

REMEDIAL VALIDATION REPORT
FOR LAND BOUNDED BY
CULCHETH LANE AND TANDLEWOOD MEWS, NEWTON HEATH, MANCHESTER
M40 1LU

Prepared for: -

Style Builders Limited

On behalf of: -

M. Kenny Properties Ltd

The Land Consultancy Limited
Fairweather House
4 Parker Lane
Whitestake
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S105 SFK (TLC985) rep AOE Style 010420 (Rev A)
April 2020

**Project Quality Assurance
Information Sheet**

***Remedial Validation Report for Land bounded by Culcheth Lane and Tandlewood Mews,
Newton Heath, Manchester M40 1LU.***

Job Number : TLC985 **Report Status** : Final

Survey Dates : 18th & 31st May 2018
7th September 2018
27th November 2019
23rd March 2020 **Report Date** : April 2020

Prepared for : Style Builders Limited

On behalf of : M. Kenny Properties Ltd

Prepared by : The Land Consultancy Limited
Fairweather House
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Written by : 
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Director

Report Issue Record		
Revision	Date of Issue	Comments
0	01/04/2020	Preliminary issue – several topsoil validation results are still outstanding.
A	06/04/2020	Final issue – outstanding topsoil validation results included. Several typos amended.

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1.0 INTRODUCTION

1.1 The Commission and Brief

- 1.1.1 The Land Consultancy Limited (TLC) has been commissioned by Style Builders Ltd, on behalf of M. Kenny Properties Ltd, to prepare a remedial validation report for a parcel of land situated within the Newton Heath district of east Manchester; the site is bounded by Culcheth Lane, Tandlewood Mews as well as a footpath, and the properties postcode is M40 1LU.
- 1.1.2 TLC has already issued the following reports relating to the site on behalf of Style Builders Ltd
- Earth Environmental & Geotechnical Phase 1 desk study report dated February 2014 and referenced A0374/G/1.
 - 'Report on Phase 2 Geo-Environmental Ground Investigation Works undertaken on Land bounded by Culcheth Lane and Tandlewood Mews, Newton Heath, Manchester M40 1LU', dated May 2018 and referenced Q136 SFK (TLC985) rep AOE Style 080518 and issued by TLC.
 - Remedial Strategy Report for Land bounded by Culcheth Lane and Tandlewood Mews, Newton Heath, Manchester M40 1LU", dated May 2019 and referenced Q164 SFK (TLC985) AOE Style 230518.
- 1.1.3 The above reports should be consulted for detailed background information if required.
- 1.1.4 A summary of the proposed remedial measures and validation works is provided in section 2.0.
- 1.1.5 This report has been issued so that the contaminated land planning condition, imposed by Manchester City Council on the redevelopment of this site, can be discharged. The planning application number associated with the site is 111312/FO/2016/N1.

1.2 Site Details

- 1.2.1 The site is located within a residential setting and is bounded by Culcheth Lane to the north-east, by Tandlewood Mews to the south-east, and by a public footpath to the north-west. The property can be centred approximately at the following coordinates: 388346E, 400225N. Site plans are presented as Drawing Nos. TLC985/01a, 01b and 02 in Appendix A.
- 1.2.2 The property is triangular in shape with an area of $\approx 775\text{m}^2$. The topography of the site and immediate surrounding area is roughly level and the site is situated at an altitude of $\approx 85\text{m}$ AOD.
- 1.2.3 Drawing No. TLC985/02 displays the locations of the boreholes which were sunk across the site by TLC as part of the Phase 2 site investigation works.
- 1.2.4 This former public house site, has been redeveloped with 6no. three storey townhouses (Class C3), together with parking and small garden areas. A development plan is presented in Drawing No. TLC985/03 in Appendix A. The development plots have been referred to as Plot A to F throughout this report's text.

- 1.2.5 5no. houses (Plots A to E) are supported on spread foundations extended locally by trench fill. The house on Plot F is located over the basement of the former public house and is supported on piled foundations. Beam and block suspended floorslabs have been incorporated into the houses on Plots B to F; a ground bearing floorslab has been incorporated into the house on Plot A.

1.3 Disclaimer

- 1.3.1 This report has been prepared by TLC who have exercised such professional skill, care and diligence as may be expected of a properly qualified and competent consultant experienced in preparing reports of a similar scope.
- 1.3.1 However, to the extent that the report is based on or relies upon information contained in records, reports or other materials provided to TLC which have not been independently produced or verified, TLC gives no warranty, representation of assurance as to the accuracy or completeness of such information.
- 1.3.2 This report is prepared solely for the benefit of Style Builders Ltd and M. Kenny Properties Ltd. 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.
- 1.3.3 Those using this information in subsequent assessments or evaluations do so at their own risk.

2.0 BUILD PHASE REMEDIATION WORKS AND VALIDATION

2.1 Remediation and Validation Requirements

2.1.1 A summary of the remediation and validation works which were scheduled to be undertaken is presented within the table below:

Pollution Linkage being Broken	Remediation Requirements	Validation Requirements
Uptake of contaminants identified in the Made Ground (benzo(a)pyrene and lead) by direct contact, ingestion of soil, inhalation of dust and consumption of home grown produce. Inhalation of asbestos fibres from the Made Ground.	<u>Environmental Cover System</u> Considering the elevated soil concentrations encountered in the Made Ground an environmental cover system is recommended. The environmental cover system should be as follows: Gardens: 600mm thick environmental cover system comprising: Either 100mm physical break layer (MOT type 1 material, 20-30mm, minimal fines) and at least 500mm comprising clean inert fill and sufficient topsoil for a growing medium. Or geotextile membrane and at least 600mm comprising clean inert fill and sufficient topsoil for a growing medium. The subsoil layer can be replaced by additional topsoil. Exposed Made Ground soils should be kept damp in dry weather to reduce the risk of contaminated dust/asbestos fibres being released into the air.	Measuring the depth of the installed environmental cover system and providing photographic evidence. Photographic evidence of the granular break layer or geotextile layer will also be collected. Chemical validation of imported soils: see Section 2.1.2 below. Determinand screening concentrations are presented in Appendix F.
Migration of ground gas into buildings via cracks in floorslabs, floorslab service penetrations etc.	<u>Gas Protection Measures</u> In accordance with CL:AIRE RB17 dated 2012, the site falls within Characteristic Situation 3 (CS3). Using the guidance within BS 8485:2015, for CS3 and the proposed development, a gas protection score of 4.5 is given. A score of 4.5 is intended to be achieved by: - A cast in-situ ground-bearing floorslab (mesh reinforced) – will give 0.5points worth of protection. - A subfloor gas dispersal layer. To comprise of a 200mm thick layer of inert rounded gravel (no fines, size =20-30mm) containing surrounding 75mm perforated plastic drainage pipes (installed no more than 3m apart) fitted to airbricks (via telescopic vents). Sub-floor gas dispersal layers can provide between 1.5-2.5points worth of protection. It is intended that this layer will provide at least 2 points of protection. - Visqueen gas barrier to be used and joined to a Visqueen gas resistant dpc which will sit on the walls. Associated Visqueen double sided tape and Visqueen gas resistant (GR) foil tape to be used to join & seal the gas barrier sheets together as well as the gas barrier to the gas resistant dpc. Only a single service penetration of each floorslab is proposed (waste water pipe). This will be sealed to the gas membrane using the Visqueen tape. Providing that it is correctly installed, the gas barrier will provide 2points worth of protection. The Visqueen gas barrier will be installed over the floorslab and will be protected by a 50mm thick layer of screed.	Validation of gas protection measures should be in line with CIRIA 735 ¹ and should include photographic evidence of a suitably sealed gas membrane, and how the membrane has been sealed around service penetrations.
Potable Water Supply	<u>Potable Water Pipes</u> A United Utilities potable water supply pipe risk assessment is required to determine the type of water pipe to be used.	Delivery notes of pipe material. Photographs of the installed pipe.
Other Considerations	<u>Unexpected Contamination</u> The relevant contractors should be briefed that during development works at the site should any unusual ground conditions and / or visual or olfactory evidence of contamination including asbestos containing material) be encountered at the site, TLC and the Local Authority should be informed and further assessment of the material may be required. <u>Re-use of site won material</u> To ensure material is compliant with appropriate waste regulations, any site won material re-used onsite should be in recourse to appropriate exemptions. A U1 and T5 exemption should be registered. This will allow the following: 1,000 tonnes (c. 600m ³) of non-hazardous soil 5,000 tonnes (c. 3,000m ³) of natural sand and gravels. 50,000 tonnes (c. 25,000m ³) of bituminous material to be used in roadways. 5,000 tonnes (c. 3,000m ³) of crushed concrete / stone.	

¹ CIRIA (2014). 'Good Practice on the Testing and Verification of Protection Systems for Building Against Hazardous Ground Gas'. CIRIA C735.

	A Materials Management Plan (MMP) with recourse to the CL:AIRE Code of Practice may be required if volumes exceed exemption limits. If a MMP is required this needs to be registered by a Qualified Person (QP) and there must be 'certainty of use' for any material re-used onsite or exported to site to ensure there is no sham recovery'. All of the above materials would need to be tested at the rate and analytical suites presented in Section 4.1.2 below. <u>Health and Safety Considerations</u> In working with, removing or treating any contaminating material it is important that any potential risks associated with the actual site works are mitigated by good environmental management of the site during the remedial phases. Standard health and safety precautions (as per HSE guidance²) should be adopted by all workers involved with site enabling and construction works.
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2.1.2 Validations of Imported / Site Won Soils

2.1.2.1 Any additional imported / site won soil used onsite in gardens and soft landscaping areas will need to be chemically validated to ensure it is "suitable for use".

2.1.2.2 A summary of the sampling requirements is presented in the table below. If material is imported, then ideally the material should be sampled at source; however, where this is not possible then material imported should be segregated onsite based on source and soil type.

Material Type	Source	Suite of Analysis	Sampling Rates*
Topsoil	Greenfield	Suite A	1 sample per 50m³
	Brownfield / Unknown	Suite B	
Subsoil	Brownfield / Unknown	Suite B	1 sample per 50m³
	Site won natural material	Suite A	
Physical Stone Break Layer	First Generation i.e. quarried sand (subsoil) or stone (break layer)	No testing is required. Certification of material provenance is required.	
	Recycled Stone (6F2 / screened)	Suite B	1 sample per 500m³

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.

2.1.2.3 If site won soil is to be used then this should be stockpiled onsite ready for testing.

2.1.2.4 Any soil with visual or olfactory evidence of hydrocarbons should be rejected.

2.1.2.5 In addition, it should be ensured that the matrix of the topsoil is suitable as a growing medium and no undesirable material is present (in line with BS3882³). TLC advise this information is provided by the supplier before material is imported onto site.

2.1.3 Soil Assessment Criteria

2.1.3.1 Results of imported / site won soil testing will be screened against appropriate assessment criteria for a residential end use.

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

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

² HSE (1991). 'Protection of Workers and the General Public During Development of Contaminated Land'. London HMSO.

³ BS (2015). "Specifications for Topsoil and Requirements for use." BS3882:2015.

2.1.3.3 A summary of the generic assessment criteria used is provided in Appendix F.

2.2 Disposal

2.2.1 Any material disposed offsite should be taken to a suitably licensed recycling facility. Provision of waste tickets and details of the facility should be provided for the Completion Report.

3.0 IMPORTED MATERIAL FOR CONSTRUCTION AND WASTE MATERIALS DISPOSAL

3.1 Imported MOT

- 3.1.1 Approximately 80 tonnes of MOT Type 1 material were imported onto the site during the build. This material has been used to backfill the re-excavated basement area of the former public house, and has been used as a sub-base to flagged patio areas and paths, as well as block-paved parking bays. This material was sourced from Ernest Bentley and Sons Ltd builder's merchants in Manchester.
- 3.1.2 A number of ≈ 1 tonne grab bags of this material were viewed by TLC. The MOT comprised of yellowish grey clayey sandy GRAVEL which had clearly been obtained by the builder's merchants directly from a quarried source. The gravel comprised of limestone. The material viewed by TLC showed no visible or olfactory evidence of being contaminated.
- 3.1.3 Pictures of the several of the grab bags full of MOT are displayed in Appendix D.
- 3.1.4 M Grade and builder's sand have been imported onto site which were obtained from Ernest Bentley and Sons Ltd. This material was clearly from a first generation source and has been used as a sub-base beneath flagged areas and for making mortar.
- 3.1.5 As the MOT, building sand and M grade sand were clearly from first generation sources no laboratory validation testing was carried out on this material.
- 3.1.6 An $\approx 2.8\text{m}^3$ stockpile of recycled aggregate was present at the front of the site adjacent to Culcheth Lane during TLC's site visit of 27th November 2019. The material comprised of a grey SAND and GRAVEL; the observed gravels included concrete, sandstone, brick, asphalt and limestone. The material was not odourous. A sample (designated 'S.Pile') of this material was obtained and analysed at a chemical testing laboratory. No elevated determinand concentrations were recorded indicating that the stockpile material was suitable for use.
- 3.1.7 The chemical testing results obtained from S.Pile are presented in Appendix F.

3.2 Waste Soils Disposal

- 3.2.1 Waste soils materials arising from foundation excavations and ground clearance, were removed from site by Deville Construction Oldham Limited. The waste transfer note is present in Appendix D.
- 3.2.2 The waste soils were taken to a waste transfer station located within Trafford Park.
- 3.2.3 It is estimated that ≈ 40 tonnes of waste soils have been removed from the site. The majority of the waste soils were derived from:
- foundations excavations;
 - excavation of the former public house's basement; and during
 - garden area excavations prior to installation of the environmental cover system.

4.0 CAPPING LAYER VALIDATION

- 4.1 Topsoil was imported onto site on two occasions. The first batch of topsoil was imported in late November 2019 and the second batch was imported on 20th March 2020. Both batches of topsoil were sourced from Deville Construction Oldham Ltd. Chemical testing data which had been supplied by Deville to demonstrate that the topsoil imported in November 2019 was suitable for use is reproduced in Appendix B. When compared to the screening concentrations presented in Appendix F, the results appear to show that the material is suitable for use. No chemical testing results were supplied to TLC for the March 2020 topsoil.
- 4.2 TLC attended site on 27th November 2019, at the request of Style Builders Ltd, to validate the environmental cover system (referred to as 'capping layer' from here onwards) which had been installed into majority of the garden areas. On this date the capping layer had not been installed into the garden area of Plot A.
- 4.3 5no. hand pits (S1 to S5) were excavated within the garden areas of Plots B to F. The thickness of the capping layer was much less than the 0.60m advised to be installed within TLC's remedial strategy report. A bright orange woven geotextile had been installed at the base of the topsoil.
- 4.4 Laboratory testing of this topsoil (3no. samples analysed) indicated that it was chemically suitable for use.
- 4.5 TLC advised Style Builders Ltd that before TLC could 'sign off' the capping layer, the following works would need to be carried out:
- The thickness of the topsoil capping layer over the Plot B to F garden areas needed to be increased to at least 0.60m.
 - A topsoil capping layer (0.60m thick) with an underlying geotextile needed to be installed into the garden area of Plot A.
 - Additional validation of the installed capping layer (and membrane – Plot A) by hand pitting and laboratory testing would then need to take place.
- 4.6 The above works were subsequently carried out by Style Builders Ltd and the capping layer was subsequently validated by TLC on 23rd March 2020.
- 4.7 6no. hand pits (S6 to S11) were excavated to validate the installed garden area capping layers (and woven geotextile – Plot A).
- 4.8 The total thickness of topsoil within each hand pit was $\geq 0.60\text{m}$ thick and overlay the woven geotextile. The results of the laboratory testing of the newly laid topsoil (3no. samples analysed) confirmed that it was suitable for use.
- 4.9 Therefore, TLC considers that suitable capping layers have now been installed into the rear garden areas of the development.
- 4.10 Hand pit logs, photographs, a hand pit location drawing and geotextile specification detail are all presented within Appendix B. The chemical testing results and screening concentrations are presented in Appendix F.

