Ground Condition Consultants

SOUTHLEIGH PARK HOUSE, EASTLEIGH ROAD, HAVANT, PO9 2PE

GENERIC QUANTITATIVE RISK ASSESSMENT

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0. EXECUTIVE SUMMARY

Brief	The brief was to undertake a site investigation and assessment to identify any ground contamination issues that may affect the proposed development.
Current Site Status	The wider site, Southleigh Park House, is located off Eastleigh Rd, Havant, PO9 2PE. The study site, where existing building are to be converted, is currently not in use and is occupied by Southleigh Park House Old Mansion House (centre of site) and associated ancillary buildings (stables and coach house) adjacent to the north. A gate house is located in the north-eastern corner of the wider site and a more modern office building (dating to 1983) is also present in the north of the site, linked to the stables building, along with associated car parking areas (located in the western and northern end of the site).
Site History	The site comprised a stately home with associated out buildings until it was converted to office use in 1983, along with a new office building and associated car parking areas within the wider site. Gravel pits were historically present some 120m to the north of the wider site, some 225m from the study site, and were infilled as a landfill during the 1990s.
Geology	Reference to the British Geological Survey (BGS) Map extracts indicates the majority of the site to overlie Head Deposits (clay, silt, sand and gravel) over London Clay Formation (clay, silt and sand) with the southern end of the site shown to directly overlie the London Clay Formation.
Hydrogeology	The Environment Agency Groundwater Vulnerability Map extracts indicate the majority of the site to be overlying a superficial Secondary A Aquifer, interpreted as the Head Deposits. The underlying London Clay Formation is classified as an unproductive stratum.
Hydrology	The nearest identified surface water feature to the site is a pond located in the southern end of the site.
Investigation Scope	The site investigation works were undertaken by GCC on the 11th June 2025 with subsequent ground gas monitoring on the 14th June 2025. The scope and rationale of the site investigation are presented below. • 6no. hand excavated trial pits to depths of 0.7mbgl • Ground Gas monitoring of 5no monitoring wells installed in December 2020
Ground Conditions Encountered	The ground conditions encountered comprised Topsoil/Made Ground overlying Head Deposits.
Conclusions and Recommendations (Contamination)	The conceptual model, based on information obtained as part of the preliminary risk assessment and intrusive ground investigation, identified the following potential contaminant sources: • Localised lead in Made Ground in the walled area adjacent to the northwest of the mansion house (HP102) • Residual potential for asbestos from the construction of the current buildings and demolition of the former buildings. While no asbestos has been identified in the soil as part of this investigation, due to the age of the structures, there is a significant potential for asbestos to be present in localised deposits of Made Ground. • Potential for PCBs to have leaked from the electrical substation adjacent to the north of the west wing of the mansion house. It should be noted that additional sources of contamination may become apparent during any future investigation and development of the site.

	The risks to the health of future site users from contamination have been assessed to be **very low to moderate** in the context of the conversion of the existing buildings and risks to controlled waters have been assessed to be **very low**. It is therefore recommended that: • Remediation is undertaken in the walled areas to the rear (north) of the west wing of the mansion house to address the lead and potential PCB risks in the proposed garden areas. • Although no asbestos has been identified in the soil to date, vigilance should be maintained throughout the development for suspected asbestos containing materials and such material should be assessed by a specialist to determine appropriate mitigation measures. A discovery strategy and appropriate PPE are recommended during any redevelopment of the site to address any as yet unidentified contamination that may be identified during the works.
This sheet is intended to provide a summary only of the initial indicative assessment study of the site in relation to ground contamination. It does not provide a definitive engineering analysis for the purposes of costing or construction and is subject to the limitation of the agreed brief.	

1. INTRODUCTION

1.1 INSTRUCTION

Ground Condition Consultants Ltd. (GCC) was commissioned by FSL Group Ltd in June 2025 to undertake a Ground Condition Assessment of a site located at Southleigh Park House, Eastleigh Road, Havant, PO9 2PE. It is understood that the wider Southleigh Park site is to be developed by Bargate Homes, while the current subject site for this assessment comprised the existing buildings that are to be converted to residential use by FSL Group Ltd, within the centre of the wider site.

The brief was to undertake a site investigation and assessment to identify any ground contamination issues that may affect the proposed development. This report provides an assessment of the identified and potential ground conditions of the site, with regard to the proposed works in accordance with the Land Contamination Risk Management (LCRM) guidance, published by the Environment Agency.

This report is prepared in line with the agreed brief and is subject to the report conditions shown in Appendix 1.

1.2 LEGAL CONTEXT

Part IIA of the Environmental Protection Act 1990 (inserted by Section 57 of the Environment Act 1995) provides a regime for the control of specific threats to health or the environment from land contamination. In accordance with the Act and the statutory guidance document 'The Contaminated Land (England) Regulations 2000', the definition of contaminated land is intended to embody the concept of risk assessment. Within the meaning of the Act, land is only "contaminated land" where it appears to the Regulatory Authority, by reason of substances within or under the land, that:

- Significant harm is being caused, or there is a significant possibility of such harm being caused; or
- Pollution of controlled waters is being, or is likely to be, caused."

Inherent in this definition is the requirement for contamination risk assessment to be undertaken on a site-specific basis, as the potential for harm is determined by the site's end use and its specific environmental setting.

The guidance defines "risk" as the combination of:

- The probability, or frequency, of occurrence of a defined hazard (for example, exposure of a property to a substance with the potential to cause harm); and

- The magnitude (including the seriousness) of the consequences.

While Part IIA of the Environmental Protection Act provides a risk based approach to the identification and remediation of land where contamination poses an unacceptable risk to human health or the environment, the regime does not take into account future uses. New developments are therefore controlled by the planning regime, with reference to the National Planning Policy Framework (NPPF), rather than directly by Part IIA of the Environmental Protection Act.

The NPPF is based on the principal that the site should be suitable for its new use, taking account of ground conditions, including from natural hazards or former activities and states that "Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner". The NPPF also links the planning and Part IIA regimes by stating that "after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990". Key components of the Part IIA regime, such as the definition of Contaminated Land and the associated risk-based assessment approach, are therefore considered to also be applicable to the planning regime.

1.3 METHODOLOGY

This report has been prepared in accordance with published Environment Agency guidance ('Land Contamination Risk Management (LCRM)'). LCRM provides the technical framework for structured decision making about land contamination and builds on previous work carried out under the Contaminated Land Research Programme (of the former Department of the Environment) and the Model Procedures for the Management of Land Contamination – Contaminated Land Report (CLR) 11. LCRM has adopted and refined the well-recognised methodology and terminology that has been used in contaminated land risk assessment for a number of years.

1.3.1. Pollutant linkage concept

In the context of land contamination, there are three essential elements to any risk:

- A **contaminant source** – a substance that is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters.
- A **receptor** – in general terms, something that could be adversely affected by a contaminant, such as people, an ecological system, property, or a water body.

- A **pathway** – a route or means by which a receptor can be exposed to, or affected by, a contaminant.

Each of these elements can exist independently, but they create a risk only where they are linked together, so that a particular contaminant affects a particular receptor through a particular pathway. This kind of linked combination of contaminant–pathway–receptor is described as a pollutant linkage.

1.3.2. Conceptual model

An important thread throughout the overall process of risk assessment is the need to formulate and develop a **conceptual model** for the site, which supports the identification and assessment of pollutant linkages. A conceptual model represents the characteristics of the site in diagrammatic or written form that shows the possible relationships between contaminants, pathways and receptors (pollutant linkages).

1.3.3. Risk assessment

LCRM advocates a phased approach to risk assessment comprising the following in order, as necessary:

Preliminary Risk Assessment – a desk study consisting of a review of documentary, anecdotal and site walk over evidence.

Generic Quantitative Risk Assessment (GQRA) - comparison of contaminant concentrations obtained from site investigation with generic assessment criteria.

Detailed Quantitative Risk Assessment (DQRA) - comparison of contaminant concentrations obtained from site investigation with site-specific assessment criteria.

This document follows on from the Preliminary Risk Assessment presented in the GCC Ground Condition Desk Top Study (J20-064-R02, July 2023) and constitutes a Generic Quantitative Risk Assessment.

1.4 PROPOSED USE

It is currently understood that the existing Manion House, stables, coach house and gate house are to be converted to residential use. These works are covered by the full application and grant of planning permission for Application Number: APP/17/00863.

The existing 1983 office building in the north of the site is to be demolished. The remainder of the site, including the footprint of the 1983 office building and associated car parking areas, is proposed for new build residential development. These works are covered as outline in Application Number: APP/17/00863 with all matters reserved, except means of access.

This assessment is intended to assess the conversion aspect of the development and the new build areas of the site will be subject to separate investigation and assessment.

A change in the site use from that currently proposed may result in the need for re-assessment of risk criteria and the conclusions and recommendations resulting from the risk assessment could therefore significantly change.

1.5 REPORT SCOPE AND LIMITATIONS

This report is based upon a review of readily available historical and current information, and the recent site investigation data detailed herein. The report presents an interpretation of the investigation and laboratory data provided by the GCC site investigation undertaken on the 11th June 2025.

In addition, this report outlines the basic ground conditions encountered in the exploratory holes and the results of any monitoring of ground installations.

This information has been collated, processed and used to provide an interpretation of the ground conditions, with recommendations on potential ground contamination risks for the proposed development.

The recommendations and opinions expressed in this report are based on the strata observed in the exploratory holes, the results of the site and laboratory tests, and information obtained as part of the desk study or provided by others. GCC takes no responsibility for conditions that have not been revealed by the exploratory holes, or which occur between them.

Whilst every effort has been made to interpret the conditions between investigation locations, such information is only indicative and liability cannot be accepted for its accuracy. Information provided from other sources is taken in good faith and GCC cannot guarantee its accuracy.

The information contained in this report is intended for the use of FSL Group Ltd and GCC can take no responsibility for the use of this information by any other party or for uses other than that described in this report.

2. PRELIMINARY RISK ASSESSMENT

2.1 SITE LOCATION AND DESCRIPTON

The wider site, Southleigh Park House, is located off Eastleigh Rd, Havant, PO9 2PE. The study site, where existing buildings are to be converted and extended, is currently not in use and is occupied by Southleigh Park House Old Mansion House (centre of site) and associated ancillary buildings (stables and coach house) adjacent to the north. A gate house is also located in the north-eastern corner of the wider site and a more modern office building (dating to 1983) is also present in the north of the site, linked to the stables building, along with associated car parking areas (located in the western and northern end of the site). There are also a couple of electrical sub-stations/units within the wider site, one adjacent to the southeast wider site boundary and one adjacent to the rear of the mansion house, within the study site. The southern area of the wider site is predominantly laid to lawn with a pond in the southwest corner. Numerous large mature trees are located across the site, particularly around the perimeter of the site, along with other vegetation (trees & bushes). An in-ground chamber, possibly a well, was identified beneath the lawn area adjacent to the west of the coach house.

The mansion house was noted to have a basement containing gas fuelled heating systems and a generator was also noted adjacent to the west of the mansion house, similarly understood to be powered by gas. There was no remaining evidence of the historical fuel source for heating the mansion house and associated out buildings prior to the introduction of gas, although it is considered likely that coal was used. No evidence of bulk fuel storage was noted on site.

Eastleigh Rd forms the western site boundary, Bartons Rd forms the northern site Boundary and Horndean Rd forms the eastern site boundary. The area to the south is occupied by undeveloped parkland beyond which Southleigh Rd runs. The area to the immediate east of Horndean Rd is undeveloped (mainly woodland) with the area to the immediate west of Eastleigh Rd also undeveloped (grassland and woodland). Spire Hospital is located to the north of Barton Rd.

2.2 SITE HISTORY

The historical maps from 1859 to 2023 show the wider site, initially known as Woodland, on the early map extracts with a main building in the centre of the site and ancillary buildings and greenhouses across the site (mainly in the northerns end of the site). A pond and a summer house are shown to be present on the early extracts in the southern end of the site. A lodge/gate house is shown in the north-eastern corner of the site.

By 1897, the wider site is known as South Leigh and smaller additions and alterations (removal of small scaled buildings and summer house and reference to a water tower in the west) are indicated on early map extracts until the 1960/80's.

In 1983, a new office building and associated car parking areas were developed in the north of the wider site, requiring the demolition of the majority of the small scaled buildings in the north of the site and the water tower in the west. It is understood that the mansion house and remaining associated outbuildings, within the current study site, were converted to office use at this time. No significant changes are shown on later map extracts.

The immediate surrounding areas, on the early map extracts, are shown as woodland/parkland and agricultural land with a couple of gravel pits (to the northeast), which were progressively extended during the 20th Century. Although not noted on the map extracts provided and reviewed, the Groundsure report indicates that the 1996 map extract (not provided in the map pack) identifies the gravel pits area to the north as a Refuse Tip. The landfill records presented in the Groundsure report also indicate the Southleigh Forest landfill to have been operated approximately 120m to the north of the wider site, some 225m north of the current study site. The 1999 aerial imagery indicates the nearest portion of the landfill to have been reinstated as open space, with reinstatement of the wider landfill (some 350m northwest of the site) completing by 2019. The immediate surrounding areas have largely remained undeveloped with the Spire Hospital, to the north of the site, first shown on a map extract from the 1980's.

2.3 DOCUMENTATED GROUND CONDITIONS

Ground conditions recorded in readily available sources are summarised below.

2.3.1. Geology

Reference to the British Geological Survey (BGS) Map extracts (see Desk Top Study) indicates the majority of the site to overlie Head Deposits (clay, silt, sand and gravel) over London Clay Formation (clay, silt and sand) with the southern end of the site shown to directly overlie the London Clay Formation.

GCC undertook a ground investigation in December 2020 to install monitoring wells for groundwater level monitoring using windowless sample drilling techniques. These boreholes encountered clayey Gravel and gravelly Clay of the Head Deposits or unrecorded River Terrace Deposits (RTD) across the site with localised subordinate Sand beds.

Many of the boreholes refused in the Head Deposits/RTD with depths of between 1.0m and 5.0m achieved. The underlying London Clay Formation was not proven.

Localised Made Ground, comprising reworked natural deposits with anthropogenic inclusions, were encountered and were associated with the profiling of the site, presumably during the 1983 redevelopment.

2.3.2. Hydrogeology

The Environment Agency Groundwater Vulnerability Map extracts (see Desk Top Study) indicate the majority of the site to be overlying a superficial Secondary A Aquifer, interpreted as the Head Deposits/RTD. The underlying London Clay Formation is classified as an unproductive stratum.

Secondary A Aquifers are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

Unproductive Strata are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The site is not located within a Groundwater Source Protection Zone or within 250m of licenced water abstractions.

GCC undertook groundwater monitoring between December 2020 and April 2021. Due to the sloping character of the site, the shallowest groundwater was recorded in the south of the site at 0.53m bgl at its shallowest, while groundwater levels in the centre east were recorded at 1.86m and in the centre west at 2.06m bgl, at their shallowest. Groundwater was deeper than the base of the well (1.76m bgl) in the north of the site. With reference to ground levels shown on the topographical survey, the highest winter groundwater levels ranged from 31.67m AOD to 34.91m AOD with a general flow from northeast to southwest, following the local topography.

A below ground chamber was noted adjacent to the west of the coach house, where a water tower had been noted on the historical maps, with water measured in the chamber at 2.16m bgl in December 2020. The chamber was not accessible during following monitoring rounds. This depth is broadly consistent with the water levels recorded in a nearby monitoring well and is considered likely to be indictive of groundwater within the chamber.

The BGS borehole records, apparently dating from 1957, indicate the presence of a water well on site, measuring 5 feet (1.5m) in diameter and 38 feet (11.6m) in depth. No details of the ground conditions are presented. The Groundsure report indicates this well to be in the same area as the encountered chamber, suggesting they are the same structure and that the well and water tower may have been linked.

2.3.3. Hydrology

The nearest identified surface water feature to the site is a pond located in the southern end of the wider site.

2.3.4. Radon

Radon is a naturally occurring radioactive gas which may be harmful to human health. Radon is generally released into the atmosphere in areas underlain by granite and limestone. Harmful concentrations of radon may build up if it becomes trapped in an enclosed space such as a building.

BGS/Public Health England data presented within the Groundsure Report indicates that the percentage of houses exceeding the Action Levels for Radon in this area is less than 1%. Therefore, the property not in a Radon Affected Area, as defined by the Health Protection Agency (HPA), and radon protection measures are not necessary in new dwellings or extensions.

2.4 ENVIRONMENTAL DATA SEARCH

A search of an environmental database was undertaken together with information from various other organisations as part of the desk study and is summarised in the following sections. The following summary is generally limited to locations within 250m of the site boundaries unless it is considered that installations or activities beyond that range could potentially have an impact on the site or be affected by the redevelopment of the site.

Table 2.1. Data search results

Discharge consents	There is 1no. recorded water discharge consent within 250m of the site. • Located 92m to the northeast at 2 Gravel Pit Cottages, Emsworth Common Rd, Havant, PO9 2PB
Pollution incidents	There are no recorded pollution incidents to land or water recorded within 250m of the site.
Water abstractions	There are no recorded groundwater or surface water abstractions within 250m of the site.
Fuel Stations	There are no recorded fuel stations within 250m of the site.

Landfill Sites	There is 1no. recorded landfill site within 250m of the site, believed to be associated with the following 3 entries. • Located 30m to the north-east at Southleigh Landfill Site, Emsworth Common Road, Emsworth, Hampshire, PO9 2PB • Located 108m to the north at Southleigh Forest, Havant, Hampshire • Refuse tip located 122m to the north of wider site, approx. 225m north of current study site Although one of these entries references a 30m distance to the landfill, the historical maps do not indicate the landfill to extend that close to the site and Gravel Pit Cottages remained in this area of the site throughout the indicated landfill period. The historical aerial imagery also indicates mature trees in this area shortly after the landfill was reinstated. The distance of 122m/225m appears to be more accurate.

