

P D Carter Chartered Surveyors & Land Agents
Oriol House
Avening Road
Nailsworth
Gloucestershire
GL6 0BS

Our Ref: 4953/TB

31 March 2022

FAO [REDACTED]

Dear Henry

RE: CHURCH FARM BARN, POUND LANE, HARDWICKE, GLOUCESTERSHIRE, GL2 4RJ

At your instruction we have undertaken a routine contamination assessment of the above site. Having now received all laboratory results I report as follows; given that there are no relevant planning conditions the report is in summary format.

This report has been prepared in accordance with quotation reference Q22027 dated 2nd February 2022 with instruction confirmed on 3rd February by [REDACTED] to whom reliance on this report is granted.

Background Setting

The site comprises an existing detached derelict barn (Church Farm Barn) at Church Farm on the outskirts of the village of Hardwicke, c7.5km south-west of the city centre of Gloucester. It is surrounded by the remainder of the farm to the south and west, a small stream and residential buildings to the north, and agricultural fields to the east. The ground is generally level at c10-11mAOD.

At the time of our investigation the site consisted of Church Farm Barn covering the western end, with a small concreted area to the east that eventually opens up to a small grass covered area beyond. The barn itself is of traditional brick construction with clay-tile roofing, with a timber-framed 'lean-to' extension with corrugated metal cladding and roof sheeting erected on the northern side, next to the stream. A concrete slabbed car park is located to the west with a brick-setts road on the southern side of the barn giving access to the rear of the site to the east. The

rear area is predominantly grassed, excluding a small concreted area located next to shutter doors on the west side of the barn.

The barn interior was split into two separate areas, comprising the main barn area on the eastern side and a small workshop room on the west, accessed via roller shutter doors to the west or through two wooden doors located on the southern and northern elevations. Two full diesel storage tanks were recorded inside the barn, one immediately inside the shutter doors in the east and another located more centrally, both located against the southern wall. Both tanks were raised off the concrete flooring upon blockwork plinths, with no signs of obvious contamination observed underneath them. Apart the tanks, the inside of the barn contained discarded doors, gas bottles, rusted electrical equipment, discarded farm tools and wooden furniture. No fuel or oil spills/leaks were observed upon closer inspection within and/or around the barn.

Landfill Gas and Radon Gas

The EA landfill register shows no record of either active or historic landfills within potential influencing distance of the site, with the nearest recorded 1.7km north. Gas protection measures are therefore presently considered unnecessary in new development at this site, subject to ground investigation findings.

A site-specific radon risk report was acquired from the BGS, which is attached. This indicates less than 1% of homes in this area to be above the actionable level, suggesting that no radon protection measures are required within the proposed conversion at this site. This should as usual be confirmed with the relevant building control officer.

Site Works, Ground Conditions and Laboratory Testing

The ground investigation was undertaken on 16th February 2022 comprising four hand dug trial pits, dug using insulated shovels to depths of 0.7-1.1m, positioned in order to obtain good coverage across the site, as access allowed. The pits were logged on site including detailed measurements, photographs and soil sampling for laboratory analysis following which they were backfilled with surplus arisings and surfaces reinstated as found. Pit logs are attached and their positions indicated on drawing 4953/2.

From surface, topsoil was only encountered in TP1 to a maximum depth of 0.15m, whereas TP3 and TP4 were overlain by concrete floor slabs, all three overlying made ground. Made ground was encountered in all holes to a maximum depth of 0.70m, generally comprising soft dark brown and dark grey sandy gravelly clay with gravel of brick, ceramics, sandstone, concrete and ash. Beneath this the Blue Lias and Charmouth Mudstone Formation (BLCR) was encountered in TP1-2 and TP4, recorded as firm greyish brown slightly sandy silty plastic clay, which was consistent with our expectations. It was not possible to deepen TP3 below 0.70m due to adjacent services and being unable to fully break out a second concrete slab recorded at 0.22-0.35m depth. All pits remained dry and stable during the short time they were left open prior to backfilling.

Contamination Risk Assessment

Soil samples taken from the uppermost 0.6m of ground (topsoil and made ground) were sent to the UKAS-accredited i2 laboratory where they were variously subject to the following analyses:

Toxic and phytotoxic metals

pH

Speciated polyaromatic hydrocarbon (PAH) compounds

Asbestos fibre screening

Soil organic matter

Total petroleum hydrocarbons (TPH)

TABLE 1: SUMMARY OF SOIL CHEMICAL TEST RESULTS

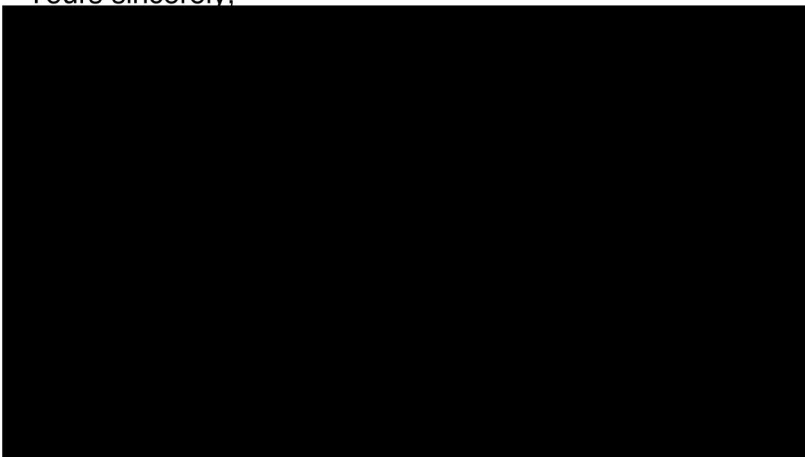
Determinand	Maximum Concentration (mg/kg)	S4UL Residential with plant uptake (mg/kg)*	Exceedances / Tests Undertaken (No.)	Notes
Arsenic	23	37	0 / 6	
Cadmium	0.8	11	0 / 6	
Chromium	35	910	0 / 6	
Chromium VI	<1.2	6	0 / 6	
Lead	190	200*	0 / 6	
Mercury	<0.3	40	0 / 6	
Selenium	<1	250	0 / 6	
Nickel	44	180	0 / 6	
Copper	100	2,400	0 / 6	
Zinc	320	3,700	0 / 6	
Speciated PAH		Various	0 / 6	
Asbestos	ND	-	0 / 6	
TPH C10 – C40		Various	0 / 6	
BTEX		Various	0 / 6	
VOC		Various	0 / 6	
Notes:				
* CIEH Suitable for Use Levels (S4UL) based on soil organic matter = 6%				
** DEFRA Category 4 Screening Level (C4SL)				

The findings presented in Table 1 above and within the attached summary table indicate there are no elevations of toxic & phytotoxic metals, speciated PAH and TPH compounds which exceed relevant Tier 1 S4UL/C4SLs. The risk to controlled waters was assessed by leachate analysis on two representative near surface samples to determine the leachable content of toxic and phytotoxic metals, which showed no significant elevations above EA EQS and/or WFD thresholds.

On this basis there is no evidence from our walkover inspection, hand-pitting and soil testing that the site poses any significant contamination risks to the health of future site users, or to local controlled waters, thus there is no perceived need for remedial action as part of the proposed barn conversion works.

I trust that this suitably addresses your requirements, however please do not hesitate to contact me should you require anything further. This report is subject to our standard terms and conditions.

