

Phase 2: Site Investigation

99 Plymouth Grove, Manchester

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PHASE 2 SITE INVESTIGATION REPORT

99 PLYMOUTH GROVE, MANCHESTER

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1 EXECUTIVE SUMMARY

Site Address	• Former Rensaw House Methodist Church, 99 Plymouth Grove, Manchester, M13 9HX.
Proposed Development	• The proposed development is outlined to be construction of a seven-storey student accommodation block.
Fieldwork	• 2no cable percussive boreholes (CP01 & CP02) drilled to a max. depth of 15.45mbgl. • 5no small percussive boreholes (BH01 to BH06) drilled to a max. depth of 6.00mbgl. • 3no. monitoring pipes in BH02, BH05 and CP01. • In-situ & laboratory testing.
Ground Conditions	• Made ground was encountered to depths of between 0.60mbgl and 2.50mbgl generally comprising tarmac and topsoil overlying granular and cohesive fill. The extent of made ground was not proven in BH01 and BH03 due brick obstructions 0.60mbgl (possible relict foundation). • Natural deposits generally comprised firm to very stiff slightly sandy slightly gravelly clay to a max. 15.20mbgl with thin bands of sand recorded locally at 9.30mbgl and 15.20mbgl. • Groundwater was recorded locally in CP01 at 9.50mbgl during the fieldwork.
Contamination Analysis	• Given the site's proposed land use the levels of contamination recorded on site may pose a risk to the current and future users of the site. • If any zones of odorous, brightly coloured or suspected contaminated ground or groundwater are encountered then work should cease in that area until the material has been investigated. The results of the investigation will therefore determine whether or not remediation will be required. • PPE for workers. Damping down of site during dry windy conditions. • Basic clean cover system required for all proposed areas of soft landscaping, to a depth of 0.45m. • Controlled waters unlikely to be at risk. • With respect to utilities pH and phenol was elevated precluding use of PCV, PE and copper pipes; as a minimum all services should be laid in clean trenches. • Sub surface concrete should be designed to DS-1 ACEC (Class AC-1s).
Geotechnical Analysis & Foundation Recommendations	• Bearing capacity of 230kN/m^2 at minimum depth of 2.00mbgl on 1.5m^2 pads. • Locally deepening of foundations to 3.00mbgl and 4.00mbgl due to made ground depths and localised medium strength conditions. • Alternately, should pads prove uneconomical or higher loads be imposed, then piled foundations may be adopted. Information provided in this report should be made available to a competent piling contractor.
The executive summary serves solely as an overview; comprehensive detail, along with the scope and limitations of the assessment, is set out in the main body of the report.	

2 INTRODUCTION

2.1 Authorisation

The site investigation described in this report was carried out by Solmek to the instructions of JC Consulting, on a parcel of land at the former Rensaw House Methodist Church, 99 Plymouth Grove, Manchester, M13 9HX (Appendix A, Figure 1).

Sources of information, including previous work undertaken at the site, are detailed below:

- *Ground and Project Consultants Ltd, Phase 1 Desk Study (100948, February 2024)*

Reference should be made to the above report for details of the site's history and environmental setting.

2.2 Scope of Works

The proposed development involves the construction of a seven-storey student accommodation with peripheral soft landscaping.

The following steps may be required in the investigation and remediation of potentially contaminated land:

- Phase 1: Desk Study
- Phase 2: Intrusive Investigation
- Phase 3: Remediation Statement
- Phase 4: Validation Reports

Phases 1 and 2 are generally required in the redevelopment of most sites. Phases 3 and 4 are subject to the findings of the initial stages.

A geotechnical and environmental (Phase 2) investigation was requested. The fieldwork and testing was generally carried out according to:

- BS 5930:2015+A1:2020 Code of Practice for Ground Investigations
- BS 10175:2011:2026 Investigation of Potentially Contaminated Sites – Code of Practice.
- CIRIA C665:2007 Assessing Risks Posed by Hazardous Ground Gas to Buildings
- BS 8485:2015+A1:2019 Code of Practice for the Characterization and Remediation from Ground Gas in Affected Developments
- Rock and soil descriptions shall be in accordance with BS EN ISO 14689-1:2003, BS EN ISO 14688-1:2002 and BS EN ISO 14688-2:2004

This report forms part of a Stage 1 Risk Assessment (Generic Quantitative Risk Assessment) with respect to the Environment Agency's guidance document Environment Agency *Land Contamination Risk Management*, which replaced the now-withdrawn *Contaminated Land Report 11 – Model Procedures for the Management of Land Contamination (2004)*.

The information provided in this report is based on the investigation fieldwork and is subject to the comments and approval of the various regulatory authorities. There may be other conditions prevailing on the site which have not been disclosed by this investigation and which have not been taken into account by this report. Solmek reserve the right to alter conclusions and recommendations should further information be available or provided. Any schematic representation or opinion of the possible configuration of ground conditions between exploratory holes is conjectural and given for guidance only and confirmation of intermediate ground conditions should be considered if deemed necessary.

3 SITE DESCRIPTION

The site area is located on a parcel of land South of Plymouth Grove. The site has a mostly flat and even topography.

The site is currently occupied by the former Rensaw House Methodist Church building but appears disused.

This building is situated across the centre of the site and consists of two brick structures separated by a central atrium. 'The Old Church' (student accommodation) is a converted church building which borders the site on its western side. In the west of the site is a hardstanding car park area.

A soft landscaped garden area is present to the northeast of the site, which is accessible via a passageway on the northern side of the brick building, past an outdoor shed. Deciduous trees are present along the northern and eastern sides of the site. Mature deciduous trees were noted across the northwest and northeast perimeter. The site is secure with a fenced perimeter and gated access off Hyde Grove to the south.

The site perimeter is secure with gated access to the northwest.

No obvious signs of surface contamination were noted at the time of the intrusive investigation, however, a number of services were located on and surrounding the site including drainage, manhole covers, streetlighting and overhead cables.

4 FIELDWORK

The fieldwork was carried out on 7th and 8th January 2026. The extent of the investigation was:

- 5no. small percussive boreholes (BH01 to BH05 inclusive) drilled to a maximum depth of 6.00m below ground level (bgl).
    - The boreholes were targeted to provide coverage in the area of the proposed footprint of the development to allow foundation design to take place and to provide samples for geotechnical and shallow contamination testing and analysis.
- 2no. cable percussive boreholes (CP01 & CP02) to a maximum depth of 15.45m below ground level (bgl).
    - The boreholes were targeted to assess the deeper natural stratum across the site and to provide samples for geotechnical and shallow contamination testing and analysis
- Installation of ground-gas and groundwater monitoring pipes in three boreholes across the site (BH02, BH05 and CP01).
    - Installations evenly spaced around the site (25-50m distance) to capture potential ground gas from made ground and underlying deposits.
- In-situ testing in the exploratory positions as Standard Penetration Tests (SPTs), hand shear vanes and falling head tests.

The boreholes were backfilled with bentonite and/or monitoring installations upon completion

A plan showing the location of the boreholes can be found in Appendix A (Figure 2).

5 GROUND CONDITIONS

A summary of the ground conditions encountered is given below. The exploratory hole logs are presented in Appendix B.

5.1 Made Ground

Made ground to the west of the site in the former car park (CP01, CP02 and BH01) generally comprised tarmac to 0.05mbgl with BH01 and CP02 underlain by slightly gravelly sand up to 0.35mbgl (BH01) and slightly sandy slightly gravelly clay to a depth of 0.60mbgl with CP01 underlain by sandy (becoming slightly clayey) gravel to 1.50mbgl and clay to 2.50mbgl.

To the east of the site with in BH's 02 to 05, made ground consisted of slightly clayey sandy slightly gravelly topsoil to a maximum depth of 0.70mbgl (BH05) overlying firm slightly sandy slightly gravelly clay in BH02 and BH05 up to 1.10mbgl (BH02) and slightly clayey sandy gravel in BH03 and BH04 to a maximum depth of 1.30mbgl (BH04).

The gravel constituents variably consisted of brick, sandstone, coal, siltstone, slate and mudstone with brick cobbles noted across the site.

5.2 Obstructions

Obstructions were encountered within two positions, resulting in the termination of the exploratory positions, as summarised below:

- BH01 (brick obstruction at 0.60mbgl)
- BH03 (brick obstruction at 0.60mbgl)

5.3 Natural Deposits

Where encountered, natural deposits generally comprised firm to very stiff slightly sandy slightly gravelly high strength clay of intermediate to low plasticity to a maximum depth of 15.20mbgl (CP02).

A band of medium dense sand was recorded in CP01 between 9.30mbgl and 9.50mbgl with dense gravelly sand in CP02 from 15.20mbgl to 15.45mbgl, this was inferred weathered sandstone, however, bedrock was not proven via rotary drilling methods

5.4 Groundwater

Groundwater was encountered locally within CP01 at depth of 9.50mbgl as a slight seepage at the base of the sand deposit during the intrusive investigation.

It should be noted the rapid rate of advancement of the exploratory holes may mask minor seepages and it should be borne in mind that water levels fluctuate with a number of influences including season, rainfall, dewatering and pumping activities. Therefore, water levels significantly higher than those found during this investigation may be encountered.

6 CONTAMINATION TESTING RESULTS

The proposed development of the site is to involve the construction of a seven-storey student accommodation with peripheral soft landscaping. The chemical samples were generally retrieved in line with BS ISO 18400-105:2017 *Soil Quality. Sampling*. The chemical results are presented in Appendix C.

6.1 Site Characterisation

Within the Solmek Phase 1 Desk Study, a preliminary conceptual model was formed based on the information obtained. The initial risk was based on the site's history.

An overall low to medium risk was provided for various receptors:

- Human Health – Low / Medium
- Controlled Water – Low
- Current Site Users (on-site workers/visitors) – Low / Medium
- Vegetation – Low
- Construction Materials – Low

6.2 Contamination Testing and Rationale

To provide information upon the possibility of ground contamination five samples of made ground were selected for shallow contamination testing. A low to medium overall contamination risk was highlighted in the Phase 1 Desk Study due to previous land uses. This coupled with the end use being Residential without Home Grown Produce means that five samples are considered appropriate for testing. The samples selected are detailed below:

- CP01 – 0.05-0.35m (Made ground – Gravel)
- CP02 – 0.25-0.60m (Made ground – Sand)

- BH02 – 0.10-0.20m (Made ground – Topsoil)
- BH04 – 0.70-1.00m (Made ground – Gravel)
- BH05 – 0.30-0.50m (Made ground – Topsoil)

The samples selected are considered to provide coverage of the made ground from across the site that would be most likely to be exposed during future site works. The samples were tested for the following contaminant suites:

- 5no Metals, semi-metals, non-metals, inorganic determinants
- 5no Asbestos identification screenings
- 5no Speciated Polyaromatic Hydrocarbons (PAHs)
- 2no Total Petroleum Hydrocarbon Criteria Working Group fractions (TPH CWG)

Leachate analysis was also undertaken on the below samples:

- CP02 – 0.25-0.60m (Made ground – Sand)
- BH02 – 0.10-0.20m (Made ground – Topsoil)

6.3 Test Results

Based on the proposed development at the site, the test results have been compared to a series of Land Quality Management (LQM) Suitable for Use Levels (S4UL) based on a residential without home grown produce land use. These are the most up to date thresholds published in December 2014.

The value for lead has been compared with the Category 4 Screening Level (March 2014) developed by Contaminated Land: Applications In Real Environments (CL:AIRE).

The test results are presented in Appendix C, and a summary is provided below in Tables 1, 2 & 3.

TABLE 1: SUMMARY OF INORGANIC CONTAMINATION TESTING RESULTS

Determinand	Units	Number of Samples above Level of Detection	Minimum Recorded Level	Maximum Recorded Level	Residential without HGP Threshold Value	Number of Results Exceeding Threshold Value
Metals						
Cadmium	mg/kg	4	<0.1	0.2	85	0
Chromium	mg/kg	5	13	17	910	0
Copper	mg/kg	5	20	42	7100	0
Lead	mg/kg	5	34	110	310*	0
Mercury	mg/kg	3	<0.05	0.11	56	0
Nickel	mg/kg	5	11	50	180	0
Zinc	mg/kg	5	37	70	40000	0
Semi metals and non metals						
Arsenic	mg/kg	5	5.8	12	40	0
Boron	mg/kg	3	<0.2	0.6	11000	0
Selenium	mg/kg	0	<0.5	-	430	0
Inorganic chemicals						
Cyanide	mg/kg	0	<0.1	-	73.8**	0
W.S. Sulphate	mg/l	5	18	39	2000^	0
Other						
pH	pH	-	8.2	9.0	<5.5^	0

* Category 4 Screening Levels, March 2014
** CLEA Software Version 1.06 (pH7 and 1%SOM)
^ EA Threshold Values
HGP Home Grown Produce

6.4 Metals, Semi Metals and Non Metals

None of the samples indicated raised levels of contamination above the S4UL threshold values, based on

the five tested.

6.5 Inorganic Chemicals

Soluble sulphates (potentially aggressive to foundation concrete) were recorded between 18 and 39mg/l. None of the samples were elevated above levels affecting human health or the BRE Special Digest 1 500mg/l limit for the sulphate classification of concrete.

The results of the pH testing were between 8.2 and 9.0. These pH levels indicate slightly alkaline to alkaline conditions.

6.6 Organic Chemicals

The organic thresholds vary depending on the levels of soil organic matter (SOM).

The average SOM recorded across the site was 1.86% therefore a SOM of 1.00% has been used to determine the S4UL thresholds. Table 2, below, summarises the results.

TABLE 2: SUMMARY OF ORGANIC CONTAMINATION TESTING RESULTS

Determinand	Units	Number of Samples above Level of Detection	Minimum Recorded Level	Maximum Recorded Level	Residential without HGP Threshold Value at 1% SOM	Number of Results Exceeding Threshold Value
TPH Aliphatic Fractions						
Aliphatic (C5-C6)	mg/kg	0	<0.01	-	42	0
Aliphatic (C6-C8)	mg/kg	0	<0.01	-	100	0
Aliphatic (C8-C10)	mg/kg	0	<0.01	-	27	0
Aliphatic (C10-C12)	mg/kg	1	<1.5	5.8	130	0
Aliphatic (C12-C16)	mg/kg	1	<1.2	6.0	1100	0
Aliphatic (C16-C35)	mg/kg	1	<1.5	20	65000	0
TPH Aromatic Fractions						
Aromatic (C5-C7)	mg/kg	0	<0.01		370	0
Aromatic (C7-C8)	mg/kg	0	<0.01		860	0
Aromatic (C8-C10)	mg/kg	0	<0.01		47	0
Aromatic (C10-C12)	mg/kg	2	13	45	250	0
Aromatic (C12-C16)	mg/kg	2	55	240	1800	0
Aromatic (C16-C21)	mg/kg	2	170	430	1900	0
Aromatic (C21-C35)	mg/kg	2	160	460	1900	0
Speciated PAH						
Naphthalene	mg/kg	5	0.32	14	2.3	3
Acenaphthylene	mg/kg	2	<0.10	13	2900	0
Acenaphthene	mg/kg	5	0.37	11	3000	0
Fluorene	mg/kg	5	0.18	14	2800	0
Phenanthrene	mg/kg	5	2.0	83	1300	0
Anthracene	mg/kg	5	0.74	20	31000	0
Fluoranthene	mg/kg	5	2.2	54	1500	0
Pyrene	mg/kg	5	2.5	56	3700	0
Benzo(a)anthracene	mg/kg	5	1.8	21	11	1
Chrysene	mg/kg	5	1.4	23	30	0
Benzo(b)fluoranthene	mg/kg	5	2.0	14	3.9	3
Benzo(k)fluoranthene	mg/kg	5	0.87	9.5	110	0
Benzo(a)pyrene	mg/kg	5	2.3	21	3.2	4
Indeno(123cd)pyrene	mg/kg	5	1.1	15	360	0
Dibenz(ah)anthracene	mg/kg	3	<0.10	2.2	0.31	4
Benzo(ghi)perylene	mg/kg	5	0.80	11	45	0
PAH	mg/kg	5	19	380	50*	4
Phenols	mg/kg	3	<0.3	2.7	750	0
* EA Threshold Values						

From the five samples tested for organic determinants, the below exceedances were recorded:

- CP01 (0.05-0.35m) dibenzo(ah)anthracene

- CP02 (0.25-0.60m) Naphthalene, benzo(b)fluoranthene, benzo(b)fluoranthene, benzo(a)pyrene and Total PAH.
- BH02 (0.10-0.20m) benzo(b)fluoranthene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(ah)anthracene and Total PAH.
- BH04 (0.70-1.00m) Naphthalene, benzo(a)pyrene, dibenzo(ah)anthracene and Total PAH
- BH05 (0.30-0.50m) Naphthalene, benzo(a)pyrene, dibenzo(ah)anthracene, benzo(b)fluoranthene and Total PAH

Double Ratio Plot Analysis of the samples which recorded elevated PAHs (Figure A, below) indicates that the PAH is generally of tyre oil or coal tar/creosote origin.