2.5 MINING AND NATURAL GROUND HAZARDS

2.5.1. Mining

The site and surrounding areas have been affected by surface ground working (gravel extractions).

2.5.2. Natural Ground Hazards

The following ground hazards were identified:

Compressible ground stability hazards – Negligible hazard

BGS Notes: Compressible strata are not thought to occur.

Collapsible ground stability hazards – Very Low hazard

BGS Notes: Deposits with potential to collapse when loaded and saturated are unlikely to be present.

Ground dissolution stability hazards – Negligible hazard

BGS Notes: Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.

Landslide ground stability hazard – Very Low hazard

BGS Notes: Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

Shrinking or swelling clay ground stability hazard – Low hazard

BGS Notes: Ground conditions predominantly medium plasticity. This is likely to relate to the underlying Tidal Flat deposits.

Running sand ground stability hazards – Negligible hazard (Head Deposits)

BGS Notes: Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

Running sand ground stability hazards – Very Low hazard (London Clay Formation)

BGS Notes: Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

2.6 DEPARTMENT OF ENVIRONMENT – INDUSTRY PROFILES

The Department of the Environment Industry Profiles do not cover the previous or existing site uses of the site.

2.7 UNEXPLODED ORDNANCE

A Zetica UXO Unexploded Bomb (UXB) Risk Map was obtained for the site indicates the site to be of moderate risk of potential UXBs to be present following World War Two (WWII) bombing, due to the sites location within an area of moderate density bombing. Zetica UXO typically recommend that a detailed UXO desk study and risk assessment is undertaken for sites in an area with a moderate or high bombing density.

However, as the development of the current study site comprises the conversion of existing buildings and the investigation comprised shallow hand pits, UXO is not likely to be a significant risk with regard to the current works.

2.8 PREVIOUS REPORT REVIEWED

GCC undertook a site investigation in December 2020 to install groundwater monitoring wells on the site for the proposed development. The results of the well installation and monitoring are presented in a Groundwater Level Monitoring letter report (Ref: J20-064-R01, dated 6th April 2021). The relevant ground conditions encountered have been discussed in Section 2.3 of this Desk Top Study. In addition, no visual or olfactory evidence of contamination was noted during the investigation.

2.9 CONCLUSIONS OF PRELIMINARY RISK ASSESSMENT

The conceptual model, based on information obtained as part of the preliminary risk assessment, identified the following potential contaminant sources:

With regard to the conversion of the existing buildings:

- Potential for reduced quality Made Ground to be present beneath the site, including asbestos, from the construction of the current buildings and demolition of the former buildings. Due to the age of the structures, there is a significant potential for asbestos to be present in the superstructure and therefore for off-cut fragments to be present in the soil.
- Potential for ground gas generation, related to the off-site former landfill approximately 120m to the north of the site boundary.
- Potential for PCBs to have leaked from the electrical substation adjacent to the north of the west wing of the mansion house.

While asbestos containing material may be present in the existing buildings, the management of risks associated with these materials in the building super structures are outside the scope of this assessment.

It should be noted that additional sources of contamination may become apparent during any future investigation and development of the site.

2.10 REGULATOR REVIEW

The GCC Desk Top Study was submitted for review by the Havant Borough Council Environmental Health Department, who produced a Memorandum, dated 30 January 2024, presenting comments on the report.

The Environmental Control Officer concurred with conclusion of the report that further investigation around the existing buildings be undertaken and recommended that the investigation include some screening of the soil arisings for total volatile compounds, using a handheld PID. However, he disagreed with the assessment that ground gas presents a very low risk and recommended that ground gas spot monitoring be undertaken, including vapour screening with a PID.

3. FIELDWORK SUMMARY OF SCOPE AND RATIONALE

3.1 RATIONALE AND SUMMARY OF SCOPE

The site investigation works were undertaken by GCC on the 11th June 2025 with subsequent ground gas monitoring undertaken on the 14th June 2025. The scope and rationale of the site investigation are presented below.

- 6no. hand excavated trial pits to depths of 0.7mbgl.
- Ground Gas monitoring of 5no monitoring wells installed in December 2020.

Table 3.1. Exploratory hole location rationale

Location	Rationale	Max depth (mbgl)
HP101-106	Hand excavated trial pits targeting potential sources of contamination and proposed garden areas and to assess and determine the shallow ground conditions and allow collection of representative samples for on-site PID testing and chemical laboratory analysis.	0.7

The layout of the exploratory hole positions is presented in Figure 2.

While HP102 was targeted to the vicinity of the electrical substation, it was not viable to excavate in close proximity to the substation itself, for health and safety reasons, as the substation and associated in-ground cables were live.

3.2 SAMPLING

Soil sampling of the near surface materials was undertaken to assess the contamination risks to human health. PID screening of soils was undertaken to assist in identifying soils that may be of interest for subsequent laboratory testing, although no measurable PID readings were noted in the soils encountered.

3.3 SITE INVESTIGATION STANDARDS

Methods employed during the site investigation were generally undertaken in accordance with BS10175, BS EN 1997-2 and BS5930.

4. GROUND CONDITIONS ENCOUNTERED

4.1 SOIL CONDITIONS

Ground conditions encountered during the site investigation were broadly in agreement with those presented in the published literature and previous investigations and comprised Topsoil/Made Ground overlying superficial Head Deposits or unrecorded River Terrace Deposits (RTD). Variations in strata thicknesses are summarised in Table 4.1 and engineering logs are presented in Appendix 2.

Table 4.1. Summary of encountered ground conditions

Location	Topsoil		Made Ground		Head Deposits/RTD	
	From (mbgl)	Thickness (m)	From (mbgl)	Thickness (m)	From (mbgl)	Thickness (m)
HP101	GL	0.30	0.30	0.40	0.40	>0.30
HP102	N/E	N/E	GL	0.50	0.50	>0.20
HP103	GL	0.40	N/E	N/E	0.40	>0.30
HP104	GL	0.50	N/E	N/E	0.50	>0.20
HP105	GL	0.15	0.15	0.25	0.40	>0.30
HP106	GL	0.40	N/E	N/E	0.40	>0.30

4.1.1. Topsoil/Made Ground

HP101, HP103, HP105, HP105 and HP106 all encountered grass over brown clayey slightly sandy gravelly SILT to between 0.15m and 0.5m bgl.

In HP101 and HP105 the Topsoil was present over a layer of Made Ground, comprising reworked gravel of the Head Deposits with brick and concrete fragments, presumably associated with the construction and operation of the site. The base of this made ground was not proven in HP101 to a depth of 0.7mbgl but extended to 0.4mbgl in HP105.

Made Ground was encountered from surface in HP102 and comprised 0.5m of clayey silty sandy flint gravel with brick fragment, again likely to represent reworked Head Deposits.

4.1.2. Head Deposits/RTD

Head Deposits/RTD were encountered beneath the Topsoil/Made Ground in all locations except HP101 and generally comprised light brown slightly clayey very silty sandy fine to coarse angular to rounded flint Gravel.

4.2 OBSTRUCTIONS

No obstructions were encountered within the trial pits, although the locations for the excavation of HP102 were limited by the presence of buried services.

4.3 GROUNDWATER CONDITIONS

Groundwater was not encountered within the trial pits.

4.4 VISUAL/OLFACTORY EVIDENCE OF CONTAMINATION

No visual or olfactory observations of contamination were identified within the trial pits.

PID readings were obtained at each location and recorded no measurable VOC concentrations.

5. GENERIC RISK ASSESSMENT

5.1 CONTAMINATION ASSESSMENT METHODOLOGY

In order to assess the human health and environmental risks posed by potential contaminants within the underlying soils and groundwater, GCC undertook an initial screen of the laboratory results from the recent investigation using generic assessment criteria. Generic assessment criteria (GAC) are conservative contaminant concentration values used for comparison purposes to assess the risk associated with contaminant concentrations found on site and are derived using non-site-specific information.

5.1.1. Soils

In order to assess the soil analyses results with regard to potential human health risks, GCC has adopted the LQM/CIEH Suitable 4 Use Levels (S4ULs), generic assessment criteria (GACs) derived in accordance with the UK framework set out in the most recent CLR (Contaminated Land Report) documents using the Contaminated Land Exposure Assessment (CLEA) Model.

S4ULs have been published for an extensive suite of contaminants, with assessment criteria derived for each contaminant for four different land use scenarios namely:

- Residential with homegrown produce;
- Residential without homegrown produce
- Allotments; and
- Commercial and industrial.

A full list of the GACs together with an indication of the method used for their derivation is provided in Appendix 3. GACs applicable to residential with homegrown produce end use have been used for the assessment of the site. Contaminant concentrations below the GACs are considered not to warrant further risk assessment. However, concentrations of contaminants above the GACs may require further consideration through statistical analysis, if appropriate, or further detailed assessment using site specific data.

With regards to human health risks by direct contact exposure, contamination is generally assumed to be at or within 1m of the surface. It is considered that at depths greater than 1m, the probability of human exposure via the direct contact pathways are significantly reduced, leaving inhalation of volatile compounds as the dominant pathway with regard to human health risks. Typically, volatile compounds only significantly affect the indoor inhalation pathway. Therefore, data from the top 1.0 to 1.5m is used for assessment of risks to human health via direct contact pathways, dependant on proposed future site levels.

This document does not constitute a Site Assessment Report (SAR) as outlined in the UKWIR Guidance for the Selection of Water Supply Pipes to be Used in Brownfield Sites (Ref: 10/WM/03/21, 2010). As such, the full generic suite of testing recommended in the UKWIR guidance may not have been undertaken for this site and may be required by some water companies. However, consideration has been given to the 'threshold' concentrations presented in Table 3.1 of the UKWIR guidance, where they are applicable to the analysis undertaken, to provide an indication of the potential risks to buried water supply pipes.

5.1.2. Ground Gas

The criteria used to assess the ground gas monitoring results, where monitored, have been taken from the following guidance documents:

- Assessing risks posed by ground gases to buildings, CIRIA Report C665, 2007
- Code of practice for the characterisation and remediation from ground gas in affected developments, British Standard BS 8576, 2013
- A Pragmatic Approach to Ground Gas Risk Assessment, CL:AIRE Research Bulletin RB17, 2012

The frequency and period of monitoring is assessed based on the gas generation potential of the source material and the sensitivity of the development, in accordance with Figure 6 of BS8576 and Table 5.5 of CIRIA C665. As BS8576 promotes a risk based approach to ground gas assessment, it recognises that ground gas monitoring might not be necessary if a viable pollutant linkages is not present, e.g. if a 'credible' source with significant ground gas generation potential and/or a 'credible' migration pathway are not present.

The Characteristic Situation for a monitoring location is determined using the worst case gas screening value for methane or carbon dioxide from all of the monitoring rounds at that location. Following the precautionary principal, the most stringent of the Characteristic Situations for the monitoring locations within the Site is generally used to classify the site as a whole.

5.2 SOIL ASSESSMENT

5.2.1. General

A total of 12no. soil samples collected during the site investigation of the Topsoil, Made Ground and the underlying natural soil were submitted to a UKAS accredited laboratory for analysis for a suite of heavy metals, phenols, speciated polycyclic aromatic hydrocarbons (PAHs), fractionated total petroleum hydrocarbons (TPH), BTEX compounds and several inorganic parameters. The results of the laboratory analyses are summarised in Appendix 4, in which they are compared to the relevant generic assessment criteria. A full set of all the laboratory test certificates is presented as Appendix 5.

The range of potentially hazardous contaminants present on the site can be wide and varied and the suite has been chosen to reflect both commonly found contaminants and others indicated by research to have a significant risk of being present. It is, however, possible that others may exist for which analyses have not been carried out or which were outside the scope of completed exploratory holes.

The decision to recommend acceptability or a requirement for remediation is based on the evaluation of a number of factors which when combined present a statutory or non-statutory risk that may require remedial action.

5.2.2. Heavy metals

The heavy metals included in the analysis of the samples from across the site were generally recorded at concentrations below the residential GACs. The only exception to this was a single elevated lead concentration (376 mg/kg) from the Made Ground in HP102, which compares to a GAC of 200mg/kg. The sample of natural soil from beneath this Made Ground did not contain notably elevated lead concentrations.

Therefore, heavy metals in soils across the site are generally not considered to present a significant source of contamination with regard to human health. However, the Made Ground in the vicinity of HP102 is considered to represent a localised significant source of contamination with regard to human health.

HP102 is within a defined walled area adjacent to the north of the west wing of the mansion house. This area also contains the electrical substation and numerous buried services.

5.2.3. Petroleum hydrocarbons

Total petroleum hydrocarbon (TPH) concentrations were recorded to be well below the relevant GACs in all of the soil samples and predominantly below the laboratory detection limits. Therefore, TPH is not considered to represent a significant source of contamination with regard to human health.

TPH concentrations were not noted to exceed the UKWIR 'threshold' values for mineral oil at the depths where water pipes are typically laid (typically 0.6-1.0mbgl). TPH is therefore not considered to represent a significant source of contamination to proposed water supply pipes. Designers of the water supply pipes for this site should review the data in this report to inform their decision-making process.

5.2.4. Polycyclic aromatic hydrocarbons (PAHs)

Polycyclic aromatic hydrocarbon (PAH) compound concentrations were recorded to be below the relevant GACs in all of the soil samples and generally below the laboratory detection limits. It is possible that there are trace amounts of ash in the Topsoil and Made Ground, which would account for the low PAH concentrations in some of the samples.

Therefore, PAH is not considered to represent a significant source of contamination with regard to human health in the context of the proposed development.

5.2.5. BTEX compounds and MTBE

BTEX compounds and MTBE were not identified at concentrations in excess of the laboratory detection limits and were well below the relevant GACs in all of the samples. Therefore, BTEX compounds and MTBE are not considered to represent a significant source of contamination with regard to human health.

Concentrations of BTEX and MTBE were not recorded to exceed the UKWIR 'threshold' values. BTEX and MTBE are therefore not considered to represent a significant source of contamination to proposed water supply pipes.

5.2.6. Inorganics

The concentrations of free cyanide fell below laboratory detection limits in all of the soil samples analysed.

The pH of the soil samples analysed was within the 5-9 range, indicating neutral soils.

5.2.7. Asbestos

Asbestos was not identified within any of the samples tested. However, due to the age on the building on the site, the potential for presence of asbestos containing materials or loose fibres in the Made Ground deposits should not be completely ruled out and vigilance should be maintained throughout the development.

5.2.8. PCBs

The preliminary risk assessment noted the potential for PCBs to be present in the vicinity of the electrical substation. However, it was not possible to excavate a trial pit in close proximity to the substation for health and safety reasons. Due to the other services in the area, the closest viable position to excavate HP102 was sufficiently far from the substation that it was not considered beneficial to undertake PCB testing on the samples recovered from this trial pit.

5.3 STATISTICAL ANALYSIS

Statistical analysis on the test results from this site was not considered to be appropriate.

5.4 CONTROLLED WATERS

5.4.1. General

The desk top study and the intrusive investigation have not identified any likely sources of mobile contamination on the site, with exception of the electrical substation. It is noted that PCBs and transformer oils tend to attenuate rapidly in soil and are not likely to have migrated to groundwater. However, to allow preliminary assessment, 3no samples were obtained from the Made Ground soil samples in HP101, HP102 and HP105 and were submitted to a UKAS accredited laboratory for leachate analysis for a suite of heavy metals, phenols, speciated polycyclic aromatic hydrocarbons (PAHs), fractionated total petroleum hydrocarbons (TPH), BTEX compounds and several inorganic parameters.

The results of the laboratory analyses are summarised in Appendix 4, in which they are compared to Generic Assessment Criteria (GAC), which in this instance have been taken to be the Environmental Quality Standards (EQS) and Drinking Water Standards (DWS) where EQS are not available. A full set of all the laboratory test certificates is presented as Appendix 5.

The range of potentially hazardous contaminants present on the site can be wide and varied and the suite has been chosen to reflect both commonly found contaminants and others indicated by research to have a significant risk of being present. It is, however, possible that others may exist for which analyses have not been carried out or which were outside the scope of completed exploratory holes.

The decision to recommend acceptability or a requirement for remediation is based on the evaluation of a number of factors which when combined present a statutory or non-statutory risk that may require remedial action.

5.4.2. Heavy metals

No heavy metals were recorded to exceed the GACs in the obtained samples.

Therefore, heavy metals are not considered to represent significant risk with regard to controlled waters and no further study is considered necessary.

5.4.3. Petroleum hydrocarbons

Leachable total petroleum hydrocarbon (TPH) concentrations were recorded to be below laboratory detection limits across all TPH determinand bands.

Therefore, TPH is not considered to represent a significant risk with regard to controlled waters and no further assessment is considered necessary.

5.4.4. Polycyclic aromatic hydrocarbons (PAHs)

Leachable polycyclic aromatic hydrocarbon (PAH) compound concentrations were not noted to exceed the GACs in any of the samples and fell below the laboratory detection limits for most compounds in all of the samples tested.

Therefore, PAH compounds are not considered to be a significant source of contamination with regard to controlled waters and no further assessment is considered necessary.

5.4.5. Inorganics

The pH returned from leachate testing is to be within the 6-9 GAC range. Cyanide, chloride, and sulphate were also noted to be below the GACs

5.5 GROUND GAS ASSESSMENT

5.5.1. Conceptual Model

The Desk Top Study identified a closed landfill to be present some 125m to the north of the wider site and some 225m to the north of the current study site. While the Desk Top Study assessed the risk of significant ground gas migration onto the site from this source as being very low, the Council requested spot ground gas monitoring of the monitoring wells that were installed in December 2020.

No other likely sources of ground gas generation have been identified on or in the vicinity of the study site or wider site.

