³@ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

▮ Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Ashley Road South
Report Number : S19_5219

Note: major constituent in upper case

TEST REPORT



Report No. EFS/195445M (Ver. 1)

SOCOTEC UK Wokingham
Glossop House
Hogwood Lane
Finchamstead
Wokingham
Berkshire
RG40 4QW

Site: D8061-18 Ashley Road South

The 3 samples described in this report were registered for analysis by SOCOTEC UK Limited on 05-Feb-2019. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 27-Feb-2019

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS or MCERTS accredited. Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by SOCOTEC UK Limited.

The following tables are contained in this report:

Table 1 Main Analysis Results (Pages 2 to 9)
Table of Asbestos Screening Results (Page 10)
Analytical and Deviating Sample Overview (Page 11)
Table of Additional Report Notes (Page 12)
Table of Method Descriptions (Page 13)
Table of Report Notes (Page 14)
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of
SOCOTEC UK Lim
Becky Batham

Operations Manager
Energy & Waste Services

Date of Issue: 27-Feb-2019

Accreditation Codes: **N** (Not Accredited), **U** (UKAS), **UM** (UKAS & MCERTS)

Tests marked '^' have been subcontracted to another laboratory.

(NVM) - denotes the sample matrix is dissimilar to matrices upon which the MCERTS validation was based, and is therefore not accredited for MCERTS.

All results are reported on a dry weight basis at 105°C unless otherwise stated. (except QC samples)

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

CustomerSOCOTEC UK Wokingham
SiteD8061-18 Ashley Road South
Report NoS195445M

Consignment No S82447
Date Logged 05-Feb-2019
In-House Report Due 14-Feb-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

VOCHSAS	VOC HSA-GCMS	✓		
TPHUSI	TPH by GC/FID (SI-UKCWG)>44	✓		
TMSS	Tot.Moisture @ 105C	✓		
Sub002	^Asbestos Screen & ID (Stage 1)	✓		
SFAP1	Phenol Index:(AR)	✓		
	Cyanide(Total) (AR)	✓		
	pH units (AR)	✓		
PHSOIL				
PAHMSUS	PAH (16) by GC/MS	✓		
MCerts	MCerts Analysis	✓		
KONECR	Chromium vi:			
	Zinc (MS)	✓		
	Vanadium (MS)			
	Selenium (MS)	✓		
	Nickel (MS)	✓		
	Mercury (MS)	✓		
	Lead (MS)	✓		
	Copper (MS)	✓		
	Chromium (MS)	✓		
	Cadmium (MS)	✓		
	ICPMSS	Arsenic (MS)	✓	
GROHSA	GRO (AA-UK) HSA-GC/FID	✓		
CUSTENV	REPORT A			
MethodID	Sampled			
ID Number	Description			
CL/1944902	BH4 0.40	29/01/19		
CL/1944903	BH4 1.20	30/01/19		
CL/1944904	BH4 2.10	30/01/19		

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key

AThe sample was received in an inappropriate container for this analysis
BThe sample was received without the correct preservation for this analysis
CHeadspace present in the sample container
DThe sampling date was not supplied so holding time may be compromised - applicable to all analysis
ESample processing did not commence within the appropriate holding time
FSample processing did not commence within the appropriate handling time

Requested Analysis Key

Analysis Required

Analysis dependant upon trigger result - Note: due date may be affected if triggered

No analysis scheduled

^Analysis Subcontracted - Note: due date may vary

Report Number : EFS/195445

Additional Report Notes

Method Code	Sample ID	The following information should be taken into consideration when using the data contained within this report
VOCHSAS	CL/1944902 to CL/1944904	The Primary process control data associated with this Test has not wholly met the requirements of the Laboratory Quality Management System QMS with one or more target analytes falling outside acceptable limits. However the remaining data gives the Laboratory confidence that the test has performed satisfactorily and that the validity of the data may not have been significantly affected. However in line with our QMS policy we have removed accreditation, where applicable, from the affected analytes (Dibromomethane, Bromodichloromethane, Toluene, 1,1,2-Trichloroethane, Tetrachloroethene, 1,3-Dichloropropane, 1,2-Dibromoethane, 2-Chlorotoluene, 1,3,5-Trimethylbenzene, 4-Chlorotoluene, tert-Butylbenzene, 1,2,4-Trimethylbenzene, sec-Butylbenzene, n-Butylbenzene, 1,2-Dichlorobenzene, Naphthalene) . These circumstances should be taken into consideration when utilising the data.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	BTEXHSA	As Received	Determination of Benzene, Toluene, Ethyl benzene and Xylenes (BTEX) by Headspace GCFID
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPMSS	Oven Dried @ < 35°C	Determination of Metals in Marine Sediments and Soil samples by aqua regia digestion followed by ICPMS detection
Soil	KONECR	Oven Dried @ < 35°C	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PHSOIL	As Received	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.
Soil	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Soil	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
Soil	TMSS	As Received	Determination of the Total Moisture content at 105°C by loss on oven drying gravimetric analysis (% based upon wet weight)
Soil	TPHUSSI	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection including quantitation of Aromatic and Aliphatic fractions.
Soil	VOCHSAS	As Received	Determination of Volatile Organic Compounds (VOC) by Headspace GCMS

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³@ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

P Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Ashley Road South
Report Number : S19_5445

Note: major constituent in upper case

TEST REPORT



Report No. EFS/195626M (Ver. 1)

SOCOTEC UK Wokingham
Glossop House
Hogwood Lane
Finchamstead
Wokingham
Berkshire
RG40 4QW

Site: D8061-18 Ashley Road South

The 2 samples described in this report were registered for analysis by SOCOTEC UK Limited on 11-Feb-2019. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 28-Feb-2019

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS or MCERTS accredited. Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by SOCOTEC UK Limited.

The following tables are contained in this report:

Table 1 Main Analysis Results (Pages 2 to 10)
Table of WAC Analysis Results (Page 11)
Subcontracted Analysis Reports (Pages 12 to 13)
The accreditation status of subcontracted analysis is displayed on the appended subcontracted analysis reports.
Analytical and Deviating Sample Overview (Pages 14 to 15)
Table of Additional Report Notes (Page 16)
Table of Method Descriptions (Pages 17 to 18)
Table of Report Notes (Page 19)
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of
SOCOTEC UK Lim
Becky Batham

Operations Manager
Energy & Waste Services

Date of Issue: 28-Feb-2019

Accreditation Codes: **N** (Not Accredited), **U** (UKAS), **UM** (UKAS & MCERTS)

Tests marked '^' have been subcontracted to another laboratory.

(NVM) - denotes the sample matrix is dissimilar to matrices upon which the MCERTS validation was based, and is therefore not accredited for MCERTS.

