Site: **Chain Road, Blackley**
Plots: **Apartment**
Date: **March 2025**

1 INTRODUCTION

LK Consult (LKC) has been appointed by Great Places Housing Group to validate the remedial works in the gardens at the development at Chain Road, Blackley.

This validation report concerns the apartment block, with communal soft landscaping.

The requirement for remedial works across the site arose as a result of previous site investigations and risk assessments carried out by LKC (ref. CL-602-LKC 21 1026-02, dated December 2019).

The remediation requirements were as follows:

i) Private Houses: Removal of made ground and raise levels, as required, with suitably chemically validated soil. Minimum 150mm nominal topsoil layer required.
ii) Apartment Block: Provision of minimum 450mm thick 'clean' cover system, nominally comprising 300mm of subsoil plus 150mm of topsoil underlain by a suitable geotextile membrane or by 100mm physical break layer (MOT).
iii) Chemical analysis of any site won or imported material for use in garden or landscaped areas.

An amendment to the remediation strategy was agreed on email with Manchester City Council (email dated 13th September 2025). This was in relation to the cover system in very small landscaping strips around the apartment block. Considering the limited size and presence of service runs the full 450mm cover could not be installed. LKC confirmed the presence of pea gravel at the base of the nominal soil cover overlying the service runs, which acts a break layer further limiting potential contact with future site users and the underlying made ground. It is considered unlikely that these areas will be excessively used by receptors given the shared nature of the landscaping and limited size. The above amendment was acceptable to the Local Authority.

Gas protection measures were required. Validation of the gas protection measures has been provided under separate cover.

Chemical validation of all imported materials to be used on site is required. Imported soils are to be accompanied by a certificate of analysis and source details. A summary of the required imported material sampling requirements are presented in Table 1-1.

Material Type	Source	Suite of Analysis	Sampling Rate (min. 3 per source) *		
			Garden	Landscape	Other **
Topsoil / subsoil / Fill material	Greenfield	Suite A	200m^3	200m^3	200m^3
	Remediated	Suite A / B dependent upon original SI	100m^3	150m^3	200m^3
	Brownfield / Unknown	Suite B	50m^3	150m^3	200m^3
Quarried Fill	First Generation i.e. quarried sand (subsoil) or stone (break layer)	No testing is required. Certification of material provenance is required.			

Table 1-1: Sampling requirements for imported soils.

Notes:

Suite A - Heavy metals, pH, water soluble sulphate, speciated PAH, soil organic matter and asbestos screen.

Suite B - Heavy metals, pH, water soluble sulphate, speciated PAH, phenol, total and free cyanide, soil organic matter, asbestos screen, banded petroleum hydrocarbons (TPH CWG), BTEX, MTBE.

*Minimum sampling rate of 3 samples per source.

2 CAPPING LAYER MATERIAL VALIDATION

Topsoil

Approximately 150m^3 of topsoil was imported to site in total from Lunt Heath Road, Widnes. The topsoil was sampled at a conservative rate of 1 sample per 50m^3 (minimum of three samples) in line with the remedial requirements. LKC collected 4no. samples for testing.

The certificate for the imported topsoil and chemical analysis certificates are provided in Appendix A.

Subsoil

Approximately 80m^3 of subsoil was imported to site from Welsh Road, Sealands. The subsoil was sampled at a conservative rate of 1 sample per 50m3 (minimum of three samples) in line with the remedial requirements. LKC collected 4no. samples for testing.

The certificate for the imported subsoil and chemical analysis certificates are provided in Appendix B.

Pea Gravel Break Layer

A 10mm stone gravel was imported to site from Marchington Stone for use around service runs as compacted pipe bedding and is acting as a break layer in the apartment block soft landscaping areas in areas of restricted size as agreed with Manchester City Council. Delivery note in Appendix C.

Soil Risk Assessment

With regards to the soil risk assessment LKC will use the following hierarchy:

- Category 4 Screening Levels (C4SLs).
- LQM Suitable 4 Use Levels (S4ULs).

C4SLs were published in 2013[1,2.] The recent change to the contaminated land guidance has changed the evaluation of risk from 'minimal' (referred to as Health Criteria values (HCVs))[3] used to generate Soil Guideline Values (SGVs) to 'low' (referred to as Lowest Level of Toxicological Concern (LLTCs)). The policy companion document and supporting letter by Defra, dated 3rd September 2014, states that C4SLs 'could be used under the planning regime, as well as within Part 2A'. Based on these comments LKC considers the justifications and assumptions used to generate 'low' risk are suitable for the planning regime.

Where no C4SLs have been generated LKC will use the LQM S4ULs[4.] Similar assumptions and land uses to C4SLs have been used. However, toxicological information has been based on 'minimal risk' as per previous guidelines and assumptions[5,6,7,8].

[1] Defra (2014). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Policy Companion Document."
[2] CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."
[3] EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.
[4] LQM (2014). "The LQM/CIEH S4ULs for Human Health Risk Assessment."
[5] EA (2008). "Updated Technical Background to the CLEA Model." Science Report – SC050021/SR3.
[6] EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.
[7] EA (2008). "A Review of Body Weight and Height Data used within the Contaminated Land Exposure Assessment Model (CLEA)." Project SC050021/Technical Review 1.

An assessment of the data should be undertaken to confirm B(a)P is a suitable surrogate marker by assessing the ratios of carcinogenic PAHs to B(a)P. However, as the majority of the PAHs were recorded as less than detection limits, the assessment could not be undertaken.

The proposed development is for an apartment with shared landscaping, therefore the assessment criteria for residential without plant uptake has been used.

All criteria have been generated using the CLEA V1.06/07 model[9] based either on 1%, 2.5% and 6% Soil Organic matter (SOM). Results will be compared to the nearest appropriate SOM.

Appropriate screening values are presented in Appendix D.

The analytical results have been compared to the relevant assessment criteria and no elevated contaminants were identified. Therefore, the imported soil is considered suitable for use in the cover system.

3 COVER SYSTEM DEPTH IN REAR GARDEN AREAS

A depth of 450mm with a minimum of 150mm as growing medium has been placed in landscaped areas surrounding the apartment block, with the exception of small strips of landscaping (Areas 1 and 2 as shown on Plate 3-1).

Plate 3-1: Capping layer inspection areas in apartment block soft landscaping.

Photographs are provided in Appendix E and the observations are summarised below.

Apartment Block	Total Soil Cover Depth (mm)	Membrane or Pea Gravel at Base	Required Depth (mm)	Compliance (✓ / x)
Area 1	320 *	Pea Gravel *	450*	✓

[8] EA (2009). "Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values." Science report SC050021/SR7.
[9] EA (2008). "CLEA Software (Version 1.05) Handbook." Science Report – SC050021/SR4.

Area 2	370 *	Pea Gravel *	450*	
Area 3	400 *	Pea Gravel *	450*	
Area 4	Hardstood			
Area 5	500	Membrane	450	
Area 6	520	Membrane	450	

Plate 3-1: Cover system construction.

Area 4 does not comprise any soft landscaping. The area has been flagged (cased in concrete). It is therefore considered to be hardstood and protective of future users. Therefore, no specific remediation is required in Area 4

4 UNEXPECTED CONTAMINATION

LKC understand that no unexpected contamination was encountered during development works.

5 CONCLUSIONS

LKC has completed the validation of cover system, and conclude that, in the places inspected, chemically suitable material has been laid to a suitable depth over a membrane or stone break layer.

Report Prepared By:

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Geo-Environmental Engineer

Report Reviewed By:

Hannah Moss
Senior Geo-Environmental Consultant

Enc:

Appendix A: Imported Topsoil Certificates and Certificate of Analysis - Topsoil
Appendix B: Imported Subsoil Certificates and Certificate of Analysis – Subsoil
Appendix C: Pea Gravel Delivery Note
Appendix D: Soil Validation Criteria
Appendix E: Plot Photographs

Disclaimer

This report has been prepared by LKC who have exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant experienced in preparing reports of a similar scope. However, to the extent that the report is based on or relies upon information contained in records, reports or other materials provided to LKC which have not been independently produced or verified, LKC gives no warranty, representation or assurance as to the accuracy or completeness of such information.

This report is issued on the condition that LKC will not be held liable for any loss arising from ground conditions between sampling points (i.e. boreholes/trial pits/hand augers/surface samples) which have not been shown by the sampling points or related testing carried out during the investigation, nor for any loss arising from conditions below the maximum depth of the investigation, or for any works done to the garden areas following the date of inspection. Opinions on such conditions, where given, are for general guidance only.

Other works including *inter alia* hotspot removal, drainage, soil texture, permitting, invasive species management and geotechnical requirements are out with this scope and should be dealt with by others.

This report is prepared solely for the benefit of Great Places Housing Group. It may not be relied upon by, or submitted to a third party for their reliance for the purposes of valuation, mortgage, insurance and regulatory approval, until all invoices have been settled in full. Those using this information in subsequent assessments or evaluations do so at their own risk.

Appendix A – Imported Topsoil Certificates and Certificates of Analysis

TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

MB Soils & Groundworks Limited

Mr Mark Bennett
MB Soils & Groundworks Limited
46-52 Richmond Hill
Wigan
WN5 8AA

9th February 2024
Our Ref: TOHA/24/1231/SS
Your Ref: see below

Dear Sirs

Topsoil Analysis Report: Miller Homes, Lunt Heath Road, Widness

We have completed the analysis of the soil sample recently submitted, referenced *Topsoil Sample,* and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the sample for general landscape purposes (trees, shrubs, amenity grass). In addition, the sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil *(BS3882:2015 – Specification for Topsoil - Table 1, Multipurpose Topsoil)*.

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification testing, validation testing or waste designation purposes.

SAMPLE EXAMINATION

The sample was described as a very dark greyish brown (Munsell Colour 10YR 3/2), slightly moist, plastic, non-calcareous SANDY CLAY LOAM with a moderately developed, fine to coarse granular and subangular blocky structure*. The sample was virtually stone-free, comprising stones up to 30mm in size, and no unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

*This appraisal of soil structure was made from examination of a disturbed sample. Structure is a key soil characteristic that may only be accurately assessed by examination in an in-situ state.

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- particle size analysis (sand, silt, clay);
- stone content (2-20mm, 20-50mm, >50mm);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen.

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The sample fell into the *sandy clay loam* texture class, which is usually considered suitable for general landscape applications provided the soil's physical condition is satisfactory.

Such soils usually have good water and nutrient retention capacities, but they are also prone to structural degradation and compaction during handling, and especially when plastic in consistency. Any damage to the structural condition of this soil is likely to reduce its drainage and aeration properties.

The sample was virtually stone-free and, as such, stones should not restrict the use of the soil for general landscape purposes.

pH and Electrical Conductivity Values

The sample was strongly acid in reaction (pH 5.4), with a pH value that would be considered unsuitable for general landscape purposes. Unless acid-loving species (calcifuges) have been selected, this soil would benefit from further amelioration to raise its pH (e.g. lime application).

The electrical conductivity (salinity) value (water extract) was low, which indicates that soluble salts were not present at levels that would be harmful to plants.

The electrical conductivity value by $CaSO_4$ extract (*BS3882* requirement) fell below the maximum specified value (3300 µS/cm) given in *BS3882:2015 – Table 1*.

Organic Matter and Fertility Status

The sample was adequately supplied with organic matter and most major plant nutrients but was deficient in extractable potassium. This deficiency can be remedied by either a suitable compost or fertiliser application.

The C:N ratio of the sample was acceptable for general landscape purposes.

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Potential Contaminants

With reference to *BS3882:2015 - Table 1*: Notes 3 and 4, there is a recommendation to confirm levels of potential contaminants in relation to the topsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *residential with home-grown produce* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels* (C4SLs) *for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none was found at levels that exceeded their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in *BS3882:2015 – Table 1*.