5.5.2. Ground Gas Monitoring

An initial ground gas monitoring round was undertaken on the 14th June 2025 in the monitoring wells installed in December 2020. These locations, WS101, WS102, WS103, WS105 and WS106 were positioned across the wider site with only WS106 positioned within the current study site boundary. The borehole drilled in closest proximity to the landfill (WS104) refused at shallow depth on dense natural soils and was not installed with a monitoring well.

The initial monitoring round recorded methane concentrations across the site to be <0.1% v/v and a maximum carbon dioxide concentration on the site of 2.6% v/v, in WS103. There were no measurable flow rates in any of the monitoring wells. PID reading in all the of the monitoring wells were <1ppm.

Groundwater levels in WS102 were recorded to be close to the top of the response zone of the well, indicating that reading from this well are likely to be representative of the head space in the top of the well, rather than of the surrounding soil. However, unsaturated response zones were available in the other wells for monitoring.

It is noted that the monitoring round was undertaken during high but falling atmospheric pressure conditions. While these are not the worst case conditions for ground gas migration from the ground, the falling atmospheric pressure is likely to have some influence to drawing out ground gas that may be present.

With no measurable flow rates recorded, the gas screening values for the site would indicate a CS1 ground gas regime. The carbon dioxide and methane concentrations also do not exceed the recommended limiting factor concentrations of 5% and 1%, respectively. In addition, there is no evidence of hydrocarbon vapours or volatile compounds shown by the PID results.

The available data therefore indicate that significant ground gas migration onto the site from the off-site landfill does not appear to be taking place and has not identified any likely impacts of volatile hydrocarbons in the vicinity of the monitoring wells. A CS1 ground gas regime is therefore considered to be appropriate for the site with no requirement for retrofitted ground gas protection measures for the converted buildings.

6. CONCEPTUAL SITE MODEL

6.1 SOURCES

The conceptual model, based on information obtained as part of the preliminary risk assessment, identified the following potential contaminant sources:

With regard to the conversion of the existing buildings:

- Localised lead in Made Ground in the walled area adjacent to the northwest of the mansion house (HP102)
- Residual potential for asbestos from the construction of the current buildings and demolition of the former buildings. While no asbestos has been identified in the soil as part of this investigation, due to the age of the structures, there is a significant potential for asbestos to be present in localised deposits of Made Ground.
- Potential for PCBs to have leaked from the electrical substation adjacent to the north of the west wing of the mansion house.

While asbestos containing material may be present in the existing buildings, the management of risks associated with these materials in the building super structures are outside the scope of this assessment.

The initial round of ground gas and PID monitoring of the wells installed across the site did not identify any significant ground gas concentrations and supports the conceptual model based assessment in the preliminary risk assessment that ground gas from the off-site landfill does not present a significant risk to the proposed development. A Characteristic Situation 1 gas regime is therefore considered appropriate, without the need for retrospective ground gas protection measures to be installed in the buildings being converted.

It should be noted that additional sources of contamination may become apparent during any future investigation and development of the site.

6.2 PATHWAYS

The key environmental pathways and exposure routes by which potentially toxic substances can reach the identified potential receptors are considered to be:

- Inhalation of dust
- Direct contact

- Ingestion

6.3 RECEPTORS

Receptors that may be affected by the potential contamination are:

- Future site users
- Secondary A Aquifer

Construction workers have been excluded from this assessment on the basis that they are subject to health and safety at work regulations and are expected to use appropriate personal protective equipment (PPE).

7. RISK ASSESSMENT

7.1 RISK ASSESSMENT PROCEDURE

By considering the sources, pathways and receptors (pollutant linkages), an assessment of the human health/ environmental risks is made with reference to the significance and degree of the risk. This assessment is based on consideration of whether the source contamination can reach a receptor and hence whether it is of major or minor significance.

The risk assessment has been undertaken with reference to BS10175 and CIRIA Document C552: Contaminated Land Risk assessment 'A Guide to Good Practice'. The risk assessment has been carried out by assessing the severity of the potential consequence, taking into account both the potential magnitude of the hazard and the sensitivity of the target, based on the categories given overleaf.

Table 7.1. Sensitivity of receptor

Category	Examples
High	Residential with gardens/Groundwater Source Protection Zone
Medium	Residential without gardens/Principal (Major) Aquifer/sensitive watercourse
Low	Commercial and industrial use/Secondary (Minor) Aquifer
Very Low	Construction and maintenance workers/non-sensitive watercourse

Table 7.2. Magnitude of impact

Category	Examples
Gross Impact	Heavily contaminated gasworks or industrial site, hazardous waste landfill
Moderate Impact	Major leaks and spills from fuel infrastructure (e.g. petrol stations), domestic waste landfill
Slight Impact	Minor leaks and spills from fuel infrastructure, 'inert' waste landfills
No Impact	No identified or suspected contamination

Table 7.3. Level of severity for potential hazard

	Sensitivity of receptor			
Magnitude of Impact	**High**	**Medium**	**Low**	**Very Low**
Gross Impact	Severe	Medium	Mild	Minor
Moderate Impact	Medium	Mild	Minor	Minor
Slight Impact	Mild	Minor	Minor	Minor
No Impact	Minor	Minor	Minor	Minor

The likelihood of an event (probability) takes into account both the presence of the hazard and target and the integrity of the pathway and has been assessed based on the categories given below.

Table 7.4. Probability of risk definition

Category	Definition
High likelihood	Pollutant linkage may be present, and risk is almost certain to occur in long term, or there is evidence of harm to the receptor
Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term
Low likelihood	Pollutant linkage may be present, and there is a possibility of the risk occurring, although there is no certainty that it will do so
Unlikely	Pollutant linkage may be present, but the circumstances under which harm would occur are improbable

The potential severity of the risk and the probability of the risk occurring have been combined in accordance with the following matrix in order to give a level of risk for each potential hazard.

Table 7.5. Level of risk for potential hazard definition

Probability of risk	Potential severity			
	Severe	**Medium**	**Mild**	**Minor**
High Likelihood	Very high	High	Moderate	Low/ Moderate
Likely	High	Moderate	Low/ Moderate	Low
Low likelihood	Moderate	Low/ Moderate	Low	Very low
Unlikely	Low/ Moderate	Low	Very low	Very low

The assessment is discussed below in terms of plausible pollutant linkages. A complete assessment of the pollutant linkages is presented in Table 7.6 overleaf.

A description of these risk classifications and likely action required are given in CIRIA 552 as:

Very high risk – High probability that severe harm could arise to a designated receptor from an identified hazard OR there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in substantial liability. Urgent investigation and remediation are likely to be required.

High risk – Harm is likely to arise to a designated receptor from an identified hazard. This risk, if realised, is likely to result in substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the long term.

Moderate risk – It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation is normally required to clarify risks and to determine potential liability. Some remedial works may be required in the long term.

Low risk – It is possible that harm could arise to a designated receptor from an identified hazard but it is likely that this harm, if realised, would at worst normally be mild.

Very low risk – It is a low possibility that harm could arise to a designated receptor. In the event of such harm being realised it is not likely to be severe.

7.2 POLLUTANT LINKAGE ASSESSMENT

The following assessment is based on the proposed redevelopment scenario of the site for residential with gardens end use.

Table 7.6. Pollutant Linkage Assessment

Source	Pathway	Receptor	Severity	Likelihood	Risk Level
Potential for asbestos containing materials and fibres in on-site Made Ground	Inhalation	Future Users (conversion)	Medium	Low Likelihood	Low/ Moderate
Localised lead in HP102 vicinity	Direct contact Ingestion Inhalation	Future Users (conversion)	Mild	Low Likelihood	Low
Potential for PCBs associated with ESS adjacent to mansion house	Direct contact Ingestion Inhalation	Future Users (conversion)	Mild	Low Likelihood	Low
	Vertical migration leading to direct contact	Secondary A Aquifer	Minor	Unlikely	Very Low

7.2.1. Asbestos in soil

As the current buildings were constructed during the period when asbestos was a common component of building materials, there is a potential that asbestos containing materials are present within the Made Ground as a result of off cuts dropped during the construction process and potentially left on site during the demolition of the former outbuildings. However, no asbestos containing materials have been encountered in the soil samples from this investigation.

Where buildings and hard standing are present in the proposed development, these will form a barrier separating the future site users from asbestos contaminated soil. The main exposure pathway will therefore be in any areas of soft landscaping and gardens.

The risk via this exposure pathway has been assessed to be low/moderate, considering that any asbestos containing material is likely to be partially bound in the soil matrix.

Vigilance should be maintained throughout the development for asbestos containing material. If suspected asbestos containing materials are encountered, they are to be assessed by a specialist for assessment and determination of appropriate mitigation measures.

7.2.2. Localised Lead in Made Ground

Lead has locally been identified in Made Ground in HP102 in a walled area adjacent to the north of the west wing of the mansion house, in the same area in which the electrical substation is located.

It is understood that the electrical substation will be removed from this area and it will form a series of private gardens for units within the converted mansion house.

Where hard standing paths and patios are present in these areas, they will be considered sufficient to break the pollutant linkage between the lead impacted Made Ground and the future residents. However, the identified concentrations are considered unacceptable to be left at surface in the areas of soft landscaping.

Localised remediation is therefore recommended in the walled area in the vicinity of HP102.

7.2.3. PCBs

An electrical substation is located adjacent to the rear (north) of the west wing of the mansion house.

A plaque on the substation indicates that it was constructed in 1969. As PCBs in electrical transformers were phased out by 1976, it is likely that the substation contains PBCs.

Due to the health and safety risk, it was not possible to investigate close to the substation and the closest trial pit, HP102, was considered too remote from the substation to provide conclusive evidence of PCBs in close proximity to the substation. The risk of PCBs and associated transformer oils being present is this area of the site remains a potential.

PCBs are known to rapidly adhere to soil particles so any contamination present is likely to be localised and is not likely to have migrated to the underlying aquifer. Similarly, transformer oils are likely to be viscous and not prone to significant migration. The risks to the underlying aquifer have therefore been assessed to be very low.

As the substation is located in an area proposed to become private gardens for flats in the mansion house, the risk has been assessed to be low with regard to human health.

Localised remediation is therefore recommended for the vicinity of the substation in the walled area to the north of the mansion house, in conjunction with the remediation of the lead impact in the same area.

8. CONCLUSIONS AND RECOMMENDATIONS

The conceptual model, based on information obtained as part of the preliminary risk assessment and intrusive ground investigation, identified the following potential contaminant sources:

- Localised lead in Made Ground in the walled area adjacent to the northwest of the mansion house (HP102)
- Residual potential for asbestos from the construction of the current buildings and demolition of the former buildings. While no asbestos has been identified in the soil as part of this investigation, due to the age of the structures, there is a significant potential for asbestos to be present in localised deposits of Made Ground.
- Potential for PCBs to have leaked from the electrical substation adjacent to the north of the west wing of the mansion house.

It should be noted that additional sources of contamination may become apparent during any future investigation and development of the site.

The risks to the health of future site users from contamination have been assessed to be **very low to moderate** in the context of the conversion of the existing buildings and risks to controlled waters have been assessed to be **very low**. It is therefore recommended that:

- Remediation is undertaken in the walled areas to the rear (north) of the west wing of the mansion house to address the lead and potential PCB risks in the proposed garden areas.
- Although no asbestos has been identified in the soil to date, vigilance should be maintained throughout the development for suspected asbestos containing materials and such material should be assessed by a specialist to determine appropriate mitigation measures.

A discovery strategy and appropriate PPE are recommended during any redevelopment of the site to address any as yet unidentified contamination that may be identified during the works.

While construction workers have been excluded from this assessment on the basis that they are subject to health and safety at work regulations and are expected to use appropriate personal protective equipment (PPE), any ground works contactors working on the site, including installing new underground services, should be made aware of the potential for contamination to be present within the ground underlying the site surfacing.

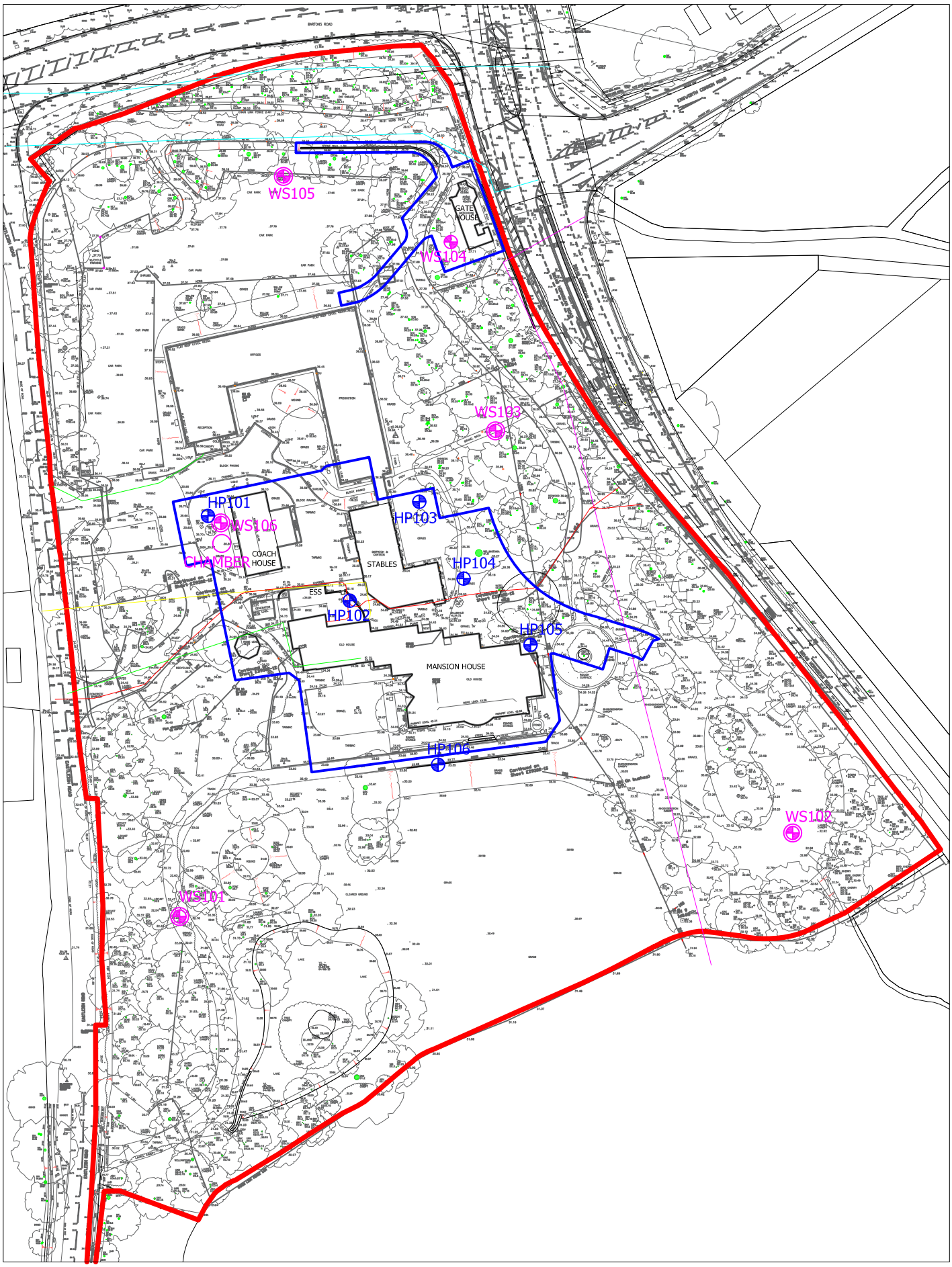
FIGURE 1: SITE LOCATION PLAN

GCC

Ground Condition Consultants Ltd
10 Waldegrave Close Southampton SO19 9RY
Telephone 07971 450113
ask@groundcc.co.uk www.groundcc.co.uk

client	FSL GROUP				
site	SOUTHLEIGH PARK, HAVANT				
title	LOCATION PLAN				
scale	NTS	drawn by	AP	checked by	RP
date	27 JUN 2024	job no	J25-049		
drawing number	FIGURE 1			rev.	-

FIGURE 2: INVESTIGATION LOCATION PLAN



Ground Condition Consultants Ltd
10 Waldegrave Close Southampton SO19 9RY
Telephone 07971 450113
ask@groundcc.co.uk www.groundcc.co.uk

client: BARGATE HOMES

site: SOUTHLEIGH PARK, HAVANT

title: PROPOSED INVESTIGATION PLAN

scale	drawn by	checked by
NTS	AP	RP

date	job no
09 DEC 2024	J20-064

drawing number: FIGURE 2

rev.: 0

APPENDIX 1: REPORT CONDITIONS

This report is produced solely for the benefit of **FSL Group Ltd** and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report refers, within the limitations stated, to the condition of the Site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the Site.

This report is based on a visual Site inspection, study of readily accessible referenced historical records, information supplied by those parties noted in the text and preliminary discussions with local and Statutory Authorities. Some of the opinions are based on unconfirmed data and information and are presented in good faith without exhaustive clarification. Where ground contamination is suspected but no physical Site test results are available to confirm this, the report must be regarded as initial advice only, and further assessment should be undertaken prior to detailed activities related to the Site. Where test results undertaken by others have been made available these can only be regarded as a limited sample. The possibility of the presence of contaminants, not revealed by this research cannot be discounted.

Whilst confident in the findings detailed within this report because there are no exact UK definitions of these matters, being subject to risk analysis, we are unable to give categoric assurances that they will be accepted by Authorities or Funds etc. without question, as such bodies may have unpublished, often more stringent objectives. This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Ground Condition Consultants Ltd. In time improved practices or amended legislation may necessitate a re-assessment.