All results are reported on a dry weight basis at 105°C unless otherwise stated. (except QC samples)

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

WASTE ACCEPTANCE CRITERIA TESTING

BSEN 12457/2

Client	SOCOTEC UK Wokingham				Leaching Data	
					Weight of sample (kg)	0.110
Contact	Platon Kostelletos				Moisture content @ 105°C (% of Wet Weight)	14.5
					Equivalent Weight based on drying at 105°C (kg)	0.090
Site	D8061-18 Ashley Road South				Volume of water required to carry out 10:1 stage (litres)	0.880
					Fraction of sample above 4 mm %	0.000
Sample Description			Report No	Sample No	Issue Date	Fraction of non-crushable material %
BH3 ES 5 0.90			s19_5626M	CL/1945668	28-Feb-19	0.000

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	0.63	3	5	6
N	LOI450	Loss on Ignition (%)	3.5			10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.0702	6		
U	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.042	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	12.3	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.59	100		
U	PHSOIL	pH (pH units)	10.2		>6	
N	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7	1.69		To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/2 @ L/S 10 litre kg-1		
			mg/l except °°	mg/kg (dry weight)	mg/kg (dry weight)		
U	WSLM3	pH (pH units) °°	9.9	Calculated data not UKAS Accredited			
U	WSLM2	Conductivity (µs/cm) °°	447				
U	ICPMSW	Arsenic	0.02	0.2	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.0001	<0.001	0.04	1	5
U	ICPMSW	Chromium	0.004	0.04	0.5	10	70
U	ICPMSW	Copper	0.037	0.37	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.018	0.18	0.5	10	30
U	ICPMSW	Nickel	0.001	0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.004	0.04	0.06	0.7	5
U	ICPMSW	Selenium	0.004	0.04	0.1	0.5	7
U	ICPMSW	Zinc	0.002	0.02	4	50	200
U	KONENS	Chloride	32	320	800	15000	25000
U	ISEF	Fluoride	0.4	4	10	150	500
U	ICPWATVAR	Sulphate as SO4	34	340	1000	20000	50000
N	WSLM27	Total Dissolved Solids	349	3490	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	11	110	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Consignment No S82497
Date Logged 11-Feb-2019
In-House Report Due 20-Feb-2019

[illegible]

	Analysis Required
	Analysis dependant upon trigger result - Note: due date may be affected if triggered
	No analysis scheduled
^	Analysis Subcontracted - Note: due date may vary

CustomerSOCOTEC UK Wokingham
SiteD8061-18 Ashley Road South
Report NoS195626M

Consignment No S82497
Date Logged 11-Feb-2019
In-House Report Due 20-Feb-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	Sub020	TMSS	TPH020S	TPH020SI	VOCHSAS	WSLMS9
		Sampled	Asbestos ID (Stage 1)	Tot.Moisture @ 105C	TPH Band (>C10-C40)	TPH by GC/FID (AR)	TPH by GC/FID (Si-UKCWG)>44	Total Organic Carbon
			✓	✓	✓	✓	✓	✓
CL/1945667	BH3 0.40	01/02/19						
CL/1945668	BH3 0.90	01/02/19						

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key	
A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time
Requested Analysis Key	
	Analysis Required
	Analysis dependant upon trigger result - Note: due date may be affected if triggered
	No analysis scheduled
^	Analysis Subcontracted - Note: due date may vary

Report Number : EFS/195626

Additional Report Notes

Method Code	Sample ID	The following information should be taken into consideration when using the data contained within this report
VOCHSAS	CL/1945667 CL/1945668	The Primary process control data associated with this Test has not wholly met the requirements of the Laboratory Quality Management System QMS with one or more target analytes falling outside acceptable limits. However the remaining data gives the Laboratory confidence that the test has performed satisfactorily and that the validity of the data may not have been significantly affected. However in line with our QMS policy we have removed accreditation, where applicable, from the affected analytes (Dibromomethane, Bromodichloromethane, Toluene, 1,1,2-Trichloroethane, Tetrachloroethene, 1,2-Dibromoethane, 1,1,1,2-Tetrachloroethene, Bromoform, 2-Chlorotoluene, 4-Chlorotoluene, n-Butylbenzene, Naphthalene) . These circumstances should be taken into consideration when utilising the data.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ANC	Oven Dried @ < 35°C	Quantitative digestion with Hydrochloric Acid back titration with 1M Sodium Hydroxide to pH 7
Soil	BTEXHSA	As Received	Determination of Benzene, Toluene, Ethyl benzene and Xylenes (BTEX) by Headspace GCFID
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPMSS	Oven Dried @ < 35°C	Determination of Metals in Marine Sediments and Soil samples by aqua regia digestion followed by ICPMS detection
Soil	KONECR	Oven Dried @ < 35°C	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	LOI(%MM)	Oven Dried @ < 35°C	Determination of loss on ignition for soil samples at specified temperature by gravimetry
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PCBECD	As Received	Determination of Polychlorinated Biphenyl (PCB) congeners/arocloris by hexane/acetone extraction followed by GCECD detection
Soil	PHSOIL	As Received	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.
Soil	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Soil	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
Soil	TMSS	As Received	Determination of the Total Moisture content at 105°C by loss on oven drying gravimetric analysis (% based upon wet weight)
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection.
Soil	TPHUSSI	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection including quantitation of Aromatic and Aliphatic fractions.
Soil	VOCHSAS	As Received	Determination of Volatile Organic Compounds (VOC) by Headspace GCMS
Soil	WSLM59	Oven Dried @ < 35°C	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection
Water	ICPMSW	As Received	Direct quantitative determination of Metals in water samples using ICPMS
Water	ICPWATVAR	As Received	Direct determination of Metals and Sulphate in water samples using ICPOES
Water	ISEF	As Received	Determination of Fluoride in water samples by Ion Selective Electrode (ISE)

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAP1	As Received	Segmented flow analysis with colorimetric detection
Water	WSLM13	As Received	Instrumental analysis using acid/persulphate digestion and non-dispersive IR detection
Water	WSLM2	As Received	Determination of the Electrical Conductivity ($\mu\text{S}/\text{cm}$) by electrical conductivity probe.
Water	WSLM27	As Received	Gravimetric Determination
Water	WSLM3	As Received	Determination of the pH of water samples by pH probe

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³@ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

▮ Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Ashley Road South
Report Number : S19_5626

Note: major constituent in upper case

TEST REPORT



Report No. EFS/195788M (Ver. 1)

SOCOTEC UK Wokingham
Glossop House
Hogwood Lane
Finchamstead
Wokingham
Berkshire
RG40 4QW

Site: D8061-18 Ashley Road South

The 2 samples described in this report were registered for analysis by SOCOTEC UK Limited on 14-Feb-2019. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 25-Feb-2019

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS or MCERTS accredited. Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by SOCOTEC UK Limited.

