Contaminated Land
Air Quality
Environmental Audit

Partnership No: OC 300776

Heyford Park

Dorchester Living: Phase 9

Remediation Earthworks Completion Report

For Urban Regen Ltd. & Dorchester Living

May 2023

Report Ref: R1742-R23-v4

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v3	Final	05.12.22	Updated to included additional formation sampling / aggregate sampling results.
v4	Final	10.05.23	Minor edits following client comments.

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1. Introduction

1.1. Planning Consent for the redevelopment of the area referred to as Phase 9 within the former RAF/USAF Upper Heyford Airbase New Settlement Area (NSA) was granted by Cherwell District Council (CDC) on 7th December 2016 (ref. 16/02446/F). Dorchester Living (DL) intend to redevelop the site with the construction of 296 residential dwellings with associated infrastructure and areas of landscaping and public open space.

1.2. Urban Regen Ltd. (URL) was instructed by DL to carry out demolition, remediation and preparatory earthworks within Phase 9 to allow construction works to commence. URL duly instructed Smith Grant LLP (SGP) to carry out the verification works and produce the earthworks completion reporting.

1.3. The above planning consent contains the following conditions relating to contamination remediation:

	Pre-Commencement Conditions (phased)
10	*No development shall take place within a phase or sub-phase hereby approved until a Remediation Strategy that includes the following components to deal with the risks associated with contamination of that phase or sub-phase has been submitted to and approved, in writing, by the Local Planning Authority:*
a).	*A preliminary risk assessment which has identified:* • *All previous uses.* • *Potential contaminants associated with those uses.* • *A conceptual model of the site indicating sources, pathways and receptors.* • *Potentially unacceptable risks arisings from contamination affecting that phase or sub-phase.*
b).	*A site investigation scheme, based on (a) to provide information for a detailed assessment of the risks to all receptors that may be affected, including those off-site.*
c).	*The results of the site investigation and the detailed risk assessment referred to in (b) and, based on these, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken.*
d).	*A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy in (c) are complete and identifying and requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.* *Any changes to these components require the express written consent from the Local Planning Authority. The scheme shall be implemented as approved.*
	Conditions Requiring Approval or Compliance Before Specific Construction Stages
19	*If, during development, contamination not previously identified is found to be present, no further development shall take place until full details of a remediation strategy detailing how the unsuspected contamination shall be dealt with has been submitted to and approved in writing by the Local Planning Authority. Thereafter the remediation strategy shall be carried out in accordance with the approved details.*

22	*Conditions Requiring Approval or Compliance Before Occupation* *Prior to the first use or occupation of any phase or sub-phase of the development hereby approved, a verification report for that phase or sub-phase, demonstrating completion of works set out in the remediation strategy approved under Condition 10 and the effectiveness of the remediation shall be submitted to and approved, in writing, by the Local Planning Authority. The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that the site remediation criteria have been met. It shall also include any plan (a "long-term monitoring and maintenance plan") for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action, as identified in the verification plan. The long-term monitoring and maintenance plan shall be implemented as approved.*

1.4. It is understood that Condition 10a has been approved following consultation between Planning and the Local Authority Environmental Protection Officer (EPO) on 16.06.18 when it was acknowledged that an intrusive investigation and Remediation Strategy was required.

1.5. A site investigation report was produced by Hydrock (ref. HPW-HYD-MS-ZZ-RP-G-0001) in February 2017 which has been submitted to satisfy Condition 10b. LA EPO approval of this report was received on 04.11.20 under discharge of condition application 20/02729/DISC. Commentary was provided by the Environment Agency (EA) on 26.03.21 with general agreement of the findings of the site investigation but with requirements for further groundwater investigation within Phase 9 following building demolition and tank removal. The request for additional groundwater investigation was limited to the area of BH01 and BH02 and this element of the works was subsequently completed by Jomas Environmental Engineering (JEE) as reported in their Supplementary Geo-environmental Assessment Report for the site (ref: P2087J2052b/SC; 28th September 2021).

1.6. A Remediation Statement (10c) which covered Phase 9 and other development phases was prepared by Hydrock (ref. HPW-HYD-PX-REM-RP-GE-P1-S2, April 2017); however, it was decided that a revised Strategy should be produced to align remedial and verification works to the SGP Remediation Strategy which was produced to cover the neighbouring NSA areas (R1742-R01-v1; May 2014) under Planning Consent 10/1642/OUT for consistency. Approval of the Strategy was received from the LA on 26.03.21 and, following submission of the aforementioned JEE supplementary reporting, the EA also provided correspondence confirming approval of the Remediation Strategy on 15.12.21 under discharge of condition application 21/03858/DISC (EA ref: WA/2021/129492/01-L01).

1.7. This verification report is intended to assist in the discharge of Condition 10d (although some aspects can only be completed by the developers).

1.8. This report deals with the completion of preparatory remedial works by URL for DL across the Phase 9 area and this report (v3) has been specifically updated to include the additional formation testing and aggregate stockpile sampling following additional limited preparatory works within areas not previously accessible during the v2 reporting. The exception to this is

the former Phase 9 baseball pitch for which a separate completion report has been produced by SGP (ref. R1742-R22). The Phase 9 site and area covered by this report is provided in Drawing D01.

1.9. Remedial works were not completed in verge areas along the western boundary and in the southeast of the site due to coverage by several developer stockpiles and the presence of trees. These areas are shown within D04 and will be subject to further verification works and reporting at a later date.

1.10. A development layout has been provided by DL (ref. 0521-Ph9-102) which shows that the site is to comprise a variety of detached, semi-detached and terraced housing with private gardens, areas of public open space and associated infrastructure. A large area of public open space with a pond, children's play area and football pitch are proposed in the southeast of the site.

Figure 1.1 Approximate Phase 9 Boundaries

Red –Phase 9 area
Blue – Phase 9 Baseball Pitch (report ref. R1742b-R22)
Green – Area covered by this report (ref. R1742-R23-v3)

1.11. SGP has regularly inspected the URL preparatory earthworks carried out to date and has collected samples of recovered topsoil, formation soils, site generated aggregate and remediated hotspot areas. This report describes the works carried out, drawing conclusions, and making recommendations concerning the further works required by Dorchester in order to fully discharge Planning Conditions 10.

2. Remediation Strategy

2.1. Expected Contamination

2.1.1. The Phase 9 area formed part of the wider Upper Heyford Airbase which was developed and used by the United States Airforce. It is understood that the site originally formed housing for families living on the airbase, but once expansion of the base took place, the buildings were converted into the 'Upper Heyford American High School' with playing fields and a boiler house. The area of the site covered by this report is the main developed area of the site with the former dormitory buildings / classrooms and boiler house.

2.1.2. Identified known or potential contamination sources determined from the historical uses of the site and site investigations were generally found to be minor, consisting of low-level but pervasive contamination by metals / PAHs with localised areas of made ground and the potential for localised hydrocarbons associated with bulk fuel storage tanks within the area of the former boiler house.

2.1.3. Two localised hotspots (TP102 and TP104) were identified by Hydrock where black staining / tar odours were reported, however no source could be attributed to these observations so further investigation within both areas was recommended.

2.1.4. More recent supplementary works undertaken by SGP identified that the former POL (Petroleum Oil Lubricant) pipeline extended beneath the eastern portion of the Phase 9 area. The POL system was a supply pipe present on the Upper Heyford Flying Field which connected to the National Fuel Pipeline (NFP) located to the south of Phase 9 and transported fuel around the airbase. Decommissioning of the POL pipeline was undertaken and reported by Vertase (ref. 1246DOR) in 2012, but it was recognised that there was potential for fuel contamination around the pipeline. SGP undertook a supplementary investigation along the POL pipeline in January 2021 (ref. R1742b-R21) and identified a hydrocarbon hotspot attributed to the fuel pipeline in the north of the baseball pitch area.

2.1.5. The fuel hotspot area within the baseball pitch has been remediated and reported within the Phase 9 Baseball Pitch Completion Report (ref: R1742b-R22). As part of the supplementary investigation works, trial-pitting along the route of the pipeline was undertaken and no further impacted soils along the pipeline route were identified. It was, however, acknowledged that localised areas of impacted soils could be present along the pipeline and that the remediation contractor during removal of the pipeline should remain vigilant and notify SGP of any contamination indicators, if encountered. The pipework has now been removed from Phase 9 and URL have confirmed that no contamination indicators were encountered.

2.1.6. Natural background contamination may be present in the bedrock and soils. The site lies within, or adjacent to, the "ironstone domain" as described in DEFRA Technical Guidance Sheet TGS01 "Arsenic", July 2012, and within 1km of mapped outcrops of ironstones within

the Jurassic sedimentary rocks. Within the ironstone domain, the normal background concentration (NBC) of arsenic is reported to be 220 mg/kg; the NBC is defined as the upper 95% confidence limit of the 95th percentile of topsoil concentrations. This value substantially exceeds the criteria for garden soils (Remediation Strategy, Table 3.3).

2.2. Remediation Objectives and Approach

2.2.1. The key contamination remediation objectives are to:

- create a significant betterment of the groundwater environment thereby protecting groundwater quality at and beyond the site boundary;
- remove / remediate significant pollution sources such as hydrocarbon hotspots, if present, that pose a risk to man and the environment, to the extent feasible;
- break significant or potentially significant future pollutant linkages resulting from the change of land use, in particular related to shallow garden soils and human exposure;
- carry out further soil investigations / inspections to complete gaps in the existing investigation coverage;
- respond appropriately to contingencies, in particular the discovery of previously undisclosed contamination;
- remove development constraints and prepare the site physically to enable residential development;
- manage all emissions to air and water to protect surface waters, groundwater and the atmosphere during the remediation works;
- provide appropriate additional protection measures, where necessary, to be implemented during construction - including building gas barriers, water mains protection, and garden / open space soil quality and thickness.

2.2.2. The general requirements for garden and landscaped soils taken from the Remediation Strategy are as follows:

- provision of 600mm of clean soil cover within garden areas / 300mm in soft landscaping where the underlying soils contain one or more concentrations of substances in excess of contamination targets set out in Table 3.3 of the Strategy;
- materials to be used as garden/landscape soils must be suitable for use, validated, and comply with contamination targets set out in the Remediation Strategy at a rate of 1 sample per 500m^3;
- imported soils used for cover purposes to comply with contamination targets set out in the approved Remediation Strategy at a rate of 1 sample per 250m^3 with a minimum of 3 samples per source;
- in areas where natural uncontaminated soils are present following the site re-grade, clean topsoil may be required as a growing medium but there will be no requirement for a full 600mm of placed soil cover.