5.0 GAS PROTECTION MEASURES

- 5.1 The installed gas protection measures were not as exactly as advised by TLC.
- 5.2 For Plot A, the gas protection measures comprised the installation of a flexible perforated pipe (75mm diameter) which was completely surrounded by imported single size (20mm) and no fines gravel. The ends of the pipe were joined to telescopic ventilation pipes to span the cavity wall; airbricks provided ventilation to the pipes. The low permeability venting tubes and telescopic pipes were purchased from Ernest Bentley & Sons Ltd in Manchester and were recommended by the technical department of Visqueen.
- 5.3 The gravel and venting pipe was overlain by an unreinforced yellow visqueen gas membrane. The specification of the visqueen gas membrane which was used is presented within Appendix C; the membrane was sourced from Ernest Bentley & Sons Ltd. The membrane was subsequently covered with at least $\approx 120\text{mm}$ of reinforced concrete. A reinforced Alderprufe GRA gas membrane was then installed over the concrete. Each gas membrane spanned the cavity walls and individual sheets and service penetrations were appropriately sealed.
- 5.4 In effect two gas membranes were incorporated into the ground bearing floorslab design of Plot A.
- 5.5 For the Plots B to F, the gas protection measures again comprised of the installation of a flexible perforated pipe (75mm diameter) which was completely surrounded by imported single size (20mm) and no fines gravel. The ends of the pipe were joined to telescopic ventilation pipes to span the cavity wall; airbricks provided ventilation to the pipes. A beam and block suspended floorslab was then installed; the clear void between the floorslab and the gravel was $\approx 300\text{mm}$. The void space was passively ventilated using air bricks. The reinforced Alderprufe GRA gas membrane was then installed over the floorslab. The Alderprufe GRA gas membrane spanned the cavity walls and individual sheets and service penetrations were appropriately sealed.
- 5.6 For all plots, the Alderprufe membrane was overlain by PIR floor insulation and then overlain by 1200 gauge visqueen. The 1200 gauge visqueen was appropriately sealed and spanned the cavity wall. A 60-70mm thick protective layer of screed was subsequently poured over the visqueen.
- 5.7 TLC confirms that the Alderprufe GRA gas membranes have installed to a high standard and that appropriate ancillary products have been used. The yellow gas membrane which had been installed over the no fines gravel layer was inspected by TLC prior to the concrete being poured and contained no punctures or tears.
- 5.8 With respect to the gas protection measures incorporated into the floorslab design of Plot A and the guidance presented within BS 8485: 2015⁴, it is considered that:
- the reinforced concrete ground bearing slab will afford 0.5 points worth of protection;
 - the passively ventilated subfloor dispersal layer will afford ≈ 2.0 points of protection; and that the
 - Alderprufe GRA gas membrane will afford 2.0 points of protection

⁴ BS 8485:2015 Incorporating corrigendum No. 1 entitled 'Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'.

- 5.9 With respect to the gas protection measures incorporated into the floorslab design of Plots B to F and the guidance presented within BS 8485: 2015⁵, it is considered that:
- the passively ventilated subfloor dispersal layer will afford ≈2.5points of protection; and that the
 - Alderprufe GRA gas membrane will afford 2.0 points of protection.
- 5.10 Therefore, with respect to Plots A to F, the required gas protection score of 4.5 has been achieved.
- 5.11 TLC confirms that the end users of the site will be at negligible risk from ground gases and that the gas protection measures which have been installed are adequate.
- 5.12 Photographs of the gas protection measures which have been installed and associated items are presented in Appendix C.

⁵ BS 8485:2015 Incorporating corrigendum No. 1 entitled 'Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'.

6.0 WATER SUPPLY PROTECTION

- 6.1 As the client has used Protect-aline PE barrier pipe to supply potable mains water to each property, it has not been necessary to complete a United Utilities Water Pipeline Risk Assessment for the site. Completion of the risk assessment has not been requested by United Utilities.
- 6.2 The water pipes have been installed at $\approx 0.70\text{-}0.90\text{m}$ depth and have been surrounded by site derived Made Ground materials.
- 6.3 Photographs of the water pipe which was used are presented in Appendix E.
- 6.4 TLC considers that the potable water supply pipes which have been installed meet the requirements of the remedial strategy.

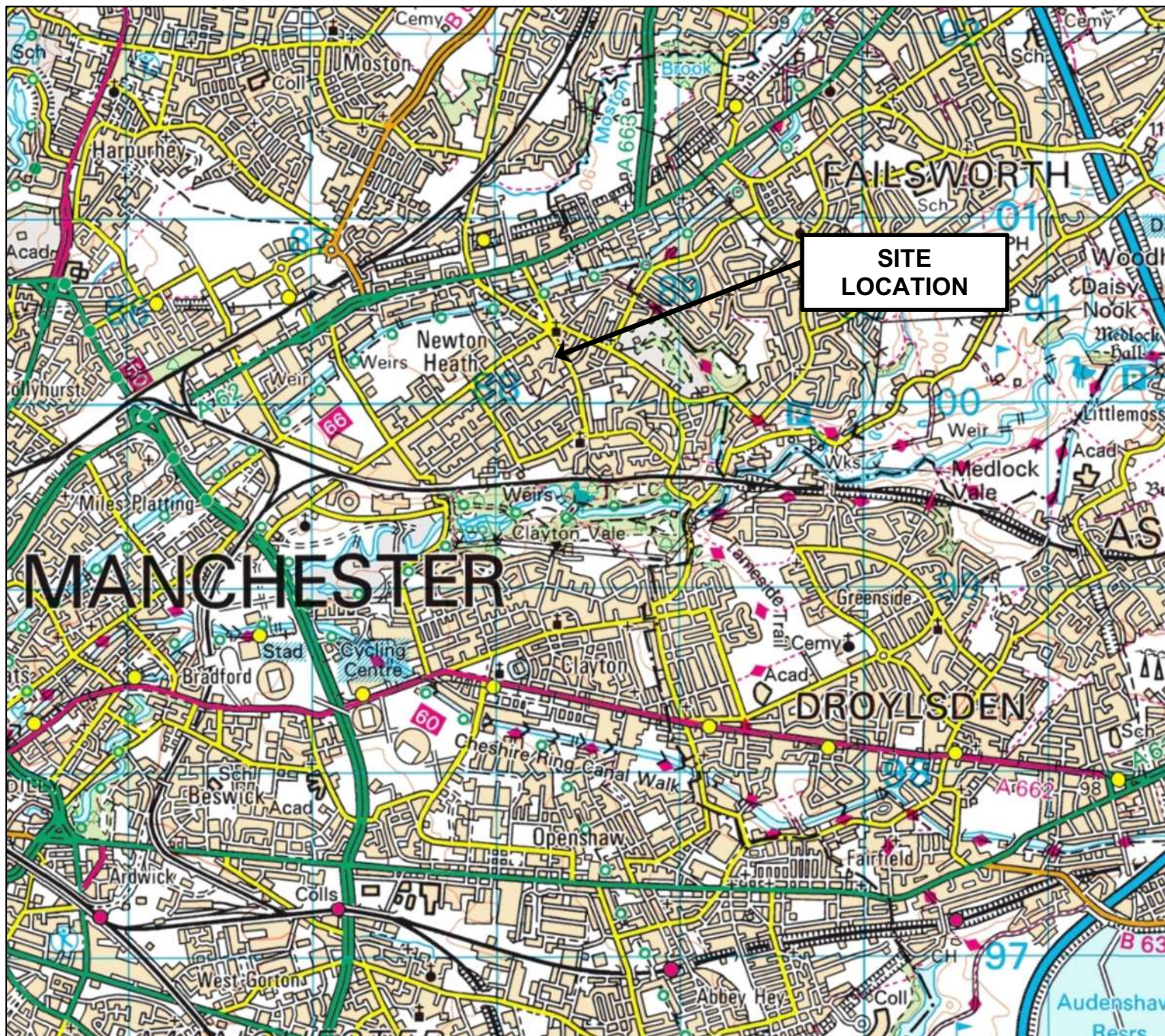
7.0 CONCLUSIONS

- 7.1 No unusual ground conditions were encountered during the development works and no evidence of additional contamination, further to the contamination already reported on in TLC's May 2018 site investigation report, has been recorded.
- 7.2 TLC has completed the validation of the remedial measures installed at the Culcheth Lane site in Newton Heath, Manchester and concludes that the site has been remediated in general accordance with the remedial strategy and is now suitable for its proposed usage.

APPENDICES

APPENDIX A

DRAWINGS



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Project:

Land Bounded by Culcheth Lane and Tandlewood Mews, Newton Heath, Manchester M40 1LU

Title:

Site Location Plan

Scale:

NTS

Drawn by:

SFK

Date:

10/04/2018

Drawing No.: TLC985/01a



THE LAND CONSULTANCY LIMITED

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Project:

Land Bounded by Culcheth Lane and Tandlewood Mews, Newton Heath, Manchester M40 1LU

Title:

Site Location Plan

Scale:

NTS

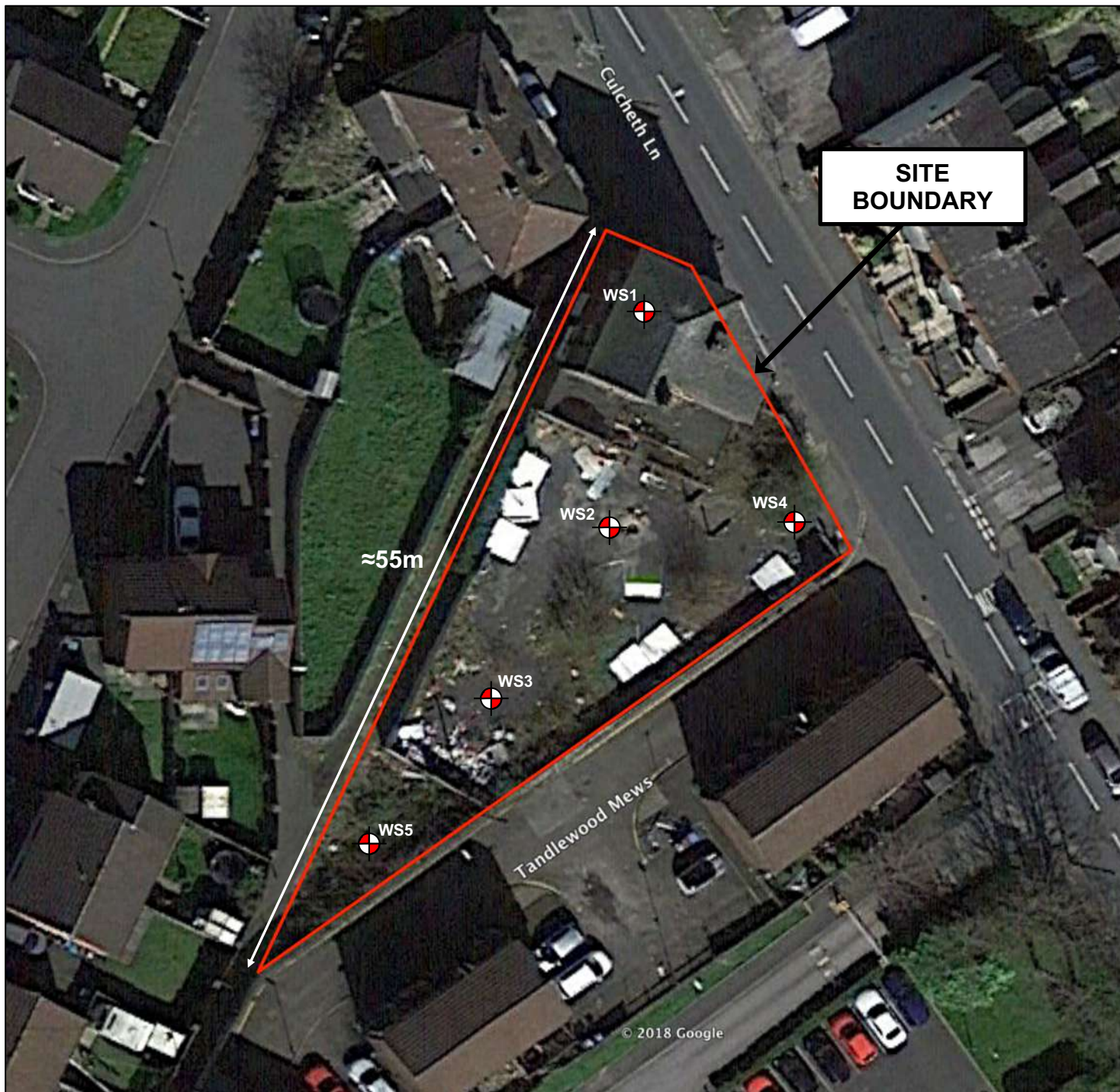
Drawn by:

SFK

Date:

10/04/2018

Drawing No.: TLC985/01b



Borehole location. WS2 & WS4 were installed.

THE LAND CONSULTANCY LIMITED

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Project:

Land Bounded by Culcheth Lane and Tandlewood Mews, Newton Heath, Manchester M40 1LU

Title:

Site Boundary & Exploratory Hole Plan – Shows Position of former Public House.

Scale:

As Shown

Drawn by:

SFK

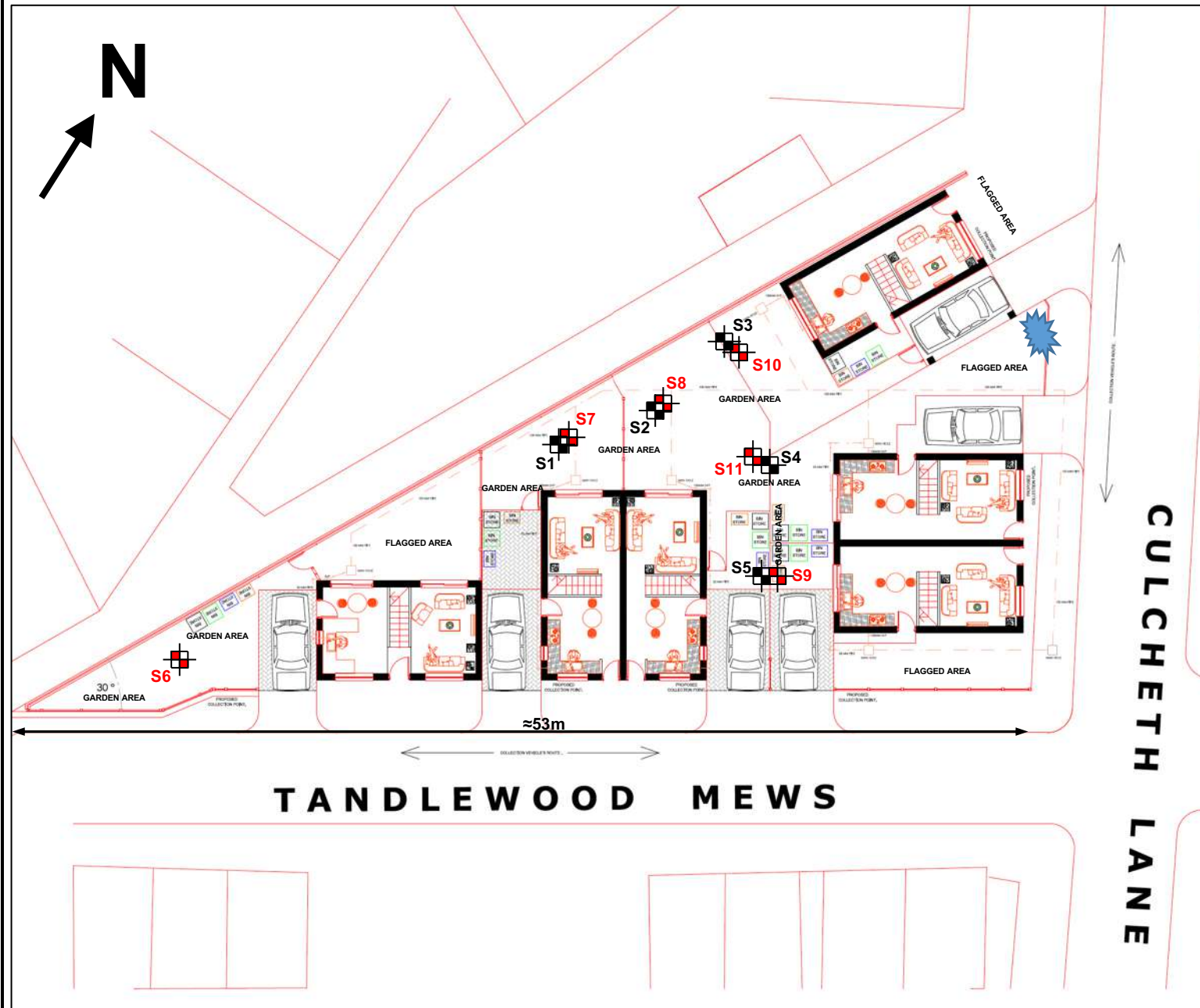
Date:

15/05/2018

Drawing No.: TLC985/02

APPENDIX B

CAPPING LAYER VALIDATION



KEY

S6 – S11



Hand pits excavated on 27th November 2019 following importation of second batch of topsoil.