The following tables are contained in this report:

Table 1 Main Analysis Results (Pages 2 to 4)
Table of WAC Analysis Results (Pages 5 to 6)
Analytical and Deviating Sample Overview (Page 7)
Table of Method Descriptions (Page 8)
Table of Report Notes (Page 9)
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of
SOCOTEC UK Lim
Becky Batham

Operations Manager
Energy & Waste Services

Date of Issue: 25-Feb-2019

Accreditation Codes: **N** (Not Accredited), **U** (UKAS), **UM** (UKAS & MCERTS)

Tests marked '^' have been subcontracted to another laboratory.

(NVM) - denotes the sample matrix is dissimilar to matrices upon which the MCERTS validation was based, and is therefore not accredited for MCERTS.

All results are reported on a dry weight basis at 105°C unless otherwise stated. (except QC samples)

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

WASTE ACCEPTANCE CRITERIA TESTING BSEN 12457/2

Client	SOCOTEC UK Wokingham			Leaching Data	
				Weight of sample (kg)	0.111
Contact	Platon Kostelietos			Moisture content @ 105°C (% of Wet Weight)	17.9
				Equivalent Weight based on drying at 105°C (kg)	0.090
Site	D8061-18 Ashley Road South			Volume of water required to carry out 10:1 stage (litres)	0.879
				Fraction of sample above 4 mm %	0.000
Sample Description		Report No	Sample No	Issue Date	Fraction of non-crushable material %
BH4 ES 5 0.90		s19_5788M	CL/1946277	25-Feb-19	0.000

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	3.1	3	5	6
N	LOI450	Loss on Ignition (%)	5.1			10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.0732	6		
U	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.042	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	191	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<36.26	100		
U	PHSOIL	pH (pH units)	8.4		>6	
N	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7	3.4		To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/2 @ L/S 10 litre kg-1		
			mg/l except ^{oo}	mg/kg (dry weight)			
U	WSLM3	pH (pH units) ^{oo}	7.6	Calculated data not UKAS Accredited			
U	WSLM2	Conductivity (µs/cm) ^{oo}	280				
U	ICPMSW	Arsenic	0.004	0.04	0.5	2	25
U	ICPWATVAR	Barium	0.03	0.3	20	100	300
U	ICPMSW	Cadmium	<0.0001	<0.001	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.005	0.05	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.037	0.37	0.5	10	30
U	ICPMSW	Nickel	<0.001	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.021	0.21	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.003	0.03	4	50	200
U	KONENS	Chloride	<1	<10	800	15000	25000
U	ISEF	Fluoride	0.5	5	10	150	500
U	ICPWATVAR	Sulphate as SO4	51	510	1000	20000	50000
N	WSLM27	Total Dissolved Solids	218	2180	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	3.7	37	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

WASTE ACCEPTANCE CRITERIA TESTING BSEN 12457/2

Client	SOCOTEC UK Wokingham			Leaching Data	
				Weight of sample (kg)	0.111
Contact	Platon Kostelietos			Moisture content @ 105°C (% of Wet Weight)	19.6
				Equivalent Weight based on drying at 105°C (kg)	0.090
Site	D8061-18 Ashley Road South			Volume of water required to carry out 10:1 stage (litres)	0.879
				Fraction of sample above 4 mm %	0.000
Sample Description		Report No	Sample No	Issue Date	Fraction of non-crushable material %
BH4 ES 10 1.60		s19_5788M	CL/1946278	25-Feb-19	0.000

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	0.49	3	5	6
N	LOI450	Loss on Ignition (%)	3.2			10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.0745	6		
U	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.042	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	50.6	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<2.30	100		
U	PHSOIL	pH (pH units)	8.4		>6	
N	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7	1.47		To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/2 @ L/S 10 litre kg-1		
			mg/l except °°	mg/kg (dry weight)			
U	WSLM3	pH (pH units) °°	7.5	Calculated data not UKAS Accredited			
U	WSLM2	Conductivity (µs/cm) °°	199				
U	ICPMSW	Arsenic	<0.001	<0.01	0.5	2	25
U	ICPWATVAR	Barium	0.01	0.1	20	100	300
U	ICPMSW	Cadmium	<0.0001	<0.001	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.002	0.02	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.012	0.12	0.5	10	30
U	ICPMSW	Nickel	<0.001	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.002	0.02	4	50	200
U	KONENS	Chloride	1	10	800	15000	25000
U	ISEF	Fluoride	0.8	8	10	150	500
U	ICPWATVAR	Sulphate as SO4	33	330	1000	20000	50000
N	WSLM27	Total Dissolved Solids	155	1550	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	2.3	23	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

CustomerSOCOTEC UK Wokingham
SiteD8061-18 Ashley Road South
Report NoS195788M

Consignment No S82447
Date Logged 14-Feb-2019
In-House Report Due 25-Feb-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	ANC	BTEXHSA	MTBE	CENLeac(P)C	CuIServ	LOI(%)	MCertS	PAH(17)	PCB-7	PHSOIL	TMSS	TPH Band	WSLM59
		Sampled	Acid Neut. Capacity	BTEX-HSA + MTBE analysis	(µg/kg)		REPORT A	L.O.I. % @ 450C	MCertS Analysis	by GCMS	Congeners Analysis	pH units (AR)	Tot.Moisture @ 105C	(>C10-C40)	Total Organic Carbon
				✓	✓				✓	✓	✓	✓	✓	✓	✓
CL/1946277	BH4 0.90	29/01/19		E	E					E		E		E	
CL/1946278	BH4 1.60	30/01/19		E	E							E			

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key	
A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time
Requested Analysis Key	
	Analysis Required
	Analysis dependant upon trigger result - Note: due date may be affected if triggered
	No analysis scheduled
^	Analysis Subcontracted - Note: due date may vary

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ANC	Oven Dried @ < 35°C	Quantitative digestion with Hydrochloric Acid back titration with 1M Sodium Hydroxide to pH 7
Soil	BTEXHSA	As Received	Determination of Benzene, Toluene, Ethyl benzene and Xylenes (BTEX) by Headspace GCFID
Soil	LOI(%MM)	Oven Dried @ < 35°C	Determination of loss on ignition for soil samples at specified temperature by gravimetry
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PCBECD	As Received	Determination of Polychlorinated Biphenyl (PCB) congeners/arocloris by hexane/acetone extraction followed by GCECD detection
Soil	PHSOIL	As Received	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.
Soil	TMSS	As Received	Determination of the Total Moisture content at 105°C by loss on oven drying gravimetric analysis (% based upon wet weight)
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection.
Soil	WSLM59	Oven Dried @ < 35°C	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection
Water	ICPSW	As Received	Direct quantitative determination of Metals in water samples using ICPMS
Water	ICPWATVAR	As Received	Direct determination of Metals and Sulphate in water samples using ICPOES
Water	ISEF	As Received	Determination of Fluoride in water samples by Ion Selective Electrode (ISE)
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Water	WSLM13	As Received	Instrumental analysis using acid/persulphate digestion and non-dispersive IR detection
Water	WSLM2	As Received	Determination of the Electrical Conductivity (µS/cm) by electrical conductivity probe.
Water	WSLM27	As Received	Gravimetric Determination
Water	WSLM3	As Received	Determination of the pH of water samples by pH probe

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³@ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

▮ Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Ashley Road South
Report Number : S19_5788

Note: major constituent in upper case

TEST REPORT



Report No. EFS/195897M (Ver. 1)

SOCOTEC UK Wokingham
Glossop House
Hogwood Lane
Finchamstead
Wokingham
Berkshire
RG40 4QW

Site: D8061-18 Ashley Road South

The 3 samples described in this report were registered for analysis by SOCOTEC UK Limited on 16-Feb-2019. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 28-Feb-2019

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS or MCERTS accredited. Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by SOCOTEC UK Limited.