CONCLUSION

The purpose of the analysis was to determine the suitability of the topsoil sample for general landscape purposes. The analysis has also been undertaken to determine the sample's compliance with the requirements of the British Standard for Topsoil *(BS3882:2015 – Specification for Topsoil - Table 1, Multipurpose Topsoil).*

From the soil examination and subsequent laboratory analysis, the sample was described as a strongly acid, non-saline, non-calcareous sandy clay loam with a moderately developed structure and very low stone content. The sample was adequately supplied with organic matter and most major plant nutrients but was deficient in extractable potassium. Of the potential contaminants determined, none exceeded their respective guideline values.

Based on our findings, the topsoil represented by this sample would be considered suitable for general landscape purposes provided only species tolerant of acidic soil conditions are selected, the extractable potassium deficiency is addressed and the soil's physical condition is satisfactory.

Unless acid-loving species (calcifuges) have been selected, this soil would benefit from an application of lime to raise its pH.

The sample was largely compliant with the requirements of the British Standard for Topsoil *(BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil),* with the exception of the strongly acid pH value and the deficiency in extractable potassium.

On this occasion, these non-compliances are considered minor when reviewed in the context of all the other results, provided acid-loving species are selected and the nutrient deficiency is remedied by either a routine compost or fertiliser application.

RECOMMENDATIONS

Compost for Planting

For tree and shrub planting, we recommend applying and incorporating suitable compost (e.g. PAS100:2018 /Landscape Institute/WRAP grade (10mm screened) green compost) into the upper 200mm of topsoil (ensuring the soil is dry and friable) at a rate of **15%** by volume. This application should address the extractable potassium deficiency.

Fertiliser for Amenity Grass Establishment

To address the extractable potassium deficiency and to help promote effective grass establishment, we recommend applying and incorporating the pre-seeding grass fertiliser *ICL Sportsmaster Pre-seeder* (8%N:12%P_2O_5:8%K_2O+3%MgO) prior to seeding or turfing at a rate of 35 g/m^2 and to a depth of 100mm.

***Lime Application** (if needed)*

Liming is routinely used to raise the pH of inherently acid soil to a more suitable level. A pH value of 6.5 is typically sought after for most plants. We recommend incorporating agricultural grade crushed limestone or chalk at the rate of **900 g/m^2**, and incorporating evenly to a depth of 200mm.

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Soil Handling Recommendations

It is important to maintain the physical condition of the soil and avoid structural damage during all phases of soil handling (e.g. stockpiling, respreading, cultivating, planting, seeding or turfing). As a consequence, soil handling operations should be carried out when soil is sufficiently dry to be non-plastic (friable) in consistency.

It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the soil is friable in consistency. If the soil is structurally damaged and compacted at any stage during the course of soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

Further details on soil handling are provided in Annex A of *BS3882:2015.*

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully

H.MacRae

Harriet MacRae
BSc MSc
Graduate Soil Scientist

Rebecca Hollands
BSc MSc MISoilSci
Senior Soil Scientist

For & on behalf of Tim O'Hare Associates LLP

MB Soils & Groundworks Limited

TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Client:	**MB Soils & Groundworks Ltd**
Project:	**Miller Homes, Lunt Heath Road, Widness**
Job:	**Topsoil Analysis - BS3882:2015**
Date:	**09/02/2024**
Job Ref No:	**TOHA/24/1231/SS**

Sample Reference			**Topsoil Sample**
		Accreditation	
Clay (<0.002mm)	%	UKAS	21
Silt (0.002-0.063mm)	%	UKAS	23
Sand (0.063-2.0mm)	%	UKAS	56
Texture Class (UK Classification)	--	UKAS	SCL
Stones (2-20mm)	% DW	GLP	1
Stones (20-50mm)	% DW	GLP	1
Stones (>50mm)	% DW	GLP	0
pH Value (1:2.5 water extract)	units	UKAS	5.4
Electrical Conductivity (1:2.5 water extract)	uS/cm	UKAS	267
Electrical Conductivity (1:2 $CaSO_4$ extract)	uS/cm	UKAS	2131
Exchangeable Sodium Percentage	%	UKAS	0.9
Organic Matter (LOI)	%	UKAS	7.0
Total Nitrogen (Dumas)	%	UKAS	0.32
C : N Ratio	ratio	UKAS	13
Extractable Phosphorus	mg/l	UKAS	17
Extractable Potassium	mg/l	UKAS	59
Extractable Magnesium	mg/l	UKAS	66
Total Arsenic (As)	mg/kg	MCERTS	17
Total Cadmium (Cd)	mg/kg	MCERTS	0.7
Total Chromium (Cr)	mg/kg	MCERTS	21
Hexavalent Chromium (Cr VI)	mg/kg	MCERTS	< 1.8
Total Copper (Cu)	mg/kg	MCERTS	89
Total Lead (Pb)	mg/kg	MCERTS	110
Total Mercury (Hg)	mg/kg	MCERTS	< 0.3
Total Nickel (Ni)	mg/kg	MCERTS	23
Total Selenium (Se)	mg/kg	MCERTS	< 1.0
Total Zinc (Zn)	mg/kg	MCERTS	150
Water Soluble Boron (B)	mg/kg	MCERTS	0.2
Total Cyanide (CN)	mg/kg	MCERTS	< 1.0
Total (mono) Phenols	mg/kg	MCERTS	< 1.0
Naphthalene	mg/kg	MCERTS	0.17
Acenaphthylene	mg/kg	MCERTS	< 0.05
Acenaphthene	mg/kg	MCERTS	0.12
Fluorene	mg/kg	MCERTS	0.08
Phenanthrene	mg/kg	MCERTS	0.52
Anthracene	mg/kg	MCERTS	0.10
Fluoranthene	mg/kg	MCERTS	0.90
Pyrene	mg/kg	MCERTS	0.85
Benz(a)anthracene	mg/kg	MCERTS	0.47
Chrysene	mg/kg	MCERTS	0.69
Benzo(b)fluoranthene	mg/kg	MCERTS	0.60
Benzo(k)fluoranthene	mg/kg	MCERTS	0.40
Benzo(a)pyrene	mg/kg	MCERTS	0.60
Indeno(1,2,3-cd)pyrene	mg/kg	MCERTS	0.27
Dibenzo(a,h)anthracene	mg/kg	MCERTS	< 0.05
Benzo(g,h,i)perylene	mg/kg	MCERTS	0.40
Total PAHs (sum USEPA16)	mg/kg	MCERTS	6.17
Aliphatic TPH >C5 - C6	mg/kg	MCERTS	< 0.020
Aliphatic TPH >C6 - C8	mg/kg	MCERTS	< 0.020
Aliphatic TPH >C8 - C10	mg/kg	MCERTS	< 0.050
Aliphatic TPH >C10 - C12	mg/kg	MCERTS	< 1.0
Aliphatic TPH >C12 - C16	mg/kg	MCERTS	< 2.0
Aliphatic TPH >C16 - C21	mg/kg	MCERTS	< 8.0
Aliphatic TPH >C21 - C35	mg/kg	MCERTS	< 8.0
Aliphatic TPH (C5 - C35)	mg/kg	MCERTS	< 10
Aromatic TPH >C5 - C7	mg/kg	MCERTS	< 0.010
Aromatic TPH >C7 - C8	mg/kg	MCERTS	< 0.010
Aromatic TPH >C8 - C10	mg/kg	MCERTS	< 0.050
Aromatic TPH >C10 - C12	mg/kg	MCERTS	< 1.0
Aromatic TPH >C12 - C16	mg/kg	MCERTS	2.5
Aromatic TPH >C16 - C21	mg/kg	MCERTS	< 10
Aromatic TPH >C21 - C35	mg/kg	MCERTS	20
Aromatic TPH (C5 - C35)	mg/kg	MCERTS	31
Benzene	mg/kg	MCERTS	< 0.005
Toluene	mg/kg	MCERTS	< 0.005
Ethylbenzene	mg/kg	MCERTS	< 0.005
p & m-xylene	mg/kg	MCERTS	< 0.005
o-xylene	mg/kg	MCERTS	< 0.005
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	MCERTS	< 0.005
Asbestos Screen	ND/D	ISO 17025	Not-detected

SCL = SANDY CLAY LOAM

Visual Examination

The sample was described as a very dark greyish brown (Munsell Colour 10YR 3/2), slightly moist, plastic, non-calcareous SANDY CLAY LOAM with a moderately developed, fine to coarse granular and subangular blocky structure. The sample was virtually stone-free, comprising stones up to 30mm in size, and no unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

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Results of analysis should be read in conjunction with the report they were issued with

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MB Soils & Groundworks Limited

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Normec DETS Limited
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Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 24-02688

Site Reference:	Chain Road, Blackley
Project / Job Ref:	LKC 21 1026
Order No:	LKC211026-HM
Sample Receipt Date:	14/03/2024
Sample Scheduled Date:	14/03/2024
Report Issue Number:	0
Reporting Date:	20/03/2024

Authorised by:

Interim Report

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
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Lenham Heath
Maidstone
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Tel : 01622 850410

4480

Soil Analysis Certificate						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24	12/03/24	12/03/24	12/03/24	12/03/24
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS201	TS202	TS203	SS201	SS202
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 20/03/2024	**DETS Sample No**	704142	704143	704144	704145	704146

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
pH	pH Units	N/a	ISO17025	8.3	7.5	7.5	8.0	7.6
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	ISO17025	149	17	11	31	29
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	ISO17025	0.15	0.02	0.01	0.03	0.03
Organic Matter (SOM)	%	< 0.1	ISO17025	4.9	3.3	4.4	1.2	1.1
Arsenic (As)	mg/kg	< 2	ISO17025	11	15	9	5	6
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	ISO17025	0.2	0.3	< 0.2	< 0.2	< 0.2
Chromium (Cr)	mg/kg	< 2	ISO17025	9	22	11	6	7
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	ISO17025	41	56	30	8	10
Lead (Pb)	mg/kg	< 3	ISO17025	60	61	60	22	33
Mercury (Hg)	mg/kg	< 1	ISO17025	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	ISO17025	8	19	11	5	7
Selenium (Se)	mg/kg	< 2	ISO17025	< 2	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	ISO17025	12	24	16	8	9
Zinc (Zn)	mg/kg	< 3	ISO17025	79	104	50	28	33
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
~ Sample details provided by the customer
(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

UKAS TESTING
4480

Soil Analysis Certificate						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24				
LK Consult Limited	**~Time Sampled**	None Supplied				
~Site Reference: Chain Road, Blackley	**~TP / BH No**	SS203				
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied				
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied				
Reporting Date: 20/03/2024	**DETS Sample No**	704147				

Determinand	**Unit**	**RL**	**Accreditation**	(n)				
pH	pH Units	N/a	**ISO17025**	8.0				
Total Cyanide	mg/kg	< 1	NONE	< 1				
Free Cyanide	mg/kg	< 1	NONE	< 1				
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	**ISO17025**	60				
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	**ISO17025**	0.06				
Organic Matter (SOM)	%	< 0.1	**ISO17025**	0.9				
Arsenic (As)	mg/kg	< 2	**ISO17025**	4				
W/S Boron	mg/kg	< 1	NONE	< 1				
Cadmium (Cd)	mg/kg	< 0.2	**ISO17025**	< 0.2				
Chromium (Cr)	mg/kg	< 2	**ISO17025**	6				
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2				
Copper (Cu)	mg/kg	< 4	**ISO17025**	8				
Lead (Pb)	mg/kg	< 3	**ISO17025**	20				
Mercury (Hg)	mg/kg	< 1	**ISO17025**	< 1				
Nickel (Ni)	mg/kg	< 3	**ISO17025**	5				
Selenium (Se)	mg/kg	< 2	**ISO17025**	< 2				
Vanadium (V)	mg/kg	< 1	**ISO17025**	7				
Zinc (Zn)	mg/kg	< 3	**ISO17025**	24				
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
~ Sample details provided by the customer