The report is necessarily limited to those aspects of land contamination specifically reported on and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents that may occur. The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous use and abuse of the Site and adjacent Sites. The report concentrates on the Site as defined in the report and provides an opinion on surrounding Sites. If migrating pollution or contamination (past or present) exists this can only practically be better assessed following extensive on and off Site intrusive investigations and monitoring.

APPENDIX 2: ENGINEERING LOGS

Trial Pit Log

Project Name: Southleigh Park	Client: FSL	Date: 11/06/2025
Location: Havant	Contractor: GCC	
Project No. : J25-046	Crew Name: AP/RP	Equipment: Hand tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
HP101	TP		AP	1:15	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.00 - 0.30	ES					Brown slightly clayey sandy SILT (TOPSOIL)
	0.20	PID	PID=0.0				
	0.30 - 0.70	ES		0.30			Brown very silty sandy fine to coarse angular to rounded flint GRAVEL with frequent brick and concrete fragments (MADE GROUND)
	0.50	PID	PID=0.0				
				0.70			End of Borehole at 0.70m

0.5
1.0
1.5
2.0
2.5
3.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.30	0.30	Stable					

Remarks

Trial Pit Log

Project Name: Southleigh Park	Client: FSL	Date: 11/06/2025
Location: Havant	Contractor: GCC	
Project No. : J25-046	Crew Name: AP/RP	Equipment: Hand tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
HP102	TP		AP	1:15	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.00 - 0.50	ES					Brown clayey silty sandy fine to coarse angular to rounded flint GRAVEL with occasional brick fragments (MADE GROUND)
	0.20	PID	PID=0.0				
	0.50 - 0.70	ES		0.50			Light brown slightly clayey very silty sandy fine to coarse angular to rounded flint GRAVEL
	0.60	PID	PID=0.0				
				0.70			End of Borehole at 0.70m

0.5
1.0
1.5
2.0
2.5
3.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.30	0.30	Stable					

Remarks

Trial Pit Log

Project Name: Southleigh Park	Client: FSL	Date: 11/06/2025
Location: Havant	Contractor: GCC	
Project No. : J25-046	Crew Name: AP/RP	Equipment: Hand tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
HP103	TP		AP	1:15	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.00 - 0.40	ES					Brown slightly clayey slightly sandy slightly gravelly SILT with frequent rootlets (TOPSOIL)
	0.20	PID	PID=0.0				
	0.40 - 0.70	ES		0.40			Light brown slightly clayey very silty sandy fine to coarse angular to rounded flint GRAVEL
	0.50	PID	PID=0.0				
				0.70			End of Borehole at 0.70m

0.5
1.0
1.5
2.0
2.5
3.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.30	0.30	Stable					

Remarks

Trial Pit Log

Project Name: Southleigh Park	Client: FSL	Date: 11/06/2025
Location: Havant	Contractor: GCC	
Project No. : J25-046	Crew Name: AP/RP	Equipment: Hand tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
HP104	TP		AP	1:15	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.00 - 0.50	ES					Brown slightly clayey slightly sandy slightly gravelly SILT with frequent rootlets (TOPSOIL)
	0.20	PID	PID=0.0				
	0.50 - 0.70	ES		0.50			Light brown slightly clayey very silty sandy fine to coarse angular to rounded flint GRAVEL
	0.60	PID	PID=0.0				
				0.70			End of Borehole at 0.70m

0.5
1.0
1.5
2.0
2.5
3.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.30	0.30	Stable					

Remarks

Trial Pit Log

Project Name: Southleigh Park	Client: FSL	Date: 11/06/2025
Location: Havant	Contractor: GCC	
Project No. : J25-046	Crew Name: AP/RP	Equipment: Hand tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
HP105	TP		AP	1:15	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.15 - 0.40	ES		0.15			Brown slightly clayey slightly sandy slightly gravelly SILT with frequent rootlets (TOPSOIL)
	0.30	PID	PID=0.0				Orange brown/light brown slightly clayey slightly silty sandy fine to coarse angular to rounded flint GRAVEL with occasional concrete fragments (MADE GROUND)
	0.40 - 0.70	ES		0.40			Light brown slightly clayey very silty sandy fine to coarse angular to rounded flint GRAVEL
	0.50	PID	PID=0.0				
				0.70			End of Borehole at 0.70m

0.5
1.0
1.5
2.0
2.5
3.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.30	0.30	Stable					

Remarks

AGS

Trial Pit Log

Project Name: Southleigh Park	Client: FSL	Date: 11/06/2025
Location: Havant	Contractor: GCC	
Project No. : J25-046	Crew Name: AP/RP	Equipment: Hand tools

Location Number	Location Type	Level	Logged By	Scale	Page Number
HP106	TP		AP	1:15	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.00 - 0.40	ES					Brown slightly clayey slightly sandy very gravelly SILT with frequent rootlets (TOPSOIL)
	0.20	PID	PID=0.0				
	0.40 - 0.70	ES		0.40			Light brown slightly clayey very silty sandy fine to coarse angular to rounded flint GRAVEL
	0.50	PID	PID=0.0				
				0.70			End of Borehole at 0.70m

0.5
1.0
1.5
2.0
2.5
3.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.30	0.30	Stable					

Remarks

AGS

BOREHOLE LOG WS101

PROJECT NUMBER J20-064
PROJECT NAME Southleigh Park
CLIENT Bargate Homes
ADDRESS Havant
DATE 17/12/20

DRILLING COMPANY Oakland SI
DRILLING METHOD Windowless Sampling
DRILLING RIG Premier Compact 110
LOGGED BY AP

CASING

COMMENTS Collapse to 4.5m

Samples	SPT N	Water	Depth (m)	Graphic Log	Material Description	Well Installation
			0.2		Dark brown silty gravelly CLAY. Gravel is fine to coarse angular to rounded flint. (Topsoil)	
		1 2	0.4			
			0.6		Light brown slightly clayey slightly sandy fine to coarse angular to rounded flint GRAVEL	
	N = 26		0.8			
			1		Light brown mottled orange brown very clayey sandy fine to coarse angular to rounded flint GRAVEL	
			1.2			
			1.4			
			1.6			
			1.8			
	N = 34		2			
			2.2			
			2.4			
			2.6			
			2.8			
	N = 12	2	3		Orange brown slightly clayey silty fine to medium SAND	
			3.2			
			3.4			
			3.6			
			3.8			
	N = 5		4			
			4.2			
			4.4			
			4.6			
			4.8			
			5		Termination Depth at: 5.0m	
			5.2			
			5.4			

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BOREHOLE LOG WS102

PROJECT NUMBER J20-064
PROJECT NAME Southleigh Park
CLIENT Bargate Homes
ADDRESS Havant
DATE 17/12/20

DRILLING COMPANY Oakland SI
DRILLING METHOD Windowless Sampling
DRILLING RIG Premier Compact 110
LOGGED BY AP

CASING

COMMENTS Collapse to 3.0m

Samples	SPT N	Water	Depth (m)	Graphic Log	Material Description	Well Installation
			0.2		Dark brown very clayey silty fine to coarse angular to rounded flint GRAVEL (Made Ground)	
			0.4			
		1.2	0.6		Grey brown clayey sandy fine to coarse angular to rounded flint GRAVEL	
			0.8			
	N = 46		1			
			1.2			
			1.4			
			1.6		Light brown mottled orange brown very clayey sandy fine to coarse angular to rounded flint GRAVEL	
			1.8			
	N = 54		2			
			2.2			
			2.4			
			2.6			
			2.8			
	N = 28	2	3			
			3.2			
			3.4			
			3.6			
			3.8			
			4		Termination Depth at: 4.0m	
			4.2			
			4.4			
			4.6			
			4.8			
			5			
			5.2			
			5.4			

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BOREHOLE LOG WS103

PROJECT NUMBER J20-064
PROJECT NAME Southleigh Park
CLIENT Bargate Homes
ADDRESS Havant
DATE 17/12/20

DRILLING COMPANY Oakland SI
DRILLING METHOD Windowless Sampling
DRILLING RIG Premier Compact 110
LOGGED BY AP

CASING

COMMENTS Refusal at 2.8m

Samples	SPT N	Water	Depth (m)	Graphic Log	Material Description	Well Installation
			0.2		Dark brown slightly clayey silty slightly gravelly fine to medium SAND. Gravel is fine to coarse angular to rounded flint. (Made Ground)	
			0.4		Light brown very sandy gravelly flint cobbles with occasional terracotta fragments (Made Ground)	
			0.6			
			0.8		Brown very gravelly fine to coarse SAND with occasional flint cobbles	
	N = 39		1		Light brown clayey sandy fine to coarse angular to rounded flint GRAVEL	
			1.2			
			1.4			
			1.6			
			1.8		Orange brown very clayey sandy fine to coarse angular to rounded flint GRAVEL	
	N = 57		2			
			2.2			
	N = 48		2.4			
			2.6			
			2.8		Termination Depth at: 2.8m	
			3			
			3.2			
			3.4			
			3.6			
			3.8			
			4			
			4.2			
			4.4			
			4.6			
			4.8			
			5			
			5.2			
			5.4			

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BOREHOLE LOG WS104

PROJECT NUMBER J20-064
PROJECT NAME Southleigh Park
CLIENT Bargate Homes
ADDRESS Havant
DATE 17/12/20

DRILLING COMPANY Oakland SI
DRILLING METHOD Windowless Sampling
DRILLING RIG Premier Compact 110
LOGGED BY AP

CASING

COMMENTS Refusal at 1.0m

Samples	SPT N	Water	Depth (m)	Graphic Log	Material Description	Well Installation
			0.2		Dark brown very gravelly sandy CLAY. Gravel is fine to coarse angular to rounded flint. (Topsoil)	
			0.4			
			0.6		Firm brown very gravelly sandy CLAY	
	N = 69		0.8			
			1		Termination Depth at: 1.0m	
			1.2			
			1.4			
			1.6			
			1.8			
			2			
			2.2			
			2.4			
			2.6			
			2.8			
			3			
			3.2			
			3.4			
			3.6			
			3.8			
			4			
			4.2			
			4.4			
			4.6			
			4.8			
			5			
			5.2			
			5.4			

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BOREHOLE LOG WS105

PROJECT NUMBER J20-064
PROJECT NAME Southleigh Park
CLIENT Bargate Homes
ADDRESSHavant
DATE 17/12/20

DRILLING COMPANY Oakland SI
DRILLING METHOD Windowless Sampling
DRILLING RIG Premier Compact 110
LOGGED BY AP

CASING

COMMENTS Refusal at 2.0m, collapse to 1.8m

Samples	SPT N	Water	Depth (m)	Graphic Log	Material Description	Well Installation
			0.2		Tarmacadam Reddish brown sandy fine to coarse angular GRAVEL (Engineered Fill)	
			0.4		Brown clayey sandy fine to coarse angular to rounded flint GRAVEL	
			0.6			
			0.8			
	N = 21		1			
			1.2			
			1.4		Orange brown very clayey sandy fine to coarse angular to rounded flint GRAVEL	
			1.6			
			1.8			
	N = 77		2		Termination Depth at: 2.0m	
			2.2			
			2.4			
			2.6			
			2.8			
			3			
			3.2			
			3.4			
			3.6			
			3.8			
			4			
			4.2			
			4.4			
			4.6			
			4.8			
			5			
			5.2			
			5.4			

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BOREHOLE LOG WS106

PROJECT NUMBER J20-064
PROJECT NAME Southleigh Park
CLIENT Bargate Homes
ADDRESS Havant
DATE 17/12/20

DRILLING COMPANY Oakland SI
DRILLING METHOD Windowless Sampling
DRILLING RIG Premier Compact 110
LOGGED BY AP

CASING

COMMENTS Refusal at 2.8m, collapse to 2.0m

Samples	SPT N	Water	Depth (m)	Graphic Log	Material Description	Well Installation
			0.2		Grass over dark brown sandy very gravelly CLAY with occasional glass and brick fragments. Gravel is fine to coarse angular to rounded flint. (Made Ground - reworked Topsoil)	
			0.4			
			0.6			
			0.8			
	N = 12		1		Brown clayey sandy fine to coarse angular to rounded flint GRAVEL	
			1.2			
			1.4			
			1.6			
			1.8			
	N = 37		2			
			2.2			
			2.4			
			2.6			
			2.8		Termination Depth at: 2.8m	
			3			
			3.2			
			3.4			
			3.6			
			3.8			
			4			
			4.2			
			4.4			
			4.6			
			4.8			
			5			
			5.2			
			5.4			

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APPENDIX 3: GENERIC ASSESSMENT CRITERIA

SOIL - HUMAN HEALTH SCREENING VALUES

Status	End Use	Issue No	Issue Date
ISSUE	Residential with Homegrown Produce	1	June 2015

Determinand	Units	SOIL ORGANIC MATTER 1%	2.5%	6%	SOURCE
pH		<5, >9			
Asbestos	%	Presence			
HEAVY METALS/METALLOIDS					
Arsenic	mg/kg	37			S4UL
Cadmium	mg/kg	11			S4UL
Chromium (III)	mg/kg	910			S4UL
Chromium (VI)	mg/kg	6			S4UL
Lead	mg/kg	200			C4SL
Mercury (Elemental)	mg/kg	1.2			S4UL
Mercury (Inorganic)	mg/kg	40			S4UL
Mercury (Methyl)	mg/kg	11			S4UL
Nickel	mg/kg	130			S4UL
Selenium	mg/kg	250			S4UL
Berylium	mg/kg	1.7			S4UL
Boron	mg/kg	290			S4UL
Vanadium	mg/kg	410			S4UL
Copper	mg/kg	2,400			S4UL
Zinc	mg/kg	3,700			S4UL
GENERAL INORGANICS					
Easily Liberatable Cyanide (free)	mg/kg	36			Acute effects infant 1 dose 3g soil
US EPA PRIORITY PAHs					
Acenaphthene	mg/kg	210	510	1100	S4UL
Acenaphthylene	mg/kg	170	420	920	S4UL
Anthracene	mg/kg	2,400	5,400	11000	S4UL
Benzo(a)Anthracene	mg/kg	72	11	13	S4UL
Benzo(b)fluoranthene	mg/kg	2.6	3.3	3.7	S4UL
Benzo(k)fluoranthene	mg/kg	77	93	100.0	S4UL
Benzo(g,h,i)perylene	mg/kg	320	340	350	S4UL
Benzo(a)Pyrene	mg/kg	2.20	2.7	3	S4UL
Chrysene	mg/kg	15	22	27.0	S4UL
Di-benzo(a,h)anthracene	mg/kg	0.24	0.28	0.30	S4UL
Fluoranthene	mg/kg	280	560	890	S4UL
Fluorene	mg/kg	170	400	860	S4UL
Indeno(1,2,3-cd)pyrene	mg/kg	27.0	36	41.0	S4UL
Naphthalene	mg/kg	2.3	5.6	13.0	S4UL
Phenanthrene	mg/kg	95	220	440	S4UL
Pyrene	mg/kg	620	1200	2000	S4UL
Total PAHs	mg/kg	**No Sum**	**No Sum**	**No Sum**	
Chlorinated Solvents/VOCs					
1,2-Dichloroethane (DCE)	mg/kg	0.0071	0.011	0.019	S4UL
1,1,1-Trichloroethane (111 TCA)	mg/kg	8.8	18	39	S4UL
1,1,1,2-Tetrachloroethane (1112 PCA)	mg/kg	1.2	2.8	6.40	S4UL
1,1,2,2-Tetrachloroethane (1122 PCA)	mg/kg	1.60	3.4	7.5	S4UL
Tetrachloroethene (PCE)	mg/kg	0.18	0.39	0.9	S4UL
Tetrachloromethane (Carbon Tetrachloride)	mg/kg	0.026	0.056	0.13	S4UL
Trichloroethene (TCE)	mg/kg	0.016	0.034	0.075	S4UL
Trichloromethane (Chloroform)	mg/kg	0.91	1.7	3.4	S4UL
Vinyl Chloride	mg/kg	0.00064	0.00087	0.0014	S4UL
Chlorobenzene	mg/kg	0.46	1	2.4	S4UL
1,2-Dichlorobenzene	mg/kg	23	55	130	S4UL
1,3-Dichlorobenzene	mg/kg	0.4	1	2.3	S4UL
1,4-Dichlorobenzene	mg/kg	61	150	350	S4UL
1,2,3-Trichlorobenzene	mg/kg	1.5	3.6	8.6	S4UL
1,2,4-Trichlorobenzene	mg/kg	2.6	6.4	15	S4UL
1,3,5-Trichlorobenzene	mg/kg	0.33	0.81	1.9	S4UL
1,2,3,4-Tetrachlorobenzene	mg/kg	15	36	78	S4UL
1,2,3,5-Tetrachlorobenzene	mg/kg	0.66	1.6	3.7	S4UL
1,2,4,5-Tetrachlorobenzene	mg/kg	0.33	0.77	1.6	S4UL
Pentachlorobenzene	mg/kg	5.8	12	22	S4UL
Hexachlorobenzene	mg/kg	1.8	3.3	4.9	S4UL
Carbon Disulphide	mg/kg	0.14	0.29	0.62	S4UL

Hexachlorobutadiene	mg/kg	0.29	0.7	1.6	S4UL
Phenolics					
Phenol	mg/kg	280	550	1100	S4UL
Chlorophenols	mg/kg	0.87	2.00	4.50	S4UL
Pentachlorophenol	mg/kg	0.22	0.52	1.20	S4UL
Explosives					
2,4,6 Trinitrotoluene (TNT)	mg/kg	1.6	3.7	8.1	S4UL
RDX	mg/kg	120.0	250.0	540.0	S4UL
HMX	mg/kg	5.7	13.0	26.0	S4UL
Insecticides/Herbicides					
Aldrin	mg/kg	5.70	6.60	7.10	S4UL
Dieldrin	mg/kg	0.97	2.00	3.50	S4UL
Atrazine	mg/kg	3.30	7.60	17.40	S4UL
Dichlorvos	mg/kg	0.032	0.066	0.140	S4UL
Alpha-Endosulfan	mg/kg	7.4	18.0	41.0	S4UL
Beta-Endosulfan	mg/kg	7.0	17.0	39.0	S4UL
Alpha-Hexachlorocyclohexane	mg/kg	0.23	0.55	1.20	S4UL
Beta-Hexachlorocyclohexane	mg/kg	0.085	0.200	0.460	S4UL
Gamma-Hexachlorocyclohexanes (Lindane)	mg/kg	0.06	0.14	0.33	S4UL
TPH					
TPH Aliphatic >C5-6	mg/kg	42	78	160	S4UL
TPH Aliphatic >C6-8	mg/kg	100	230	530	S4UL
TPH Aliphatic >C8-10	mg/kg	27	65	150	S4UL
TPH Aliphatic >C10-12	mg/kg	130	330	760	S4UL
TPH Aliphatic >C12-16	mg/kg	1100	2,400	4,300	S4UL
TPH Aliphatic >C16-35	mg/kg	65,000	92,000	110,000	S4UL
TPH Aliphatic >C35-44	mg/kg	65,000	92,000	110,000	S4UL
TPH Aromatic >EC5-7 (Benzene)	mg/kg	70	140.00	300	S4UL
TPH Aromatic >EC7-8	mg/kg	130	290	660	S4UL
TPH Aromatic >EC8-10	mg/kg	34	83	190	S4UL
TPH Aromatic >EC10-12	mg/kg	74	180	380	S4UL
TPH Aromatic >EC12-16	mg/kg	140	330	660	S4UL
TPH Aromatic >EC16-21	mg/kg	260	540	930	S4UL
TPH Aromatic >EC21-35	mg/kg	1100	1,500	1,700	S4UL
TPH Aromatic >EC35-44	mg/kg	1100	1,500	1,700	S4UL
TPH Aliphatic & Aromatic >EC44-70	mg/kg	1,600	1,800	1,900	S4UL
Total TPH	mg/kg	**No Sum**	**No Sum**	**No Sum**	
BTEX					
Benzene	mg/kg	0.087	0.17	0.37	S4UL
Toluene	mg/kg	130	290	660	S4UL
Ethylbenzene	mg/kg	47	110	260	S4UL
m-Xylene	mg/kg	60	140	330	S4UL
o-Xylene	mg/kg	59	140	320	S4UL
p-Xylene	mg/kg	56	130	310	S4UL

NOTES

1) Compare individual samples values against Soil Screening Values (SSV). If exceedences are noted consider further in relation to averaging areas and statistical analysis.