The following tables are contained in this report:

Table 1 Main Analysis Results (Pages 2 to 10)
Table of WAC Analysis Results (Pages 11 to 12)
Table of Asbestos Screening Results (Page 13)
Analytical and Deviating Sample Overview (Pages 14 to 15)
Table of Additional Report Notes (Page 16)
Table of Method Descriptions (Pages 17 to 18)
Table of Report Notes (Page 19)
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of
SOCOTEC UK Lim
Becky Batham

Operations Manager
Energy & Waste Services

Date of Issue: 28-Feb-2019

Accreditation Codes: **N** (Not Accredited), **U** (UKAS), **UM** (UKAS & MCERTS)

Tests marked '^' have been subcontracted to another laboratory.

(NVM) - denotes the sample matrix is dissimilar to matrices upon which the MCERTS validation was based, and is therefore not accredited for MCERTS.

All results are reported on a dry weight basis at 105°C unless otherwise stated. (except QC samples)

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

WASTE ACCEPTANCE CRITERIA TESTING

BSEN 12457/2

Client	SOCOTEC UK Wokingham				Leaching Data	
					Weight of sample (kg)	0.110
Contact	Platon Kostelletos				Moisture content @ 105°C (% of Wet Weight)	18.2
					Equivalent Weight based on drying at 105°C (kg)	0.090
Site	D8061-18 Ashley Road South				Volume of water required to carry out 10:1 stage (litres)	0.880
					Fraction of sample above 4 mm %	0.000
Sample Description		Report No	Sample No	Issue Date	Fraction of non-crushable material %	0.000
PH1A ES 4 1.20		s19_5897M	CL/1946717	28-Feb-19		

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	4.82	3	5	6
N	LOI450	Loss on Ignition (%)	3.9			10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.0732	6		
U	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.042	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	1110	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<2.90	100		
U	PHSOIL	pH (pH units)	8.2		>6	
N	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7	1.79		To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/2 @ L/S 10 litre kg-1		
			mg/l except °°	mg/kg (dry weight)	mg/kg (dry weight)		
U	WSLM3	pH (pH units) °°	7.7	Calculated data not UKAS Accredited			
U	WSLM2	Conductivity (µs/cm) °°	214				
U	ICPMSW	Arsenic	0.007	0.07	0.5	2	25
U	ICPWATVAR	Barium	0.05	0.5	20	100	300
U	ICPMSW	Cadmium	0.0001	0.001	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.001	0.01	2	50	100
U	ICPMSW	Mercury	0.0001	0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.086	0.86	0.5	10	30
U	ICPMSW	Nickel	0.003	0.03	0.4	10	40
U	ICPMSW	Lead	0.001	0.01	0.5	10	50
U	ICPMSW	Antimony	0.02	0.2	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	8	80	800	15000	25000
U	ISEF	Fluoride	0.4	4	10	150	500
U	ICPWATVAR	Sulphate as SO4	29	290	1000	20000	50000
N	WSLM27	Total Dissolved Solids	167	1670	4000	60000	100000
U	SFAP1	Phenol Index	<0.05	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	13	130	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

WASTE ACCEPTANCE CRITERIA TESTING

BSEN 12457/2

Client	SOCOTEC UK Wokingham				Leaching Data	
					Weight of sample (kg)	0.100
Contact	Platon Kostelletos				Moisture content @ 105°C (% of Wet Weight)	11.0
					Equivalent Weight based on drying at 105°C (kg)	0.090
Site	D8061-18 Ashley Road South				Volume of water required to carry out 10:1 stage (litres)	0.890
					Fraction of sample above 4 mm %	0.000
Sample Description		Report No	Sample No	Issue Date	Fraction of non-crushable material %	0.000
PH1A ES 8 2.30		s19_5897M	CL/1946718	28-Feb-19		

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	0.18	3	5	6
N	LOI450	Loss on Ignition (%)	1			10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.1414	6		
U	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.042	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	845	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.53	100		
U	PHSOIL	pH (pH units)	8.4		>6	
N	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7	1.03		To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/2 @ L/S 10 litre kg-1		
			mg/l except °°	mg/kg (dry weight)	mg/kg (dry weight)		
U	WSLM3	pH (pH units) °°	7.6	Calculated data not UKAS Accredited			
U	WSLM2	Conductivity (µs/cm) °°	182				
U	ICPMSW	Arsenic	0.002	0.02	0.5	2	25
U	ICPWATVAR	Barium	0.04	0.4	20	100	300
U	ICPMSW	Cadmium	0.0001	0.001	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	<0.001	<0.01	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.016	0.16	0.5	10	30
U	ICPMSW	Nickel	0.005	0.05	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.004	0.04	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	6	60	800	15000	25000
U	ISEF	Fluoride	0.2	2	10	150	500
U	ICPWATVAR	Sulphate as SO4	13	130	1000	20000	50000
N	WSLM27	Total Dissolved Solids	142	1420	4000	60000	100000
U	SFAP1	Phenol Index	<0.05	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	2.2	22	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

S195897M

Consignment No S82687
Date Logged 16-Feb-2019
In-House Report Due 27-Feb-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	Sampled	Phenol Index.(AR)	✓		
				SFAPI Cyanide(Total) (AR)	✓		
PHSOIL	pH units (AR)	PCBECB PCB-7 Congeners Analysis	✓	✓			
				PAH (17) by GCMS	✓		
PAHMSUS	PAH (16) by GCMS	MCerts MCerts Analysis	✓	✓			
				L.O.I. % @ 450C			
KONECR	Chromium vi:	Zinc (MS)	✓	✓			
				Vanadium (MS)			
	Selenium (MS)	Nickel (MS)	✓	✓			
				Mercury (MS)	✓		
	Lead (MS)	Copper (MS)	✓	✓			
				Chromium (MS)	✓		
	Cadmium (MS)	Arsenic (MS)	✓	✓			
				GRO (AA-UK) HSA-GCFID	✓		
GROHSA	REPORT A	CEN Leac(P)C		✓			
				MTBE (µg/kg)	✓		
BTXHSA	BTEx-HSA + MTBE analysis	Acid Neut. Capacity		✓			
				12/02/19	12/02/19	12/02/19	
CL/1946717	PH1A 1.20						
CL/1946718	PH1A 2.30						
CL/1946719	PH3C 1.20						