Normec DETS Limited
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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24	12/03/24	12/03/24	12/03/24	12/03/24
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS201	TS202	TS203	SS201	SS202
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 20/03/2024	**DETS Sample No**	704142	704143	704144	704145	704146

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
Naphthalene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	ISO17025	0.16	< 0.1	0.16	0.14	0.30
Anthracene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	ISO17025	0.47	< 0.1	0.23	0.25	0.64
Pyrene	mg/kg	< 0.1	ISO17025	0.46	< 0.1	0.22	0.24	0.64
Benzo(a)anthracene	mg/kg	< 0.1	ISO17025	0.20	< 0.1	< 0.1	< 0.1	0.23
Chrysene	mg/kg	< 0.1	ISO17025	0.24	< 0.1	0.12	0.14	0.25
Benzo(b)fluoranthene	mg/kg	< 0.1	ISO17025	0.23	< 0.1	< 0.1	0.11	0.18
Benzo(k)fluoranthene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	ISO17025	0.20	< 0.1	< 0.1	< 0.1	0.16
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	ISO17025	2	< 1.6	< 1.6	< 1.6	2.4

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24				
LK Consult Limited	**~Time Sampled**	None Supplied				
~Site Reference: Chain Road, Blackley	**~TP / BH No**	SS203				
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied				
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied				
Reporting Date: 20/03/2024	**DETS Sample No**	704147				

Determinand	Unit	RL	Accreditation	(n)			
Naphthalene	mg/kg	< 0.1	ISO17025	< 0.1			
Acenaphthylene	mg/kg	< 0.1	ISO17025	< 0.1			
Acenaphthene	mg/kg	< 0.1	ISO17025	< 0.1			
Fluorene	mg/kg	< 0.1	ISO17025	< 0.1			
Phenanthrene	mg/kg	< 0.1	ISO17025	< 0.1			
Anthracene	mg/kg	< 0.1	ISO17025	< 0.1			
Fluoranthene	mg/kg	< 0.1	ISO17025	< 0.1			
Pyrene	mg/kg	< 0.1	ISO17025	< 0.1			
Benzo(a)anthracene	mg/kg	< 0.1	ISO17025	< 0.1			
Chrysene	mg/kg	< 0.1	ISO17025	< 0.1			
Benzo(b)fluoranthene	mg/kg	< 0.1	ISO17025	< 0.1			
Benzo(k)fluoranthene	mg/kg	< 0.1	ISO17025	< 0.1			
Benzo(a)pyrene	mg/kg	< 0.1	ISO17025	< 0.1			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	ISO17025	< 0.1			
Dibenz(a,h)anthracene	mg/kg	< 0.1	ISO17025	< 0.1			
Benzo(ghi)perylene	mg/kg	< 0.1	ISO17025	< 0.1			
Total EPA-16 PAHs	mg/kg	< 1.6	ISO17025	< 1.6			

~ Sample details provided by the customer

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24	12/03/24	12/03/24	12/03/24	12/03/24
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS201	TS202	TS203	SS201	SS202
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 20/03/2024	**DETS Sample No**	704142	704143	704144	704145	704146

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01		< 0.01	< 0.01
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05		< 0.05	< 0.05
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	**ISO17025**	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	**ISO17025**	< 3	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	**ISO17025**	< 10	< 10	< 10	< 10	< 10
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01		< 0.01	< 0.01
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05		< 0.05	< 0.05
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	4
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	**ISO17025**	< 3	< 3	< 3	< 3	< 3
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	**ISO17025**	< 10	< 10	< 10	< 10	< 10
Aromatic >C35 - C44	mg/kg	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	< 21		< 21	< 21

~ Sample details provided by the customer
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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24				
LK Consult Limited	**~Time Sampled**	None Supplied				
~Site Reference: Chain Road, Blackley	**~TP / BH No**	SS203				
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied				
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied				
Reporting Date: 20/03/2024	**DETS Sample No**	704147				

Determinand	Unit	RL	Accreditation	(n)				
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01				
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05				
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	ISO17025	< 2				
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	ISO17025	< 2				
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	ISO17025	< 3				
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	ISO17025	< 3				
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	ISO17025	< 10				
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01				
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05				
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	ISO17025	< 2				
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	ISO17025	< 2				
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	ISO17025	< 2				
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	ISO17025	< 3				
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	ISO17025	< 10				
Aromatic >C35 - C44	mg/kg	< 10	NONE	< 10				
Aromatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21				

~ Sample details provided by the customer

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24	12/03/24	12/03/24	12/03/24	12/03/24
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS201	TS202	SS201	SS202	SS203
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 20/03/2024	**DETS Sample No**	704142	704143	704145	704146	704147

Determinand	**Unit**	**RL**	**Accreditation**	(n)	(n)	(n)	(n)	(n)
Benzene : HS_1D_MS	ug/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
Toluene : HS_1D_MS	ug/kg	< 5	**ISO17025**	< 5	< 5	< 5	< 5	< 5
Ethylbenzene : HS_1D_MS	ug/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
p & m-xylene : HS_1D_MS	ug/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
o-xylene : HS_1D_MS	ug/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
MTBE : HS_1D_MS	ug/kg	< 5	**ISO17025**	< 5	< 5	< 5	< 5	< 5

~ Sample details provided by the customer
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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 24-02688	
LK Consult Limited	
~Site Reference: Chain Road, Blackley	
~Project / Job Ref: LKC 21 1026	
~Order No: LKC211026-HM	
Reporting Date: 20/03/2024	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
704142	TS201	None Supplied	None Supplied	17	Brown sandy loam
704143	TS202	None Supplied	None Supplied	15.9	Brown sandy loam with vegetation
704144	TS203	None Supplied	None Supplied	13.7	Brown sandy loam with vegetation
704145	SS201	None Supplied	None Supplied	9.1	Light brown sandy clay
704146	SS202	None Supplied	None Supplied	12.1	Light brown sandy clay
704147	SS203	None Supplied	None Supplied	17.8	Light brown sandy clay

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S
~ Sample details provided by the customer

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 24-02688
LK Consult Limited
~Site Reference: Chain Road, Blackley
~Project / Job Ref: LKC 21 1026
~Order No: LKC211026-HM
Reporting Date: 20/03/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received
~ Sample details provided by the customer

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List of HWOL Acronyms and Operators
DETS Report No: 24-02688
LK Consult Limited
~Site Reference: Chain Road, Blackley
~Project / Job Ref: LKC 21 1026
~Order No: LKC211026-HM
Reporting Date: 20/03/2024

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by the customer

Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
Toluene - HS_1D_MS
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

Fraser Peers
LK Consult Limited
Unit 29 Eton Business Park
Eton Hill Road
Manchester
M26 2ZS

Normec DETS Limited
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 24-05812

Site Reference:	Chain Road, Blackley
Project / Job Ref:	LKC 21 1026
Order No:	LKC21026-HM
Sample Receipt Date:	28/05/2024
Sample Scheduled Date:	28/05/2024
Report Issue Number:	1
Reporting Date:	31/05/2024

Authorised by:

Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Normec DETS Limited
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Maidstone
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4480

Soil Analysis Certificate						
DETS Report No: 24-05812	**~Date Sampled**	23/05/24	23/05/24			
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied			
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS1	SS1			
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied			
~Order No: LKC21026-HM	**~Depth (m)**	None Supplied	None Supplied			
Reporting Date: 31/05/2024	**DETS Sample No**	717499	717500			

Determinand	**Unit**	**RL**	**Accreditation**					
Asbestos Screen (S)	N/a	N/a	**ISO17025**	Not Detected	Not Detected			
pH	pH Units	N/a	**MCERTS**	5.9	9.9			
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1			
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1			
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	**MCERTS**	16	145			
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	**MCERTS**	0.02	0.15			
Organic Matter (SOM)	%	< 0.1	**MCERTS**	3.1	0.8			
Arsenic (As)	mg/kg	< 2	**MCERTS**	10	3			
W/S Boron	mg/kg	< 1	NONE	< 1	< 1			
Cadmium (Cd)	mg/kg	< 0.2	**MCERTS**	0.3	4.6			
Chromium (Cr)	mg/kg	< 2	**MCERTS**	20	11			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2			
Copper (Cu)	mg/kg	< 4	**MCERTS**	39	83			
Lead (Pb)	mg/kg	< 3	**MCERTS**	49	20			
Mercury (Hg)	mg/kg	< 1	**MCERTS**	< 1	< 1			
Nickel (Ni)	mg/kg	< 3	**MCERTS**	17	13			
Selenium (Se)	mg/kg	< 2	**MCERTS**	< 2	< 2			
Vanadium (V)	mg/kg	< 1	**MCERTS**	27	11			
Zinc (Zn)	mg/kg	< 3	**MCERTS**	76	213			
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
~Sample details provided by customer and can affect the validity of results

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Maidstone
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Tel : 01622 850410

Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-05812	**~Date Sampled**	23/05/24	23/05/24			
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied			
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS1	SS1			
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied			
~Order No: LKC21026-HM	**~Depth (m)**	None Supplied	None Supplied			
Reporting Date: 31/05/2024	**DETS Sample No**	717499	717500			

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6			

~Sample details provided by customer and can affect the validity of results

Normec DETS Limited
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Maidstone
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Tel : 01622 850410

Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 24-05812	**~Date Sampled**	23/05/24	23/05/24			
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied			
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS1	SS1			
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied			
~Order No: LKC21026-HM	**~Depth (m)**	None Supplied	None Supplied			
Reporting Date: 31/05/2024	**DETS Sample No**	717499	717500			

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10	< 10			
Aliphatic >C34 - C44 : EH_CU_1D_AL	mg/kg	< 10	NONE	< 10	< 10			
Aliphatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21			
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	< 3	< 3			
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	< 10	< 10			
Aromatic >C35 - C44 : EH_CU_1D_AR	mg/kg	< 10	NONE	< 10	< 10			
Aromatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	< 21			
Total >C5 - C44 : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 42	NONE	< 42	< 42			

~Sample details provided by customer and can affect the validity of results

Normec DETS Limited
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Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-05812	**~Date Sampled**	23/05/24	23/05/24			
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied			
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS1	SS1			
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied			
~Order No: LKC21026-HM	**~Depth (m)**	None Supplied	None Supplied			
Reporting Date: 31/05/2024	**DETS Sample No**	717499	717500			

Determinand	**Unit**	**RL**	**Accreditation**					
Benzene : HS_1D_MS	ug/kg	< 2	**MCERTS**	< 2	< 2			
Toluene : HS_1D_MS	ug/kg	< 5	**MCERTS**	22	< 5			
Ethylbenzene : HS_1D_MS	ug/kg	< 2	**MCERTS**	< 2	< 2			
p & m-xylene : HS_1D_MS	ug/kg	< 2	**MCERTS**	< 2	< 2			
o-xylene : HS_1D_MS	ug/kg	< 2	**MCERTS**	< 2	< 2			
MTBE : HS_1D_MS	ug/kg	< 5	**MCERTS**	< 5	< 5			

~Sample details provided by customer and can affect the validity of results

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Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 24-05812	
LK Consult Limited	
~Site Reference: Chain Road, Blackley	
~Project / Job Ref: LKC 21 1026	
~Order No: LKC21026-HM	
Reporting Date: 31/05/2024	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
717499	TS1	None Supplied	None Supplied	15.2	Brown sandy clay with stones
717500	SS1	None Supplied	None Supplied	8.8	Brown clayey sand with stones

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S
~Sample details provided by customer and can affect the validity of results