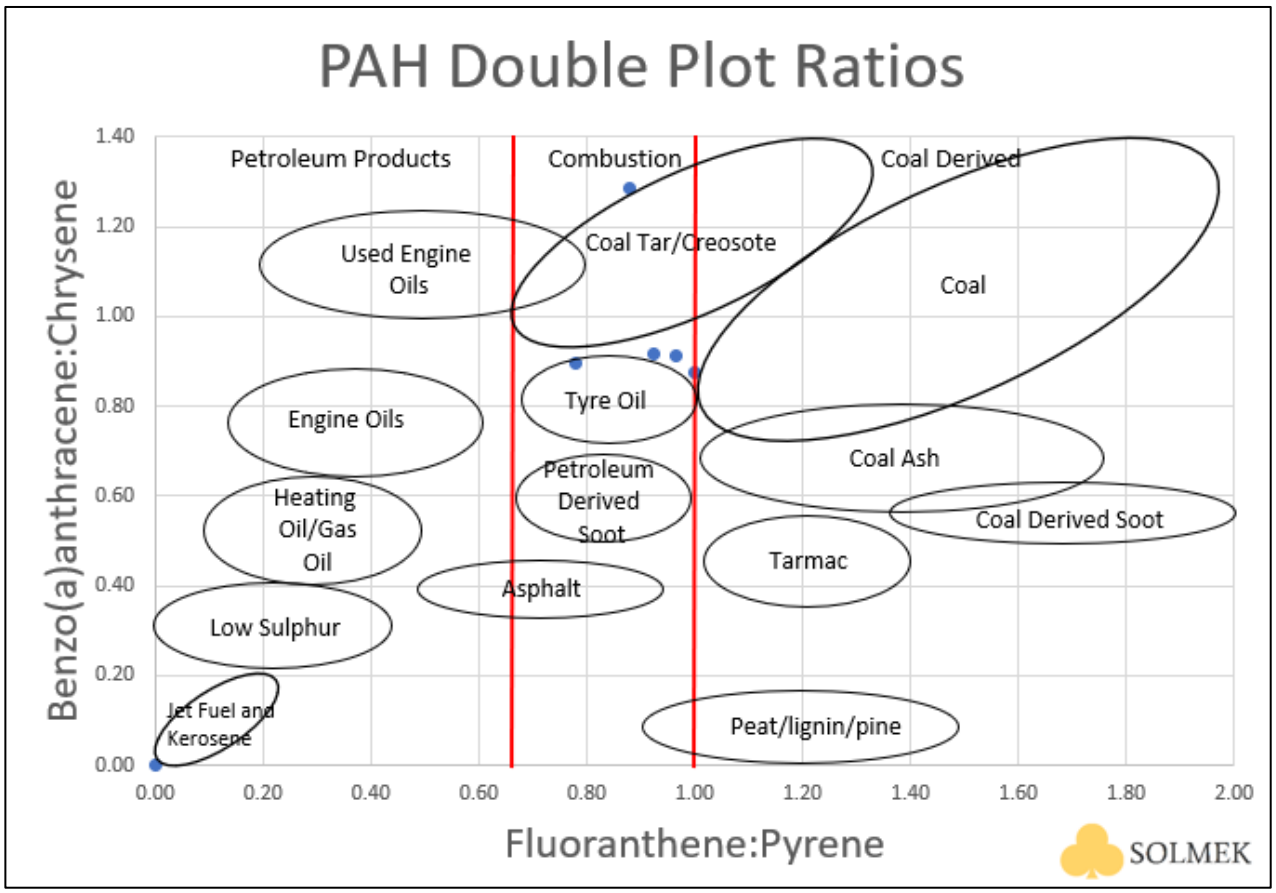


FIGURE A: DOUBLE PLOT RATIO CHART

6.7 Asbestos

From the five samples subject to asbestos screening, no asbestos was detected.

6.8 Leachates

The results of the two leachate tests are presented in Table 3. The results have been compared, where available, to UK Drinking Water Standards (DWS), otherwise EA Leachate Quality Thresholds, EQS Freshwater and WHO Guidelines (2005) have been used.

TABLE 3: LEACHATE TESTING

Determinant	Units	Number of Samples above Level of Detection	Minimum Recorded Level	Maximum Recorded Level	UK DWS	Number of Results Exceeding Threshold Value
Inorganic Contaminants						
Cadmium	µg/l	0	<0.03	-	5	0
Chromium (Total)	µg/l	0	<0.25	-	50	0
Copper	µg/l	2	0.83	1.12	2000	0
Lead	µg/l	2	0.26	1.00	25	0
Mercury	µg/l	0	<0.01	-	1	0
Nickel	µg/l	0	<0.50	-	20	0
Zinc	µg/l	2	2.17	3.42	5000	0
Arsenic	µg/l	2	0.74	0.95	10	0
Selenium	µg/l	0	<0.25	-	10	0
Cyanide (Total)	µg/l	0	<20	-	50	0
Sulphate	mg/l	2	0.56	1.1	250	0
Boron	µg/l	0	<12.00	-	2000	0
pH	-	2	7.1	7.2	>5.5**	0
PAH						
Naphthalene	µg/l	2	0.07	0.08	PAH DWS is 0.1µg/l	0
Acenaphthylene	µg/l	2	0.01	0.01		0
Acenaphthene	µg/l	2	0.01	0.10		0
Fluorene	µg/l	1	<0.01	0.02		0
Phenanthrene	µg/l	2	0.03	0.04		0
Anthracene	µg/l	1	<0.01	0.01		0
Fluoranthene	µg/l	2	0.02	0.07		0
Pyrene	µg/l	2	0.02	0.08		0
Benz' (a)anth' ene	µg/l	2	0.01	0.04		0
Chrysene	µg/l	2	0.01	0.04		0
Benz' (b)fluor' ene	µg/l	2	0.02	0.07		0
Benz' (k)fluor' ene	µg/l	1	<0.01	0.02		0
Benz' (a)pyrene	µg/l	2	0.01	0.05		0
Benz (ghi)per' ene	µg/l	2	0.02	0.05		0
Diben(ah)anth'ene	µg/l	0	<0.01	-		0
Id' (123cd)pyrene	µg/l	2	0.02	0.04		0
PAH Total	µg/l	2	0.40	0.60	0.2**	2
TPH Aliphatic Fractions						
C5-6	µg/l	0	<0.1	-	15000*	0
C6-8	µg/l	0	<0.1	-	15000*	0
C8-10	µg/l	0	<0.1	-	300*	0
C10-12	µg/l	0	<1.0	-	300*	0
C12-16	µg/l	0	<1.0	-	300*	0
C16-21	µg/l	0	<1.0	-	300*	0
C21-35	µg/l	0	<1.0	-	300*	0
TPH Aromatic Fractions						
C5-7	µg/l	0	<0.1	-	10*	0
C7-8	µg/l	0	<0.1	-	10*	0
C8-10	µg/l	0	<0.1	-	100*	0
C10-12	µg/l	0	<1.0	-	100*	0
C12-16	µg/l	0	<1.0	-	100*	0
C16-21	µg/l	0	<1.0	-	90*	0
C21-35	µg/l	0	<1.0	-	90*	0

** WHO Guidelines 2005*
*** EA leachate quality thresholds*
**** EQS Freshwater*

Following comparison of the leachate results to date, elevated leachable Total PAH were detected in both samples tested.

6.9 Environmental Protection Act 1990: Part 2A Revised Statutory Guidance (April 2012)

This revised document explains how the Local Authority should decide if land, based on a legal interpretation, is contaminated. The document replaces the previous guidance given in Annex 3 of DEFRA Circular 01/2006, issued in accordance with section 78YA of the 1990 Environmental Protection Act.

The main objectives of the Part 2A regime are to "identify and remove unacceptable risks to human health and the environment" and to "seek to ensure that contaminated land is made suitable for its current use".

Part 2A uses a risk based approach to defining contaminated land whereby the "risk" is interpreted as "the likelihood that harm, or pollution of water, will occur as a result of contaminants in, on or under the land" and by "the scale and seriousness of such harm or pollution if it did occur".

For a relevant risk to exist a contaminant, pathway and receptor linkage must be present before the land can be considered to be contaminated. The document explains that *"for a risk to exist there must be contaminants present in, on or under the land in a form and quantity that poses a hazard, and one or more pathways by which they might significantly harm people, the environment, or property; or significantly pollute controlled waters."*

A conceptual model is used to develop and communicate the risks associated with a particular site.

To determine if land is contaminated the local authority use various categories from 1 to 4. Categories 1 and 2 include "land which is capable of being determined as contaminated land on grounds of significant possibility of significant harm to human health." Categories 3 and 4 "encompass land which is not capable of being determined on such grounds".

See Appendix E for additional notes on contamination guidelines.

7 CONCEPTUAL MODEL AND CONTAMINATION ANALYSIS

The contamination conceptual model in Table 4 identifies the potential pollution linkages present on site based on source – pathway – receptor relationships.

TABLE 4: CONCEPTUAL MODEL

Source	Pathway	Receptor	Risk Rating	Comments
Asphyxiating or explosive ground gases • Made ground (<2.50m) • Coal mining • No landfills within 250m.	**Ground gas migration** • Migration through permeable soils • Inhalation	**Future site users** • Student residents	Moderate /Low	Gas monitoring in progress, source risk rating subject to change.
		Users during development • Construction workers	Low	
Areas of contamination hazardous to human health (Residential Thresholds) • 5no samples tested • No significantly elevated inorganic determinants • Significantly elevated PAH compounds. • No asbestos detected	• Inhalation • Dust ingestion • Dermal contact	**Future site users** • Student residents	Low	Localised contamination, however, this will be mitigated by encapsulation beneath proposed structure footprint, hardstanding or a clean cover system.
		Users during development • Construction workers	Moderate	Mitigation measures required during construction. Consideration to be given to Health and Safety Executive: *Protection of Workers and the General Public During the Development of Contaminated Land.*
	• Inhalation • Dust ingestion	**Users of surrounding sites** • Commercial & Residential	Moderate	Potential moderate risk during remediation/construction from dust generation. Consideration to be given to dust suppression, in line with BRE: *The Control of Dust and Emissions from Construction and Demolition, Best Practice Guidance.*
Areas of elevated Leachate contamination • Leachable Total PAH compounds • Groundwater testing not undertaken due to lack of GW in boreholes.	• Leaching of mobilised contaminants	**Drift geology** • Secondary Aquifer – Undifferentiated	Low	The thick low permeability drift deposits and the relatively low sensitivity aquifer is not considered to be a sensitive receptor.
		Solid geology • Principal Aquifer	Low	High sensitivity aquifer under thick low permeable natural cohesive deposits, not considered to pose a risk.
	• Drainage • Lateral migration • Accumulation of contaminated sediment	**Surface water features** • None on or adjacent to the site	Low	The surface water is unlikely to be impacted by the low contamination levels recorded.
Areas of phytotoxic contamination • No raised phytotoxics	• Uptake via roots and leaf surfaces	**Vegetation** • Soft landscaping proposed	Moderate	Clean cover system required for peripheral soft landscaped areas.
Areas of contamination above service fabric or BRE Special Digest 1 thresholds • Elevated pH, TPHCWG & phenols	• Direct contact	**Construction Materials** • Concrete	Low	Mitigation through use of sulphate resistant concrete where in contact with made ground.
		Construction Materials • Service Fabric	Moderate	PE, PVC and copper piping to be avoided and prudent to lay any service within a clean bedding.

In general terms, construction workers and construction materials are **potentially most** at risk as pollution linkages may be present for each of these receptors. Users of the site, users of the surrounding sites and vegetation are considered to be **potentially** at risk from contamination in the soils on site. Controlled waters are considered to be at **potentially less** of a risk.

Mitigation measures to reduce the risks identified for reach receptor are discussed in the following sections.

7.1 Users of the Site Once Development is Complete

The users of the site, particularly construction workers, are likely to be exposed to contaminants present in the soils beneath the site during redevelopment work. **Potential** exposure pathways include dermal absorption after contact with contaminated ground, inhalation of soil or dust, inhalation of volatised compounds, and inadvertent soil ingestion. Moreover, a risk to ground/surface water receptors exists through leaching of contaminants.

To establish if the levels of contaminants present on site may pose a risk to the health of the future users of the site the results of the contamination testing have been compared to a series of LQM S4UL thresholds based on residential without homegrown produce end use (see Tables 1, 2 and 3).

The levels of contaminants across the site are generally low with exceedances recorded in all five samples tested, as summarised below:

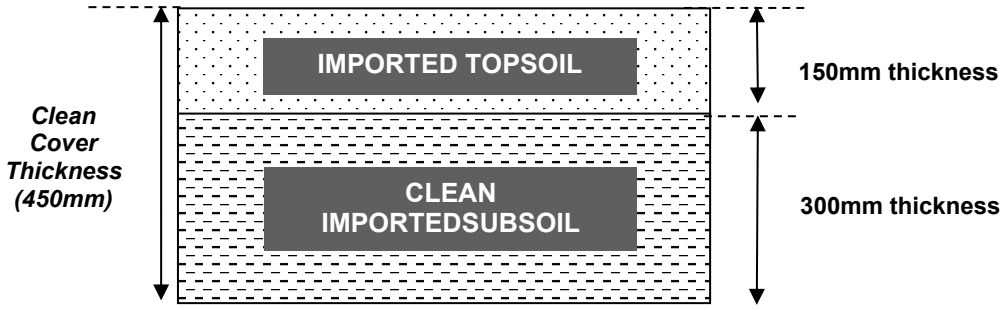
- CP01 (0.05-0.35m – MG Gravel) dibenzo(ah)anthracene
- CP02 (0.25-0.60m – MG Sand) Naphthalene, benzo(b)fluoranthene, benzo(b)fluoranthene, benzo(a)pyrene and Total PAH.
- BH02 (0.10-0.20m – MG Topsoil) benzo(b)fluoranthene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(ah)anthracene and Total PAH.
- BH04 (0.70-1.00m – MG Gravel) Naphthalene, benzo(a)pyrene, dibenzo(ah)anthracene and Total PAH
- BH05 (0.30-0.50m – MG Topsoil) Naphthalene, benzo(a)pyrene, dibenzo(ah)anthracene, benzo(b)fluoranthene and Total PAH

The proposed development is expected to comprise new student residential accommodation with peripheral soft landscaping. Based on the shallow soil contamination testing, it is considered that the levels of contamination may pose a risk to future users of the site, as soft landscaping is proposed in the final development. This pollutant linkage however will be severed as long as all contaminated areas are encapsulated either by buildings, hardstanding, or a clean cover system.

During the initial site strip, proposed soft landscaped areas should be excavated to 0.45mbgl or natural ground (whichever is the shallowest). Any deleterious materials encountered (i.e. ash, slag, brick rubble and concrete) should be removed and placed beneath areas of permanent hardcover. If material is to be moved either elsewhere on site or removed from site, consideration should be given to carrying out these works in accordance with the CL:AIRE Definition of Waste: Code of Practice, and a Materials Management Plan may be required

The cover system should include imported topsoil, to a depth of 150mm over either natural ground or clean imported subsoil at least 300mm in thickness. Appropriate certification would be required to ensure that the onsite or imported materials are clean and free from deleterious materials in accordance with the Local Authority Guidelines *Verification Requirements for Cover Systems, Technical Guidance for developers, Landowners and Consultants* (Yorkshire and Lincolnshire Pollution Advisory Group Version 4.1 – June 2021). Details of the clean cover system must be presented in a Phase 3 Remediation Statement.

The diagram below gives an overview of the minimum thicknesses of clean cover system that should be placed by the site operatives in soft landscaped areas.



7.2 Construction Workers and Users of Surrounding Sites

Short term human exposure to contaminants present in soils can occur via several pathways during the construction and ground works phase of the development. These include dermal absorption after contact with contaminated ground, inhalation of soil or dust (including windblown dust), inhalation of volatised compounds, inadvertent soil ingestion and contact with contaminated groundwater.

Raised levels of Speciated PAHs were detected. It is considered that such levels of contamination may pose a risk to construction workers and users of surrounding sites, however S4ULs assume long term exposure to contamination and therefore relate primarily to chronic health risks. The risk of short-term acute exposure (e.g. to construction workers) falls under the *Health and Safety at Work Act: 1974* and underlying regulations, such as the *Control of Substances Hazardous to Health (COSHH, 2002)* Regulations. The levels of contamination and the associated risks to site workers should be considered under the *Construction Design and Management (CDM, 2015)* regulations during the planning of works and the preparation of the designers and contractors Health and Safety Plans and Method Statements.

As good practice, full PPE must be employed in accordance with Health and Safety Executive*: Protection of Workers and the General Public During the Development of Contaminated Land* and safeguards should be taken to limit dust during ground works, and access to the public should be restricted. Construction workers should use gloves as a precaution when handling any fill materials. Provision of suitable hygiene facilities are needed for site workers. Wheel washers should be provided and used for any vehicle entering or leaving site to prevent cross contamination.

Although asbestos or other forms of contamination were not detected from the soil samples subjected to testing within this investigation, the possibility still exists that asbestos containing materials may still be present on site and currently lie undetected. It is therefore advised that a 'watching brief' is undertaken during the initial site strip and any excavation works and advice sought if asbestos is found or suspected.

During dry weather, any excavations may require clean water to be sprinkled at shallow depth to prevent excess dust escaping to off-site receptors. Monitoring of dust concentrations during construction should be given careful consideration to ensure occupational exposure levels are not exceeded. Works should be undertaken in line with BRE: *The Control of Dust and Emissions from Construction and Demolition, Best Practice Guidance*.

7.3 Vegetation

Plants can be affected by soil contamination in a number of ways resulting in growth inhibition, nutrient deficiencies and yellowing of leaves. Contaminants are taken up by plants through the roots and through foliage. Contaminants identified as being highly phytotoxic include boron, cadmium, copper, nickel, and zinc.

To establish if the levels of contaminants present on site may pose a risk to vegetation the results of the contamination testing have been compared to a series of threshold values published in *Code of Good Agricultural Practice for the Protection of Soil*. No phytotoxic determinants are shown as elevated. The clean cover layer to be incorporated in soft landscaping areas will mitigate against this risk.