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

	Analysis Required
	Analysis dependant upon trigger result - Note: due date may be affected if triggered
	No analysis scheduled
^	Analysis Subcontracted - Note: due date may vary

CustomerSOCOTEC UK Wokingham
SiteD8061-18 Ashley Road South
Report NoS195897M

Consignment No S82687
Date Logged 16-Feb-2019
In-House Report Due 27-Feb-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	Sampled	Sub002	TMSS	TPHIDUS	TPHUSI	VOCHSAS	WSLMS9	
				^Asbestos Screen & ID (Stage 1)	Tot.Moisture @ 105C	TPH Band (>C10-C40)	TPH by GC/FID (AR)	TPH by GC/FID (Si-UKCWG)>44	VOC HSA-GCMS	Total Organic Carbon
				✓	✓	✓	✓	✓	✓	✓
CL/1946717	PH1A 1.20	12/02/19								
CL/1946718	PH1A 2.30	12/02/19								
CL/1946719	PH3C 1.20	12/02/19								

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key	
A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time
Requested Analysis Key	
	Analysis Required
	Analysis dependant upon trigger result - Note: due date may be affected if triggered
	No analysis scheduled
^	Analysis Subcontracted - Note: due date may vary

Report Number : EFS/195897

Additional Report Notes

Method Code	Sample ID	The following information should be taken into consideration when using the data contained within this report
VOCHSAS	CL1946717 to CL1946719	The Primary process control data associated with this Test has not wholly met the requirements of the Laboratory Quality Management System QMS with one or more target analytes falling outside acceptable limits. However the remaining data gives the Laboratory confidence that the test has performed satisfactorily and that the validity of the data may not have been significantly affected. However in line with our QMS policy we have removed accreditation, where applicable, from the affected analytes (Bromomethane, Chloroethane, Dibromomethane, 1,1,2-Trichloroethane, Tetrachloroethene, 1,1,2,2-Tetrachloroethane, tert-Butylbenzene,) . These circumstances should be taken into consideration when utilising the data.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ANC	Oven Dried @ < 35°C	Quantitative digestion with Hydrochloric Acid back titration with 1M Sodium Hydroxide to pH 7
Soil	BTEXHSA	As Received	Determination of Benzene, Toluene, Ethyl benzene and Xylenes (BTEX) by Headspace GCFID
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPMSS	Oven Dried @ < 35°C	Determination of Metals in Marine Sediments and Soil samples by aqua regia digestion followed by ICPMS detection
Soil	KONECR	Oven Dried @ < 35°C	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	LOI(%MM)	Oven Dried @ < 35°C	Determination of loss on ignition for soil samples at specified temperature by gravimetry
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PCBECD	As Received	Determination of Polychlorinated Biphenyl (PCB) congeners/arocloris by hexane/acetone extraction followed by GCECD detection
Soil	PHSOIL	As Received	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.
Soil	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Soil	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
Soil	TMSS	As Received	Determination of the Total Moisture content at 105°C by loss on oven drying gravimetric analysis (% based upon wet weight)
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection.
Soil	TPHUSSI	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection including quantitation of Aromatic and Aliphatic fractions.
Soil	VOCHSAS	As Received	Determination of Volatile Organic Compounds (VOC) by Headspace GCMS
Soil	WSLM59	Oven Dried @ < 35°C	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection
Water	ICPMSW	As Received	Direct quantitative determination of Metals in water samples using ICPMS
Water	ICPWATVAR	As Received	Direct determination of Metals and Sulphate in water samples using ICPOES
Water	ISEF	As Received	Determination of Fluoride in water samples by Ion Selective Electrode (ISE)

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAP1	As Received	Segmented flow analysis with colorimetric detection
Water	WSLM13	As Received	Instrumental analysis using acid/persulphate digestion and non-dispersive IR detection
Water	WSLM2	As Received	Determination of the Electrical Conductivity ($\mu\text{S}/\text{cm}$) by electrical conductivity probe.
Water	WSLM27	As Received	Gravimetric Determination
Water	WSLM3	As Received	Determination of the pH of water samples by pH probe

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³@ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

▯ Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Ashley Road South
Report Number : S19_5897

Note: major constituent in upper case

TEST REPORT



Report No. EFS/196224M (Ver. 1)

SOCOTEC UK Wokingham
Glossop House
Hogwood Lane
Finchamstead
Wokingham
Berkshire
RG40 4QW

Site: D8061-18 Ashley Road South

The 3 samples described in this report were registered for analysis by SOCOTEC UK Limited on 26-Feb-2019. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 13-Mar-2019

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS or MCERTS accredited. Any opinions or interpretations expressed herein are outside the scope of any UKAS accreditation held by SOCOTEC UK Limited.

The following tables are contained in this report:

Table 1 Main Analysis Results (Pages 2 to 10)
Table of WAC Analysis Results (Page 11)
Subcontracted Analysis Reports (Pages 12 to 13)
The accreditation status of subcontracted analysis is displayed on the appended subcontracted analysis reports.
Analytical and Deviating Sample Overview (Pages 14 to 15)
Table of Additional Report Notes (Page 16)
Table of Method Descriptions (Pages 17 to 18)
Table of Report Notes (Page 19)
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of
SOCOTEC UK Lim
Becky Batham

Operations Manager
Energy & Waste Services

Date of Issue: 13-Mar-2019

Accreditation Codes: **N** (Not Accredited), **U** (UKAS), **UM** (UKAS & MCERTS)

Tests marked '^' have been subcontracted to another laboratory.

(NVM) - denotes the sample matrix is dissimilar to matrices upon which the MCERTS validation was based, and is therefore not accredited for MCERTS.

