Land Science

FRITHKNOWLE FARM, PICTS LANE, COWFOLD, RH13 8AN

PHASE II CONTAMINATION ASSESSMENT

SOUTH LODGE ESTATE LLP

5TH SEPTEMBER 2024

LS7508

Site:	**FRITHKNOWLE FARM, PICTS LANE, COWFOLD, RH13 8AN**
Title:	**PHASE II CONTAMINATION ASSESSMENT**
Project:	**DEMOLITION OF BARN AND REFURBISHMENT OF REMAINING BUILDINGS**
Client:	**SOUTH LODGE ESTATE LLP**
Contact:	**BATCHELLER MONKHOUSE**
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CONTENTS

1.0 EXECUTIVE SUMMARY 4
2.0 INTRODUCTION 5
3.0 SUMMARY PHASE I ASSESSMENT 7
4.0 INTRUSIVE INVESTIGATION 8
5.0 GROUND CONDITIONS 10
6.0 FIELD TESTING 12
7.0 CONTAMINATION LABORATORY TESTING 13
8.0 HUMAN HEALTH SCREENING 15
9.0 ENVIRONMENTAL SCREENING 17
10.0 CONTROLLED WATERS SCREENING 19
11.0 TIER 1 CONTAMINATION ASSESSMENT 20
12.0 PRELIMINARY WASTE ASSESSMENT 22
REFERENCES 24
REPORT CONDITIONS 25
GLOSSARY OF TERMS 26

FIGURES

FIGURE 1: Site Location Plan
FIGURE 2: Existing Layout / Investigation Layout
FIGURE 3: Proposed Layout / Investigation Layout

APPENDICES

APPENDIX A: Photographs
APPENDIX B: Field Logs and Testing
APPENDIX C: Contamination Laboratory Testing

1.0 EXECUTIVE SUMMARY

This summary is a brief precis of the main findings and conclusions of the investigation. For detailed information, the reader is referred to the main report.

The area under investigation comprised 4no barns (one was demolished to ground level with a sheltered open sided barn in the centre). The proposed development was understood to comprise demolition of a storage barn, and renovation of the remaining buildings to be converted into two dwellings with associated soft landscaping and garden area. The intrusive investigation comprising nine hand pits and preliminary chemical testing of selected soil and water samples in the field and laboratory.

Strata	Base Depth range	Summary
Hardstanding	0.15 to 0.20m	Concrete
Sub-bases	0.30 to 0.40m	Orange, brown, gravelly SAND with varying proportions of brick, concrete and flint, stone, glass and clinker.
Made Ground	0.30 to 0.75m	Brown occasionally black, silty, sandy, gravelly CLAY / clayey SAND / SILT with varying proportions of flints, siltstone/sandstone, brick, concrete, chalk, sandstone, glass, pieces of re-bar, wood and charcoal. Occasional organic material was noted in the Made Ground at TP04 and TP06.
Upper Tunbridge Wells Sand	1.00m+	Beige to brown CLAY / SILT / SAND with varying proportions of siltstone/sandstone and flint gravels.

No groundwater was encountered within a depth of 1.00m.

Buried structural concrete may be designed to DS1 and AC1 in accordance with BS8500. Water supply pipe work will not require protection from aggressive soil contaminants.

No issues with respect to ground gases have been identified.

No Radon Protection Measures (RPM) are required for new dwellings and extensions at this location.

Asbestos in the form of Chrysotile as loose fibres was detected in the Made Ground at DS02 0.20m, within an area of proposed soft landscaping with quantification values of <0.001%.

The physical composition of the Made Ground at this location and others within proposed gardens was such that it was unlikely to be a suitable medium for landscaping and planting. Clean imported topsoil and subsoil will be required in accordance with appropriate British Standards.

Chemical results on Made Ground corresponded to an Inert Waste classification. Natural soils are anticipated to generally be Inert Waste.

A Remediation Method Statement should be prepared. This report should be submitted to relevant authorities etc. in good time for consideration and approval.

2.0 INTRODUCTION

2.1 General

Land Science was instructed to undertake a Phase II Contamination Assessment in relation to the proposed redevelopment at Frithknowle Farm, Picts Lane, Cowfold, RH13 8AN. The location is shown on Figure 1, which is centred at grid reference TQ 21851 23973.

2.2 Client

The Client for this appointment was South Lodge Estate LLP. This report may only be used by this named client and their project team for the purposes set out and subject to the report conditions. It was assumed or understood that the Client already owned the property, and that this investigation was not a pre-purchase appraisal.

2.3 Area Under Investigation

The area under investigation comprised 4no barns (one was demolished to ground level with a sheltered open sided barn in the centre). The layout is indicated on Figure 2.

2.4 Proposed Development

The proposed development was understood to comprise demolition of a storage barn, and renovation of the remaining buildings to be converted into two dwellings with associated soft landscaping and garden area. The proposed development was covered under planning application numbers DC/23/1758 and DC/23/1759, with the demolition of the existing barn covered under DC/23/1678 (Horsham District Council). Figure 3 illustrates the layout of the proposed redevelopment. The findings of this report may be not valid if the proposed development is altered.

2.5 Previous Investigations

The previous phase I investigation was carried out by Land Science:

- Phase I Contamination Assessment, Dated 23rd February 2024, Reference LS7415

The phase II ground investigation has been carried out in accordance with the recommendations of the previous report and all reports must be read in conjunction with each other.

2.6 Scope of Work

The work carried out is described in detail in following sections but in summary included:

- An intrusive investigation comprising nine hand pits.
- Preliminary chemical testing of selected soil and water samples in the field and laboratory.

The fieldwork was conducted on the 19th August 2024, under the supervision of Land Science.

2.7 Geo-Environmental Objectives

A phase II intrusive investigation was required, to provide a generic quantitative risk assessment (GQRA).

The reports were required to assess risks associated with end users, the proposed redevelopment, adjacent land uses, and the wider environment, in the context of the planning regime.

2.8 Standards

Where practicable, the investigation was undertaken in accordance with the following primary standards and guidance:

- Land Contamination Risk Management (LCRM) Environment Agency 2020.
- BS10175:2011+A1:2013, Investigation of Potentially Contaminated Sites.
- National Planning Policy Framework, July 2018.
- Building Regulations Approved Document C: Site preparation and resistance to contaminants and moisture, HM Government, July 2013.
- NHBC Standards Chapter 4.1: Land Quality - Managing Ground Conditions, 2019.

Other technical sources have been cited in respect of specific aspects of the investigation, as referenced throughout the text.

3.0 SUMMARY PHASE I ASSESSMENT

3.1 Qualitative Ratings

Overall, the level of risk ranged between unlikely and High. Consequently, a **Moderate** level of risk has been assigned to the site in respect of the proposed development. This is primarily due to the site being on agricultural land and is to be developed with residential end use – annexe accommodation.

3.2 Recommendations

It would be necessary to undertake basic ground investigation works, which may include;

- Shallow boreholes, or trial pits, to assess the composition and depth of any Made Ground and any field evidence of contamination into the underlying soils.
- Selected soil and water samples (if present) (including materials bearing field evidence of contamination) should be sent for laboratory analysis. The main analytical suite is identified below.
- Soil samples should be screened for vapours using a Photoionisation Detector (PID).

The analytical suite, based on the known site history and walkover survey, should include:

- General parameters: Acidity (pH), fraction of organic carbon.
- Soil leachate testing should be considered in order to assess the potential impact on controlled waters. This might be considered along with Waste Acceptance Criteria testing.
- A selection of shallow samples should be screened for pesticides and herbicides.
- Metals; Arsenic, Cadmium, Chromium (total), Lead, Mercury, Selenium, Boron, Copper, Nickel and Zinc.
- Non metals: water soluble Sulphate, Sulphide, total Cyanide
- Targeted organic parameters; TPH, BTEX, Speciated PAHs, scheduled based on PID screening and field evidence etc.
- Visual asbestos screening of all Made Ground samples and shallow surface samples around buildings containing pACM's. Where possible asbestos fibres or ACMs are identified, these should be examined under a microscope to determine type.

Further positions may be required, additional samples analysed or additional determinands added to the analysis, as appropriate, based on any field evidence of possible contamination encountered.

It would be prudent to confirm the scope of ground investigation works with the Local Authority and other stakeholders before carrying out these works.

4.0 INTRUSIVE INVESTIGATION

4.1 Investigation Rationale

Based on the findings of the conceptual site model, the intrusive investigation was based on the following strategy:

- Nine shallow hand pits were to be dug targeting areas of interest identified in the CSM for collection of soil samples and groundwater samples (if encountered).

Position	Provisional Depth / strata	Existing Location	Proposed Location
TP01	1.20m or natural strata	Former workshop/ forge (Barn 1)	Unit 2 Bedroom/ studio unit
TP02		Open ground (Between barn 1, 2 and 5)	Unit 2 Rear Garden area
TP03		Open ground (west of barn 5)	Assumed soft landscaping
TP04		Former piggery (Barn 2)	Unit 2 Bedroom
TP05		Storage barn (Barn 5)	Unit 2 Rear Garden
TP06			Unit 1 Rear Garden
TP07		Former piggery (Barn 3)	Unit 1 Bedroom/ living room
TP08		Open ground (South of barn 3)	Unit 1 Rear Garden
TP09		Open ground (immediately adjacent to former barn 4)	Outbuilding store



4.2 Contamination Strategy

Geo-environmental aspects were investigated based on the following strategy:

Area of Concern	Investigation	Position(s)
Made Ground	Representative samples of soil were to be screened for a broad industry standard screening contaminants.	All
Workshop / Forge	Representative samples of soil were to be screened for potential contaminants associated with former workshop / forge – Metals, Hydrocarbons	TP01
Agricultural land (farmyards)	Representative samples of soil were to be screened Pesticides and Herbicides.	TP02, TP03, TP05, TP08 and TP09
Waste classification	For preliminary waste classification, representative samples were to be screened for contaminants and full hazardous waste leachate testing performed.	TP03, TP06

4.3 Enabling Works

Positions TP01, TP04 and TP05 to TP07 were located on concrete and required breaking out. Positions were broken out using a hydraulic breaker and generator.

4.4 Hand Pits (HP)

Hand excavated trial pits provide a low cost and low impact method of sampling shallow soils.

4.5 Soil Sampling

Soil samples were recovered from the exploratory holes during the ground investigation and stored/transported in containers appropriate for the laboratory testing undertaken. Sample types and depths are recorded on the relevant exploratory hole records.

4.6 PID Screening (PID)

The samples of soil were screened for VOC's in headspace from all positions using a Photo Ionisation Detector (PID) broadly in accordance with the methodology set-out in CIRIA C682. Due to interference from humidity and other factors, Land Science adopts a method detection limit of 1.0ppm to avoid reporting false positive readings.

5.0 GROUND CONDITIONS

5.1 General

The expected ground conditions were anticipated to comprise Made Ground, possibly over Weald Clay Formation with the Upper Tunbridge Wells Sand below to depth. The Desk Study identified that the site was located close to the boundary of the extent of the Weald Clay Formation and as such this strata may or may not be encountered on site.

The investigation did not encounter Weald Clay Formation, with a thin layer of Made ground found to lie directly over the Upper Tunbridge Wells Sands. A summary of the encountered conditions is presented below.

Strata	Base Depth (mbgl)								
	TP01	TP02	TP03	TP04	TP05	TP06	TP07	TP08	TP09
Hardstanding	0.15	--	--	0.20	0.20	0.15	0.20	--	--
Sub-bases	--	--	--	0.30	0.40	0.30	0.30	--	--
Made Ground	0.30	0.40	0.65	0.50	--	0.75	--	0.50	0.30
Upper Tunbridge Wells Sand	1.00+	1.00+	1.00+	1.00+	1.00+	0.80+	1.00+	1.00+	1.00+

The naming of geological strata is tentative and should be used as a guide. Interpolation between or below investigation points should be treated with caution.

The description of soils and rocks was in accordance with BS5930.

Topsoil can be distinguished from Made Ground, even though these may have been disturbed through human activity and may contain materials such as brick, pottery, or charcoal etc.