7.4 Ground and Surface Water

The principal pathway by which soil contamination may reach the water environment is through a slow seepage or leaching to groundwater or surface water. The potential for contaminants to migrate along such

pathways is dependent on the chemical and physical characteristics of the contaminants and the local hydrogeology.

From the site investigation undertaken, ground conditions broadly comprise made ground (up to 2.50mbgl) underlain by deep glacial clay with localised thin granular bands at depth.

The cohesive deposits can be considered to have a low permeability. The drift deposits are designated as a Secondary Aquifer – Undifferentiated by the Environment Agency.

The published geology indicates the site is underlain by solid geology of Chester Formation (Sandstone) with possible Manchester Marls (Mudstone) the south of the site which are designated as a Principal Aquifer by the Environment Agency. The site is not located within a Source Protection Zone.

Groundwater was encountered locally within CP01 at depth of 9.50mbgl as slight seepage during the intrusive investigation. No further groundwater was encountered.

Generally low contamination levels were recorded based on the five samples tested with levels of elevated Speciated PAH recorded within the five samples subject to testing.

However, the exceedances were noted to be minor and the mobility of PAHs in groundwater are low, due to its low solubility and high preference for sorption to organic carbon. Solmek has identified that there is a negligible risk to controlled waters receptors.

Given the relatively impermeable nature of the clay on site underlying the made ground soils serving as a containment layer, it is likely that the leachates will attenuate naturally before they migrate to groundwater and therefore it is unlikely that a complete contaminant linkage will exist between groundwater water on site and underlying aquifers.

7.5 Construction Materials

Materials at risk from potential soil contamination include inorganic matrices such as cement and concrete and also organic material; e.g. plastics and rubbers. Acid ground conditions and elevated levels of sulphates can accelerate the corrosion of building materials. Plastics and rubbers are generally used for piping and service ducts and are potentially attacked by a range of chemicals, most of which are organic, particularly petroleum-based substances. Drinking water supplies can be tainted by substances that can penetrate piping and water companies enforce stringent threshold values.

7.5.1 Concrete Classification

BRE Special Digest One: *Concrete in Aggressive Ground*: 2005 3rd Edition has been used to assess the risks posed to underground concrete and to establish the design measures required to mitigate the risks. The results of the pH and water-soluble sulphate tests (when converted to total potential sulphate) fall into Class DS-1 ACEC (Class AC-1s) requirements for concrete protection. This assumes static groundwater conditions.

7.5.2 Water Supply Pipes Material Selection

The levels of potential contaminants should be compared to thresholds supplied in the UK Water Industry Research (UKWIR) publication *Guidance for the selection of Water Supply Pipes to be used in Brownfield Sites* (January 2011). A Brownfield Site is defined in the document as “Land or premises that have previously been used or developed that may be vacant or derelict”. It should be noted that Brownfield sites may not be contaminated. The guidance does not apply to Greenfield Sites however water companies may have their own assessment criteria which should be checked by the developer.

Based on the samples tested during the site investigation, levels of slightly alkaline to alkaline pH (8.2 to 9.0) were recorded across the site at depths of between 0.05mbgl and 9.00mbgl within the made ground and natural samples.

The concentrations of the selected determinants should be compared to the pipe material selection table in Appendix E, and consultation with the appropriate utility supply company is required to identify the most suitable service fabric. However, the pH, TPHCWG and phenol levels may preclude the use of PE, PVC and

copper pipes.

7.6 Unexpected Contamination

If during the initial site strip or subsequent ongoing construction activities, any zones of odorous, brightly coloured or suspected contaminated ground are encountered, then the following procedure should be followed:

- Stop work in the affected area
- Contact Solmek and provide pictures of the affected area
- Solmek can visit site to investigate the material and provide guidance
- If required – Solmek can sample and test the material
- Once test results are returned, this will determine whether or not remediation will be required

7.7 Waste Classification

During the site strip and construction activities, material may be required to be removed from site. Any such material would require classification, in line with Environment Agency Technical Guidance *Waste Classification: Guidance on the classification and assessment of waste* (2015). This would classify the material as either Non-Hazardous or Hazardous Waste.

Once the material has been classified, determining the suitable landfill for disposal is governed by landfill directive Waste Acceptance Criteria (WAC) testing, with landfills categorized as Inert Waste, Stable Non-Reactive Hazardous Waste and Hazardous Waste.

If waste classification and/or WAC testing are not undertaken, material taken off site may be subject to WAC testing by the appropriate waste disposal company. The decision on whether or not to accept waste, or whether further testing is required, is at the discretion of the waste disposal company.

For this project, Waste Classification has not been requested by the client.

8 MINING ASSESSMENT

For this site, the Phase 1 Desk Study/ indicated that the site was within a Coal Mining Reporting Area, however, the site was not at risk of historic shallow mine workings, therefore further investigation was not considered necessary.

9 GROUND GAS ASSESSMENT

The proposed development involves the construction of a seven-storey student accommodation with peripheral soft landscaping.

Ground gases such as carbon dioxide (CO_2), methane (CH_4), carbon monoxide (CO) and volatile organic compounds (VOCs) can be classed as a form of contamination where there is a potential risk to human health.

For this report, gas monitoring is via measuring emissions from three standpipes (BH02, BH05 and CP01) that were installed during the sitework. The gas monitoring will consist of six visits over a period of three months.

The gas monitoring results will be presented as an addendum to this report.

10 GEOTECHNICAL TESTING AND ANALYSIS

Samples taken from the boreholes underwent a series of geotechnical tests at a UKAS accredited laboratory to aid foundation design and soil description. In addition, in-situ Standard Penetration Tests (SPTs) and Hand Shear Vanes were undertaken at regular intervals during drilling.

The geotechnical results are presented in Appendix D.

10.1 Strength and Density

10.1.1 Undisturbed Triaxial Tests

Four undisturbed U100 samples were subjected to quick undrained triaxial testing from CP01 and CP02 at depths of between 3.00mbgl and 9.00mbgl. The results ranged from 74kPa to 124kPa (medium to high strength).

10.1.2 SPT N Values

Standard Penetration Tests undertaken within the natural cohesive deposits yielded N values of between 10 and 50+. These N values can be correlated to provide approximate shear strengths, with these results indicating medium to high strength/refusal deposits. N-values generally increase with depth.

10.1.3 Hand Shear Vanes

Hand shear vane testing within the natural cohesive deposits returned results of 150kPa, which are indicative of high strength conditions.

10.2 Moisture Contents

Eight samples recovered from the boreholes have been subject to moisture content tests to determine the moisture profile at depths of between 1.50mbgl and 9.00mbgl. Moisture levels were between 13% and 24%.

10.3 Atterberg Limit Determinations

Five Atterberg Limit Determination tests were carried out on samples of cohesive material to classify the fine grained soils. The results were compared to the Casagrande Chart published in BS 5930 and showed the samples to generally be clay of low to intermediate plasticity.

The Plasticity Indices ranged from 14 to 22 with the moisture contents recorded at, above and below the corresponding plastic limits. The cohesive material can be assessed as having a **medium** shrinkage potential in relation to current relevant guidance.

10.4 pH and Sulphate Results

Four samples of natural soil from the boreholes were tested for acidity and soluble sulphate content to assess whether the material may be potentially aggressive to building fabric. The results of the testing for pH ranged from 8.6 to 9.0 indicating alkaline conditions. Soluble sulphates were recorded at levels ranging from 30mg/l to 56mg/l.

10.5 Percolation Tests

Three falling head tests were carried out within BH02, BH04 and BH05. The results returned infiltration rates of 0.00 x 10^{-6} m/sec for each test.

the results encountered and the significant thickness of low permeability cohesive deposits, soakaway drainage may not be suitable for the proposed development. Soakaway drainage, if incorporated, should be designed in accordance with BRE *Special Digest 365 – Soakaway Design*. The results are presented in Appendix D.

10.6 Foundations

10.6.1 Conventional Foundations upon Cohesive Deposits

It is proposed to construct a seven-story student accommodation with the client anticipating utilising pad foundations.

Based on a conservative undrained shear strength of 100kN/m² a safe bearing capacity of 230kN/m² has

been determined for 1.5 x 1.5m founding on the natural high strength clay at depths of around 2.00mbgl. Providing the safe bearing capacity is not exceeded settlements have been calculated to be less than 25mm. However, foundations will require deepening locally to 3.00mbgl around CP01 given made ground depths (up to 2.50m) and up to 4.00mbgl in CP02 due to the depth of medium strength clay.

All deepened sections should be adequately stepped, in accordance with current relevant guidance.

Foundations near existing or proposed trees should be deepened and provided with appropriate heave precautions in accordance with current guidance.

It should be recognised that clay rich soils can deteriorate fairly rapidly on exposure, particularly in periods of wet weather and frost. It would be prudent to protect all exposed soils in foundation excavations with a concrete blinding layer, particularly if they are likely to remain open for extended period of time.

Prior to placing foundation concrete, obvious soft or loose spots should be removed and replaced with suitably recompacted hardcore or lean mix concrete. In addition, all excavations should be inspected to ensure that they fully penetrate areas of disturbed ground.

Further advice should be sought from Solmek if unexpected ground conditions are encountered during redevelopment.

10.6.2 Piled Foundations

Should pad foundations prove uneconomical or higher loading are proposed, piled foundations may be adopted. Information provided in this report should be made available to a competent piling contractor who can design appropriate foundations in accordance with Section 7: Pile foundations of BS EN 1997 – 1:2004 which applies to end-bearing piles, friction piles, tension piles and transversely loaded piles installed by driving, by jacking, and by screwing or boring. The piling contractor will need to take into consideration the possible effects of negative skin friction from made ground and very soft to soft alluvial silt deposits. Allowance should be made for breaking through known and unknown buried obstructions.

The precise method of pile installation and the applicability of proprietary systems, diameters and depths required would need to be determined by a specialist piling contractor.

The piling contractor should follow CL:AIRE guidance *Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination*: *Guidance on Pollution Prevention (2025)*. It should also be noted that piled foundations can create preferential pathways for gas migration.

10.6.3 General Foundation Comments

Prior to placing foundation concrete, obvious soft or loose spots should be removed and replaced with suitably recompacted hardcore or lean mix concrete. In addition, all excavations should be inspected to ensure that they fully penetrate areas of disturbed ground.

Further advice should be sought from Solmek if unexpected ground conditions are encountered during redevelopment.

10.7 Excavation

Based on the nature of the ground conditions encountered, excavations should be within the capacity of normal earthworks plant although breaking out of known and unknown obstructions should be anticipated.

Stability of excavations will be poor in the made ground but should improve slightly in the natural highly clay. Excavation sides should be designed, constructed and supported in accordance with the recommendations given in CIRIA Report No. 97: “Trenching Practice”.

10.8 Groundwater

Groundwater was encountered locally within CP01 at depth of 9.50mbgl as slight seepage during the intrusive investigation.

It should be noted the rapid rate of advancement of the exploratory holes may mask minor seepages and it should be borne in mind that water levels fluctuate with a number of influences including season, rainfall, dewatering and pumping activities. Therefore, water levels significantly higher than those found during this investigation may be encountered.

SOLMEK

Appendix A



SOLMEK
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Tel: 01642 607083 Email: info@solmek.com

Figure Title

Site Location Plan

Project Number

NE-26-004

Project Name

99 Plymouth Grove, Manchester

Client

JC Consulting

Date

February 2026

DRG Number

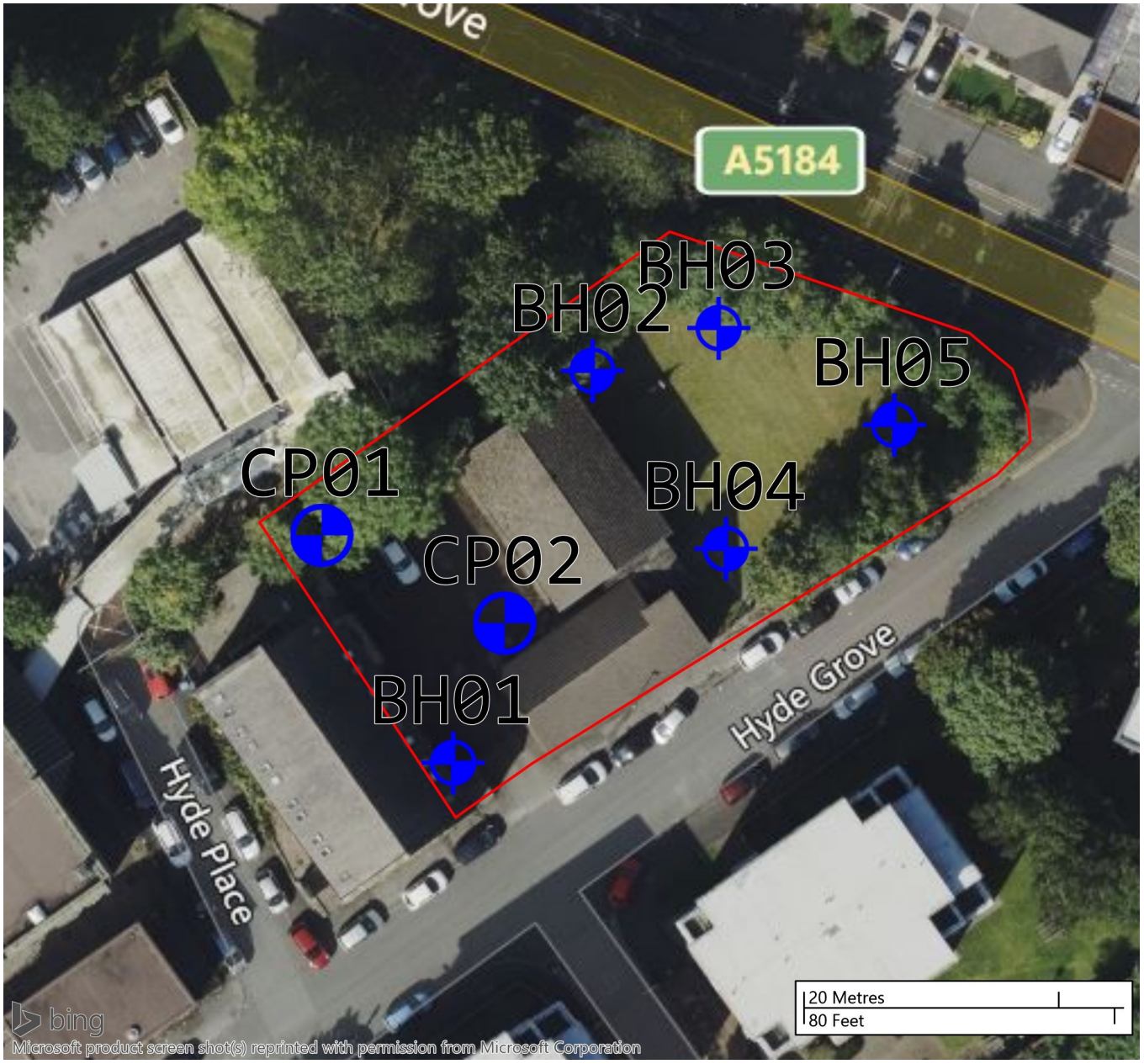
Figure 1

Scale

1:5000 @ A4 [DO NOT SCALE]

Legend Key

- Locations By Type - Empty
- Locations By Type - BH
- Locations By Type - CP
- Project Bounds - Project Bounds



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Figure Title

Borehole Location Plan

Project Number

NE-26-004

Project Name

99 Plymouth Grove, Manchester

Client

JC Consulting

Date

February 2026

DRG Number

Figure 2

Scale

1:500 @ A4 [DO NOT SCALE]

Legend Key

- Locations By Type - Empty
- Locations By Type - BH
- Locations By Type - CP
- Project Bounds - Project Bounds

Appendix B

SOLMEK
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Cable Percussive Log

Scale 1:50 Sheet 1 of 2

CP01

Contract no:	NE-26-004	**Site:**	99 Plymouth Grove, Manchester	**Driller:**	SEP
				Plant used:	Dando 2000
				Started:	07/01/2026
Client:	JC Consulting			**Ended:**	07/01/2026
Method:	Cable Percussive			**Backfilled:**	07/01/2026

GL (AOD):	
Easting:	385297
Northing:	396373
Logged:	AG
Status:	FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
					Depth (m)	Type	Results
		0.05		MADE GROUND: Tarmac.	0.05 - 0.35	B+ES	
				MADE GROUND: Reddish brown sandy gravel. Sand is fine to coarse and ashy. Gravel is fine to coarse subangular to angular brick and sandstone.	0.05 - 0.35	ES	
		0.35		MADE GROUND: Reddish brown slightly clayey, sandy gravel. Sand is fine to coarse and ashy. Gravel is fine to coarse subangular to angular brick, sandstone and mudstone with brick cobbles.	0.60 - 1.00	B+ES	
					1.20 - 1.65	SPT (S)	N=10 (2,3/5,2,1,2)
		1.50		MADE GROUND: Stiff brown slightly sandy, slightly gravelly clay. Sand is fine to coarse. Gravel is fine to coarse angular to subangular brick, sandstone and mudstone.	1.60 - 2.00	B+ES	
					2.00 - 2.45	SPT (S)	N=10 (2,2/3,2,3,2)
					2.00 - 2.45	B+ES	
G					2.00 - 2.50	D	
		2.50		Stiff to very stiff brown slightly sandy, slightly gravelly high strength CLAY. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded sandstone, mudstone and coal.	3.00	B+ES	38 blows [450mm]
					3.00 - 3.45	U	
					3.00 - 3.50	U	
					4.00 - 4.45	SPT (S)	N=25 (3,4/5,6,7,7)
					4.00 - 4.45	B	
					4.00 - 4.45	D	
					4.00 - 4.50	D	
					5.00 - 5.45	U	65 blows [450mm]
					5.50 - 6.00	B	
					6.00 - 6.45	SPT (S)	N=27 (6,6/6,7,7,7)
					6.00 - 6.45	D	
					7.00	B	100 blows [450mm]
					7.00 - 7.45	U	
					7.00 - 7.50	U	
					8.50 - 9.00	B	
					9.00 - 9.45	SPT (S)	N=25 (6,7/7,6,6,6)
					9.00 - 9.45	D	
		9.30		Medium dense brown SAND. Sand is fine to medium. Slight groundwater seepage.			
		9.50		Stiff to very stiff brown slightly sandy, slightly gravelly high strength CLAY. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded sandstone, mudstone and coal.			
					~~10.00 - 10.50~~	B	