2.2.3. It is confirmed that Phase 9 may be generally classed as “Green” under the NHBC classification scheme with no special measures required to address risks posed by ground gas. In localised areas of hydrocarbon contamination such as around USTs / the fuel pipeline where it is not feasible to remove impacted soils (such as adsorption into bedrock etc) then post-remediation vapour monitoring may be necessary to assess whether vapour protection measures are required. In the absence of further monitoring or assessment then precautionary VOC protection measures may be required.

2.3. Site Characterisation

2.3.1. The site was formerly agricultural land with a surface watercourse (Gallos Brook) in the east until 1966 when the site was developed to form part of RAF Upper Heyford. It is understood that the site was originally used for the housing of families on the airbase before later being used as a school (Upper Heyford American High School) with playing fields, classrooms, a boiler house, gymnasium and playing fields / baseball pitches.

2.3.2. Gallos Brook, which was originally a surface watercourse, has since been culverted beneath the site. It is understood that surface water drainage from the wider airfield to the north discharges into the brook.

2.3.3. An oil-fired boiler house was located in the approximate centre of the site which is assumed to have provided heating to the former buildings on site with three associated underground storage tanks present. No significant contamination was reported by Hydrock who carried out the intrusive investigation on the site, however entries were limited around the tanks due to the presence of live services at the time of investigation. However, Hydrock borehole BH2 is located to the south of the boiler house (although not directly downgradient with groundwater flow reported in a south to southeast direction) within which elevated hydrocarbons were reported.

2.3.4. Following building demolition and tank removal, further groundwater monitoring works were undertaken by JEE as reported in their Supplementary Geo-environmental Assessment Report for the site (ref: P2087J2052b/SC; 28th September 2021). The works involved the drilling of 5 rotary boreholes to depths of 10m bgl (including a replacement borehole in the area of Hydrock borehole BH2) with the installation of monitoring wells to facilitate the collection of groundwater samples. Samples were collected from these boreholes on two occasions within which no hydrocarbons were reported above laboratory detection limits. It was therefore concluded that the groundwater underlying the site was not significantly impacted by petroleum hydrocarbons arising from historic uses of the site.

2.3.5. A Petroleum Oil Lubricant (POL) pipeline was present in the east of the site which extends from the southern boundary adjacent to Gallos Brook where it was formerly connected to the National Fuel Pipeline (NFP). The POL pipeline crossed the site via two routes: the first extended from the southern boundary in a northerly direction parallel to Gallos Brook up to

Camp Road, whilst a second spurred northwest running along the site's eastern boundary before later joining to the other pipeline within the Phase 9 baseball pitch area. The pipeline was decommissioned by Vertase in 2012 which included the clearing, foam filling and breaking of the pipeline.

2.3.6. SGP carried out supplementary investigation works along the POL pipeline in December 2020 and excavated 4 entries (TP8-TP11) within the main phase 9 site to confirm the presence / depth of the pipeline and assess the presence of any fuel impacted soils. The pipeline was encountered within all entries excluding TP11 and no fuel impacted soils around the pipeline were encountered. Impacted soils were limited to an area within the Phase 9 baseball pitch which has subsequently been remediated and validated (see report: R1742-R22).

2.3.7. Hydrock also identified two further potential contamination hotspots attributed to visual / olfactory contamination indicators and elevated hydrocarbon concentrations above GACs within entries TP102 and TP104. The descriptions suggest the presence of tar or bitumen which appear to be localised in nature; in any case, further investigation and remediation was recommended.

2.3.8. The site was found to have a generally thin veneer of made ground, largely consisting of reworked natural soils with inert inclusions such as glass and brick, however localised incidences of ash and asphalt were recorded.

2.4. Phase-specific Strategy

2.4.1. It was concluded that Phase 9 posed a localised risk of contamination associated with the former underground fuel tanks within the area of the former boiler house, localised areas of made ground containing anthropogenic inclusions of ash and asphalt, and two areas of elevated hydrocarbons associated with tar / bitumen indicators. It was also recognised that there was potential around the area of the decommissioned pipeline for any localised impacted soils associated with historical leeks, although no evidence has been reported to date to confirm this.

2.4.2. The site-wide strategy of ensuring clean cover soils to 600mm depth (subject to formation testing) is considered to be an appropriate approach. No requirement for the remediation of hydrocarbon impacted soils or groundwater was identified pending additional inspection / investigation of the former UST locations after emptying and removal of the tanks, removal of the decommissioned POL pipeline, and further investigation of two localised hotspot areas.

3. Description of Works

3.1. General Approach

3.1.1. Preparatory works within the main Phase 9 site included:

- soft strip and vegetation clearance;
- asbestos survey and strip in accessible buildings and structures;
- segregation of waste materials including wood, metal and plastic for recovery / disposal;
- demolition of all above ground structures;
- recovery of topsoil.

3.1.2. Remediation earthworks within the main Phase 9 site included:

- Grubbing out of relict ground floor slabs, foundations and roadways;
- Removal / treatment of underground storage tanks in accordance with the Remediation Strategy;
- Removal of decommissioned POL pipeline;
- Further investigation / remediation of Hydrock hotspots TP102 & TP104;
- Crushing on-site of suitable hard materials (masonry, concrete and brick) to recover aggregate for reuse.

3.1.3. The initial remediation and site preparatory works within the central, northern and eastern parts of Phase 9 (as reported in R1742-R23-v3) were carried out over a period from January 2021 to May 2021. URL then returned to site in October 2022 to carry out further remedial works in the south and along part of the western boundary; however, it is understood that remediation of some peripheral areas to the southeast and along parts of the western boundary are yet to take place and that these will be completed at a later date and will be subject to additional reporting. The areas where outstanding works are required are detailed on the accompanying URL as-built drawings appended to this report and within drawing D04.

3.1.4. The existing buildings were demolished following an asbestos survey and removal was carried out by a specialist sub-contractor (Elite). Removal of any asbestos containing material (ACM) from the buildings was carried out prior to demolition; copies of the asbestos survey reports and removal of ACM certificates are retained by URL and are available on request.

3.1.5. Relict structures including basal slabs, foundations and redundant infrastructure were removed. Recoverable materials such as concrete, brick and masonry were segregated before crushing to produce aggregate to be used by the developer as bulk fill or for construction platforms / sub-base under building footprints and roads. Scrap metal and any timbers were sent off-site for recycling. An estimated 13,356m^3 of site-generated aggregate was placed within 4 temporary stockpiles (referred to as Ph9-Agg-SP1, Ph9-Agg-SP2, Ph9-Agg-SP3 & Ph9-Agg-SP4) which have been handed over to the developer for reuse within the

site. An additional circa 600m^3 of aggregate was also produced on Phase 9 for reuse on the site from waste DH building materials from across the wider development (referred to as Ph9-DH-Agg) – results of the testing of this material are also included within this report.

3.1.6. Approximately 2,700m^3 of topsoil was recovered from the site (mainly from verges around the former buildings) which has been stockpiled within the east of Phase 9. Shallow natural deposits of sandy clay or reworked natural deposits with occasional inclusions of inert materials (brick etc.) were present at surface level following removal of buildings, slabs and topsoil. Formation testing has been undertaken across the site as per the Remediation Strategy to establish the suitability of the shallow soils for retention within garden areas.

3.2 Contamination Hot-Spots

3.2.1 Three areas within Phase 9 (excluding the baseball pitch) were determined as potential contamination hotspots which required further investigation and, if necessary, remediation. These included:

- USTs associated with the former boiler house
- Hydrock TP102 (black staining and tar odour – hydrocarbon exceedances)
- Hydrock TP104 (black staining and tar odour) – hydrocarbon exceedances)

3.2.2 The redundant fuel pipeline which crossed the eastern part of Phase 9 was also identified as a potential contamination hotspot, however supplementary investigation works along the pipeline prior to the commencement of remedial works did not identify any contamination beyond that which was present within the Phase 9 baseball pitch, as remediated and reported within SGP report R1742b-R22. A recommendation was therefore made for a watching brief to be maintained during the removal of the pipeline for any impacted soils which was duly undertaken and no contamination indicators were reported during these works.

3.2.3 Investigation, remediation and verification testing have been undertaken at the 3 potential hotspot areas as described in Section 4 and 5 of this report. Prior to the removal of the USTs and sampling of the resultant void, emptying and purging was completed by specialist contractor CSG.

3.2.4 All validation testing on the base and sidewalls of remedial excavations were carried out by SGP in accordance with the Remediation Strategy.

3.3 Validation of Formation Level Strata

3.3.1 It is a requirement under the Remediation Strategy that a 600mm cover of clean soils is to be placed over made ground in garden areas; however, due to the requirement to trim development areas by -200mm below existing ground levels, made ground was largely absent due to the shallowness of the natural strata or comprised inert materials (brick fragments etc.) within reworked natural soils. This meant that a 400mm depth of natural soil /

reworked natural soils with occasional inert inclusion (brick etc.) could form part of the full 600mm of garden soil cover after placement of garden topsoil.

3.3.2 In-situ sampling of the formation level strata was carried out by sampling of the upper 400mm at a test frequency of 1 sample per 500m^3, the residual 400mm depth equating to 1 sample per 1,250m^2 plan area of development. Seventy-four in-situ samples were collected from the exposed formation level with depth validation photos showing the 0-400mm soil profile. Samples were analysed for a suite of contaminants as specified with the Remediation Strategy.

3.3.3 Where exceedances have been reported further assessment has been made and/or recommendations for an appropriate soil cover system to be adopted as per the Strategy requirements.

3.4 Site Waste Management

3.4.1 As described previously, waste materials removed from the Phase 9 area included timber, scrap metal and ACM. Wood and metal were carefully segregated and sent off-site to be recycled and ACMs were stripped from the buildings prior to demolition by an appropriately qualified sub-contractor and disposed at an appropriate waste accepting facility. URL maintain copies of all waste transfer documentation which can be provided on request.