Yours sincerely,

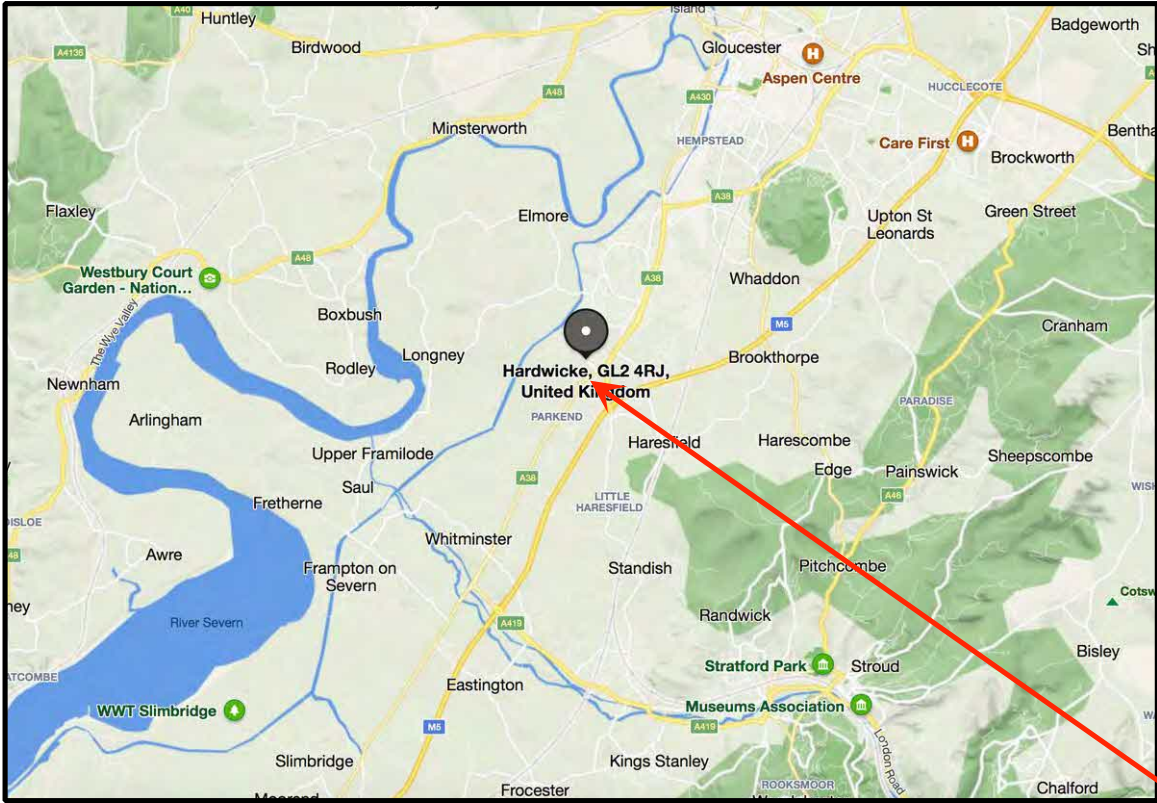


CHURCH FARM, POUND LANE, HARDWICKE, GLOUCESTER GL2 4RJ!



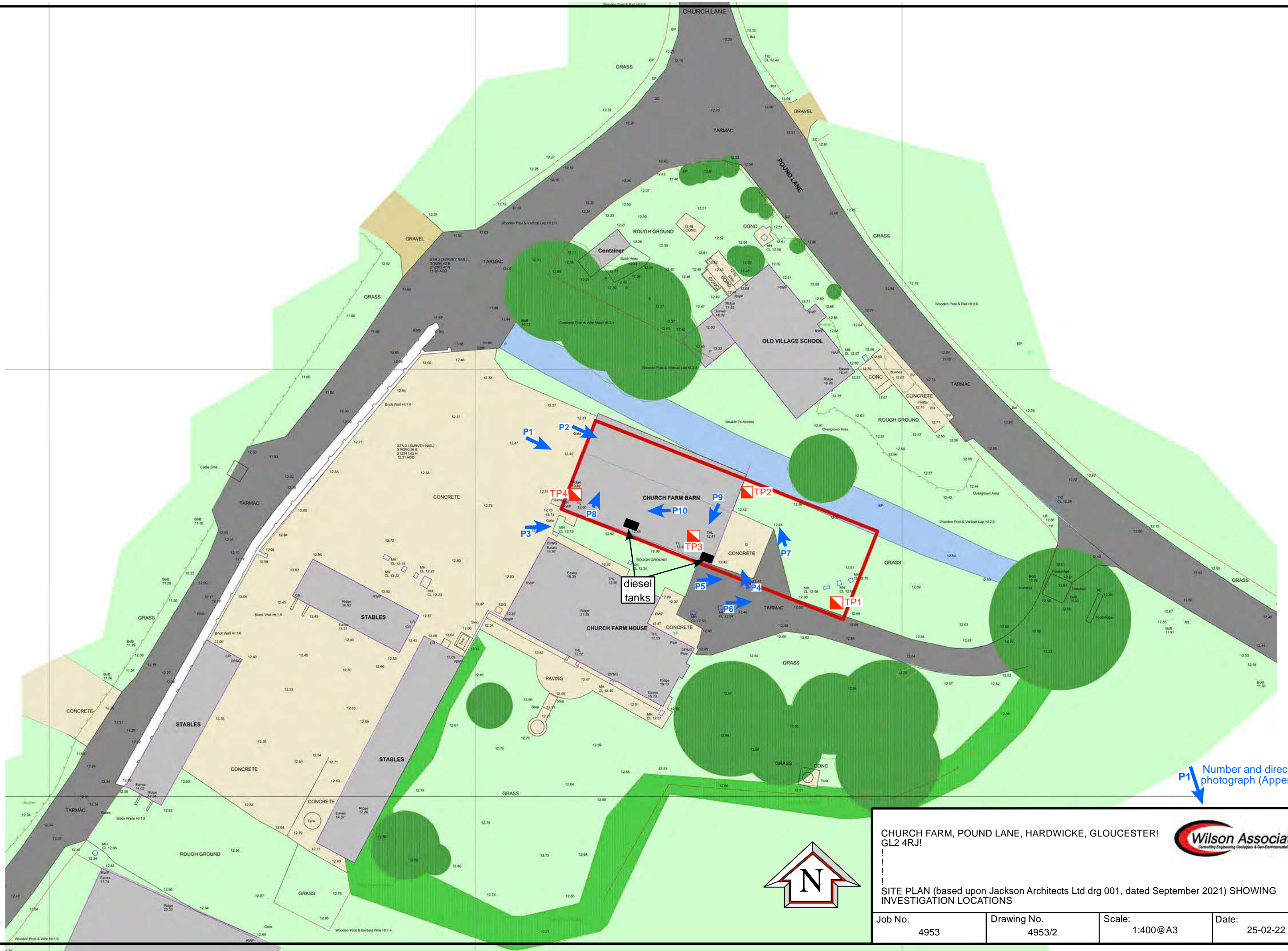
SITE LOCATION (based on Microsoft Bing Mapping)

Job No. 4953	Drawing No. 4953/1	Scale: NTS	Date: 01-03-22
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THE!
SITE





P1 Number and direction of photograph (Appendix 1)

CHURCH FARM, POUND LANE, HARDWICKE, GLOUCESTER!
GL2 4RJ!