5.2 Hardstandings and Subbases

Positions TP01 and TP04 to TP07 were located within the buildings and sheds on site; CONCRETE was encountered to depths of between 0.15m and 0.20m. Positions TP04 to TP07 encountered a subbase below the concrete (orange, brown, gravelly SAND with varying proportions of brick, concrete and flint, stone, glass and clinker).

5.3 Made Ground

Made Ground was encountered in all positions with the exception of TP05 and TP07, with the full thickness proved in all with the base depth ranging between 0.30 and 0.75mbgl.

The Made Ground generally comprised a brown occasionally black, silty, sandy, gravelly CLAY / clayey SAND / SILT with varying proportions of flints, siltstone/sandstone, brick, concrete, chalk, sandstone, glass, pieces of re-bar, wood and charcoal. Occasional organic material was noted in the Made Ground at TP04 and TP06.

The Made Ground at TP03 was initially noted to be a layer of white, silty chalk GRAVEL over a layer of subbase (brown, sandy GRAVEL comprising of brick, concrete and rebar) with the general Made Ground below.

TP08 encountered a redundant field drain in the form of a silt filled terracotta drainage pipe between a depth of 0.25 and 0.35mbgl.

5.4 Upper Tunbridge Wells Sand

Upper Tunbridge Wells Sand was encountered in all positions and proven to a depth of between 0.80 and 1.00mbgl. The stratum varied between beige to brown CLAY / SILT / SAND with varying proportions of siltstone/sandstone and flint gravels.

5.5 Roots and Rootlets

Occurrences of roots and rootlets were noted as follows:

Position	Rootlets
TP08	0.50-0.80m; occasional rootlets
TP09	0.00-0.30m; occasional rootlets

5.6 Field Evidence of Contamination

No evidence of possible soil contamination (such as staining, malodours, or brightly coloured soils) was identified in the field.

Made Ground was identified to depths of between 0.30 and 0.75mbgl, and such materials may be imported from an unknown source or mixed with hazardous materials, and as such may contain a wide range of potential contaminants. All such materials should be treated as suspect unless proven otherwise. Testing has been carried out, as described in section 7.1.

5.7 Groundwater

Groundwater was not encountered during excavation of any of the investigative positions. However, the Made Ground at TP06 was noted to be moist below a depth of 0.40m.

5.8 Stability and Casing

All positions were noted to be stable.

6.0 FIELD TESTING

6.1 PID Screening (PID)

None of the samples exhibited VOC's above the detection limit of 1.0ppm, with the exception of the following tests.

Position	Depth	Strata	Result (ppm)
TP08	0.30m	Made Ground	1.6

Overall the readings were towards the lower end of the unit's detection limit (0.1ppm to 9999ppm).

The purpose of the screening was to identify samples which may be impacted by organic contaminants (such as VOC's, SVOC's, petroleum hydrocarbons, diesel, etc.) and to assist in prioritising samples for laboratory analysis.

7.0 CONTAMINATION LABORATORY TESTING

7.1 Scheduled Testing

Samples were selected for geochemical (contamination) analysis, based on the following rationale:

- Made Ground was encountered in all positions, which may contain a wide range of contaminants. Selected samples from each location were tested for a routine screening suite (LS1) and were screened for Asbestos.
- One slightly elevated PID reading was detected (as described in section 6.1); sample TP08 0.30m was tested for speciated Total Petroleum Hydrocarbons (TPH7). With the previous site history, selected samples of Made Ground from across the site were also tested for speciated Total Petroleum hydrocarbons.
- TP02, TP03, TP05, TP08 and TP09 were located with yard areas / areas where agricultural products may have been stored and selected samples of Made Ground from these locations were scheduled for herbicide and pesticides screening.
- Waste classification testing on two samples was included in the scope of works, to provide a preliminary assessment for waste handling. In the absence of any areas to specifically target, two representative samples of Made Ground were selected for testing.

The scope and extent of testing was considered appropriate and in accordance with the Conceptual Site Model and preliminary risk assessment.

Position	Depth	Strata	LS1	Asbestos	TPH7	Herb. / Pest.	LS2
TP01	0.25m	Made Ground	✓	✓	✓		
TP01	0.50m		✓	✓			
TP02	0.15m		✓	✓		✓	
TP03	0.35m		✓	✓	✓	✓	✓
TP04	0.35m		✓	✓			
TP05	0.35m		✓	✓		✓	
TP06	0.20m		✓	✓	✓		✓
TP06	0.45m		✓	✓			
TP07	0.30m		✓	✓	✓		
TP08	0.30m		✓	✓	✓	✓	
TP09	0.20m		✓	✓		✓	

The relevant screening suites are defined below. Where duplicate analysis exists between suites, each test is performed only once:

Suite	Definition
LS1 (soil)	Screening suite: pH, fraction of organic carbon, Metals and Non Metals, water soluble Sulphate, Sulphide, total Cyanide, total Phenols, speciated PAH's.
Asbestos	Asbestos screen: Laboratory screening for fibres and Asbestos Containing Materials; identification where identified. Using polarising light and dispersion staining as described in HSG 248, HSE Contract Research Report No 83/1996and in Davies et al, 1996.
LS2	Waste Acceptance Criteria: Total Organic Carbon, Loss on Ignition, BTEX, speciated PCB's, Mineral Oil (EC10 – EC40), pH, Acid Neutralisation Capacity, speciated PAH's, 10:1 leachable Metals and Non Metals.

Suite	Definition
TPH7	Speciated TPH: Total petroleum hydrocarbons CWG banding incl. aliphatic and aromatic split plus BTEX and MTBE.
Herb./Pest.	Herbicide/Pesticide Analysis of unknown pesticides and herbicides by GC-MS.

The results are discussed in the relevant sections.

8.0 HUMAN HEALTH SCREENING

8.1 Screening Values

As the basis of a generic tier 1 screening assessment, the results have been compared directly against published standards for human health.

Several different partly overlapping schemes are currently in use in the UK, based on the Environment Agency's CLEA Model but with differing toxicological parameters. For this report, these schemes have and have been applied in the following hierarchy:

- Suitable For Use levels (S4UL) recently published by LQM in association with the CIEH.
- Category 4 Screening Levels (C4SL) recently published by the DEFRA and CL:AIRE.

Whilst other standards exist, such as the LQM Generic Assessment Criterion and the Environment Agency's Soil Guideline Values, these are deemed superseded by the above documents.

The soil chemical analysis results have been compared against respective screening values for residential land uses with plant uptake (i.e. residential properties with private gardens, where produce may be homegrown for consumption).

For contaminants where the respective screening value is dependent on Soil Organic Matter (SOM), the corresponding value for 1.00% was used (the arithmetic mean SOM value for the Made Ground was 2.48%).

Where no standard exists, the contaminant is either not considered a priority in terms of human health (at least in the scenario being considered), or no screening value has been published.

8.2 Screening results

None of the results exceeded the screening criteria, with the exception of the following:

Determinand	Screening value	Results exceeding the screening value
Benzo(b)fluoranthene	2.6mg/kg	TP08 0.30m (4.5mg/kg), TP09 0.20m (4.5mg/kg)
Benzo(a)pyrene	2.2mg/kg	TP08 0.30m (3.7mg/kg), TP09 0.20m (3.2mg/kg)
Di-benzo(a,h)anthracene	0.24mg/kg	TP08 0.30m (0.45mg/kg), TP09 0.20m (0.37mg/kg)

8.3 Benzo(a)Pyrene

With respect to Polycyclic Aromatic Hydrocarbons (PAH's) Land Science have adopted the surrogate marker approach described in Appendix E of the C4SL suite of documents i.e. using benzo(a)pyrene as a representative compound for all genotoxic PAH's. This approach was used as benzo(a)pyrene was detected in the samples, and the other PAH's identified above the individual screening values were all classed as genotoxic. The table below summarises the revised screening assessment:

Determinand	GAC	Concentration		Results above GAC value
		Mean	Max	
Benzo(a)Pyrene (as surrogate marker)	5.0	2.185	3.7	No exceedances

8.4 Speciated TPH

The risks from TPH's are assessed differently from other contaminants. The ratio of an individual group of carbon bands to the respective GAC is calculated (a Hazard Quotient) and these are totalled to derive a sample specific Hazard Index. A Hazard Index exceeding 1.0 suggests a potential significant risk to human health in the exposure scenario considered. The calculated Hazard Indexes are summarised below.

Sample	Total TPH	Hazard Index	Notes
TP01 0.25m	<10mg/kg	0.10	No exceedances
TP03 0.35m	16mg/kg	0.10	
TP06 0.20m	<10mg/kg	0.10	
TP07 0.30m	<10mg/kg	0.13	
TP08 0.30m	99mg/kg	0.18	

8.5 Asbestos

There are no published screening values for asbestos in soil. The table below provides a summary of the testing results.

Soil	Sample	Asbestos present	Type	Quantification
Made Ground	TP03 0.35m	Detected	Chrysotile	<0.001%

8.6 Herbicides & Pesticides

There are no published screening values for Herbicides and Pesticides. A total of five samples of Made Ground were screened for the presence of Herbicides and Pesticides. The full methodology is described in the analytical report.

None of the results were found to be above the respective detection limits. Taking these limits into consideration, the risk posed from Pesticides across the site is considered to be low and as such unlikely to represent a significant risk.

9.0 ENVIRONMENTAL SCREENING

9.1 Soft Landscaping

A number of documents include guidance on screening levels of phytotoxic contaminants within soils, including:

- BS3882:2015 "Specification for topsoil and requirements for use" (although stipulated as not to be used in contaminated land risk assessment).
- ICRCL in publication 70/90 1990 'Notes on the Restoration and Aftercare of Metalliferous Mining Sites for Pasture and Grazing' (although indirectly withdrawn) (where marked *).
- Code of Practice for Agricultural Use of Sewage Sludge (England and Wales 1996) for arable use (as opposed to grazing) and relating to priority phytotoxic elements only.

The results of the chemical analysis for determinands known to pose a potential phytotoxic risk to plant growth are summarised on the following table, together with the respective adopted screening values for plant growth. The results of the chemical analysis were evaluated singularly without the use of statistical tools.

Element	Phytotoxicity Value (mg/kg)			Arable (grassland)	Results exceeding screening value
	pH <6.0	pH 6.0-7.0	pH >7.0	pH >5.2	
Zinc	200	200	300	300 (300)	TP02 0.15m (750mg/kg)
Copper	100	135	200	200 (330)	No exceedances
Nickel	60	75	110	110 (180)	
Cadmium	50*			3.0 (3.0)	
Arsenic	1,000*			50 (50)	

9.2 Structural Concrete

All sub surface concrete should be designed and specified in accordance with BS8500-1:2015+A1:2016. The results of the Sulphate and pH analyses fell into Class DS-1 and an ACEC class AC-1 is appropriate.

9.3 Potable Water Supplies

The risk of chemical attack on water supply pipework has been assessed following the general Principals set out in the joint Water UK/HBF *Contaminated Land Assessment Guidance* dated January 2014. A summary of the main chemical criteria is reproduced below.

Test group (in mg/kg)	Poly-ethylene (PE)	Polyvinyl Chloride (PVC)	Metal or Barrier pipe	Results exceeding
VOC's	0.5	0.125	No limit	No exceedances
VOC's + BTEX & MTBE	0.1	0.03	No limit	
SVOC's (excl. PAH's etc.)	2.0	1.4	No limit	
SVOC's + Phenols	2.0	0.4	No limit	

Test group (in mg/kg)	Poly-ethylene (PE)	Polyvinyl Chloride (PVC)	Metal or Barrier pipe	Results exceeding
SVOC's + Cresols & Chlorinated Phenols	2.0	0.04	No limit	
Mineral oil EC11-20	10	No limit	No limit	
Mineral oil EC21-40	500	No limit	No limit	

Redox potential and conductivity should be checked where metal pipework is to be installed. aluminium barrier pipework is acceptable under all conditions. no pipework should be laid where there is evidence of petrol, diesel etc.

10.0 CONTROLLED WATERS SCREENING

The relevant analytical results have been compared directly against the standard set out in the water framework directive for surface waters, and the current UK potable water supply regulations.