All results are reported on a dry weight basis at 105°C unless otherwise stated. (except QC samples)

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

WASTE ACCEPTANCE CRITERIA TESTING

BSEN 12457/3

Client	SOCOTEC UK Wokingham				Leaching Data	
					Weight of sample (kg)	0.253
Contact	Platon Kostelletos				Moisture content @ 105°C (% of Wet Weight)	9.2
					Equivalent Weight based on drying at 105°C (kg)	0.225
Site	D8061-18 Ashley Road South				Volume of water required to carry out 2:1 stage (litres)	0.422
					Fraction of sample above 4 mm %	100.000
Sample Description		Report No	Sample No	Issue Date	Fraction of non-crushable material %	0.000
BH3 ES 11 2.30		S19_6224M	CL/1947976	13-Mar-19	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	0.121§	3	5	6
N	LOI450	Loss on Ignition (%)	0.9			10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.0715	6		
U	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.042	1		
N	TPHFIDUS	Mineral Oil (mg/kg)	24.12§	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.50	100		
N	PHSOIL	pH (pH units)	8.9 §		>6	
N	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7	0.97		To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1		
			mg/l except °°		mg/kg (dry weight)		mg/kg (dry weight)		
U	WSLM3	pH (pH units) °°	7.8	7.6	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) °°	392	182					
U	ICPMSW	Arsenic	<0.001	<0.001	<0.002	<0.01	0.5	2	25
U	ICPWATVAR	Barium	0.02	0.03	0.04	0.3	20	100	300
U	ICPMSW	Cadmium	<0.0001	<0.0001	<0.0002	<0.001	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.001	<0.002	<0.01	0.5	10	70
U	ICPMSW	Copper	0.002	<0.001	0.004	<0.01	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.034	0.007	0.068	0.11	0.5	10	30
U	ICPMSW	Nickel	0.003	0.001	0.006	0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.001	<0.002	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.004	0.002	0.008	0.02	0.06	0.7	5
U	ICPMSW	Selenium	0.005	<0.001	0.01	<0.02	0.1	0.5	7
U	ICPMSW	Zinc	0.002	<0.002	0.004	<0.02	4	50	200
U	KONENS	Chloride	23	2	46	48	800	15000	25000
U	ISEF	Fluoride	1	0.2	2	3	10	150	500
U	ICPWATVAR	Sulphate as SO4	74	29	148	350	1000	20000	50000
N	WSLM27	Total Dissolved Solids	306	142	612	1639	4000	60000	100000
U	SFAP1	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	3.3	0.6	6.6	10	500	800	1000

Template Ver. 1

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: SOCOTEC UK Ltd
Environmental Chemistry
PO Box 100
Burton upon Trent
Staffordshire
DE15 0XD

CONTRACT NO: S04130-1

DATE OF ISSUE: 07.03.19

DATE SAMPLES RECEIVED: 28.02.19

DATE SAMPLES ANALYSED: 07.03.19

DESCRIPTION: Three soil/loose aggregate samples each weighing approximately 0.8-1.4kg.

ANALYSIS REQUESTED: Qualitative and quantitative analysis of soil/loose aggregate samples for mass determination of asbestos.

METHODS:

Qualitative - The samples were analysed qualitatively for asbestos by polarised light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative - The analysis was carried out using our documented in-house method based on HSE Contract Research Report No. 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies *et al*, 1996) and HSG 248. Our method includes initial examination of the entire sample, detailed analysis of a representative sub-sample and quantification by hand picking/weighing and/or fibre counting/sizing as appropriate.

RESULTS:

Initial Screening

Asbestos was detected in one of the soil samples by stereo-binocular and polarised light microscopy.

A summary of the qualitative and quantitative results are given in Tables 1 & 2 respectively.





CONTRACT NO: S04130-1
DATE OF ISSUE: 07.03.19

RESULTS: (cont.)

Table 1: Qualitative Results

SOCOTEC Job I.D: S196224

IOM sample number	Client sample number	ACM type detected	PLM result
S63469	S1947975 BH3 1.50-1.70	-	No Asbestos Detected
S63470	S1947976 BH3 2.30-2.50	-	No Asbestos Detected
S63471	S1947977 PH3 0.90	Cement ¹	Chrysotile

Our detection limit for this method is 0.001%.

Table 2: Quantitative Analysis Results

Client Sample Number	Sample Weight (g)	% Asbestos in Sample from ACM's	% Asbestos in Sample as Unbound Fibres	Total % Asbestos in Sample
S1947977 PH3 0.90	1351	0.881	-	0.881

Our limit of quantification for gravimetric analysis of soil samples is 0.001%.

COMMENTS:

¹ ACM was visible during initial examination of the sample.

² ACM was detected during microscopic examination of the sample.

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are outwith the scope of our UKAS accreditation.

AUTHORISED BY:

D Third
Scientific Technician

CustomerSOCOTEC UK Wokingham
SiteD8061-18 Ashley Road South
Report NoS196224M

Consignment No S82933
Date Logged 26-Feb-2019
In-House Report Due 06-Mar-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	Sampled	ANC	BTEXHSA	CEN Leach(P)1	CEN Leach(P)2	REPORT A	GROHSA	ICPMSS	Chromium (MS)	Copper (MS)	Lead (MS)	Mercury (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Chromium vi:	L.O.I. % @ 450C	MCerts	PAH (16) by GCMS	PAH (17) by GCMS	PCB-7 Congeners Analysis	pH units (AR)	Cyanide(Total) (AR)
					MTBE (µg/kg)																					
					✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CL/1947975	BH3 1.50-1.70	19/02/19																								
CL/1947976	BH3 2.30-2.50	19/02/19																								
CL/1947977	PH3 0.90	15/01/19																								

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key

AThe sample was received in an inappropriate container for this analysis
BThe sample was received without the correct preservation for this analysis
CHeadspace present in the sample container
DThe sampling date was not supplied so holding time may be compromised - applicable to all analysis
ESample processing did not commence within the appropriate holding time
FSample processing did not commence within the appropriate handling time

Requested Analysis Key

Analysis Required
Analysis dependant upon trigger result - Note: due date may be affected if triggered
No analysis scheduled

^

Analysis Subcontracted - Note: due date may vary

CustomerSOCOTEC UK Wokingham
SiteD8061-18 Ashley Road South
Report NoS196224M

Consignment No S82933
Date Logged 26-Feb-2019
In-House Report Due 06-Mar-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	MethodID	SF-API	SubID20	TMSS	TPHIDUS	TPHUSI	VOCHSAS	WSLMS9
		Sampled	Phenol Index (AR)	Asbestos ID and Quant (1 & 2)	Tot.Moisture @ 105C	TPH Band (>C10-C40)	TPH by GC/FID (AR)	TPH by GC/FID (SI-UKCWSG)>44	Total Organic Carbon
			✓	✓	✓	✓	✓	✓	✓
CL/1947975	BH3 1.50-1.70	19/02/19							
CL/1947976	BH3 2.30-2.50	19/02/19							
CL/1947977	PH3 0.90	15/01/19							

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key

AThe sample was received in an inappropriate container for this analysis
BThe sample was received without the correct preservation for this analysis
CHeadspace present in the sample container
DThe sampling date was not supplied so holding time may be compromised - applicable to all analysis
ESample processing did not commence within the appropriate holding time
FSample processing did not commence within the appropriate handling time

Requested Analysis Key

Analysis Required
Analysis dependant upon trigger result - Note: due date may be affected if triggered
No analysis scheduled