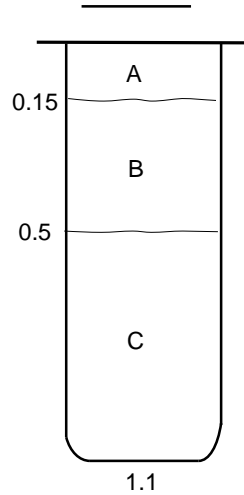
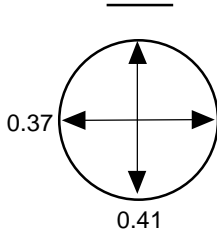
SITE PLAN (based upon Jackson Architects Ltd drg 001, dated September 2021) SHOWING INVESTIGATION LOCATIONS

Job No. 4953	Drawing No. 4953/2	Scale: 1:400@A3	Date: 25-02-22
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APPENDIX 1

TRIAL PIT LOGS (INCLUDING PHOTOGRAPHS)

Site: CHURCH FARM, POUND LANE, HARDWICKE, GLOUCESTER GL2 4RJ				TRIAL PIT No.
Job No. 4953	Date 25-02-22	Ground Level (c.m, AOD) 13m	Co-Ordinates (c.) E 379,343 N 212,324	TP1



DETAILS OF SUBSOIL!

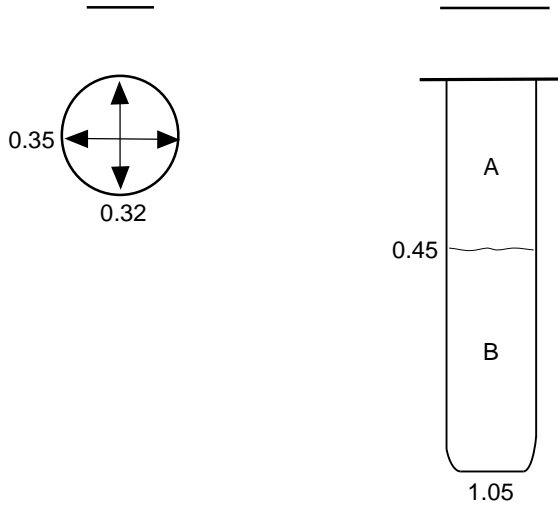
- !
A! TOPSOIL: grass over soft organic brown, slightly sandy, clayey SILT!
! with frequent rootlets (<1mm) !
!
B! MADE GROUND: probable soft dark brown, slightly sandy, slightly!
! gravelly, silty, plastic CLAY with rare rootlets (<1mm) Gravel is!
! sub-angular fine to medium of brick, ceramics, plastic, sandstone,!
! concrete and limestone! !
!
C! CLAY: probable firm greyish brown, slightly sandy, silty plastic CLAY!
! (BLUE LIAS AND CHARMOUTH MUDSTONE FORMATION)! ! !

NOTES!

- !
1! Pit logged from surface!
!
2! Pit dry and stable!
!
3! Roots (<1mm) encountered to 0.45m depth!
!
4! Soil sample taken at 0.3m depth! ! !

Scale: 1:20	Client Mr Henry Lloyd-Baker	Logged By: TB
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Site: CHURCH FARM, POUND LANE, HARDWICKE, GLOUCESTER GL2 4RJ				TRIAL PIT No.
Job No. 4953	Date 25-02-22	Ground Level (c.m, AOD) 13m	Co-Ordinates (c.) E 379,334 N 212,337	TP2



DETAILS OF SUBSOIL!

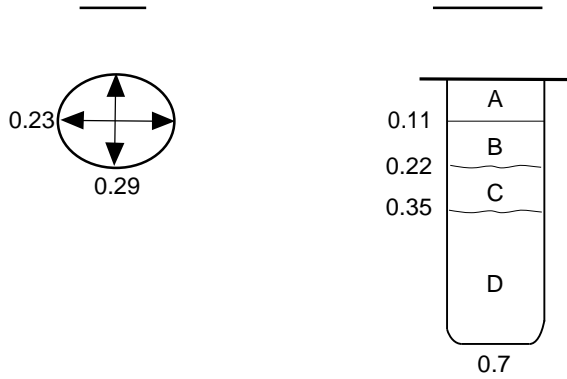
- !
A! MADE GROUND/TOPSOIL: soft, dark brown and black, slightly sandy,!
! slightly gravelly, silty, plastic CLAY with rare rootlets (<2mm).!
! Gravel is angular to sub-rounded fine to medium of ash deposit,!
! brick, ceramics, wood fragments, limestone and sandstone !
!
B! CLAY: probable firm, greyish brown, mottled brown, slightly sandy, !
! slightly gravelly, plastic CLAY. Gravel is sub-angular fine of limestone!
/ (BLUE LIAS AND CHARMOUTH MUDSTONE FORMATION)! ! !
!
!

NOTES!

- !
1! Pit logged from surface!
!
2! Pit dry and stable!
!
3! Roots (<2mm) encountered to 0.3m depth!
!
4! Soil samples taken at 0.3m and 0.4m depth! ! !

Scale: 1:20	Client Mr Henry Lloyd-Baker	Logged By: TB
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Site: CHURCH FARM, POUND LANE, HARDWICKE, GLOUCESTER GL2 4RJ				TRIAL PIT No.
Job No. 4953	Date 25-02-22	Ground Level (c.m, AOD) 13m	Co-Ordinates (c.) E 379,327 N 212,330	TP3



DETAILS OF SUBSOIL!

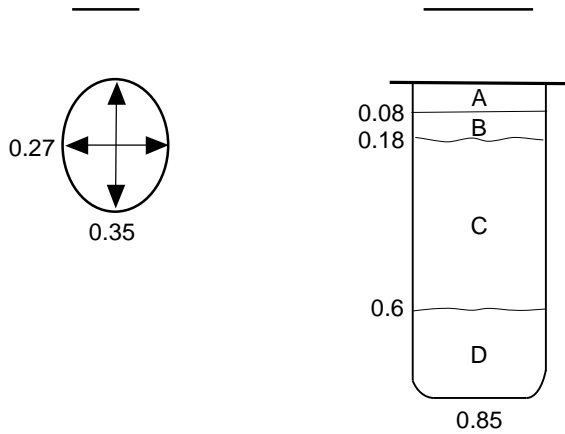
- !
A! MADE GROUND: grey CONCRETE !
!
B! MADE GROUND: probable loose greyish brown, slightly clayey, sandy,!
! angular to sub-rounded fine to coarse GRAVEL of flint, limestone!
! and siliceous material !
!
C! MADE GROUND: grey CONCRETE!
!
D! MADE GROUND: probable soft brown, slightly sandy, gravelly,!
! silty plastic CLAY. Gravel is sub-angular, fine to medium of brick,!
! concrete, ash deposit and limestone! ! !
!
!

NOTES!

- !
1! Pit logged from surface!
!
2! Pit dry and stable!
!
3! Soil sample taken at 0.4m depth! ! !

Scale: 1:20	Client Mr Henry Lloyd-Baker	Logged By: TB
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Site: CHURCH FARM, POUND LANE, HARDWICKE, GLOUCESTER GL2 4RJ				TRIAL PIT No.
Job No. 4953	Date 25-02-22	Ground Level (c.m, AOD) 13m	Co-Ordinates (c.) E 379,312 N 212,337	TP4



DETAILS OF SUBSOIL!

- ! A! MADE GROUND: grey CONCRETE !
- ! !
- ! B! MADE GROUND: dark reddish brown brick!
- ! !
- ! C! MADE GROUND: probable soft, dark brown and dark grey, slightly! sandy,!gravelly, silty, CLAY. Gravel is angular to sub-rounded, fine to! coarse!of brick, sandstone and ash deposit!
- ! !
- ! D! CLAY: probable soft to firm, grey mottled dark brown, slightly sandy,! silty, plastic CLAY !
- ! / (BLUE LIAS AND CHARMOUTH MUDSTONE FORMATION)! ! ! !
- ! !
- ! !