S1 - S5



Hand pits excavated on 23rd March 2020 following importation of first batch of topsoil.



Temporary small stockpile of imported recycled stone aggregate. Sampled on 27th November 2019.

THE LAND CONSULTANCY LIMITED

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Project:

Land Bounded by Culcheth Lane and Tandlewood Mews, Newton Heath, Manchester M40 1LU.

Title:

Proposed Development Plan displaying Capping Layer Validation Hand Pit/Sampling Locations

Scale:

As Shown

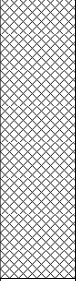
Drawn by:

SFK

Date:

31/03/2020

Drawing No.: TLC985/Hand Pits

THE LAND CONSULTANCY LIMITED					The Land Consultancy Limited Tel : 01772 610609 email : sfknott@thelandconsultancy.co.uk www.thelandconsultancy.co.uk		Trial Pit No S1 Sheet 1 of 1	
Project Name Culcheth Lane			Project No. TLC985		Coords: E: N: Level (m AOD):		Date 27/11/2019	
Location: Newton Heath, Manchester M40 1LU					Dimensions (m) Depth 0.37 0.30		Scale 1:10	
Client: Style Builders Ltd							Logged By S.F.Knott	
Samples and In-Situ Tests			Depth (m)	Level (m OD)	Legend	Stratum Description		
Depth (m)	Type	Results (kPa)						
0.20	ES		0.37			Very soft dark grey very sandy slightly gravelly CLAY. Organic rich. Gravel is fine to coarse angular to subrounded of sandstone and occasional limestone. (MADE GROUND - Imported Topsoil)		
						 0.37m - Woven geotextile.		
						Trial Pit Complete at 0.370m		
1								
2								
Remarks: Pit excavated using hand tools. Backfilled with excavated arisings on completion. Recovered soils were logged to BS5930: 2015.								
Groundwater: No groundwater encountered.								



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SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

S1 Photos

SCALE

N.T.S.

TITLE

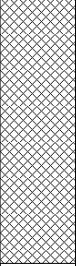
S1 Photographs (27th November 2019)

DATE

31/03/2020

DRAWN BY

SFK

THE LAND CONSULTANCY LIMITED					The Land Consultancy Limited Tel : 01772 610609 email : sfknott@thelandconsultancy.co.uk www.thelandconsultancy.co.uk		Trial Pit No S2 Sheet 1 of 1	
Project Name Culcheth Lane			Project No. TLC985		Coords: E: N: Level (m AOD):		Date 27/11/2019	
Location: Newton Heath, Manchester M40 1LU					Dimensions (m) Depth 0.35 0.30		Scale 1:10	
Client: Style Builders Ltd							Logged By S.F.Knott	
Samples and In-Situ Tests			Depth (m)	Level (m OD)	Legend	Stratum Description		
Depth (m)	Type	Results (kPa)						
0.15	ES		0.35			Dark grey clayey slightly gravelly SAND. Organic rich. Gravel is fine to coarse subrounded to angular of sandstone with occasional brick and coal, and rare glass and pottery. Deposit occasionally grades into a very soft very sandy slightly gravelly clay. (MADE GROUND - Imported Topsoil)		
						0.35m - Woven geotextile at base. Trial Pit Complete at 0.350m		
1								
2								
Remarks: Pit excavated using hand tools. Backfilled with excavated arisings on completion. Recovered soils were logged to BS5930: 2015.								
Groundwater: No groundwater encountered.								



THE LAND CONSULTANCY LIMITED

Fairweather House, 4 Parker Lane, Whitestake, Preston PR4 4JX
 Tel: 01772 610609; M: 07771 800859
 email: sfknott@thelandconsultancy.co.uk; www.thelandconsultancy.co.uk

SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood
 Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

S2 Photos

SCALE

N.T.S.

TITLE

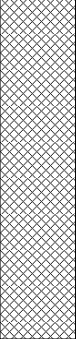
S2 Photographs (27th November 2019)

DATE

31/03/2020

DRAWN BY

SFK

THE LAND CONSULTANCY LIMITED					The Land Consultancy Limited Tel : 01772 610609 email : sfknott@thelandconsultancy.co.uk www.thelandconsultancy.co.uk		Trial Pit No S3 Sheet 1 of 1	
Project Name Culcheth Lane			Project No. TLC985		Coords: E: N: Level (m AOD):		Date 27/11/2019	
Location: Newton Heath, Manchester M40 1LU					Dimensions (m) Depth 0.45 0.30		Scale 1:10	
Client: Style Builders Ltd							Logged By S.F.Knott	
Samples and In-Situ Tests			Depth (m)	Level (m OD)	Legend	Stratum Description		
Depth (m)	Type	Results (kPa)						
0.30	ES		0.45			Very soft dark grey sandy to very sandy slightly gravelly CLAY. Organic rich. Gravel is fine to coarse subrounded to angular of sandstone and occasional brick, coal and clay pipe. Deposits occasionally grades into a very clayey slightly gravelly sand. (MADE GROUND - Imported Topsoil)		
						0.45m - Woven geotextile at base.		
						Trial Pit Complete at 0.450m		
Remarks: Pit excavated using hand tools. Backfilled with excavated arisings on completion. Recovered soils were logged to BS5930: 2015.								
Groundwater: No groundwater encountered.								



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 email: sfknott@thelandconsultancy.co.uk; www.thelandconsultancy.co.uk

SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood
 Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

S3 Photos

SCALE

N.T.S.

TITLE

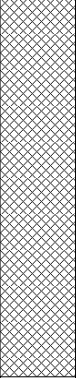
S3 Photographs (27th November 2019)

DATE

31/03/2020

DRAWN BY

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THE LAND CONSULTANCY LIMITED					The Land Consultancy Limited Tel : 01772 610609 email : sfknott@thelandconsultancy.co.uk www.thelandconsultancy.co.uk		Trial Pit No S4 Sheet 1 of 1	
Project Name Culcheth Lane			Project No. TLC985		Coords: E: N: Level (m AOD):		Date 27/11/2019	
Location: Newton Heath, Manchester M40 1LU					Dimensions (m) Depth 0.50 0.30		Scale 1:10	
Client: Style Builders Ltd							Logged By S.F.Knott	
Samples and In-Situ Tests			Depth (m)	Level (m OD)	Legend	Stratum Description		
Depth (m)	Type	Results (kPa)						
0.30	ES		0.50			Dark grey clayey slightly gravelly SAND. Organic rich and with occasional broken rootlets. Gravel is fine to coarse subrounded to angular of sandstone, brick and coal. Deposit occasionally grades into a very soft very sandy slightly gravelly clay. (MADE GROUND - Imported Topsoil)		
						0.50m - Woven geotextile at base.		
						Trial Pit Complete at 0.500m		
1								
2								
Remarks: Pit excavated using hand tools. Backfilled with excavated arisings on completion. Recovered soils were logged to BS5930: 2015.								
Groundwater: No groundwater encountered.								



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SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood
 Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

S4 Photos

SCALE

N.T.S.

TITLE

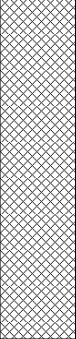
S4 Photographs (27th November 2019)

DATE

31/03/2020

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Project Name Culcheth Lane			Project No. TLC985		Coords: E: N: Level (m AOD):		Date 27/11/2019	
Location: Newton Heath, Manchester M40 1LU					Dimensions (m) Depth 0.45 0.30		Scale 1:10	
Client: Style Builders Ltd							Logged By S.F.Knott	
Samples and In-Situ Tests			Depth (m)	Level (m OD)	Legend	Stratum Description		
Depth (m)	Type	Results (kPa)						
0.20	ES		0.45			Dark grey clayey slightly gravelly SAND. Organic rich and with occasional broken rootlets. Gravel is fine to coarse angular to subrounded os sandstone, brick and coal. Deposit occasionally grades into a very soft very sandy slightly gravelly clay. (MADE GROUND - Imported Topsoil)		
						0.45m - Woven geotextile. Trial Pit Complete at 0.450m		
							1	
							2	
Remarks: Pit excavated using hand tools. Backfilled with excavated arisings on completion. Recovered soils were logged to BS5930: 2015.								
Groundwater: No groundwater encountered.								



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SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood
 Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

S5 Photos

SCALE

N.T.S.

TITLE

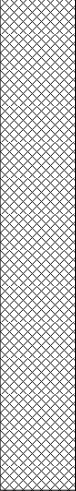
S5 Photographs (27th November 2019)

DATE

31/03/2020

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THE LAND CONSULTANCY LIMITED					The Land Consultancy Limited Tel : 01772 610609 email : sfknott@thelandconsultancy.co.uk www.thelandconsultancy.co.uk		Trial Pit No S6 Sheet 1 of 1	
Project Name Culcheth Lane			Project No. TLC985		Coords: E: N: Level (m AOD):		Date 23/03/2020	
Location: Newton Heath, Manchester M40 1LU					Dimensions (m) Depth 0.65 0.30		Scale 1:10	
Client: Style Builders Ltd							Logged By S.F.Knott	
Samples and In-Situ Tests			Depth (m)	Level (m OD)	Legend	Stratum Description		
Depth (m)	Type	Results (kPa)						
0.30	ES					Black slightly clayey gravelly SAND. Organic rich and with occasional broken rootlets. Gravel is fine to coarse subrounded to angular of sandstone with rare brick and pottery fragments. (MADE GROUND - Imported Topsoil)		
			0.65			0.65m - Woven geotextile at base. Trial Pit Complete at 0.650m		
1								
2								
Remarks: Pit excavated using hand tools. Backfilled with excavated arisings on completion. Recovered soils were logged to BS5930: 2015.								
Groundwater: No groundwater encountered.								



Topsoil 0.65m thick – Passed



Geotextile is present although it is unfortunately not visible in the photograph due to bright sun causing lack of contrast

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SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

S6 Photos

SCALE

N.T.S.

TITLE

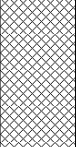
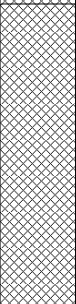
S6 Photographs (23rd March 2020)

DATE

31/03/2020

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Project Name Culcheth Lane			Project No. TLC985		Coords: E: N: Level (m AOD):		Date 23/03/2020	
Location: Newton Heath, Manchester M40 1LU					Dimensions (m) Depth 0.60 0.30		Scale 1:10	
Client: Style Builders Ltd							Logged By S.F.Knott	
Samples and In-Situ Tests			Depth (m)	Level (m OD)	Legend	Stratum Description		
Depth (m)	Type	Results (kPa)						
0.10	ES		0.20			Black gravelly SAND. Organic rich. Gravel is fine to coarse subrounded to subangular of sandstone. (MADE GROUND - Imported Topsoil)		
			0.60			Very soft to soft dark grey/black very sandy gravelly CLAY. Organic rich. Gravel is fine to coarse angular to subrounded of sandstone and occasional brick. (MADE GROUND - Imported Topsoil)		
						0.60m - Woven geotextile at base.		
						Trial Pit Complete at 0.600m		
1								
2								
Remarks: Pit excavated using hand tools. Excavated adjacent to S1. Backfilled with excavated arisings on completion. Recovered soils were logged to BS5930: 2015.								
Groundwater: No groundwater encountered.								



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SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood
 Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

S7 Photos

SCALE

N.T.S.

TITLE

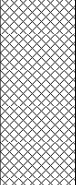
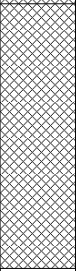
S7 Photographs (23rd March 2020)

DATE

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THE LAND CONSULTANCY LIMITED					The Land Consultancy Limited Tel : 01772 610609 email : sfknott@thelandconsultancy.co.uk www.thelandconsultancy.co.uk		Trial Pit No S8 Sheet 1 of 1	
Project Name Culcheth Lane			Project No. TLC985		Coords: E: N: Level (m AOD):		Date 23/03/2020	
Location: Newton Heath, Manchester M40 1LU					Dimensions (m) Depth 0.60 0.30		Scale 1:10	
Client: Style Builders Ltd							Logged By S.F.Knott	
Samples and In-Situ Tests			Depth (m)	Level (m OD)	Legend	Stratum Description		
Depth (m)	Type	Results (kPa)						
0.15	ES		0.25			Black gravelly SAND. Organic rich. Gravel is fine to coarse subrounded to subangular of sandstone. (MADE GROUND - Imported Topsoil)		
						Very soft black very sandy slightly gravelly CLAY. Organic rich. Gravel is fine to coarse subrounded to angular of sandstone and occasional brick and coal. (MADE GROUND - Imported Topsoil)		
			0.60			0.60m - Woven geotextile at base.		
						Trial Pit Complete at 0.600m		
1								
2								
Remarks: Pit excavated using hand tools. Excavated adjacent to S2. Backfilled with excavated arisings on completion. Recovered soils were logged to BS5930: 2015.								
Groundwater: No groundwater encountered.								



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SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood
 Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

S8 Photos

SCALE

N.T.S.

TITLE

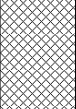
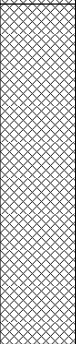
S8 Photographs (23rd March 2020)

DATE

31/03/2020

DRAWN BY

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THE LAND CONSULTANCY LIMITED				The Land Consultancy Limited Tel : 01772 610609 email : sfknott@thelandconsultancy.co.uk www.thelandconsultancy.co.uk		Trial Pit No S9 Sheet 1 of 1	
Project Name Culcheth Lane			Project No. TLC985		Coords: E: N: Level (m AOD):		Date 23/03/2020
Location: Newton Heath, Manchester M40 1LU					Dimensions (m) Depth 0.60 0.30		Scale 1:10
Client: Style Builders Ltd							Logged By S.F.Knott
Samples and In-Situ Tests			Depth (m)	Level (m OD)	Legend	Stratum Description	
Depth (m)	Type	Results (kPa)					
0.10	ES		0.15			Black gravelly SAND. Organic rich. Gravel is fine to coarse subrounded to subangular of sandstone. (MADE GROUND - Imported Topsoil)	
						Compact black very clayey slightly gravelly SAND. Organic rich. Gravel is fine to coarse subrounded to angular of sandstone and occasional brick and coal. Deposit occasionally grades into a very soft very sandy slightly gravelly clay. (MADE GROUND - Imported Topsoil)	
			0.60			0.60m - Woven geotextile at base.	
						Trial Pit Complete at 0.600m	
1							
2							
Remarks: Pit excavated using hand tools. Excavated adjacent to S5. Backfilled with excavated arisings on completion. Recovered soils were logged to BS5930: 2015.							
Groundwater: No groundwater encountered.							