^

Analysis Subcontracted - Note: due date may vary

Report Number : EFS/196224

Additional Report Notes

Method Code	Sample ID	The following information should be taken into consideration when using the data contained within this report
VOCHSAS	CL/1947975 CL/1947976	The Primary process control data associated with this Test has not wholly met the requirements of the Laboratory Quality Management System QMS with one or more target analytes falling outside acceptable limits. However the remaining data gives the Laboratory confidence that the test has performed satisfactorily and that the validity of the data may not have been significantly affected. However in line with our QMS policy we have removed accreditation, where applicable, from the affected analytes (Dibromomethane) . These circumstances should be taken into consideration when utilising the data.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ANC	Oven Dried @ < 35°C	Quantitative digestion with Hydrochloric Acid back titration with 1M Sodium Hydroxide to pH 7
Soil	BTEXHSA	As Received	Determination of Benzene, Toluene, Ethyl benzene and Xylenes (BTEX) by Headspace GCFID
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPMSS	Oven Dried @ < 35°C	Determination of Metals in Marine Sediments and Soil samples by aqua regia digestion followed by ICPMS detection
Soil	KONECR	Oven Dried @ < 35°C	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	LOI(%MM)	Oven Dried @ < 35°C	Determination of loss on ignition for soil samples at specified temperature by gravimetry
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PCBECD	As Received	Determination of Polychlorinated Biphenyl (PCB) congeners/arocloris by hexane/acetone extraction followed by GCECD detection
Soil	PHSOIL	As Received	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.
Soil	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Soil	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
Soil	TMSS	As Received	Determination of the Total Moisture content at 105°C by loss on oven drying gravimetric analysis (% based upon wet weight)
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection.
Soil	TPHUSSI	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID detection including quantitation of Aromatic and Aliphatic fractions.
Soil	VOCHSAS	As Received	Determination of Volatile Organic Compounds (VOC) by Headspace GCMS
Soil	WSLM59	Oven Dried @ < 35°C	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection
Water	ICPMSW	As Received	Direct quantitative determination of Metals in water samples using ICPMS
Water	ICPWATVAR	As Received	Direct determination of Metals and Sulphate in water samples using ICPOES
Water	ISEF	As Received	Determination of Fluoride in water samples by Ion Selective Electrode (ISE)

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAP1	As Received	Segmented flow analysis with colorimetric detection
Water	WSLM13	As Received	Instrumental analysis using acid/persulphate digestion and non-dispersive IR detection
Water	WSLM2	As Received	Determination of the Electrical Conductivity ($\mu\text{S}/\text{cm}$) by electrical conductivity probe.
Water	WSLM27	As Received	Gravimetric Determination
Water	WSLM3	As Received	Determination of the pH of water samples by pH probe

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³@ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

▮ Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Ashley Road South
Report Number : S19_6224

Note: major constituent in upper case

TEST REPORT

Report No. EXR/282715 (Ver. 1)

SOCOTEC UK Wokingham
Glossop House
Hogwood Lane
Finchamstead
Wokingham
Berkshire
RG40 4QW

Site: D8061-18 Ashley Road South

The 4 samples described in this report were registered for analysis by SOCOTEC UK Limited on 25-Apr-2019. This report supersedes any versions previously issued by the laboratory.

The analysis was completed by: 03-May-2019

The following tables are contained in this report:

Table 1 Main Analysis Results (Pages 2 to 9)
Analytical and Deviating Sample Overview (Page 10)
Table of Additional Report Notes (Page 11)
Table of Method Descriptions (Page 12)
Table of Report Notes (Page 13)
Table of Sample Descriptions (Appendix A Page 1 of 1)

On behalf of
SOCOTEC UK Lim
Becky Batham



Operations Manager
Energy & Waste Services

Date of Issue: 03-May-2019

Tests marked '^' have been subcontracted to another laboratory.

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected.

SOCOTEC UK Limited accepts no responsibility for any sampling not carried out by our personnel.

Sample Analysis

SOCOTEC UK Ltd Environmental Chemistry
Analytical and Deviating Sample Overview

W282715

Customer SOCOTEC UK Wokingham
Site D8061-18 Ashley Road South
Report No W282715

Consignment No W153881
Date Logged 25-Apr-2019
In-House Report Due 03-May-2019

Please note the results for any subcontracted analysis (identified with a '^') is likely to take up to an additional five working days.

ID Number	Description	Matrix Type	Sampled	Report A	MethodID	CUST SERV	GRO-HSA	ICP-MSW	Nickel as Ni MS (Dissolved)	Chromium as Cr MS (Dissolved)	Cadmium as Cd MS (Dissolved)	Copper as Cu MS (Dissolved)	Lead as Pb MS (Dissolved)	Zinc as Zn MS (Dissolved)	Arsenic as As MS (Dissolved)	Mercury as Hg MS (Dissolved)	Selenium as Se MS (Dissolved)	PAH GC-MS (16)	SF API	Phenol Index SFA	TPH by GC (CWG UKEA Banding >44)	VOC HSA-GCMS	pH units	WSL M3
EX/1970087	BH01	Unclassified	24/04/19																					
EX/1970088	BH02	Unclassified	24/04/19																					
EX/1970089	BH03	Unclassified	24/04/19																					
EX/1970090	BH04	Unclassified	24/04/19																					

Note: We will endeavour to prioritise samples to complete analysis within holding time; however any delay could result in samples becoming deviant whilst being processed in the laboratory.

If sampling dates are missing or matrices unclassified then results will not be ISO 17025 accredited. Please contact us as soon as possible to provide missing information in order to reinstate accreditation.

Deviating Sample Key	
A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time
Requested Analysis Key	
	Analysis Required
	Analysis dependant upon trigger result - Note: due date may be affected if triggered
	No analysis scheduled
^	Analysis Subcontracted - Note: due date may vary

The integrity of data for samples/analysis that have been categorised as Deviating may be compromised. Data may not be representative of the sample at the time of sampling.
Where individual results are flagged see report notes for status.