2) These values are for initial screening for potential **risk to human health only**. They are **not remediation thresholds**. **Screening for other receptors to be done separately as appropriate for the site, e.g. for water, ecology, building materials.**

3) Screening criteria denoted with an asterix (*) were capped at the lower vapour/aqueous saturation limits for Tier 1 human health risk assessment purposes and considered conservative. Where concentrations are recorded at levels greater that the SSV, free phase (NAPL) contamination may be present and should be considerwed qualitatively. Further information to support the interpretation of assessment criteria that exceed theoretical soil saturation limits is provided in Section 4.12 of the CLEA Software Handbook (SR4).

4) Screening criteria denoted with hash (#) were capped at 1000000mg/kg. It is noted that aesthetic (e.g. odour) and other site specific factors may also be relevant when providing advice relating to these compounds.

5) LQM/CIEH S4ULs November 2014 - Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3439. All rights reserved.

6) SSVs derived for certain constituents may be low in relation to standard laboratory Limits of Detection (LoD). It is the responsibility of the project engineer to check with the laboratory that appropriate detection limits can be achieved. As a target, an LoD would be no larger than 10% of the SSV, but this is not practicable for some constituents. Clearly an LoD greater than the SSV would prevent use of this SSV screening and/or be interpreted as if all samples exceeded the SSV.

7) Human Health Soil Screening Values (SSV) were calculated using a Soil Organic Matter (SOM) value of 1.0%, 2.5% and 6%. This is equivanet to an Fraction Organic Carbon (FOC) values of approx. 0.6%, 1.45% and 3.5% respectively (For reference FOC = 0.58*SOM). Note that some soils have different SOM/FOC, which may give require more stringent SSVs for organic compounds. It is the responsibility of the project engineer to check the SOM with the site specific conditions.

8) In general, SSVs above 100mg/kg are rounded down to 3 significant figures. Similarly, SSVs below 100mg/kg are rounded down to 2 significant figures

WATER QUALITY STANDARDS

Status	Issue No	Date
ISSUE	3	17/02/2017

Choose water quality standard based on receptors identified at the site.

Eg in groundwater Source Protection Zone or near any drinking water supply, use DWS. If near ecological receptor/river etc, use freshwater EQS, if site is near coast use saline EQS. If more than one applicable use lowest, if in doubt use TSV (defined as lowest of freshwater EQS and UK DWS).

Name of Determinand	TSV freshwater (Tier 1 Screening Value) Defined as most conservative of DWS and freshwater EQS	Origin of TSV	Drinking Water Standards 2000	Fresh water EQS	Marine water EQS
	All units µg/l unless otherwise stated		**All units µg/l unless otherwise stated**		
PH	6-9	EQS	6.5 - 10	6-9	7-8.5
Dissolved O_2	50% >7-9	Freshwater Fish Directive	-	-	-
Suspended solids	25000	Freshwater Fish Directive	-	-	-
BOD	3000 salmonid, 6000 cyprinid	Freshwater Fish Directive	-	-	-
Abamectin	0.01 (AA)	EQS	-	0.01 (AA)	0.003 (AA)
Acrylamide	0.1	UK Drinking Water Standard	0.1	-	-
Aldrin	0.01 (AA)	EQS	0.03	0.01 (AA)	0.01 (AA)
Aluminium	pH <6.5 then 10 (MAC)	EQS		pH <6.5 then 10 (MAC)	15 (AA)
	> 6.5 then 15 (AA) or 25 (MAC)		200	> 6.5 then 15 (AA) or 25 (MAC)	
Ammonium (NH_4)	300	draft EQS	500	300 (draft wfd report dept on alkalinity & altitude)	-
Anthracene	0.1	EQS	-	0.1 (AA)	0.1 (AA)
Antimony	5	UK Drinking Water Standard	5	-	-
Arsenic	10	UK Drinking Water Standard	10	50 (AA)	25 (AA)
Atrazine	0.6 (AA)	EQS	-	0.6 (AA)	2 (AA)
Azamethiphos	0.02 (AA)	EQS	-	0.02 (AA)	0.02 (AA)
Azinphos-methyl	0.01 (AA)	EQS	-	0.01 (AA)	0.01 (AA)
Barium	100	Surface Water Abstraction Directive - DW1 limit	-	-	-
Bentazone	500 (AA)	EQS	-	500 (AA)	500 (AA)
Benzene	1	UK Drinking Water Standard	1	10 (AA)	8 (AA)
Benzo-a-pyrene	0.01	EQS	0.01	See PAH	See PAH
Biphenyl	25 (AA)	EQS	-	25 (AA)	25 (AA)
Boron	1000	UK Drinking Water Standard	1000	2000 (AA)	7000 (AA)
Bromine	2 (AA)	EQS	-	2 (AA)	10 (MAC)
Bromate	10	UK Drinking Water Standard	10	-	-
Bromoxynil	100 (AA)	EQS	-	100 (AA)	100
Bronopol (Pyceze)	70 (MAC)	SEPA EQS for aquaculture	-	70 (MAC)	-
Cadmium		EQS	5		0.2 (AA)
	0-40mg CaCO3/l 0.08			0-40mg CaCO3/l 0.08	
	40-50mg CaCO3/l 0.08			40-50mg CaCO3/l 0.08	
	50-100mg CaCO3/l 0.09			50-100mg CaCO3/l 0.09	
	100-200mg CaCO3/l 0.15			100-200mg CaCO3/l 0.15	
	>200mg CaCO3/l 0.25			>200mg CaCO3/l 0.25	
Carbendazim	0.1 (AA)	EQS	-	0.15 (AA)	-
Carbon tetrachloride (CT)	12 (AA)	EQS	-	12 (AA)	12 (AA)
Chloride (Water Soluble)	250000 (AA)	EQS	250000	250000 (AA)	-
Chlorine	2 (AA)	EQS	-	2 (AA)	10 (MAC)
Chlorfenvinphos	0.1 (AA)	EQS	-	0.1 (AA)	0.1 (AA)
Chloroform	12 (AA)	EQS	-	12 (AA)	12 (AA)
4-chloro-3-methyl phenol	40 (AA)	EQS	-	40 (AA)	40 (AA)
Chloronitrotoluenes (Total - all isomers)	10 (AA)	EQS	-	10 (AA)	10 (AA)
2-chlorophenol	50 (AA)	EQS	-	50 (AA)	50 (AA)
Chlorpropham	10 (AA)	EQS	-	10 (AA)	10 (AA)
Chlorothalonil	0.1 (AA)	EQS	-	0.1 (AA)	-
Chlorotoluron	2 (AA)	EQS	-	2 (AA)	2 (AA)
Chlorpyrifos	0.1 (AA)	EQS	-	0.1 (AA)	0.03 (AA)
Chromium (III) - dissolved	4.7 (AA)	EQS	50	4.7 (AA)	-
Chromium (VI) - dissolved	3.4 (AA)	EQS	50	3.4 (AA)	0.6 (AA)
Copper	1 (bioavailable) (AA)	EQS	2000	1 (bioavailable) (AA)	3.76 (AA)
Cobalt (dissolved)	3 (AA)	EQS	-	3 (AA)	3 (AA)
Coumaphos	0.03 (AA)	EQS	-	0.03 (AA)	0.03 (AA)
Cyanide	1	EQS	50	1 (AA)	1 (AA)
Cyfluthrin (total)	0.001 (AA)	EQS	-	0.001 (AA)	0.001 (MAC)
Cypermethrin	0.0001 (AA)	EQS	-	0.0001 (AA)	0.0001 (AA)
2,4-D (ester) (In Statutory Instrument not stated that as 'total')	1 (AA)	EQS	-	1 (AA)	1 (AA)
2,4-D (non-ester) (In Statutory Instrument not stated that as 'total')	40 (AA)	EQS	-	40 (AA)	40 (AA)
DDT (Total- all 4 isomers)	0.025 (AA)	EQS	-	0.025 (AA)	0.025 (AA0
ppDDT (total)	0.01 (AA)	EQS	-	0.01 (AA)	0.01 (AA)
Demetons	0.05 (AA)	EQS	-	0.05 (AA)	0.5 (AA)
Diazinon (sheep dip)	0.01 (AA)	EQS	-	0.01 (AA)	0.01 (AA)
Dichlorobenzenes (sum of all isomers)	20 (AA)	EQS	-	20 (AA)	20 (AA)
1,2-dichloroethane (total)	3 (AA)	UK Drinking Water Standard	3	10 (AA)	10 (AA)
Dichloromethane	20 (AA)	EQS	-	20 (AA)	20 (AA)
2,4-dichlorophenol	4.2 (AA)	EQS	-	4.2 (AA)	0.42 (AA)
Dichlorvos	0.001 (AA)	EQS	-	0.001 (AA)	0.04 (AA)
Dieldrin (total)	0.01 (AA)	EQS	0.03	0.01 (AA)	0.01 (AA)
Diflubenzuron	0.001 (AA)	EQS	-	0.001 (AA)	0.005 (AA)
Dimethoate	0.48 (AA)	EQS	-	0.48 (AA)	0.48 (AA)
Diuron	0.2 (AA)	EQS	-	0.2 (AA)	0.2 (AA)
Doramectin	0.001 (AA)	EQS	-	0.001 (AA)	0.001 (AA)
EDTA (ethylenediaminetetraacetic acid)	400 (AA)	EQS	-	400 (AA)	400 (AA)
Emamectin benzoate	0.22 (ng/l) (AA)	SEPA EQS for aquaculture	-	0.22 (ng/l) (AA)	0.763 (AA)
Endosulphan	0.005 (AA)	EQS	-	0.005 (AA)	0.0005 (AA)
Endrin (total)	0.005 (AA)	EQS	-	0.005 (AA)	0.005
Epichlorohydrin	0.1	UK Drinking Water Standard	0.1	-	-
17α-Ethinyloestradiol	0.0001 n(AA)	PNEC	-	0.0001 n(AA)	0.0001 (AA)
Ethylbenzene	20 (AA)	EQS	-	20 (AA)	20 (AA)
Fenchlorphos	0.03 (AA)	EQS	-	0.03 (AA)	0.03 (AA)
Fenitrothion	0.01 (AA)	EQS	-	0.01 (AA)	0.01 (AA)
Flucofuron (total)	0.1	UK Drinking Water Standard	-	1	1 (MAC)
Fluoranthene	0.0063 (AA)	EQS	-	0.0063 (AA)	0.0063 (AA)
Fluoride	<50 mg CaCO3/l = 1000	EQS	1500	<50 mg CaCO3/l = 1000	5000
	>50 mg CaCO3/l = 5000	EQS		>50 mg CaCO3/l = 5000	
Formaldehyde	5 (AA)	EQS	-	5 (AA)	-
Heptachlor	0.03	UK Drinking Water Standard	0.03	-	-
Heptachlor epoxide	0.03	UK Drinking Water Standard	0.03	-	-
Hexachlorobenzene (total)	0.03 (AA)	EQS	-	0.05 (MAC)	0.05 (MAC)
Hexachlorobutadiene (total)	0.1 (AA)	EQS	-	0.6 (MAC)	0.6 (MAC)
Hexachlorocyclohexane (total)	0.2 (AA)	EQS	-	0.2 (AA)	0.002 (AA)
Hydrogen sulphide (Undissociated)	0.25 (AA)	EQS	-	0.25 (AA)	10 (MAC)
Ioxynil (total)	10 (AA)	EQS	-	10 (AA)	10 (AA0
Iron (dissolved)	200	EQS	200	1000 (AA)	1000 (AA)
Isodrin (total)	0.005 (AA)	EQS	-	0.005 (AA)	0.005 (AA)
Isoproturon	0.3 (AA)	EQS	-	0.3 (AA)	0.3 (AA)
Ivermectin	0.0001 (AA)	EQS	-	0.0001 (AA)	0.001 (AA)
Lead (Dissolved)	1.2 (bioavailable) (AA)	EQS	10	1.2 (bioavailable) (AA)	1.3 (AA)