Normec DETS Limited
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Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 24-05812

LK Consult Limited

~Site Reference: Chain Road, Blackley

~Project / Job Ref: LKC 21 1026

~Order No: LKC21026-HM

Reporting Date: 31/05/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

~Sample details provided by customer and can affect the validity of results

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
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List of HWOL Acronyms and Operators
DETS Report No: 24-05812
LK Consult Limited
~Site Reference: Chain Road, Blackley
~Project / Job Ref: LKC 21 1026
~Order No: LKC21026-HM
Reporting Date: 31/05/2024

Acronym	**Description**
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by customer and can affect the validity of results

Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
TPH - Aliphatic >C34 - C44 - raw data - EH_CU_1D_AL
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C34 - C44 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C35 - C44 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C44 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

Appendix B – Imported Subsoil Certificates and Certificates of Analysis

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/08244
Issue Number: 1 **Date:** 23 August, 2023

Client:
Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab/Marc Fawcett
Project Name: Shevinston Triangle
Project Ref: 23CSA001
Order No: BG5112
Date Samples Received: 16/08/23
Date Instructions Received: 17/08/23
Date Analysis Completed: 23/08/23

Approved by:

Richard Wong
Client Manager

Envirolab Job Number: 23/08244

Client Project Name: Shevinston Triangle

Client Project Ref: 23CSA001

Lab Sample ID	23/08244/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SS1									
Depth to Top										
Depth To Bottom										
Date Sampled	16-Aug-23									
Sample Type	SOIL - ES									
Sample Matrix Code	5AE									
% Stones >10mm$_A$	4.8							% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	8.23							pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_D$$^{M\#}$	0.09							g/l	0.01	A-T-026s
Organic Matter$_D$$^{M\#}$	1.0							% w/w	0.1	A-T-032s
Arsenic$_D$$^{M\#}$	2							mg/kg	1	A-T-024s
Cadmium$_D$$^{M\#}$	<0.5							mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	10							mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1							mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	7							mg/kg	1	A-T-024s
Mercury$_D$	<0.17							mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	16							mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1							mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	30							mg/kg	5	A-T-024s
VPH total (>C5-C10)	<1.00							mg/kg	1	Calc-stone+mois

Envirolab Job Number: 23/08244

Client Project Name: Shevinston Triangle

Client Project Ref: 23CSA001

Lab Sample ID	23/08244/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SS1									
Depth to Top										
Depth To Bottom										
Date Sampled	16-Aug-23									
Sample Type	SOIL - ES									
Sample Matrix Code	5AE									
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD									A-T-045
Asbestos Matrix (visual)$_{D}$	-									A-T-045
Asbestos Matrix (microscope)$_{D}$	-									A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A									A-T-045

Envirolab Job Number: 23/08244

Client Project Name: Shevinston Triangle

Client Project Ref: 23CSA001

Lab Sample ID	**23/08244/1**							**Units**	**Limit of Detection**	**Method ref**
Client Sample No										
Client Sample ID	**SS1**									
Depth to Top										
Depth To Bottom										
Date Sampled	**16-Aug-23**									
Sample Type	**SOIL - ES**									
Sample Matrix Code	**5AE**									
PAH-16MS										
Acenaphthene$_{A}^{M\#}$	**<0.01**							**mg/kg**	**0.01**	**A-T-019s**
Acenaphthylene$_{A}^{M\#}$	**<0.01**							**mg/kg**	**0.01**	**A-T-019s**
Anthracene$_{A}^{M\#}$	**<0.02**							**mg/kg**	**0.02**	**A-T-019s**
Benzo(a)anthracene$_{A}^{M\#}$	**0.09**							**mg/kg**	**0.04**	**A-T-019s**
Benzo(a)pyrene$_{A}^{M\#}$	**0.09**							**mg/kg**	**0.04**	**A-T-019s**
Benzo(b)fluoranthene$_{A}^{M\#}$	**0.09**							**mg/kg**	**0.05**	**A-T-019s**
Benzo(ghi)perylene$_{A}^{M\#}$	**<0.05**							**mg/kg**	**0.05**	**A-T-019s**
Benzo(k)fluoranthene$_{A}^{M\#}$	**<0.07**							**mg/kg**	**0.07**	**A-T-019s**
Chrysene$_{A}^{M\#}$	**0.11**							**mg/kg**	**0.06**	**A-T-019s**
Dibenzo(ah)anthracene$_{A}$	**<0.04**							**mg/kg**	**0.04**	**A-T-019s**
Fluoranthene$_{A}^{M\#}$	**0.18**							**mg/kg**	**0.08**	**A-T-019s**
Fluorene$_{A}^{M\#}$	**<0.01**							**mg/kg**	**0.01**	**A-T-019s**
Indeno(123-cd)pyrene$_{A}^{M\#}$	**0.07**							**mg/kg**	**0.03**	**A-T-019s**
Naphthalene $_{A}^{M\#}$	**<0.03**							**mg/kg**	**0.03**	**A-T-019s**
Phenanthrene$_{A}^{M\#}$	**0.06**							**mg/kg**	**0.03**	**A-T-019s**
Pyrene$_{A}^{M\#}$	**0.18**							**mg/kg**	**0.07**	**A-T-019s**
Total PAH-16MS$_{A}$	**0.87**							**mg/kg**	**0.01**	**A-T-019s**

Envirolab Job Number: 23/08244

Client Project Name: Shevinston Triangle

Client Project Ref: 23CSA001

Lab Sample ID	23/08244/1							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	SS1									
Depth to Top										
Depth To Bottom										
Date Sampled	16-Aug-23									
Sample Type	SOIL - ES									
Sample Matrix Code	5AE									
TPH CWG with Clean Up										
Ali >C5-C6$_A$	<0.01							mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	<0.01							mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1							mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1							mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	<1							mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	<1							mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	2							mg/kg	1	A-T-055s
Total Aliphatics$_A$	2							mg/kg	1	Calc-As Recd
Aro >C5-C7$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	<1							mg/kg	1	A-T-055s
Aro >C10-C12$_A$	<1							mg/kg	1	A-T-055s
Aro >C12-C16$_A$	<1							mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	<1							mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	3							mg/kg	1	A-T-055s
Total Aromatics$_A$	3							mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35)$_A$	6							mg/kg	1	Calc-As Recd
BTEX - Benzene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s

Report Notes

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **six weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and Interpretations expressed are outside our scope of accreditation.
The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^{o}C / 11550µS/cm @ 20^{o}C fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Betts Geo Environmental, Old Marsh Farm Barns, Welsh Road, Sealand, Flintshire, UK, CH5 2LY

Project: Shevinston Triangle

Clients Project No: 23CSA001

Project No: 23/08244

Date Received: 17/08/2023 (am)

Cool Box Temperatures (°C): 17.2

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples 5 ± 3°C), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/08244/1
Client Sample No	
Client Sample ID/Depth	SS1
Date Sampled	16/08/23
A-T-019s	22/08/2023
A-T-022s	22/08/2023
A-T-024s	22/08/2023
A-T-026s	22/08/2023
A-T-031s	23/08/2023
A-T-032s	22/08/2023
A-T-040s	22/08/2023
A-T-044	22/08/2023
A-T-045	21/08/2023
A-T-055s	22/08/2023
Calc-As Recd	22/08/2023
Calc-stone+mois	22/08/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

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LK Consult Limited
Unit 29 Eton Business Park
Eton Hill Road
Manchester
M26 2ZS

Normec DETS Limited
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Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 24-02688

Site Reference:	Chain Road, Blackley
Project / Job Ref:	LKC 21 1026
Order No:	LKC211026-HM
Sample Receipt Date:	14/03/2024
Sample Scheduled Date:	14/03/2024
Report Issue Number:	0
Reporting Date:	20/03/2024

Authorised by:

Interim Report

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

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Soil Analysis Certificate						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24	12/03/24	12/03/24	12/03/24	12/03/24
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS201	TS202	TS203	SS201	SS202
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 20/03/2024	**DETS Sample No**	704142	704143	704144	704145	704146

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
pH	pH Units	N/a	ISO17025	8.3	7.5	7.5	8.0	7.6
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	ISO17025	149	17	11	31	29
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	ISO17025	0.15	0.02	0.01	0.03	0.03
Organic Matter (SOM)	%	< 0.1	ISO17025	4.9	3.3	4.4	1.2	1.1
Arsenic (As)	mg/kg	< 2	ISO17025	11	15	9	5	6
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	ISO17025	0.2	0.3	< 0.2	< 0.2	< 0.2
Chromium (Cr)	mg/kg	< 2	ISO17025	9	22	11	6	7
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	ISO17025	41	56	30	8	10
Lead (Pb)	mg/kg	< 3	ISO17025	60	61	60	22	33
Mercury (Hg)	mg/kg	< 1	ISO17025	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	ISO17025	8	19	11	5	7
Selenium (Se)	mg/kg	< 2	ISO17025	< 2	< 2	< 2	< 2	< 2
Vanadium (V)	mg/kg	< 1	ISO17025	12	24	16	8	9
Zinc (Zn)	mg/kg	< 3	ISO17025	79	104	50	28	33
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
~ Sample details provided by the customer
(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

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Soil Analysis Certificate						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24				
LK Consult Limited	**~Time Sampled**	None Supplied				
~Site Reference: Chain Road, Blackley	**~TP / BH No**	SS203				
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied				
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied				
Reporting Date: 20/03/2024	**DETS Sample No**	704147				

Determinand	**Unit**	**RL**	**Accreditation**	(n)				
pH	pH Units	N/a	**ISO17025**	8.0				
Total Cyanide	mg/kg	< 1	NONE	< 1				
Free Cyanide	mg/kg	< 1	NONE	< 1				
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	**ISO17025**	60				
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	**ISO17025**	0.06				
Organic Matter (SOM)	%	< 0.1	**ISO17025**	0.9				
Arsenic (As)	mg/kg	< 2	**ISO17025**	4				
W/S Boron	mg/kg	< 1	NONE	< 1				
Cadmium (Cd)	mg/kg	< 0.2	**ISO17025**	< 0.2				
Chromium (Cr)	mg/kg	< 2	**ISO17025**	6				
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2				
Copper (Cu)	mg/kg	< 4	**ISO17025**	8				
Lead (Pb)	mg/kg	< 3	**ISO17025**	20				
Mercury (Hg)	mg/kg	< 1	**ISO17025**	< 1				
Nickel (Ni)	mg/kg	< 3	**ISO17025**	5				
Selenium (Se)	mg/kg	< 2	**ISO17025**	< 2				
Vanadium (V)	mg/kg	< 1	**ISO17025**	7				
Zinc (Zn)	mg/kg	< 3	**ISO17025**	24				
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2				

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
~ Sample details provided by the customer

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24	12/03/24	12/03/24	12/03/24	12/03/24
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS201	TS202	TS203	SS201	SS202
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 20/03/2024	**DETS Sample No**	704142	704143	704144	704145	704146

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
Naphthalene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	ISO17025	0.16	< 0.1	0.16	0.14	0.30
Anthracene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	ISO17025	0.47	< 0.1	0.23	0.25	0.64
Pyrene	mg/kg	< 0.1	ISO17025	0.46	< 0.1	0.22	0.24	0.64
Benzo(a)anthracene	mg/kg	< 0.1	ISO17025	0.20	< 0.1	< 0.1	< 0.1	0.23
Chrysene	mg/kg	< 0.1	ISO17025	0.24	< 0.1	0.12	0.14	0.25
Benzo(b)fluoranthene	mg/kg	< 0.1	ISO17025	0.23	< 0.1	< 0.1	0.11	0.18
Benzo(k)fluoranthene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	ISO17025	0.20	< 0.1	< 0.1	< 0.1	0.16
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	ISO17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	ISO17025	2	< 1.6	< 1.6	< 1.6	2.4