3.5 Constraints and Limitations

3.5.1 Remedial works have been carried out across the vast majority of the Phase 9 area as per the accompanying as-built drawings; however, remedial works are still required within some peripheral verge areas in the southeast and along the western boundary. Further verification reporting within these outstanding areas including formation testing, as necessary, are still required as per drawing D04.

3.6 Unforeseen Contamination

3.6.1 During the removal of surface hardstanding in the northwest, fragments of ACM were observed within the top 0.5m of soils within a localised area. An excavator was used to expose the soils whilst a specialist sub-contractor carried out hand-picking to remove visible ACM. Removed ACM was double-bagged and disposed of to a suitable accepting waste facility. Following the completion of hand-picking, SGP attended site and collected 8 samples from the remediated area (1 sample per 5m^2) for asbestos identification to confirm the absence / presence of residual fibres within the shallow soils.

4. Inspections and Testing

4.1. SGP attended the site on 1 occasion in 2018 to carry out a pre-remediation walkover, 11 visits during the first phase of remediation earthworks, 1 visit following completion of the first phase of earthworks (08.06.21), 2 visits following completion of the second phase of remediation earthworks and to carry out formation sampling (18-19.10.22) and a final visit to carry out aggregate stockpile sampling (25.10.22). The dates and activities carried out in the Phase 9 area during SGP attendance cross-referenced to the site inspection photographic record (Appendix A), hotspot photographic record (Appendix B), formation soil photographic record (Appendix C) and laboratory analysis (Appendix D) are summarised in the table below.

Table 4.1 SGP Inspection Summary

Date	Description of Site Works	SGP Activities	Record
22.05.18	None	Pre-commencement walkover	Appendix A – Photo 1-7
20.01.21	Vegetation strip (north) / ACM strip	Site walkover	Appendix A - Photos: 8-10
02.02.21	Building demolition / recovery of waste materials / breaking out hardstanding / ACM strip	Site walkover	Appendix A - Photos: 11-13
08.02.21	Recovery of building demolition wastes / regrade in area of eastern most buildings following ACM strip / demolition	Site walkover	Appendix A – Photos 14-16
16.02.21	Substation demolition, ACM strip	Site walkover	Appendix A – Photos 17-22
17.02.21	Substation demolition, ACM strip	Site walkover / HS-TP104 investigation	Appendix B – HS-TP104 Appendix D - Lab Ref: 21-2316
02.03.21	Building demolition / ACM strip / material recovery	Site walkover / Formation sampling (S1-S11)	Appendix A – Photos 23-28 Appendix C – Photos 1-11 Appendix D - Lab Ref: 21-06789
09.03.21	Building demolition / ACM strip / material recovery / removal of hardstanding	Site walkover / Formation sampling (S12-S23) / exposure of UST tanks	Appendix A – Photos 29-36 Appendix C – Photos 12-23 Appendix D - Lab Ref: 21-07749
06.04.21	Crushing hardstanding / waste recovery	Site walkover / Formation sampling (S24-S37) / aggregate sampling / topsoil sampling	Appendix A – Photos 37-42 Appendix C – Photos 24-37 Appendix D - Lab Ref: 21-11321, 21-11315
20.04.21	Crushing hardstanding / waste recovery / ACM handpick within HS-ACM	Site walkover / aggregate sampling	Appendix A – Photos 43-49 Appendix D - Lab Ref: 21-13303

Date	Description of Site Works	SGP Activities	Record
28.04.21	Crushing hardstanding	Site walkover / Formation sampling (S38-S51) / HS-TP102 investigation / HS-ACM sampling / UST validation sampling / aggregate sampling	Appendix A – Photos 50-53 Appendix B – HS-TP104; HS-ACM, HS-UST Appendix C – Photos 38-51 Appendix D – 21-14510, 21-14505, 21-14506, 210506-141
13.05.21	None – first phase of works completed	Completion visit / aggregate sampling	Appendix A – Photos 54-58 Appendix D – 21-16265
08.06.21	None – first phase of works completed	Aggregate sampling	Appendix D – 21-19648
Remobilisation to carry out additional preparatory works within areas in the west and south which were previously constrained due to stockpiles			
18.10.22	None – works completed	Formation sampling (S52-S56)	Appendix C – Photos 52-60 Appendix D – 22-40691
19.10.22	None – works completed	Formation sampling (S57-S74)	Appendix C – Photos 61-79 Appendix D – 22-40691
25.10.22	None – works completed	Aggregate sampling	Appendix A – Photo 59 Appendix D – 22-41389

4.2. Hydrock TP104 Hotspot

4.2.1. Following the completion of building demolition and the breaking out of surface hardstanding, SGP attended site on 17.02.21 to carry out the excavation of trenches to inspect the ground within the area of Hydrock TP104. Two trenches (TP1 and TP2) were excavated parallel to one another, encompassing an area of 7m x 5m.

4.2.2. The ground was recorded as a natural dark brown clay with angular gravel underlain by a coarse gravel of limestone in a light brown clayey soil. TP1 was excavated to 0.8m bgl and TP2 to 1.1m bgl. A photographic record is provided in Appendix B.

4.2.3. No black staining or odours were observed and screening of arisings with a photoionisation detector (PID) failed to exceed detection limits (<0.1ppm).

4.2.4. Three samples (HS-TP104-S1 to -S3) were collected at depths ranging from 0.0-0.4m and 0.4-1.1m which were submitted for fractioned hydrocarbon analysis (lab ref. 21-2316). Concentrations are compared to the assessment criteria for hydrocarbon remediation as set out in Table 3.4 of the Remediation Strategy (adopted from Table B2 of the Watermans Controlled Waters DQRA, ref. EED10658-14.1.7_FA) and the garden soils criteria in Table 3.3 of the Strategy.

Table 4.2 TP104-HS validation data

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Hotspot Criteria (Table 3.4)	Garden Soils Criteria (Table 3.3)	Exceedance Concentration & location
			Screening criteria (mg/kg unless stated)	Screening criteria (mg/kg unless stated)	
Aliphatic C5-C6	3	<0.1	-	42	None
Aliphatic C6-C8	3	<0.1	-	100	None
Aliphatic C8-C10	3	<0.1	80	27	None
Aliphatic C10-C12	3	<0.2	1000	130	None
Aliphatic C12-C16	3	<4	1000	1100	None
Aliphatic C16-C21	3	<7-14	1000	65,000	None
Aliphatic C21-C35	3	<7-63	1000	65,000	None
Aromatic C5-C7	3	<0.1	-	42	None
Aromatic C7-C8	3	<0.1	-	130	None
Aromatic C8-C10	3	<0.1	-	34	None
Aromatic C10-C12	3	<0.2	7	74	None
Aromatic C12-C16	3	<4	120	140	None
Aromatic C16-C21	3	<7-33	440	260	None
Aromatic C21-C35	3	<7-231	1000	1100	None
Benzene	3	<0.005	0.08 (Table 3.3)		None
Toluene	3	<0.005	120 (Table 3.3)		None
Ethylbenzene	3	<0.005	65 (Table 3.3)		None
m/p-Xylene	3	<0.005	42 (Table 3.3)		None
o-xylene	3	<0.005	44 (Table 3.3)		None

4.2.5. No exceedances were reported which is consistent with the observed ground conditions. It was noted that within the immediate surrounding area a tarmac surface layer was present which could have possibly been associated with Hydrock's observations of black staining and a tar odour.

4.3 Hydrock TP102 Hotspot

4.3.1 Following the clearance of surface materials and breaking out of surface hardstanding, SGP attended site on 28.04.21 to carry out an investigation within the area of Hydrock TP102. Two trenches were excavated (TP1 and TP2) to lengths extending 12m to allow inspection of the ground.

4.3.2 Both TP1 and TP2 recorded a light brown clay soil (0-0.2m) underlain by a thin layer of coarse black gravel (0.2-0.3m) then natural limestone gravel. Following identification of the black gravel (which was suspected to be the material reported by Hydrock), the extent of this material was uncovered and removed by an excavator and placed within the stockpile of stripped tarmac for disposal. The extent of the remediated area was approximately 10m x 15m and coincided with the area of a former radio mast on the site, the black gravel presumably relating to its base. Soils were screened with a PID during removal with readings

consistently below detection limits (<0.1ppm), although this is typical of a bitumen bound aggregate. A photographic record is presented in Appendix B.

4.3.3 Six validation samples were collected on a 1 per 5m^2 spacing (TP102-HS-SS1 to SS6) of the stripped surface following removal of the black aggregate and a single sample of the removed material (TP102-HS-S1). Samples were submitted for fractionated hydrocarbon analysis (lab ref. 21-14505) and are compared to the assessment criteria for hydrocarbon remediation as set out in Table 3.4 of the Remediation Strategy (adopted from Table B2 of the Watermans Controlled Waters DQRA, ref. EED10658-14.1.7_FA) and the garden soils criteria in Table 3.3 of the Strategy.

Table 4.3 TP102-HS Remediation Validation Data

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Hotspot Criteria (Table 3.4)	Garden Soils Criteria (Table 3.3)	Exceedance Concentration & location
			Screening criteria (mg/kg unless stated)	Screening criteria (mg/kg unless stated)	
Aliphatic C5-C6	7	<1	-	42	None
Aliphatic C6-C8	7	<1	-	100	None
Aliphatic C8-C10	7	<1-4.2	80	27	None
Aliphatic C10-C12	7	<1-42	1000	130	None
Aliphatic C12-C16	7	<1-99	1000	1100	None
Aliphatic C16-C21	7	<1-78	1000	65,000	None
Aliphatic C21-C35	7	<1-320	1000	65,000	None
Aromatic C5-C7	7	<1	-	42	None
Aromatic C7-C8	7	<1	-	130	None
Aromatic C8-C10	7	<1-2	-	34	None
Aromatic C10-C12	7	<1-11	7	74	**TP102-HS-S1**
Aromatic C12-C16	7	<1-660	120	140	**TP102-HS-S1**
Aromatic C16-C21	7	<1-2,400	440	260	**TP102-HS-S1**
Aromatic C21-C35	7	<1-6,700	1000	1100	**TP102-HS-S1**
Benzene	7	<0.005	0.08 (Table 3.3)		None
Toluene	7	<0.005	120 (Table 3.3)		None
Ethylbenzene	7	<0.005	65 (Table 3.3)		None
m/p-Xylene	7	<0.005	42 (Table 3.3)		None
o-xylene	7	<0.005	44 (Table 3.3)		None

4.3.4 No exceedances were reported within the validation samples collected from the retained soils following removal of the black aggregate confirming the effectiveness of the remedial works. Exceedances were limited to sample TP102-HS-S1 which was collected from the removed black aggregate.