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 email: sfknot@thelandconsultancy.co.uk; www.thelandconsultancy.co.uk

SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood
 Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

S9 Photos

SCALE

N.T.S.

TITLE

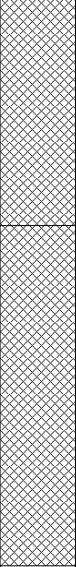
S9 Photographs (23rd March 2020)

DATE

31/03/2020

DRAWN BY

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THE LAND CONSULTANCY LIMITED					The Land Consultancy Limited Tel : 01772 610609 email : sfknott@thelandconsultancy.co.uk www.thelandconsultancy.co.uk		Trial Pit No S10 Sheet 1 of 1	
Project Name Culcheth Lane			Project No. TLC985		Coords: E: N: Level (m AOD):		Date 23/03/2020	
Location: Newton Heath, Manchester M40 1LU					Dimensions (m) Depth 0.75 0.30		Scale 1:10	
Client: Style Builders Ltd							Logged By S.F.Knott	
Samples and In-Situ Tests			Depth (m)	Level (m OD)	Legend	Stratum Description		
Depth (m)	Type	Results (kPa)						
0.15	ES		0.30			Black slightly gravelly SAND. Organic rich. Gravel is fine to coarse subrounded to subangular of sandstone. (MADE GROUND - Imported Topsoil)		
						Soft black very sandy gravelly CLAY. Organic rich. Gravel is fine to coarse subrounded to angular of sandstone and rare brick. (MADE GROUND - Imported Topsoil)		
			0.75			0.75m - Woven geotextile at base.		
						Trial Pit Complete at 0.750m		
1								
2								
Remarks: Pit excavated using hand tools. Excavated adjacent to S3. Backfilled with excavated arisings on completion. Recovered soils were logged to BS5930: 2015.								
Groundwater: No groundwater encountered.								



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 email: sfknott@thelandconsultancy.co.uk; www.thelandconsultancy.co.uk

SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood
 Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

S10 Photos

SCALE

N.T.S.

TITLE

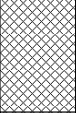
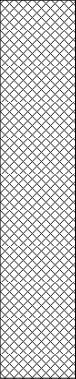
S10 Photographs (23rd March 2020)

DATE

31/03/2020

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THE LAND CONSULTANCY LIMITED					The Land Consultancy Limited Tel : 01772 610609 email : sfknott@thelandconsultancy.co.uk www.thelandconsultancy.co.uk		Trial Pit No S11 Sheet 1 of 1	
Project Name Culcheth Lane			Project No. TLC985		Coords: E: N: Level (m AOD):		Date 23/03/2020	
Location: Newton Heath, Manchester M40 1LU					Dimensions (m) Depth 0.65 0.30		Scale 1:10	
Client: Style Builders Ltd							Logged By S.F.Knott	
Samples and In-Situ Tests			Depth (m)	Level (m OD)	Legend	Stratum Description		
Depth (m)	Type	Results (kPa)						
0.05	ES		0.15			Black slightly gravelly SAND. Organic rich. Gravel is fine to coarse subrounded to subangular of sandstone. (MADE GROUND - Imported Topsoil)		
						Soft black very sandy slightly gravelly CLAY. Organic rich. Gravel is fine to coarse subrounded to angular of sandstone and occasional brick and coal. Deposit often grades into a very clayey slightly gravelly SAND. (MADE GROUND - Imported Topsoil)		
0.65			0.65			0.65m - Woven geotextile at base.		
						Trial Pit Complete at 0.650m		
1								
2								
Remarks: Pit excavated using hand tools. Excavated adjacent to S4. Backfilled with excavated arisings on completion. Recovered soils were logged to BS5930: 2015.								
Groundwater: No groundwater encountered.								



Topsoil 0.65m thick – Passed



Geotextile

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 email: sfknot@thelandconsultancy.co.uk; www.thelandconsultancy.co.uk

SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood
 Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

S11 Photos

SCALE

N.T.S.

TITLE

S11 Photographs (23rd March 2020)

DATE

31/03/2020

DRAWN BY

SFK

**Owain Davies**

Murray Rix (Northern Ltd).
Unit 33c Vauxhall Ind. Est.
Greg Street
Reddish
Stockport
SK5 7BR

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

e: MurrayRix

Analytical Report Number : 19-51721

Replaces Analytical Report Number : 19-51721, issue no. 1

Project / Site name:	MB80	Samples received on:	25/07/2019
Your job number:		Samples instructed on:	25/07/2019
Your order number:	19-169	Analysis completed by:	06/08/2019
Report Issue Number:	2	Report issued on:	06/08/2019
Samples Analysed:	1 soil sample		

Signed: 

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 19-51721-2 MB80

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Page 1 of 10

Analytical Report Number: 19-51721

Project / Site name: MB80

Your Order No: 19-169

Lab Sample Number				1277118				
Sample Reference				84593				
Sample Number				Sample 1				
Depth (m)				None Supplied				
Date Sampled				21/07/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	9.2				
Total mass of sample received	kg	0.001	NONE	2.0				

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
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General Inorganics

Total Cyanide	mg/kg	1	MCERTS	< 1				
Free Cyanide	mg/kg	1	MCERTS	< 1				
Total Sulphate as SO ₄	mg/kg	50	MCERTS	300				
Total Sulphate as SO ₄	%	0.005	MCERTS	0.030				

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05				
Fluorene	mg/kg	0.05	MCERTS	< 0.05				
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05				
Anthracene	mg/kg	0.05	MCERTS	< 0.05				
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Pyrene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80				
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.8				
Barium (aqua regia extractable)	mg/kg	1	MCERTS	71				
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	21				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	22				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	44				

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0				
Toluene	µg/kg	1	MCERTS	< 1.0				
Ethylbenzene	µg/kg	1	MCERTS	< 1.0				
p & m-xylene	µg/kg	1	MCERTS	< 1.0				
o-xylene	µg/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0				



Analytical Report Number: 19-51721

Project / Site name: MB80

Your Order No: 19-169

Lab Sample Number				1277118				
Sample Reference				84593				
Sample Number				Sample 1				
Depth (m)				None Supplied				
Date Sampled				21/07/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Analytical Report Number: 19-51721

Project / Site name: MB80

Your Order No: 19-169

Lab Sample Number				1277118				
Sample Reference				84593				
Sample Number				Sample 1				
Depth (m)				None Supplied				
Date Sampled				21/07/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10				

Analytical Report Number: 19-51721

Project / Site name: MB80

Your Order No: 19-169

Lab Sample Number				1277118				
Sample Reference				84593				
Sample Number				Sample 1				
Depth (m)				None Supplied				
Date Sampled				21/07/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0				
Chloroethane	µg/kg	1	NONE	< 1.0				
Bromomethane	µg/kg	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/kg	1	NONE	< 1.0				
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0				
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0				
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0				
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0				
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0				
Trichloromethane	µg/kg	1	MCERTS	< 1.0				
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0				
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0				
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0				
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0				
Benzene	µg/kg	1	MCERTS	< 1.0				
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0				
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0				
Trichloroethene	µg/kg	1	MCERTS	< 1.0				
Dibromomethane	µg/kg	1	MCERTS	< 1.0				
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0				
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0				
Toluene	µg/kg	1	MCERTS	< 1.0				
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0				
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/kg	1	NONE	< 1.0				
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0				
Chlorobenzene	µg/kg	1	MCERTS	< 1.0				
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0				
Ethylbenzene	µg/kg	1	MCERTS	< 1.0				
p & m-Xylene	µg/kg	1	MCERTS	< 1.0				
Styrene	µg/kg	1	MCERTS	< 1.0				
Tribromomethane	µg/kg	1	NONE	< 1.0				
o-Xylene	µg/kg	1	MCERTS	< 1.0				
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0				
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0				
Bromobenzene	µg/kg	1	MCERTS	< 1.0				
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0				
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0				
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0				
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0				
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0				
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0				
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0				
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0				
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0				
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0				
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0				
Butylbenzene	µg/kg	1	MCERTS	< 1.0				
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0				
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0				

Analytical Report Number: 19-51721

Project / Site name: MB80

Your Order No: 19-169

Lab Sample Number				1277118				
Sample Reference				84593				
Sample Number				Sample 1				
Depth (m)				None Supplied				
Date Sampled				21/07/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1				
Phenol	mg/kg	0.2	ISO 17025	< 0.2				
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1				
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2				
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2				
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1				
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2				
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1				
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3				
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05				
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3				
4-Methylphenol	mg/kg	0.2	NONE	< 0.2				
Isophorone	mg/kg	0.2	MCERTS	< 0.2				
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3				
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3				
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3				
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3				
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3				
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1				
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1				
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1				
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1				
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2				
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1				
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1				
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1				
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1				
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05				
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2				
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2				
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3				
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2				
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2				
Fluorene	mg/kg	0.05	MCERTS	< 0.05				
Azobenzene	mg/kg	0.3	MCERTS	< 0.3				
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2				
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3				
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05				
Anthracene	mg/kg	0.05	MCERTS	< 0.05				
Carbazole	mg/kg	0.3	MCERTS	< 0.3				
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2				
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3				
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Pyrene	mg/kg	0.05	MCERTS	< 0.05				
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				



Analytical Report Number: 19-51721

Project / Site name: MB80

Your Order No: 19-169

Lab Sample Number				1277118				
Sample Reference				84593				
Sample Number				Sample 1				
Depth (m)				None Supplied				
Date Sampled				21/07/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001				
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001				
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001				
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001				
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001				
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001				
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001				

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	< 0.007				
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Analytical Report Number : 19-51721

Project / Site name: MB80

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1277118	84593	Sample 1	None Supplied	Brown loam and sand with gravel.

Analytical Report Number : 19-51721

Project / Site name: MB80

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS

Iss No 19-51721-2 MB80



Analytical Report Number : 19-51721

Project / Site name: MB80

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

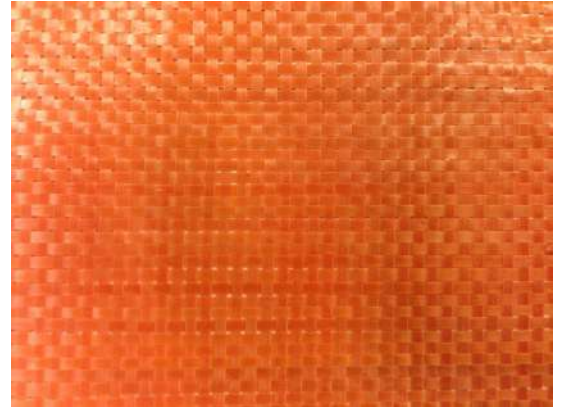
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

DATA SHEET: GEOSIGNAL

Geosignal is a woven geotextile with a high visibility orange colour, and is recommended for use as an indicator or 'no dig' layer to warn of utilities or contaminated ground beneath. The woven range also includes general purpose and heavier grades to suit a wide variety of performance requirements

SIG Geotechnical Centre also offers a range of non woven and protection geotextiles for use in other civil engineering applications.



PROPERTIES

TESTED PROPERTY	TEST METHOD	UNIT	GEOSIGNAL
Tensile Strength (md)	EN ISO 10319	kN/m	16
Tensile Strength (cmd)	EN ISO 10319	kN/m	13
Tensile Elongation (md)	EN ISO 10319	%	17
Tensile Elongation (cmd)	EN ISO 10319	%	14
CBR Puncture Resistance	EN ISO 12236	N	1800
Characteristic Opening Size	EN ISO 12956	µm	300
Waterflow normal to the plane	EN ISO 11058	l/m ² /s	15
Weight	EN ISO 9864	g/m ²	80
Material			Polypropylene
Colour			Orange
Manufacturing Process			Woven
Roll Size		m	4.5 x 100

DISCLAIMER

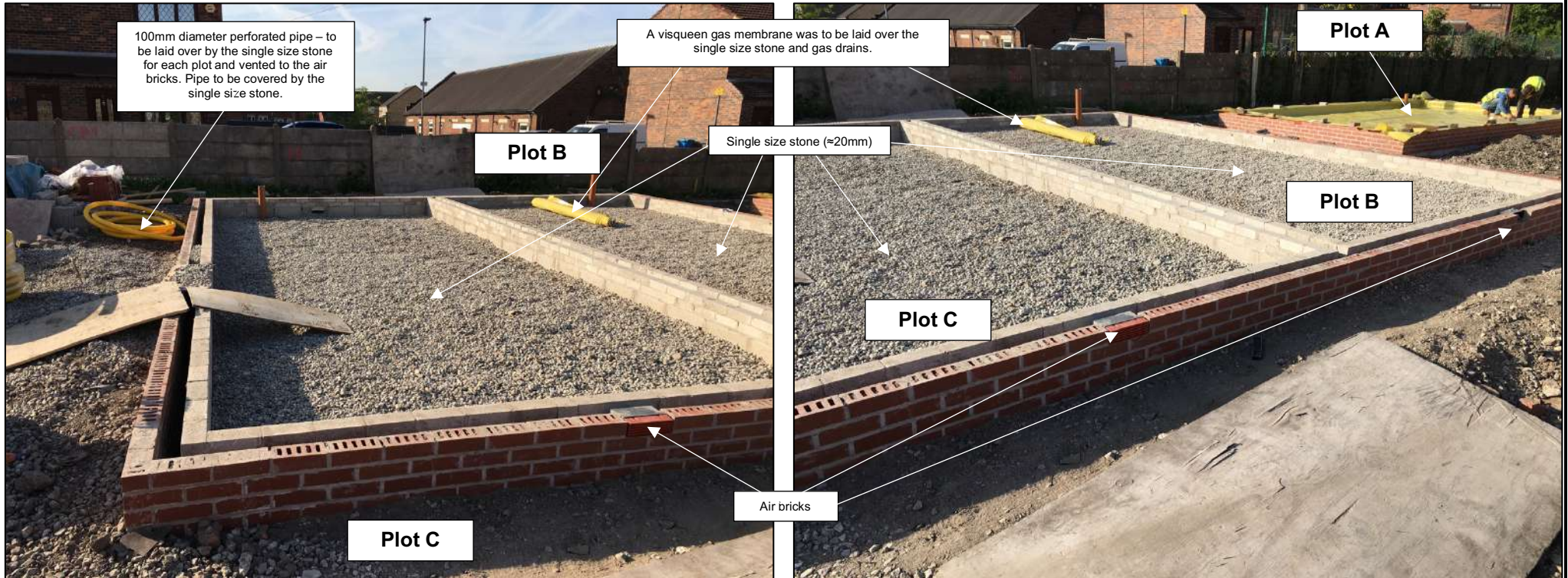
The information contained herein is to the best of our knowledge accurate in all material respects, however since the circumstances and conditions in which this information and the products mentioned herein can be used may vary and are beyond our control, no representation or warranty, express or implied of any nature is or will be made and no responsibility or liability will be accepted by us, or our affiliates or our or their respective directors, officers, employees, or agents in relation to the accuracy or completeness or use of the information contained herein or any such products and any such liability is expressly disclaimed.



APPENDIX C

GAS PROTECTION MEASURES VALIDATION

Photographs taken on 18th May 2018



THE LAND CONSULTANCY LIMITED

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SITE NAME/CONTRACT

Culcheth Lane, Newton Heath, Manchester

PHOTOGRAPHS

001

SCALE

N.T.S.

TITLE

Gas Protection Measures

DATE

01/04/2020

DRAWN BY

SFK

Photograph taken on 18th May 2018



Photograph taken on 31st May 2018



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SITE NAME/CONTRACT

Culcheth Lane, Newton Heath, Manchester

PHOTOGRAPHS

002

SCALE

N.T.S.