10.1 Soil Leachate Screening

In comparison to the adopted surface water standards, the following determinands exceeded the respective thresholds:

Determinand	EQS	Units	TP03 0.35m	TP06 0.20m
Chromium	0.0047	mg/l	0.00081	0.017
Copper	0.001	mg/l	0.018	0.033

In comparison to the adopted drinking water standards, none were found to exceed the respective standards.

11.0 TIER 1 CONTAMINATION ASSESSMENT

11.1 End Users

The preliminary conceptual site model identified end users to comprise two residential houses with private gardens.

None of the chemical results exceeded human health screening values.

Asbestos in the form of Chrysotile as loose fibres was detected in the Made Ground at TP03 0.35m within an area of proposed soft landscaping with quantification values of <0.001%.

The physical composition of the Made Ground at this location and others within proposed gardens was such that it was unlikely to be a suitable medium for landscaping and planting. Clean imported topsoil and subsoil will be required in accordance with appropriate British Standards.

11.2 Adjacent Land Users

The site has not been identified as a risk of ongoing pollution to neighbouring land.

However, measures should always be taken to prevent and control any dust, run-off and mud etc. generated during groundworks, as part of good site management.

11.3 Soft Landscaping

Zinc exceeded the phytotoxicity screening value in the sample at TP02 0.15m (750mg/kg), whilst other tests in the Made Ground were below the screening values. No evidence of potentially phytotoxic effects was noted during the site walkover survey inspection.

The physical composition of the Made Ground at this location and others within the proposed gardens was such that it was unlikely to be a suitable medium for landscaping and planting. Clean imported topsoil and subsoil will be required in accordance with appropriate British Standards.

11.4 Concrete specification

All sub surface concrete should be designed and specified in accordance with BS8500-1:2015+A1:2016. The results of the Sulphate and pH analyses fell into Class DS-1 and an ACEC class AC-1 is appropriate.

11.5 Potable Water Supplies

No organic contaminants exceeding the screening values were identified. Subject to confirmation from the water utility, it appears there is no restriction on pipework material selection.

11.6 Ground Water Protection

The preliminary conceptual site model identified possible source-pathway-receptor linkages with respect to groundwater. The site overlies the Upper Tunbridge Wells Sand which has been classed as a Secondary A aquifer. No Abstraction of Source Protection Zones were identified on or within the vicinity of the site. Contamination may be mobilised through the infiltration and percolation of water

downwards through the soil column and into the water table. This may then in turn migrate with the water table and impact directly on abstraction points.

However, whilst the site may lie in a low groundwater sensitivity setting, the risk driver for controlled waters was identified as surface water quality, given the proximity and sensitivity of surface water features and for the reasons set out (in the following section).

None of soil-leachate results exceeded the drinking water standards. Overall, the screening does not suggest a significant risk of impact on groundwater quality.

11.7 Surface Water Protection

The preliminary conceptual site model identified possible source-pathway-receptor linkages with respect to surface water. Contamination may migrate through the action of water laterally towards a river/ stream to the 100m to the east, where the water quality may become degraded in terms of recreational amenity, potable abstraction, environmental status, etc.

Comparing the soil-leachate data directly to surface water standards, Chromium exceeded the respective standards at TP06 0.20m along with Copper at TP03 0.35m and TP06 0.20m.

The distance of the surface water receptor from the site was such that it was unlikely that contaminants would migrate and have a negative impact on the water quality. The samples taken were Made Ground within the proposed garden areas which has been recommended to be removed and therefore leachability of metals from within the soil will be significantly reduced.

11.8 Conclusions

The updated conceptual site model has identified the following potential risks:

- End users; inhalation, soil borne dusts,
- Soft landscaping; risk of phytotoxicity and poor soil conditions for landscaping and planting.

It seems unlikely that further investigation would be fruitful at this stage due to the composition of the shallow Made Ground.

Based on a preliminary remediation options appraisal, it was considered that the risks would most cost effectively mitigated by:

- Complete removal of Made Ground from garden areas to a depth of 0.60m and reinstating with topsoil/subsoil as required by the landscape designer (minimum 150mm).
- Excavating and disposing of contaminated soils and replacement with a capping system.

A copy of this report should be submitted to the relevant authorities for approval in sufficient time prior to commencement on site.

A suitably qualified Environmental Consultant should prepare a full *Implementation, Verification Monitoring and Maintenance Plan*. An appropriate level of supervision and testing will be required, to form part of a formal *Verification Report*.

12.0 PRELIMINARY WASTE ASSESSMENT

12.1 General

Waste may be defined as any substance or object in Annex 1 of the Waste Framework Directive which the holder discards, intends to discard, or is required to discard. Subject to compliance with waste regulations, soils may either be handled as either:

- Non-Waste, and re-used (either on-site or on another site), or
- Waste, and disposed of (to a waste management facility).

Given the confines of the site, it was anticipated that all materials would be disposed of from site as waste.

The waste producer has a legal duty of care to ensure that waste materials are handled properly and sent to the appropriate licenced facility. Substantial tax penalties and fines are being levied by the regulators. Inspection, testing, segregation etc. will be required on site, and the support of a suitably qualified consultant should be sought; therefore, the advice in this section is preliminary only.

12.2 Waste Disposal

Where materials are not re-used they must be handled as Waste, and must be sent to a licenced waste management facility. Waste is classified as follows:

- Step 1: Does the material contain dangerous substances that qualify as Hazardous Waste as prescribed under the Waste Framework Directive.

- Step 2: Does the leachability criteria allow the materials to be sub-classified as Stable Non Reactive Waste (SNRHW) or as Inert Waste.

A material is therefore either Hazardous or Non-Hazardous Waste; Hazardous may be sub-classified as SNRHW and Non-Hazardous Waste may be sub-classified as Inert.

The results of the soil analysis have been classified as follows:

Soil	Waste designation	Details
Made Ground- TP03 0.35m TP06 0.20m	Inert	The soil analysis was not identified as hazardous and the WAC test met the requirements for Inert. Interpretation: Inert Waste.
Made Ground- Elsewhere	Non-hazardous	The soil analysis was not identified as hazardous. No WAC test undertaken. Interpretation: Non Hazardous*

Whilst the samples marked * were classified as Non-Hazardous, WAC testing was not carried out and therefore the materials could not be sub-classified as Inert. However, based on the WAC testing on other samples, it is likely these would in fact also qualify as Inert.

Asbestos Containing Materials (ACM's) were identified in TP03 0.35m as Chrysotile – loose fibres with a quantification result of <0.001%. WM3 states that where waste contains identifiable pieces of

asbestos containing material (i.e. any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye), then these pieces must be assessed separately. HSE publication HSG264 suggests that there are no ACM's where the typical proportion of asbestos is less than 0.1%. Therefore, all soils containing pACM's should be handled as Hazardous waste (and/or sub-classified as Stable Non-reactive) unless testing proves otherwise. The threshold of free fibres in Hazardous Waste is 0.1% and therefore the samples were classified as non-hazardous etc.

Further WAC testing may be considered for soils identified as Non-Hazardous, as the tests may enable those materials to be re-classified as Inert and therefore represent a potential saving on disposal costs.

With reference to the current List of Wastes (formerly European Waste Catalogue), waste soils and stone derived from construction and demolition sites may be disposed of under either of the following codes as appropriate:

Waste	Code	Description
Hazardous	17 05 03*	soil and stones containing dangerous substances
Non-Hazardous	17 05 04	soil and stones other than those mentioned in 17 05 03

(Note, the asterix is a Mirror Entry, as defined in the List of Wastes, conferring the relationship with the non-hazardous code 17-05-04).

REFERENCES

A number of technical references have been referred to in the preparation of this document, including:

- Smith, I. (2014) Smith's Elements of Sil Mechanics. Chichester. Wiley Blackwell. 9th Edition.
- Highways England 2009. Interim Advice Note 73/06 revision 1: Design Guidance for Road Pavement foundations (draft HD25)
- BRE Design Guide 365. Soakaway design ("DG365")
- Radon: Guidance on protective measures for new buildings, BRE Report BR 211, 2015 2ND edition
- Groundwater protection: Principles and practice (GP3) August 2013 Version 1.1
- Revised EU Waste Framework Directive 2008 2008/98/EC [transposed into English law under The Waste (England and Wales) Regulations 2011]
- European Community (EC) Directive 1999/31/EC [transposed into English law under the Landfill (England and Wales) Regulations 2002]
- Defining Waste Recovery - Permanent Deposit of Waste on Land, EPR13 v1.0, EA 2010
- The definition of waste: Development Industry Code of Practice, v2, CL:AIRE 2011
- Guidance on the classification and assessment of waste Technical Guidance WM3 ("WM3") EA publication (1st edition 2015)

REPORT CONDITIONS

The Client

This report may also be used only by the client named in section 1 and their appointed project team for the purpose of design, obtaining planning, building regulations approval, and in connection with finance. This report must not be used by any other persons or for other purposes without express written agreement of Land Science.

General

Land Science takes all reasonable professional care in preparation of this report, using current standards and industry practice. However, the evaluation of ground conditions depends on an interpretation and extrapolation of the conditions revealed by a limited data set. The level of risk is related to the extent of investigation and no site is ever free of risk. The client should understand their risks and liabilities. We accept no liability whatsoever in respect of:

- The scope, extent or design of an investigation.
- Any conditions not directly revealed by the investigation.
- Published standards or methodologies used or adopted in this report.
- The opinion of any other party including any regulator, authority or stakeholder.
- Any dispute, claim or consequential loss arising from any findings of this report.
- Third party information and data.

This report relates solely to ground-related matters as set out in the objectives and makes no representation on other matters such as ecology, arboriculture, invasive plant species, the condition of buildings and structures, hazardous building materials such as insulation or asbestos, the locations of boundaries, unexploded ordnance, and or planning constraints etc. Further reports should be commissioned in this respect as appropriate.

Regulators and Approvals

This (and any other) report should be submitted to relevant authorities for their own assessments and to provide their approval or comments accordingly. This should be in good time before commencing on site in case additional work is to be carried out.

Standards, technical guidance and regulatory positions change over time and which may therefore affect the findings and recommendations made in this report; this should be verified by the client prior to any critical project milestones. Where this information is used in design, the designer should verify that the information is appropriate and has been used correctly.

Variations with time

The report relates to conditions revealed at the time of the investigation and any monitoring visits. Some parameters may vary over time or seasonally; groundwater levels, ground gas compositions, or concentrations of contaminants are particularly variable in this respect. Further monitoring or verification should be considered as appropriate.

GLOSSARY OF TERMS

ACM	Asbestos Containing Material
BGS	British Geological Survey
BRE	Building Research Establishment
BS	British Standard
C4SL	Category 4 Screening Level
CBR	California Bearing Ratio
CDM	Construction Design and Management regulations
CIRIA	Construction Industry Research and Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
CLEA	Contaminated Land Exposure Assessment model
CSM	Conceptual Site Model
EA	Environment Agency
EQS	Environmental Quality Standards
FOC	Fraction of Organic Carbon
GAC	Generic Assessment Criterion
GQRA	Generic Quantitative Risk Assessment
mbgl	Meters Below Ground Level
NHBC	National House Building Council
mOD	Metres above Ordnance Datum
PAH's	Polycyclic Aromatic Hydrocarbons
PHE	Public Health England
PID	Photo-Ionisation Detector
PQRA	Preliminary Quantitative Risk Assessment
PSD	Particle Size Distribution Test
RMS	Remediation Method Statement
S4UL	Suitable for Use Level
SOM	Soil Organic Matter
SPZ	Source Protection Zone
SPT	Standard Penetration Test
SSSI	Sites of Special Scientific Interest
ST-WEL	Short Term Workplace Exposure Limit
SVOC's	Semi-Volatile Organic Compounds
TPH	Total Petroleum Hydrocarbons
TRRL / TRL	Transport Road Research Laboratory
TWA-WEL	Time Weighted Average Workplace Exposure Limit
UK HBF	United Kingdom House Building Federation
VOC's	Volatile Organic Compounds
WAC	Waste Acceptance Criteria