NOTES!

- ! 1! Pit logged from surface!
- ! !
- ! 2! Pit dry and stable!
- ! !
- ! 3! Soil samples taken at 0.2 and 0.6m depth!! !



Scale: 1:20	Client Mr Henry Lloyd-Baker	Logged By: TB
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APPENDIX 2

BGS RADON REPORT

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Address searched: Church Farm, Pound Lane, Hardwicke, Gloucester, GL2 4RJ

Date of report: 22 March 2022

Guidance for existing properties

Is this property in a radon Affected Area? - No

A radon Affected Area is defined as where the radon level in at least one property in every hundred is estimated to exceed the Action Level.

The estimated probability of the property being above the Action Level for radon is: 0-1%

The result may not be valid for buildings larger than 25 metres.

If this site is for redevelopment, you should undertake a GeoReport provided by the British Geological Survey.

This report informs you of the estimated probability that this particular property is above the Action Level for radon. This does not necessarily mean there is a radon problem in the property; the only way to find out whether it is above or below the Action Level is to carry out a radon measurement in an existing property.

Radon Affected Areas are designated by the UK Health Security Agency. UKHSA advises that radon gas should be measured in all properties within Radon Affected Areas.

If you are buying a currently occupied property in a Radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were above the Radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and the results of re-testing confirmed the effectiveness of the measures.

Further information is available from UKHSA or <https://www.ukradon.org>

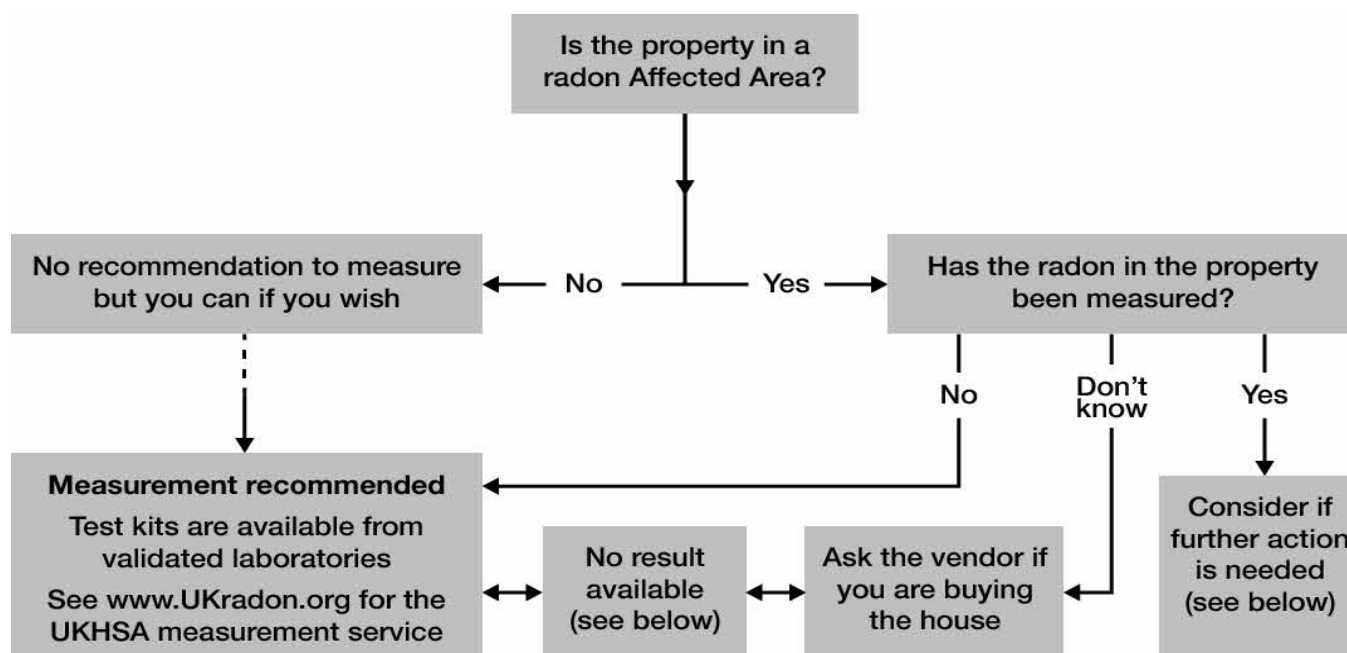
Guidance for new buildings and extensions to existing properties

What is the requirement under Building Regulations for radon protection in new buildings and extensions at the property location? - None

If you are buying a new property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

See the Radon and Building Regulations for more details.

UKHSA guidance for occupiers and prospective purchases



Existing radon test results: There is no public record of individual radon measurements. Results of previous tests can only be obtained from the seller. Radon levels can be significantly affected by changes to the building or its use, particularly by alterations to the heating and ventilation which can also be affected by changes in occupier. If in doubt, test again for reassurance.

Radon Bond: This is simply a retained fund, the terms of which are negotiated between the purchaser and the vendor. It allows the conveyance of the property to proceed without undue delay. The purchaser is protected against the possible cost of radon reduction work and the seller does not lose sale proceeds if the result is low. Make sure the agreement allows enough time to complete the test, get the result and arrange the work if needed.

High Results: Exposure to high levels of radon increases the risk of developing lung cancer. If a test in a home gives a result at or above the Action Level of 200 Becquerels per cubic metre of air (Bq/m³), formal advice will be given to lower the level. Radon reduction will also be recommended if the occupants include smokers or ex-smokers when the radon level is at or above the Target Level of 100 Bq/m³; these groups have a higher risk. Information on health risks and radon reduction work is available from UKHSA. Guidance about radon reduction work is also available from some Local Authorities, the Building Research Establishment and specialist contractors.

UKHSA designated radon website:

<https://www.ukradon.org>

Building Research Establishment:

<http://www.bre.co.uk/page.jsp?id=3137>

APPENDIX 3

**CONTAMINATION
STATUTORY FRAMEWORK / METHODOLOGY
AND
CERTIFIED CONTAMINATION TEST RESULTS**

A3 CONTAMINATION RISK ASSESSMENT

Statutory Framework

A3.1 Part 2A of the Environmental Protection Act 1990 (inserted by Section 57 of the Environment Act 1995) provides a regime for the control of specific threats to health or the environment from existing land contamination. In accordance with the Act and the statutory guidance document on the Contaminated Land (England) Regulations 2000, the definition of contaminated land is intended to embody the concept of risk assessment. Within the meaning of the Act, land is only 'contaminated land' where it appears to the regulatory authority, by reason of substances within or under the land, that:

Significant harm is being caused or there is significant possibility of such harm being caused; or

Pollution of controlled waters is being, or is likely to be, caused.

A3.2 In 2012 revised Statutory Guidance for Part 2A of the Environmental Protection Act (1990) came into force for England and Wales. This introduced a new four category approach for classifying land affected by contamination to assist decisions by regulators in cases of Significant Possibility of Significant Harm (SPOSH) to specified receptors, including humans, and significant pollution of controlled waters.

Category 1 describes land which is clearly problematic e.g. because similar sites are known to have caused a significant problem in the past. The legal definition is where "there is an unacceptably high probability, supported by robust science-based evidence, that significant harm would occur if no action is taken to stop it".