Hole Diameter		Casing Depths		General Remarks	Chiselling			Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)		From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
		10.00	150	Hand dug inspection pit to 1.20mbgl. Slight groundwater seepage at 9.50m.				9.50				

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Cable Percussive Log

Scale 1:50 Sheet 2 of 2

CP01

Contract no:	NE-26-004	**Site:**	99 Plymouth Grove, Manchester	**Driller:**	SEP
				Plant used:	Dando 2000
				Started:	07/01/2026
Client:	JC Consulting			**Ended:**	07/01/2026
Method:	Cable Percussive			**Backfilled:**	07/01/2026

GL (AOD):	
Easting:	385297
Northing:	396373
Logged:	AG
Status:	FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
					Depth (m)	Type	Results
				Stiff to very stiff brown slightly sandy, slightly gravelly high strength CLAY. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded sandstone, mudstone and coal.	10.50 - 10.95	U	100 blows [450mm]
					11.50 - 12.00	B	
					12.00 - 12.45	SPT (S)	N=40
					12.00 - 12.45	D	(7,9/10,10,10,10)
					13.00 - 13.50	B	
					13.50 - 13.95	U	100 blows [450mm]
					14.50 - 15.00	B	
		15.00		End of Borehole at 15.000m	15.00 - 15.45	SPT (S)	N=38 (6,7/9,10,10,9)
					15.00 - 15.45	D	

Hole Diameter		Casing Depths		General Remarks	Chiselling			Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)		From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
		10.00	150	Hand dug inspection pit to 1.20mbgl. Slight groundwater seepage at 9.50m.				9.50				

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Cable Percussive Log

Scale 1:50 Sheet 1 of 2

CP02

Contract no:	NE-26-004	**Site:**	99 Plymouth Grove, Manchester	**Driller:**	SEP
				Plant used:	Dando 2000
				Started:	08/01/2026
Client:	JC Consulting			**Ended:**	08/01/2026
Method:	Cable Percussive			**Backfilled:**	08/01/2026

GL (AOD):	
Easting:	385312
Northing:	396366
Logged:	AG
Status:	FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
					Depth (m)	Type	Results
		0.05		MADE GROUND: Tarmac.	0.05 - 0.25	B+ES	
		0.25		MADE GROUND: Very dark grey slightly gravelly sand. Sand is fine to coarse and ashy. Gravel is fine to coarse subangular to angular brick, sandstone and coal.	0.25 - 0.60	B+ES	
					0.25 - 0.60	ES	
		0.60		MADE GROUND: Firm medium to light brown slightly sandy, slightly gravelly clay. Sand is fine to coarse. Gravel is fine to coarse angular to rounded brick and siltstone.			
				Firm light brown firm to stiff slightly sandy, slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded sandstone and coal.	0.80 - 1.00	B+ES	
		1.00		Firm to stiff brown slightly sandy, slightly gravelly medium to high strength CLAY of intermediate to low plasticity. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded sandstone, mudstone and coal.	1.20 - 1.65	SPT (S)	N=10 (2,2/3,2,2,3)
					1.20 - 1.65	D	
					1.50 - 2.00	B	
					1.50 - 2.00	B	
					2.00 - 2.45	U	48 blows [405mm]
					2.50 - 3.00	B	
					3.00 - 3.45	SPT (S)	N=12 (2,2/3,3,3,3)
					3.00 - 3.45	D	
					3.50 - 4.00	B	
					4.00 - 4.45	U	42 blows [380mm]
					4.50 - 5.00	B	
					5.00 - 5.45	SPT (S)	N=18 (2,3/4,5,4,5)
					5.00 - 5.45	D	
					5.50 - 6.00	B	
					6.00 - 6.45	U	65 blows [405mm]
					7.00 - 7.50	B	
					7.50 - 7.87	SPT (S)	N=49 (3,3/4,26,19)
					7.50 - 7.95	D	
					8.50 - 9.00	B	
					8.50 - 9.00	D	
					9.00	U	83 blows [450mm]
					9.00 - 9.45	U	
					~~10.00 - 10.50~~	B	

Hole Diameter

Depth Base (m)	Diameter (mm)

Casing Depths

Depth Base (m)	Diameter (mm)

General Remarks

Hand dug inspection pit to 1.20mbgl.
No groundwater encountered.

Chiselling

From (m)	To (m)	Time (hr)
7.60	8.00	01:00

Ground Water

Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)

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Cable Percussive Log

Scale 1:50 Sheet 2 of 2

CP02

Contract no:	NE-26-004	**Site:**	99 Plymouth Grove, Manchester	**Driller:**	SEP
				Plant used:	Dando 2000
				Started:	08/01/2026
Client:	JC Consulting			**Ended:**	08/01/2026
Method:	Cable Percussive			**Backfilled:**	08/01/2026

GL (AOD):
Easting: 385312
Northing: 396366
Logged: AG
Status: FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
					Depth (m)	Type	Results
				Firm to stiff brown slightly sandy, slightly gravelly medium to high strength CLAY of intermediate to low plasticity. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded sandstone, mudstone and coal.	10.50 - 10.95	SPT (S)	N=41 (6,7/9,10,11,11)
					10.50 - 10.95	D	
					11.50 - 12.00	B	
					12.00 - 12.45	SPT (S)	N=45
					12.00 - 12.45	D	(6,7/10,11,11,13)
					13.00 - 13.50	B	
					13.50 - 13.94	SPT (S)	N=50+
					13.50 - 13.95	D	(7,8/10,13,13,14 for 60mm)
					14.50 - 15.00	B	
					15.00 - 15.13	SPT (S)	N=50+ (25 for
					15.00 - 15.45	D	65mm/50 for 65mm)
		15.20		Dense brownish red gravelly SAND (inferred weathered sandstone). Sand is fine to coarse. Gravel is fine to coarse subangular sandstone.			
		15.45		*Inferred weathered sandstone.*			
				End of Borehole at 15.450m			

Hole Diameter		Casing Depths		General Remarks
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Hand dug inspection pit to 1.20mbgl. No groundwater encountered.

Chiselling		
From (m)	To (m)	Time (hr)
7.60	8.00	01:00

Ground Water				
Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)

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Borehole Log

Scale 1:50 Sheet 1 of 1

BH01

Contract no:	NE-26-004	**Site:**	99 Plymouth Grove, Manchester	**Driller:**	SEP
				Plant used:	Mini Rig
				Started:	07/01/2026
Client:	JC Consulting			**Ended:**	07/01/2026
Method:	Mini Percussive			**Backfilled:**	07/01/2026

GL (AOD):	
Easting:	385308
Northing:	396355
Logged:	AG
Status:	FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
					Depth (m)	Type	Results
		0.05		MADE GROUND: Tarmac.	0.10 - 0.25	B+ES	
		0.30		MADE GROUND: Very dark grey slightly gravelly sand. Sand is fine to coarse and ashy. Gravel is fine to coarse subangular to angular brick, sandstone and coal.	0.40 - 0.60	B+ES	
		0.60		MADE GROUND: Firm medium to light brown slightly sandy, slightly gravelly clay. Sand is fine to coarse. Gravel is fine to coarse angular to rounded brick and siltstone.			
				End of Borehole at 0.600m			

Hole Diameter		Casing Depths		General Remarks	Chiselling			Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)		From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
				Terminated at 0.6m due to brick obstructions. No groundwater encountered.								

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Borehole Log

Scale 1:50 Sheet 1 of 1

BH02

Contract no:	NE-26-004	**Site:**	99 Plymouth Grove, Manchester	**Driller:**	SEP
				Plant used:	Mini Rig
				Started:	07/01/2026
Client:	JC Consulting			**Ended:**	07/01/2026
Method:	Mini Percussive			**Backfilled:**	07/01/2026

GL (AOD):
Easting: 385319
Northing: 396386
Logged: AG
Status: FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
					Depth (m)	Type	Results
				MADE GROUND: Dark brown slightly clayey, sandy, slightly gravelly topsoil. Sand is fine to coarse. Gravel is fine to coarse subangular to angular brick and slate. Wood present.	0.10 - 0.20	B+ES	
					0.10 - 0.20	ES	
		0.30		MADE GROUND: Firm dark brown becoming lighter brown slightly sandy, slightly gravelly clay. Sand is fine to coarse. Gravel is fine to coarse subangular to angular brick.			
					0.70 - 0.80	B+ES	
		1.10		Very stiff brown with mottled grey slightly sandy, slightly gravelly high strength CLAY of intermediate plasticity. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded coal, sandstone and mudstone.	1.20 - 1.65	SPT (S)	N=15 (2,3/3,3,4,5)
					1.20 - 1.65	D	
					1.50 - 2.00	B	
					1.50 - 2.00	B	
					1.50 - 2.00	D	
					2.00 - 2.45	SPT (S)	N=26 (3,4/5,5,7,9)
					2.00	HV	150kPa
					2.00 - 2.45	D	
					2.50 - 3.00	B	
					3.00 - 3.45	SPT (S)	N=27 (3,5/6,6,7,8)
					3.00	HV	150kPa
					3.00 - 3.45	D	
					3.50 - 4.00	B	
					4.00 - 4.45	SPT (S)	N=31 (4,5/7,7,8,9)
					4.00 - 4.45	D	
					4.50 - 5.00	B	
					5.00 - 5.45	SPT (S)	N=38 (4,6/7,9,10,12)
					5.00	HV	150kPa
					5.00 - 5.45	D	
					5.50 - 6.00	B	
G		6.00		End of Borehole at 6.000m			

Hole Diameter		Casing Depths		General Remarks	Chiselling			Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)		From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
				Hand dug inspection pit to 1.20mbgl. No groundwater encountered.								

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Borehole Log

Scale 1:50 Sheet 1 of 1

BH03

Contract no:	NE-26-004	**Site:**	99 Plymouth Grove, Manchester	**Driller:**	SEP
				Plant used:	Mini Rig
				Started:	07/01/2026
Client:	JC Consulting			**Ended:**	07/01/2026
Method:	Mini Percussive			**Backfilled:**	07/01/2026

GL (AOD):	
Easting:	385329
Northing:	396389
Logged:	AG
Status:	FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing: Depth (m)	Type	Results
				MADE GROUND: Dark brown slightly clayey, sandy, slightly gravelly topsoil. Sand is fine to coarse. Gravel is fine to coarse subangular to angular brick (and whole brick cobbles).	0.10 - 0.20	B+ES	
		0.30		MADE GROUND: Brown slightly clayey sandy gravel. Sand is fine to coarse. Gravel is fine to coarse subangular to angular brick (and frequent whole brick cobbles). Brick obstructions from 0.6m.	0.30 - 0.50	B+ES	
		0.60		End of Borehole at 0.600m			

Hole Diameter		Casing Depths		General Remarks	Chiselling			Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)		From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)
				Terminated at 0.6m due to brick obstructions (inferred relic foundations). No groundwater encountered.								

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Borehole Log

Scale 1:50 Sheet 1 of 1

BH04

Contract no:	NE-26-004	**Site:**	99 Plymouth Grove, Manchester	**Driller:**	SEP
				Plant used:	Mini Rig
				Started:	07/01/2026
Client:	JC Consulting			**Ended:**	07/01/2026
Method:	Mini Percussive			**Backfilled:**	07/01/2026

GL (AOD):	
Easting:	385329
Northing:	396372
Logged:	AG
Status:	FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
					Depth (m)	**Type**	**Results**
				MADE GROUND: Dark brown slightly clayey, sandy, slightly gravelly topsoil. Sand is fine to coarse. Gravel is fine to coarse subangular to angular brick (and whole brick cobbles).	0.10 - 0.30	B+ES	
		0.30		MADE GROUND: Brown slightly clayey sandy gravel. Sand is fine to coarse. Gravel is fine to coarse subangular to angular brick (and frequent whole brick cobbles). Brick obstructions from 0.6m.	0.30 - 0.60	B	
					0.60 - 0.80	D	
					0.70 - 1.00	ES	
					0.70 - 1.00	ES	
		1.30		Firm to very stiff brown with mottled grey slightly sandy, slightly gravelly medium to high strength CLAY of intermediate plasticity. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded coal, sandstone and mudstone.	1.20 - 1.65	SPT (S)	N=14 (2,3/3,3,4,4)
					1.20 - 1.65	D	
					1.30 - 1.70	B	
					2.00 - 2.45	SPT (S)	N=29 (3,5/5,6,8,10)
					2.00	HV	150kPa
					2.00 - 2.45	B	
					2.00 - 2.50	D	
					2.50 - 3.00	B	
					2.50 - 3.00	B	
					3.00 - 3.45	SPT (S)	N=32 (4,6/7,8,8,9)
					3.00	HV	150kPa
					3.00 - 3.45	D	
					3.60 - 4.00	B	
					4.00 - 4.45	SPT (S)	N=32 (4,5/7,7,8,10)
					4.00 - 4.45	D	
					4.60 - 5.00	B	
					5.00 - 5.45	SPT (S)	N=35 (5,5/7,8,9,11)
					5.00 - 5.45	D	
					5.50 - 6.00	B	
		6.00		End of Borehole at 6.000m	6.00	HV	150kPa

Hole Diameter		Casing Depths		General Remarks	Chiselling			Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Hand dug inspection pit to 1.20mbgl. No groundwater encountered.	From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)

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Borehole Log

Scale 1:50 Sheet 1 of 1

BH05

Contract no:	NE-26-004	**Site:**	99 Plymouth Grove, Manchester	**Driller:**	SEP
				Plant used:	Mini Rig
				Started:	07/01/2026
Client:	JC Consulting			**Ended:**	07/01/2026
Method:	Mini Percussive			**Backfilled:**	07/01/2026

GL (AOD):	
Easting:	385343
Northing:	396382
Logged:	AG
Status:	FINAL

Backfill / Installation	Legend	Depth (m)	Level (m AOD)	Stratum Description	Samples and Insitu Testing		
					Depth (m)	**Type**	**Results**
				MADE GROUND: Dark brown slightly clayey, sandy, slightly gravelly topsoil. Sand is fine to coarse. Gravel is fine to coarse subangular to angular brick. Plastic litter present.	0.20 - 0.30	B	
					0.30 - 0.50	ES	
					0.30 - 0.50	ES	
					0.60 - 0.70	B	
		0.70		MADE GROUND: Firm brown slightly sandy, slightly gravelly clay. Sand is fine to coarse. Gravel is fine to coarse subangular to angular brick and sandstone.			
		0.90		Firm to very stiff brown with mottled grey slightly sandy, slightly gravelly medium to high strength CLAY of intermediate plasticity. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded coal, sandstone and mudstone.	1.20 - 1.65	SPT (S)	N=14 (2,3/3,3,4,4)
					1.20 - 1.65	D	
					1.30 - 1.50	ES	
					1.50 - 2.00	B	
					1.50 - 2.00	B	
					1.50 - 2.00	D	
					2.00 - 2.45	SPT (S)	N=29 (3,5/5,6,8,10) 150kPa
					2.00	HV	
					2.00 - 2.45	D	
					2.50 - 3.00	B	
					3.00 - 3.45	SPT (S)	N=32 (4,6/7,8,8,9)
					3.00	HV	150kPa
					3.00 - 3.45	D	
					3.50 - 4.00	B	
					4.00 - 4.45	SPT (S)	N=32 (4,5/7,7,8,10)
					4.00	HV	150kPa
					4.00 - 4.45	D	
					4.50 - 5.00	B	
					5.00 - 5.45	SPT (S)	N=35 (5,5/7,8,9,11)
					5.00	HV	150kPa
					5.00 - 5.45	D	
					5.50 - 6.00	B	
G		6.00		End of Borehole at 6.000m			

Hole Diameter		Casing Depths		General Remarks	Chiselling			Ground Water				
Depth Base (m)	Diameter (mm)	Depth Base (m)	Diameter (mm)	Hand dug inspection pit to 1.20mbgl. No groundwater encountered.	From (m)	To (m)	Time (hr)	Depth Strike (m)	Depth Casing (m)	Depth Sealed (m)	Time Elapsed (min)	Water Level (m)

Appendix C

Certificate of Analysis

Certificate Number	26-00625	*Issued:*	27-Jan-26
Client	SOLMEK 12 Yarm Road Stockton On Tees Cleveland TS18 3NA		

Our Reference	26-00625
Client Reference ~	NE-26-004
Order No ~	PO-01-2629
Contract Title ~	99 Plymouth Grove, Manchester
Description	5 Soil samples, 2 Leachate prepared by DETS samples.
Date Received	14-Jan-26
Date Started	14-Jan-26
Date Completed	27-Jan-26
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