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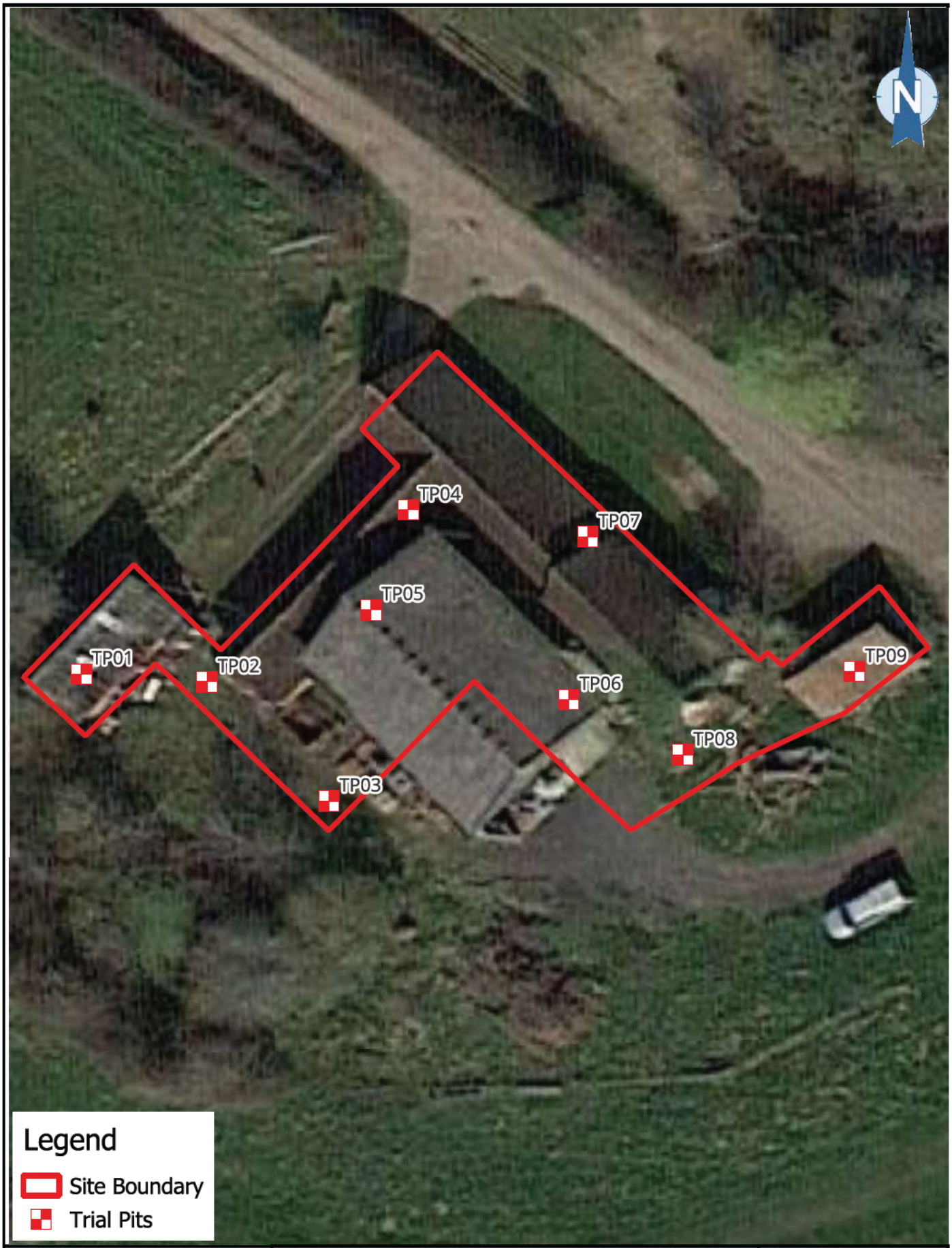
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Land Science	Title: Site Location		Reference: LS7508
	Project: Frithknowle Farm, Picts Lane, Cowfold RH13 8AN		Figure: 1
	Client: South Lodge Estate LLP		Date: 04/09/2024
	Prepared by: LS	Checked by: MR	Version: 02	Sheet: 1 of 1

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Land Science	Title: Exploratory Hole Location Plan		Reference: LS7508
	Project: Frithknowle Farm, Picts Lane, Cowfold RH13 8AN		Figure: 2
	Client: South Lodge Estate LLP		Date: 04/09/2024
	Prepared by: LS	Checked by: MR	Version: 02	Sheet: 2 of 2

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Locations are indicative. Not to scale



Legend

- Site Boundary
- Trial Pits

Land Science	Title: Proposed Layout		Reference: LS7508
	Project: Frithknowle Farm, Picts Ln, Cowfold RH13 8AN		Figure: 3
	Client: South Lodge Estate LLP		Date: 04/09/2024
	Prepared by: LS	Checked by: MR	Version: 02	Sheet: 3 of 3

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APPENDIX A










Land Science	**TITLE:** Site Photographs			**REF:**	LS7508
	PROJECT: Frithknowle Farm Phase II			**FIGURE**	
	CLIENT: South Lodge Estate LLP			**DATE:**	27/08/2024
	PREP: LS	**CHECK:** MR	**VERSION** V1	**SHEET:**	1 OF 4

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TP01





TP02





TP03





TP04





Land Science	**TITLE:**	Site Photographs		**REF:**	LS7508
	PROJECT:	Frithknowle Farm Phase II		**FIGURE**	
	CLIENT:	South Lodge Estate LLP		**DATE:**	27/08/2024
	PREP: LS	**CHECK:** MR	**VERSION** V1	**SHEET:**	2 OF 4

TP05





TP06





TP07





TP08





Land Science	**TITLE:**	Site Photographs		**REF:**	LS7508
	PROJECT:	Frithknowle Farm Phase II		**FIGURE**	
	CLIENT:	South Lodge Estate LLP		**DATE:**	27/08/2024
	PREP: LS	**CHECK:** MR	**VERSION** V1	**SHEET:**	3 OF 4

TP09





TP01



TP05



TP05



TP06



TP07



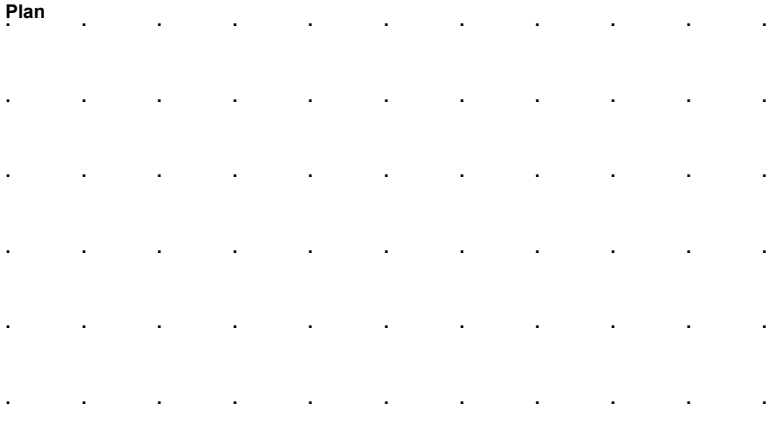
Land Science	**TITLE:**	Site Photographs		**REF:**	LS7508
	PROJECT:	Frithknowle Farm Phase II		**FIGURE**	
	CLIENT:	South Lodge Estate LLP		**DATE:**	27/08/2024
	PREP: LS	**CHECK:** MR	**VERSION** V1	**SHEET:**	4 OF 4

APPENDIX B

Land Science	Brighton | London | Bristol 0845 604 6494 www.landscience.co.uk	Site Frithknowle Farm Phase II, Picts Lane, Cowfold RH13 8AN	Trial Pit Number **TP01**
Excavation Method Trial Pit	**Dimensions**	**Ground Level (mOD)**	**Client** South Lodge Estate LLP	**Job Number** LS7508
	Location	**Dates** 19/08/2024	**Project Contractor** Land Science	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.15)	CONCRETE (HARDSTANDING)		
					0.15			
					(0.15)	Brown, silty, slightly sandy, slightly gravelly CLAY. Sands are fine to medium. Gravels are fine to coarse, angular to subrounded flints, brick, concrete, sandstone, charcoal. (MADE GROUND) ...Band of siltstone/sandstone gravels at 0.30mbgl		
0.25	E		PID = <1.0ppm		0.30			
0.50	D		PID = <1.0ppm		(0.70)	Brown, very silty, slightly gravelly CLAY. Gravels are fine to medium, subangular to subrounded flints. (UPPER TUNBRIDGE WELLS SAND)		
0.80	D		PID = <1.0ppm		1.00			
						Complete at 1.00m		

Plan



Remarks

GROUNDWATER: None encountered.
STABILITY: No instability encountered.
BACKFILL: Trial hole backfilled with arisings
DIMENSIONS: 0.30m (l) 0.30m (w) (approx)
NOTES: Trial hole complete 1.00mbgl.

Scale (approx)	Logged By	Figure No.
1:10	MW	LS7508.TP01

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Land Science	Brighton | London | Bristol 0845 604 6494 www.landscience.co.uk	Site Frithknowle Farm Phase II, Picts Lane, Cowfold RH13 8AN	Trial Pit Number **TP02**
Excavation Method Trial Pit	**Dimensions**	**Ground Level (mOD)**	**Client** South Lodge Estate LLP	**Job Number** LS7508
	Location	**Dates** 19/08/2024	**Project Contractor** Land Science	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						Grass over light brown, slightly sandy, gravelly SILT. Sands are fine to medium. Gravels are fine to coarse, angular to subrounded brick and flint, occasional wood fragments. (MADE GROUND)		
0.15	E		PID = <1.0ppm		(0.40)	...Metal bar at 0.15mbgl		
					0.40	Beige, gravelly SILT. Gravels are fine to coarse, angular to subrounded friable clasts of siltstone/sandstone. (UPPER TUNBRIDGE WELLS SAND)		
0.50	D		PID = <1.0ppm		(0.60)			
0.80	D		PID = <1.0ppm					
					1.00	Complete at 1.00m		

Plan

Remarks

GROUNDWATER: None encountered.
STABILITY: No instability encountered.
BACKFILL: Trial hole backfilled with arisings
DIMENSIONS: 0.30m (l) 0.30m (w) (approx)
NOTES: Trial hole complete 1.00mbgl.

Scale (approx)	Logged By	Figure No.
1:10	MW	LS7508.TP02

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Site	Trial Pit Number
Frithknowle Farm Phase II, Picts Lane, Cowfold RH13 8AN	TP03

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			South Lodge Estate LLP	LS7508
	Location	**Dates** 19/08/2024	**Project Contractor** Land Science	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.15)	Grass over chalk backfill recovered as white, silty GRAVEL. Gravels are fine to medium, subangular to subrounded chalk clasts. (MADE GROUND)		
0.10	E		PID = <1.0ppm		0.15			
					(0.10)	Rubble backfill recovered as light brown, sandy GRAVEL. Sands are fine to medium. Gravels are fine to coarse, subangular to subrounded concrete blocks and fragments, whole brick and fragments. (MADE GROUND)		
					0.25	...Piece of loose rebar at 0.20mbgl		
0.35	E		PID = <1.0ppm		(0.20)	Brown-grey, silty, gravelly SAND. Sands are fine to medium. Gravels are fine to coarse, angular to subrounded brick fragments, concrete fragments, chalk. (MADE GROUND)		
					0.45			
0.50	D		PID = <1.0ppm		(0.20)	Light brown-grey, silty, gravelly SAND. Sands are fine to medium. Gravels are fine to coarse, subangular to subrounded siltstone/sandstone and flint, occasional chalk fragments. (MADE GROUND)		
					0.65	Beige silty, gravelly SAND. Sands are fine to medium. Gravels are fine to coarse, subangular to subrounded siltstone/sandstone, flint. (UPPER TUNBRIDGE WELLS SAND)		
0.80	D		PID = <1.0ppm		(0.35)	...Occasional subangular to subrounded siltstone/sandstone and flint cobbles between 0.65-1.00mbgl		
					1.00	Complete at 1.00m		

Plan

Remarks

GROUNDWATER: None encountered.
STABILITY: No instability encountered.
BACKFILL: Trial hole backfilled with arisings
DIMENSIONS: 0.30m (l) 0.30m (w) (approx)
NOTES: Trial hole complete 1.00mbgl.