TITLE

Gas Protection Measures

DATE

01/04/2020

DRAWN BY

SFK

Photograph taken on 31st May 2018



Photograph taken on 31st May 2018



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SITE NAME/CONTRACT

Culcheth Lane, Newton Heath, Manchester

PHOTOGRAPHS

003

SCALE

N.T.S.

TITLE

Gas Protection Measures

DATE

01/04/2020

DRAWN BY

SFK

Photograph taken on 7th September 2018



Photograph taken on 7th September 2018



THE LAND CONSULTANCY LIMITED

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SITE NAME/CONTRACT

Culcheth Lane, Newton Heath, Manchester

PHOTOGRAPHS

004

SCALE

N.T.S.

TITLE

Gas Protection Measures

DATE

01/04/2020

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Photograph taken on 7th September 2018



Photograph taken on 7th September 2018



THE LAND CONSULTANCY LIMITED

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SITE NAME/CONTRACT

Culcheth Lane, Newton Heath, Manchester

PHOTOGRAPHS

005

SCALE

N.T.S.

TITLE

Gas Protection Measures

DATE

01/04/2020

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SFK

Visqueen Low Permeability Gas

Page 1 of 3



- Low permeability to radon, carbon dioxide and low levels of methane.
- High quality, robust Co-Polymer Thermoplastic Membrane.
- Supplied in centre folded sheeting which reduces the risk of cracks in screed.
- Complies with relevant codes of practice such as current BRE and CIRIA documentation.
- Also acts as a damp proof membrane.

Description

The Building Regulations require that proper precautions be taken to prevent danger to health and safety when building on contaminated land. Visqueen Low Permeability Gas Membrane offers a safe solution for the protection of buildings against methane, radon, stythe (a gas commonly found from disused mines, also known as blackdamp), when installed in accordance with the relevant codes of practice such as BRE, CIRIA and the Chartered Institute of Environmental Health Ground Gas Handbook. Visqueen Low Permeability Gas Membrane is a robust co-polymer thermoplastic membrane; for ease of identification on site the membrane is coloured yellow. The membrane is supplied in 4m x 12.5m roll and has a centre fold. It is flexible and is easy to install, and is also suitable for use as a damp proof membrane.

The membrane is manufactured as a centre folded product to **limit creases which aids jointing and welding applications** on site. Centre Folded films can also help to **reduce cracks** found in structural concrete screeds where traditional multi-folded DPMs are used.

Application

Visqueen Low Permeability Gas Membrane offers a safe solution for the protection of buildings and occupiers against radon, carbon dioxide and low levels of methane gas. Typically these are sites previously used as coalfields, landfill or are contaminated industrial sites.

Visqueen Low Permeability Gas

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Installation

Visqueen Low Permeability Gas Membrane and ancillary components must be installed in accordance with the recommendations of Building Research Establishment BRE 414 "Protective measures for housing on gas contaminated land", and CIRIA C665 "Assessing risks posed by hazardous ground gases to buildings", NHB C guidelines and the Chartered Institute of Environmental Health Ground Gas Handbook. The product is not intended for use where there is the risk of hydrostatic pressure.

The membrane should be installed on a compacted sand blinding layer or smooth concrete float finish allowing adequate overlap for jointing between the sheets and avoiding bridging (i.e. areas of unsupported membrane). In areas where high levels of unsupported membrane occur it is recommended that Visqueen Pre Applied Membrane is used. To avoid slip or shear planes and high compressive loadings it is not recommended to take the membrane through the wall. In order to provide a continuous barrier across the cavity Visqueen Zedex CPT DPC should be taken through the blockwork and incorporated below the damp proof course cavity tray in the outer leaf.

Laps can be joined together by either using the Visqueen Gas Barrier jointing system or welded by our specialist on-site contractors.

Jointing and Sealing

Visqueen Low Permeability Gas Membrane should be overlapped by at least 150mm and bonded with Visqueen Double Sided Tape. The joint should then be secured with Visqueen Foil Backed Girth Jointing Tape. Ensure that the membrane is clean and dry at the time of jointing. Airtight seals should be formed around all service entry points. Visqueen Pre-formed Top Hat Units must be used for sealing service entry pipes. The base of the top hat should be sealed using Visqueen Double Sided Tape and Visqueen Foil Backed Girth Jointing Tape should be used to secure the joint.

Ventilation

BS8485 recommends ventilation layers on open voids may be required beneath the floor slab in order to dilute and disperse ground gases to the atmosphere. Open voids are normally restricted to beam and block floors or other precast concrete floor systems. An alternative for providing ventilation to in situ concrete floor slabs is to install a Visqueen Ventilation System.

NB. In demanding site conditions use Visqueen GR Lap Tape as a high performance alternative to Visqueen Foil Jointing Tape.

Covering

Visqueen Low Permeability Gas Membrane should be covered by a protective layer as soon as possible after installation. Care should be taken to ensure that the membrane is not punctured, stretched or displaced when applying a screed or final floor covering. A minimum thickness of 50mm screed is recommended.

When reinforced concrete is to be laid over the membrane, the wire reinforcements and spacers must be prevented from contacting the membrane. It is recommended that the membrane is covered with Visqueen Protection Boards or screed before positioning the reinforcement. When underfloor heating is being installed, it is recommended that the membrane is positioned between the blinded hardcore and insulation. This will protect the insulation from moisture and avoid any risk of overheating the membrane.

Storage and Handling

Visqueen Low Permeability Gas Membrane is classified as nonhazardous when used in accordance with the relevant Code of Practice (CP 102:1973). The product is chemically inert and is not affected by acids and alkalis that may be present in the subsoils. The material is not recommended for uses where it will be exposed to long periods of outdoor weathering as exposure to ultraviolet light will embrittle the product. Weathering will not occur when the membrane is installed in accordance with CP 102:1973. Care should be taken to avoid accidental damage when handling the membrane on site. When the weather is cold all jointing tapes should be kept in a warm and dry place until needed. Installation is not recommended below 5°C

SPECIFICATION SUPPORT

The following items are available to view online or to download from www.visqueenbuilding.co.uk

- . Technical Datasheets
- . Typical installation CAD details
- . Health and Safety data

Register online for access to NBS Clauses and for information about our CPD Seminars



TECHNICAL SUPPORT

For advice on detailing or installation call Visqueen Building Products Technical Help Line 0845 302 4758. Pricing & Availability may be obtained from our UK Network of merchant stockists. For details of these call our Sales Office on 0845 302 4758.

VISQUEEN

BUILDING PRODUCTS

Heanor Gate, Heanor, Derbyshire DE75 7RG

T: 0845 302 4758 F: 0845 017 8663

enquiries@visqueenbuilding.co.uk

www.visqueenbuilding.co.uk

VISQUEEN BUILDING PRODUCTS IS A TRADING NAME OF BRITISH POLYTHENE LIMITED, COMPANY NUMBER: 350729, REGISTERED OFFICE: ONE LONDON WALL, LONDON, EC2Y 5AB

Visqueen Low Permeability Gas

Page 3 of 3

TYPICAL PROPERTIES

Technical Data

Thickness	500 microns (2000 gauge)
Roll Dimensions	4m x 12.5m
Roll Colour	Yellow
Roll Weight	23kg
Angle Tear Strength (BS 2782-3: Method 360C)	MD:112N/mm CD:108N/mm
Tensile Strength (BS EN ISO 572-3)	MD: 26.9N/mm ² CD: 26.8N/mm ²
Elongation (BS EN ISO 572-3)	MD: 780% CD: 825%
Carbon Dioxide Gas Permeability (ISO 2782)	2.80×10^{-17} m/sec/Pa
Methane Gas Permeability (ISO 2782)	1.13×10^{-17} m/sec/Pa
Radon Permeability (k)	5.477×10^{-12} m ² /s
Radon Transmittance (P)	1.095×10^{-8} m/s
Dimensional Stability BS EN11107:2001	-0.5% Long. 0.3% Transv.
Low Temperature Foldability BS EN 495-5:2001 (-40oC)	Pass
Water Vapour Transmission BS En 1931:2000	0.08 g/m ² /d

The information given in this datasheet is based on data and knowledge correct at the time of printing. Statements made are of a general nature and are not intended to apply to any use or application outside any referred to in the datasheet. As conditions of usage and installation are beyond our control we do not warrant performance obtained but strongly recommend that our installation guidelines and the relevant British Standard Codes of Practice are adhered to. Please contact us if you are in any doubt as to the suitability of application.

SPECIFICATION SUPPORT

The following items are available to view online or to download from www.visqueenbuilding.co.uk

- . Technical Datasheets
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Alderprufe GRA

A loose laid 20 micron pure aluminium foil substrate with a multi-filament polyester 20mm scrim grid, sandwiched between two layers of polyethylene. For use in solid concrete ground floors that are not subject to hydrostatic pressure, to protect buildings against gas penetration from the ground.

General Description

Alderprufe GRA is available for use, in accordance with the relevant clauses of CP102: 1973 Code of Practice for protection of buildings against water from the ground (as amended), in concrete floors not subject to a hydrostatic pressure.

It can be installed as an oversite membrane, situated between a blinded hardcore bed and the base concrete, or as a sandwich membrane in base concrete or between the base concrete and the screed and suspended floor construction including block and beam.

The methods of jointing provide an effective barrier to the passage of gases, liquid water and water vapour from the ground.

Alderprufe GRA will meet Requirement C4 of the Building Regulations 1985 (England and Wales), in that sheet thickness is at least 1000 gauge.

Alderprufe GRA has a high resistance to puncture. On smooth or blinded surfaces it will not be damaged by normal foot or site traffic (eg wheelbarrows) but care should be taken to avoid damage during installation, particularly when handling building materials and equipment over the surface and when placing concrete or screed since it can be punctured by sharp objects.

Alderprufe GRA may be installed under all conditions normal to the construction of ground floor slabs. However, it should be noted that in accordance with CP102: 1973 (as amended) subsoil drainage should be provided wherever there is a risk of ground becoming waterlogged.

The membranes remain flexible and do not soften

practice. When used in accordance with the manufacturer's instructions there will be no adverse effect on the membranes from underfloor heating under normal conditions of use, Alderprufe GRA will provide an effective barrier to the transmission of gases, liquid water and water vapour for the life of the concrete slab in which it is installed.

Technical Data

Thickness (mm)	0.5 mm
Minimum thickness (mm)	0.45 mm
Roll length (M)	50 mts
Roll width (M)	2.0 mts
Roll weight (kg)	38 kgs
Tensile strength	15 KN/M
Vapour transmission	0.01 g/m ² day
Methane Gas Permeability	0.001 L/m ² /day

Application

Unless the base is smooth, a surface blinding of soft sand (Alderway or Geotex Mat) should be used to avoid puncture of the membrane during installation or when the concrete or screed is being placed.

Jointing: Before joining, sheets must be clean and free from dirt and grease. Adjacent sheets should be overlapped by at least 100mm wide and bonded with 100mm wide Alderseal double sided gas-tite compound.

Perforation: Perforation or puncture of the sheets should be patched with sheets of identical thickness lapped at least 150mm beyond the limit of the puncture and sealed with 100mm wide Alderseal gas-tite compound.

Continuity with DPC: Alderprufe GRA membrane must be continuous with damp-proof course in the surrounding walls. Where necessary Alderprufe MR50 should be used as a vertical course to link the two. Lapped and bonded to Aldercourse GRA for continuation through load bearing structural walls (See details drawings and separate data sheets.)

Placing Concrete Or Screed: Alderprufe GRA must be covered by a screed or other protective layer as soon as possible after installation. Care should be taken to ensure that the membrane is not stretched or displaced when placing the concrete or screed. Consideration should be given to use of ventilation systems and pre-formed details where appropriate see separate Data sheet. For all service entries the use of a 'Tophat' factory formed units made from the same material should be considered.



Alderprufe GRA Gas Barrier is a multilayer, low-density polyethylene membrane, reinforced with a polypropylene reinforcing grid with an integral aluminium foil (BBA 16/5368) for use above or below a concrete ground floors that are not subject to hydrostatic pressure, to protect buildings against gas penetration from the ground.

General Description

Alderprufe GRA is a proprietary gas barrier that is compliant with **BS8485:2015**, **Ciria 665** and is suitable for **Amber 1 & 2** applications. It provides an effective barrier to methane, carbon dioxide, radon, and hydrocarbon vapours; as **Ciria C748** notes, aluminium simply does not allow any permeation of almost any common organic pollutant.

It can be installed above or below a slab, above or below insulation or beneath a screed.

The methods of jointing provide an effective barrier to the passage of gases, hydrocarbon vapours, liquid water and water vapour from the ground.

Alderprufe GRA is suitable for use in accordance with the relevant clauses of CP102:1973 Code of Practice for protection of buildings against water from the ground (as amended), in concrete floors not subject to a hydrostatic pressure, and will meet Requirement of Building Regulations Approved Document C (England and Wales), in that sheet thickness is at least 1000 gauge.

Alderprufe GRA has a high resistance to puncture. On smooth or blinded surfaces it will not be damaged by normal on-site foot traffic but care should be taken to avoid damage during installation, particularly when handling building materials and equipment over the surface and when placing concrete or screed since it can be punctured by sharp objects.

Alderprufe GRA may be installed under all conditions normal to the construction of ground floor slabs.

The membranes remain flexible and do not soften at the extreme temperatures likely to occur in practice. When used in accordance with the manufacturer's instructions there will be no adverse effect on the membranes from underfloor heating under normal conditions of use, **Alderprufe GRA** will provide an effective barrier to the transmission of gases, liquid water and water vapour for the life of the concrete slab in which it is installed.



ALDERPRUFE GRA GAS BARRIER

Characteristic	Test Method	Unit	Alderprufe GRA
Physical Properties			
Thickness	EN 1849-2	mm	0.60
Width	EN 1849-2	m	2
Length	EN 1849-2	m	50 / 25
Weight	EN 1849-2	g/m ²	350
Gas Permeability			
Methane	EN ISO 15105 - 1	ml/m ² /day/atm	0.09
Carbon Dioxide	EN ISO 15105 - 1	ml/m ² /day/atm	0.09
Radon	K124/02/95	m ² /s	8.00
Water Vapour Transmission	EN 1931	g/m ² /day	0.10
Complies with: BS8485:2015, CIRIA C664, CIRIA C748, NHBC (Green Amber 1, Amber 2, Red),			

Installation

Unless the base is smooth, a surface blinding of soft sand or **Geotex 300PP** protection should be used to avoid puncturing the membrane during installation or when the concrete or screed is being placed.

Before jointing, sheets must be clean and free from dirt and grease. Adjacent sheets should be overlapped by at least 100mm wide and bonded with 100mm wide double-sided **Gastite Tape**.

Perforation or puncture of the sheets should be patched with sheets of identical thickness lapped at least 150mm beyond the limit of the puncture and sealed with 100mm wide **Gastite Tape**.

Continuity with DPC: **Alderprufe GRA** membrane must be continuous with damp-proof course in the surrounding walls; lapped and bonded to **Aldercourse GRA** gas dpc for continuation through load-bearing walls. Where necessary **Alderprufe MR50** should be used as a vertical course to link the two (refer to typical details and separate data sheets.)

Placing Concrete or Screed: **Alderprufe GRA** must be covered by a screed or other protective layer as soon as possible after installation. Care should be taken to ensure that the membrane is not stretched or displaced when placing the concrete or screed.

Best practice is to use pre-formed collars and cloaks at penetrations to the gas barrier, for example at columns, pipes or piles. If gas ventilation is needed, refer to **Aldervent Gas Ventilation** brochure.