L [redacted]
Contracts Manager

2139

Summary of Chemical Analysis
Matrix Descriptions

Our Ref 26-00625
Client Ref ~ NE-26-004
Contract Title ~ 99 Plymouth Grove, Manchester

Sample ID	Depth	Lab No	Completed	Matrix Description
CP01	0.05-0.35	2624622	27/01/2026	Brown gravelly, sandy CLAY
CP02	0.25-0.60	2624623	27/01/2026	Brown gravelly, sandy CLAY
BH02	0.10-0.20	2624624	27/01/2026	Brown gravelly, sandy CLAY
BH04	0.70-1.00	2624625	27/01/2026	Brown gravelly, sandy CLAY
BH05	0.30-0.50	2624626	27/01/2026	Brown gravelly, sandy CLAY

Summary of Chemical Analysis
Soil Samples

Our Ref 26-00625
Client Ref ~ NE-26-004
Contract Title ~ 99 Plymouth Grove, Manchester

	Lab No	2624622	2624623	2624624	2624625	2624626
	Sample ID ~	CP01	CP02	BH02	BH04	BH05
	Depth ~	0.05-0.35	0.25-0.60	0.10-0.20	0.70-1.00	0.30-0.50
	Other ID ~					
	Sample Type ~	ES	ES	ES	ES	ES
	Sampling Date ~	12/01/2026	12/01/2026	12/01/2026	12/01/2026	12/01/2026
	Sampling Time ~	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**					
Metals								
Arsenic	DETSC 2301#	0.2	mg/kg	5.8	7.1	7.6	6.6	12
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.4	0.4	< 0.2	0.6	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.1	< 0.1	0.1	0.1	0.2
Chromium	DETSC 2301#	0.15	mg/kg	17	15	13	15	13
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	25	26	32	20	42
Lead	DETSC 2301#	0.3	mg/kg	44	34	90	86	110
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	0.07	0.07	0.11
Nickel	DETSC 2301#	1	mg/kg	50	19	15	11	19
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	70	39	54	37	59
Inorganics								
pH	DETSC 2008#		pH	9.0	8.3	8.8	8.7	8.2
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	2.6	2.1	1.4	1.1	2.1
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	39	25	20	18	21
Petroleum Hydrocarbons								
Aliphatic C5-C6: HS_1D_AL	DETSC 3321*	0.01	mg/kg		< 0.01			< 0.01
Aliphatic C6-C8: HS_1D_AL	DETSC 3321*	0.01	mg/kg		< 0.01			< 0.01
Aliphatic C8-C10: HS_1D_AL	DETSC 3321*	0.01	mg/kg		< 0.01			< 0.01
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg		5.8			< 1.5
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072#	1.2	mg/kg		6.0			< 1.2
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072#	1.5	mg/kg		20			< 1.5
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072#	3.4	mg/kg		160			< 3.4
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	3.4	mg/kg		8.7			< 3.4
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	mg/kg		200			< 10
Aromatic C5-C7: HS_1D_AR	DETSC 3321*	0.01	mg/kg		< 0.01			< 0.01
Aromatic C7-C8: HS_1D_AR	DETSC 3321*	0.01	mg/kg		< 0.01			< 0.01
Aromatic C8-C10: HS_1D_AR	DETSC 3321*	0.01	mg/kg		< 0.01			< 0.01
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072#	0.9	mg/kg		45			13
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072#	0.5	mg/kg		240			55
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072#	0.6	mg/kg		430			170
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072#	1.4	mg/kg		460			160
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1.4	mg/kg		41			17
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	mg/kg		1200			410
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	mg/kg		1400			410
PAHs								
Naphthalene	DETSC 3301	0.1	mg/kg	0.32	8.8	0.71	4.7	14
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	2.1	< 0.10	13
Acenaphthene	DETSC 3301	0.1	mg/kg	0.37	11	1.4	1.7	7.2
Fluorene	DETSC 3301	0.1	mg/kg	0.18	6.9	3.2	1.7	14

Summary of Chemical Analysis
Soil Samples

Our Ref 26-00625
Client Ref ~ NE-26-004
Contract Title ~ 99 Plymouth Grove, Manchester

	Lab No	2624622	2624623	2624624	2624625	2624626
	Sample ID ~	CP01	CP02	BH02	BH04	BH05
	Depth ~	0.05-0.35	0.25-0.60	0.10-0.20	0.70-1.00	0.30-0.50
	Other ID ~					
	Sample Type ~	ES	ES	ES	ES	ES
	Sampling Date ~	12/01/2026	12/01/2026	12/01/2026	12/01/2026	12/01/2026
	Sampling Time ~	n/s	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**			
Phenanthrene	DETSC 3301	0.1	mg/kg	2.0	31	25	10	83
Anthracene	DETSC 3301	0.1	mg/kg	0.74	4.2	6.3	2.1	20
Fluoranthene	DETSC 3301	0.1	mg/kg	2.2	19	24	6.4	54
Pyrene	DETSC 3301	0.1	mg/kg	2.5	19	26	8.2	56
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	1.8	7.0	11	3.4	21
Chrysene	DETSC 3301	0.1	mg/kg	1.4	8.0	12	3.8	23
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	2.3	5.7	7.5	2.0	14
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.87	3.1	4.6	1.2	9.5
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	2.3	8.1	11	3.7	21
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	1.1	4.5	7.5	2.1	15
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	0.41	< 0.10	1.2	0.34	2.2
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	0.80	4.7	5.5	2.1	11
PAH 16 Total	DETSC 3301	1.6	mg/kg	19	140	150	54	380
Phenols								
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	1.6	0.4	< 0.3	2.7

Summary of Chemical Analysis
Leachate Samples

Our Ref 26-00625
Client Ref ~ NE-26-004
Contract Title ~ 99 Plymouth Grove, Manchester

			Lab No	2624627	2624628
			Sample ID ~	CP02	BH02
			Depth ~	0.25-0.60	0.10-0.20
			Other ID ~		
			Sample Type ~	ES	ES
			Sampling Date ~	12/01/2026	12/01/2026
			Sampling Time ~	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Preparation					
NRA Leachate Preparation	DETSC 1009*			Y	Y
Metals					
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.95	0.74
Boron, Dissolved	DETSC 2306*	12	ug/l	< 12.00	< 12.00
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03
Chromium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	< 0.25
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	0.83	1.12
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.26	1.00
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.50	< 0.50
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	< 0.25
Zinc, Dissolved	DETSC 2306	1.3	ug/l	2.17	3.42
Inorganics					
pH	DETSC 2008		pH	7.1	7.2
Cyanide, Free	DETSC 2130	20	ug/l	< 20	< 20
Phenol - Monohydric Low Level	DETSC 2131	1.5	ug/l	< 1.5	< 1.5
Sulphate as SO4	DETSC 2055	0.1	mg/l	0.56	1.1
Petroleum Hydrocarbons					
Aliphatic C5-C6: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	
Aliphatic C6-C8: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	
Aliphatic C8-C10: HS_1D_AL	DETSC 3322	0.1	ug/l	< 0.1	
Aliphatic C10-C12: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	
Aliphatic C12-C16: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	
Aliphatic C16-C21: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	
Aliphatic C21-C35: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	
Aliphatic C35-C40: EH_CU_1D_AL	DETSC 3072*	1	ug/l	< 1.0	
Aliphatic C5-C40: EH_CU+HS_1D_AL	DETSC 3072*	10	ug/l	< 10	
Aromatic C5-C7: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	
Aromatic C7-C8: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	
Aromatic C8-C10: HS_1D_AR	DETSC 3322	0.1	ug/l	< 0.1	
Aromatic C10-C12: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	
Aromatic C12-C16: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	
Aromatic C16-C21: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	
Aromatic C21-C35: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	
Aromatic C35-C40: EH_CU_1D_AR	DETSC 3072*	1	ug/l	< 1.0	
Aromatic C5-C40: EH_CU+HS_1D_AR	DETSC 3072*	10	ug/l	< 10	
TPH Ali/Aro C5-C40: EH_CU+HS_1D_Total	DETSC 3072*	10	ug/l	< 10	
PAHs					
Naphthalene	DETSC 3304	0.05	ug/l	0.08	0.07
Acenaphthylene	DETSC 3304	0.01	ug/l	0.01	0.01

Summary of Chemical Analysis
Leachate Samples

Our Ref 26-00625
Client Ref ~ NE-26-004
Contract Title ~ 99 Plymouth Grove, Manchester

			Lab No	2624627	2624628
			Sample ID ~	CP02	BH02
			Depth ~	0.25-0.60	0.10-0.20
			Other ID ~		
			Sample Type ~	ES	ES
			Sampling Date ~	12/01/2026	12/01/2026
			Sampling Time ~	n/s	n/s
Test	**Method**	**LOD**	**Units**		
Acenaphthene	DETSC 3304	0.01	ug/l	0.10	0.01
Fluorene	DETSC 3304	0.01	ug/l	0.02	< 0.01
Phenanthrene	DETSC 3304	0.01	ug/l	0.04	0.03
Anthracene	DETSC 3304	0.01	ug/l	< 0.01	0.01
Fluoranthene	DETSC 3304	0.01	ug/l	0.02	0.07
Pyrene	DETSC 3304	0.01	ug/l	0.02	0.08
Benzo(a)anthracene	DETSC 3304	0.01	ug/l	0.01	0.04
Chrysene	DETSC 3304	0.01	ug/l	0.01	0.04
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.02	0.07
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	0.02
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	0.01	0.05
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	0.02	0.04
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.02	0.05
PAH Total	DETSC 3304	0.2	ug/l	0.4	0.60

Summary of Asbestos Analysis
Soil Samples

Our Ref 26-00625
Client Ref ~ NE-26-004
Contract Title ~ 99 Plymouth Grove, Manchester

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2624622	CP01 0.05-0.35	SOIL	NAD	none	Keith Wilson
2624623	CP02 0.25-0.60	SOIL	NAD	none	Keith Wilson
2624624	BH02 0.10-0.20	SOIL	NAD	none	Keith Wilson
2624625	BH04 0.70-1.00	SOIL	NAD	none	Keith Wilson
2624626	BH05 0.30-0.50	SOIL	NAD	none	Keith Wilson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * -not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 26-00625
Client Ref ~ NE-26-004
Contract ~ 99 Plymouth Grove, Manchester

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Incorrect container for tests
2624622	CP01 0.05-0.35 SOIL	12/01/26	GJ 250ml, GJ 60ml, PT 1L x2		
2624623	CP02 0.25-0.60 SOIL	12/01/26	GJ 250ml, GJ 60ml, PT 1L x2		
2624624	BH02 0.10-0.20 SOIL	12/01/26	GJ 250ml, GJ 60ml, PT 1L x2		
2624625	BH04 0.70-1.00 SOIL	12/01/26	GJ 250ml, GJ 60ml, PT 1L x2		
2624626	BH05 0.30-0.50 SOIL	12/01/26	GJ 250ml, GJ 60ml, PT 1L x2		
2624627	CP02 0.25-0.60 LEACHATE	12/01/26	GJ 250ml, GJ 60ml, PT 1L x2		
2624628	BH02 0.10-0.20 LEACHATE	12/01/26	GJ 250ml, GJ 60ml, PT 1L x2		

Key: G-Glass P-Plastic J-Jar T-Tub

Normec DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 250µm sieve
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

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

Det	Acronym
Aliphatic C5-C6	HS_1D_AL

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2311	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	As Received	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3321	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3521	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3521	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3521	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS

Key:
~ Sample details are provided by the client and can affect the validity of the results
***** -not accredited.
# -MCERTS (accreditation only applies if report carries the MCERTS logo).
$ -subcontracted.
n/s -not supplied.
I/S -insufficient sample.
U/S -unsuitable sample.
t/f -to follow.
nd -not detected.

End of Report

Appendix D

Laboratory Report Front Sheet

Site name	Job number
99 Plymouth Grove, Manchester	NE-26-004

G2M Testing

Unit 5/6 Innovation Court,
Meadowfield Industrial Estate,
County Durham,
DH7 8FA

0191 349 9210
info@g2mtesting.co.uk

UKAS TESTING

10258

Client details:

Reference: NE-26-004
Name: Solmek
Address: 12 Yarm Road, Stockton-onTees, TS18 3NA

Telephone:
Email: matkins@solmek.com

FAO: Mark Atkins

Samples received:

Date commenced: 14/01/2026

Date reported: 11/02/2026

Observations and interpretations are outside of the UKAS Accreditiation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced in full, without the prior written approval of the laboratory.

Samples will be held at the laboratory for a period of 4 weeks after the report date. After the above reporting date the samples will be disposed of. Should further testing be required then the office should be informed before the above date.

Signature:	Approved Signitories:
[redacted]	☐ D.Anderson (Managing Director) ☑ J. Brischuk (Laboratory Manager) ☐

Summary of Classification Tests

Site name	Job number
99 Plymouth Grove, Manchester	NE-26-004

G2M Testing
Unit 5/6 Innovation Court,
Meadowfield Industrial Estate,
County Durham,
DH7 8FA
0191 349 9210
info@g2mtesting.co.uk

UKAS TESTING

10258

Hole	Depth Top m	Depth Base m	Type	*w* %	Oven temp. oc	wa %	Pa %	Pr %	wL %	wP %	IP %	IL	Plasticity class	Preparation method
CP02	1.50	2.00	B	24	105									
BH05	1.50	2.00	B	15	105									
BH02	1.50	2.00	B	19	105									
BH04	2.50	3.00	B	16	105									
CP01	3.00		U	14	105									
CP02	4.00		U	14	105									
CP01	7.00		U	14	105									
CP02	9.00		U	13	105									

All tests found in G2M Testing UKAS Schedule of Accreditation are tested to standard unless otherwise indicated

Key	Description		Category	BS Test Code
w	Moisture content			BS 1377:1990 Part 2 Clause 3.2
wa	Equivalent moisture content passing 425µm sieve			BS 1377:1990 Part 2 Clause 3.2
wL	Liquid limit	Single point	-s	BS 1377:1990 Part 2 Clause 4.4
		Four point	-f	BS 1377:1990 Part 2 Clause 4.3
wP	Plastic limit			BS 1377:1990 Part 2 Clause 5.2
Pa	Percentage passing 425um sieve			
Pr	Percentage retained 425um sieve			
IP	Plasticity index			BS 1377:1990 Part 2 Clause 5.4
IL	Liquidity index			BS 1377:1990 Part 2 Clause 5.4
	Suffix indicating test is "Not UKAS Accredited"		*	

Approved by	Joe.Brischuk
Approval date	21/01/2026 14:56
Date report generated	
Report Number	

Summary of Classification Tests

G2M Testing
Unit 5/6 Innovation Court,
Meadowfield Industrial Estate,
County Durham,
DH7 8FA
0191 349 9210
info@g2mtesting.co.uk

UKAS TESTING
10258

Site name	Job number
99 Plymouth Grove, Manchester	NE-26-004

Hole	Depth Top m	Depth Base m	Type	*w* %	Oven temp. oc	wa %	Pa %	Pr %	wL %	wP %	IP %	IL	Plasticity class	Preparation method
CP02	1.50	2.00	B	24			99	1	41-s	22	19	-1.158	CI	Tested after >425µm removed by hand
BH05	1.50	2.00	B	15			100	0	41-s	19	22	-0.864	CI	Tested after >425µm removed by hand
BH02	1.50	2.00	B	19			100	0	41-s	20	21	-0.952	CI	Tested after >425µm removed by hand
BH04	2.50	3.00	B	16			95	5	39-s	19	20	-0.950	CI	Tested after >425µm removed by hand
CP02	9.00		U	13			98	2	27-s	13	14	-0.929	CL	Tested after >425µm removed by hand

All tests found in G2M Testing UKAS Schedule of Accreditation are tested to standard unless otherwise indicatec

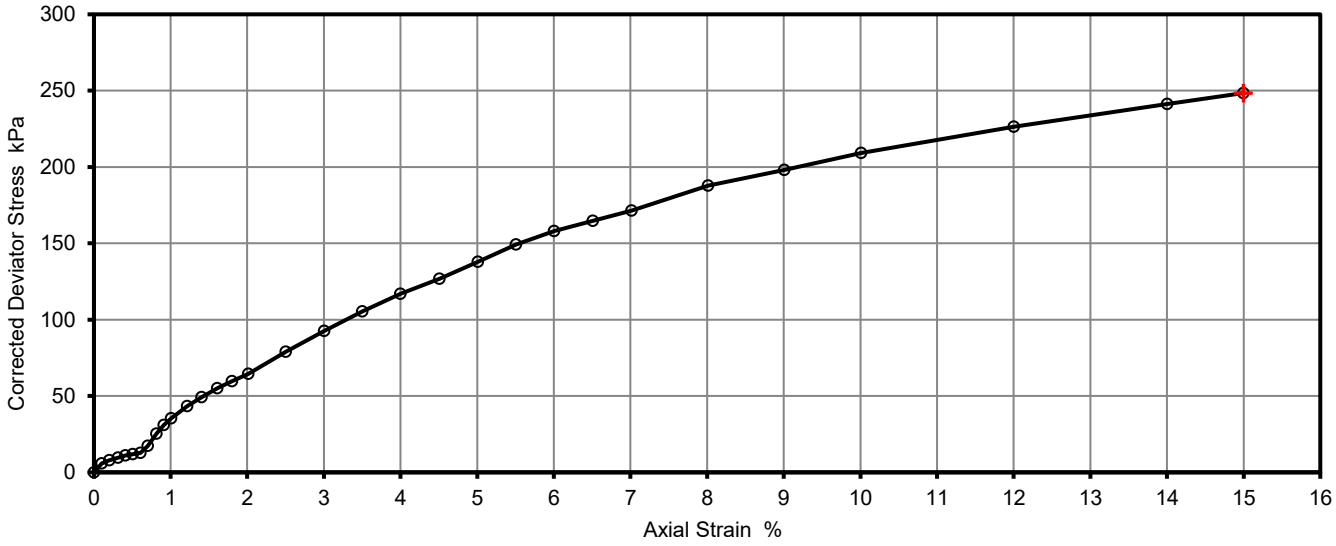
Key	Description		Category	BS Test Code
w	Moisture content			BS 1377:1990 Part 2 Clause 3.2
wa	Equivalent moisture content passing 425µm sieve			BS 1377:1990 Part 2 Clause 3.2
wL	Liquid limit	Single point	-s	BS 1377:1990 Part 2 Clause 4.4
		Four point	-f	BS 1377:1990 Part 2 Clause 4.3
wP	Plastic limit			BS 1377:1990 Part 2 Clause 5.2
Pa	Percentage passing 425um sieve			
Pr	Percentage retained 425um sieve			
IP	Plasticity index			BS 1377:1990 Part 2 Clause 5.4
IL	Liquidity index			BS 1377:1990 Part 2 Clause 5.4
	Suffix indicating test is "Not UKAS Accredited"		*	