Scale (approx)	Logged By	Figure No.
1:10	MW	LS7508.TP03

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Excavation Method Trial Pit	**Dimensions**	**Ground Level (mOD)**	**Client** South Lodge Estate LLP	**Job Number** LS7508
	Location	**Dates** 19/08/2024	**Project Contractor** Land Science	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	CONCRETE (HARDSTANDING)		
					0.20			
					(0.10)	Rubble backfill recovered as orange brown, gravelly SAND. Sands are fine to coarse. Gravels are fine to coarse, angular to subrounded, flints, brick concrete. (SUB-BASE)		
					0.30			
0.35	E		PID = <1.0ppm		(0.20)	Black brown mottled silty slightly gravelly CLAY. Gravels are fine to medium, angular to subrounded brick, concrete, flint, occasional organic material. (MADE GROUND)		
					0.50			
0.55	D		PID = <1.0ppm		(0.50)	Brown bluish grey, slightly gravelly, slightly sandy clayey SILT. Sands are fine to medium. Gravels are fine to medium, subangular to subrounded flints and sandstone. (UPPER TUNBRIDGE WELLS SAND)		
0.80	D		PID = <1.0ppm					
					1.00	Complete at 1.00m		

Plan

Remarks

GROUNDWATER: None encountered.
STABILITY: No instability encountered.
BACKFILL: Trial hole backfilled with arisings
DIMENSIONS: 0.30m (l) 0.30m (w) (approx)
NOTES: Trial hole complete 1.00mbgl.

Scale (approx)	Logged By	Figure No.
1:10	MW	LS7508.TP04

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Site	Trial Pit Number
Frithknowle Farm Phase II, Picts Lane, Cowfold RH13 8AN	TP05

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			South Lodge Estate LLP	LS7508
	Location	**Dates** 19/08/2024	**Project Contractor** Land Science	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	CONCRETE (HARDSTANDING)		
					0.20			
0.25	D		PID = <1.0ppm		(0.20)	Rubble backfill recovered as orange brown, gravelly SAND. Sands are fine to coarse. Gravels are fine to coarse, angular to subrounded, flints, brick concrete. (SUB-BASE)		
0.35	E		PID = <1.0ppm		0.40			
0.50	D		PID = <1.0ppm		(0.60)	Orangey brown, silty, gravelly SAND. Sands are fine to medium. Gravels are fine to coarse, subangular to subrounded siltstone/sandstone. (UPPER TUNBRIDGE WELLS SAND) ...Becoming siltier with depth		
0.80	D		PID = <1.0ppm		1.00	Complete at 1.00m		

Plan

Remarks

GROUNDWATER: None encountered.
STABILITY: No instability encountered.
BACKFILL: Trial hole backfilled with arisings
DIMENSIONS: 0.30m (l) 0.30m (w) (approx)
NOTES: Trial hole complete 1.00mbgl.

Scale (approx)	Logged By	Figure No.
1:10	MW	LS7508.TP05

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Excavation Method Trial Pit	**Dimensions**	**Ground Level (mOD)**	**Client** South Lodge Estate LLP	**Job Number** LS7508
	Location	**Dates** 19/08/2024	**Project Contractor** Land Science	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.15)	CONCRETE (HARDSTANDING)		
					0.15			
0.20	D		PID = <1.0ppm		(0.15)	Brick, concrete, stone, glass clinker (SUB-BASE)		
					0.30			
					(0.10)	Light brown, gravelly SAND. Sands are fine to coarse. Gravels are fine to coarse, angular to subrounded flint, concrete and brick. (MADE GROUND)		
					0.40	...Band of siltstone/sandstone at 0.40mbgl		
0.45	E		PID = <1.0ppm			Slightly moist. Brown, slightly clayey, silty, slightly gravelly SAND. Sands are fine to medium. Gravels are fine to coarse, glass and brick rare black organic material. (MADE GROUND)		
					(0.35)			
0.60	D		PID = <1.0ppm					
					0.75			
					(0.05)			
0.80	D		PID = <1.0ppm		0.80	Brown, slightly clayey SAND with occasional clayey lenses. Sands are fine to medium. (UPPER TUNBRIDGE WELLS SAND)		
						Refused at 0.80m		

Plan

Remarks

GROUNDWATER: None encountered.
STABILITY: No instability encountered.
BACKFILL: Trial hole backfilled with arisings
DIMENSIONS: 0.30m (l) 0.30m (w) (approx)
NOTES: Trial hole terminated at 0.80mbgl (refused on dense strata).

Scale (approx)	Logged By	Figure No.
1:10	MW	LS7508.TP06

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Excavation Method Trial Pit	**Dimensions**	**Ground Level (mOD)**	**Client** South Lodge Estate LLP	**Job Number** LS7508
	Location	**Dates** 19/08/2024	**Project Contractor** Land Science	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	CONCRETE (HARDSTANDING)		
0.20	D		PID = <1.0ppm		0.20	Rubble backfill recovered as orange brown, gravelly SAND. Sands are fine to coarse. Gravels are fine to coarse, angular to subrounded, flints, brick concrete. (SUB-BASE)		
0.30	E		PID = <1.0ppm		(0.30)	...Granite cobbles and organic material at 0.50mbgl		
					0.50	Brown, clayey, slightly gravelly SILT. Gravels are fine to coarse, subangular to subrounded siltstone/sandstone. (UPPER TUNBRIDGE WELLS SAND)		
0.60	D		PID = <1.0ppm		(0.50)			
0.80	D		PID = <1.0ppm		1.00	Complete at 1.00m		

Plan

Remarks

GROUNDWATER: None encountered.
STABILITY: No instability encountered.
BACKFILL: Trial hole backfilled with arisings
DIMENSIONS: 0.30m (l) 0.30m (w) (approx)
NOTES: Trial hole complete 1.00mbgl.

Scale (approx)	Logged By	Figure No.
1:10	MW	LS7508.TP07

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Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			South Lodge Estate LLP	LS7508
	Location	**Dates** 19/08/2024	**Project Contractor** Land Science	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	E		PID = <1.0ppm		(0.50)	Grass over brown, silty, sandy, slightly gravelly SAND. Sands are fine to medium. Gravels are fine to medium, angular to subrounded siltstone/sandstone, brick and flint. (MADE GROUND)		
0.30	D		PID = 1.6 ppm			...Silt filled terracotta drainage pipe between 0.25-0.35mbgl		
0.55	D		PID = <1.0ppm		0.50 (0.30)	Brown/beige, silty, gravelly SAND with occasional wood fragments and rootlets. Sands are fine to medium. Gravels are fine to medium, subangular to subrounded siltstone/sandstone, flints. (UPPER TUNBRIDGE WELLS SAND)		
0.80	D		PID = <1.0ppm		0.80 (0.20)	Slightly moist. Light brown/orange, silty, slightly gravelly SAND with occasional rootlets and clayey lenses. Sands are fine to medium. Gravels are fine to medium subangular to subrounded siltstone/sandstone and flint. (UPPER TUNBRIDGE WELLS SAND)		
					1.00	Complete at 1.00m		

Plan

Remarks

GROUNDWATER: None encountered.
STABILITY: No instability encountered.
BACKFILL: Trial hole backfilled with arisings
DIMENSIONS: 0.30m (l) 0.30m (w) (approx)
NOTES: Trial hole complete 1.00mbgl.

Scale (approx)	Logged By	Figure No.
1:10	MW	LS7508.TP08

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0845 604 6494
www.landscience.co.uk

Site	Trial Pit Number
Frithknowle Farm Phase II, Picts Lane, Cowfold RH13 8AN	TP09

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit			South Lodge Estate LLP	LS7508
	Location	**Dates** 19/08/2024	**Project Contractor** Land Science	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	Light brown, sandy, slightly gravelly SILT with occasional wood fragments and rootlets. Sands are fine. Gravels are fine to medium, angular to subrounded brick, flint, concrete, limestone and chalk clasts. (MADE GROUND)		
0.20	E		PID = <1.0ppm		0.30			
					(0.70)	Orange brown, sandy, slightly gravelly SILT with occasional grey silty lenses. Sands are fine to medium. Gravels are fine to medium, angular to subrounded, siltstone/sandstone. (UPPER TUNBRIDGE WELLS SAND)		
0.50	D		PID = <1.0ppm					
0.80	D		PID = <1.0ppm			...Becoming clayey after 0.80mbgl		
					1.00	Complete at 1.00m		

Plan

Remarks

GROUNDWATER: None encountered.
STABILITY: No instability encountered.
BACKFILL: Trial hole backfilled with arisings
DIMENSIONS: 0.30m (l) 0.30m (w) (approx)
NOTES: Trial hole complete 1.00mbgl.

Scale (approx)	Logged By	Figure No.
1:10	MW	LS7508.TP09

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APPENDIX C

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Analytical Report Number : 24-037436

Project / Site name:	Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN	**Samples received on:**	20/08/2024
Your job number:	LS7508	**Samples instructed on/ Analysis started on:**	20/08/2024
Your order number:		**Analysis completed by:**	29/08/2024
Report Issue Number:	1	**Report issued on:**	30/08/2024
Samples Analysed:	11 soil samples - 2 leachate samples		

[redacted]

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

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

Excel copies of reports are only valid when accompanied by this PDF certificate.

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

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

Analytical Report Number: 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

Lab Sample Number				292235	292236	292237	292238	292239
Sample Reference				TP01	TP01	TP02	TP03	TP04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.50	0.15	0.35	0.35
Date Sampled				19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	15	14	14	25
Total mass of sample received	kg	0.1	NONE	0.6	0.5	0.6	0.5	0.6
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KWB	KWB	KWB	KWB	KWB
Actinolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	Detected	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	< 0.001	-
Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	Loose Fibres	-
General Inorganics								
pH (L005B)	pH Units	N/A	MCERTS	-	-	-	8.1	-
pH (L099)	pH Units	N/A	MCERTS	8.1	8.2	7.5	8	8.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	470	450	44	33	320
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.236	0.227	0.022	0.0167	0.161
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	236	227	22	16.7	161
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1.9	1.3
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0036	0.0022	0.03	0.029	0.0083
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-	-	2.9	-
Loss on Ignition @ 450°C	%	0.2	MCERTS	-	-	-	5.5	-
Acid Neutralisation Capacity	+/- mmol/kg	N/A	NONE	-	-	-	20	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.07	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.05	0.06	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.07	0.08	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.1	1.3	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.17	0.23	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.9	2.7	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.6	2.1	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.88	1.1	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.92	1.2	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	1	1.2	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.36	0.51	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.84	1	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.43	0.51	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.11	0.11	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.46	0.56	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	0.2	0.5	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	10	12.8	< 0.80
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85	10.2	13.3	< 0.85
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	15	12	3.9	16
Barium (aqua regia extractable)	mg/kg	1	MCERTS	210	69	240	40	100
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.5	1.4	0.58	0.25	0.97
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	0.6	2.1	1.4	1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	1	0.4	< 0.2
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	36	35	21	7.7	28
Copper (aqua regia extractable)	mg/kg	1	MCERTS	29	28	33	13	20
Lead (aqua regia extractable)	mg/kg	1	MCERTS	21	20	150	57	18
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	37	32	18	6	31
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.3	1.4	< 1.0	< 1.0	1.4
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	42	39	26	11	31
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	86	92	750	120	74
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPHCWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPHCWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	-	-	< 8.0	-
TPHCWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	-	-	< 8.0	-
TPHCWG - Aliphatic >EC5 - EC35 $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	< 10	-	-	< 10	-
TPHCWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.02	MCERTS	< 0.020	-	-	< 0.020	-

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Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