~ Sample details provided by the customer
(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24				
LK Consult Limited	**~Time Sampled**	None Supplied				
~Site Reference: Chain Road, Blackley	**~TP / BH No**	SS203				
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied				
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied				
Reporting Date: 20/03/2024	**DETS Sample No**	704147				

Determinand	Unit	RL	Accreditation	(n)			
Naphthalene	mg/kg	< 0.1	ISO17025	< 0.1			
Acenaphthylene	mg/kg	< 0.1	ISO17025	< 0.1			
Acenaphthene	mg/kg	< 0.1	ISO17025	< 0.1			
Fluorene	mg/kg	< 0.1	ISO17025	< 0.1			
Phenanthrene	mg/kg	< 0.1	ISO17025	< 0.1			
Anthracene	mg/kg	< 0.1	ISO17025	< 0.1			
Fluoranthene	mg/kg	< 0.1	ISO17025	< 0.1			
Pyrene	mg/kg	< 0.1	ISO17025	< 0.1			
Benzo(a)anthracene	mg/kg	< 0.1	ISO17025	< 0.1			
Chrysene	mg/kg	< 0.1	ISO17025	< 0.1			
Benzo(b)fluoranthene	mg/kg	< 0.1	ISO17025	< 0.1			
Benzo(k)fluoranthene	mg/kg	< 0.1	ISO17025	< 0.1			
Benzo(a)pyrene	mg/kg	< 0.1	ISO17025	< 0.1			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	ISO17025	< 0.1			
Dibenz(a,h)anthracene	mg/kg	< 0.1	ISO17025	< 0.1			
Benzo(ghi)perylene	mg/kg	< 0.1	ISO17025	< 0.1			
Total EPA-16 PAHs	mg/kg	< 1.6	ISO17025	< 1.6			

~ Sample details provided by the customer

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24	12/03/24	12/03/24	12/03/24	12/03/24
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS201	TS202	TS203	SS201	SS202
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 20/03/2024	**DETS Sample No**	704142	704143	704144	704145	704146

Determinand	Unit	RL	Accreditation	(n)	(n)	(n)	(n)	(n)
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01		< 0.01	< 0.01
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05		< 0.05	< 0.05
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	**ISO17025**	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	**ISO17025**	< 3	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	**ISO17025**	< 10	< 10	< 10	< 10	< 10
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01		< 0.01	< 0.01
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05		< 0.05	< 0.05
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	4
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	**ISO17025**	< 3	< 3	< 3	< 3	< 3
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	**ISO17025**	< 10	< 10	< 10	< 10	< 10
Aromatic >C35 - C44	mg/kg	< 10	NONE	< 10	< 10	< 10	< 10	< 10
Aromatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	< 21		< 21	< 21

~ Sample details provided by the customer
(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

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UKAS TESTING 4480

Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24				
LK Consult Limited	**~Time Sampled**	None Supplied				
~Site Reference: Chain Road, Blackley	**~TP / BH No**	SS203				
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied				
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied				
Reporting Date: 20/03/2024	**DETS Sample No**	704147				

Determinand	Unit	RL	Accreditation	(n)				
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01				
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05				
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	ISO17025	< 2				
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	ISO17025	< 2				
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	ISO17025	< 3				
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	ISO17025	< 3				
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	ISO17025	< 10				
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01				
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05				
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	ISO17025	< 2				
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	ISO17025	< 2				
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	ISO17025	< 2				
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	ISO17025	< 3				
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	ISO17025	< 10				
Aromatic >C35 - C44	mg/kg	< 10	NONE	< 10				
Aromatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21				

~ Sample details provided by the customer

Normec DETS Limited
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Tel : 01622 850410

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-02688	**~Date Sampled**	12/03/24	12/03/24	12/03/24	12/03/24	12/03/24
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS201	TS202	SS201	SS202	SS203
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
~Order No: LKC211026-HM	**~Depth (m)**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 20/03/2024	**DETS Sample No**	704142	704143	704145	704146	704147

Determinand	**Unit**	**RL**	**Accreditation**	(n)	(n)	(n)	(n)	(n)
Benzene : HS_1D_MS	ug/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
Toluene : HS_1D_MS	ug/kg	< 5	**ISO17025**	< 5	< 5	< 5	< 5	< 5
Ethylbenzene : HS_1D_MS	ug/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
p & m-xylene : HS_1D_MS	ug/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
o-xylene : HS_1D_MS	ug/kg	< 2	**ISO17025**	< 2	< 2	< 2	< 2	< 2
MTBE : HS_1D_MS	ug/kg	< 5	**ISO17025**	< 5	< 5	< 5	< 5	< 5

~ Sample details provided by the customer
(n) Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation

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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 24-02688	
LK Consult Limited	
~Site Reference: Chain Road, Blackley	
~Project / Job Ref: LKC 21 1026	
~Order No: LKC211026-HM	
Reporting Date: 20/03/2024	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
704142	TS201	None Supplied	None Supplied	17	Brown sandy loam
704143	TS202	None Supplied	None Supplied	15.9	Brown sandy loam with vegetation
704144	TS203	None Supplied	None Supplied	13.7	Brown sandy loam with vegetation
704145	SS201	None Supplied	None Supplied	9.1	Light brown sandy clay
704146	SS202	None Supplied	None Supplied	12.1	Light brown sandy clay
704147	SS203	None Supplied	None Supplied	17.8	Light brown sandy clay

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S
~ Sample details provided by the customer

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 24-02688
LK Consult Limited
~Site Reference: Chain Road, Blackley
~Project / Job Ref: LKC 21 1026
~Order No: LKC211026-HM
Reporting Date: 20/03/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received
~ Sample details provided by the customer

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List of HWOL Acronyms and Operators
DETS Report No: 24-02688
LK Consult Limited
~Site Reference: Chain Road, Blackley
~Project / Job Ref: LKC 21 1026
~Order No: LKC211026-HM
Reporting Date: 20/03/2024

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by the customer

Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
Toluene - HS_1D_MS
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

Fraser Peers
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Normec DETS Limited
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ME17 2JN
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DETS Report No: 24-05812

Site Reference:	Chain Road, Blackley
Project / Job Ref:	LKC 21 1026
Order No:	LKC21026-HM
Sample Receipt Date:	28/05/2024
Sample Scheduled Date:	28/05/2024
Report Issue Number:	1
Reporting Date:	31/05/2024

Authorised by:

Steve Knight
Customer Support Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Soil Analysis Certificate						
DETS Report No: 24-05812	**~Date Sampled**	23/05/24	23/05/24			
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied			
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS1	SS1			
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied			
~Order No: LKC21026-HM	**~Depth (m)**	None Supplied	None Supplied			
Reporting Date: 31/05/2024	**DETS Sample No**	717499	717500			

Determinand	**Unit**	**RL**	**Accreditation**					
Asbestos Screen (S)	N/a	N/a	**ISO17025**	Not Detected	Not Detected			
pH	pH Units	N/a	**MCERTS**	5.9	9.9			
Total Cyanide	mg/kg	< 1	NONE	< 1	< 1			
Free Cyanide	mg/kg	< 1	NONE	< 1	< 1			
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	**MCERTS**	16	145			
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	**MCERTS**	0.02	0.15			
Organic Matter (SOM)	%	< 0.1	**MCERTS**	3.1	0.8			
Arsenic (As)	mg/kg	< 2	**MCERTS**	10	3			
W/S Boron	mg/kg	< 1	NONE	< 1	< 1			
Cadmium (Cd)	mg/kg	< 0.2	**MCERTS**	0.3	4.6			
Chromium (Cr)	mg/kg	< 2	**MCERTS**	20	11			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2			
Copper (Cu)	mg/kg	< 4	**MCERTS**	39	83			
Lead (Pb)	mg/kg	< 3	**MCERTS**	49	20			
Mercury (Hg)	mg/kg	< 1	**MCERTS**	< 1	< 1			
Nickel (Ni)	mg/kg	< 3	**MCERTS**	17	13			
Selenium (Se)	mg/kg	< 2	**MCERTS**	< 2	< 2			
Vanadium (V)	mg/kg	< 1	**MCERTS**	27	11			
Zinc (Zn)	mg/kg	< 3	**MCERTS**	76	213			
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)
~Sample details provided by customer and can affect the validity of results

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Tel : 01622 850410

Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 24-05812	**~Date Sampled**	23/05/24	23/05/24			
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied			
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS1	SS1			
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied			
~Order No: LKC21026-HM	**~Depth (m)**	None Supplied	None Supplied			
Reporting Date: 31/05/2024	**DETS Sample No**	717499	717500			

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6			

~Sample details provided by customer and can affect the validity of results

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 24-05812	**~Date Sampled**	23/05/24	23/05/24			
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied			
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS1	SS1			
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied			
~Order No: LKC21026-HM	**~Depth (m)**	None Supplied	None Supplied			
Reporting Date: 31/05/2024	**DETS Sample No**	717499	717500			

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C16 - C21 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C21 - C34 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10	< 10			
Aliphatic >C34 - C44 : EH_CU_1D_AL	mg/kg	< 10	NONE	< 10	< 10			
Aliphatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 21	NONE	< 21	< 21			
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	< 3	< 3			
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	< 10	< 10			
Aromatic >C35 - C44 : EH_CU_1D_AR	mg/kg	< 10	NONE	< 10	< 10			
Aromatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 21	NONE	< 21	< 21			
Total >C5 - C44 : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 42	NONE	< 42	< 42			

~Sample details provided by customer and can affect the validity of results

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-05812	**~Date Sampled**	23/05/24	23/05/24			
LK Consult Limited	**~Time Sampled**	None Supplied	None Supplied			
~Site Reference: Chain Road, Blackley	**~TP / BH No**	TS1	SS1			
~Project / Job Ref: LKC 21 1026	**~Additional Refs**	None Supplied	None Supplied			
~Order No: LKC21026-HM	**~Depth (m)**	None Supplied	None Supplied			
Reporting Date: 31/05/2024	**DETS Sample No**	717499	717500			

Determinand	**Unit**	**RL**	**Accreditation**					
Benzene : HS_1D_MS	ug/kg	< 2	**MCERTS**	< 2	< 2			
Toluene : HS_1D_MS	ug/kg	< 5	**MCERTS**	22	< 5			
Ethylbenzene : HS_1D_MS	ug/kg	< 2	**MCERTS**	< 2	< 2			
p & m-xylene : HS_1D_MS	ug/kg	< 2	**MCERTS**	< 2	< 2			
o-xylene : HS_1D_MS	ug/kg	< 2	**MCERTS**	< 2	< 2			
MTBE : HS_1D_MS	ug/kg	< 5	**MCERTS**	< 5	< 5			

~Sample details provided by customer and can affect the validity of results

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Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 24-05812	
LK Consult Limited	
~Site Reference: Chain Road, Blackley	
~Project / Job Ref: LKC 21 1026	
~Order No: LKC21026-HM	
Reporting Date: 31/05/2024	

DETS Sample No	~TP / BH No	~Additional Refs	~Depth (m)	Moisture Content (%)	Sample Matrix Description
717499	TS1	None Supplied	None Supplied	15.2	Brown sandy clay with stones
717500	SS1	None Supplied	None Supplied	8.8	Brown clayey sand with stones

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S
~Sample details provided by customer and can affect the validity of results

Normec DETS Limited
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 24-05812

LK Consult Limited

~Site Reference: Chain Road, Blackley

~Project / Job Ref: LKC 21 1026

~Order No: LKC21026-HM

Reporting Date: 31/05/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

~Sample details provided by customer and can affect the validity of results

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List of HWOL Acronyms and Operators
DETS Report No: 24-05812
LK Consult Limited
~Site Reference: Chain Road, Blackley
~Project / Job Ref: LKC 21 1026
~Order No: LKC21026-HM
Reporting Date: 31/05/2024

Acronym	**Description**
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total
~	Sample details provided by customer and can affect the validity of results

Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
TPH - Aliphatic >C34 - C44 - raw data - EH_CU_1D_AL
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C34 - C44 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C35 - C44 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Total >C5 - C44 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

Appendix C – Pea Gravel Delivery Note

ALDWYCH CONST LTD

GREAT PLACES

CHAIN ROAD

BLACKLEY

MARCHINGTONSTONE

Buxton Road, High Lane, Stockport SK6 8DX
Tel: 01663 765000 Fax: 01663 763777

Delivery Date: 4/10/23

Order No:

In accordance with our Terms & Conditions a charge for excessive waiting time may be made.