Name of Determinand	TSV freshwater (Tier 1 Screening Value) Defined as most conservative of DWS and freshwater EQS	Origin of TSV	Drinking Water Standards 2000	Fresh water EQS	Marine water EQS
All units µg/l unless otherwise stated			**All units µg/l unless otherwise stated**		
Linuron	0.5 (AA)	EQS	-	0.5 (AA)	2 (AA)
Malathion	0.01 (AA)	EQS	-	0.01 (AA)	0.02 (AA)
Malachite Green	0.5 (AA)	EQS	-	0.5 (AA)	0.5 (AA)
Mancozeb	2 (AA)	EQS	-	2 (AA)	2 (AA)
Manganese (Dissolved)	30 (AA)	EQS	50	123 (AA)	-
Maneb	3 (AA)	EQS	-	3 (AA)	3 (AA)
MCPA (S-ethyl (4-chloro-2-methylphenoxy)ethanethioate)	pH<7 = 12	EQS	-	pH<7 = 12	80 (AA)
	pH>7 = 80	EQS	-	pH>7 = 80	
Mecoprop	18 (AA)	EQS	-	18 (AA)	18 (AA)
Mercury	1 (AA)	EQS	1	-	0.07 (MAC)
Methiocarb	0.01 (AA)	EQS	-	0.01 (AA)	-
Methylphenols (0.3 2-MP, 0.2 3-MP, 1 4-MP) (=cresols)	100 (AA)	EQS	-	100 (AA)	100 (AA)
Mevinphos	0.02 (MAC)	EQS	-	0.02 (MAC)	-
Naphthalene	2 (AA)	EQS	-	2 (AA)	2 (AA)
Nickel (Dissolved)	4 (bioavailable) (AA)	EQS	20	4 (bioavailable) (AA)	8.6 (AA)
Nitrates (NO_3)	50000	Surface Water Abstraction Directive - DW1 limit	50000	-	-
Nitrites (NO_2)	50	UK Drinking Water Standard	50	-	-
Nonyl phenol	0.3 (AA)	EQS	-	0.3 (AA)	0.3 (AA)
NTA (Nitrilotriacetic acid)	1000 (AA)	EQS	-	1000 (AA)	3000 (AA)
Octyl phenol	0.1 (AA)	EQS	-	0.1 (AA)	0.01(AA)
17β-Oestradiol	0.001 (AA)	PNEC	-	-	-
Omethoate	0.01 (AA)	EQS	-	0.01 (AA)	-
PAH: (Sum of: Benzo(b) fluoranthene Benzo(k)fluoranthene Benzo(ghi)perylene Indeno(1,2,3-cd)pyrene - Drinking Water + Benzo(a)pyrene - EQS)	0.1	UK Drinking Water Standard	0.1	0.00017 (AA)	0.00017 (AA)
PCSDs (flucofuron and sulcofuron) (total)	0.05	EQS	-	0.05	0.05 (MAC)
Pendimethalin	0.1	UK Drinking Water Standard	-	0.3 (AA)	1.5 (AA)
Pentabromodiphenylether	0.5	EQS	-	0.5	0.5
Pentachlorophenol	0.1	UK Drinking Water Standard	-	0.4 (AA)	0.4 (AA)
Permethrin (total)	0.01	EQS	-	0.01	0.0002 (AA)
Pesticides (sum of Parathion, g HCH and Dieldrin)	0.5	UK Drinking Water Standard	0.5	-	-
Phenol	7.7	EQS	-	7.7 (AA)	7.7 (AA)
Dimethyl phthalate (DMP)	800 (AA)	EQS	-	800 (AA)	800 (AA)
Diethyl phthalate (DEP)	200 (AA)	EQS	-	200 (AA)	200 (AA)
Di-butyl phthalates (DBPs)	8 (AA)	EQS	-	8 (AA)	8 (AA)
Butylbenzyl phthalate (BBP)	20 (AA)	EQS	-	20 (AA)	20 (AA)
Di-octyl phthalates (DOPs)	20 (AA)	EQS	-	20 (AA)	20 (AA)
di(2ethylhexyl)phthalate	8	WHO DWS	-	-	-
Phthalates	See above, no total, by indivdual phthalate only	WHO DWS	-	-	-
Pirimicarb	1 (AA)	EQS	-	1 (AA)	1 (AA)
Pirimiphos-methyl	0.015 (AA)	EQS	-	0.015 (AA)	0.015 (AA)
Prochloraz	4 (AA)	EQS	-	4 (AA)	4 (AA)
Propetamphos	0.03 (AA)	EQS	-	0.03 (AA)	0.03 (AA)
Propyzamide	100 (AA)	EQS	-	100 (AA)	100 (AA)
Silver (Total dissolved)	0.05 (AA)	EQS	-	0.05 (AA)	0.5 (AA)
Selenium	10 (AA)	Surface Water Abstraction Directive - DW1 limit	10	-	-
Simazine	1 (AA)	EQS	-	1 (AA)	1 (AA)
Sulcofuron (total)	25	EQS	-	25 (MAC)	25 (MAC)
Sulphate	250,000	Surface Water Abstraction Directive	-	400000 (AA)	-
Surfactants	200	Surface Water Abstraction Directive - DW1 limit	-	-	-
Styrene	50 (AA)	EQS	-	50 (AA)	50 (AA)
Tecnazene (Total)	1 (AA)	EQS	-	1 (AA)	1 (AA)
Teflubenzuron (Calicide)	6 (ng/l)	SEPA EQS for aquaculture	-	6 (ng/l)	2
Tetrachloroethylene (PCE)	10 (AA)	EQS	-	10 (AA)	10 (AA)
Tetrachloroethene and Trichloroethene	10	UK Drinking Water Standard	10	-	-
Tetrachloromethane	3	UK Drinking Water Standard	3	-	-
Thiabendazole	5 (AA)	EQS	-	5 (AA)	5 (AA)
Tin	25 (AA)	EQS	-	25 (AA)	10 (AA)
Toluene	74 (AA)	EQS	-	74 (AA)	74 (AA)
TPH:					
Aliphatic EC C5-C6	15000	WHO DWS	15000	-	-
Aliphatic EC>C6-C8	15000	WHO DWS	15000	-	-
Aliphatic EC>C8-C10	300	WHO DWS	300	-	-
Aliphatic EC>C10-C12	300	WHO DWS	300	-	-
Aliphatic EC>C12-C16	300	WHO DWS	300	-	-
Aliphatic EC>C16-C21	-	WHO DWS	-	-	-
Aliphatic EC>C21-C35	-	WHO DWS	-	-	-
Aromatic EC C6-C7	1 (Benzene)	UK Drinking Water Standard	1	10 (AA)	8 (AA)
Aromatic EC>C7-C8	74 (Toluene)	EQS	700	74 (AA)	74 (AA)
Aromatic EC>C8-C10	300 (Ethylbenzene)	WHO DWS	300	-	-
Aromatic EC>C10-C12	90	WHO DWS	90	-	-
Aromatic EC>C12-C16	90	WHO DWS	90	-	-
Aromatic EC>C16-C21	90	WHO DWS	90	-	-
Aromatic EC>C21-C35	90	WHO DWS	90	-	-
Triallate	0.25 (AA)	EQS	-	0.25 (AA)	0.25 (AA)
Triazophos	0.005 (AA)	EQS	-	0.005 (AA)	0.005 (AA)
Tributyltin cmpds	0.0002 (AA)	EQS	-	0.0002 (AA)	0.0002 (AA)
Tributyltin	0.0002 (AA)	EQS	-	0.0002 (AA)	0.0002 (AA)
Tributyl phosphate	50 (AA)	EQS	-	50 (AA)	50 (AA)
Trichlorobenzene	0.4 (AA)	EQS	-	0.4 (AA)	0.4 (AA)
1,1,1-trichloroethane	100 (AA)	EQS	-	100 (AA)	100 (AA)
1,1,2-trichloroethane	400 (AA)	EQS	-	400 (AA)	300 (AA)
Trichloroethene	10 (AA)	EQS	-	10 (AA)	10 (AA)
Trifluralin	0.03 (AA)	EQS	-	0.03 (AA)	0.03 (AA)
Trihalomethanes (sum of chloroform, bromoform, dibromochloromethane and bromodichloromethane)	100	UK Drinking Water Standard	100	2.5 (AA)	2.5 (AA)
Triphenyltin cmpds (Total)	0.02 (MAC)	EQS	-	0.02 (MAC)	0.008 (MAC)
Triphenyltin and its derivatives	0.02 (MAC)	EQS	-	0.02 (MAC)	0.008 (MAC)
Vanadium (Total)			-		100 (AA)
	0 - 200mg CaCO3/l 20	EQS		0 - 200mg CaCO3/l 20	
	>200mg CaCO3 /l 60	EQS		>200mg CaCO3 /l 60	
Vinyl Chloride (VC)	0.5	UK Drinking Water Standard	0.5	-	-
Xylenes	30 (AA)	EQS	-	30 (AA)	30 (AA)
Zinc	10.9 (bioavailable) (AA)	EQS	-	10.9 (bioavailable) (AA)	6.8 (AA)

All units µg/l unless otherwise stated
Use these values for initial assessment of all water and leachate results
AA = Annual Average
MAC = Maximum Concentration
TSVs - Tier 1 Screening Values
TSVs listed above defined as most conservative of DWS and EQS assuming potable water supply and river ecosystems are receptors at site.

References.

EQS (Environmental Quality Standards)
Surface water pollution risk assessment for your environmental permit
https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit#contact

Surface Water Abstraction Directive
UK EA Website
http://www.environment-agency.gov.uk/yourenv/eff/1190084/water/213872/577394/577773/?version=1&lang=_e

Statutory Instruments: 2016 No. 614 Water, England and Wales: The Water Supply (Water Quality) Regulations 2016
http://www.legislation.gov.uk/uksi/2016/614/pdfs/uksi_20160614_en.pdf

Freshwater Fish Directive: UK government webpage
http://www.environment-agency.gov.uk/yourenv/eff/1190084/water/213902/576076/

WHO: World Health Organisation drinking water standards
Petroleum Products in Drinking-water, Background document for development of WHO Guidelines for Drinking-water Quality, WHO (WHO/SDE/WSH/05.08/123)
http://www.who.int/water_sanitation_health/dwq/chemicals/Petroleum%20Productsrev071105.pdf

APPENDIX 4: SOIL SCREENING SUMMARY

Project Name: Southleigh Park
Project Ref: J25-046
GAC Comparison: GCC - Residential with homegrown produce (1% SOM)

Sample ID	**Units**	**GAC**	HP101	HP101	HP102	HP102	HP103	HP103	HP104	HP104	HP105	HP105	HP106	HP106
Depth to Top			0.00	0.30	0.00	0.50	0.00	0.40	0.00	0.50	0.15	0.40	0.00	0.40
Depth to Bottom			0.30	0.70	0.50	0.70	0.40	0.70	0.50	0.70	0.40	0.70	0.40	0.70
Date Sampled			11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25
pH	pH	5-9	6.06	7.96	7.8	7.5	5.5	6.55	5.82	6.73	8	7.72	7.89	7.83
Cyanide (free)	mg/kg	36	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Phenols - Total by HPLC	mg/kg	280	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Organic Matter	% w/w		4.12	4.06	3.91	1.31	7.28	1.48	5.54	1.46	0.97	0.62	2.36	0.68
Total Organic Carbon	% w/w		2.39	2.35	2.27	0.76	4.23	0.86	3.22	0.85	0.56	0.37	1.37	0.4
Antimony	mg/kg		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Arsenic	mg/kg	37	6	6	37	7	6	7	14	4	9	6	3	5
Cadmium	mg/kg	11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Copper	mg/kg	2400	13	13	22	6	15	8	14	5	5	13	7	4
Chromium	mg/kg		14	8	9	17	11	17	15	10	10	11	10	14
Chromium (hexavalent)	mg/kg	6	<1	<1	<1	<1	<1	<1	<1	<2	<2	<1	<1	<1
Lead	mg/kg	200	67	176	**376**	32	197	39	157	22	40	14	30	16
Mercury	mg/kg	40	<0.17	0.44	0.69	<0.17	0.45	<0.17	0.21	<0.17	<0.17	<0.17	<0.17	<0.17
Nickel	mg/kg	130	8	6	6	11	8	10	9	6	6	6	4	8
Selenium	mg/kg	250	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc	mg/kg	3700	38	20	52	129	37	22	39	14	21	16	14	16
Asbestos in soil		NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD	NAD
PAH-16MS (MSD order)														
Naphthalene	mg/kg	2.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Acenaphthylene	mg/kg	170	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthene	mg/kg	210	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	mg/kg	170	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	mg/kg	95	0.11	0.81	0.13	<0.03	<0.03	<0.03	<0.03	<0.03	0.04	<0.03	0.19	<0.03
Anthracene	mg/kg	2400	<0.02	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02
Fluoranthene	mg/kg	280	0.27	1.78	0.28	<0.08	<0.08	<0.08	0.11	<0.08	0.11	<0.08	0.43	<0.08
Pyrene	mg/kg	620	0.21	1.44	0.22	<0.07	<0.07	<0.07	0.1	<0.07	0.09	<0.07	0.37	<0.07
Benzo(a)anthracene	mg/kg	72	0.15	0.74	0.14	<0.04	<0.04	<0.04	0.06	<0.04	0.05	<0.04	0.22	<0.04
Chrysene	mg/kg	15	0.17	0.85	0.19	<0.06	<0.06	<0.06	0.07	<0.06	<0.06	<0.06	0.22	<0.06
Benzo(b)fluoranthene	mg/kg	2.6	0.25	0.93	0.28	<0.05	0.07	<0.05	0.12	<0.05	0.09	<0.05	0.32	<0.05
Benzo(k)fluoranthene	mg/kg	77	0.09	0.32	0.1	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.11	<0.07
Benzo(a)pyrene	mg/kg	2.2	0.16	0.62	0.17	<0.04	<0.04	<0.04	0.07	<0.04	0.06	<0.04	0.23	<0.04
Indeno(123-cd)pyrene	mg/kg	27.0	0.1	0.3	0.12	<0.03	<0.03	<0.03	0.06	<0.03	0.04	<0.03	0.14	<0.03
Dibenzo(ah)anthracene	mg/kg	0.24	<0.04	0.08	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Benzo(ghi)perylene	mg/kg	320	0.09	0.27	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	<0.05
Total PAH-16MS (MSD order)	mg/kg		1.6	8.39	1.75	<0.08	<0.08	<0.08	0.59	<0.08	0.48	<0.08	2.4	<0.08
TPH CWG with Clean Up														
Ali >C5-C6	mg/kg	42	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C6-C8	mg/kg	100	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ali >C8-C10	mg/kg	27	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C10-C12	mg/kg	130	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C12-C16	mg/kg	1100	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ali >C16-C21	mg/kg	65000	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1
Ali >C21-C35	mg/kg	65000	4	2	8	3	4	3	9	3	2	<1	4	<1
Total Aliphatics	mg/kg		4	2	8	3	4	3	10	3	2	<1	4	<1
Aro >C5-C7	mg/kg	70	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C7-C8	mg/kg	130	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aro >C8-C10	mg/kg	34	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C10-C12	mg/kg	74	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Aro >C12-C16	mg/kg	140	<1	1	2	<1	<1	<1	1	<1	<1	<1	<1	<1
Aro >C16-C21	mg/kg	260	1	7	5	1	<1	<1	4	1	1	<1	2	<1
Aro >C21-C35	mg/kg	1100	6	23	15	3	4	2	22	5	3	<1	5	<1
Total Aromatics	mg/kg		7	31	22	4	5	2	28	6	4	<1	6	<1
TPH (Ali & Aro >C5-C35)	mg/kg		11	33	30	8	9	5	38	9	6	<1	10	<1
BTEX - Benzene	mg/kg	0.087	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Toluene	mg/kg	130	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	mg/kg	47	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - m & p Xylene	mg/kg	56	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
BTEX - o Xylene	mg/kg	59	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MTBE	mg/kg		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Project Name: Southleigh Park
Project Ref: J25-046
GAC Comparison: EQS.DWS

Sample ID	Units	GAC	HP101	HP102	HP105
Depth to Top			0.30	0.00	0.15
Depth to Bottom			0.70	0.50	0.40
Date Sampled			11-Jun-25	11-Jun-25	11-Jun-25
pH (leachable)	pH	6-9	8.29	8.12	8.17
Alkalinity (total) (leachable) Colorimetry	mg/l Ca CO3	-	59	59	86
Ammoniacal nitrogen as N (leachable)	mg/l	500	<0.05	<0.05	<0.05
Ammonia / Ammoniacal Nitrogen as NH3 (leachable)	mg/l	-	<0.065	<0.065	<0.065
Chloride (leachable)	mg/l	250	<1.00	1.39	2.58
Nitrate (leachable)	mg/l	-	2.3	<0.1	<0.1
Sulphate (leachable)	mg/l	250	1.63	1.51	2.82
Cyanide (total) (leachable)	mg/l	0.001	<0.005	<0.005	<0.005
Phenols (total by HPLC) (leachable)	mg/l	0.0077	<0.01	<0.01	<0.01
Antimony (leachable)	µg/l	-	1	2	<1
Arsenic (leachable)	µg/l	50	2	30	3
Boron (leachable)	µg/l	1000	<10	<10	11
Barium (leachable)	µg/l	100	12	41	39
Cadmium (leachable)	µg/l	0.08	<1	<1	<1
Copper (leachable)	µg/l	2000	<4	<4	<4
Chromium (leachable)	µg/l	4.7	<1	<1	<1
Lead (leachable)	µg/l	10	2	6	1
Mercury (leachable)	µg/l	1	<0.1	<0.1	<0.1
Nickel (leachable)	µg/l	20	<2	<2	<2
Selenium (leachable)	µg/l	10	<1	<1	<1
Zinc (leachable)	µg/l	10.9	6	11	12
PAH-16MS (leachable)					
Naphthalene (leachable)	µg/l	2	<0.02	0.05	0.04
Acenaphthylene (leachable)	µg/l	-	<0.02	<0.02	<0.02
Acenaphthene (leachable)	µg/l	-	<0.02	<0.02	<0.02
Fluorene (leachable)	µg/l	-	<0.02	<0.02	<0.02
Phenanthrene (leachable)	µg/l	-	<0.02	<0.02	<0.02
Anthracene (leachable)	µg/l	0.1	<0.02	<0.02	<0.02
Fluoranthene (leachable)	µg/l	0.0063	<0.02	<0.02	<0.02
Pyrene (leachable)	µg/l	-	<0.02	<0.02	<0.02
Benzo(a)anthracene (leachable)	µg/l	-	<0.02	<0.02	<0.02
Chrysene (leachable)	µg/l	-	<0.02	<0.02	<0.02
Benzo(b)fluoranthene* (leachable)	µg/l	-	<0.02	<0.02	<0.02
Benzo(k)fluoranthene* (leachable)	µg/l	-	<0.02	<0.02	<0.02
Benzo(a)pyrene* (leachable)	µg/l	-	<0.02	<0.02	<0.02
Indeno(123-cd)pyrene* (leachable)	µg/l	-	<0.02	<0.02	<0.02
Dibenzo(ah)anthracene (leachable)	µg/l	-	<0.02	<0.02	<0.02
Benzo(ghi)perylene* (leachable)	µg/l	-	<0.02	<0.02	<0.02
PAH (Sum 5*)	µg/l	0.1	<0.1	<0.1	<0.1
Total PAH-16MS (leachable)	µg/l	-	<0.02	0.05	0.04
TPH CWG (leachable) with Clean Up					
Ali >C5-C6 (leachable)	µg/l	15000	<1	<1	<1
Ali >C6-C8 (leachable)	µg/l	15000	<1	<1	<1
Ali >C8-C10 (leachable)	µg/l	300	<10	<10	<10
Ali >C10-C12 (leachable)	µg/l	300	<10	<10	<10
Ali >C12-C16 (leachable)	µg/l	300	<10	<10	<10
Ali >C16-C21 (leachable)	µg/l	-	<10	<10	<10
Ali >C21-C35 (leachable)	µg/l	-	<20	<20	<20
Total Aliphatics (leachable)	µg/l		<20	<20	<20
Aro >C5-C7 (leachable)	µg/l	10	<1	<1	<1
Aro >C7-C8 (leachable)	µg/l	74	<1	<1	<1
Aro >C8-C10 (leachable)	µg/l	300	<10	<10	<10
Aro >C10-C12 (leachable)	µg/l	90	<10	<10	<10
Aro >C12-C16 (leachable)	µg/l	90	<10	<10	<10
Aro >C16-C21 (leachable)	µg/l	90	<10	<10	<10
Aro >C21-C35 (leachable)	µg/l	90	<20	<20	<20
Total Aromatics (leachable)	µg/l		<20	<20	<20
TPH (Ali & Aro >C5-C35) (leachable)	µg/l		<20	<20	<20
BTEX - Benzene (leachable)	µg/l	10	<1	<1	<1
BTEX - Toluene (leachable)	µg/l	74	<1	<1	<1
BTEX - Ethyl Benzene (leachable)	µg/l	300	<1	<1	<1
BTEX - o Xylene (leachable)	µg/l	30	<1	<1	<1
BTEX - m & p Xylene (leachable)	µg/l	30	<1	<1	<1
MTBE (leachable)	µg/l	15	<1	<1	<1