Use with: Aldercourse GRA gas dpc * Gastite Tape * Preformed pipe collars, column cloaks, pile collars * Geotex 300PP or Backerboard HD protection * Membrane Holdfast * Alderprufe MR50

APPENDIX D

MATERIALS IMPORT AND WASTE TRANSFER NOTES

DUTY OF CARE WASTE TRANSFER NOTE

COMPANY NAME:

Deaville
construction otham LTD

NO:

ADDRESS:

6 Longfellow
crescent SU-40N

TEL:

EMAIL:

VAT NO:

SIC CODE:

SITE NAME:

ADDRESS:

Culcheth
Lane

TEL:

EMAIL:

WASTE IN

WASTE OUT



CUSTOMER NAME:

Style builders

CUSTOMER POSTCODE:

SOURCE:

MATERIAL DESCRIPTION:

Hardcore

METHOD ON PAYMENT:

AMOUNT DUE/PAID:

CASH

☐

CARD

☐

ACCOUNT

☐

HAULIER AS ABOVE:

CUSTOMER SIC CODE:

VEHICLE REGISTRATION NO:

YJ59 ETE

IS LOAD CONTAMINATED?

YES

☐

NO

☒

DRIVERS SIGNATURE

WEIGHMANS SIGNATURE

Photograph taken on 18th May 2018



Building sand imported from Ernest Bentley & Sons Ltd builder's merchants. This material has clearly been obtained by the builder's merchants directly from a quarry.

Photograph taken on 18th May 2018



Limestone MOT Type 1 imported from Ernest Bentley & Sons Ltd builder's merchants. This material has clearly been obtained by the builder's merchants directly from a quarry. It is understood that ≈80tonnes of this material has been brought onto site.

THE LAND CONSULTANCY LIMITED

Fairweather House, 4 Parker Lane, Whitestake, Preston PR4 4JX
Tel: 01772 610609; M: 07771 800859
email: sfknott@thelandconsultancy.co.uk; www.thelandconsultancy.co.uk

SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

001

SCALE

N.T.S.

TITLE

Material Import

DATE

01/04/2020

DRAWN BY

SFK

Photograph taken on 18th May 2018



Photograph taken on 27th November 2019



A small amount (several tonnes) of recycled aggregate was imported onto site. A sample of this material was analysed at a chemical testing laboratory and found to be suitable for use.

THE LAND CONSULTANCY LIMITED

Fairweather House, 4 Parker Lane, Whitestake, Preston PR4 4JX
Tel: 01772 610609; M: 07771 800859
email: sfknot@thelandconsultancy.co.uk; www.thelandconsultancy.co.uk

SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

002

SCALE

N.T.S.

TITLE

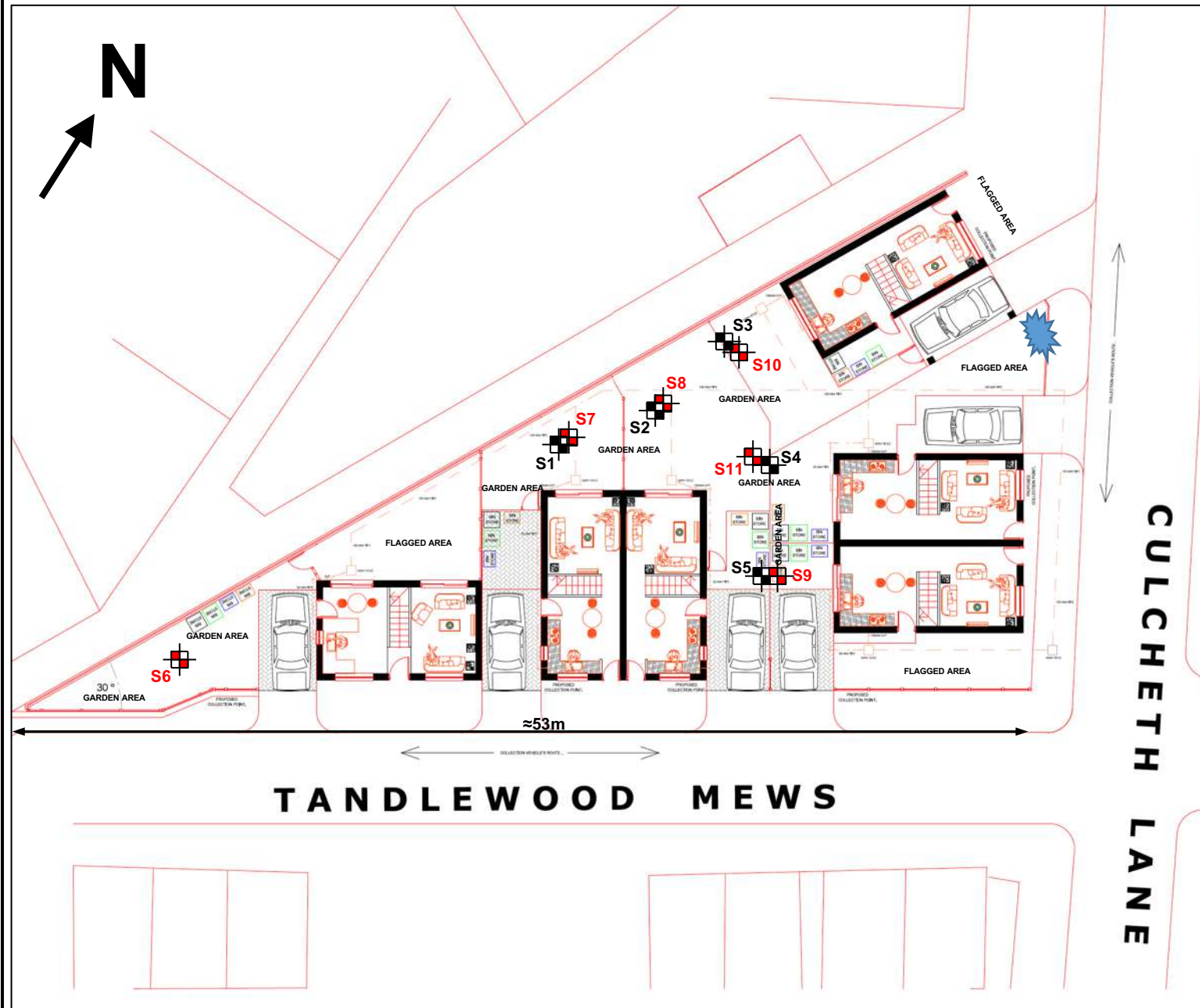
Material Import

DATE

01/04/2020

DRAWN BY

SFK



KEY

S6 – S11



Hand pits excavated on 27th November 2019 following importation of second batch of topsoil.

S1 - S5



Hand pits excavated on 23rd March 2020 following importation of first batch of topsoil.



Temporary small stockpile of imported recycled stone aggregate. Sampled on 27th November 2019.

THE LAND CONSULTANCY LIMITED

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email: stknott@thelandconsultancy.co.uk; www.thelandconsultancy.co.uk

Project:

Land Bounded by Culcheth Lane and Tandlewood Mews, Newton Heath, Manchester M40 1LU.

Title:

Proposed Development Plan displaying Capping Layer Validation Hand Pit/Sampling Locations

Scale:

As Shown

Drawn by:

SFK

Date:

31/03/2020

Drawing No.: TLC985/Hand Pits



Stockpile Sampling Location

THE LAND CONSULTANCY LIMITED

Fairweather House, 4 Parker Lane, Whitestake, Preston PR4 4JX
 Tel: 01772 610609; M: 07771 800859
 email: sfknott@thelandconsultancy.co.uk; www.thelandconsultancy.co.uk

SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood
 Mews, Newton Heath, Manchester M40 1LU.

TITLE

Stockpile Photograph (27th November 2019)

PHOTOGRAPHS

Stockpile Photo

DATE

31/03/2020

SCALE

N.T.S.

DRAWN BY

SFK

Job: Culcheth Lane, Newton Heath

Job No.: TLC985

Description of work carried out: Sampling of a small stockpile ($\approx 3\text{m}$ long x $\approx 2\text{m}$ wide x $\approx 0.7\text{m}$ high) of imported recycled aggregate situated adjacent to Culcheth Lane.

Date sampling carried out: 27th November 2019.

Description stockpiled material: Grey SAND and GRAVEL. Gravel is fine to coarse angular of concrete, sandstone, brick, asphalt and limestone.

The sample contain no visual or olfactory evidence of being affected by potentially mobile/odorous contamination (e.g. hydrocarbons, solvents etc).

A sample of this material (identified as S.Pile) was recovered from the stockpile and submitted to a chemical testing laboratory for analysis (see Appendix F for results).

APPENDIX E

POTABLE WATER SUPPLY VALIDATION



Barrier pipe (Protecta-line) has been used to supply each house with potable water



THE LAND CONSULTANCY LIMITED

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SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood
 Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

001

SCALE

N.T.S.

TITLE

Water Pipe Related Photographs

DATE

01/04/2020

DRAWN BY

SFK



THE LAND CONSULTANCY LIMITED

Fairweather House, 4 Parker Lane, Whitestake, Preston PR4 4JX
 Tel: 01772 610609; M: 07771 800859
 email: sfknott@thelandconsultancy.co.uk; www.thelandconsultancy.co.uk

SITE NAME/CONTRACT

Land Bounded by Culcheth Lane and Tandlewood
 Mews, Newton Heath, Manchester M40 1LU.

PHOTOGRAPHS

002

SCALE

N.T.S.

TITLE

Water Pipe Related Photographs

DATE

01/04/2020

DRAWN BY

SFK

APPENDIX F
CHEMICAL TESTING RESULTS AND SCREENING
CONCENTRATION

General Assessment Criteria (GAC) Screening Values for the Protection of Human Health

Screening Values shown are for a Sandy Loam soil with a pH of 7.0

With respect to elemental mercury, hydrocarbons and other organic contamination, it is assumed that free phase contamination is not present.

		All Concentrations are in mg/kg DW																		Source	
		Residential with Plant Uptake			Residential without Plant Uptake			Allotments			Commercial			Public Open Space (in a Residential Area)			Public Open Space (Park)				
		SOM (%)			SOM (%)			SOM (%)			SOM (%)			SOM (%)			SOM (%)				
12.56			12.56			12.56			12.56			12.56			12.56			12.56			
METALS and SEMI METALS																					
	Antimony	ND			550			ND			7500			ND			ND			c	
	Arsenic	37			40			43			640			79			170			a (SAUL)	
	Arsenic	37			40			49			640			79			170			b (CASL)	
	Barium	ND			1300			ND			22000			ND			ND			c	
	Beryllium	1.7			35			35			12			2.2			63			a (SAUL)	
	Boron	290			11000			45			240000			21000			46000			a (SAUL)	
	Cadmium	11			85			19			190			120			532			a (SAUL)	
	Cadmium	26			149			4.9			410			220			880			b (CASL)	
	Chromium (III)	910			18000			18000			8600			1500			33000			a (SAUL)	
	Chromium (VI)	6			6			6			33			7.7			220			a (SAUL)	
	Chromium (VI)	21			21			170			49			23			250			b (CASL)	
	Copper	2400			7100			520			68000			12000			44000			b (CASL)	
	Lead	200			310			80			2330			630			1300			b (CASL)	
	Mercury (elemental)	1.2			1.2			21			58 (25.8)			16			30 (25.8)			a (SAUL)	
	Mercury (inorganic)	40			56			19			1100			120			240			a (SAUL)	
	Mercury (Methyl)	11			15			6			320			40			68			a (SAUL)	
	Molybdenum	ND			670			ND			17000			ND			ND			c	
	Nickel	130			180			53			980			230			800			a (SAUL)	
	Selenium	250			430			88			12000			1100			1800			a (SAUL)	
	Vanadium	410			1200			91			9000			2000			5000			a (SAUL)	
	Zinc	3700			40000			620			730000			81000			170000			a (SAUL)	
PETROLEUM HYDROCARBONS																					
	Aliphatic EC 5-8	42	78	160	42	78	160	730	1700	3900	3200 (304)	5900 (558)	12000 (1150)	570000 (304)	590000	600000	95000 (304)	130000 (558)	180000 (1150)	a (SAUL)	
	Aliphatic EC >8-10	100	230	530	100	230	530	2300	5600	13000	7800 (144)	17000 (322)	40000 (736)	60000	610000	620000	150000 (144)	220000 (322)	320000 (736)	a (SAUL)	
	Aliphatic EC >8-10	27	65	150	27	65	150	320	770	1700	2000 (78)	4800 (190)	11000 (451)	13000	13000	13000	14000 (78)	18000 (190)	21000 (451)	a (SAUL)	
	Aliphatic EC >10-12	130 (48)	330 (118)	760 (283)	130 (48)	330 (118)	770 (283)	2200	4400	7300	9700 (48)	23000 (118)	47000 (283)	13000	13000	13000	21000 (48)	23000 (118)	24000 (283)	a (SAUL)	
	Aliphatic EC >12-16	1100 (24)	2400 (59)	4300 (142)	1100 (24)	2400 (59)	4400 (142)	11000	13000	13000	59000 (24)	82000 (59)	90000 (142)	13000	13000	13000	23000 (24)	25000 (59)	26000 (142)	a (SAUL)	
	Aliphatic EC >16-35	65000 (8.48)	92000 (21)	110000	65000 (8.48)	92000 (21)	110000	260000	270000	270000	1600000	1700000	1800000	250000	250000	250000	450000	480000	490000	a (SAUL)	
	Aliphatic EC >35-44	65000 (8.48)	92000 (21)	110000	65000 (8.48)	92000 (21)	110000	260000	270000	270000	1600000	1700000	1800000	250000	250000	250000	450000	480000	490000	a (SAUL)	
	Aromatic EC 5-7 (benzene)	70	140	300	370	680	1400	13	27	57	26000 (1220)	46000 (2260)	86000 (4710)	56000	56000	56000	76000 (1220)	84000 (2260)	92000 (4710)	a (SAUL)	
	Aromatic EC >7-8 (toluene)	130	220	380	180	380	380	22	51	120	56000 (869)	110000 (1920)	180000 (4360)	56000	56000	56000	87000 (869)	89000 (1920)	100000 (4360)	a (SAUL)	
	Aromatic EC >8-10	34	83	190	47	10	270	8.6	21	51	3500 (613)	8100 (1500)	17000 (3580)	5000	5000	5000	7200 (613)	8500 (1500)	9300 (3580)	a (SAUL)	
	Aromatic EC >10-12	74	180	380	250	590	1200	13	31	74	16000 (364)	28000 (899)	34000 (2150)	5000	5000	5000	9200 (364)	9700 (899)	10000	a (SAUL)	
	Aromatic EC >12-16	140	330	660	180	330	2500	23	57	130	36000 (169)	37000	38000	5100	5100	5000	10000	10000	10000	a (SAUL)	
	Aromatic EC >16-21	260	640	930	1900	1900	46	110	260	3800	28000	28000	28000	3800	3800	3800	7600	7700	7800	a (SAUL)	
	Aromatic EC >21-35	1100	1500	1700	1900	1900	1900	370	820	1600	28000	28000	28000	3800	3800	3800	7800	7800	7900	a (SAUL)	
	Aromatic EC >35-44	1100	1500	1700	1900	1900	1900	370	820	1600	28000	28000	28000	3800	3800	3800	7800	7800	7900	a (SAUL)	
	Aliphatic + Aromatic EC >44-70	1600	1800	1900	1900	1900	1900	1200	2100	3000	28000	28000	28000	3800	3800	3800	7800	7800	7900	a (SAUL)	
POLYNUCLEAR AROMATIC HYDROCARBONS																					
	Acenaphthene	210	510	1100	3000 (57.0)	4700 (141)	6000 (336)	34	85	200	84000 (57)	97000 (141)	100000	15000	15000	15000	29000	30000	30000	a (SAUL)	
	Acenaphthylene	170	420	920	2900 (86.1)	4600 (212)	6000 (506)	28	69	160	83000 (86.1)	97000 (212)	100000	15000	15000	15000	29000	30000	30000	a (SAUL)	
	Anthracene	2400	5400	11000	31000 (1.17)	35000	37000	380	950	2200	520000	540000	540000	74000	74000	74000	150000	150000	150000	a (SAUL)	
	Benzo(a)anthracene	7.2	11	13	11	14	15	2.9	6.5	13	170	170	180	29	29	29	49	56	62	a (SAUL)	
	Benzo(b)fluoranthene	2.2	2.7	3.0	3.2	3.2	3.2	0.97	2.0	3.5	35	35	36	5.7	5.7	5.7	11	12	13	a (SAUL)	
	Benzo(k)fluoranthene	2.6	3.3	3.7	3.3	4.0	4.0	0.96	2.1	3.8	44	44	45	7.1	7.2	7.2	13	15	16	a (SAUL)	
	Benzo(g,h,i)perylene	320	340	350	360	390	400	290	470	500	3900	4000	4000	640	640	640	1400	1500	1600	a (SAUL)	
	Benzo(k)fluoranthene	77	93	100	110	110	110	37	75	130	1200	1200	1200	190	190	190	370	410	440	a (SAUL)	
	Chrysene	15	22	27	30	31	32	4.1	9.4	19	350	350	350	57	57	57	93	110	120	a (SAUL)	
	Dibenz(a,h)anthracene	0.24	0.28	0.30	0.31	0.32	0.32	0.14	0.27	0.43	3.5	3.6	3.6	0.57	0.57	0.58	1.1	1.3	1.4	a (SAUL)	
	Fluoranthene	280	560	890	1500	1600	160	52	130	290	23000	23000	23000	3100	3100	3100	6300	6300	6400	a (SAUL)	
	Fluorene	170	400	860	2800 (30.9)	3800 (76.5)	4500 (183)	27	67	160	68000 (30.9)	68000	71000	9900	9900	9900	20000	20000	20000	a (SAUL)	
	Indeno(1,2,3-cd)pyrene	27	36	41	45	46	46	9.5	21	39	500	510	510	82	82	82	150	160	180	a (SAUL)	
	Naphthalene	2.3	5.6	13	2.3	5.6	13	4.1	10	24	190 (76.4)	460 (183)	1100 (432)	4900	4900	4900	1200 (76.4)	1900 (183)	3000	a (SAUL)	
	Phenanthrene	95	220	440	1300 (36.0)	1500	1500	15	38	90	22000	22000	23000	3100	3100	3100	6200	6200	6300	a (SAUL)	
	Pyrene	620	1200	2000	3700	3800 (76.5)	3800	110	270	620	54000	54000	54000	7400	7400	7400	15000	15000	15000	a (SAUL)	
	Coal Tar (BaP used as a surrogate marker)	-	-	5.0	-	-	5.3	-	-	5.7	-	-	77	-	-	10	-	-	21	b (CASL)	
	Coal Tar (BaP used as a surrogate marker)	0.79	0.98	1.1	1.2	1.2	1.2	0.32	0.67	1.2	15	15	15	2.2	2.2	2.2	4.4	4.7	4.8	a (SAUL)	
BTX COMPOUNDS																					
	Benzene	0.087	0.17	0.37	0.38	0.7	1.4	0.017	0.034	0.075	27	47	90	72	72	73	90	100	110	a (SAUL)	
	Benzene	-	-	0.87	-	-	3.3	-	-	0.18	-	-	98	-	-	140	-	-	230	b (CASL)	
	Toluene	130	290	660	880 (869)	1900	3900	22	51	120	56000 (869)	110000 (1920)	180000 (4360)	56000	56000	56000	87000 (869)	89000 (1920)	100000 (4360)	a (SAUL)	
	Ethylbenzene	47	110	260	83	190	440	16	39	91	5700 (518)	13000 (1220)	27000 (2940)	24000	24000	24000	17000 (518)	22000 (1220)	27000 (2940)	a (SAUL)	
	Xylene, o-	60	140	330	88	210	480	28	67	160	6600 (478)	15000 (1120)	33000 (2620)	41000	41000	41000	17000 (478)	24000 (1120)	33000 (2620)	a (SAUL)	
	Xylene, m-	59	140	320	82	190	450	31	74	170	6200 (625)	14000 (1470)	31000 (3460)	42000	42000	42000	17000 (625)	24000 (1470)	32000 (3460)	a (SAUL)	
	Xylene, p-	56	140	310	79	180	430	29	69	160	5900 (576)	14000 (1350)	30000 (3170)	43000	43000	43000	17000 (576)	23000 (1350)	31000 (3170)	a (SAUL)	
	Xylenes (mixed isomers)	56	140	310	79	180	430	28	67	160	5900 (576)	14000 (1350)	30000 (3170)	41000	41000	41000	17000	23000 (1350)	31000 (3170)	a (SAUL)	
* Based on lowest of the 3 xylene congener results returned																					
PHENOL, CHLOROPHENOLS & OTHER PHENOL COMPOUNDS																					
	Phenol	120	200	380	440	690	1200	23	42												