Categories 2 and 1 cover land where detailed consideration is needed before deciding whether it may be contaminated land. Category 2 is defined as land where "there is a strong case for considering that the risks from the land are of sufficient concern that the land poses a significant possibility of significant harm". Category 1 is defined as land where there is not the strong case described in the test for Category 2, and may include "land where the risks are not low, but nonetheless the authority considers that regulatory intervention under Part 2A is not warranted". The decision basis is initially related to human health risks, and if this is not conclusive due to uncertainty over risks, wider socio-economic factors (e.g. cost, local perception etc).

Category 4 describes land that is clearly not contaminated land, where there is no risk or the level or risk posed is low.

This same 4 category system has also been introduced to assist in identifying whether there is a significant possibility of significant pollution of controlled waters. Part 2A states that normal levels of contaminants in soil should not be considered to cause land to qualify as contaminated land, unless there is a particular reason to consider otherwise.

Following publication of the revised Statutory Guidance, DEFRA commissioned a research project to develop new Category 4 Screening Levels (C4SLs) to provide a simplified test for regulators to aid decision-making on when land was suitable for use and definitely not contaminated land under the statutory regime. The output from this research project was published by CL:AIRE in December 2011, with Policy Companion Documents published in England by DEFRA in March 2014 and the Welsh Government in May 2014. The culmination of this work was the development of a framework and methodology for deriving C4SLs and the publication of final C4SLs for use as new screening values for six common contaminants.

Further research by LQM on behalf of CIEH lead to the publication in 2015 of the Suitable for Use Levels known as S4ULs, and these are now widely adopted as a robust and authoritative source of guidance (see A3.14 below).

Once land has been determined as contaminated land, the enforcing authority must consider how it should be remediated and, where appropriate, it must issue a remediation notice to require such remediation. The enforcing authority for the purposes of remediation may be the local authority which determined the land, or the Environment Agency which takes on responsibility once land has been determined if the land is deemed to be a “special site”. The rules on what land is to be regarded as special sites, and various rules on the issuing of remediation notices, are set out in the Contaminated Land (England) Regulations 2006

A3.3 The UK guidance on the assessment of land contamination has developed as a direct result of the introduction of the above two Acts. The technical guidance supporting the new legislation has been summarised in a number of key documents collectively known as the Contaminated Land Reports (CLRs), a proposed series of twelve documents. Seven were originally published in March 1994, four more were published in April 2002, while the last remaining guidance document (CLR 11 was published in

2004. In 2008 CLR reports 7 to 10 were withdrawn by the Department of Environment Food & Rural Affairs and the Environment Agency and updated versions of CLR 9 and 10 were produced in the form of Science Reports SR2 and SR1.

A3.4 The guidance defines 'risk' as the combination of:

The probability, or frequency, of occurrence of a defined hazard (e.g. exposure of a property to a substance with the potential to cause harm); and

The magnitude (including the seriousness) of the consequences.

A3.5 For a risk of pollution or environmental harm to occur as a result of ground contamination, all of the following elements must be present:

A source, i.e. a substance that is capable of causing pollution or harm;

A pathway, i.e. a route by which the contaminant can reach the receptor; and

A receptor (or target), i.e. something which could be adversely affected by the contaminant.

A3.6 If any one of these elements is missing there can be no significant risk. If all are present then the magnitude of the risk is a function of the magnitude and mobility of the source, the sensitivity of the receptor and the nature of the migration pathway.

A3.7 The presence of contamination is also a material issue in the determination of planning applications, and where a change of use is proposed, especially on brownfield (former industrial) land, investigation, assessment and remediation of contamination is often a requirement of the Planning Authority. The presence of contamination may consequently require remedial action prior to redevelopment, in circumstances which would otherwise be unlikely to result in the determination of the land as contaminated land as defined in the above legislation.

Contamination Assessment Methodology

A3.8 The guidance proposes a four-stage assessment process for identifying potential pollutant linkages on a site. These stages are set out in the table below:

No.	Process	Description
1	Hazard Identification	Establishing contaminant sources, pathways and receptors (the preliminary conceptual site model).
2	Hazard Assessment	Analysing the potential for unacceptable risks (what linkages could be present, what could be the effects).
1	Risk Estimation	Trying to establish the magnitude and probability of the pc consequences (what degree of harm might result and to what receptors, and how likely is it).
4	Risk Evaluation	Deciding whether the risk is unacceptable.

A3.9 Stages 1 and 2 develop a '*preliminary conceptual model*' based upon information collated from desk studies and usually a site walkover inspection. The formation of a conceptual site model is an iterative process, and it should be updated and refined throughout each stage of the project to reflect any additional information obtained.

A3.10 The information gleaned from the desk studies and associated enquiries is presented in a desk study report with recommendations, if necessary, for further work based upon the preliminary conceptual site model. CLR 8, together with specific DoE 'Industry Profiles' provides guidance on the nature of contaminants relating to specific industrial processes. Whilst it is acknowledged that CLR 8 has been withdrawn no replacement guidance has yet been published that lists the contaminants likely to be present on contaminated sites, thus CLR 8 guidance is still considered relevant.

A3.11 If the preliminary conceptual model identifies potential pollutant linkages, a Phase 2 site investigation is normally recommended, unless appropriate mitigation measures can be incorporated into the proposed development sufficient to negate the identified risks, subject to local planning authority approval. The number of exploratory holes and samples collected for analysis should be consistent with the size of the site and the level of risk envisaged. This will enable a contamination risk assessment to be conducted, at which point the preliminary conceptual model can be updated and relevant pollutant linkages identified.

Preliminary Risk Assessment

A3.12 By considering the various potential sources, pathways and receptors, a preliminary assessment of potential risk is made based upon the likelihood of the occurrence and the severity of the potential consequence, the latter being a function of the sensitivity of the receptor. At Phase 1 desk study stage the qualitative risk assessment is based on the categories tabulated below.

Category	Definition
Severe	Acute risks to human health, catastrophic damage to buildings/property, major pollution to controlled waters
Moderate	Chronic risk to human health, pollution of sensitive controlled waters, significant effects on sensitive ecosystems or species, significant damage to buildings or structures
Mild	Pollution of non-sensitive waters, minor damage to buildings or structures
Minor	Requirement for protective equipment during site works to mitigate health effects, damage to non sensitive ecosystems or species

A3.11 The likelihood of an event (probability) takes into account both the presence of the hazard and receptor and viability of the pathway, and is based on the categories tabulated below.

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

A3.14 On this basis potential hazards are assigned a risk rating as shown below.

	Consequence				
		<i>Severe</i>	<i>Moderate</i>	<i>Mild</i>	<i>Minor</i>
Probability (Likelihood)	Highly likely	very high	high	moderate	low
	Likely	high	moderate	low/moderate	low
	Possible	moderate	low/moderate	low	very low
	Unlikely	low/moderate	low	very low	very low

A3.15 At Phase 2 stage, quantitative assessment of human health risk posed by ground contamination is achieved by comparison of soil concentrations with Tier 1 Category Four Screening Levels (C4SL) published by DEFRA (2014), and/or Suitable for Use Levels (S4UL) as published by LQM/CIEH (2015). The official Soil Guideline Values utilise a soil organic matter content of 6% which is considered to be higher than typical UK soils, however three sets of S4UL's have been developed for organic matter

contents of 1%, 2.5% and 6%, thus the most appropriate set is selected based upon proven site conditions.