APPENDIX 5: CHEMICAL LABORATORY TEST CERTIFICATES

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 25/06316
Issue Number: 1 **Date:** 25 June, 2025

Client: Ground Condition Consultants Ltd
10 Waldegrave Close
Southampton
SO19 9RY

Project Manager: Antony Platt
Project Name: Southleigh Park
Project Ref: J25-046
Order No: J25-046
Date Samples Received: 13/06/25
Date Instructions Received: 13/06/25
Date Analysis Completed: 25/06/25

Approved by:

Richard Wong
Client Manager

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/1	25/06316/2	25/06316/3	25/06316/4	25/06316/5	25/06316/6	25/06316/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP101	HP101	HP102	HP102	HP103	HP103	HP104			
Depth to Top	0.00	0.30	0.00	0.50	0.00	0.40	0.00			
Depth To Bottom	0.30	0.70	0.50	0.70	0.40	0.70	0.50			
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	4AE	4ABE	4AE	4AE	4AE	4AE	4AE			
% Stones >10mm$_A$	<0.1	35.7	22.8	<0.1	13.4	<0.1	<0.1	% w/w	0.1	A-T-044
pH$_D$[M#]	6.06	7.96	7.80	7.50	5.50	6.55	5.82	pH	0.01	A-T-031s
Cyanide (free)$_A$[M#]	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-042sFCN
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	0.2	A-T-050s
Organic Matter$_D$[M#]	4.12	4.06	3.91	1.31	7.28	1.48	5.54	% w/w	0.14	A-T-032s
Total Organic Carbon$_D$[M#]	2.39	2.35	2.27	0.76	4.23	0.86	3.22	% w/w	0.08	A-T-032s
Antimony$_D$	<5	<5	<5	<5	<5	<5	<5	mg/kg	5	A-T-024s
Arsenic$_D$[M#]	6	6	37	7	6	7	14	mg/kg	1	A-T-024s
Cadmium$_D$	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	mg/kg	1	A-T-024s
Copper$_D$[M#]	13	13	22	6	15	8	14	mg/kg	1	A-T-024s
Chromium$_D$[M#]	14	8	9	17	11	17	15	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Lead$_D$[M#]	67	176	376	32	197	39	157	mg/kg	1	A-T-024s
Mercury$_D$	<0.17	0.44	0.69	<0.17	0.45	<0.17	0.21	mg/kg	0.17	A-T-024s
Nickel$_D$[M#]	8	6	6	11	8	10	9	mg/kg	1	A-T-024s
Selenium$_D$[M#]	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-024s
Zinc$_D$[M#]	38	20	52	129	37	22	39	mg/kg	1	A-T-024s

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/1	25/06316/2	25/06316/3	25/06316/4	25/06316/5	25/06316/6	25/06316/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP101	HP101	HP102	HP102	HP103	HP103	HP104			
Depth to Top	0.00	0.30	0.00	0.50	0.00	0.40	0.00			
Depth To Bottom	0.30	0.70	0.50	0.70	0.40	0.70	0.50			
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	4AE	4ABE	4AE	4AE	4AE	4AE	4AE			
Asbestos in Soil (inc. matrix) ^										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	NAD	NAD	NAD	NAD	NAD			A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/1	25/06316/2	25/06316/3	25/06316/4	25/06316/5	25/06316/6	25/06316/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP101	HP101	HP102	HP102	HP103	HP103	HP104			
Depth to Top	0.00	0.30	0.00	0.50	0.00	0.40	0.00			
Depth To Bottom	0.30	0.70	0.50	0.70	0.40	0.70	0.50			
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	4AE	4ABE	4AE	4AE	4AE	4AE	4AE			
PAH-16MS (MSD order)										
Naphthalene$_{A}^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Acenaphthylene$_{A}^{M\#}$	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Acenaphthene$_{A}^{M\#}$	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Fluorene$_{A}^{M\#}$	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-019s
Phenanthrene$_{A}^{M\#}$	0.11	0.81	0.13	<0.03	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Anthracene$_{A}^{M\#}$	<0.02	0.14	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	0.02	A-T-019s
Fluoranthene$_{A}^{M\#}$	0.27	1.78	0.28	<0.08	<0.08	<0.08	0.11	mg/kg	0.08	A-T-019s
Pyrene$_{A}^{M\#}$	0.21	1.44	0.22	<0.07	<0.07	<0.07	0.10	mg/kg	0.07	A-T-019s
Benzo(a)anthracene$_{A}^{M\#}$	0.15	0.74	0.14	<0.04	<0.04	<0.04	0.06	mg/kg	0.04	A-T-019s
Chrysene$_{A}^{M\#}$	0.17	0.85	0.19	<0.06	<0.06	<0.06	0.07	mg/kg	0.06	A-T-019s
Benzo(b)fluoranthene$_{A}^{M\#}$	0.25	0.93	0.28	<0.05	0.07	<0.05	0.12	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_{A}^{M\#}$	0.09	0.32	0.10	<0.07	<0.07	<0.07	<0.07	mg/kg	0.07	A-T-019s
Benzo(a)pyrene$_{A}^{M\#}$	0.16	0.62	0.17	<0.04	<0.04	<0.04	0.07	mg/kg	0.04	A-T-019s
Indeno(123-cd)pyrene$_{A}^{M\#}$	0.10	0.30	0.12	<0.03	<0.03	<0.03	0.06	mg/kg	0.03	A-T-019s
Dibenzo(ah)anthracene$_{A}$	<0.04	0.08	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	0.04	A-T-019s
Benzo(ghi)perylene$_{A}^{M\#}$	0.09	0.27	0.12	<0.05	<0.05	<0.05	<0.05	mg/kg	0.05	A-T-019s
Total PAH-16MS (MSD order)$_{A}$	1.60	8.39	1.75	<0.08	<0.08	<0.08	0.59	mg/kg	0.03	A-T-019s

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/1	25/06316/2	25/06316/3	25/06316/4	25/06316/5	25/06316/6	25/06316/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP101	HP101	HP102	HP102	HP103	HP103	HP104			
Depth to Top	0.00	0.30	0.00	0.50	0.00	0.40	0.00			
Depth To Bottom	0.30	0.70	0.50	0.70	0.40	0.70	0.50			
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	4AE	4ABE	4AE	4AE	4AE	4AE	4AE			
TPH CWG with Clean Up										
Ali >C5-C6$_A$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C10-C12$_A$$^{M\#}$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C12-C16$_A$$^{M\#}$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C16-C21$_A$$^{M\#}$	<1	<1	<1	<1	<1	<1	1	mg/kg	1	A-T-055s
Ali >C21-C35$_A$$^{M\#}$	4	2	8	3	4	3	9	mg/kg	1	A-T-055s
Total Aliphatics$_A$	4	2	8	3	4	3	10	mg/kg	1	Calc-As Recd
Aro >C5-C7$_A$$^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8$_A$$^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C10-C12$_A$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	<1	1	2	<1	<1	<1	1	mg/kg	1	A-T-055s
Aro >C16-C21$_A$$^{M\#}$	1	7	5	1	<1	<1	4	mg/kg	1	A-T-055s
Aro >C21-C35$_A$$^{M\#}$	6	23	15	3	4	2	22	mg/kg	1	A-T-055s
Total Aromatics$_A$	7	31	22	4	5	2	28	mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35)$_A$	11	33	30	8	9	5	38	mg/kg	1	Calc-As Recd
BTEX - Benzene$_A$$^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene$_A$$^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A$$^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A$$^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A$$^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE$_A$$^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/1	25/06316/2	25/06316/3	25/06316/4	25/06316/5	25/06316/6	25/06316/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP101	HP101	HP102	HP102	HP103	HP103	HP104			
Depth to Top	0.00	0.30	0.00	0.50	0.00	0.40	0.00			
Depth To Bottom	0.30	0.70	0.50	0.70	0.40	0.70	0.50			
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	4AE	4ABE	4AE	4AE	4AE	4AE	4AE			
Leachate Prep BS EN 12457-2 (10:1) A	-	*	*	-	-	-	-			A-T-001
pH (leachable)A	-	8.29	8.12	-	-	-	-	pH	0.01	A-T-031w
Alkalinity (total) (leachable) ColorimetryA	-	59	59	-	-	-	-	mg/l Ca CO3	20	A-T-038w
Ammoniacal nitrogen as N (leachable)A	-	<0.05	<0.05	-	-	-	-	mg/l	0.05	A-T-033w
Ammonia / Ammoniacal Nitrogen as NH3 (leachable)A	-	<0.065	<0.065	-	-	-	-	mg/l	0.065	A-T-033w
Chloride (leachable)A	-	<1.00	1.39	-	-	-	-	mg/l	1	A-T-026w
Nitrate (leachable)A	-	2.3	<0.1	-	-	-	-	mg/l	0.1	A-T-026w (N)
Sulphate (leachable)A	-	1.63	1.51	-	-	-	-	mg/l	1	A-T-026w
Cyanide (total) (leachable)A	-	<0.005	<0.005	-	-	-	-	mg/l	0.005	A-T-042wTCN
Phenols (total by HPLC) (leachable)A	-	<0.01	<0.01	-	-	-	-	mg/l	0.01	A-T-050w
Antimony (leachable)A	-	1	2	-	-	-	-	µg/l	1	A-T-025w
Arsenic (leachable)A	-	2	30	-	-	-	-	µg/l	1	A-T-025w
Boron (leachable)A	-	<10	<10	-	-	-	-	µg/l	10	A-T-025w
Barium (leachable)A	-	12	41	-	-	-	-	µg/l	1	A-T-025w
Cadmium (leachable)A	-	<1	<1	-	-	-	-	µg/l	1	A-T-025w
Copper (leachable)A	-	<4	<4	-	-	-	-	µg/l	4	A-T-025w
Chromium (leachable)A	-	<1	<1	-	-	-	-	µg/l	1	A-T-025w
Lead (leachable)A	-	2	6	-	-	-	-	µg/l	1	A-T-025w
Mercury (leachable)A	-	<0.1	<0.1	-	-	-	-	µg/l	0.1	A-T-025w
Nickel (leachable)A	-	<2	<2	-	-	-	-	µg/l	2	A-T-025w
Selenium (leachable)A	-	<1	<1	-	-	-	-	µg/l	1	A-T-025w
Zinc (leachable)A	-	6	11	-	-	-	-	µg/l	2	A-T-025w

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/1	25/06316/2	25/06316/3	25/06316/4	25/06316/5	25/06316/6	25/06316/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP101	HP101	HP102	HP102	HP103	HP103	HP104			
Depth to Top	0.00	0.30	0.00	0.50	0.00	0.40	0.00			
Depth To Bottom	0.30	0.70	0.50	0.70	0.40	0.70	0.50			
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	4AE	4ABE	4AE	4AE	4AE	4AE	4AE			
PAH-16MS (leachable)										
Naphthalene (leachable)$_A$	-	<0.02	0.05	-	-	-	-	µg/l	0.02	A-T-019w
Acenaphthylene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Acenaphthene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Fluorene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Phenanthrene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Anthracene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Fluoranthene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Pyrene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Benzo(a)anthracene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Chrysene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Benzo(b)fluoranthene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Benzo(k)fluoranthene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Benzo(a)pyrene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Indeno(123-cd)pyrene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Dibenzo(ah)anthracene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Benzo(ghi)perylene (leachable)$_A$	-	<0.02	<0.02	-	-	-	-	µg/l	0.02	A-T-019w
Total PAH-16MS (leachable)$_A$	-	<0.02	0.05	-	-	-	-	µg/l	0.02	A-T-019w

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/1	25/06316/2	25/06316/3	25/06316/4	25/06316/5	25/06316/6	25/06316/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP101	HP101	HP102	HP102	HP103	HP103	HP104			
Depth to Top	0.00	0.30	0.00	0.50	0.00	0.40	0.00			
Depth To Bottom	0.30	0.70	0.50	0.70	0.40	0.70	0.50			
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25			
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES			
Sample Matrix Code	4AE	4ABE	4AE	4AE	4AE	4AE	4AE			
TPH CWG (leachable) with Clean Up										
Ali >C5-C6 (leachable)$_A$	-	<1	<1	-	-	-	-	µg/l	1	A-T-022w
Ali >C6-C8 (leachable)$_A$	-	<1	<1	-	-	-	-	µg/l	1	A-T-022w
Ali >C8-C10 (leachable)$_A$	-	<10	<10	-	-	-	-	µg/l	10	A-T-055w
Ali >C10-C12 (leachable)$_A$	-	<10	<10	-	-	-	-	µg/l	10	A-T-055w
Ali >C12-C16 (leachable)$_A$	-	<10	<10	-	-	-	-	µg/l	10	A-T-055w
Ali >C16-C21 (leachable)$_A$	-	<10	<10	-	-	-	-	µg/l	10	A-T-055w
Ali >C21-C35 (leachable)$_A$	-	<20	<20	-	-	-	-	µg/l	20	A-T-055w
Total Aliphatics (leachable)$_A$	-	<20	<20	-	-	-	-	µg/l	10	Calc-As Recd
Aro >C5-C7 (leachable)$_A$	-	<1	<1	-	-	-	-	µg/l	1	A-T-022w
Aro >C7-C8 (leachable)$_A$	-	<1	<1	-	-	-	-	µg/l	1	A-T-022w
Aro >C8-C10 (leachable)$_A$	-	<10	<10	-	-	-	-	µg/l	10	A-T-055w
Aro >C10-C12 (leachable)$_A$	-	<10	<10	-	-	-	-	µg/l	10	A-T-055w
Aro >C12-C16 (leachable)$_A$	-	<10	<10	-	-	-	-	µg/l	10	A-T-055w
Aro >C16-C21 (leachable)$_A$	-	<10	<10	-	-	-	-	µg/l	10	A-T-055w
Aro >C21-C35 (leachable)$_A$	-	<20	<20	-	-	-	-	µg/l	20	A-T-055w
Total Aromatics (leachable)$_A$	-	<20	<20	-	-	-	-	µg/l	20	Calc-As Recd
TPH (Ali & Aro >C5-C35) (leachable)$_A$	-	<20	<20	-	-	-	-	µg/l	20	Calc-As Recd
BTEX - Benzene (leachable)$_A$	-	<1	<1	-	-	-	-	µg/l	1	A-T-022w
BTEX - Toluene (leachable)$_A$	-	<1	<1	-	-	-	-	µg/l	1	A-T-022w
BTEX - Ethyl Benzene (leachable)$_A$	-	<1	<1	-	-	-	-	µg/l	1	A-T-022w
BTEX - o Xylene (leachable)$_A$	-	<1	<1	-	-	-	-	µg/l	1	A-T-022w
BTEX - m & p Xylene (leachable)$_A$	-	<1	<1	-	-	-	-	µg/l	1	A-T-022w
MTBE (leachable)$_A$	-	<1	<1	-	-	-	-	µg/l	1	A-T-022w

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/8	25/06316/9	25/06316/10	25/06316/11	25/06316/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP104	HP105	HP105	HP106	HP106					
Depth to Top	0.50	0.15	0.40	0.00	0.40					
Depth To Bottom	0.70	0.40	0.70	0.40	0.70					
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE					
% Stones >10mm$_A$	33.8	38.8	29.8	25.4	15.4			% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	6.73	8.00	7.72	7.89	7.83			pH	0.01	A-T-031s
Cyanide (free)$_A$$^{M\#}$	<1	<1	<1	<1	<1			mg/kg	1	A-T-042sFCN
Phenols - Total by HPLC$_A$	<0.2	<0.2	<0.2	<0.2	<0.2			mg/kg	0.2	A-T-050s
Organic Matter$_D$$^{M\#}$	1.46	0.97	0.62	2.36	0.68			% w/w	0.14	A-T-032s
Total Organic Carbon$_D$$^{M\#}$	0.85	0.56	0.37	1.37	0.40			% w/w	0.08	A-T-032s
Antimony$_D$	<5	<5	<5	<5	<5			mg/kg	5	A-T-024s
Arsenic$_D$$^{M\#}$	4	9	6	3	5			mg/kg	1	A-T-024s
Cadmium$_D$	<1.0	<1.0	<1.0	<1.0	<1.0			mg/kg	1	A-T-024s
Copper$_D$$^{M\#}$	5	5	13	7	4			mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	10	10	11	10	14			mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<2	<2	<1	<1	<1			mg/kg	1	A-T-040s
Lead$_D$$^{M\#}$	22	40	14	30	16			mg/kg	1	A-T-024s
Mercury$_D$	<0.17	<0.17	<0.17	<0.17	<0.17			mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	6	6	6	4	8			mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1	<1	<1	<1			mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	14	21	16	14	16			mg/kg	1	A-T-024s

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/8	25/06316/9	25/06316/10	25/06316/11	25/06316/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP104	HP105	HP105	HP106	HP106					
Depth to Top	0.50	0.15	0.40	0.00	0.40					
Depth To Bottom	0.70	0.40	0.70	0.40	0.70					
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE					
Asbestos in Soil (inc. matrix) ^										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	NAD	NAD	NAD					A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-					A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	-					A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	N/A					A-T-045