Lab Sample Number				292235	292236	292237	292238	292239
Sample Reference				TP01	TP01	TP02	TP03	TP04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.50	0.15	0.35	0.35
Date Sampled				19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	-	-	< 10	-
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	-	-	16	-
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	-	-	16	-
Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	-	-	-	< 10	-
VOCs								
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
Benzene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
Toluene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
Total BTEX	µg/kg	5	MCERTS	-	-	-	< 5.0	-
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
Total PCBs	mg/kg	0.007	MCERTS	-	-	-	< 0.007	-
Pesticides								
Alpha-BHC (Benzene Hexachloride)	µg/kg	10	NONE	-	-	< 10	< 10	-
Alachlor	µg/kg	10	NONE	-	-	< 10	< 10	-
Bifenthrin	µg/kg	10	NONE	-	-	< 10	< 10	-
Cyhalothrin (Lambda)	µg/kg	10	NONE	-	-	< 10	< 10	-
Gamma-BHC (Lindane, gamma HCH)	µg/kg	10	NONE	-	-	< 10	< 10	-
Omethoate	µg/kg	10	NONE	-	-	< 10	< 10	-
1,2,3-Trichlorobenzene	µg/kg	10	NONE	-	-	< 10	< 10	-
1,3,5-Trichlorobenzene	µg/kg	10	NONE	-	-	< 10	< 10	-
2,6-Dichlorobenzonitrile	µg/kg	10	NONE	-	-	< 10	< 10	-
Dimethylvinphos	µg/kg	10	NONE	-	-	< 10	< 10	-
Demeton-O	µg/kg	10	NONE	-	-	< 10	< 10	-
Demeton-S	µg/kg	10	NONE	-	-	< 10	< 10	-
Endrin Aldehyde	µg/kg	10	NONE	-	-	< 10	< 10	-
Endrin Ketone	µg/kg	10	NONE	-	-	< 10	< 10	-
Hexachlorobutadiene	µg/kg	10	NONE	-	-	< 10	< 10	-
Phosphamidon (Sum)	µg/kg	10	NONE	-	-	< 10	< 10	-
1,2,4,5-Tetrachlorobenzene	µg/kg	10	NONE	-	-	< 10	< 10	-
Cis-Permethrin	µg/kg	10	NONE	-	-	< 10	< 10	-
Endosulfan sulfate	µg/kg	10	NONE	-	-	< 10	< 10	-
Etrimfos	µg/kg	10	NONE	-	-	< 10	< 10	-
Fenvalerate (Sum)	µg/kg	10	NONE	-	-	< 10	< 10	-
Hexachlorobenzene	µg/kg	10	NONE	-	-	< 10	< 10	-

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Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

Lab Sample Number				292235	292236	292237	292238	292239
Sample Reference				TP01	TP01	TP02	TP03	TP04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.50	0.15	0.35	0.35
Date Sampled				19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Mevinphos, E+Z	µg/kg	10	NONE	-	-	< 10	< 10	-
Pentachlorobenzene	µg/kg	10	NONE	-	-	< 10	< 10	-
Pirimiphos-ethyl	µg/kg	10	NONE	-	-	< 10	< 10	-
Propetamphos	µg/kg	10	NONE	-	-	< 10	< 10	-
Tecnazene	µg/kg	10	NONE	-	-	< 10	< 10	-
Triadimefon	µg/kg	10	NONE	-	-	< 10	< 10	-
Trans-Permethrin	µg/kg	10	NONE	-	-	< 10	< 10	-
Aldrin	µg/kg	10	NONE	-	-	< 10	< 10	-
Azinphos-methyl	µg/kg	10	NONE	-	-	< 10	< 10	-
Beta-BHC	µg/kg	10	NONE	-	-	< 10	< 10	-
Cis-Chlordane	µg/kg	10	NONE	-	-	< 10	< 10	-
Chlorfenvinphos	µg/kg	10	NONE	-	-	< 10	< 10	-
Chlorpyrifos	µg/kg	10	NONE	-	-	< 10	< 10	-
Chlorothalonil	µg/kg	10	NONE	-	-	< 10	< 10	-
Carbophenothion	µg/kg	10	NONE	-	-	< 10	< 10	-
Cyfluthrin (Sum)	µg/kg	10	NONE	-	-	< 10	< 10	-
Delta-BHC	µg/kg	10	NONE	-	-	< 10	< 10	-
Dieldrin	µg/kg	10	NONE	-	-	< 10	< 10	-
Deltamethrin	µg/kg	10	NONE	-	-	< 10	< 10	-
Heptachlor Exo-epoxide	µg/kg	10	NONE	-	-	< 10	< 10	-
Endrin	µg/kg	10	NONE	-	-	< 10	< 10	-
Endosulfan I (alpha isomer)	µg/kg	10	NONE	-	-	< 10	< 10	-
Endosulfan II (beta isomer)	µg/kg	10	NONE	-	-	< 10	< 10	-
Fenthion	µg/kg	10	NONE	-	-	< 10	< 10	-
Isodrin	µg/kg	10	NONE	-	-	< 10	< 10	-
Methacrifos	µg/kg	10	NONE	-	-	< 10	< 10	-
O,p'-DDD	µg/kg	10	NONE	-	-	< 10	< 10	-
O,p'-DDE	µg/kg	10	NONE	-	-	< 10	< 10	-
O,p'-DDT	µg/kg	10	NONE	-	-	< 10	< 10	-
Parathion	µg/kg	10	NONE	-	-	< 10	< 10	-
Parathion-methyl	µg/kg	10	NONE	-	-	< 10	< 10	-
Pendimethalin	µg/kg	10	NONE	-	-	< 10	< 10	-
Phorate	µg/kg	10	NONE	-	-	< 10	< 10	-
Phosalone	µg/kg	10	NONE	-	-	< 10	< 10	-
P,p'-DDD	µg/kg	10	NONE	-	-	< 10	< 10	-
P,p'-DDE	µg/kg	10	NONE	-	-	< 10	< 10	-
P,p'-DDT	µg/kg	10	NONE	-	-	< 10	< 10	-
P,p'-Methoxychlor	µg/kg	10	NONE	-	-	< 10	< 10	-
Propyzamide	µg/kg	10	NONE	-	-	< 10	< 10	-
Triazophos	µg/kg	10	NONE	-	-	< 10	< 10	-
Trans-Chlordane	µg/kg	10	NONE	-	-	< 10	< 10	-
Cypermethrin (Sum)	µg/kg	10	NONE	-	-	< 10	< 10	-
Dichlorvos	µg/kg	10	NONE	-	-	< 10	< 10	-
Dimethoate	µg/kg	10	NONE	-	-	< 10	< 10	-
Diazinon	µg/kg	10	NONE	-	-	< 10	< 10	-
Ethion	µg/kg	10	NONE	-	-	< 10	< 10	-
Fenitrothion	µg/kg	10	NONE	-	-	< 10	< 10	-
Malathion	µg/kg	10	NONE	-	-	< 10	< 10	-
Pirimiphos-methyl	µg/kg	10	NONE	-	-	< 10	< 10	-
Trifluralin	µg/kg	10	NONE	-	-	< 10	< 10	-
Azinphos-ethyl	µg/kg	10	NONE	-	-	< 10	< 10	-

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Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Herbicides								
Carbofuran, 3-OH	µg/kg	10	NONE	-	-	< 10	< 10	-
Tebuthiuron	µg/kg	10	NONE	-	-	< 10	< 10	-
Thiadiazuron	µg/kg	10	NONE	-	-	< 10	< 10	-
Aldicarb Sulfone	µg/kg	10	NONE	-	-	< 10	< 10	-
Aldicarb Sulfoxide	µg/kg	10	NONE	-	-	< 10	< 10	-
Aldicarb	µg/kg	10	NONE	-	-	< 10	< 10	-
Carbofuran	µg/kg	10	NONE	-	-	< 10	< 10	-
Fluometuron	µg/kg	10	NONE	-	-	< 10	< 10	-
Methomyl	µg/kg	10	NONE	-	-	< 10	< 10	-
Oxamyl	µg/kg	10	NONE	-	-	< 10	< 10	-
Propoxur	µg/kg	10	NONE	-	-	< 10	< 10	-
Siduron	µg/kg	10	NONE	-	-	< 10	< 10	-
Terbutryn	µg/kg	10	NONE	-	-	< 10	< 10	-
Carbaryl	µg/kg	10	NONE	-	-	< 10	< 10	-
Diflubenzuron	µg/kg	10	NONE	-	-	< 10	< 10	-
Isoproturon	µg/kg	10	NONE	-	-	< 10	< 10	-
Prometryn	µg/kg	10	NONE	-	-	< 10	< 10	-
Propazine	µg/kg	10	NONE	-	-	< 10	< 10	-
Trietazine	µg/kg	10	NONE	-	-	< 10	< 10	-
Atrazine	µg/kg	10	NONE	-	-	< 10	< 10	-
Chlorotoluron	µg/kg	10	NONE	-	-	< 10	< 10	-
Cyanazine	µg/kg	10	NONE	-	-	< 10	< 10	-
Diuron	µg/kg	10	NONE	-	-	< 10	< 10	-
Linuron	µg/kg	10	NONE	-	-	< 10	< 10	-
Methiocarb	µg/kg	10	NONE	-	-	< 10	< 10	-
Simazine	µg/kg	10	NONE	-	-	< 10	< 10	-
Terbuthylazine	µg/kg	10	NONE	-	-	< 10	< 10	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

Lab Sample Number				292240	292241	292242	292243	292244
Sample Reference				TP05	TP06	TP06	TP07	TP08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.35	0.20	0.45	0.30	0.30
Date Sampled				19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Stone Content	%	0.1	NONE	62.7	40.9	< 0.1	52.1	21.1
Moisture Content	%	0.01	NONE	13	6.2	15	11	10
Total mass of sample received	kg	0.1	NONE	0.5	0.6	0.5	0.6	0.5
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KWB	KWB	KWB	KWB	KWB
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
General Inorganics								
pH (L005B)	pH Units	N/A	MCERTS	-	10	-	-	-
pH (L099)	pH Units	N/A	MCERTS	10.1	11	8.3	7.7	6.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	250	670	54	710	28
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.124	0.337	0.0272	0.357	0.0142
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	124	337	27.2	357	14.2
Sulphide	mg/kg	1	MCERTS	2.8	< 1.0	< 1.0	< 1.0	2.5
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0033	0.0055	0.0045	0.0037	0.033
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	0.5	-	-	-
Loss on Ignition @ 450°C	%	0.2	MCERTS	-	1.5	-	-	-
Acid Neutralisation Capacity	+/- mmol/kg	N/A	NONE	-	21	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Date Sampled				19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.07
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.3
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.08
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.06
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.2
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.33
Fluoranthene	mg/kg	0.05	MCERTS	0.1	< 0.05	< 0.05	< 0.05	5.2
Pyrene	mg/kg	0.05	MCERTS	0.07	< 0.05	< 0.05	< 0.05	4.8
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	2.5
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	2.8
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	4.5
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	1.6
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	3.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.7
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.45
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.6
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	0.67
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80	< 0.80	31
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85	< 0.85	< 0.85	31.7
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.9	5.9	8.5	7.9	5.6
Barium (aqua regia extractable)	mg/kg	1	MCERTS	49	45	49	21	95
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.48	0.3	1.6	0.25	0.46
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.6	0.7	0.6	0.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	1.1	< 0.2	0.4
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11	12	27	10	11
Copper (aqua regia extractable)	mg/kg	1	MCERTS	7.5	10	17	10	21
Lead (aqua regia extractable)	mg/kg	1	MCERTS	53	41	19	20	120
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9	7.5	29	4.4	9.2
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	21	19	47	14	18
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	46	42	110	17	220
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	-	< 0.010	-	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	-	< 0.010	-	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	-	< 0.010	-	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	-	< 2.0	-	< 2.0	6.4
TPHCWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	-	< 8.0	-	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	-	< 8.0	-	< 8.0	23
TPHCWG - Aliphatic >EC5 - EC35 $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	-	< 10	-	< 10	29
TPHCWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	MCERTS	-	< 0.010	-	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	MCERTS	-	< 0.010	-	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.02	MCERTS	-	< 0.020	-	< 0.020	< 0.020

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Analytical Report Number: 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