Waiting Time Agreed By:

Print Cabbie

Signed

Material Description

10m

(WRAP Recycled Aggs Protocol Compliant)

Tonnes Gross	Tonnes Tare	Tonnes Nett
27.30	12.14	1016

Time On Site	Time Off Site	Waiting Time Agreed

This vehicle may leave the road on your instruction and at the drivers discretion, providing you accept responsibility for damage to your own or third party property.

Customer Agreed ☐ Signed.....

Haulier: CPS

Place of Loading: LOT 1

Load Accepted on Behalf of Customer:

Print Gin Burke

Signed

Registration No.: MV13 ZHK

Weighbridge Ticket No.: 141719

Driver: CHRIS

Marchington Ticket No.: 610665

POD Copy

Subject to the Conditions of Sale of Marchington Stone Limited applicable to goods of this kind. Available on request.

CE Mark & Declaration of Performance available by contacting sales@marchington.net

Appendix D - Soil Validation Criteria

Generic Assessment Criteria Values

	Contaminant	SOM	Res +	Res -	Allot.	Comm.	POSresi	POSpark	Source
Metals	Inorganic Arsenic	N/A	37	40	49	640	79	168	DEFRA C4SL
	Beryllium	N/A	1.7	1.7	35	12	2.2	63	LQM S4UL
	Boron	N/A	290	11,000	45	240,000	21,000	46,000	LQM S4UL
	Cadmium	N/A	26	149	4.9	410	220	880	DEFRA C4SL
	Chromium (III)	N/A	910	910	18,000	8,600	1,500	33,000	LQM S4UL
	Chromium (VI)	N/A	21.0	21.0	170.0	49	23.0	250	DEFRA C4SL
	Copper	N/A	2,400	7,100	520	68,000	12,000	44,000	LQM S4UL
	Lead	N/A	200	310	80	2,330	630	1,300	DEFRA C4SL
	Elemental Mercury	N/A	1.2	1.2	21	58 (25.8) vap	16	30 (25.8) vap	LQM S4UL
	Inorganic Mercury	N/A	40	56	19	1,100	120	240	LQM S4UL
	Methylmercury	N/A	11	15	6.0	320	40	68	LQM S4UL
	Nickel (2015 update)	N/A	130	180	53	980	230	800	LQM S4UL
	Selenium	N/A	250	430	88	12,000	1,100	1,800	LQM S4UL
	Vanadium	N/A	410	1,200	91	9,000	2,000	5,000	LQM S4UL
	Zinc	N/A	3,700	40,000	620	730,000	81,000	170,000	LQM S4UL
Polycyclic Aromatic Hydrocarbons (PAHs)	Acenaphthene	1%	210	3,000 (57.1) sol	34	84,000 (57.0) sol	15,000	29,000	LQM S4UL
		2.5%	510	4,700 (141) sol	85	97,000 (141) sol	15,000	30,000	LQM S4UL
		6%	1,100	6,000 (336) sol	200	100,000	15,000	30,000	LQM S4UL
	Acenaphthylene	1%	170	2,900 (86.1) sol	28	83,000 (86.1) sol	15,000	29,000	LQM S4UL
		2.5%	420	4,600 (212) sol	69	97,000 (212) sol	15,000	30,000	LQM S4UL
		6%	920	6,000 (506) sol	160	100,000	15,000	30,000	LQM S4UL
	Anthracene	1%	2,400	31,000 (1.17) vap	380	520,000	74,000	150,000	LQM S4UL
		2.5%	5,400	35,000	950	540,000	74,000	150,000	LQM S4UL
		6%	11,000	37,000	2,200	540,000	74,000	150,000	LQM S4UL
	Benz(a)anthracene	1%	7.2	11	2.9	170	29	49	LQM S4UL
		2.5%	11	14	6.5	170	29	56	LQM S4UL
		6%	13	15	13	180	29	62	LQM S4UL
	Benzo(a)pyrene (only)	1%	5.0	5.3	5.70	77	10.0	21	DEFRA C4SL
		2.5%	5.0	5.3	5.70	77	10.0	21	DEFRA C4SL
		6%	5.0	5.3	5.70	77	10.0	21	DEFRA C4SL
	Benzo(a)pyrene (surrogate marker Coal Tar)	1%	0.8	1.2	0.32	15	2.2	4	LQM S4UL
		2.5%	1.0	1.2	0.67	15	2.2	5	LQM S4UL
		6%	1.1	1.2	1.20	15	2.2	5	LQM S4UL
	Benzo(b)fluoranthene	1%	2.6	3.9	0.99	44	7.1	13	LQM S4UL
		2.5%	3.3	4.0	2.1	44	7.2	15	LQM S4UL
		6%	3.7	4.0	3.9	45	7.2	16	LQM S4UL
	Benzo(ghi)perylene	1%	320	360	290	3,900	640	1,400	LQM S4UL
		2.5%	340	360	470	4,000	640	1,500	LQM S4UL
		6%	350	360	640	4,000	640	1,600	LQM S4UL
	Benzo(k)fluoranthene	1%	77	110	37	1,200	190	370	LQM S4UL
		2.5%	93	110	75	1,200	190	410	LQM S4UL
		6%	100	110	130	1,200	190	440	LQM S4UL
	Chrysene	1%	15	30	4.1	350	57	93	LQM S4UL
		2.5%	22	31	9.4	350	57	110	LQM S4UL
		6%	27	32	19	350	57	120	LQM S4UL
	Dibenzo(ah)anthracene	1%	0.24	0.31	0.14	3.5	0.57	1.1	LQM S4UL
		2.5%	0.28	0.32	0.27	3.6	0.58	1.3	LQM S4UL
		6%	0.3	0.32	0.43	3.6	0.58	1.4	LQM S4UL
	Fluoranthene	1%	280	1,500	52	23,000	3,100	6,300	LQM S4UL
		2.5%	560	1,600	130	23,000	3,100	6,300	LQM S4UL
		6%	890	1,600	290	23,000	3,100	6,400	LQM S4UL
	Fluorene	1%	170	2,800 (36.0) sol	27	63,000 (30.9) sol	9,900	20,000	LQM S4UL
		2.5%	400	3,800 (76.5) sol	67	68,000	9,900	20,000	LQM S4UL
		6%	860	4,500 (183) sol	160	71,000	9,900	20,000	LQM S4UL
	Indeno(123-cd)pyrene	1%	27	45	9.5	500	82	150	LQM S4UL
		2.5%	36	46	21	510	82	170	LQM S4UL
		6%	41	46	39	510	82	180	LQM S4UL
	Naphthalene	1%	15	15	65	1,600*	11,000*	8,400*	DEFRA C4SL
		2.5%	36	36	130	3,700*	15,000*	17,00*	DEFRA C4SL
		6%	85	85	200	8,400*	1,200*	1,900*	DEFRA C4SL
	Phenanthrene	1%	95	1,300 (36.0) sol	15	22,000	3,100	6,200	LQM S4UL
		2.5%	220	1,500	38	22,000	3,100	6,200	LQM S4UL
		6%	440	1,500	90	22,000	3,100	6,300	LQM S4UL
	Pyrene	1%	620	3,700	110	54,000	7,400	15,000	LQM S4UL
		2.5%	1,200	3,800	270	54,000	7,400	15,000	LQM S4UL
		6%	2,000	3,800	620	54,000	7,400	15,000	LQM S4UL
	Coal Tar (B(a)P as surrogate marker)	1%	0.79	1.2	0.32	15	2.2	4.4	LQM S4UL
		2.5%	0.98	1.2	0.67	15	2.2	4.7	LQM S4UL
		6%	1.1	1.2	1.2	15	2.2	4.8	LQM S4UL