4.4 ACM Hotspot

4.4.1 Following building demolition and removal of hardstanding, a localised area of ACM was observed within the surface soils by URL in the northwest of the site. Handpicking was

undertaken by specialist sub-contractor Elite with all ACM double-bagged and placed in secure skips along with the ACM removed as part of the pre-demolition building strip. Following removal of surface deposits an excavator was used to carry out a shallow (0.5m turnover of soils) to allow the sub-contractor to inspect and undertake further picking, if necessary. The remediated area extended approximately 10m x 20m.

4.4.2 Following handpicking of visible ACM, SGP attended site and collected samples of the retained soils on a 1 per 5m^2 frequency for asbestos identification to assess whether any loose fibres remained within the soils.

4.4.3 During sampling the soils were inspected for any potential ACM, no such materials were observed with the soils consisting of re-worked sandy clay with coarse limestone gravel and inclusions of brick. A photographic record is presented in Appendix B and a copy of the laboratory rest results (lab ref. 21-14505) in Appendix D.

4.4.4 Composite samples were collected from a depth of 0-0.5m across the remediated area and submitted for asbestos identification analysis. Any samples where a positive identification was reported were scheduled for further quantification analysis to establish the volume of fibres present. The results are summarised in the table below and are compared to the garden soils criteria of <0.001%.

Table 4.4 ACM Hotspot Remediation Validation Data

Sample	Asbestos Identification	Mass (%)	Garden Soils Criteria (Table 3.3)	Exceedance
PH9-ACMHS-S1	NAD	-	<0.001%	No
PH9-ACMHS-S2	Amosite – Fibre Clump	<0.001		No
PH9-ACMHS-S3	NAD	-		No
PH9-ACMHS-S4	NAD	-		No
PH9-ACMHS-S5	NAD	-		No
PH9-ACMHS-S6	NAD	-		No
PH9-ACMHS-S7	NAD	-		No
PH9-ACMHS-S8	NAD	-		No

4.4.5 A single incidence of asbestos was reported within sample PH9-ACMHS-S2 with fibre clumps of amosite; however, quantification confirmed a mass of <0.001% which did not result in an exceedance. No incidences were reported within the remainder of the samples.

4.5 USTs

4.5.1 SGP attended site on 09.03.21 to both uncover / establish how many tanks remained adjacent to the former boiler house in the centre of the site. Following confirmation that 3 tanks were present that were filled with water and a surface layer of floating oil, URL commissioned CSG to empty and purge the tanks prior to removal.

4.5.2 SGP re-attended site on 28.04.21 following the immediate removal of the tanks to inspect the remediation excavation and collect validation samples from the base and sidewalls. A photographic record is presented in Appendix B.

4.5.3 Visual inspection and screening of the removed concrete cradle with a PID was also undertaken which confirmed the absence of any visible staining or presence of volatile organic compounds (VOCs). The material was therefore deemed to be uncontaminated and suitable for processing.

4.5.4 Observed ground conditions consisted of a sandy clay soil with coarse limestone gravel to approximately 2.3m bgl where weathered bedrock was encountered. The depth of the excavation extended to a depth of approximately 2.8m.

4.5.5 Visual inspection of the base and sidewalls was undertaken with no staining or areas of free product observed. No odours were recorded from the excavation and screening of soils from the base and sidewall with a PID failed to exceed detection limits (<0.1ppm). A photographic record is provided in Appendix B.

4.5.6 Eight composite samples were collected from the sidewalls (PH9-UST-SS1 to SS8) and 4 from the base (PH9-UST-SS9 to SS12). The spacing of samples was completed in accordance with the approved Remediation Strategy with 1 sample collected per 15m^2 of the excavated surface. All validation samples were submitted for TPHCWG and BTEX analysis (lab ref. 21-14510) and the results have been compared to the assessment criteria for hydrocarbon remediation as summarised in the table below:

Table 4.5 Ph9 UST Hotspot Remediation Validation Data

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Table B2	
			Screening criteria* (mg/kg unless stated)	Exceedances Concentration & location
Aliphatic C5-C6	12	<1	-	-
Aliphatic C6-C8	12	<1	-	-
Aliphatic C8-C10	12	<1	80	None
Aliphatic C10-C12	12	<1-51	1000	None
Aliphatic C12-C16	12	<1-280	1000	None
Aliphatic C16-C21	12	<1-300	1000	None
Aliphatic C21-C35	12	<1-250	1000	None
Aromatic C6-C7	12	<1	-	-
Aromatic C7-C8	12	<1	-	-
Aromatic C8-C10	12	<1	-	-
Aromatic C10-C12	12	<1-70	7	**(4): SS1, SS2, SS9 & SS10**
Aromatic C12-C16	12	<1-330	120	**(4): SS1, SS2, SS9 & SS10**
Aromatic C16-C21	12	<1-32,000	440	**(2): SS1 & SS2**
Aromatic C21-C35	12	<1-1,100	1000	**(1): SS2**
Benzene	12		0.08 (Table B1)	None

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Table B2	
			Screening criteria* (mg/kg unless stated)	Exceedances Concentration & location
Toluene	12		120 (Table B1)	None
Ethyl benzene	12		65 (Table B1)	None
m/p-Xylene	12		42 (Table B1)	None
o-xylene	12		44 (Table B1)	None

4.5.7 Exceedances were reported within the aromatic hydrocarbon >C10 fractions within samples SS1 and SS2 (eastern sidewall) and SS9 and SS10 (base), as summarised below:

- C10-C12 (criteria 7 mg/kg): SS1 - 47 mg/kg, SS2 - 40 mg/kg, SS9 - 70 mg/kg and SS10 - 35 mg/kg
- C12-C16 (criteria 120 mg/kg): SS1 - 190 mg/kg, SS2 - 250 mg/kg, SS9 - 330 mg/kg and SS10 - 250 mg/kg
- C16-C21 (criteria 440 mg/kg): SS1 - 32,000 mg/kg and - SS2 610 mg/kg
- C21-C35 (criteria 1000 mg/kg): SS2 - 1,100 mg/kg

4.5.8 Exceedances were generally considered to be minor in respect of the assessment criteria. Given the low mobility due to a high viscosity and low volatility of the fractions for which there were exceedances, the risks to groundwater, human health and the proposed development is considered to be low. Two of the exceedance locations were from the base where further removal could not take place due to the presence of intact bedrock.

4.5.9 A significantly elevated concentration of the aromatic C16-C21 fraction was reported within sample SS1 with a concentration of 32,000 mg/kg compared to the criteria of 440 mg/kg. It is noted that sample SS2 located on the same sidewall also reported an exceedance of this fraction, albeit much lower. At the concentration reported free product would be anticipated, however no product or staining was observed. Similarly, no odours were noted during sampling which may readily be anticipated at the reported concentrations if heating oil impacted soil was present.

4.5.10 It was noted during the site works that a former road ran immediately parallel to the eastern site boundary and it is considered most likely that some cross-contamination of the tarmac has occurred during sampling. Due to the high sidewalls an excavator was utilised to collect sidewall and basal samples and this was completed by a toothed bucket being dragged up the sidewall from base to the surface. This could have inadvertently resulted in the collection of any tarmac at the surface.

4.6 Phase 9 Baseball Pitch Topsoil

4.6.1 Two sources of topsoil have been recovered as part of the Phase 9 remedial works, the first was associated with the former baseball pitch which has been duly reported within the Phase

9 Baseball Pitch Completion Report (ref. R1742-R22), however for completeness the results have been reproduced in the section below.

4.6.2 Prior to the commencement of preparatory earthworks, including the recovery of topsoil, SGP carried out both in-situ topsoil and formation soil testing in 2018. The findings were reported in a letter report (R1742b-L07; August 2018), a copy of which is provided in Appendix E.

4.6.3 SGP collected 9 in-situ samples on the working assumption that circa 4,400m^3 of topsoil was present across the baseball pitch area ((14,650m^2) x assumed thickness of topsoil (0.3m)) to achieve a sampling frequency of 1 per 500m^3. URL having since confirmed following recovery that 3,700m^3 of topsoil was recovered from the baseball pitch. A testing frequency of 1 sample per 410m^3 has therefore been achieved, satisfying the prescribed rate of 1 sample per 500m^3. The stockpile is currently located within the main Phase 9 area covered by this report.

4.6.4 The results of the baseball pitch topsoil sampling (lab ref. 18-7823 and 18-14613) are reproduced in the table below and are compared to the garden cover criteria outlined in Table 3.3 of the Remediation Strategy.

Table 4.6 Ph9 Baseball Pitch Site-Won Topsoil

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
SOM	9	1.5-3.8	-	None
pH	9	7.74-8.25	-	None
asbestos fibre	9	NAD	<0.001%	None
arsenic	9	15.2-52.1	37 (S4UL)	**(1): Ph9-S9A**
cadmium	9	0.1-0.2	11 (S4UL)	None
chromium	9	36.9-82.2	910 (S4UL)	None
chromium IV	9	<0.3	6 (S4UL)	None
copper	9	10-29	2400 (S4UL)	None
lead	9	17-88	200 (C4SL)	None
mercury	9	<0.1	1.2 (S4UL)	None
nickel	9	18.3-51.50	180 (S4UL)	None
selenium	9	<1-2	250 (S4UL)	None
vanadium	9	52-119	410 (S4UL)	None
zinc	9	64-174	3700 (S4UL)	None
naphthalene	9	<0.04	2.3 (S4UL)	None
acenaphthylene	9	<0.03	170 (S4UL)	None
acenaphthene	9	<0.05	210 (S4UL)	None
fluorene	9	<0.04	170 (S4UL)	None
phenanthrene	9	<0.03-0.26	95(S4UL)	None
anthracene	9	<0.04-0.09	280 (S4UL)	None
fluoranthene	9	0.09-0.95	2400 (S4UL)	None
pyrene	9	0.09-0.87	620 (S4UL)	None
benzo(a)anthracene	9	0.06-0.59	7.2 (S4UL)	None
chrysene	9	0.06-0.46	15 (S4UL)	None