- A3.16** Contaminant concentrations below the threshold screening values are considered not to warrant further risk assessment. Concentrations of contaminants above these screening values require further consideration of potential pollutant linkages and may indicate potentially unacceptable risks to site users. Such exceedances may trigger a Tier 2 detailed quantitative risk assessment (DQRA) where site-specific parameters are used to derive site specific assessment criteria (SSAC), usually by using the CLEA Model (v1.07 at time of writing). It should be noted that exceedance of a screening value does not necessarily indicate that the site requires remediation.
- A3.17** In order to assess any risk to controlled waters posed by contaminants within the underlying soils and groundwater, laboratory results have been screened against Level 1 Environmental Quality Standard (EQS) values derived from the Water Framework Directive (Standards & Classification) Directions (England & Wales) 2015 and the current UK Drinking Water Supply (Water Quality) Regulations (DWS), dependent upon the most vulnerable receptor. The EQS is usually an upper concentration set for the receiving watercourse and not the discharge itself. The DWS is established for compliance at the point of use or abstraction and not the source area.
- A3.18** In terms of controlled off-site disposal to landfill of site arisings, if/where intended, waste classification has been carried out in line with European Waste Catalogue (EWC) and Technical Guidance Waste Management 3 (TGWM3, EA Version 3, May 2015 – replacing the outgoing TGWM2) using contamination test results obtained for that material. The assessment utilises the 'HazWasteOnline' software to establish a 'Hazardous' (170503) / 'Non-hazardous' (170504) classification. Where required, the foregoing may be supplemented by Waste Acceptance Criteria (WAC) analysis, in order that the waste can further be designated as 'Hazardous' / 'Stable non-reactive' / 'Inert', for use by the receiving landfill operator. It should be noted that WAC is only required for disposal of wastes at certain classes of landfill; if arisings are not intended for removal to landfill, then WAC testing is not applicable.

SUMMARY OF CONTAMINATION TEST RESULTS

Sample Ref	SOILS						TIER 1: GENERIC ASSESSMENT CRITERIA						TIER 2: SITE SPECIFIC		
	TP1	TP2	TP2	TP3	TP4	TP4	S4UL (Residential with plant uptake)	S4UL (Residential without plant uptake)	S4UL (Aloiments)	S4UL (Commercial)	S4UL (Public Open Space - Residential)	S4UL (Public Open Space - Park)	Upper Confidence Limit (on true mean concentration, u) (CIEH Statistical Calculator)	Site-Specific Assessment Criteria (SSAC's) residential with homegrown produce	
	0.30	0.10	0.40	0.40	0.20	0.60									
Sample Depth (m)	Topsoil	Made Ground	Made Ground	Made Ground	Made Ground	Made Ground									
Sample of															
DETERMINAND															
pH		8.9	8.6	8.2	8.6	8.5	8.9								
TOXIC METALS	Arsenic	23	17	19	16	15	13	37	40	43	640	79	170		
	Cadmium	< 0.2	0.8	0.8	< 0.2	< 0.2	< 0.2	11	85	1.9	190	120	532		
	Chromium VI	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	6	6	1.8	33	8	220		
	Chromium	34	35	33	22	35	35	910	910	18,000	8,600	1,500	33,000		
	Lead	150	81	190	31	27	22	200	310	80	2330	630	1300		
	Mercury	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	40	56	19	1100	120	240		
	Nickel	44	26	29	20	28	29	180	180	230	980	230	800		
	Selenium	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	250	430	88	12000	1100	1800		
	PHYTOTOXIC METALS	Copper	73	55	100	36	35	30	2,400	7,100	520	68,000	12,000	44,000	
Zinc		280	320	280	120	97	91	3,700	40,000	620	730,000	81,000	170,000		
Moisture Content		20	19	20	18	20	20								
Stone Content		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1								
Soil Organic		6.6	8.0		2.0										
Asbestos Screen		ND	ND	ND	ND	ND	ND								
SPECIATED POLYAROMATIC HYDROCARBONS (PAH)	Total PAH	< 0.80	0.87	1.87	< 0.80	< 0.80	< 0.80	13	13	24	1,100(432)s	4,900	3,000		
	Naphthalene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	920	6,000 (506)s	160	100,000	15,000	30,000		
	Acenaphthylene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	1,100	6,000 (336)s	200	100,000	15,000	30,000		
	Acenaphthene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	860	4,500 (183)s	160	71,000	9,900	20,000		
	Fluorene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	440	1,500	90	23,000	3,100	6,300		
	Phenanthrene	< 0.05	< 0.05	0.31	< 0.05	< 0.05	< 0.05	11,000	37,000	2,200	540,000	74,000	150,000		
	Anthracene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	890	1,600	290	23,000	3,100	6,400		
	Fluoranthene	< 0.05	0.46	0.54	< 0.05	< 0.05	< 0.05	2,000	3,800	620	54,000	7,400	15,000		
	Pyrene	< 0.05	0.41	0.46	< 0.05	< 0.05	< 0.05	13	15	13	180	29	62		
	Benzo(a)anthracene	< 0.05	< 0.05	0.29	< 0.05	< 0.05	< 0.05	27	32	19	350	57	120		
	Chrysene	< 0.05	< 0.05	0.27	< 0.05	< 0.05	< 0.05	3.7	4	3.9	45	7.2	16		
	Benzo(b)fluoranthene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	100	110	130	1200	190	440		
	Benzo(k)fluoranthene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	3.0	3.2	3.5	36	5.7	13		
	Benzo(a)pyrene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	41	46	39	510	82	180		
	Indeno(1,2,3-cd)pyrene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.3	0.32	0.43	3.6	0.58	1.4		
	Dibenz(a,h)anthracene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	350	360	640	4000	640	1,600		
Benzo(ghi)perylene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	530	530	17,000	4,000	620,000	320,000			
TOTAL PETROLEUM HYDROCARBONS (TPH) BANDED	C6 - C8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	150	150	51	11,000	5,000	9,300		
	C8 - C10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	380	760	74	34,000	5,000	10,000		
	C10 - C12	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	660	2,500	130	38,000	5,000	10,000		
	C12 - C16	< 10	< 10	< 10	< 10	< 10	< 10	930	1,900	260	28,000	3,800	7,800		
	C16 - C21	< 10	< 10	< 10	< 10	< 10	< 10	1,700	1,900	1,600	28,000	3,800	7,900		
	C21 - C40	< 10	< 10	< 10	< 10	< 10	< 10								
	C6 - C40	< 10	< 10	< 10	< 10	< 10	< 10								

Sample Ref	LEACHATE		WFD (Groundwater)	WFD (Fresh Surface Water)	EA EQS	UK DWS	
	TP2	TP4					
	0.10	0.20					
Sample Depth (m)	Made Ground	Made Ground					
Sample of							
DETERMINAND							
TOXIC METALS	Arsenic	16	6.8	7.5	37.5	50	10
	Cadmium	< 0.08	< 0.08	3.8	0.08	0.08-0.25	5
	Chromium VI	< 5.0	UJ*				
	Chromium	1.9	4.1	37.5	3.4	4.7	50
	Lead	6.8	3.3	7.5	7.2	7.2	10
	Mercury	< 0.5	< 0.5	0.8	0.07	0.07	1
	Nickel	7.2	7.4	15	<1	20	20
	Selenium	6.8	< 4.0	75			10
	PHYTOTOXIC METALS	Copper	29	14	1,500	1	1-28
Zinc		34	7.8		12.3	8-125	5,000