Generic Assessment Criteria Values

	Contaminant	SOM	Res +	Res -	Allot.	Comm.	POSresi	POSpark	Source
BTEX Compounds	Benzene	1%	0.87	0.38	0.017	27	72	90	LQM S4UL
		2.5%	0.17	0.70	0.034	47	72	100	LQM S4UL
		6%	0.37	1.4	0.075	90	73	110	LQM S4UL
	Toluene	1%	130	880 (869) vap	22	56,000 (869) vap	56,000	87,000 (869) vap	LQM S4UL
		2.5%	290	1,900	51	110,000 (1,920) vap	56,000	95,000 (1,920) vap	LQM S4UL
		6%	660	3,900	120	180,000 (4,360) vap	56,000	100,000 (4,360)	LQM S4UL
	Ethylbenzene	1%	47	83	16	5,700 (518) vap	24,000	17,000 (518) vap	LQM S4UL
		2.5%	110	190	39	13,000 (1,220) vap	24,000	22,000 (1,220) vap	LQM S4UL
		6%	260	440	91	27,000 (2,840) vap	25,000	27,000 (2,840) vap	LQM S4UL
	o-xylene	1%	60	88	28	6,600 (478) sol	41,000	17,000 (478) sol	LQM S4UL
		2.5%	140	210	67	15,000 (1,120) sol	42,000	24,000 (1,120) sol	LQM S4UL
		6%	330	480	160	33,000 (2,620) sol	43,000	33,000 (2,620) sol	LQM S4UL
	m-xylene	1%	59	82	31	6,200 (625) vap	41,000	17,000 (625) vap	LQM S4UL
		2.5%	140	190	74	14,000 (1,470) vap	42,000	24,000 (1,470) vap	LQM S4UL
		6%	320	450	170	31,000 (3,460) vap	43,000	32,000 (3,460) vap	LQM S4UL
	p-xylene	1%	56	79	29	5,900 (576) sol	41,000	17,000 (576) sol	LQM S4UL
		2.5%	130	180	69	14,000 (1,350) sol	42,000	23,000 (1,350) sol	LQM S4UL
		6%	310	430	160	30,000 (3,170) sol	43,000	31,000 (3,170) sol	LQM S4UL
Petroleum Hydroc	**Aliphatic**								
	EC 5-6	1%	42	42	730	3,200 (304) sol	570,000(304)sol	95,000 (304) sol	LQM S4UL
	EC>6-8	1%	100	100	2,300	7,800 (144) sol	600,000	150,000 (144) sol	LQM S4UL
	EC>8-10	1%	27	27	320	2,000 (78) sol	13,000	14,000 (78) vap	LQM S4UL
	EC>10-12	1%	130 (48) vap	130 (48) vap	2,200	9,700 (48) sol	13,000	21,000 (48) vap	LQM S4UL
	EC>12-16	1%	1,100 (24) sol	1,100 (24) sol	11,000	59,000 (24) sol	13,000	25,000 (24) sol	LQM S4UL
	EC>16-35	1%	65,000 (8.48)	65,000 (8.48) f ,sol	260,000 f	160,000 f	250,000 f	450,000 f	LQM S4UL
	EC>35-44	1%	65,000 (8.48)	65,000 (8.48) f ,sol	260,000 f	160,000 f	250,000 f	450,000 f	LQM S4UL
	Aliphatic								
	EC 5-6	2.5%	78	78	1,700	5,900 (558) sol	590,000	130,000 (558) sol	LQM S4UL
	EC>6-8	2.5%	230	230	5,600	17,000 (322) sol	610,000	220,000 (322) sol	LQM S4UL
	EC>8-10	2.5%	65	65	770	4,800 (190) vap	13,000	18,000 (190) vap	LQM S4UL
	EC>10-12	2.5%	330 (118) vap	330 (118) vap	4,400	23,000 (118) vap	13,000	23,000 (118) vap	LQM S4UL
	EC>12-16	2.5%	2,400 (59) sol	2,400 (59) sol	13,000	82,000 (59) sol	13,000	25,000 (59) sol	LQM S4UL
	EC>16-35	2.5%	92,000 (21)	92,000 (21) f ,sol	270,000 f	1,700,000 f	250,000 f	480,000 f	LQM S4UL
	EC>35-44	2.5%	92,000 (21)	92,000 (21) f ,sol	270,000 f	1,700,000 f	250,000 f	480,000 f	LQM S4UL
	Aliphatic								
	EC 5-6	6%	160	160	3,900	12,000 (1,150) sol	600,000	180,000 (1,150)	LQM S4UL
	EC>6-8	6%	530	530	13,000	40,000 (736) sol	620,000	320,000 (736) sol	LQM S4UL
	EC>8-10	6%	150	150	1,700	11,000 (451) vap	13,000	21,000 (451) vap	LQM S4UL
	EC>10-12	6%	760 (283) vap	760 (283) vap	7,300	47,000 (283) vap	13,000	24,000 (283) vap	LQM S4UL
	EC>12-16	6%	4,300 (142) sol	4,400 (142) sol	13,000	90,000 (142) sol	13,000	26,000 (142) sol	LQM S4UL
	EC>16-35	6%	110,000f	110,000f	270,000 f	1,800,000f	250,000 f	490,000 f	LQM S4UL
	EC>35-44	6%	110,000f	110,000f	270,000 f	1,800,000f	250,000 f	490,000 f	LQM S4UL
	Aromatic								
	EC5-7(benzene as non-	1%	70	370	13	26,000 (1,220) sol	56,000	76,000 (1,220) sol	LQM S4UL
	EC>7-8(toluene)	1%	130	860	22	56,000 (869) vap	56,000	87,000 (869) vap	LQM S4UL
	EC>8-10	1%	34	47	8.6	3,500 (613) vap	5,000	7,200 (613) vap	LQM S4UL
	EC>10-12	1%	74	250	13	16,000 (364) sol	5,000	9,200 (364) sol	LQM S4UL
	EC>12-16	1%	140	1,800	23	36,000 (169)sol	5,100	10,000	LQM S4UL
	EC>16-21	1%	260 f	1,900 f	46 f	28,000 f	3,800 f	7,600 f	LQM S4UL
	EC>21-35	1%	1,100 f	1,900 f	370 f	28,000 f	3,800 f	7,800 f	LQM S4UL
	EC>35-44	1%	1,100 f	1,900 f	370f	28,000 f	3,800 f	7,800 f	LQM S4UL
	Aromatic								
	EC5-7(benzene as non-	2.5%	140	690	27	46,000 (2,260) sol	56,000	84,000 (2,260) sol	LQM S4UL
	EC>7-8(toluene)	2.5%	290	1,800	51	110,000 (1,920) sol	56,000	95,000 (1,920) sol	LQM S4UL
	EC>8-10	2.5%	83	110	21	8,100 (1,500) vap	5,000	8,500 (1,500) vap	LQM S4UL
	EC>10-12	2.5%	180	590	31	28,000 (899) sol	5,000	9,700 (899) sol	LQM S4UL
	EC>12-16	2.5%	330	2,300 (419) sol	57	37,000	5,100	10,000	LQM S4UL
	EC>16-21	2.5%	540 f	1,900 f	110 f	28,000 f	3,800 f	7,700 f	LQM S4UL
	EC>21-35	2.5%	1,500 f	1,900 f	820 f	28,000 f	3,800 f	7,800 f	LQM S4UL
	EC>35-44	2.5%	1,500 f	1,900 f	820 f	28,000 f	3,800 f	7,800 f	LQM S4UL
	Aromatic								
	EC5-7(benzene as non-	6%	300	1,400	57	86,000 (4,710) sol	56,000	92,000 (4,710) sol	LQM S4UL
	EC>7-8(toluene)	6%	660	3,900	120	180,000 (4,360)vap	56,000	100,000 (4,360)	LQM S4UL
	EC>8-10	6%	190	270	51	17,000 (3,580) vap	5,000	9,300 (3,580) vap	LQM S4UL
	EC>10-12	6%	380	1,200	4	34,000 (2,150) sol	5,000	10,000	LQM S4UL
	EC>12-16	6%	660	2,500	130	38,000	5,100	10,000	LQM S4UL
	EC>16-21	6%	930f	1,900 f	260 f	28,000 f	3,800 f	7,800 f	LQM S4UL
	EC>21-35	6%	1,700 f	1,900 f	1,600 f	28,000 f	3,800 f	7,900 f	LQM S4UL
	EC>35-44	6%	1,700 f	1,900 f	1,600 f	28,000 f	3,800 f	7,900 f	LQM S4UL
	Aliphatic +Aromatic >EC44	1%	1,600 f	1,900 f	1,200 f	28,000 f	3,800 f	7,800 f	LQM S4UL
		2.5%	1,800 f	1,900 f	2,100 f	28,000 f	3,800 f	7,800 f	LQM S4UL
		6%	1,900 f	1,900 f	3,000 f	28,000 f	3,800 f	7,900 f	LQM S4UL

	Contaminant	SOM	Res +	Res -	Allot.	Comm.	POSresi	POSpark	Source
Chloalkanes and Alkenes & Explosives	1,2 Dichloroethane (DCA)	1%	0.0071	0.0092	0.0046	0.67	29	21	LQM S4UL
		2.5%	0.0110	0.0130	0.0083	0.97	29	24	LQM S4UL
		6%	0.0190	0.0230	0.0160	1.7	29	28	LQM S4UL
	1,1,1 Trichloroethane (TCA)	1%	8.8	9.0	48	660	140,000	57,000 (1,425) vap	LQM S4UL
		2.5%	18	18	110	1,300	140,000	76,000 (2,915) vap	LQM S4UL
		6%	39	40	240	3,000	140,000	100,000 (6,392)	LQM S4UL
	1,1,2,2-Tetrachloroethanes (PCA)	1%	1.6	3.9	0.41	270	1,400	1,800	LQM S4UL
		2.5%	3.4	8.0	0.89	550	1,400	2,100	LQM S4UL
		6%	7.5	17	2.0	1,100	1,400	2,300	LQM S4UL
	1,1,1,2-Tetrachloroethanes (PCA)	1%	1.2	1.5	0.79	110	1,400	1,500	LQM S4UL
		2.5%	2.8	3.5	1.9	250	1,400	1,800	LQM S4UL
		6%	6.4	8.2	4.4	560	1,400	2,100	LQM S4UL
	Tetrachloroethene (PCE)	1%	0.31	0.32	2.00	24	3,200	1400	DEFRA C4SL
		2.5%	0.70	0.71	4.8	55	3,300	1900	DEFRA C4SL
		6%	1.60	1.60	11.0	130	3,400	2,500	DEFRA C4SL
	Tetrachloromethane (carbon tetrachloride)	1%	0.03	0.03	0.45	2.9	890	190	LQM S4UL
		2.5%	0.06	0.06	1.0	6.3	920	270	LQM S4UL
		6%	0.13	0.13	2.4	14	950	400	LQM S4UL
	Trichloroethene (TCE)	1%	0.009	0.010	0.032	0.7	76.0	41.0	DEFRA C4SL
		2.5%	0.020	0.020	0.072	1.5	78.0	51.0	DEFRA C4SL
		6%	0.043	0.045	0.160	3.4	79.0	69.0	DEFRA C4SL
	cis 1,2-dichloroethene	1%	0.46	0.50	0.890	38	3,800	2,000	DEFRA C4SL
		2.5%	0.78	0.84	1.70	64	3,800	2,400	DEFRA C4SL
		6%	1.50	1.60	3.60	120	3,900	3,100	DEFRA C4SL
	Trichloromethane (chloroform)	1%	0.91	1.2	0.42	99	2,500	2,600	LQM S4UL
		2.5%	1.7	2.1	0.83	170	2,500	2,800	LQM S4UL
		6%	3.4	4.2	1.7	350	2,500	3,100	LQM S4UL
	Trans-1,2 Dichloroethene	1%	0.9	0.9	3.7	69	13,000	5,600	DEFRA C4SL
		2.5%	1.6	1.7	7.5	120	13,000	7,000	DEFRA C4SL
		6%	3.3	3.4	16.0	260	13,000	9,100	DEFRA C4SL
	Chloroethene (vinyl chloride)	1%	0.006	0.015	0.0017	1.1E+00	7.8	18.0	DEFRA C4SL
		2.5%	0.010	0.019	0.0031	1.4E+00	7.8	19.0	DEFRA C4SL
		6%	0.017	0.029	0.0058	2.20	7.8	19.0	DEFRA C4SL
	2,4,6-Trinitritoluene (TNT)	1%	1.6	65	0.24	1,000	130	260	LQM S4UL
		2.5%	3.7	66	0.58	1,000	130	270	LQM S4UL
		6%	8.1	66	1.4	1,000	130	270	LQM S4UL
	RDX	1%	120	13,000	17	210,000	26,000	49,000 (18.7) sol	LQM S4UL
		2.5%	250	13,000	38	210,000	26,000	51,000	LQM S4UL
		6%	540	13,000	85	210,000	27,000	53,000	LQM S4UL
	HMX	1%	5.7	6,700	0.86	110,000	13,000	23,000 (0.35) vap	LQM S4UL
		2.5%	13	6,700	1.9	110,000	13,000	23,000 (0.39) vap	LQM S4UL
		6%	26	6,700	3.9	110,000	13,000	24,000 (0.48) vap	LQM S4UL
Pesticides	Aldrin	1%	5.7	7.3	3.2	170	18	30	LQM S4UL
		2.5%	6.6	7.4	6.1	170	18	31	LQM S4UL
		6%	7.1	7.5	9.8	170	18	31	LQM S4UL
	Dieldrin	1%	0.97	7.0	0.17	170	18	30	LQM S4UL
		2.5%	2.0	7.3	0.41	170	18	30	LQM S4UL
		6%	3.5	7.4	0.96	170	18	31	LQM S4UL
	Atrazine	1%	3.3	610	0.5	9,300	1,200	2,300	LQM S4UL
		2.5%	7.8	620	1.2	9,400	1,200	2,400	LQM S4UL
		6%	17.4	620	2.7	9,400	1,200	2,400	LQM S4UL
	Dichlorvos	1%	3.2E-02	6.4	4.9E-03	140	16	26	LQM S4UL
		2.5%	6.6E-02	6.5	1.0E-02	140	16	26	LQM S4UL
		6%	0.14	6.6	2.2E-02	140	16	27	LQM S4UL
	Endosulfanns (2 isomers)	1%	7.4	160 (3.0E-03) vap	1.2	5,600 (3.0E-03) vap	1,200	2,300	LQM S4UL
		2.5%	18	280 (7.0E-03) vap	2.9	7,400 (7.0E-03) vap	1,200	2,400	LQM S4UL
		6%	41	410 (1.6E-02) vap	6.8	8,400 (1.6E-02) vap	1,200	2,500	LQM S4UL
	Hexachlorocyclohexane (3 isomers), inc Lindane	1%	8.5E-02	3.7	1.3E-02	65	8.1	15	LQM S4UL
		2.5%	0.2	3.8	3.2E-02	65	8.1	15	LQM S4UL
		6%	0.46	3.8	7.7E-02	65	8.1	16	LQM S4UL
Chlorobenzenes	Chlorobenzene	1%	0.46	0.46	5.9	56	11,000	1,300 (675) sol	LQM S4UL
		2.5%	1.0	1.0	14	130	13,000	2,000 (1,520) sol	LQM S4UL
		6%	2.4	2.4	32	290	14,000	2,900	LQM S4UL
	Dichlorobenzenes (3 isomers)	1%	23	24	94	2,000 (571) sol	90,000	24,000 (571) sol	LQM S4UL
		2.5%	55	57	230	4,800 (1,370) sol	95,000	36,000 (1,370) sol	LQM S4UL
		6%	130	130	540	11,000 (3,240) sol	98,000	51,000 (3,270) sol	LQM S4UL
	Trichlorobenzenes (3 isomers)	1%	2.6	2.6	55	220	15,000	1,700 (318) vap	LQM S4UL
		2.5%	6.4	6.4	140	530	17,000	2,600 (786) vap	LQM S4UL
		6%	15	15	320	1,300	19,000	4,000 (1,880) vap	LQM S4UL
	Tetrachlorobenzenes (3 isomers)	1%	0.66	0.75	0.38	49 (39.4) vap	78	110 (39) vap	LQM S4UL
		2.5%	1.6	1.9	0.90	120 (98.1) vap	79	120	LQM S4UL
		6%	3.7	4.3	2.2	240 (235) vap	79	130	LQM S4UL
	Pentachlorobenzene	1%	5.8	19	1.2	640 (43.0) sol	100	190	LQM S4UL
		2.5%	12	30	3.1	770 (107) sol	100	190	LQM S4UL
		6%	22	38	7.0	830	100	190	LQM S4UL
	Hexachlorobenzene	1%	1.8 (0.20) vap	4.1 (0.20) vap	0.47	110 (0.20) vap	16	30	LQM S4UL
		2.5%	3.3 (0.50) vap	5.7 (0.50) vap	1.1	120	16	30	LQM S4UL
		6%	4.9	6.7 (1.2) vap	2.5	120	16	30	LQM S4UL