Additional Report Notes

Method Code	Sample ID	The following information should be taken into consideration when using the data contained within this report
TPHFID-Si	EX1970087 TO EX1970090	The Primary process control data associated with this Test has not wholly met the requirements of the Laboratory Quality Management System QMS with one or more target analytes falling outside acceptable limits. However the remaining data gives the Laboratory confidence that the test has performed satisfactorily and that the validity of the data may not have been significantly affected. However in line with our QMS policy we have removed accreditation, where applicable, from the affected analytes (Banding C21-C35 on the Aromatic fraction) . These circumstances should be taken into consideration when utilising the data.
VOCHSAW	EX/1970087 TO EX/1970090	The Primary process control data associated with this Test has not wholly met the requirements of the Laboratory Quality Management System QMS with one or more target analytes falling outside acceptable limits. However the remaining data gives the Laboratory confidence that the test has performed satisfactorily and that the validity of the data may not have been significantly affected. However in line with our QMS policy we have removed accreditation, where applicable, from the affected analytes (Styrene, iso-Propylbenzene, Naphthalene) . These circumstances should be taken into consideration when utilising the data.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	BTEXHSA	As Received	Benzene, Toluene, Ethylbenzene, & Xylenes by headspace extraction GCFID quantitation
Water	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace FID
Water	ICPMSW	As Received	Direct quantitative determination of Metals in water samples using ICPMS
Water	PAHMSW	As Received	Determination of PolyAromatic Hydrocarbons in water by pentane extraction GCMS quantitation
Water	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Water	TPHFID-Si	As Received	Determination of speciated pentane extractable hydrocarbons in water by GCFID
Water	VOCHSAW	As Received	Determination of Volatile Organics Compounds by Headspace GCMS
Water	WSLM3	As Received	Determination of the pH of water samples by pH probe

Where individual results are flagged see report notes for status.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,

- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
All results on MCERTS reports are reported on a 105°C dry weight basis with the exception of pH and conductivity.
- Sulphate analysis not conducted in accordance with BS1377
- Water Soluble Sulphate is on a 2:1 water:soil extract

Waters Analysis

Unless stated otherwise results are expressed as mg/l

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

Oil analysis specific

Unless stated otherwise,

- Results are expressed as mg/kg
- SG is expressed as g/cm³@ 15°C

Gas (Tedlar bag) Analysis

Unless stated otherwise, results are expressed as ug/l

Asbestos Analysis

CH Denotes Chrysotile

TR Denotes Tremolite

CR Denotes Crocidolite

AC Denotes Actinolite

AM Denotes Amosite

AN Denotes Anthophyllite

NAIIS No Asbestos Identified in Sample

NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.

\$\$ Unable to analyse due to the nature of the sample

¶ Samples submitted for this analyte were not preserved on site in accordance with laboratory protocols.

This may have resulted in deterioration of the sample(s) during transit to the laboratory.

Consequently the reported data may not represent the concentration of the target analyte present in the sample at the time of sampling

¥ Results for guidance only due to possible interference

& Blank corrected result

I.S Insufficient sample to complete requested analysis

I.S(g) Insufficient sample to re-analyse, results for guidance only

Intf Unable to analyse due to interferences

N.D Not determined

N.Det Not detected

N.F No Flow

NS Information Not Supplied

Req Analysis requested, see attached sheets for results

▯ Raised detection limit due to nature of the sample

* All accreditation has been removed by the laboratory for this result

‡ MCERTS accreditation has been removed for this result

§ accreditation has been removed for this result as it is a non-accredited matrix

Note: The Laboratory may only claim that data is accredited when all of the requirements of our Quality System have been met. Where these requirements have not been met the laboratory may elect to include the data in its final report and remove the accreditation from individual data items if it believes that the validity of the data has not been affected. If further details are required of the circumstances which have led to the removal of accreditation then please do not hesitate to contact the laboratory.

Sample Descriptions

Client : SOCOTEC UK Wokingham
Site : D8061-18 Ashley Road South
Report Number : W28_2715



SOCOTEC

APPENDIX F PHOTOGRAPHS

Dynamic Sample Liners

Figures F1 to F5



PH1A Pit 0.00m - 3.00m



PH2 Inspection Pit 0.00m - 1.20m

Notes:	<table><tr><td>Project</td><td>Ashley House & Cannon Factory, Ashley Road South</td></tr><tr><td>Project No.</td><td>D8061-18</td></tr><tr><td>Carried out for</td><td>Notting Hill Home Ownership Ltd</td></tr></table>	Project	Ashley House & Cannon Factory, Ashley Road South	Project No.	D8061-18	Carried out for	Notting Hill Home Ownership Ltd	<table><tr><td>Figure:</td></tr><tr><td>F1</td></tr></table>	Figure:	F1
Project	Ashley House & Cannon Factory, Ashley Road South									
Project No.	D8061-18									
Carried out for	Notting Hill Home Ownership Ltd									
Figure:										
F1										



PH3C Pit 0.00m - 3.00m

Notes:	<table><tr><td>Project</td><td>Ashley House & Cannon Factory, Ashley Road South</td></tr><tr><td>Project No.</td><td>D8061-18</td></tr><tr><td>Carried out for</td><td>Notting Hill Home Ownership Ltd</td></tr></table>	Project	Ashley House & Cannon Factory, Ashley Road South	Project No.	D8061-18	Carried out for	Notting Hill Home Ownership Ltd	<table><tr><td>Figure:</td><td>F2</td></tr></table>	Figure:	F2
Project	Ashley House & Cannon Factory, Ashley Road South									
Project No.	D8061-18									
Carried out for	Notting Hill Home Ownership Ltd									
Figure:	F2									



PH1A 1.20m - 2.00m



PH1A 2.00m - 3.00m

Notes:	<table><tr><td>Project</td><td>Ashley House & Cannon Factory, Ashley Road South</td></tr><tr><td>Project No.</td><td>D8061-18</td></tr><tr><td>Carried out for</td><td>Nottning Hill Home Ownership Ltd</td></tr></table>	Project	Ashley House & Cannon Factory, Ashley Road South	Project No.	D8061-18	Carried out for	Nottning Hill Home Ownership Ltd	Figure: F3
Project	Ashley House & Cannon Factory, Ashley Road South							
Project No.	D8061-18							
Carried out for	Nottning Hill Home Ownership Ltd							



PH2 1.20m - 3.00m

Notes:	<table><tr><td>Project</td><td>Ashley House & Cannon Factory, Ashley Road South</td></tr><tr><td>Project No.</td><td>D8061-18</td></tr><tr><td>Carried out for</td><td>Notting Hill Home Ownership Ltd</td></tr></table>	Project	Ashley House & Cannon Factory, Ashley Road South	Project No.	D8061-18	Carried out for	Notting Hill Home Ownership Ltd	<table><tr><td>Figure:</td><td>F4</td></tr></table>	Figure:	F4
Project	Ashley House & Cannon Factory, Ashley Road South									
Project No.	D8061-18									
Carried out for	Notting Hill Home Ownership Ltd									
Figure:	F4									



PH3C 1.20m - 2.00m



PH3C 2.00m - 3.00m

Notes:	<table><tr><td>Project</td><td>Ashley House & Cannon Factory, Ashley Road South</td></tr><tr><td>Project No.</td><td>D8061-18</td></tr><tr><td>Carried out for</td><td>Nottning Hill Home Ownership Ltd</td></tr></table>	Project	Ashley House & Cannon Factory, Ashley Road South	Project No.	D8061-18	Carried out for	Nottning Hill Home Ownership Ltd	<table><tr><td>Figure:</td><td>F5</td></tr></table>	Figure:	F5
Project	Ashley House & Cannon Factory, Ashley Road South									
Project No.	D8061-18									
Carried out for	Nottning Hill Home Ownership Ltd									
Figure:	F5									