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
benzo(bk)fluoranthene	9	0.11-1.09	-	-
benzo(a)pyrene	9	0.06-0.59	2.2 (S4UL)	None
indeno(123cd)pyrene	9	0.04-0.44	27 (S4UL)	None
dibenzo(ah)anthracene	9	0.04-0.09	0.24(S4UL)	None
benzo(ghi)perylene	9	0.04-0.4	320 (S4UL)	None
aliphatic C5-C6	9	<0.1	42 (S4UL)	None
aliphatic C6-C8	9	<0.1	100 (S4UL)	None
aliphatic C8-C10	9	<0.1	27 (S4UL)	None
aliphatic C10-C12	9	<0.2	130 (S4UL)	None
aliphatic C12-C16	9	<4	1100 (S4UL)	None
aliphatic C16-C21	9	<7	5000 (S4UL)	None
aliphatic C21-C35	9	<7	5000 (S4UL)	None
aromatic C5-C7	9	<0.1	70 (S4UL)	None
aromatic C7-C8	9	<0.1	130 (S4UL)	None
aromatic C8-C10	9	<0.1	34 (S4UL)	None
aromatic C10-C12	9	<0.2	74 (S4UL)	None
aromatic C12-C16	9	<4	140 (S4UL)	None
aromatic C16-C21	9	<7	260 (S4UL)	None
aromatic C21-C35	9	<7	1100 (S4UL)	None
benzene	9	<0.005	0.08 (S4UL)	None
toluene	9	<0.005	130 (S4UL)	None
ethylbenzene	9	<0.005	47 (S4UL)	None
o-xylene	9	<0.005	60 (S4UL)	None
m-xylene	9	<0.005	56 (S4UL)	None
p-xylene	9	<0.005	56 (S4UL)	None
methyl tert butyl ether	9	<0.005	-	None

Notes to table:

S4UL: Suitable For Use Levels published by Chartered Institute of Environmental Health and Land Quality Management Ltd, residential with plant uptake scenario (1% SOM); copyright Land Quality Management Ltd reproduced with permission publication number S4UL3102. All rights reserved.

C4SL: Category 4 Screening Levels published by CL:AIRE (C4SLs); 'residential without home grown produce land use' (at 1% SOM)

4.6.5 A single minor exceedance was reported for arsenic within sample Ph9-S9A with a concentration of 52.1 mg/kg compared to the criterion of 37 mg/kg.

4.6.6 Statistical analysis was undertaken that confirms the exceedance is an outlier of the dataset and is not representative of the soil concentrations and can therefore be excluded from the dataset. When this value is removed, the upper confidence limit (0.95) for arsenic is reduced to 23.26, well below the criteria of 37 mg/kg.

Table 4.7 Statistical Analysis of Arsenic

statistic	arsenic (mg/kg)
criterion	37
no. of samples	9

Grubbs outlier test for highest value (P0.05)	Ph9-S9A (max value 52.1 mg/kg) is an outlier
arithmetic mean, including outlier	22.42
upper confidence limit (UCL 0.95) including outlier	39.09 (fail)
arithmetic mean, excluding Ph9-S9A outlier	18.71
upper confidence limit (UCL 0.95) excluding Ph9-S9A outlier	23.26 (pass)

4.6.7 No made ground or ashy deposits were observed within the topsoil and it is anticipated that some vertical mixing of the underlying ironstone within which naturally elevated arsenic at similar concentrations have been reported within the wider Heyford Park development area. Typically the bio-accessibility of naturally occurring arsenic associated with ironstones (normally present in the form of arsenopyrite) will be low, and the risk to future residential use is therefore considered to be low.

4.7 Phase 9 Topsoil

4.7.1 In addition to the topsoil recovered from the Phase 9 baseball pitch, approximately 2,700m^3 of topsoil was recovered from the remainder of the Phase 9 area (as covered within this report) from areas of soft landscaping and verges around the former buildings.

4.7.2 SGP attended site on 06.01.21 and collected 6 samples from the stockpiled material, satisfying the prescribed sampling frequency of 1 per 500m^3 for site-won topsoil. A copy of the lab results (ref. 21-11321) is provided in Appendix D with results compared to the garden cover criteria outlined in Table 3.3 of the Remediation Strategy. Due to several exceedances, comparison to the S4UL for public open space within a residential setting (POS_{resi}) have also been utilised to assess the potential for reuse in less sensitive areas of the development.

Table 4.8 Summary of Ph9 Topsoil

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Garden Cover System Screening criteria (mg/kg unless stated)	Exceedances	POS_{resi} Screening criteria (mg/kg unless stated)	Exceedances
SOM	6	3.1-5.3	-	-	-	-
pH	6	8.2-8.4	-	-	-	-
asbestos fibre	6	NAD	<0.001%	None	<0.001%	None
arsenic	6	21-54	37 (S4UL)	**(1): S4**	79	None
cadmium	6	0.29-0.38	11 (S4UL)	None	120	None
chromium	6	25-63	910 (S4UL)	None	1,500	None
chromium IV	6	<0.5	6 (S4UL)	None	7.7	None
copper	6	15-23	2400 (S4UL)	None	2,400	None
lead	6	33-77	200 (C4SL)	None	630	None
mercury	6	<0.1-0.13	1.2 (S4UL)	None	16	None
nickel	6	20-38	180 (S4UL)	None	230	None

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Garden Cover System Screening criteria (mg/kg unless stated)	Exceedances	POS_{resi} Screening criteria (mg/kg unless stated)	Exceedances
vanadium	6	45-100	410 (S4UL)	None	2,000	None
zinc	6	62-130	3700 (S4UL)	None	81,000	None
naphthalene	6	<0.1	2.3 (S4UL)	None	4,900	None
acenaphthylene	6	<0.1	170 (S4UL)	None	15,000	None
acenaphthene	6	<0.1	210 (S4UL)	None	15,000	None
fluorene	6	<0.1	170 (S4UL)	None	9,900	None
phenanthrene	6	0.57-3.90	95(S4UL)	None	3,100	None
anthracene	6	0.19-1.10	280 (S4UL)	None	74,000	None
fluoranthene	6	1.90-9.70	2400 (S4UL)	None	3,100	None
pyrene	6	1.90-9.60	620 (S4UL)	None	7,400	None
benzo(a)anthracene	6	0.37-4.30	7.2 (S4UL)	None	29	None
chrysene	6	0.87-5.10	15 (S4UL)	None	57	None
benzo(bk)fluoranthene	6	2.09-10.60	-	-	-	-
benzo(b)fluoranthene	6	1.6-7.8	2.6 (S4UL)	**(3): S2, S4, S5**	7.1	None
benzo(k)fluoranthene	6	0.49-2.80	77 (S4UL)	None	190	None
benzo(a)pyrene	6	1.10-5.60	2.2 (S4UL)	**(1): S2**	5.7	None
indeno(123cd)pyrene	6	0.19-4.80	27 (S4UL)	None	82	None
dibenzo(ah)anthracene	6	0.10-0.77	0.24(S4UL)	**(4): S1. S2. S3. S5**	29	None
benzo(ghi)perylene	6	0.65-4.10	320 (S4UL)	None	640	None
aliphatic C5-C6	6	<1	42 (S4UL)	None	570,000	None
aliphatic C6-C8	6	<1	100 (S4UL)	None	600,000	None
aliphatic C8-C10	6	<1	27 (S4UL)	None	13,000	None
aliphatic C10-C12	6	<1	130 (S4UL)	None	13,000	None
aliphatic C12-C16	6	<1	1100 (S4UL)	None	13,000	None
aliphatic C16-C21	6	<1	5000 (S4UL)	None	250,000	None
aliphatic C21-C35	6	<1-7.9	5000 (S4UL)	None	250,000	None
aromatic C5-C7	6	<1-34	70 (S4UL)	None	56,000	None
aromatic C7-C8	6	<1	130 (S4UL)	None	56,000	None
aromatic C8-C10	6	<1	34 (S4UL)	None	5,000	None
aromatic C10-C12	6	<1	74 (S4UL)	None	5,000	None
aromatic C12-C16	6	<1	140 (S4UL)	None	5,100	None
aromatic C16-C21	6	<1	260 (S4UL)	None	3,800	None
aromatic C21-C35	6	<1	1100 (S4UL)	None	3,800	None
benzene	6	<0.001	0.08 (S4UL)	None	72	None
toluene	6	<0.001	130 (S4UL)	None	56,000	None
ethylbenzene	6	<0.001	47 (S4UL)	None	5,700	None
o-xylene	6	<0.001	60 (S4UL)	None	6,600	None
m-xylene	6	<0.001	56 (S4UL)	None	5,900	None
p-xylene	6	<0.001	56 (S4UL)	None	5,900	None

4.7.3 A single minor elevated arsenic concentration was reported within sample S4 with a concentration of 54 mg/kg compared to the garden criteria of 37 mg/kg, although this was below the POS_{resi} value of 79mg/kg.

4.7.4 Multiple PAH exceedances were also reported for dibenzo(ah)anthracene (4), benzo(b)fluoranthene (3) and benzo(a)pyrene (1) when compared to the garden cover criteria.

4.7.5 Due to the frequency of the reported exceedances, it is considered that this topsoil is unsuitable for reuse as garden soils, however no exceedances were reported when concentrations were compared to the S4UL criteria for public open spaces within a residential setting (POS_{resi}). It is therefore considered that this material is suitable for reuse in areas of soft-landscaping and areas of public open space but must be excluded for private gardens.

4.8 Validation of Formation Soils

4.8.1 Sampling and analysis were carried out to determine the suitability of formation level soils to form part of the 600mm soil cover system. Development levels for the site are yet to be confirmed by the developer; however, in-situ sampling of the formation level will determine whether a reduced 200mm topsoil cover can be placed within garden areas providing the 400mm of natural strata is chemically suitable for retention.

4.8.2 In-situ sampling of subsoils was carried out through the excavation and sampling of the top 400mm of natural subsoil with a total of 74 samples collected. Assuming an approximate area of 92,000m^2, the volume of validated soils is effectively 36,800m^3 and the test rate is equivalent to 1 sample per 497m^2, achieving the specified rate of 1 sample per 500m^3.

4.8.3 Sampled soils generally consisted of a natural or re-worked natural sandy soil with coarse limestone gravel; occasional sandy clay to clay soil was also encountered. Inclusions of brick, tarmac and bituminous gravel were occasionally noted but was generally limited to surface deposits, particularly in the southwest of the site. No inclusions of ash, clinker or slag were observed either during sampling or walkover inspections.