General Assessment Criteria (GAC) Screening Values for the Protection of Human Health

Screening Values shown are for a Sandy Loam soil with a pH of 7.0

With respect to elemental mercury, hydrocarbons and other organic contamination, it is assumed that free phase contamination is not present.

	All Concentrations are in mg/kg DW																		Source		
	Residential with Plant Uptake			Residential without Plant Uptake			Allotments			Commercial			Public Open Space (in a Residential Area)			Public Open Space (Park)					
	SOM (%)			SOM (%)			SOM (%)			SOM (%)			SOM (%)			SOM (%)					
	1	2.5	6	1	2.5	6	1	2.5	6	1	2.5	6	1	2.5	6	1	2.5	6	1	2.5	6
Tetrachloroethene (PCE)	0.18	0.39	0.90	0.18	0.40	0.92	0.65	1.5	3.6	19	42	95	1400	1400	1400	810 (424)	1100 (951)	1500	a (S4UL)		
Tetrachloromethane (Carbon Tetrachloride)	0.026	0.056	0.13	0.026	0.056	0.130	0.45	1.0	2.4	2.9	6.3	14	890	920	950	190	270	400	a (S4UL)		
Trans 1,2 Dichloroethene	0.19	0.34	0.70	0.19	0.35	0.71	0.93	1.9	4.0	22.0	40	81	ND	ND	ND	ND	ND	ND	c		
Trichloroethene (TCE)	0.016	0.034	0.075	0.017	0.036	0.080	0.041	0.091	0.21	1.2	2.6	5.7	120	120	120	70	91	120	a (S4UL)		
Trichloromethane (Chloroform)	0.91	1.7	3.4	1.2	2.1	4.2	0.42	0.83	1.7	99	170	350	2500	2500	2500	2600	2800	3100	a (S4UL)		
Tribromomethane (Bromoform)	2.8	5.9	13	5.2	11	23	0.95	2.1	4.6	760	1500	3100	ND	ND	ND	ND	ND	ND	c		
Vinyl Chloride (Chloroethene)	0.00064	0.00087	0.0014	0.00077	0.0010	0.0015	0.00055	0.0010	0.0018	0.059	0.077	0.12	3.5	3.5	3.5	4.8	5.0	5.4	a (S4UL)		
CHLOROBENZENES (+ other BENZENE RELATED COMPOUNDS)																					
Bromobenzene	0.87	2.0	4.7	0.91	2.1	4.9	3.2	7.6	18	97	220	520	ND	ND	ND	ND	ND	ND	c		
Chlorobenzene	0.46	1.0	2.4	0.46	1.0	2.4	5.9	14	32	56	30	290	11000	13000	14000	1300 (675)	2000 (1520)	2900	a (S4UL)		
1,2-Dichlorobenzene	23	55	130	24	57	130	94	230	540	2000 (571)	4800 (1370)	11000 (3240)	90000	95000	98000	24000 (571)	36000 (1370)	51000 (3240)	a (S4UL)		
1,3-Dichlorobenzene	0.40	1.0	2.3	0.44	1.1	2.5	0.25	0.6	1.5	30	73	170	300	300	300	390	440	470	a (S4UL)		
1,4-Dichlorobenzene	61	150	350	61	150	350	15	37	88	4400 (224)	10000 (540)	25000 (1280)	17000	17000	17000	36000 (224)	36000 (540)	36000 (1280)	a (S4UL)		
Hexachlorobenzene	1.8 (0.20)	3.3 (0.50)	4.9	4.1 (0.20)	5.7 (0.50)	6.7 (1.2)	0.47	1.1	2.5	110 (0.20)	120	120	16	16	16	30	30	30	a (S4UL)		
Isopropylbenzene	11	27	64	12	28	67	32	79	190	1400 (390)	3300 (950)	7700 (2250)	ND	ND	ND	ND	ND	ND	c		
Pentachlorobenzene	5.8	12	22	19	30	38	1.2	3.1	7.0	640 (43.0)	770 (107)	830	100	100	100	190	190	190	a (S4UL)		
Propylbenzene	34	82	190	40	97	230	34	83	200.0	4100 (402)	9700 (981)	21000 (2330)	ND	ND	ND	ND	ND	ND	c		
1,2,3-Trichlorobenzene	1.5	3.6	8.6	1.5	3.7	8.8	4.7	12	26	102	250	590	1800	1800	1800	770 (134)	1100 (330)	1600 (789)	a (S4UL)		
1,2,4-Trichlorobenzene	2.6	6.4	15	2.6	6.4	15	55	140	320	220	530	1300	15000	17000	19000	1700 (318)	2600 (786)	4000 (1880)	a (S4UL)		
1,3,5-Trichlorobenzene	0.33	0.81	1.9	0.33	0.81	1.9	4.7	12	28	23	55	130	1700	1700	1800	380 (36.7)	580 (90.8)	860 (217)	a (S4UL)		
1,2,3,4-Tetrachlorobenzene	15	36	78	24	56	120	4.4	11	26	1700 (122)	3080 (304)	4400 (728)	830	830	830	1500 (122)	1600	1600	a (S4UL)		
1,2,3,5-Tetrachlorobenzene	0.66	1.6	3.7	0.75	1.9	4.3	0.38	0.90	2.2	49 (39.4)	120 (98.1)	240 (235)	78	78	79	110 (39)	120	130	a (S4UL)		
1,2,4,5-Tetrachlorobenzene	0.33	0.77	1.6	0.73	1.7	3.5	0.06	0.16	0.37	42 (19.7)	72 (49.1)	96	13	13	13	25	26	26	a (S4UL)		
1,2,4-Trimethylbenzene	0.35	0.85	2.0	0.41	0.99	2.3	0.38	0.93	2.2	42	99	220	ND	ND	ND	ND	ND	ND	c		
PESTICIDES																					
Aldrin	5.7	6.6	7.1	7.3	7.4	7.5	3.2	6.1	9.6	170	170	170	18	18	18	30	31	31	a (S4UL)		
Dieldrin	0.97	2.0	3.5	7.0	7.3	7.4	0.17	0.41	0.96	170	170	170	18	18	18	30	31	31	a (S4UL)		
Atrazine	3.3	7.60	17.4	610	620	620	0.50	1.2	2.7	9300	9400	9400	1200	1200	1200	2300	2400	2400	a (S4UL)		
Dichlorvos	0.032	0.066	0.14	6.4	6.5	6.5	0.0049	0.010	0.022	140	140	140	16	16	16	26	26	27	a (S4UL)		
Alpha-Endosulfan	7.4	18	41	160 (0.003)	280 (0.007)	410 (0.016)	1.2	2.9	6.9	5600 (0.003)	7400 (0.007)	8400 (0.016)	1200	1200	1200	2400	2400	2400	a (S4UL)		
Beta-Endosulfan	7.0	17	39	190 (0.00007)	320 (0.0002)	440 (0.0004)	1.1	2.7	6.4	6300 (0.00007)	7800 (0.0002)	8700	1200	1200	1200	2400	2400	2500	a (S4UL)		
Alpha-Hexachlorocyclohexane (inc. Lindane)	0.23	0.55	1.2	6.9	9.2	11	0.035	0.087	0.21	170	180	180	24	24	24	47	48	48	a (S4UL)		
Beta-Hexachlorocyclohexane (inc. Lindane)	0.085	0.2	0.46	3.7	3.8	3.8	0.013	0.032	0.077	65	65	65	8.1	8.1	8.1	15	15	16	a (S4UL)		
Gamma-Hexachlorocyclohexane (inc. Lindane)	0.06	0.14	0.33	2.9	3.3	3.5	0.0092	0.023	0.054	67	69	70	8.2	8.2	8.2	14	15	15	a (S4UL)		
PHTHALATES																					
Bis (2-Ethylhexyl) Phthalate	280 (6.68)	610 (21.6)	1100 (51.7)	2700 (6.68)	2800 (21.6)	2800 (51.7)	47 (6.68)	120 (21.6)	280 (51.7)	85000 (6.68)	86000 (21.6)	86000 (51.7)	ND	ND	ND	ND	ND	ND	c		
Butyl Benzy Phthalate	1400 (26.3)	3300 (64.7)	7200 (154)	42000 (26.3)	44000 (64.7)	7200 (154)	220 (26.3)	550 (64.7)	1300 (154)	940000 (26.3)	940000 (64.7)	950000 (154)	ND	ND	ND	ND	ND	ND	c		
Diethyl Phthalate	120 (13.7)	260 (29.1)	570 (65)	1900 (13.7)	3500 (29.1)	6300 (65)	19 (13.7)	41 (29.1)	94 (65)	150000 (13.7)	220000 (29.1)	290000 (65)	ND	ND	ND	ND	ND	ND	c		
Di-n-Butyl Phthalate	13 (4.65)	31 (11.4)	67 (27.3)	450 (4.65)	450 (11.4)	450 (27.3)	2.0	5.0	12	15000 (4.65)	15000 (11.4)	15000 (27.3)	ND	ND	ND	ND	ND	ND	c		
Di-n-Octyl Phthalate	2300 (32.6)	2800 (81.5)	3100 (196)	3400 (32.6)	3400 (81.5)	3400 (196)	940 (32.6)	2100 (81.5)	3900 (196)	89000 (32.6)	89000 (81.5)	89000 (196)	ND	ND	ND	ND	ND	ND	c		
TOLUENE COMPOUNDS & EXPLOSIVES																					
2,4,6-Trinitrotoluene (TNT)	1.6	3.7	8.1	65	66	66	0.24	0.58	1.40	1000	1000	1000	130	130	130	260	270	270	a (S4UL)		
2,4-Dinitrotoluene	1.5	3.2	7.2	170 (141)	170	170	0.22	0.49	1.10	3700 (141)	3700 (299)	3800 (669)	ND	ND	ND	ND	ND	ND	c		
2,6-Dinitrotoluene	0.78	1.7	3.9	78	84	87	0.12	0.27	0.61	1900 (287)	1900 (622)	1900 (1400)	ND	ND	ND	ND	ND	ND	c		
RDX	120	250	540	13000	13000	13000	17	38	85	210000	210000	210000	26000	26000	27000	49000 (18.7)	51000	53000	a (S4UL)		
HMX	5.7	13	28	6700	6700	6700	0.86	1.9	3.9	110000	110000	110000	13000	13000	13000	23000 (0.35)	23000 (0.39)	24000 (0.48)	a (S4UL)		
OTHER COMPOUNDS																					
Carbon Disulphide	0.14	0.29	0.62	0.14	0.29	0.62	4.8	10	23	11	22	47	11000	11000	12000	1300	1900	2700	a (S4UL)		
2-Chloronaphthalene	3.7	9.2	22	3.80	9.3	22	40	98	230	390	960	2200 (669)	ND	ND	ND	ND	ND	ND	c		
Bisphenyl	66 (34.4)	160	360	220 (34.4)	500 (84.3)	980 (201)	14	35	83	33000 (84.3)	83	48000 (201)	ND	ND	ND	ND	ND	ND	c		
Styrene	8.1	19	43	35	78	170	1.6	3.7	8.7	3300 (626)	6500 (1440)	11000 (3350)	ND	ND	ND	ND	ND	ND	c		
Methyl Tert-Butyl Ether (MTBE)	49	84	160	73	120	220	23	44	90	7900	13000	24000	ND	ND	ND	ND	ND	ND	c		
Tributyl Tin Oxide	0.25	0.59	1.3	1.4	3.1	5.7	0.042	0.10	4.0	130 (41.3)	180 (101)	200 (241)	ND	ND	ND	ND	ND	ND	c		
Hexachloro-1,3-Butadiene	0.29	0.70	1.6	0.32	0.78	1.8	0.25	0.61	1.4	31	66	120	25	25	25	48	50	51	a (S4UL)		

■ The GAC presented exceeds the solubility saturation limit, which is presented in brackets. Soil concentrations above soil saturation may indicate that NAPL is present. Risks from NAPL need to be considered separately.