Generic Assessment Criteria Values

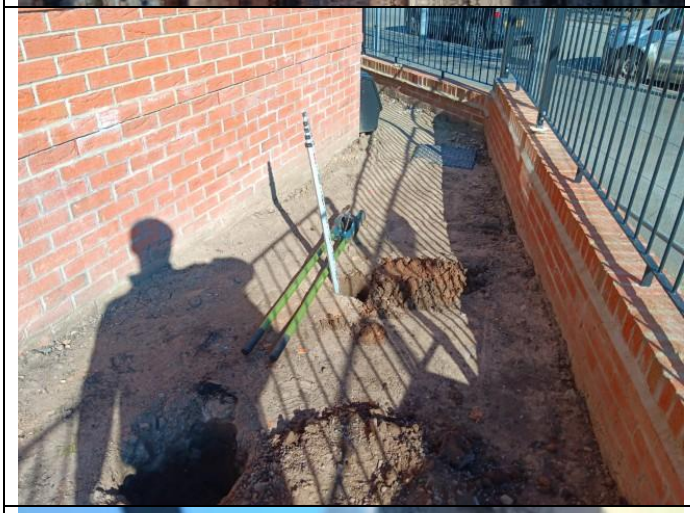
	Contaminant	SOM	Res +	Res -	Allot.	Comm.	POSresi	POSpark	Source
Chlorophenol	Chlorophenols (4 congeners)	1%	0.87 [g]	94	0.13 [g]	3,500	620	1,100	LQM S4UL
		2.5%	2.0	150	0.30	4,000	620	1,100	LQM S4UL
		6%	4.5	210	0.70	4,300	620	1,100	LQM S4UL
	Pentachlorophenol	1%	0.22	27 (16.4) [vap]	3.0E-02	400	60	110	LQM S4UL
		2.5%	0.52	29	8.0E-02	400	60	120	LQM S4UL
		6%	1.2	31	0.19	400	60	120	LQM S4UL
Others	Carbon Disulphide	1%	0.14	0.14	4.8	11	11,000	1,300	LQM S4UL
		2.5%	0.29	0.29	10	22	11,000	1,900	LQM S4UL
		6%	0.62	0.62	23	47	11,000	2,700	LQM S4UL
	Hexachlorobutadiene	1%	0.29	0.32	0.25	31	25	48	LQM S4UL
		2.5%	0.7	0.78	0.61	66	25	50	LQM S4UL
		6%	1.6	1.8	1.4	120	25	51	LQM S4UL
	Phenol	1%	120	440 (460)	23	440 [dir] (26,000)	440 [dir] (10,000)	440 [dir] (7,600)	LQM S4UL
		2.5%	200	690	42	690 [dir] (30,000)	690 [dir] (10,000)	690 [dir] (8,300)	LQM S4UL
		6%	380	1,200	83	1,300 [dir] (34,000)	1,300 [dir] (10,000)	1,300 [dir] (9,300)	LQM S4UL

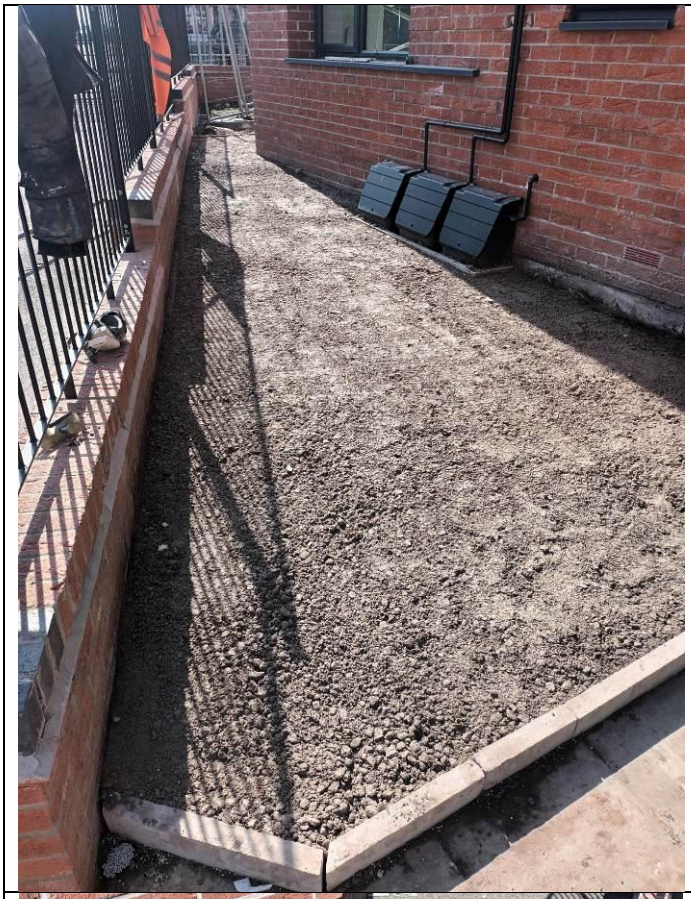
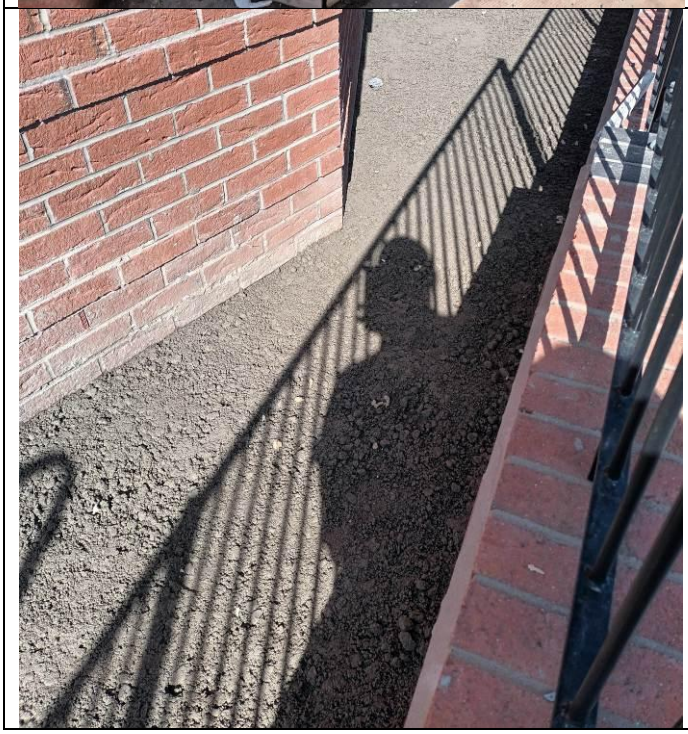
sol/vap = solubility/vapour limit (potenitally use if free product identified, although highly conservative)
*=naphthalene C4SL exceeds the CLEA calculated soil saturation concentration (76 mg kg-1 for 1% SOM,
183 mg kg-1 for 2.5% SOM and 432 mg kg-1 for 6% SOM)
f = oral, dermal and inhalation exposures compared to oral HCV
dir = S4ULs based on threshold protective of direct skin contact with phenol)brackets long term exposure for illustration purposes)
g = derived based on 2,3,4-tetrachlorophenol

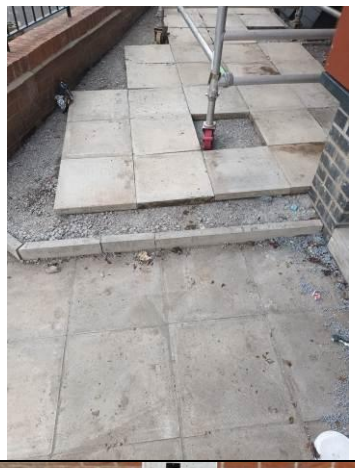
Appendix E – Plot Photographs

	Photograph 1: Evidence of suitably chemically validated topsoil with a minimum of 150mm growing medium in the soft landscaping area surrounding the apartment block (area 1) over MOT.
	Photograph 2: View showing soft landscaping area surrounding the apartment block (area 1).
	Photograph 3: View showing pea gravel at base of trial pit (area 1).

	Photograph 4: Evidence of suitably chemically validated topsoil with a minimum of 150mm growing medium in the soft landscaping area surrounding the apartment block (area 2) over MOT.
	Photograph 5: View showing soft landscaping area surrounding the apartment block (area 2).
	Photograph 6: View showing pea gravel (area 2).

	Photograph 7: Evidence of suitably chemically validated topsoil with a minimum of 150mm growing medium in the soft landscaping area surrounding the apartment block (area 3) over pea gravel.
	**Photograph 8:** View showing soft landscaping area surrounding the apartment block (area 3).
	Photograph 9: View showing pea gravel in base of trial pit (area 3).

	**Photograph 10:** Evidence of concrete onto which flagstones are to be placed in the area surrounding the apartment block (area 4).
	**Photograph 11:** Evidence of concrete onto which flagstones are to be placed in the area surrounding the apartment block (area 4).

	**Photograph 12:** View showing flagstones being installed in area 4.
	Photograph 13: Evidence of suitably chemically validated topsoil with a minimum of 150mm growing medium in the soft landscaping area surrounding the apartment block (area 5) over geotextile membrane.
	Photograph 14: View showing soft landscaping area surrounding the apartment block (area 5).
	Photograph 15: View showing membrane in base of trial pit (area 5).

	Photograph 16: Evidence of suitably chemically validated topsoil with a minimum of 150mm growing medium in the soft landscaping area surrounding the apartment block (area 6) over geotextile membrane.
	Photograph 17: View showing soft landscaping area surrounding the apartment block (area 6).
	Photograph 18: View showing membrane in base of trial pit (area 6).