Lab Sample Number				292240	292241	292242	292243	292244
Sample Reference				TP05	TP06	TP06	TP07	TP08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.35	0.20	0.45	0.30	0.30
Date Sampled				19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	-	< 1.0	-	1.4	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	-	< 2.0	-	5.5	3
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	-	< 10	-	< 10	19
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	-	< 10	-	< 10	48
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	-	< 10	-	< 10	70
Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	-	< 10	-	-	-
VOCs								
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	-	< 5.0	-	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	-	< 5.0	-	< 5.0	< 5.0
Total BTEX	µg/kg	5	MCERTS	-	< 5.0	-	-	-
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
Total PCBs	mg/kg	0.007	MCERTS	-	< 0.007	-	-	-
Pesticides								
Alpha-BHC (Benzene Hexachloride)	µg/kg	10	NONE	< 10	-	-	-	< 10
Alachlor	µg/kg	10	NONE	< 10	-	-	-	< 10
Bifenthrin	µg/kg	10	NONE	< 10	-	-	-	< 10
Cyhalothrin (Lambda)	µg/kg	10	NONE	< 10	-	-	-	< 10
Gamma-BHC (Lindane, gamma HCH)	µg/kg	10	NONE	< 10	-	-	-	< 10
Omethoate	µg/kg	10	NONE	< 10	-	-	-	< 10
1,2,3-Trichlorobenzene	µg/kg	10	NONE	< 10	-	-	-	< 10
1,3,5-Trichlorobenzene	µg/kg	10	NONE	< 10	-	-	-	< 10
2,6-Dichlorobenzonitrile	µg/kg	10	NONE	< 10	-	-	-	< 10
Dimethylvinphos	µg/kg	10	NONE	< 10	-	-	-	< 10
Demeton-O	µg/kg	10	NONE	< 10	-	-	-	< 10
Demeton-S	µg/kg	10	NONE	< 10	-	-	-	< 10
Endrin Aldehyde	µg/kg	10	NONE	< 10	-	-	-	< 10
Endrin Ketone	µg/kg	10	NONE	< 10	-	-	-	< 10
Hexachlorobutadiene	µg/kg	10	NONE	< 10	-	-	-	< 10
Phosphamidon (Sum)	µg/kg	10	NONE	< 10	-	-	-	< 10
1,2,4,5-Tetrachlorobenzene	µg/kg	10	NONE	< 10	-	-	-	< 10
Cis-Permethrin	µg/kg	10	NONE	< 10	-	-	-	< 10
Endosulfan sulfate	µg/kg	10	NONE	< 10	-	-	-	< 10
Etrimfos	µg/kg	10	NONE	< 10	-	-	-	< 10
Fenvalerate (Sum)	µg/kg	10	NONE	< 10	-	-	-	< 10
Hexachlorobenzene	µg/kg	10	NONE	< 10	-	-	-	< 10

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Lab Sample Number				292240	292241	292242	292243	292244
Sample Reference				TP05	TP06	TP06	TP07	TP08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.35	0.20	0.45	0.30	0.30
Date Sampled				19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Mevinphos, E+Z	µg/kg	10	NONE	< 10	-	-	-	< 10
Pentachlorobenzene	µg/kg	10	NONE	< 10	-	-	-	< 10
Pirimiphos-ethyl	µg/kg	10	NONE	< 10	-	-	-	< 10
Propetamphos	µg/kg	10	NONE	< 10	-	-	-	< 10
Tecnazene	µg/kg	10	NONE	< 10	-	-	-	< 10
Triadimefon	µg/kg	10	NONE	< 10	-	-	-	< 10
Trans-Permethrin	µg/kg	10	NONE	< 10	-	-	-	< 10
Aldrin	µg/kg	10	NONE	< 10	-	-	-	< 10
Azinphos-methyl	µg/kg	10	NONE	< 10	-	-	-	< 10
Beta-BHC	µg/kg	10	NONE	< 10	-	-	-	< 10
Cis-Chlordane	µg/kg	10	NONE	< 10	-	-	-	< 10
Chlorfenvinphos	µg/kg	10	NONE	< 10	-	-	-	< 10
Chlorpyrifos	µg/kg	10	NONE	< 10	-	-	-	< 10
Chlorothalonil	µg/kg	10	NONE	< 10	-	-	-	< 10
Carbophenothion	µg/kg	10	NONE	< 10	-	-	-	< 10
Cyfluthrin (Sum)	µg/kg	10	NONE	< 10	-	-	-	< 10
Delta-BHC	µg/kg	10	NONE	< 10	-	-	-	< 10
Dieldrin	µg/kg	10	NONE	< 10	-	-	-	< 10
Deltamethrin	µg/kg	10	NONE	< 10	-	-	-	< 10
Heptachlor Exo-epoxide	µg/kg	10	NONE	< 10	-	-	-	< 10
Endrin	µg/kg	10	NONE	< 10	-	-	-	< 10
Endosulfan I (alpha isomer)	µg/kg	10	NONE	< 10	-	-	-	< 10
Endosulfan II (beta isomer)	µg/kg	10	NONE	< 10	-	-	-	< 10
Fenthion	µg/kg	10	NONE	< 10	-	-	-	< 10
Isodrin	µg/kg	10	NONE	< 10	-	-	-	< 10
Methacrifos	µg/kg	10	NONE	< 10	-	-	-	< 10
O,p'-DDD	µg/kg	10	NONE	< 10	-	-	-	< 10
O,p'-DDE	µg/kg	10	NONE	< 10	-	-	-	< 10
O,p'-DDT	µg/kg	10	NONE	< 10	-	-	-	< 10
Parathion	µg/kg	10	NONE	< 10	-	-	-	< 10
Parathion-methyl	µg/kg	10	NONE	< 10	-	-	-	< 10
Pendimethalin	µg/kg	10	NONE	< 10	-	-	-	< 10
Phorate	µg/kg	10	NONE	< 10	-	-	-	< 10
Phosalone	µg/kg	10	NONE	< 10	-	-	-	< 10
P,p'-DDD	µg/kg	10	NONE	< 10	-	-	-	< 10
P,p'-DDE	µg/kg	10	NONE	< 10	-	-	-	< 10
P,p'-DDT	µg/kg	10	NONE	< 10	-	-	-	< 10
P,p'-Methoxychlor	µg/kg	10	NONE	< 10	-	-	-	< 10
Propyzamide	µg/kg	10	NONE	< 10	-	-	-	< 10
Triazophos	µg/kg	10	NONE	< 10	-	-	-	< 10
Trans-Chlordane	µg/kg	10	NONE	< 10	-	-	-	< 10
Cypermethrin (Sum)	µg/kg	10	NONE	< 10	-	-	-	< 10
Dichlorvos	µg/kg	10	NONE	< 10	-	-	-	< 10
Dimethoate	µg/kg	10	NONE	< 10	-	-	-	< 10
Diazinon	µg/kg	10	NONE	< 10	-	-	-	< 10
Ethion	µg/kg	10	NONE	< 10	-	-	-	< 10
Fenitrothion	µg/kg	10	NONE	< 10	-	-	-	< 10
Malathion	µg/kg	10	NONE	< 10	-	-	-	< 10
Pirimiphos-methyl	µg/kg	10	NONE	< 10	-	-	-	< 10
Trifluralin	µg/kg	10	NONE	< 10	-	-	-	< 10
Azinphos-ethyl	µg/kg	10	NONE	< 10	-	-	-	< 10

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Date Sampled				19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Herbicides								
Carbofuran, 3-OH	µg/kg	10	NONE	< 10	-	-	-	< 10
Tebuthiuron	µg/kg	10	NONE	< 10	-	-	-	< 10
Thiadiazuron	µg/kg	10	NONE	< 10	-	-	-	< 10
Aldicarb Sulfone	µg/kg	10	NONE	< 10	-	-	-	< 10
Aldicarb Sulfoxide	µg/kg	10	NONE	< 10	-	-	-	< 10
Aldicarb	µg/kg	10	NONE	< 10	-	-	-	< 10
Carbofuran	µg/kg	10	NONE	< 10	-	-	-	< 10
Fluometuron	µg/kg	10	NONE	< 10	-	-	-	< 10
Methomyl	µg/kg	10	NONE	< 10	-	-	-	< 10
Oxamyl	µg/kg	10	NONE	< 10	-	-	-	< 10
Propoxur	µg/kg	10	NONE	< 10	-	-	-	< 10
Siduron	µg/kg	10	NONE	< 10	-	-	-	< 10
Terbutryn	µg/kg	10	NONE	< 10	-	-	-	< 10
Carbaryl	µg/kg	10	NONE	< 10	-	-	-	< 10
Diflubenzuron	µg/kg	10	NONE	< 10	-	-	-	< 10
Isoproturon	µg/kg	10	NONE	< 10	-	-	-	< 10
Prometryn	µg/kg	10	NONE	< 10	-	-	-	< 10
Propazine	µg/kg	10	NONE	< 10	-	-	-	< 10
Trietazine	µg/kg	10	NONE	< 10	-	-	-	< 10
Atrazine	µg/kg	10	NONE	< 10	-	-	-	< 10
Chlorotoluron	µg/kg	10	NONE	< 10	-	-	-	< 10
Cyanazine	µg/kg	10	NONE	< 10	-	-	-	< 10
Diuron	µg/kg	10	NONE	< 10	-	-	-	< 10
Linuron	µg/kg	10	NONE	< 10	-	-	-	< 10
Methiocarb	µg/kg	10	NONE	< 10	-	-	-	< 10
Simazine	µg/kg	10	NONE	< 10	-	-	-	< 10
Terbuthylazine	µg/kg	10	NONE	< 10	-	-	-	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

Lab Sample Number				292245
Sample Reference				TP09
Sample Number				None Supplied
Depth (m)				0.20
Date Sampled				19/08/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Stone Content	%	0.1	NONE	29.4
Moisture Content	%	0.01	NONE	7.7
Total mass of sample received	kg	0.1	NONE	0.6

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KWB
Actinolite detected	Type	N/A	ISO 17025	-
Amosite detected	Type	N/A	ISO 17025	-
Anthophyllite detected	Type	N/A	ISO 17025	-
Chrysotile detected	Type	N/A	ISO 17025	-
Crocidolite detected	Type	N/A	ISO 17025	-
Tremolite detected	Type	N/A	ISO 17025	-
Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-
Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-

General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	-
pH (L099)	pH Units	N/A	MCERTS	7.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	32
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0162
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	16.2
Sulphide	mg/kg	1	MCERTS	1.5
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.033
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-
Loss on Ignition @ 450°C	%	0.2	MCERTS	-
Acid Neutralisation Capacity	+/- mmol/kg	N/A	NONE	-

Total Phenols

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

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Analytical Report Number: 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

Lab Sample Number				292245
Sample Reference				TP09
Sample Number				None Supplied
Depth (m)				0.20
Date Sampled				19/08/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Speciated PAHs				
Naphthalene	mg/kg	0.05	MCERTS	0.1
Acenaphthylene	mg/kg	0.05	MCERTS	0.31
Acenaphthene	mg/kg	0.05	MCERTS	0.1
Fluorene	mg/kg	0.05	MCERTS	0.31
Phenanthrene	mg/kg	0.05	MCERTS	4.5
Anthracene	mg/kg	0.05	MCERTS	0.65
Fluoranthene	mg/kg	0.05	MCERTS	7.6
Pyrene	mg/kg	0.05	MCERTS	6.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.4
Chrysene	mg/kg	0.05	MCERTS	3.3
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	4.5
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.6
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.6
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.37
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.6
Coronene	mg/kg	0.05	NONE	0.57
Total PAH				
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	38.2
Total WAC-17 PAHs	mg/kg	0.85	NONE	38.8
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.8
Barium (aqua regia extractable)	mg/kg	1	MCERTS	56
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.43
Boron (water soluble)	mg/kg	0.2	MCERTS	1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3
Chromium (hexavalent) Low Level	mg/kg	1.2	NONE	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	10
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	20
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120
Petroleum Hydrocarbons				
TPHCWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	-
TPHCWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	-
TPHCWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.01	MCERTS	-
TPHCWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	-
TPHCWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	-
TPHCWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	-
TPHCWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	-
TPHCWG - Aliphatic >EC5 - EC35 $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	-
TPHCWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	MCERTS	-
TPHCWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	MCERTS	-
TPHCWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.02	MCERTS	-

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Analytical Report Number: 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