Approved by	Joe.Brischuk
Approval date	21/01/2026 15:08
Date report generated	
Report Number	

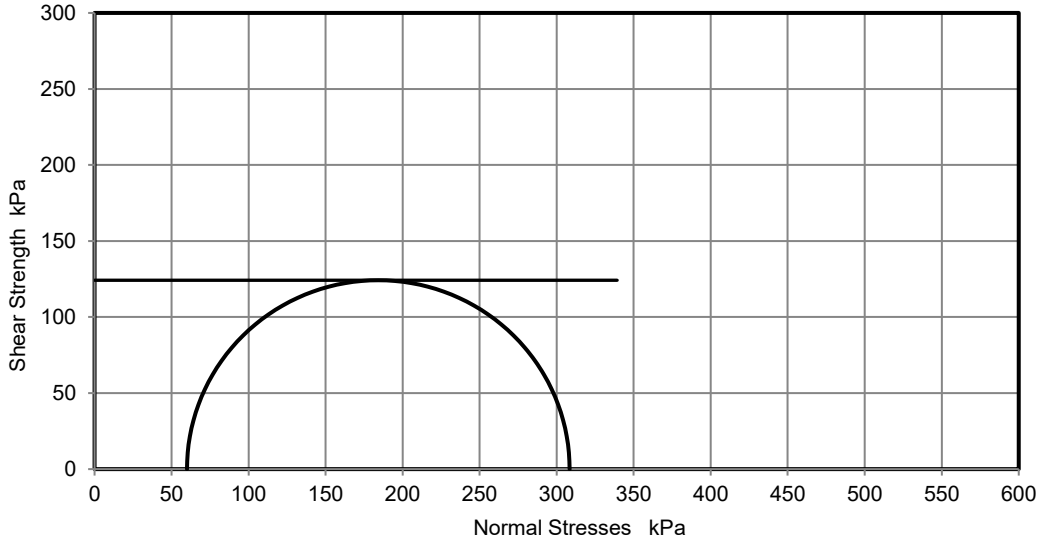
	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen				Job Ref	NE-26-004
					Borehole/Pit No.	CP01
Site Name	99 Plymouth Grove, Manchester				Sample No.	
Soil Description					Depth	3.00
Specimen Reference	CP01	Specimen Depth	3.00	m	Sample Type	U
Specimen Description	High Strength CLAY				KeyLAB ID	G2MT202601143
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen				Date of test	

Test Number		1	
Length		205.0	mm
Diameter		102.0	mm
Bulk Density		2.21	Mg/m3
Moisture Content			%
Dry Density			Mg/m3
Rate of Strain		1.0	%/min
Cell Pressure		60	kPa
At failure	Axial Strain	15.0	%
	Deviator Stress, (σ1 - σ3)f	248	kPa
	Undrained Shear Strength, cu	124	kPa ½(σ1 - σ3)f
	Mode of Failure	Plastic	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Remarks

Approved: Joe.Brischuk

Printed: 11/02/2026 16:06

Fig. No. 1

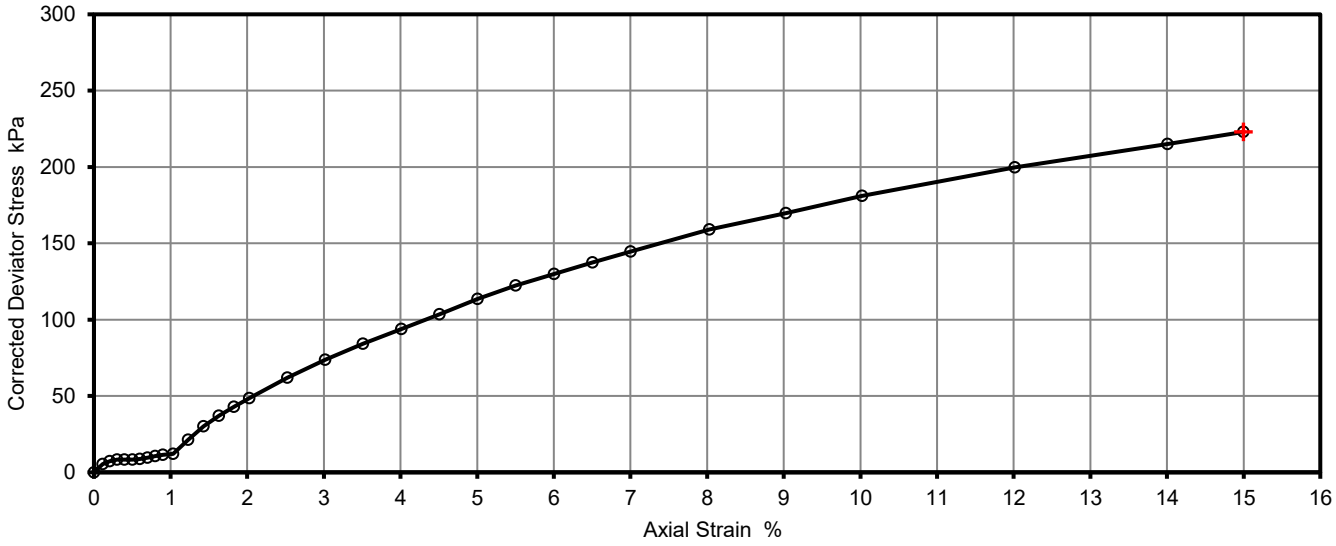
Sheet 1

Lab Sheet Reference :

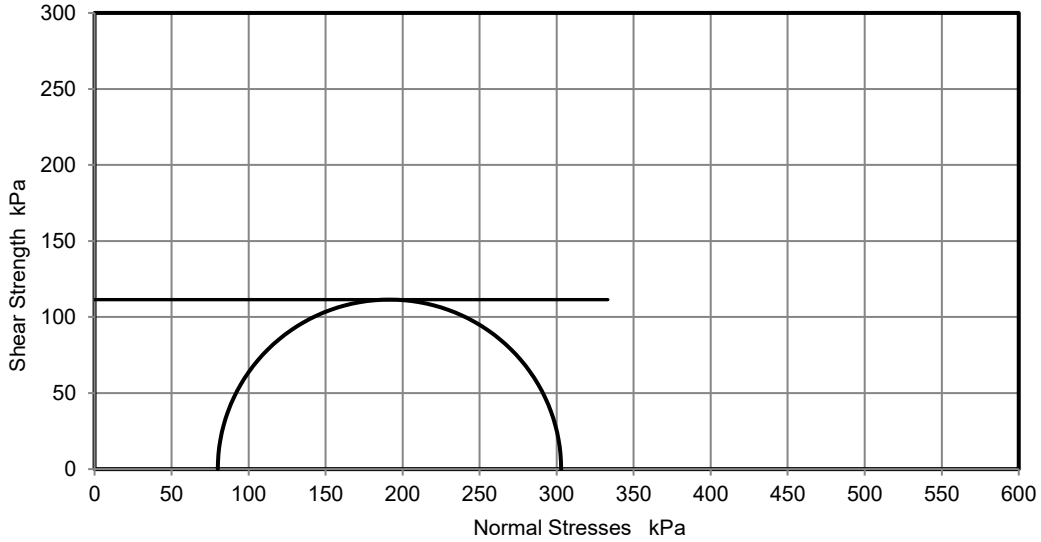
	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen				Job Ref	NE-26-004
					Borehole/Pit No.	CP02
Site Name	99 Plymouth Grove, Manchester				Sample No.	
Soil Description					Depth	4.00
Specimen Reference	CP02	Specimen Depth	4.00	m	Sample Type	U
Specimen Description	High Strength CLAY				KeyLAB ID	G2MT202601145
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen				Date of test	

Test Number		1	
Length		209.0	mm
Diameter		102.6	mm
Bulk Density		2.19	Mg/m3
Moisture Content			%
Dry Density			Mg/m3
Rate of Strain		1.0	%/min
Cell Pressure		80	kPa
At failure	Axial Strain	15.0	%
	Deviator Stress, (σ1 - σ3)f	223	kPa
	Undrained Shear Strength, cu	111	kPa ½(σ1 - σ3)f
	Mode of Failure	Plastic	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Remarks

Approved: Joe.Brischuk

Printed: 11/02/2026 16:06

Fig. No. 1

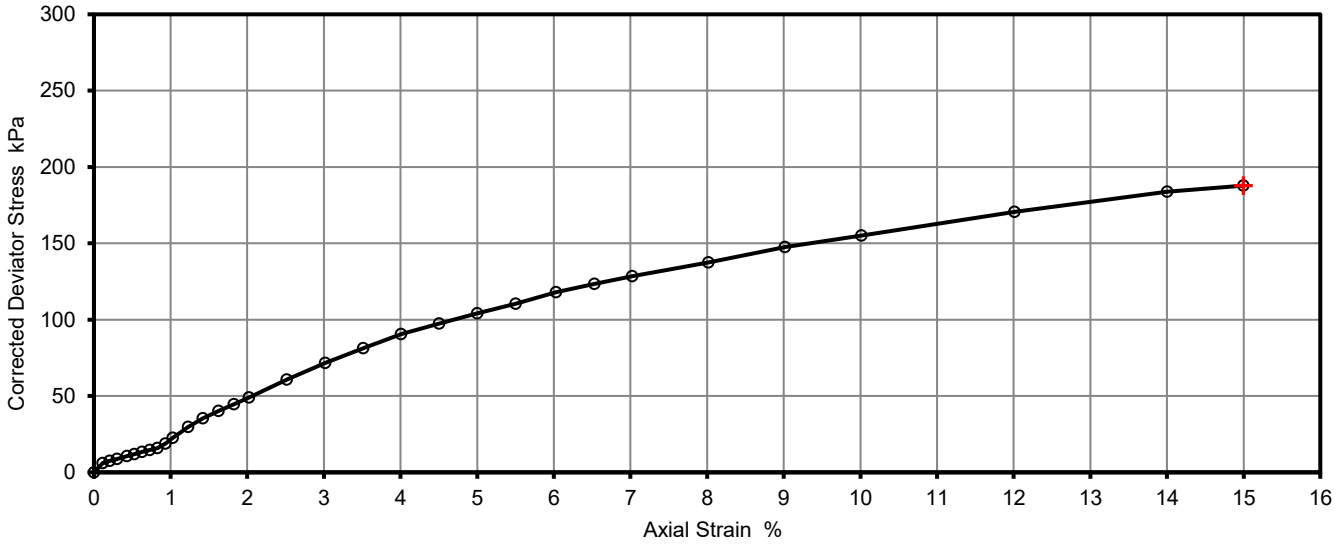
Sheet 2

Lab Sheet Reference :

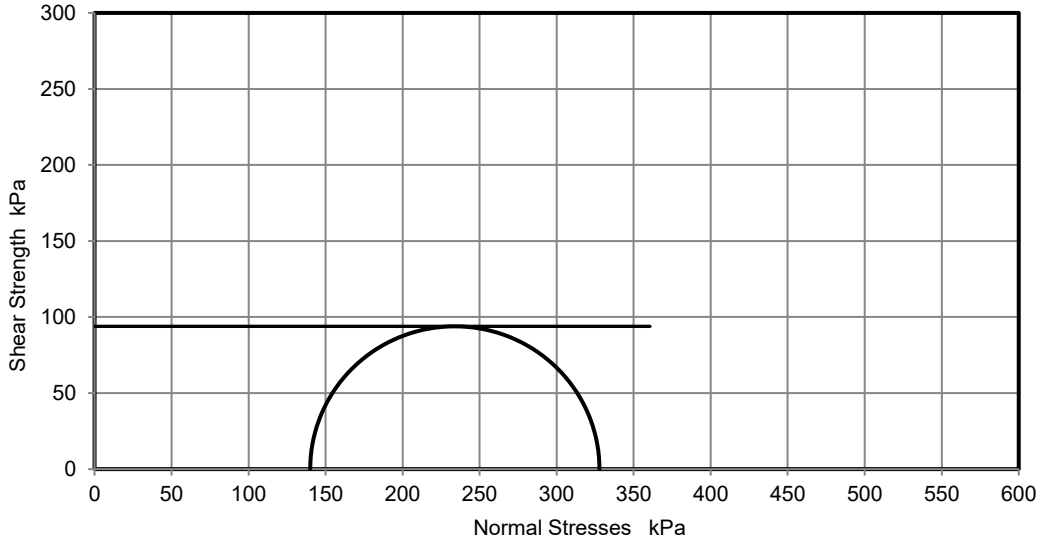
	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen				Job Ref	NE-26-004
					Borehole/Pit No.	CP01
Site Name	99 Plymouth Grove, Manchester				Sample No.	
Soil Description					Depth	7.00
Specimen Reference	CP01	Specimen Depth	7.00	m	Sample Type	U
Specimen Description	High Strength CLAY				KeyLAB ID	G2MT202601144
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen				Date of test	

Test Number		1	
Length		207.0	mm
Diameter		101.9	mm
Bulk Density		2.22	Mg/m3
Moisture Content			%
Dry Density			Mg/m3
Rate of Strain		1.0	%/min
Cell Pressure		140	kPa
At failure	Axial Strain	15.0	%
	Deviator Stress, (σ1 - σ3)f	188	kPa
	Undrained Shear Strength, cu	94	kPa ½(σ1 - σ3)f
	Mode of Failure	Plastic	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Remarks

Approved: Joe.Brischuk

Printed: 11/02/2026 16:06

Fig. No. 1

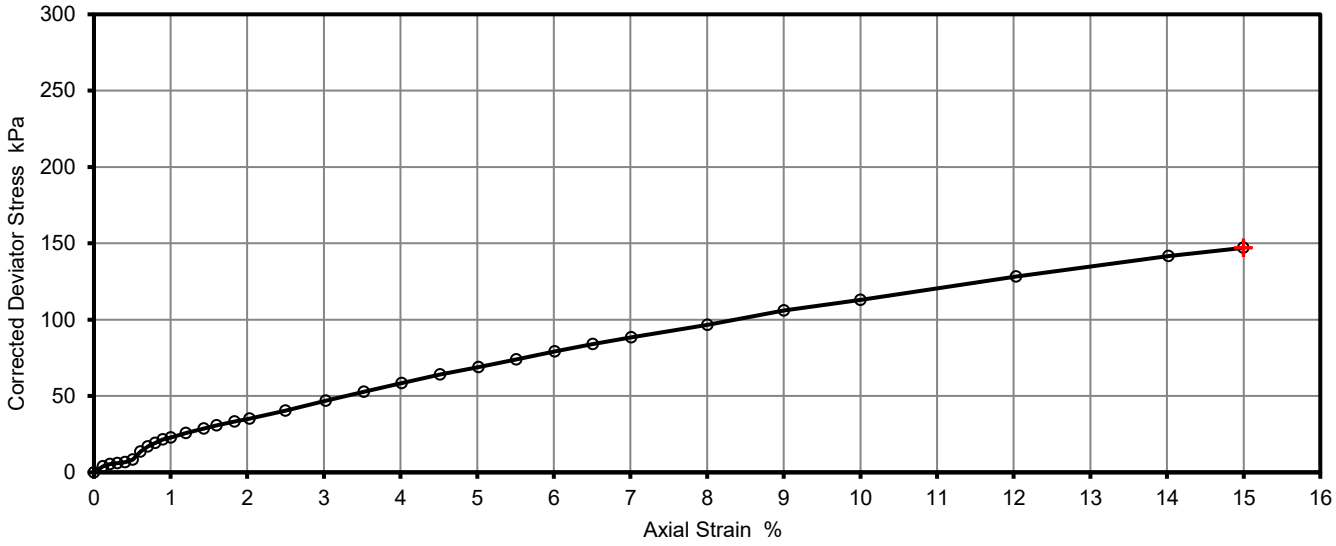
Sheet 3

Lab Sheet Reference :