4.8.4 A photographic record confirming the depth and soil profile at each test location is provided within Appendix C and laboratory test certificates (lab ref. 21-0779, 21-11315, 21-14506, 210506-141 & 22-40691) are provided in Appendix D. All sample locations are shown within Drawing D03.

4.8.5 Results are summarised in the table below and are compared to assessment criteria for garden cover soils.

Table 4.9 Analysis of Formation Soils

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
SOM	74	<0.4-5.9	-	None
pH	74	7.9-9.10	-	None
asbestos fibre	74	NAD	<0.001%	None
arsenic	74	5.8-43	37 (S4UL)	**(1): SS43**
cadmium	74	<0.1-0.24	11 (S4UL)	None
chromium	74	3.2-45	910 (S4UL)	None
chromium IV	74	<0.5	6 (S4UL)	None
copper	74	1.4-19	2400 (S4UL)	None
lead	74	1.5-65	200 (C4SL)	None
mercury	74	<0.1	1.2 (S4UL)	None
nickel	74	2.8-39	180 (S4UL)	None
vanadium	74	7.8-76	410 (S4UL)	None
zinc	74	3.9-62	3700 (S4UL)	None
naphthalene	74	<0.01-1.2	2.3 (S4UL)	None
acenaphthylene	74	<0.01-0.98	170 (S4UL)	None
acenaphthene	74	<0.01-2.0	210 (S4UL)	None
fluorene	74	<0.01-1.9	170 (S4UL)	None
phenanthrene	74	<0.02-14.0	95(S4UL)	None
anthracene	74	<0.02-4.7	280 (S4UL)	None
fluoranthene	74	<0.02-36.0	2400 (S4UL)	None
pyrene	74	<0.02-38.0	620 (S4UL)	None
benzo(a)anthracene	74	<0.01-21.0	7.2 (S4UL)	**(5): S53, S55, S56, S62, S63**
chrysene	74	<0.01-24.0	15 (S4UL)	**(2): S53, S63**
benzo(b)fluoranthene	74	<0.02-37.0	2.6 (S4UL)	**(13): SS26, SS28, SS37, S53, S55, S56, S57, S59, S61, S62, S63, S71, S73**
benzo(k)fluoranthene	74	<0.01-14.0	77 (S4UL)	None
benzo(a)pyrene	74	<0.02-32.0	2.2 (S4UL)	**(13): SS26, SS28, SS37, S53, S55, S56, S57, S59, S61, S62, S63, S71, S73**
indeno(123cd)pyrene	74	<0.02-22.0	27 (S4UL)	None
dibenzo(ah)anthracene	74	<0.02-5.7	0.24(S4UL)	**(6): SS26, SS28, SS37, S53, S56, S63**
benzo(ghi)perylene	74	<0.02-21.0	320 (S4UL)	None
aliphatic C5-C6	74	<1	42 (S4UL)	None
aliphatic C6-C8	74	<1	100 (S4UL)	None
aliphatic C8-C10	74	<1	27 (S4UL)	None
aliphatic C10-C12	74	<1-45.0	130 (S4UL)	None
aliphatic C12-C16	74	<0.1-120.0	1,100 (S4UL)	None
aliphatic C16-C21	74	<0.1-75.0	5,000 (S4UL)	None
aliphatic C21-C35	74	<0.1-86.0	5,000 (S4UL)	None
aromatic C5-C7	74	<1	70 (S4UL)	None
aromatic C7-C8	74	<1	130 (S4UL)	None
aromatic C8-C10	74	<1	34 (S4UL)	None
aromatic C10-C12	74	<1	74 (S4UL)	None
aromatic C12-C16	74	<1-6.6	140 (S4UL)	None
aromatic C16-C21	74	<0.1-170	260 (S4UL)	None

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
aromatic C21-C35	74	<0.1-1,200	1,100 (S4UL)	**(1): S54**
benzene	74	<0.001	0.08 (S4UL)	None
toluene	74	<0.001	130 (S4UL)	None
ethylbenzene	74	<0.001	47 (S4UL)	None
o-xylene	74	<0.001	60 (S4UL)	None
m-xylene	74	<0.001	56 (S4UL)	None
p-xylene	74	<0.001	56 (S4UL)	None

4.8.6 Exceedances were limited to a single minor incidence of elevated arsenic in sample PH9-SS43, a minor exceedance for aromatic C21-C35 hydrocarbons in sample Ph9-S54 and multiple minor to significantly elevated PAHs (benzo(a)anthracene, chrysene, benzo(a)pyrene, dibenzo(ah)anthracene and benzo(b)fluoranthene) in up to 13 samples. These are discussed further in the sections below. No asbestos was detected.

Arsenic

4.8.7 A minor arsenic exceedance was reported within 1 of the 74 samples collected with a concentration of 43 mg/kg in sample PH9-SS43 compared to the criteria of 37mg/kg. Given the consistency in the formation soils and the absence of any identified anthropogenic material (excluding occasional brick, tarmac and bituminous gravel), it was determined that a statistical estimate should be carried out on the sample mean with Phase 9 treated as a single averaging area.

Table 4.10 Analysis of Formation Soils

statistic	arsenic (mg/kg)
criterion	37.0
no. of samples	74
arithmetic mean	18.06 (pass)
upper confidence limit (UCL 0.95)	19.79 (pass)

4.8.8 The statistical analysis shows that the arsenic dataset has a UCL (0.95) of 19.79 mg/kg and an arithmetic mean concentration 18.06 mg/kg, significantly below the criterion of 37 mg/kg.

4.8.9 The soil sampled was of natural appearance from an area of the site remote from identified historical contaminative activities and was identical in appearance to other soils around the phase and is therefore likely to be of natural origin (mineralisation). Typically, the bio-accessibility of naturally occurring arsenic associated with ironstones (normally present in the form of arsenopyrite) will be low, and the risk to future residential use is therefore considered also likely to be low. The S4UL for arsenic in residential garden soil where plants may be grown for consumption is 37 mg/kg. The maximum soil concentration recorded was only slightly above this value.

Aromatic C21-35 Hydrocarbons

4.8.10 A single exceedance was reported within 1 of the 74 samples (Ph9-S54) collected for C21-35 aromatic hydrocarbons at 1,200mg/kg, marginally exceeding the adopted screening criteria of 1,100mg/kg. The likely source of the exceedance is the occasional inclusion of tarmac / bituminous gravel within some of the shallow soils in the southwest of the site where this sample was collected from which are likely remnants of former roads / pathways in this area. However, when taking into account the organic matter content of the sample (2.5%), the screening criterion for 2.5% SOM is considered to be more appropriate (1,500mg/kg) which was not exceeded. The minor exceedance reported is therefore not considered to preclude reuse of the formation soils within gardens / landscaping areas in this location.

PAHs

4.8.11 Elevated PAHs were reported within up to 13 samples for either all, or a subset of, the following compounds: benzo(a)anthracene (9.2-21 mg/kg), chrysene (15-24 mg/kg) benzo(a)pyrene (2.4-32.0 mg/kg), dibenzo(ah)anthracene (0.64-5.7 mg/kg) and benzo(b)fluoranthene (2.9-37.0 mg/kg).

4.8.12 PAH ratio analysis has been undertaken to determine the probable source of the elevated PAHs and source identification suggests a coal / coal tar source – a copy of the plot is included within Appendix F. It is most likely that this signature relates to inclusions of broken out tarmac which has mostly been removed from the site although some residues may remain in surface soils within these locations. It is noted that occasional inclusions of tarmac / bituminous gravel were described in the shallow soils in the southwest of the site where some of the exceedances were reported.

4.8.13 In the absence of further mitigation, the elevated PAHs recorded in combination with a coal tar signature present a potential risk to future residents if retained within shallow garden soils. As a result, a clean soil cover system will be required within gardens in these parts of the site.

4.9 Validation of Phase 9 Generated Aggregate

4.9.1 Four stockpiles of aggregate have been generated from recovered hardstanding in the Phase 9 area including 195m^3 recovered from Phase 8. A stockpile of aggregate generated from construction waste from the wider DH development has also been produced (Ph9-DH-Agg). The approximate volume of processed material in each stockpile following completion of the works is as follows:

Table 4.10 Summary of Phase 9 generated aggregate

Stockpile Ref	Approximate Volume (m^3)	No. Asbestos Tests	Sampling Frequency	No. Geotech Tests	Sampling Frequency#
Ph9-AGG-1	1,725	4	1 per 430m^3	1	1 per 1,725m^3
Ph9-AGG-2	8,440	16	1 per 527m^3	3	1 per 2,813m^3
Ph9-AGG-3	2,590	6	1 per 430m^3	4	1 per 648m^3

Stockpile Ref	Approximate Volume (m^3)	No. Asbestos Tests	Sampling Frequency	No. Geotech Tests	Sampling Frequency[#]
Ph9-AGG-4	600	2	1 per 300m^3	1	1 per 600m^3
Ph9-DH-Agg	600	2	1 per 300m^3	1	1 per 600m^3

[#]No frequency for geotechnical testing under approved Strategy. Sampling as instructed by client.

4.9.2 Sampling frequencies for asbestos identification (lab ref. 21-11321, 21-13303, 21-14505, 21-16265, 21-19648 & 22-41389) were undertaken in accordance with the approved Remediation Strategy at a frequency of 1 sample per 500m^3. A sampling frequency of 1 per 527m^3 was achieved for aggregate stockpile Ph9-AGG-2, however this is only considered marginal and not likely to impact the assessment or conclusions made. The requirement or frequency of geotechnical sampling of aggregates was not specified within the Strategy and so testing was completed as per the client's request.