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/8	25/06316/9	25/06316/10	25/06316/11	25/06316/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP104	HP105	HP105	HP106	HP106					
Depth to Top	0.50	0.15	0.40	0.00	0.40					
Depth To Bottom	0.70	0.40	0.70	0.40	0.70					
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE					
PAH-16MS (MSD order)										
Naphthalene$_{A}^{M\#}$	<0.03	<0.03	<0.03	<0.03	<0.03			mg/kg	0.03	A-T-019s
Acenaphthylene$_{A}^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-019s
Acenaphthene$_{A}^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-019s
Fluorene$_{A}^{M\#}$	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-019s
Phenanthrene$_{A}^{M\#}$	<0.03	0.04	<0.03	0.19	<0.03			mg/kg	0.03	A-T-019s
Anthracene$_{A}^{M\#}$	<0.02	<0.02	<0.02	0.03	<0.02			mg/kg	0.02	A-T-019s
Fluoranthene$_{A}^{M\#}$	<0.08	0.11	<0.08	0.43	<0.08			mg/kg	0.08	A-T-019s
Pyrene$_{A}^{M\#}$	<0.07	0.09	<0.07	0.37	<0.07			mg/kg	0.07	A-T-019s
Benzo(a)anthracene$_{A}^{M\#}$	<0.04	0.05	<0.04	0.22	<0.04			mg/kg	0.04	A-T-019s
Chrysene$_{A}^{M\#}$	<0.06	<0.06	<0.06	0.22	<0.06			mg/kg	0.06	A-T-019s
Benzo(b)fluoranthene$_{A}^{M\#}$	<0.05	0.09	<0.05	0.32	<0.05			mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_{A}^{M\#}$	<0.07	<0.07	<0.07	0.11	<0.07			mg/kg	0.07	A-T-019s
Benzo(a)pyrene$_{A}^{M\#}$	<0.04	0.06	<0.04	0.23	<0.04			mg/kg	0.04	A-T-019s
Indeno(123-cd)pyrene$_{A}^{M\#}$	<0.03	0.04	<0.03	0.14	<0.03			mg/kg	0.03	A-T-019s
Dibenzo(ah)anthracene$_{A}$	<0.04	<0.04	<0.04	<0.04	<0.04			mg/kg	0.04	A-T-019s
Benzo(ghi)perylene$_{A}^{M\#}$	<0.05	<0.05	<0.05	0.14	<0.05			mg/kg	0.05	A-T-019s
Total PAH-16MS (MSD order)$_{A}$	<0.08	0.48	<0.08	2.40	<0.08			mg/kg	0.03	A-T-019s

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/8	25/06316/9	25/06316/10	25/06316/11	25/06316/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP104	HP105	HP105	HP106	HP106					
Depth to Top	0.50	0.15	0.40	0.00	0.40					
Depth To Bottom	0.70	0.40	0.70	0.40	0.70					
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE					
TPH CWG with Clean Up										
Ali >C5-C6$_A$	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1	<1	<1	<1	<1			mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1	<1	<1	<1	<1			mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	<1	<1	<1	<1	<1			mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	<1	<1	<1	<1	<1			mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	3	2	<1	4	<1			mg/kg	1	A-T-055s
Total Aliphatics$_A$	3	2	<1	4	<1			mg/kg	1	Calc-As Recd
Aro >C5-C7$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	<1	<1	<1	<1	<1			mg/kg	1	A-T-055s
Aro >C10-C12$_A$	<1	<1	<1	<1	<1			mg/kg	1	A-T-055s
Aro >C12-C16$_A$	<1	<1	<1	<1	<1			mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	1	1	<1	2	<1			mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	5	3	<1	5	<1			mg/kg	1	A-T-055s
Total Aromatics$_A$	6	4	<1	6	<1			mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35)$_A$	9	6	<1	10	<1			mg/kg	1	Calc-As Recd
BTEX - Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	0.01	A-T-022s

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/8	25/06316/9	25/06316/10	25/06316/11	25/06316/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP104	HP105	HP105	HP106	HP106					
Depth to Top	0.50	0.15	0.40	0.00	0.40					
Depth To Bottom	0.70	0.40	0.70	0.40	0.70					
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE					
Leachate Prep BS EN 12457-2 (10:1) A	-	*	-	-	-					A-T-001
pH (leachable)A	-	8.17	-	-	-			pH	0.01	A-T-031w
Alkalinity (total) (leachable) ColorimetryA	-	86	-	-	-			mg/l Ca CO3	20	A-T-038w
Ammoniacal nitrogen as N (leachable)A	-	<0.05	-	-	-			mg/l	0.05	A-T-033w
Ammonia / Ammoniacal Nitrogen as NH3 (leachable)A	-	<0.065	-	-	-			mg/l	0.065	A-T-033w
Chloride (leachable)A	-	2.58	-	-	-			mg/l	1	A-T-026w
Nitrate (leachable)A	-	<0.1	-	-	-			mg/l	0.1	A-T-026w (N)
Sulphate (leachable)A	-	2.82	-	-	-			mg/l	1	A-T-026w
Cyanide (total) (leachable)A	-	<0.005	-	-	-			mg/l	0.005	A-T-042wTCN
Phenols (total by HPLC) (leachable)A	-	<0.01	-	-	-			mg/l	0.01	A-T-050w
Antimony (leachable)A	-	<1	-	-	-			µg/l	1	A-T-025w
Arsenic (leachable)A	-	3	-	-	-			µg/l	1	A-T-025w
Boron (leachable)A	-	11	-	-	-			µg/l	10	A-T-025w
Barium (leachable)A	-	39	-	-	-			µg/l	1	A-T-025w
Cadmium (leachable)A	-	<1	-	-	-			µg/l	1	A-T-025w
Copper (leachable)A	-	<4	-	-	-			µg/l	4	A-T-025w
Chromium (leachable)A	-	<1	-	-	-			µg/l	1	A-T-025w
Lead (leachable)A	-	1	-	-	-			µg/l	1	A-T-025w
Mercury (leachable)A	-	<0.1	-	-	-			µg/l	0.1	A-T-025w
Nickel (leachable)A	-	<2	-	-	-			µg/l	2	A-T-025w
Selenium (leachable)A	-	<1	-	-	-			µg/l	1	A-T-025w
Zinc (leachable)A	-	12	-	-	-			µg/l	2	A-T-025w

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/8	25/06316/9	25/06316/10	25/06316/11	25/06316/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP104	HP105	HP105	HP106	HP106					
Depth to Top	0.50	0.15	0.40	0.00	0.40					
Depth To Bottom	0.70	0.40	0.70	0.40	0.70					
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE					
PAH-16MS (leachable)										
Naphthalene (leachable)$_A$	-	0.04	-	-	-			µg/l	0.02	A-T-019w
Acenaphthylene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Acenaphthene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Fluorene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Phenanthrene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Anthracene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Fluoranthene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Pyrene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Benzo(a)anthracene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Chrysene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Benzo(b)fluoranthene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Benzo(k)fluoranthene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Benzo(a)pyrene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Indeno(123-cd)pyrene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Dibenzo(ah)anthracene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Benzo(ghi)perylene (leachable)$_A$	-	<0.02	-	-	-			µg/l	0.02	A-T-019w
Total PAH-16MS (leachable)$_A$	-	0.04	-	-	-			µg/l	0.02	A-T-019w

Envirolab Job Number: 25/06316

Client Project Name: Southleigh Park

Client Project Ref: J25-046

Lab Sample ID	25/06316/8	25/06316/9	25/06316/10	25/06316/11	25/06316/12			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	HP104	HP105	HP105	HP106	HP106					
Depth to Top	0.50	0.15	0.40	0.00	0.40					
Depth To Bottom	0.70	0.40	0.70	0.40	0.70					
Date Sampled	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25	11-Jun-25					
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES					
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE					
TPH CWG (leachable) with Clean Up										
Ali >C5-C6 (leachable)$_A$	-	<1	-	-	-			µg/l	1	A-T-022w
Ali >C6-C8 (leachable)$_A$	-	<1	-	-	-			µg/l	1	A-T-022w
Ali >C8-C10 (leachable)$_A$	-	<10	-	-	-			µg/l	10	A-T-055w
Ali >C10-C12 (leachable)$_A$	-	<10	-	-	-			µg/l	10	A-T-055w
Ali >C12-C16 (leachable)$_A$	-	<10	-	-	-			µg/l	10	A-T-055w
Ali >C16-C21 (leachable)$_A$	-	<10	-	-	-			µg/l	10	A-T-055w
Ali >C21-C35 (leachable)$_A$	-	<20	-	-	-			µg/l	20	A-T-055w
Total Aliphatics (leachable)$_A$	-	<20	-	-	-			µg/l	10	Calc-As Recd
Aro >C5-C7 (leachable)$_A$	-	<1	-	-	-			µg/l	1	A-T-022w
Aro >C7-C8 (leachable)$_A$	-	<1	-	-	-			µg/l	1	A-T-022w
Aro >C8-C10 (leachable)$_A$	-	<10	-	-	-			µg/l	10	A-T-055w
Aro >C10-C12 (leachable)$_A$	-	<10	-	-	-			µg/l	10	A-T-055w
Aro >C12-C16 (leachable)$_A$	-	<10	-	-	-			µg/l	10	A-T-055w
Aro >C16-C21 (leachable)$_A$	-	<10	-	-	-			µg/l	10	A-T-055w
Aro >C21-C35 (leachable)$_A$	-	<20	-	-	-			µg/l	20	A-T-055w
Total Aromatics (leachable)$_A$	-	<20	-	-	-			µg/l	20	Calc-As Recd
TPH (Ali & Aro >C5-C35) (leachable)$_A$	-	<20	-	-	-			µg/l	20	Calc-As Recd
BTEX - Benzene (leachable)$_A$	-	<1	-	-	-			µg/l	1	A-T-022w
BTEX - Toluene (leachable)$_A$	-	<1	-	-	-			µg/l	1	A-T-022w
BTEX - Ethyl Benzene (leachable)$_A$	-	<1	-	-	-			µg/l	1	A-T-022w
BTEX - o Xylene (leachable)$_A$	-	<1	-	-	-			µg/l	1	A-T-022w
BTEX - m & p Xylene (leachable)$_A$	-	<1	-	-	-			µg/l	1	A-T-022w
MTBE (leachable)$_A$	-	<1	-	-	-			µg/l	1	A-T-022w

Report Notes

General

•This report shall not be reproduced, except in full, without written approval from Envirolab.
•The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
•The results reported herein relate only to the material supplied to the laboratory.
•The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
•Analytical results reflect the quality of the sample at the time of analysis only.
•Opinions and Interpretations expressed are outside our scope of accreditation.
•A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
•If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
•Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

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

Asbestos

Identification: Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
"Trace Asbestos Identified" will be reported if there is not enough present to verify the type.

Assigned Matrix Codes

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

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

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

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

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^0C / 11550µS/cm @ 20^0C fall outside the calibration range and as such are unaccredited.

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

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Ground Condition Consultants Ltd, 10 Waldegrave Close, Southampton, SO19 9RY

Project: Southleigh Park

Clients Project No: J25-046

Project No: 25/06316

Date Received: 13/06/2025 (am)

Cool Box Temperatures (°C): 19.5, 19.2

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	25/06316/1	25/06316/2	25/06316/3	25/06316/4	25/06316/5	25/06316/6	25/06316/7	25/06316/8	25/06316/9	25/06316/10	25/06316/11	25/06316/12
Client Sample No												
Client Sample ID/Depth	HP101 0.00-0.30m	HP101 0.30-0.70m	HP102 0.00-0.50m	HP102 0.50-0.70m	HP103 0.00-0.40m	HP103 0.40-0.70m	HP104 0.00-0.50m	HP104 0.50-0.70m	HP105 0.15-0.40m	HP105 0.40-0.70m	HP106 0.00-0.40m	HP106 0.40-0.70m
Date Sampled	11/06/25	11/06/25	11/06/25	11/06/25	11/06/25	11/06/25	11/06/25	11/06/25	11/06/25	11/06/25	11/06/25	11/06/25
A-T-019s	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025
A-T-019w		20/06/2025	20/06/2025						20/06/2025			
A-T-022s	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025	20/06/2025
A-T-022w		23/06/2025	23/06/2025						23/06/2025			
A-T-024s	25/06/2025	25/06/2025	25/06/2025	25/06/2025	25/06/2025	25/06/2025	25/06/2025	25/06/2025	25/06/2025	25/06/2025	25/06/2025	25/06/2025
A-T-025w		25/06/2025	25/06/2025						25/06/2025			
A-T-026w		20/06/2025	20/06/2025						20/06/2025			
A-T-026w (N)		23/06/2025	23/06/2025						23/06/2025			
A-T-031s	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025
A-T-031w		20/06/2025	20/06/2025						20/06/2025			
A-T-032s	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025
A-T-033w		23/06/2025	23/06/2025						23/06/2025			
A-T-038w		20/06/2025	20/06/2025						20/06/2025			
A-T-040s	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025
A-T-042sFCN	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025	24/06/2025
A-T-042wTCN		23/06/2025	23/06/2025						23/06/2025			
A-T-044	18/06/2025	18/06/2025	18/06/2025	18/06/2025	18/06/2025	18/06/2025	18/06/2025	18/06/2025	18/06/2025	18/06/2025	18/06/2025	18/06/2025
A-T-045	17/06/2025	17/06/2025	17/06/2025	17/06/2025	17/06/2025	17/06/2025	17/06/2025	17/06/2025	17/06/2025	17/06/2025	17/06/2025	17/06/2025
A-T-050s	19/06/2025	19/06/2025	19/06/2025	19/06/2025	19/06/2025	19/06/2025	19/06/2025	19/06/2025	19/06/2025	19/06/2025	19/06/2025	19/06/2025
A-T-050w		23/06/2025	23/06/2025						23/06/2025			
A-T-055s	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025
A-T-055w		23/06/2025	23/06/2025						23/06/2025			
Calc-As Recd	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025

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

End of Report

APPENDIX 6: MONITORING DATA

GROUND GAS AND GROUNDWATER MONITORING RESULTS

SITE/REF:	Southleaigh Park, Havant					
DATE:	14/06/2025		……1… of ……1…			
OPERATOR(S):	PP					
Ambient Conditions:		Barometric Pressure (mb)	CH_4 (%v/v)	CO_2 (%v/v)	0_2 (%v/v)	PID (ppm)
Before Monitoring		1013	<0.1	<0.1	21	<1
After Monitoring		1012	<0.1	<0.1	21.0	<1
Atmospheric Pressure Trend:		Falling				
Ground Conditions:		Dry				
Weather Conditions:		Dry and calm				

General Site comments

EQUIPMENT		
Instrument / Model Type	Serial Number	Comments
Dip metre		

Ground Gas Note: "0" readings to be recorded as instrument detection limit

Borehole ID	Time	Flow (l/hr)	Relative Pressure (mb)	Steady CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	Peak CH_4 (%v/v)	% of Lower Explosive Limit	CO (ppm)	H_2S (ppm)	Balance (%)	PID (ppm)	Response Zone		Response Strata	Gas screening value CH_4	Gas screening value CO_2
													From (mbgl)	To (mbgl)			
WS101		<0.1		<0.1	1.1	19.2	<0.1		<1	<1		<1	0.50	4.50	RTD	0.0001	0.0011
WS102		<0.1		<0.1	2.1	18.5	<0.1		<1	<1		<1	1.00	3.00	RTD	0.0001	0.0021
WS103		<0.1		<0.1	2.6	18.0	<0.1		<1	<1		<1	0.80	2.80	RTD	0.0001	0.0026
WS105		<0.1		<0.1	0.1	18.2	<0.1		<1	<1		<1	0.80	1.80	RTD	0.0001	0.0001
WS106		<0.1		<0.1	1.0	19.6	<0.1		<1	<1		<1	1.15	2.15	RTD	0.0001	0.0010

Groundwater

Borehole ID	Standing Water Level (mbgl)	Installation Base Dip (mbgl)	Free Phase LNAPL Thickness (m)	Free Phase DNAPL Thickness (m)	Water Quality Indicators					Well Volume (l)	Purge Volume (l)	Comments (samples)
					Eh	EC	pH	DO	Temp			
WS101	1.05	2.88	-	-	-	-	-	-	-			
WS102	1.04	2.39	-	-	-	-	-	-	-			
WS103	Dry	2.47	-	-	-	-	-	-	-			
WS105	Dry	1.75	-	-	-	-	-	-	-			
WS106	1.95	2.15	-	-	-	-	-	-	-			
		-										

Well volume (l) = (3.14 x (hole diameter (m)/2)^2 x (base dip (m) - standing water level (m)))x1000 (2l/m in 50mm well)

Gas screening value = gas concentration (%) x gas flow rate (l/hr)

%v/v - Percentage volume by total volume; mbgl - metres below ground level; ppm - parts per million; mb - milibars; l/hr - litres per hour; wv - water vial; gb - 1l glass bottle; pb - 1l plastic bottle

APPENDIX 7: DISCOVERY STRATEGY

Attn: Ground Works Contractors

Southleigh Park House – Discovery Strategy

Background

This document presents a brief summary of the actions to be taken if suspected contamination of the soil or groundwater is encountered during the development of the site and follows on from the GCC Ground Condition Assessment dated June 2025.

Evidence of contamination

Evidence of contamination may be in the following forms, although other indicators may be observed.

- Dark staining of the soil
- Ash in soil
- Oily sheen on soil or water
- Tanks and pipework
- Smell of oil/diesel/petrol
- Asbestos containing material fragments
- Large deposits of made ground (e.g. waste deposits)

Actions following identification of evidence of contamination

Contractors encountering evidence of contamination are to report the discovery to the site office/site manager.

- Further development of the potentially contaminated area should cease and Site Manager should contact GCC (ask@groundcc.com) to attend site and assess the implications of the discovered impact.
- GCC will in turn inform the Local Authority and/or the Environment Agency as appropriate.
- Potentially contaminated material is to be left in situ where possible, or stockpiled in bunded areas where it is not possible to leave in situ, until an assessment is complete and appropriate action is agreed with the relevant regulator.
- Potentially contaminated material to be disposed of off site may require further chemical testing.