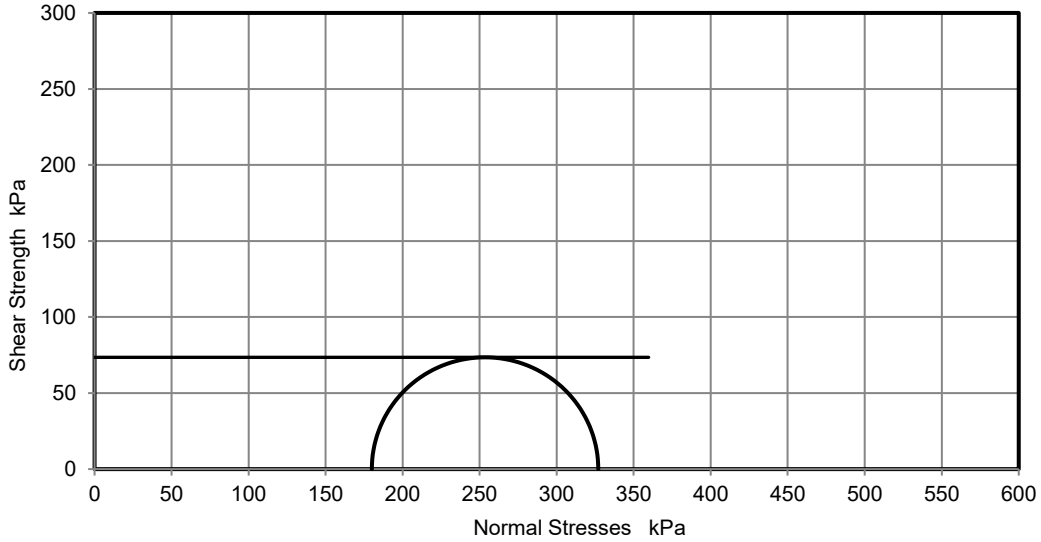
	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen				Job Ref	NE-26-004
					Borehole/Pit No.	CP02
Site Name	99 Plymouth Grove, Manchester				Sample No.	
Soil Description					Depth	9.00
Specimen Reference	CP01	Specimen Depth	7.00	m	Sample Type	U
Specimen Description	Medium Strength CLAY				KeyLAB ID	G2MT202601146
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen				Date of test	

Test Number		1	
Length		207.0	mm
Diameter		102.3	mm
Bulk Density		2.25	Mg/m3
Moisture Content			%
Dry Density			Mg/m3
Rate of Strain		1.0	%/min
Cell Pressure		180	kPa
At failure	Axial Strain	15.0	%
	Deviator Stress, (σ1 - σ3)f	147	kPa
	Undrained Shear Strength, cu	74	kPa ½(σ1 - σ3)f
	Mode of Failure	Plastic	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Remarks

Approved: Joe.Brischuk

Printed: 11/02/2026 16:06

Fig. No. 1

Sheet 4

Lab Sheet Reference :

Certificate of Analysis

Certificate Number	26-00622	*Issued:*	19-Jan-26

Client SOLMEK
12 Yarm Road
Stockton On Tees
Cleveland
TS18 3NA

Our Reference	26-00622
Client Reference ~	NE-26-004
Order No ~	PO-01-2629
Contract Title ~	99 Plymouth Grove, Manchester
Description	4 Soil samples.
Date Received	14-Jan-26
Date Started	14-Jan-26
Date Completed	19-Jan-26
Test Procedures	Identified by prefix DETSn (details on request).
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By [redacted]

Louise Cook
Contracts Manager

2139

Summary of Chemical Analysis
Matrix Descriptions

Our Ref 26-00622
Client Ref ~ NE-26-004
Contract Title ~ 99 Plymouth Grove, Manchester

Sample ID	Depth	Lab No	Completed	Matrix Description
BH02	1.50-2.00	2624617	19/01/2026	Brown sandy CLAY
BH05	1.50-2.00	2624618	19/01/2026	Brown sandy CLAY
CP01	4.00-4.45	2624619	19/01/2026	Brown sandy CLAY
CP02	8.50-9.00	2624620	19/01/2026	Brown sandy CLAY

Summary of Chemical Analysis
Soil Samples

Our Ref 26-00622
Client Ref ~ NE-26-004
Contract Title ~ 99 Plymouth Grove, Manchester

			Lab No	2624617	2624618	2624619	2624620
			Sample ID ~	BH02	BH05	CP01	CP02
			Depth ~	1.50-2.00	1.50-2.00	4.00-4.45	8.50-9.00
			Other ID ~				
			Sample Type ~	D	D	D	D
			Sampling Date ~	12/01/2026	12/01/2026	12/01/2026	12/01/2026
			Sampling Time ~	n/s	n/s	n/s	n/s
Test	**Method**	**LOD**	**Units**				
Inorganics							
pH	DETSC 2008#		pH	8.7	8.6	9.0	8.8
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	39	56	30	37

Information in Support of the Analytical Results

Our Ref 26-00622
Client Ref ~ NE-26-004
Contract ~ 99 Plymouth Grove, Manchester

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Incorrect container for tests
2624617	BH02 1.50-2.00 SOIL	12/01/26	PT 500ml		
2624618	BH05 1.50-2.00 SOIL	12/01/26	PT 500ml		
2624619	CP01 4.00-4.45 SOIL	12/01/26	PT 500ml		
2624620	CP02 8.50-9.00 SOIL	12/01/26	PT 500ml		

Key: P-Plastic T-Tub

Normec DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 250µm sieve
Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2311	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	As Received	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3321	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3521	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3521	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3521	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS

Key:
~ Sample details are provided by the client and can affect the validity of the results
***** -not accredited.
# -MCERTS (accreditation only applies if report carries the MCERTS logo).
$ -subcontracted.
n/s -not supplied.
I/S -insufficient sample.
U/S -unsuitable sample.
t/f -to follow.
nd -not detected.

End of Report

SOAKAWAY DESIGN IN ACCORDANCE WITH BRE DIGEST 365: 2016

BRE Digest 365, Figure 2, Page 5

Site:	**99 Plymouth Grove, Manchester**		
Job No:	**NE-26-004**		
Hole No:	**BH02**	**Test No:**	**1**

CALCULATION OF SOIL INFILTRATION RATE

Time (min)	Depth (m)
0	1.50
0.5	1.50
1	1.50
2	1.50
3	1.50
4	1.50
5	1.50
6	1.50
7	1.50
8	1.50
9	1.50
10	1.50
15	1.50
20	1.50
25	1.50
30	1.50
40	1.50
50	1.50
60	1.50
90	1.50
120	1.50
180	1.50

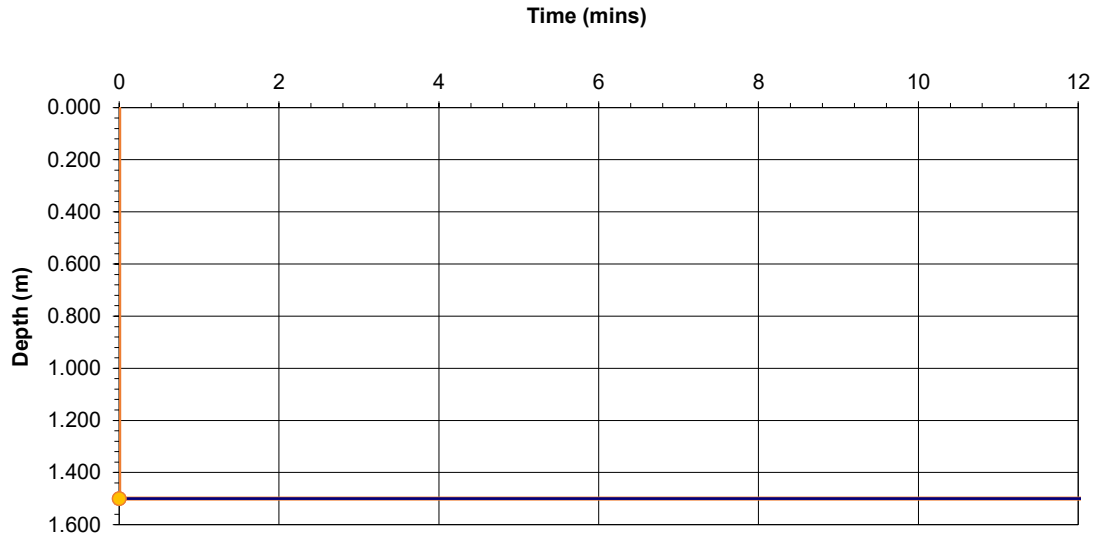
Size of Borehole	Diameter (m) =	0.10
	Eff. Depth (m) =	4.50
	Radius (m) =	0.05

Depth at start of test (m) =	1.500
Depth at end of test (m)=	1.500
75% level (m)=	1.500
50% level (m)=	1.500
25% level (m)=	1.500
Base area of hole (m^2) =	0.00785
Vp_{75-25} (m^3) =	0.0000
a_{p50} (m^2) =	1.4216

TAKE VALUES FROM THE GRAPH:	
tp 75 (min) =	0.00
tp 25 (min) =	180.00

Soil infiltration rate, f, (m/s) =	**0.00E+00**	**normal test**

Input by:	AG	**Date:**	19/01/2026
Checked by:	MA	**Date:**	19/01/2026



Notes:

SOAKAWAY DESIGN IN ACCORDANCE WITH BRE DIGEST 365: 2016
BRE Digest 365, Figure 2, Page 5

Site:	**99 Plymouth Grove, Manchester**		
Job No:	**NE-26-004**		
Hole No:	**BH04**	**Test No:**	**1**

CALCULATION OF SOIL INFILTRATION RATE

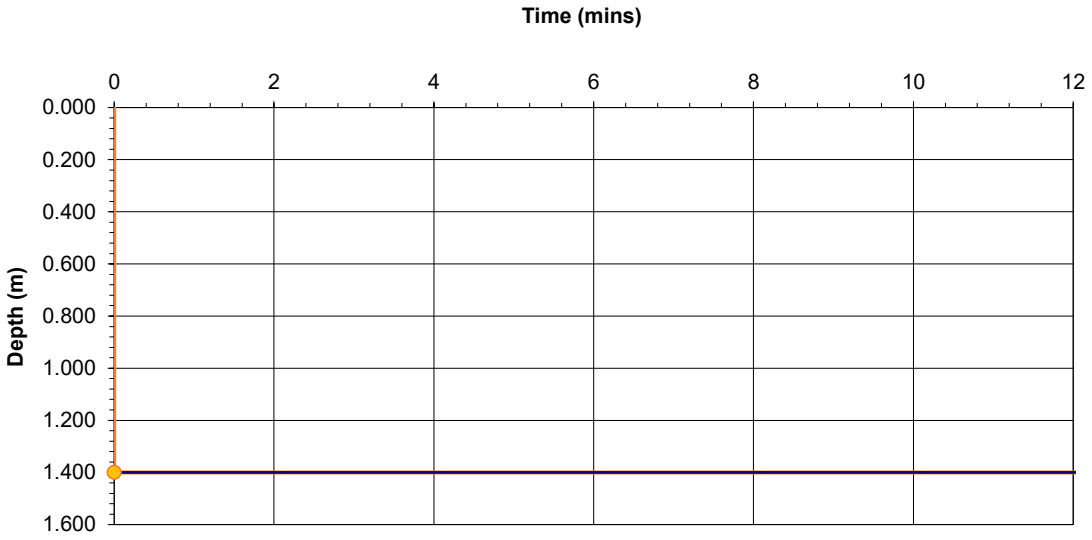
Time (min)	Depth (m)
0	1.40
0.5	1.40
1	1.40
2	1.40
3	1.40
4	1.40
5	1.40
6	1.40
7	1.40
8	1.40
9	1.40
10	1.40
15	1.40
20	1.40
25	1.40
30	1.40
40	1.40
50	1.40
60	1.40
90	1.40
120	1.40
180	1.40

Size of Borehole	Diameter (m) =	0.10
	Eff. Depth (m) =	4.60
	Radius (m) =	0.05
Depth at start of test (m) =		1.400
Depth at end of test (m)=		1.400
75% level (m)=		1.400
50% level (m)=		1.400
25% level (m)=		1.400
Base area of hole (m^2) =		0.00785
Vp_{75-25} (m^3) =		0.0000
a_{p50} (m^2) =		1.4530

TAKE VALUES FROM THE GRAPH:	
tp 75 (min) =	0.00
tp 25 (min) =	180.00

Soil infiltration rate, f, (m/s) =	**0.00E+00**	**normal test**

Input by:	AG	**Date:**	19/01/2026
Checked by:	MA	**Date:**	19/01/2026



Notes:

SOAKAWAY DESIGN IN ACCORDANCE WITH BRE DIGEST 365: 2016
BRE Digest 365, Figure 2, Page 5

Site:	**99 Plymouth Grove, Manchester**		
Job No:	**NE-26-004**		
Hole No:	**BH05**	**Test No:**	**1**

CALCULATION OF SOIL INFILTRATION RATE

Time (min)	Depth (m)
0	1.00
0.5	1.00
1	1.00
2	1.00
3	1.00
4	1.00
5	1.00
6	1.00
7	1.00
8	1.00
9	1.00
10	1.00
15	1.00
20	1.00
25	1.00
30	1.00
40	1.00
50	1.00
60	1.00
90	1.00
120	1.00
180	1.00

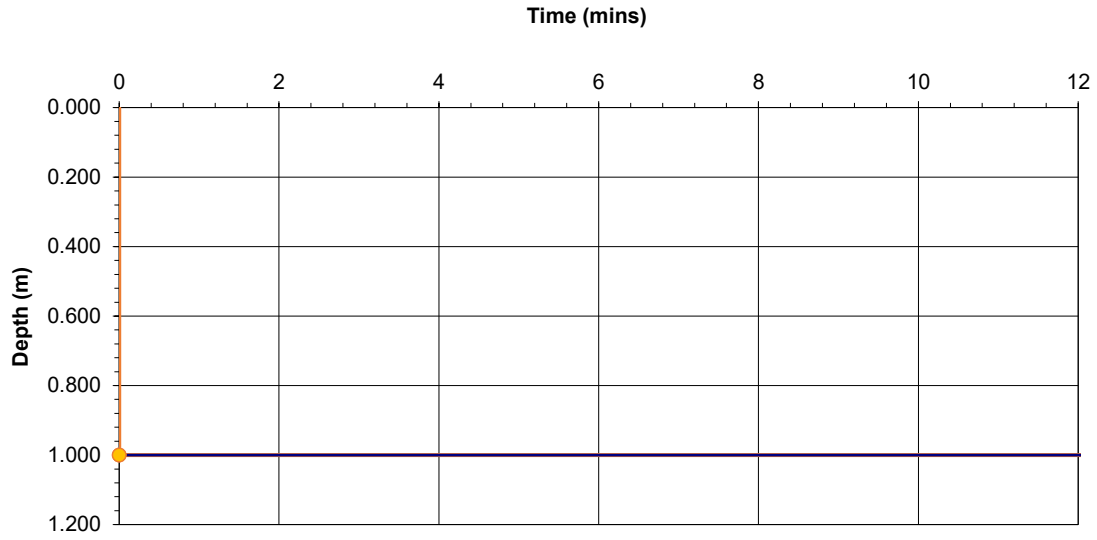
Size of Borehole	Diameter (m) =	0.10
	Eff. Depth (m) =	5.00
	Radius (m) =	0.05

Depth at start of test (m) =	1.000
Depth at end of test (m)=	1.000
75% level (m)=	1.000
50% level (m)=	1.000
25% level (m)=	1.000
Base area of hole (m^2) =	0.00785
Vp_{75-25} (m^3) =	0.0000
a_{p50} (m^2) =	1.5787

TAKE VALUES FROM THE GRAPH:	
tp 75 (min) =	0.00
tp 25 (min) =	180.00

Soil infiltration rate, f, (m/s) =	**0.00E+00**	**normal test**

Input by:	AG	**Date:**	19/01/2026
Checked by:	MA	**Date:**	19/01/2026



Notes:

Appendix E

♣Solmek conditions of offer, notes on limitations & basis for contract (ref: version1/2026)

These conditions accompany our tender and supercede any previous conditions issued. Solmek will prepare a report solely for the use of the Client (the party invoiced) and its agent(s). No reliance should be placed on the contents of this report, in whole or in part by 3rd parties. The report, its content and format and associated data are copyright, and the property of Solmek. Photocopying of part or all of the contents, transfer or reproduction of any kind is forbidden without written permission from Solmek. A charge may be levied against such approval, the same to be made at the discretion of Solmek.

Solmek cannot be held liable and do not warrant, or otherwise guarantee the validity of information provided by third parties and subsequently used in our reports. Solmek are not responsible for the action negligent of otherwise of subcontractors or third parties.

Site investigation is a process of sampling. The scope and size of an investigation may be considered proportional to levels of confidence regarding the ground and groundwater conditions. The exploratory holes undertaken investigate only a small volume of the ground in relation to the overall size of the site, and can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions as encountered within each of the exploratory holes. There may be different ground conditions elsewhere on the site which have not been identified by this investigation and which therefore have not been taken into account in this report. Reports are generally subject to the comments of the local authority and Environment Agency. The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that mobile contamination, ground gas levels and groundwater levels may vary owing to seasonal, tidal and/or weather related effects. Solmek cannot be held liable for any unrecorded or unforeseen obstructions between exploratory boreholes and trial pits. This includes instances where previous structures on the site (buried man made structures) or the presence of boulder clay (cobbles and/or boulder obstructions) have been anticipated. All types of piling operations should make allowance for obstructions within the construction budget to accommodate this. Unrecorded ancient mining may occur anywhere where seams that have been worked and influence the rock and soil above. Dissolution cavities can occur where gypsum or chalk is present. Rotary drilling is the recommended technique to prove the integrity of the rock.

Where the scope of the investigation is limited via access to information, time constraints, equipment limitations, testing, interpretation or by the client or his agents budgetary constraints, elements not set out in the proposal and excluded from the report are deemed to be omitted from the scope of the investigation.

Desk studies are generally prepared in accordance with RICS guidelines. Environmental site investigations are generally undertaken as 'exploratory investigations' in accordance with the definitions provided in paragraph 5.4 of BS 10175:2011 in order to confirm the conceptual assumptions. You are advised to familiarize yourself with the typical scope of such an investigation. No pumping of water will be undertaken unless a licence or facilities/equipment have been arranged by others.