Table 4.11 Asbestos Screening Summary for Phase Generated Aggregate

Stockpile Ref	Lab Ref	Sample	Asbestos Identification	Asbestos Concentration (%)	ACM Identification
Ph9-AGG-1	21-11321	Agg-060421-S1	NAD		
		Agg-060421-S2	NAD		
	21-19648	AGG-SP1-S3	NAD		
		AGG-SP1-S4	NAD		
Ph9-AGG-2	21-13303 & 21-14505	Ph9-Agg2-S1	Yes	0.009	Chrysotile – fibre / clumps
		Ph9-Agg2-S2	Yes	<0.001	Chrysotile – fibre / clumps
		Ph9-Agg2-S3	NAD		
		Ph9-Agg2-S4	Yes	<0.001	Chrysotile – fibre / clumps
		Ph9-Agg2-S5	NAD		
		Ph9-Agg2-S6	NAD		
		Ph9-Agg2-S7	NAD		
		Ph9-Agg2-S8	NAD		
		Ph9-Agg2-S9	Yes	<0.001	Chrysotile – fibre / clumps
		Ph9-Agg2-S10	NAD		
	21-19648	Ph9-Agg2-S11	NAD		
		Ph9-Agg2-S12	NAD		
		Ph9-Agg2-S13	NAD		
		Ph9-Agg2-S14	NAD		
		Ph9-Agg2-S15	NAD		
		Ph9-Agg2-S16	NAD		
Ph9-AGG-3	21-1405 & 21-16265	Ph9-Agg3-S1	NAD		
		Ph9-Agg3-S2	NAD		
		Ph9-Agg3-S3	NAD		
		Ph9-Agg3-S4	NAD		
		Ph9-Agg3-S5	Yes	0.008	Chrysotile – fibre / clumps
		Ph9-Agg3-S6	Yes	<0.001	Chrysotile – fibre / clumps
Ph9-AGG-4	22-41389	Ph9-Agg4-S1	NAD		
		Ph9-Agg4-S1	NAD		
PH9-DH-Agg	22-41389	PH9-DH-Agg-S1	NAD		
		PH9-DH-Agg-S2	NAD		

4.9.3 No asbestos was detected in Ph9-Agg-1, Ph9-AGG-4 or PH9-DH-Agg whilst positive incidences of chrysotile fibre/clumps were reported in 4 out of 10 samples from Ph9-Agg-2 and 2 out of 6 samples from Ph9-Agg-3. Following the positive identifications, quantification analysis was scheduled to determine the mass of asbestos present. Concentrations were generally below detection limits (<0.001%), however two samples, one sample from each stockpile recorded a mass at 0.008% (Ph9-Agg-3) and 0.009% (Ph9-Agg-2). This signified the requirement for further assessment to assess the suitability for use of the aggregate within the development. Even though feedstock materials were inspected by URL for ACM prior to crushing, it is envisaged that the most likely source of the contamination were discrete deposits of ACM within recovered structures.

4.9.4 The ACM present within the aggregate has been confirmed by the laboratory analysis as chrysotile fibres (fibres / clumps). As the asbestos was detected in a loose form and has therefore already degraded from its former matrix, it is considered to be in the state with the highest amount of respirable fibres (CIRIA C733[1]). The influence on soil type can also affect fibre release with granular soils (sands and gravels) resulting in a higher airborne fibre count following disturbance compared to clay soils[1]. As the material is question is aggregate (i.e., gravel), a high proportion for airborne release of fibres can therefore be assumed.

4.9.5 The main receptors considered are adult workers during the movement and placement of aggregate as either general fills or placement as piling mats below permanent structures (plots) and within road boxes. The aggregate within stockpiles Ph9-Agg-2 and Ph9-Agg-3 is not suitable for placement within service corridors where disturbance during maintenance works could occur. The isolation of aggregate under permanent structures, outside service corridors and the top 600mm of garden soils is unlikely to result in exposure to future site occupants or maintenance workers. During the construction phase works, exposure is likely to occur during the disturbance and movement of the impacted aggregate.

4.9.6 Even though the sensitivity of the site is considered to be high (residential), due to the isolation of the material beneath future permanent structures, hardstanding, or at depth as general fill, where required, this will greatly limit the pathway for future exposure. For this assessment to remain valid, and in accordance with the requirement to maintain exposure to asbestos to levels which are as low as reasonably practicable, aggregate from stockpiles Ph9-Agg-2 and Ph9-Agg-3 must be excluded from the upper 600mm of private garden areas or upper 300mm within areas of public open space / landscaping.

4.9.7 It is therefore considered that the site generated aggregate is suitable for its understood, intended purpose, although appropriate control measures in accordance with CAR2012 should be employed during the initial placement of the material within the development to

[1] CIRIA (C733). Asbestos in soil and made ground.

minimise the level of exposure to site workers. Such measures are anticipated to include dust suppression during disturbance / placement works.

5. Conclusions & Recommendations

5.1. Conclusions

5.1.1. Remedial works in accordance with the Remediation Strategy have been completed within the majority of the Phase 9 area as detailed within the URL as-built drawings. It is acknowledged that some peripheral areas along the western boundary and in the south-east (proposed POS), are yet to undergo preparatory works which have largely been constrained due to the presence of stockpiles. It is understood that these areas will be subject to remedial works, verification testing and reporting at a later date.

5.1.2. Further investigation, remediation and assessment has been undertaken within identified potential contamination hotspots (TP102, TP104 and USTs), whilst a previously unexpected asbestos hotspot was also remediated and validated.

5.1.3. Investigation within the area of TP102 confirmed the presence of a black bitumen bound gravel immediately below surface soils possibly associated with the base of a former radio mast. Removal of the black gravel was completed, and verification testing of the stripped surface soils reported to no exceedances to be present.

5.1.4. Investigation of TP104 where Hydrock had previously reported black stained gravel with tar odour was completed through excavation of trenches, however no such material was encountered with only natural soils present. Chemical testing of the soils was carried out with no exceedances reported. The area of TP104 was located adjacent to a road covered in tarmac and it is considered likely that Hydrock's observations may have related to this area.

5.1.5. Three underground storage tanks associated with the former boiler house were uncovered, emptied and removed. Twelve validation samples were collected from the base and sidewalls of the excavations with 2 minor exceedances reported within the base and 1 minor exceedance in the eastern sidewall. A fourth, more significant exceedance was also reported within the eastern sidewall with an aromatic C16-C21 concentration of 32,000 mg/kg. Such a concentration would be indicative of free product; however, no staining or product was observed on the soils during sampling. If any residual heating oil was present, either associated with historical leaks or spills, then due to the low mobility and high viscosity some staining would be present. It was concluded that the elevated concentration is most likely to be associated with residual fragments of tarmac which may have been inadvertently sampled by the machine bucket during collection. A broken-out road which was surfaced with tarmac was located to the immediate east which coincides with the sampling location.

5.1.6. Following removal of surface hardstanding in the northwest, a localised area of ACM was identified on formation soils. Handpicking was undertaken by a specialist sub-contractor, following which samples of surface soils were collected and submitted for asbestos identification to ascertain whether any residual fibres were present. A single incidence of

amosite fibre clumps was reported in sample PH9-ACMHS-S2 and was subject to quantification. A fibre mass of <0.001% v/v was reported which is compliant with the adopted screening level for garden soils.

5.1.7. Two stockpiles of topsoil are present within Phase 9 with approximately 3,700m^3 recovered from the former baseball pitch (which has been reported under separate cover) and 2,700m^3 from verges around the former building on the main Phase 9 site. Topsoil from the baseball pitch reported 1 minor exceedance or arsenic, however statistical analysis confirms this is an outlier, is not representative of the wider soils and that the material is suitable for reuse as garden soils, although this is subject to regulatory approval. Topsoil from the wider Phase 9 area contained multiple PAH exceedances when compared to residential soils criteria, however no exceedances were reported when compared to criteria for a public open space within a residential setting (POS_{resi}). It is concluded that the topsoil from the baseball pitch is suitable for use in residential gardens (subject to regulator approval) and that the topsoil from the remainder of the Phase 9 area should only be used for placement within areas of public open space and soft landscaping.

5.1.8. Formation testing of the top 400mm of site soils has been completed within the remediated area with 74 samples collected. A single minor arsenic exceedance of 43 mg/kg was reported, however, when the total averaging area is taken into account the mean / UCL (0.95) values were substantially below the residential assessment criteria of 37 mg/kg. A single minor exceedance for aromatic C21-35 aromatic hydrocarbons was also reported when compared against the criterion for 1% SOM; however, when compared to the more appropriate criterion for 2.5% SOM (based on the recorded SOM content of the exceeding sample), no exceedance was reported.

5.1.9. Multiple PAH exceedances were reported within 13 of the formation soil samples (SS26, SS28, SS37, S53, S55, S56, S57, S59, S61, S62, S63, S71 & S73) with PAH ratio analysis suggesting a coal / coal tar signature. It was concluded on the basis of the source identification that the most probable source was inclusions of residual tarmac following the breaking out and removal of hardstanding – descriptions of tarmac and bituminous gravel in the shallow soils in the southwest add further evidence to this conclusion. Such exceedances preclude the retention of these soils within the top 600mm of garden areas therefore a recommendation for a 600mm clean soil cover system has been made for the gardens within the affected areas.

5.1.10. Exceedances of residential screening criteria have been detected in the formation soils within 2 samples (S71 & S73) collected from the proposed POS area in the southeast of the site for benzo(a)pyrene (2.4-7.5 mg/kg) and benzo(b)fluoranthene (2.9-9.1 mg/kg). However, given the proposed nature of this area of the site, the S4UL criteria for POS_{park} (1% SOM) is considered more appropriate. This raises the screening criteria for benzo(a)pyrene to 11 mg/kg and benzo(b)fluoranthene to 13 mg/kg, neither of which were exceeded with respect to

these samples. Based on current information it is therefore anticipated that a cover system will not be required in the POS area, however it is also acknowledged that further remediation and formation sampling is required in the southeast corner of the site. Any topsoil used as dressing in this area must also be demonstrably suitable for use.

5.1.11. Five stockpiles (SP1, SP2, SP3, SP4 & DH-agg) of aggregate have been produced with a total approximate volume of 13,956m^3 and testing was undertaken for asbestos identification at a frequency of approximately 1 per 500m^3. No asbestos was detected in SP1, SP4 or DH-agg, however low-level fibres were reported within SP2 (non-detect to 0.009%) and SP3 (non-detect to 0.008%). Aggregate from SP2 and SP3 should not be used as backfill within service corridors but is considered suitable for use below permanent structures (plots, drives, roads etc.) where future disturbance is highly unlikely. Appropriate mitigation measures should be deployed during the movement of the aggregate to reduce the likelihood of residual fibre mobilisation and to maintain exposure to asbestos to levels which are as low as reasonably practicable.