CIEH/LQM = GAC/S4UL presented exceeds the solubility saturation limit, which is presented in brackets
CIEH/LQM v = GAC/S4UL presented exceeds the vapour saturation limit, which is presented in brackets
CIEH/LQM S4UL d = S4UL based on a threshold protective of direct skin contact with phenol (guideline in brackets based on health effects following long term exposure provided for illustration only)
S4UL LQM/CIEH published Suitable for use levels (2015)
DEFRA = C4SL (2014)
ND = None detected
 Based on Soil Organic Matter of 6% (all levels expressed as mg/kg)

WFD (groundwater) WFD "Water Framework Directive Standards & Classification (England & Wales)" 2015
WFD (fresh surface water) River Basin Districts Typology, Standards & Groundwater Threshold Values (Water Framework Directive) (England & Wales) Directions 2010
EA EQS UK Drinking Water Standards "The Water Supply (Water Quality) Regulations 2000"
UK DWS World Health Organisation Guidelines
WHO

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Analytical Report Number : 22-41228

Project / Site name:	Church Farm Barn	Samples received on:	22/02/2022
Your job number:	4953	Samples instructed on/ Analysis started on:	22/02/2022
Your order number:	4953 TB	Analysis completed by:	03/03/2022
Report Issue Number:	1	Report issued on:	03/03/2022
Samples Analysed:	2 leachate samples - 6 soil samples		

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

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

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

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

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

Analytical Report Number: 22-41228
 Project / Site name: Church Farm Barn
 Your Order No: 4953 TB

Lab Sample Number			2181653	2181654	2181655	2181656	2181657
Sample Reference			TP1	TP2	TP2	TP3	TP4
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			0.30	0.10	0.40	0.40	0.20
Date Sampled			15/02/2022	16/02/2022	16/02/2022	16/02/2022	16/02/2022
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)							
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	19	20	18
Total mass of sample received	kg	0.001	NONE	0.30	0.30	0.30	0.30

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SFS	SFS	SFS	SFS	SFS

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.9	8.6	8.2	8.6	8.5
Organic Matter (automated)	%	0.1	MCERTS	6.6	8.0	-	2.0	-

Speciated PAHs

Compound	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
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	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.31	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.46	0.54	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.41	0.46	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.29	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.27	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	0.87	1.87	< 0.80	< 0.80

Heavy Metals / Metalloids

Compound	mg/kg	1	MCERTS	23	17	19	16	15
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	23	17	19	16	15
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.8	0.8	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	34	35	33	22	35
Copper (aqua regia extractable)	mg/kg	1	MCERTS	73	55	100	36	35
Lead (aqua regia extractable)	mg/kg	1	MCERTS	150	81	190	31	27
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	44	26	29	20	28
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	280	320	280	120	97



Analytical Report Number: 22-41228
 Project / Site name: Church Farm Barn
 Your Order No: 4953 TB

Lab Sample Number			2181653	2181654	2181655	2181656	2181657
Sample Reference			TP1	TP2	TP2	TP3	TP4
Sample Number			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)			0.30	0.10	0.40	0.40	0.20
Date Sampled			15/02/2022	16/02/2022	16/02/2022	16/02/2022	16/02/2022
Time Taken			None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)							

Petroleum Hydrocarbons								
TPH Texas (C6 - C8) <small>HS_1D_TOTAL</small>	mg/kg	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH Texas (C8 - C10) <small>HS_1D_TOTAL</small>	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH Texas (C10 - C12) <small>EH_CU_1D_TOTAL</small>	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH Texas (C12 - C16) <small>EH_CU_1D_TOTAL</small>	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH Texas (C16 - C21) <small>EH_CU_1D_TOTAL</small>	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Texas (C21 - C40) <small>EH_CU_1D_TOTAL</small>	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Texas (C6 - C40) <small>EH_CU+HS_1D_TOTAL</small>	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-41228
 Project / Site name: Church Farm Barn
 Your Order No: 4953 TB

Lab Sample Number	2181658			
Sample Reference	TP4			
Sample Number	None Supplied			
Depth (m)	0.60			
Date Sampled	16/02/2022			
Time Taken	None Supplied			
Analytical Parameter (Soil Analysis)				
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	20
Total mass of sample received	kg	0.001	NONE	0.30

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SFS

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.9
Organic Matter (automated)	%	0.1	MCERTS	-

Speciated PAHs

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

Total PAH

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

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	35
Copper (aqua regia extractable)	mg/kg	1	MCERTS	30
Lead (aqua regia extractable)	mg/kg	1	MCERTS	22
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	29
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	91



Analytical Report Number: 22-41228
 Project / Site name: Church Farm Barn
 Your Order No: 4953 TB

Lab Sample Number		2181658		
Sample Reference		TP4		
Sample Number		None Supplied		
Depth (m)		0.60		
Date Sampled		16/02/2022		
Time Taken		None Supplied		
Analytical Parameter (Soil Analysis)				
Petroleum Hydrocarbons				
TPH Texas (C6 - C8) <small>HS_1D_TOTAL</small>	mg/kg	0.1	ISO 17025	< 0.1
TPH Texas (C8 - C10) <small>HS_1D_TOTAL</small>	mg/kg	0.1	MCERTS	< 0.1
TPH Texas (C10 - C12) <small>EH_CU_1D_TOTAL</small>	mg/kg	1	MCERTS	< 1.0
TPH Texas (C12 - C16) <small>EH_CU_1D_TOTAL</small>	mg/kg	4	MCERTS	< 4.0
TPH Texas (C16 - C21) <small>EH_CU_1D_TOTAL</small>	mg/kg	10	MCERTS	< 10
TPH Texas (C21 - C40) <small>EH_CU_1D_TOTAL</small>	mg/kg	10	MCERTS	< 10
TPH Texas (C6 - C40) <small>EH_CU+HS_1D_TOTAL</small>	mg/kg	10	NONE	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 22-41228
 Project / Site name: Church Farm Barn

Your Order No: 4953 TB

Lab Sample Number				2181659	2181660
Sample Reference				TP2	TP4
Sample Number				None Supplied	None Supplied
Depth (m)				0.10	0.20
Date Sampled				16/02/2022	16/02/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)					

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	16	6.8
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	U/S*
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.9	4.1
Copper (dissolved)	µg/l	0.7	ISO 17025	29	14
Lead (dissolved)	µg/l	1	ISO 17025	6.8	3.3
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	7.2	7.4
Selenium (dissolved)	µg/l	4	ISO 17025	6.8	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	34	7.8

U/S = Unsuitable Sample I/S = Insufficient Sample

*U/S due to high variances between chromium (hexavalent) and chromium (dissolved) caused by method differences.



Analytical Report Number : 22-41228
 Project / Site name: Church Farm Barn

* 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 *
2181653	TP1	None Supplied	0.3	Brown loam and clay with gravel and vegetation.
2181654	TP2	None Supplied	0.1	Brown loam and clay with gravel and vegetation.
2181655	TP2	None Supplied	0.4	Brown clay and loam with gravel and vegetation.
2181656	TP3	None Supplied	0.4	Brown clay and sand with gravel.
2181657	TP4	None Supplied	0.2	Brown clay and sand with gravel.
2181658	TP4	None Supplied	0.6	Brown clay and sand with gravel.

Analytical Report Number : 22-41228
Project / Site name: Church Farm Barn

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
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
Asbestos identification in soil	Asbestos identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals by ICP-OES in leachate	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.	L039-PL	W	ISO 17025
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil (Lower 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-PL	W	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
TPH Texas (Soil)	TPH Texas bands C6-C10 by HS/GC-MS & C10-C40 by GC-FID	In-house method	L088/L076	D	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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.