Where the type, number or/and depth of exploratory hole is specified by others, Solmek cannot and will not be responsible for any subsequent shortfall or inadequacy in data, and any consequent shortfall in interpretation of environmental and geotechnical aspects which may be required at a later date in order to facilitate the design of permanent or temporary works.

All information acquired by Solmek in the course of investigation is the property of Solmek, and, only also becomes the joint property of the Client only on the complete settlement of all invoices relating to the project. Solmek reserve the right to use the information in commercial tendering and marketing, unless the Client expressly wishes otherwise in writing. The quoted rates do not include VAT, and payment terms are 30 days from dispatch of invoice from our offices. Quotes are subject to a site visit.

We have allowed for 1 mobilisation and normal working hours unless otherwise stated. The scope of the investigation may be reviewed following the desk study and/or fieldwork. The presence or otherwise of Japanese Knotweed or other invasive plants can be difficult to identify especially during winter months. If Japanese Knotweed or other invasive species are suspect, it should be confirmed by an ecologist. We have not allowed for acquiring services information, and cannot be responsible for damage to underground services or pipes not shown to us or not clearly shown on plans. Costs incurred will be passed on to you, and in commissioning Solmek you understand and accept that you/your agent have a contractual relationship with Solmek & you accept this. Our rates assume unobstructed, reasonably level and firm access to the exploratory positions and adequate clear working areas and headroom. We have priced on the basis that you or your client have the necessary permissions, wayleaves and approvals to access land. All boreholes and pits are backfilled with arisings except where gas monitoring pipes are installed with stopcock covers. Solmek are not responsible for any uneven surfaces as a result of siteworks and rutting and backfilled excavations may require re-levelling and/or making good by others after fieldwork is complete, and Solmek has not allowed for this. No price has been provided or requested for a return visit to remove pipework and covers. Hourly rates apply to consultancy only and do not include expenses unless otherwise shown. If warranties are required, legal costs incurred will be passed on to you assuming Solmek agree to complete such warranties, modified or otherwise and you understand and agree to pay all costs.

We reserve the right to pursue full payment of the invoice prior to release of any information including reports. We advise you/your client that we may elect to pursue our statutory rights under late payment legislation, and will apply 8% to the base rate for unreasonably late payments. Solmek are exempt from the CIS Scheme. Solmek offer to undertake work only in strict accordance with conditions covered by our current insurances, which are available for inspection. Solmek are not responsible for acts, negligent or otherwise of subcontractors and as a matter of policy cannot indemnify any other parties. Professional indemnity Insurance is limited to ten times the invoice net total except where stated otherwise by Solmek. Solmek give notice that consequential loss as a direct or indirect result of Solmek's activities or omission of the same are excluded.

SOLMEK NOTES ON CONTAMINATION GUIDANCE (REF: VERSION 1/2026)

UK BACKGROUND

Environmental Protection Act 1990: Part 2A Revised Statutory Guidance (April 2012)

This revised document explains how the Local Authority should decide if land, based on a legal interpretation, is contaminated. The document replaces the previous guidance given in Annex 3 of DEFRA Circular 01/2006, issued in accordance with section 78YA of the 1990 Environmental Protection Act.

The main objectives of the Part 2A regime are to *"identify and remove unacceptable risks to human health and the environment" and* to *"seek to ensure that contaminated land is made suitable for its current use".*

Part 2A uses a risk based approach to defining contaminated land whereby the "risk" is interpreted as *"the likelihood that harm, or pollution of water, will occur as a result of contaminants in, on or under the land"* and by *"the scale and seriousness of such harm or pollution if it did occur".*

For a relevant risk to exist a contaminant, pathway and receptor linkage must be present before the land can be considered to be contaminated. The document explains that *"for a risk to exist there must be contaminants present in, on or under the land in a form and quantity that poses a hazard, and one or more pathways by which they might significantly harm people, the environment, or property; or significantly pollute controlled waters."*

A conceptual model is used to develop and communicate the risks associated with a particular site.

To determine if land is contaminated the local authority use various categories from 1 to 4. Categories 1 and 2 include *"land which is capable of being determined as contaminated land on grounds of significant possibility of significant harm to human health."*

Categories 3 and 4 *"encompass land which is not capable of being determined on such grounds".*

PRELIMINARY CONCEPTUAL MODEL

Preliminary Conceptual Models are undertaken in accordance with CIRIA C552. The Preliminary Conceptual Model assesses the consequence and the likelihood of a risk being realised to provide a risk classification, using the tables detailed below.

CONSEQUENCE OF RISK BEING REALISED (Based on C552 CIRIA, 2001)

Classification	Definition	Example
Severe	Short-term (acute) risk to human health, the environment, an element of the development or other aspect with is likely to result in *significant harm*, damage or both.	High concentrations of cyanide on the surface of an informal recreational area. Major spills of contaminants from site into controlled water. High concentrations of explosive gas in the subsurface environment that have a clear unobstructed pathway into buildings.
Moderate	Chronic damage to human health, a plausible chance that an event will occur, although the timeline is not immediate to be in the short-term.	Appreciable concentration of contamination that over the longer-term will cause significant harm i.e. high lead concentration in topsoil. Shallow mine workings that are potentially unstable but may remain in a satisfactory or stable conditions for a number of years.
Mild	Low level pollution of non-sensitive water, a feasible hazardous scenario although the timeline of such occurring can probably be considered in 10's of years.	The effect of high sulphate concentrations on structural concrete. Pollution of non-classified groundwater.
Minor	Harm, although not necessarily significant to human health, or with respect to other aspects of the development, which are considered implausible in terms of occurrence, or will have little consequential impact.	The presence of contaminants at such low concentrations that protective equipment is required during site works. Any damage to structures is minimal and will not be structural in characteristics.

PROBABILITY OF RISK BEING REALISED (C552 CIRIA, 2001)

Classification	Definition
High Likelihood	There is a viable pollutant linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence that the receptor has been harmed or polluted.
Likely	There is a viable pollutant linkage and all elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a viable pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a viable pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

RISK CLASSIFICATION MATRIX (C552 CIRIA, 2001)

Risk = Probability x Consequence		Consequence			
		Severe	Moderate	Mild	Minor
Probability	High likelihood	Very high risk	High risk	Moderate risk	Moderate/low risk
	Likely	High risk	Moderate risk	Moderate/low risk	Low risk
	Low likelihood	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely	Moderate/low risk	Low risk	Very low risk	Very low risk

HUMAN RECEPTORS

Human exposure to contaminants present in soils can occur via several pathways. Direct exposure pathways include dermal absorption after contact with contaminated ground, inhalation of soil or dust, inhalation of volatised compounds, and inadvertent soil ingestion (or deliberate soil ingestion in the case of some children). Other indirect pathways include human ingestion of plants grown in contaminated soil or contaminated ground or surface water. Contaminants associated with wind blown dust can affect humans on surrounding sites.

VEGETATION

Plants can be affected by soil contamination in a number of ways resulting in growth inhibition, nutrient deficiencies and yellowing of leaves. Contaminants are taken up by plants through the roots and through foliage. Contaminants identified as being highly phytotoxic include boron, cadmium, copper, lead, nickel, and zinc.

To establish if the levels of contaminants present on a site may pose a risk to vegetation the results of the contamination testing are compared to a series of threshold values published in 'Code of Good Agricultural Practice for the Protection of Soil'.

GROUNDWATER AND SURFACE WATER RECEPTORS

The principal pathway by which soil contamination may reach the water environment is through a slow seepage or leaching to groundwater or surface water. The potential for contaminants to migrate along such pathways is dependent on the chemical and physical characteristics of the contaminants and the local hydrogeology. Surface watercourses may also accumulate contamination as contaminated sediments are deposited within the water body.

Where the site investigated overlies major/principal aquifers (and in some cases minor/secondary aquifers depending on certain conditions), groundwater Source Protection Zones and areas in close proximity to groundwater abstractions, contamination test results have been compared with the Water Supply (Water Quality) Regulations 1989 and The Water Supply (Water Quality) Regulations 2000.

Should a surface water receptor, such as a fresh water environment (river, canal, stream, lake etc), or marine environment be considered sensitive in relation to a site, then test results are compared with DEFRA & SEPA Environmental Quality Standards (2004). Many of the Environmental Quality Standards are hardness ($CaCO_3$) depended. Where no hardness values are available, Solmek assume conservative values (of between 0 and 50mg/l).

In the absence of vulnerable ground and surface water environments, Solmek may compare any test results with the Environment Agency Leachate Quality Threshold Values.

DETAILED QUANTITATIVE RISK ASSESSMENT (DQRA)

In line with Environment Agency's guidance document Environment Agency *Land Contamination Risk Management*, which replaced the now-withdrawn *Contaminated Land Report 11 – Model Procedures for the Management of Land Contamination (2004)*, a DQRA for groundwater/human health may be required following a Phase 2 investigation and before the preparation of a Phase 3 Remediation Strategy. For human health DQRA, a site specific assessment criteria is undertaken using CLEA Software Version 1.06. For groundwater DQRA, the Environment Agency Remedial Targets Worksheet Version 3.1 is used.

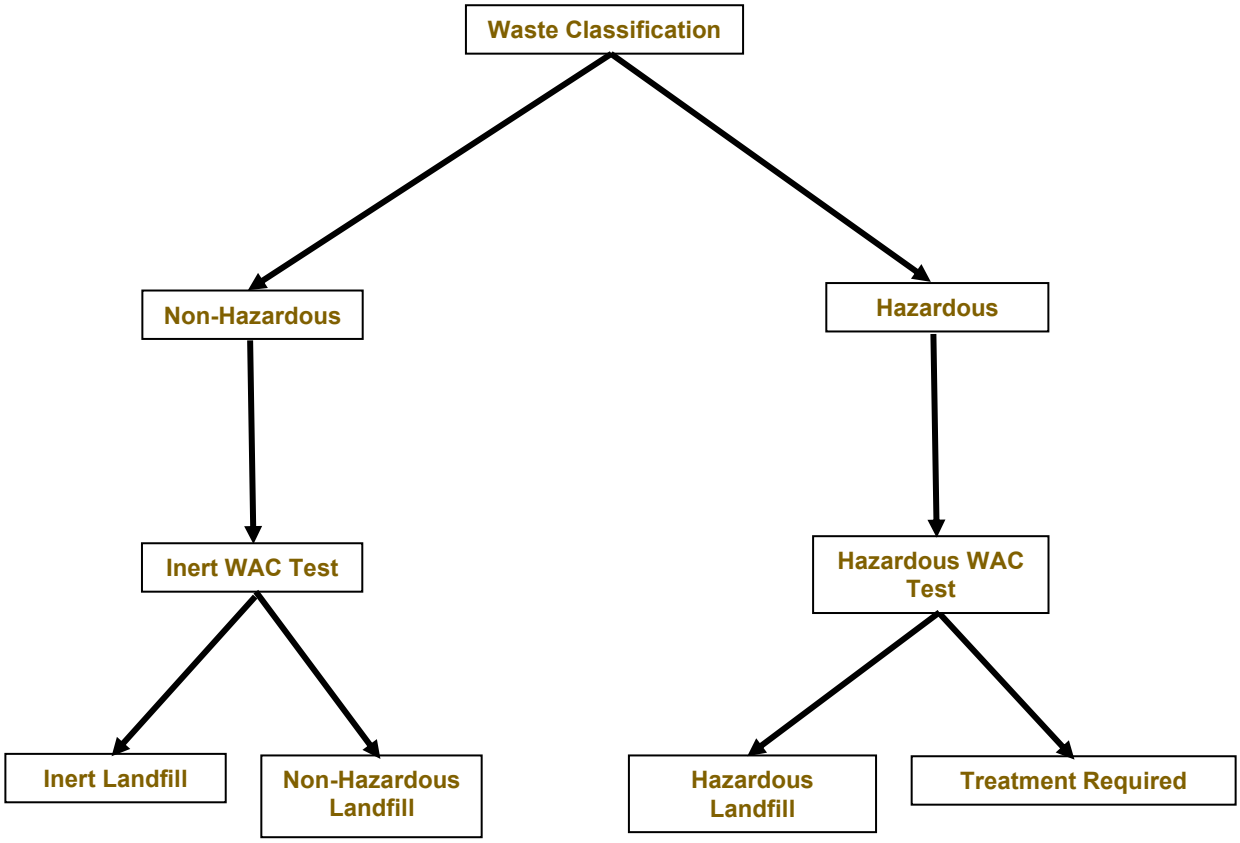
WASTE CLASSIFICATION AND WASTE ACCEPTANCE CRITERIA

During the site strip and construction activities, material may be required to be removed from site. Any such material would require classification, in line with Environment Agency Technical Guidance *Waste Classification: Guidance on the classification and assessment of waste (2015)*. This would classify the material as either Non-Hazardous or Hazardous Waste.

Once the material has been classified, determining the suitable landfill for disposal is governed by landfill directive Waste Acceptance Criteria (WAC) testing, with landfills categorized as Inert Waste, Stable Non-Reactive Hazardous Waste and Hazardous Waste. The WAC testing relates to materials that are to be exported from a site/development to landfill, and do not directly relate to human health specifically. The testing results are generally presented as certificates which can be used by site owners/contractors etc, which should be presented to the accepting waste facility or waste contractor.

If waste classification and/or WAC testing are not undertaken, material taken off site may be subject to WAC testing by the appropriate waste disposal company. The decision on whether or not to accept waste, or whether further testing is required, is at the discretion of the waste disposal company.

The below flow chart provides further information on the waste classification process.



CONSTRUCTION MATERIALS

Materials at risk from possible soil contaminants include inorganic matrices such as cement and concrete and also organic material such as plastics and rubbers. Acid ground conditions and high levels of sulphates can accelerate the corrosion of building materials. Where pH and soluble sulphate analysis has been undertaken, Solmek compare the test results with the guidelines presented within BRE Special Digest 1, 2005 (3rd Edition) 'Concrete in Aggressive Ground'. Plastics and rubbers are generally used for piping and service ducts and are potentially attacked by a range of chemicals, most of which are organic, particularly petroleum based substances. Drinking water supplies can be tainted by substances that can penetrate piping and water companies enforce stringent threshold values.

The levels of potential contaminants should be compared to thresholds supplied in the UK Water Industry Research (UKWIR) publication "Guidance for the selection of Water Supply Pipes to be used in Brownfield Sites" (January 2011). A Brownfield Site is defined in the document as "Land or premises that have not previously been used or developed that may be vacant or derelict". It should be noted that Brownfield sites may not be contaminated. The guidance does not apply to Greenfield Sites however water companies may have their own assessment criteria which should be checked by the developer. The table below outlines the pipe material selection threshold concentrations.

	Pipe Material (Threshold concentrations in mg/kg)					
Parameter group	**PE**	**PVC**	**Barrier pipe (PE-AL-PE)**	**Wrapped Steel**	**Wrapped Ductile Iron**	**Copper**
Extended VOC suite by purge and trap or head space and GC-MS with TIC	0.5	0.125	Pass	Pass	Pass	Pass
+ BTEX + MTBE	0.1	0.03	Pass	Pass	Pass	Pass
SVOCs TIC by purge and trap or head space and GC-MS with TIC (aliphatic and aromatic C5-C10)	2	1.4	Pass	Pass	Pass	Pass
+ Phenols	2	0.4	Pass	Pass	Pass	Pass
+ Cresols and chlorinated phenols	2	0.04	Pass	Pass	Pass	Pass
Mineral oil C11-C20	10	Pass	Pass	Pass	Pass	Pass
Mineral oil C21-C40	500	Pass	Pass	Pass	Pass	Pass
Corrosive (Conductivity, Redox and pH)	Pass	Pass	Pass	Corrosive if pH <7 and conductivity >400µS/cm	Corrosive if pH <5, Eh not neutral and conductivity >400µS/cm	Corrosive if pH <5 or >8 and Eh positive
Specific suite identified as relevant following site investigation						
Ethers	0.5	1	Pass	Pass	Pass	Pass
Nitrobenzene	0.5	0.4	Pass	Pass	Pass	Pass
Ketones	0.5	0.02	Pass	Pass	Pass	Pass
Aldehydes	0.5	0.02	Pass	Pass	Pass	Pass
Amines	Fail	Pass	Pass	Pass	Pass	Pass

REQUIREMENTS OF PARTIES WITHIN THE DEVELOPMENT PROCESS

Interested parties involved in the development process may use the data in different ways and there may be varying views and interpretation of the factual data. Local Authority staff may have a view on contamination and human health and the wider environment. The Environment Agency are concerned principally with the protection of Controlled waters. Building insurers, funders and purchasers may be primarily concerned with issues of potential commercial blight. Purchasers are also not always fully informed, and perceptions on issues associated with risk can affect the decision to purchase. Developers and construction organisations will focus on financial aspects of dealing with the contamination in the context of the development and construction programme.

RISKS & LIABILITIES FROM CONTAMINATION

In simple terms, risks associated with contamination may be considered in terms of 1) statutory risks and 2) development related risks. If contamination is severe or forms a potential hazard based on its potential to affect groundwater, surface water or human health, a statutory risk may be present, and as such, if the risk is not reduced, criminal proceedings may be instigated by a government body or local authority.

If the contamination is less severe or not considered to be mobile, it may be considered a commercial liability which could, in theory remain untreated, but which may at a later date affect the value of the property, or, with changing legislation, become a statutory risk. Commercial liabilities could give rise to civil proceedings by third parties if there are grounds for action.