■ The GAC presented exceeds the vapour saturation limit, which is presented in brackets.

Source References

a Nathanael, C.P., McCaffrey, C., Gillett, A.G., Ogden, R.C. and Nathanael, J.F., 'The LQM/CI/EH S4ULs for Human Health Risk Assessment', Dated 2015 and published by Land Quality Press, Nottingham.

b Defra, 'Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination (SP1010): Final Project Report', March 2014; & Defra, 'Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination (SP1010): Policy Companion Document', March 2014. Values are advised to be used by the NHBC - see Issue 15 of their 'Technical Extra' document dated October 2014.

c CL:AIRE / AGS / EIC (December 2009), 'The Soil Generic Assessment Criteria for Human Health Risk Assessment'.

ICRCL 59/83 Guideline Levels for Assessing Phytotoxicity

	Trigger Value (mg/kg)
Boron	3
Copper	130
Nickel	70
Zinc	300

Note: The phytotoxic effects of copper, nickel and zinc may be additive. The trigger values given here are for pH=6.5 (which is the approximate acidity of pure rainwater). In neutral or alkaline soils, phytotoxic effects are unlikely at the above concentrations.

Note: Grass is more resistant to phytotoxic effects than are most other plants and its growth may not be adversely affected at these concentrations.

ICRCL 59/83 'The Assessment and Redevelopment of Contaminated Land', published by DEFRA, 1987

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 19/11394
Issue Number: 1

Date: 05 December, 2019

Client: The Land Consultancy Ltd
4 Parker Lane
Preston
PR4 4JX

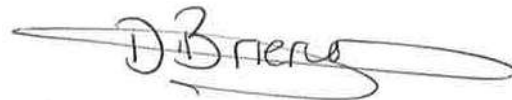
Project Manager: Stephen Knott
Project Name: Culcheth Lane, Newton Heath, Manchester
Project Ref: TLC985
Order No: N/A
Date Samples Received: 29/11/19
Date Instructions Received: 02/12/19
Date Analysis Completed: 05/12/19

Prepared by:



Holly Neary-King
Deputy Admin & Client Services Supervisor

Approved by:



Danielle Brierley
Client Manager

Envirolab Job Number: 19/11394

Client Project Name: Culcheth Lane, Newton Heath,
Manchester

Client Project Ref: TLC985

Lab Sample ID	19/11394/1	19/11394/2	19/11394/3	19/11394/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	S1	S3	S5	S.Pile						
Depth to Top	0.20	0.30	0.20	0.20						
Depth To Bottom										
Date Sampled	27-Nov-19	27-Nov-19	27-Nov-19	27-Nov-19						
Sample Type	Soil	Soil	Soil	Soil						
Sample Matrix Code	4AE	5AE	4A	4AB						
% Stones >10mm _A	3.3	2.1	<0.1	31.9				% w/w	0.1	A-T-044
pH _D ^{M#}	8.08	7.82	7.97	11.68				pH	0.01	A-T-031s
Sulphate (acid soluble) _D ^{M#}	500	420	500	1800				mg/kg	200	A-T-028s
Cyanide (total) _A ^{M#}	<1	<1	<1	<1				mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2				mg/kg	0.2	A-T-050s
Total Organic Carbon _D ^{M#}	2.82	3.87	2.44	2.32				% w/w	0.03	A-T-032s
Arsenic _D ^{M#}	11	11	8	3				mg/kg	1	A-T-024s
Boron (water soluble) _D ^{M#}	<1.0	<1.0	1.3	<1.0				mg/kg	1	A-T-027s
Cadmium _D ^{M#}	1.0	0.9	0.9	2.4				mg/kg	0.5	A-T-024s
Copper _D ^{M#}	37	40	41	16				mg/kg	1	A-T-024s
Chromium _D ^{M#}	16	16	23	13				mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1				mg/kg	1	A-T-040s
Lead _D ^{M#}	91	103	96	74				mg/kg	1	A-T-024s
Mercury _D	<0.17	0.21	<0.17	0.40				mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	17	16	18	14				mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1				mg/kg	1	A-T-024s
Zinc _D ^{M#}	96	98	108	157				mg/kg	5	A-T-024s

Envirolab Job Number: 19/11394

Client Project Name: Culcheth Lane, Newton Heath,
Manchester

Client Project Ref: TLC985

Lab Sample ID	19/11394/1	19/11394/2	19/11394/3	19/11394/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	S1	S3	S5	S.Pile						
Depth to Top	0.20	0.30	0.20	0.20						
Depth To Bottom										
Date Sampled	27-Nov-19	27-Nov-19	27-Nov-19	27-Nov-19						
Sample Type	Soil	Soil	Soil	Soil						
Sample Matrix Code	4AE	5AE	4A	4AB						
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	NAD						A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A						A-T-045

Envirolab Job Number: 19/11394

Client Project Name: Culcheth Lane, Newton Heath,
Manchester

Client Project Ref: TLC985

Lab Sample ID	19/11394/1	19/11394/2	19/11394/3	19/11394/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	S1	S3	S5	S.Pile						
Depth to Top	0.20	0.30	0.20	0.20						
Depth To Bottom										
Date Sampled	27-Nov-19	27-Nov-19	27-Nov-19	27-Nov-19						
Sample Type	Soil	Soil	Soil	Soil						
Sample Matrix Code	4AE	5AE	4A	4AB						
PAH-16MS										
Acenaphthene _A ^{M#}	0.86	0.11	0.08	2.63				mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	0.05	0.02	0.05	0.10				mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	1.23	0.25	0.19	2.00				mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	2.24	1.08	1.07	2.13				mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	1.85	0.91	1.15	1.67				mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	1.90	0.98	1.20	1.62				mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.98	0.52	0.75	0.96				mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	0.67	0.32	0.37	0.58				mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	2.05	1.09	1.11	2.05				mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	0.24	0.12	0.17	0.22				mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	5.45	2.14	1.90	5.17				mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	0.87	0.07	0.08	1.76				mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	1.20	0.63	0.88	1.06				mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	0.32	<0.03	<0.03	0.64				mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	4.10	1.04	0.84	6.03				mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	4.40	1.93	1.75	4.27				mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	28.4	11.2	11.6	32.9				mg/kg	0.01	A-T-019s

Envirolab Job Number: 19/11394

Client Project Name: Culcheth Lane, Newton Heath,
Manchester

Client Project Ref: TLC985

Lab Sample ID	19/11394/1	19/11394/2	19/11394/3	19/11394/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	S1	S3	S5	S.Pile						
Depth to Top	0.20	0.30	0.20	0.20						
Depth To Bottom										
Date Sampled	27-Nov-19	27-Nov-19	27-Nov-19	27-Nov-19						
Sample Type	Soil	Soil	Soil	Soil						
Sample Matrix Code	4AE	5AE	4A	4AB						
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<5				mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	8				mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	2	<1	1	28				mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	5	2	2	39				mg/kg	1	A-T-055s
Ali >C21-C35 _A	166	28	36	331				mg/kg	1	A-T-055s
Total Aliphatics _A	173	31	40	412				mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	2	2	2	27				mg/kg	1	A-T-055s
Aro >C10-C12 _A ^{M#}	2	1	1	7				mg/kg	1	A-T-055s
Aro >C12-C16 _A	13	9	6	34				mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	63	62	25	80				mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	458	226	129	361				mg/kg	1	A-T-055s
Total Aromatics _A	538	302	163	508				mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	712	333	203	919				mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<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 with the same delivery, will be disposed of six weeks after 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 the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples 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.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

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 analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 1155µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

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.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need 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: The Land Consultancy Ltd, 4 Parker Lane, Preston, PR4 4JX

Project No: 19/11394

Project: Culcheth Lane, Newton Heath, Manchester

Date Received: 02/12/2019 (am)

Clients Project No: TLC985

Cool Box Temperatures (°C): 11.1

NO DEVIATIONS IDENTIFIED

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, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.



ANALYTICAL TEST REPORT

Contract no: 85519

Contract name: Culcheth Lane, Newton Heath, Manchester

Client reference: TLC985

Clients name: The Land Consultancy

Clients address: 4 Parker Lane
Whitestake, Preston
Lancashire
PR4 4JX

Samples received: 26 March 2020

Analysis started: 26 March 2020

Analysis completed: 02 April 2020

Report issued: 02 April 2020

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.
BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing
NAD No Asbestos Detected

Approved by:

John Campbell
Director

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
85519-1	S6	0.30	Sandy Clay with Gravel & Roots	-	-	18.6
85519-2	S8	0.15	Sandy Clay with Gravel & Roots	-	-	17.3
85519-3	S9	0.10	Clayey Sand with Gravel & Roots	-	-	12.6

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SOILS

Lab number			85519-1	85519-2	85519-3
Sample id			S6	S8	S9
Depth (m)			0.30	0.15	0.10
Date sampled			23/03/2020	23/03/2020	23/03/2020
Test	Method	Units			
Arsenic (total)	CE127 ^M	mg/kg As	17	13	9.6
Boron (water soluble)	CE063 ^M	mg/kg B	1.4	0.7	0.7
Cadmium (total)	CE127 ^M	mg/kg Cd	0.5	0.5	0.2
Chromium (total)	CE127 ^M	mg/kg Cr	655	215	601
Chromium (VI)	CE146	mg/kg CrVI	<1	<1	<1
Copper (total)	CE127 ^M	mg/kg Cu	68	49	38
Lead (total)	CE127 ^M	mg/kg Pb	126	109	67
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5	<0.5	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	256	48	227
Selenium (total)	CE127 ^M	mg/kg Se	1.3	1.1	1.4
Zinc (total)	CE127 ^M	mg/kg Zn	125	106	70
pH	CE004 ^M	units	7.3	8.0	7.9
Sulphate (total)	CE062 ^M	mg/kg SO ₄	1583	484	653
Cyanide (total)	CE077	mg/kg CN	<1	<1	<1
Phenols (total)	CE078	mg/kg PhOH	2.6	1.6	<0.5
Total Organic Carbon (TOC)	CE072 ^M	% w/w C	5.9	2.7	2.7
PAH					
Naphthalene	CE087 ^M	mg/kg	0.03	0.03	0.03
Acenaphthylene	CE087 ^M	mg/kg	0.02	0.03	<0.02
Acenaphthene	CE087 ^M	mg/kg	0.07	0.21	0.41
Fluorene	CE087 ^U	mg/kg	0.05	0.15	0.20
Phenanthrene	CE087 ^M	mg/kg	0.58	1.48	2.05
Anthracene	CE087 ^U	mg/kg	0.19	0.53	0.37
Fluoranthene	CE087 ^M	mg/kg	1.16	2.66	2.20
Pyrene	CE087 ^M	mg/kg	1.14	2.54	2.14
Benzo(a)anthracene	CE087 ^U	mg/kg	0.55	1.24	0.94
Chrysene	CE087 ^M	mg/kg	0.63	1.44	1.14
Benzo(b)fluoranthene	CE087 ^M	mg/kg	1.14	1.67	1.16
Benzo(k)fluoranthene	CE087 ^M	mg/kg	0.19	0.49	0.35
Benzo(a)pyrene	CE087 ^U	mg/kg	0.52	1.26	0.88
Indeno(123cd)pyrene	CE087 ^M	mg/kg	0.46	1.21	0.76
Dibenz(ah)anthracene	CE087 ^M	mg/kg	0.07	0.21	0.14
Benzo(ghi)perylene	CE087 ^M	mg/kg	0.43	1.20	0.82
PAH (total of USEPA 16)	CE087	mg/kg	7.23	16.4	13.6
BTEX & TPH					
MTBE	CE192 ^U	mg/kg	<0.02	<0.02	<0.02
Benzene	CE192 ^U	mg/kg	<0.01	<0.01	<0.01
Toluene	CE192 ^U	mg/kg	<0.01	<0.01	<0.01
Ethylbenzene	CE192 ^U	mg/kg	<0.01	<0.01	<0.01
m & p-Xylene	CE192 ^U	mg/kg	<0.02	<0.02	<0.02
o-Xylene	CE192 ^U	mg/kg	<0.01	<0.01	<0.01

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SOILS

Lab number			85519-1	85519-2	85519-3
Sample id			S6	S8	S9
Depth (m)			0.30	0.15	0.10
Date sampled			23/03/2020	23/03/2020	23/03/2020
Test	Method	Units			
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	<0.01	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01	<0.01	0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01	<0.01	<0.01
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	<1	<1	<1
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	<1	<1	<1
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	4	8	8
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	5	9	6
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	<1	2	<1
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1	<0.1	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1	<0.1	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1	<0.1	<0.1
EPH Aliphatic (>C10-C12)	CE068	mg/kg	<4	<4	<4
EPH Aliphatic (>C12-C16)	CE068	mg/kg	4	<4	<4
EPH Aliphatic (>C16-C35)	CE068	mg/kg	158	199	112
EPH Aliphatic (>C35-C44)	CE068	mg/kg	53	115	43
Subcontracted analysis					
Asbestos (qualitative)	\$	-	NAD	NAD	NAD

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE063	Boron (water soluble)	Hot water extract, ICP-OES	Dry	M	0.5	mg/kg B
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE146	Chromium (VI)	Acid extraction, Colorimetry	Dry		1	mg/kg CrVI
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	As received	M	-	units
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	M	100	mg/kg SO ₄
CE077	Cyanide (total)	Extraction, Continuous Flow Colorimetry	As received		1	mg/kg CN
CE078	Phenols (total)	Extraction, Continuous Flow Colorimetry	As received		0.5	mg/kg PhOH
CE072	Total Organic Carbon (TOC)	Removal of IC by acidification, Carbon Analyser	Dry	M	0.1	% w/w C
CE087	Naphthalene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	As received		0.34	mg/kg
CE192	MTBE	Headspace GC-FID	As received	U	0.02	mg/kg
CE192	Benzene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Toluene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Ethylbenzene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	m & p-Xylene	Headspace GC-FID	As received	U	0.02	mg/kg
CE192	o-Xylene	Headspace GC-FID	As received	U	0.01	mg/kg
CE067	VPH Aromatic (>EC5-EC7)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC7-EC8)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC8-EC10)	Headspace GC-FID	As received		0.01	mg/kg
CE068	EPH Aromatic (>EC10-EC12)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC12-EC16)	Solvent extraction, GC-FID	As received		1	mg/kg

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE068	EPH Aromatic (>EC16-EC21)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC21-EC35)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC35-EC44)	Solvent extraction, GC-FID	As received		1	mg/kg
CE067	VPH Aliphatic (>C5-C6)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C6-C8)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C8-C10)	Headspace GC-FID	As received		0.1	mg/kg
CE068	EPH Aliphatic (>C10-C12)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C12-C16)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C16-C35)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C35-C44)	Solvent extraction, GC-FID	As received		10	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
85519-1	S6	0.30	N	
85519-2	S8	0.15	N	
85519-3	S9	0.10	N	