Analytical Report Number : 22-41228
 Project / Site name: Church Farm Barn

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
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Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

CONDITIONS OF CONTRACT - CONSULTANCY SERVICES

- 1 Wilson Associates (Consulting) Limited ("the Consultant") shall carry out the Services, including any proposal, report or other document, as detailed in any relevant correspondence, which forms part of this Agreement, for the Client with reasonable skill, care and diligence. The Consultant shall use reasonable endeavours to adhere to any agreed programme. Each instruction or acceptance of a quotation shall be deemed to be an offer to purchase the services subject to the conditions laid out in this document.
- 2 An interim invoice will normally be submitted upon completion of the site works, to include all disbursements and fees to date, and for contracts extending over a long period, monthly invoices will be submitted for payment. The final report will not be issued until payment of the first interim invoice has been received, unless agreed with this Practice beforehand. Invoices are not to be assigned to a third party without prior agreement. Should the contract be cancelled after either preparatory or fieldwork has commenced then a claim will be made for work completed to that date.
- 3 The rates quoted, are net of Value Added Tax (VAT) which will be added to invoices at the standard prevailing rate, and are valid for a period of 12 weeks from the date of the quote. The Consultant shall issue accounts monthly in respect of that part of the Services carried out in the preceding period. The Client shall make payment of accounts without discount or retention within 30 days of submission. Disputes should be raised within 10 days. In the event of non-payment of the account(s) within the specified period the Consultant reserves the right to charge, from time to time, interest on the unpaid amount at the rate of 2% per calendar month above the Bank of England base rate (at time of original invoice date).
- 4 In the event of non-payment of the account(s), the Client undertakes to pay to the Consultant all costs and expenses, on an indemnity basis, incurred by the Consultant in: (i) the recovery from the Client of money or arrears (ii) the enforcement of any of the provisions of these conditions of contract (iii) the service of any notice relating to the breach by the Client of any of their obligations under this contract whether or not the same shall result in court proceedings (iv) the cost of any bank or other charges incurred by the Consultant if any cheque written by the Client is dishonoured or if any standing order payment is withdrawn by the Client's bankers (v) compensation for the breach of any terms of this agreement.
- 5 Unless expressly stipulated to the contrary, payment of the account(s) is not dependent upon the Client achieving regulatory approval for or discharge of a planning condition relating to the project, nor is it dependent upon the Client's securing of funding for the development where this may be conditional upon the prior granting of planning or building regulations approval, nor the Client's onward sale of the site to another party. In the case of provision of services to another consultant, payment of our account is not dependent upon the prior settlement of their own account by their Client.
- 6 No work will commence until an official written order or completed Quote Acceptance form has been received by post or email. Such order will be deemed to constitute acceptance of the quotation and these terms and conditions. Where the instruction to undertake the Services may have been issued by an intermediary on behalf of the Client, full Client details including confirmation of and contact details for the person responsible for authorising payment must be provided to the Consultant. In the event that the Client defaults or otherwise fails to pay the due account, the Consultant reserves the right to pursue and recover any unpaid amount from the instructing intermediary.
- 7 Neither party shall assign any obligation or benefit under this Agreement without prior written consent of the other Party. The Client shall not be entitled to assign the report(s) or any part of it without our prior written consent. Re-assignment of reports can be provided on request, subject to liaison with our Insurers and standard administration costs. Any assignment shall exclude the Contracts (Rights of Third Parties) Act 1999. Provision of a Collateral Warranty can only be considered if it is agreed at the pre-works stage, and fees for legal advice and warranty provision agreed before the works commence.
- 8 The Client guarantees that it has the right to have the Services performed and that he has obtained all the necessary certificates, licences, permits and consents required by Statute or any order or regulation made there under or by any regulation or by-law of any authority undertaker. The Client shall indemnify and hold harmless the Consultant from and against all consequences of a failure in this respect. The Client shall arrange such rights of access to property and use of Client's facilities as described in (or reasonably to be inferred from) this Agreement. The Client shall use reasonable endeavours to supply to the Consultant, promptly and free of charge: (a) any other necessary things in accordance with this Agreement; (b) any instructions, decisions, consents and approvals; and (c) any relevant data and information in the Client's possession; all of which the Consultant may reasonably require in order to carry out the Services. The Client will indemnify the Consultant in respect of any failure by the Client under this Clause.
- 9 In line with the Construction (Design & Management) Regulations 2015 and AGS guidance, neither the Consultant nor any sub-contractor shall be held responsible for any accidental damage or the consequences of any damage to buried services such as cables, pipes, sewers, etc., the positions and nature of which have not been clearly indicated to the Consultant in writing prior to the commencement of the work, unless the locating of same is expressly part of the Services. Where necessary it is assumed that the Client will permit the use of their toilet/welfare facilities by Consultant's staff and sub-contractors, including domestic properties. We will normally undertake the role of Contractor on a ground investigation project, but may occasionally 'inherit' the role of Principal Contractor. In either case that role is restricted to the ground investigation phase ONLY and not the subsequent build.
- 10 The Consultant shall not be held responsible for any loss, damage or injury arising from actions or omissions of the Client, his agents, servants and/or independent contractors. The Client shall indemnify the Consultant from any such acts or omissions.
- 11 Each Party shall retain the copyright of its documents. Information relating to the contract will only be disclosed to those employees who require it to carry out their job. If necessary this may include subcontractors. Any other third party enquiry about the purposes of these works will be referred back to the Client. Upon completion any technical information or ground investigation data obtained as part of your commission will thereafter be archived as 'in-house' data, and may be used (without specific reference to your site) on other projects in the future; this specifically excludes any personal data.
- 12 Copyright And Non-Disclosure Notice - The contents and layout of any report produced by the Consultant are subject to copyright owned by Wilson Associates save to the extent that copyright has been legally assigned by us to another party or is used by Wilson Associates under licence. To the extent that we own the copyright of a particular report, it may not be copied or used without our prior written agreement for any purpose other than the purpose indicated in that report. The methodology (if any) contained in that report is provided to you in confidence and must not be disclosed or copied to third parties without the prior written agreement of Wilson Associates. Disclosure of such information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests. Any third party who obtains access to that report by any means will, in any event, be subject to the Third Party Disclaimer set out below.
- 13 Third Party Disclaimer - Any disclosure of our report(s) to a third party is subject to this disclaimer. Reports are prepared by Wilson Associates at the instruction of, and for use by, our client named on the front of that report. It does not in any way constitute advice to any third party who is able to access it by any means. Wilson Associates excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage howsoever arising from reliance on the contents of that report. We do not however exclude our liability (if any) for personal injury or death resulting from our negligence, for fraud or any other matter in relation to which we cannot legally exclude liability. Legal re-assignment to another party can be arranged - see Clause 7.
- 14 The Consultant's liability under this Agreement shall be limited to £500,000 (five hundred thousand pounds). The Consultant shall maintain professional indemnity insurance in this amount providing that such insurance cover is available at commercially reasonable rates.
- 15 To comply with the General Data Protection Regulation (GDPR) 2018, we will only request contact details sufficient to complete our project with you, name/job title, address/postcode/email. Any data collected will be used only by authorised personnel in the context of that project. We are committed to ensuring that your information is secure and in order to prevent unauthorised access or disclosure, we have put in place suitable physical, electronic and managerial procedures to safeguard and secure the information we collect. We will not share your information with third parties.