Lab Sample Number				292245
Sample Reference				TP09
Sample Number				None Supplied
Depth (m)				0.20
Date Sampled				19/08/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	-
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	-
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	-
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	-
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	-
Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	-
VOCs				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	-
Benzene	µg/kg	5	MCERTS	-
Toluene	µg/kg	5	MCERTS	-
Ethylbenzene	µg/kg	5	MCERTS	-
p & m-Xylene	µg/kg	5	MCERTS	-
o-Xylene	µg/kg	5	MCERTS	-
Total BTEX	µg/kg	5	MCERTS	-
PCBs by GC-MS				
PCB Congener 28	mg/kg	0.001	MCERTS	-
PCB Congener 52	mg/kg	0.001	MCERTS	-
PCB Congener 101	mg/kg	0.001	MCERTS	-
PCB Congener 118	mg/kg	0.001	MCERTS	-
PCB Congener 138	mg/kg	0.001	MCERTS	-
PCB Congener 153	mg/kg	0.001	MCERTS	-
PCB Congener 180	mg/kg	0.001	MCERTS	-
Total PCBs	mg/kg	0.007	MCERTS	-
Pesticides				
Alpha-BHC (Benzene Hexachloride)	µg/kg	10	NONE	< 10
Alachlor	µg/kg	10	NONE	< 10
Bifenthrin	µg/kg	10	NONE	< 10
Cyhalothrin (Lambda)	µg/kg	10	NONE	< 10
Gamma-BHC (Lindane, gamma HCH)	µg/kg	10	NONE	< 10
Omethoate	µg/kg	10	NONE	< 10
1,2,3-Trichlorobenzene	µg/kg	10	NONE	< 10
1,3,5-Trichlorobenzene	µg/kg	10	NONE	< 10
2,6-Dichlorobenzonitrile	µg/kg	10	NONE	< 10
Dimethylvinphos	µg/kg	10	NONE	< 10
Demeton-O	µg/kg	10	NONE	< 10
Demeton-S	µg/kg	10	NONE	< 10
Endrin Aldehyde	µg/kg	10	NONE	< 10
Endrin Ketone	µg/kg	10	NONE	< 10
Hexachlorobutadiene	µg/kg	10	NONE	< 10
Phosphamidon (Sum)	µg/kg	10	NONE	< 10
1,2,4,5-Tetrachlorobenzene	µg/kg	10	NONE	< 10
Cis-Permethrin	µg/kg	10	NONE	< 10
Endosulfan sulfate	µg/kg	10	NONE	< 10
Etrimfos	µg/kg	10	NONE	< 10
Fenvalerate (Sum)	µg/kg	10	NONE	< 10
Hexachlorobenzene	µg/kg	10	NONE	< 10

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Analytical Report Number: 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

Lab Sample Number				292245
Sample Reference				TP09
Sample Number				None Supplied
Depth (m)				0.20
Date Sampled				19/08/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Mevinphos, E+Z	µg/kg	10	NONE	< 10
Pentachlorobenzene	µg/kg	10	NONE	< 10
Pirimiphos-ethyl	µg/kg	10	NONE	< 10
Propetamphos	µg/kg	10	NONE	< 10
Tecnazene	µg/kg	10	NONE	< 10
Triadimefon	µg/kg	10	NONE	< 10
Trans-Permethrin	µg/kg	10	NONE	< 10
Aldrin	µg/kg	10	NONE	< 10
Azinphos-methyl	µg/kg	10	NONE	< 10
Beta-BHC	µg/kg	10	NONE	< 10
Cis-Chlordane	µg/kg	10	NONE	< 10
Chlorfenvinphos	µg/kg	10	NONE	< 10
Chlorpyrifos	µg/kg	10	NONE	< 10
Chlorothalonil	µg/kg	10	NONE	< 10
Carbophenothion	µg/kg	10	NONE	< 10
Cyfluthrin (Sum)	µg/kg	10	NONE	< 10
Delta-BHC	µg/kg	10	NONE	< 10
Dieldrin	µg/kg	10	NONE	< 10
Deltamethrin	µg/kg	10	NONE	< 10
Heptachlor Exo-epoxide	µg/kg	10	NONE	< 10
Endrin	µg/kg	10	NONE	< 10
Endosulfan I (alpha isomer)	µg/kg	10	NONE	< 10
Endosulfan II (beta isomer)	µg/kg	10	NONE	< 10
Fenthion	µg/kg	10	NONE	< 10
Isodrin	µg/kg	10	NONE	< 10
Methacrifos	µg/kg	10	NONE	< 10
O,p'-DDD	µg/kg	10	NONE	< 10
O,p'-DDE	µg/kg	10	NONE	< 10
O,p'-DDT	µg/kg	10	NONE	< 10
Parathion	µg/kg	10	NONE	< 10
Parathion-methyl	µg/kg	10	NONE	< 10
Pendimethalin	µg/kg	10	NONE	< 10
Phorate	µg/kg	10	NONE	< 10
Phosalone	µg/kg	10	NONE	< 10
P,p'-DDD	µg/kg	10	NONE	< 10
P,p'-DDE	µg/kg	10	NONE	< 10
P,p'-DDT	µg/kg	10	NONE	< 10
P,p'-Methoxychlor	µg/kg	10	NONE	< 10
Propyzamide	µg/kg	10	NONE	< 10
Triazophos	µg/kg	10	NONE	< 10
Trans-Chlordane	µg/kg	10	NONE	< 10
Cypermethrin (Sum)	µg/kg	10	NONE	< 10
Dichlorvos	µg/kg	10	NONE	< 10
Dimethoate	µg/kg	10	NONE	< 10
Diazinon	µg/kg	10	NONE	< 10
Ethion	µg/kg	10	NONE	< 10
Fenitrothion	µg/kg	10	NONE	< 10
Malathion	µg/kg	10	NONE	< 10
Pirimiphos-methyl	µg/kg	10	NONE	< 10
Trifluralin	µg/kg	10	NONE	< 10
Azinphos-ethyl	µg/kg	10	NONE	< 10

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Analytical Report Number: 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

Lab Sample Number				292245
Sample Reference				TP09
Sample Number				None Supplied
Depth (m)				0.20
Date Sampled				19/08/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Herbicides				
Carbofuran, 3-OH	µg/kg	10	NONE	< 10
Tebuthiuron	µg/kg	10	NONE	< 10
Thiadiazuron	µg/kg	10	NONE	< 10
Aldicarb Sulfone	µg/kg	10	NONE	< 10
Aldicarb Sulfoxide	µg/kg	10	NONE	< 10
Aldicarb	µg/kg	10	NONE	< 10
Carbofuran	µg/kg	10	NONE	< 10
Fluometuron	µg/kg	10	NONE	< 10
Methomyl	µg/kg	10	NONE	< 10
Oxamyl	µg/kg	10	NONE	< 10
Propoxur	µg/kg	10	NONE	< 10
Siduron	µg/kg	10	NONE	< 10
Terbutryn	µg/kg	10	NONE	< 10
Carbaryl	µg/kg	10	NONE	< 10
Diflubenzuron	µg/kg	10	NONE	< 10
Isoproturon	µg/kg	10	NONE	< 10
Prometryn	µg/kg	10	NONE	< 10
Propazine	µg/kg	10	NONE	< 10
Trietazine	µg/kg	10	NONE	< 10
Atrazine	µg/kg	10	NONE	< 10
Chlorotoluron	µg/kg	10	NONE	< 10
Cyanazine	µg/kg	10	NONE	< 10
Diuron	µg/kg	10	NONE	< 10
Linuron	µg/kg	10	NONE	< 10
Methiocarb	µg/kg	10	NONE	< 10
Simazine	µg/kg	10	NONE	< 10
Terbuthylazine	µg/kg	10	NONE	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Analytical Report Number: 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
292238	TP03	0.35	154	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

Lab Sample Number				292238	292241
Sample Reference				TP03	TP06
Sample Number				None Supplied	None Supplied
Depth (m)				0.35	0.20
Date Sampled				19/08/2024	19/08/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**		
10:1 WAC Leachate					
Arsenic	mg/l	0.001	ISO 17025	< 0.00100	0.00111
Barium	mg/l	0.00005	ISO 17025	0.00703	0.00957
Cadmium	mg/l	0.0001	ISO 17025	< 0.000100	< 0.000100
Chromium	mg/l	0.0004	ISO 17025	0.00081	0.017
Copper	mg/l	0.0007	ISO 17025	0.018	0.033
Mercury	mg/l	0.0005	ISO 17025	< 0.000500	< 0.000500
Molybdenum	mg/l	0.0004	ISO 17025	< 0.000400	0.000455
Nickel	mg/l	0.0003	ISO 17025	< 0.00030	0.00059
Lead	mg/l	0.001	ISO 17025	< 0.0010	< 0.0010
Antimony	mg/l	0.0017	ISO 17025	< 0.0017	0.0047
Selenium	mg/l	0.004	ISO 17025	< 0.0040	< 0.0040
Zinc	mg/l	0.0004	ISO 17025	0.0098	0.007
Chloride	mg/l	0.15	ISO 17025	1.7	7.1
Fluoride	mg/l	0.05	ISO 17025	0.26	0.11
Sulphate	mg/l	0.045	ISO 17025	3.2	24
Total dissolved solids	mg/l	6	ISO 17025	50	230
Total monohydric phenols	mg/l	0.01	ISO 17025	< 0.010	< 0.010
Dissolved organic carbon	mg/l	0.1	NONE	6.46	5.39
10:1 WAC Leachate					
Arsenic	mg/kg	0.01	NONE	< 0.0100	0.0111
Barium	mg/kg	0.0005	NONE	0.0703	0.0957
Cadmium	mg/kg	0.001	NONE	< 0.00100	< 0.00100
Chromium	mg/kg	0.004	NONE	0.0081	0.17
Copper	mg/kg	0.007	NONE	0.18	0.33
Mercury	mg/kg	0.005	NONE	< 0.00500	< 0.00500
Molybdenum	mg/kg	0.004	NONE	< 0.00400	0.00455
Nickel	mg/kg	0.003	NONE	< 0.0030	0.0059
Lead	mg/kg	0.01	NONE	< 0.010	< 0.010
Antimony	mg/kg	0.017	NONE	< 0.017	0.047
Selenium	mg/kg	0.04	NONE	< 0.040	< 0.040
Zinc	mg/kg	0.004	NONE	0.098	0.07
Chloride	mg/kg	1.5	NONE	17	71
Fluoride	mg/kg	0.5	NONE	2.6	1.1
Sulphate	mg/kg	0.45	NONE	32	240
Total dissolved solids	mg/kg	60	ISO 17025	500	2300
Total monohydric phenols	mg/kg	0.1	NONE	< 0.10	< 0.10
Dissolved organic carbon	mg/kg	1	NONE	64.6	53.9

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Analytical Report Number : 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
292235	TP01	None Supplied	0.25	Brown clay
292236	TP01	None Supplied	0.5	Brown clay
292237	TP02	None Supplied	0.15	Brown loam and sand with gravel and vegetation
292238	TP03	None Supplied	0.35	Brown loam and sand with gravel and chalk
292239	TP04	None Supplied	0.35	Brown clay and loam with gravel
292240	TP05	None Supplied	0.35	Brown clay and sand with gravel and stones
292241	TP06	None Supplied	0.2	Brown sand with gravel and stones
292242	TP06	None Supplied	0.45	Brown clay and loam with gravel
292243	TP07	None Supplied	0.3	Brown clay and sand with gravel and stones
292244	TP08	None Supplied	0.3	Brown loam with vegetation and stones
292245	TP09	None Supplied	0.2	Brown loam with vegetation and stones

Analytical Report Number : 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	In-house method	L010	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE

Analytical Report Number : 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Pesticides by GC-MS/MS	Detemination of Pesticides in soil by GC MS/MS	In-house method	L055B	W	NONE
Herbicides by LC-MS	Detemination of Herbicides in soil by LC MS	In-house method	L056B	W	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	NONE
Hexavalent chromium in soil (low level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025

Analytical Report Number : 24-037436
Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

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Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
Fraction Organic Carbon FOC Automated	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate	In-house method	L009B	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Sample Deviation Report

Analytical Report Number : 24-037436

Project / Site name: Frithknowle Farm Phase II Picts Lane Cowfold RH13 8AN

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP02	N/A	S	292237	b	Herbicides by LC-MS	L056B	b
TP03	N/A	S	292238	b	Herbicides by LC-MS	L056B	b
TP05	N/A	S	292240	b	Herbicides by LC-MS	L056B	b
TP08	N/A	S	292244	b	Herbicides by LC-MS	L056B	b
TP09	N/A	S	292245	b	Herbicides by LC-MS	L056B	b