5.1.12. A risk assessment with regards to water pipelines may be required by the utility provider. This should be undertaken utilising the information provided within this report and supplemented as appropriate by other reporting pertaining to the site.

5.1.13. No specific testing has been undertaken for potentially aggressive conditions to concrete. Reference should be made to the preceding site investigation reports.

5.2. Recommendations

5.2.1. To secure completion of remediation in Phase 9 in accordance with the Remediation Strategy and the recommendations made within this report (subject to Local Authority Approval), the developer is required to complete the following actions:

- A 600mm clean soil cover system is required in the gardens of Plots 630-640, 664-666, 668-673, 677-684, 691-694, 769-770 & 781-784 (according to proposed development layout drawing 0521-PH9-102) with depth verification to confirm the depth of placed soils at a frequency of 1 depth test per 3 plots;
- Placement of clean topsoil to a nominal depth of 150-200mm within all remaining gardens / POS / landscaped areas;
- Site-won materials to be used as clean soil cover within gardens / POS / landscaped areas must be suitable for use and validated to comply with contamination targets set out in Table 3.3 of the Remediation Strategy with sampling to be carried out at a rate of 1 sample per 500m^3, either in stockpile or in-situ in after placement as garden / landscaping soils;
- Imported soils used for cover purposes are to comply with contamination targets set out in Table 3.3 of the Remediation Strategy with sampling to be carried out at a rate

of 1 sample per 250m^3 (minimum 3 samples per single source), either in stockpile or in-situ in after placement as garden / landscaping soils;

- Reuse of site-won (Phase 9 - main area) topsoil within POS / landscaped areas only. Topsoil recovered from baseball pitch suitable for use in gardens;
- Completion of preparatory works including formation testing within outstanding areas as per Drawing D04.

5.2.2. With the adoption of the above normal practices for Brownfield development, and on the information available to it, SGP concludes that the preparatory remedial works have been completed in accordance with the agreed strategy. In the event that any previously undisclosed contamination or suspect materials are identified then this should be assessed by an appropriately qualified and experienced person.

5.3. Limitations

5.3.1. SGP reserves the right to alter any of the foregoing information in the event of new information being disclosed or provided and in the light of changes to legislation, guidelines and responses by the statutory and regulatory authorities.

5.3.2. This report has been prepared by Smith Grant LLP, for the sole and exclusive use of Urban Regen Ltd. and Dorchester Living, and the benefit of this report may not be assigned to any third party without the prior agreement in writing of Smith Grant LLP.

5.3.3. Reasonable skill, care and diligence have been exercised within the timescale and budget available, and in accordance with the technical requirements of the brief. Notwithstanding the efforts made by the professional team in undertaking the assessment and preparing this report, it is possible that other ground conditions and contamination as yet undetected may exist. Reliance on the findings of this report must therefore be limited accordingly. Such reliance must be based on the whole report and not on extracts which may lead to incomplete or incorrect conclusions when taken out of context. This report reviews and relies upon site investigations largely conducted by others. If errors or omissions in previous work have been noted then these have been duly noted, however SGP accepts no responsibility for advice given on the basis of incorrect factual information provided to it.

DRAWINGS

Phase 9 Boundary

Extent of URL PH9 Remedial Works Reported within R1742-R23-v3

Ph9 Baseball Pitch Completed - Reported in R1742b-R22

Remedial Works Outstanding - To be completed at a later date

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Project: Heyford Park: Phase 9	
Drawing: Phase 9 Boundary Plan	
Drawn: SM	Checked: DW
Date: 23.11.22	Scale: 1:2,500 @ A3
Job No: R1742b	Drg No: R23-D01-v2

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Project:
Heyford Park: Phase 9

Drawing:
Phase 9 Hotspot Investigations

Drawn:	Checked:
SM	DW
Date: 23.11.22	Scale: 1:2,500 @ A3
Job No: R1742b	Drg No: R23-D02-v2

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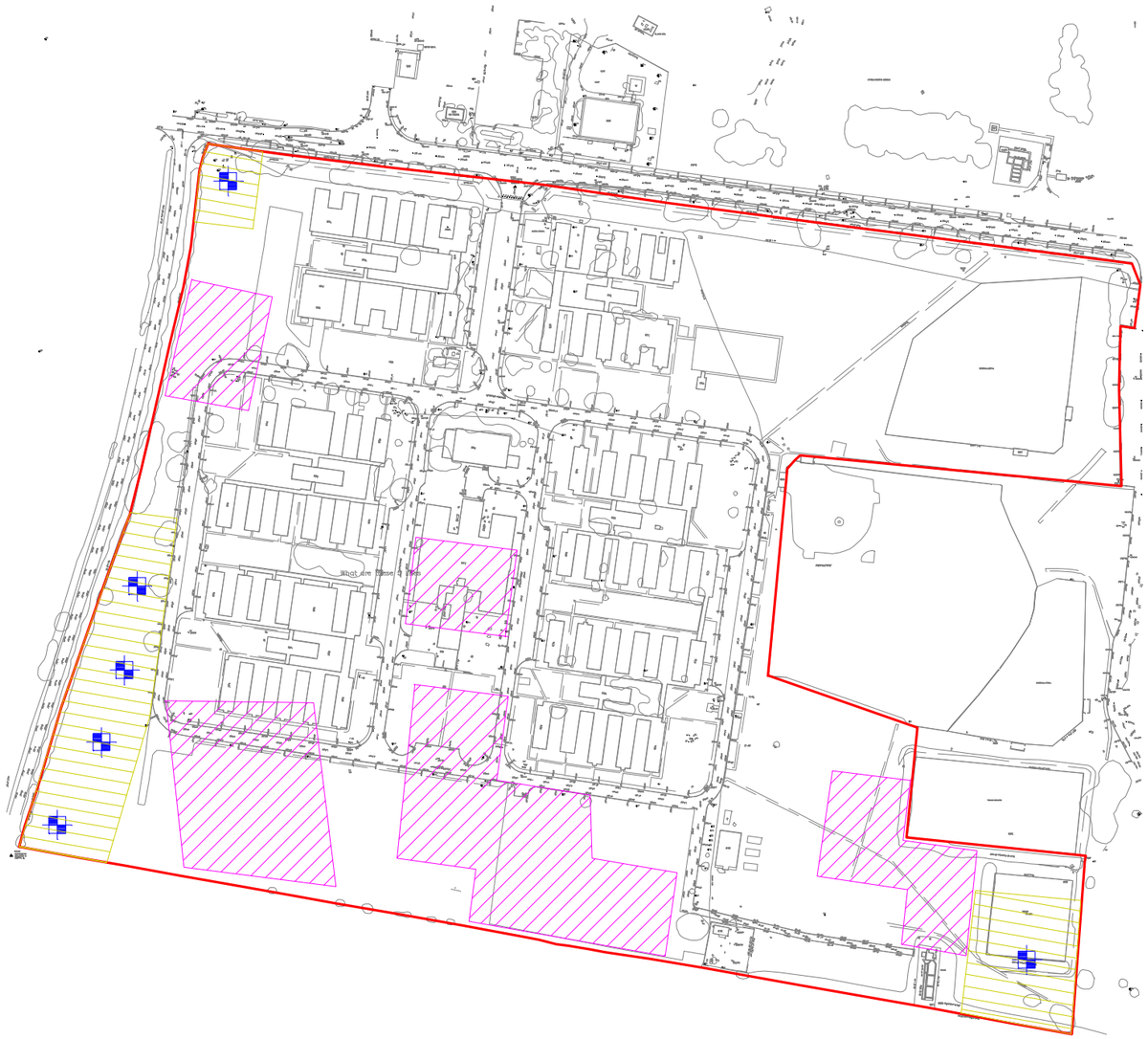
Project:
Heyford Park: Phase 9

Drawing:
Formation Sampling Locations

Drawn:	Checked:
SM	DW
Date: 23.11.22	Scale: 1:2,500 @ A3
Job No: R1742b	Drg No: R23-D03-v2



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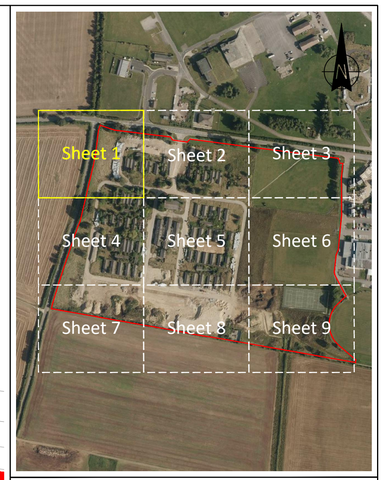
Project:
Heyford Park: Phase 9

Drawing:
Outstanding Remedial Works

Drawn: SM	Checked: DW
Date: 23.11.22	Scale: 1:2,500 @ A3
Job No: R1742b	Drg No: R23-D04-v2



Sheet Plan Scale 1:5000

Notes:

- Site boundary
- Approximate extent of remediation works
- Contour (0.1m interval)
- Spot level ×120.12
- Bottom / top of bank
- Building footprints (see note 2)
- In ground excavations (see note 3)
- Tank excavation (see note 4)
- Contamination excavation (see notes 6, 7, and 8)
- Contamination unremediated (see note 9)
- POL pipeline as surveyed by Vertase (approximate position only)
- Developer compound area (see note 10)

Notes

1. This plan is to be read in conjuction with the associated SGP validation report.
2. Made ground associated with the removal of the historic building foundations extends to approximately 0.5-1.5m below remediated ground levels.
3. Made ground associated with the removal of building service trenches, deep foundations and EWS's extends to approximately 1.5-2.5m below remediated ground levels.
4. Made ground associated with the removal of in-ground tanks extends to approximately 4m below remediated ground levels.
5. Localised areas of made ground associated with the remediation works may be present but which are not detailed on this plan.
6. The extent of the contamination excavation is approximate only.
7. In-ground contamination excavations extend to 2-3m below remediated ground levels.
8. Fill materials used to make up any bulk deficit due to contamination excavation was provided by the Client
9. Contamination unremediated due to restrictions (and extending beyond the site boundary).
10. A layer of crush approximately 300mm thick was established on top of remediated levels to establish the developer compound.

Survey Information:

Co-ord System:	Co-ord Type:	Primary Survey Control:	Secondary Survey Control:
OSGB36(15)	Grid	Leica SmartNet	Site

Rev	Date	Amendment	Drawn	Checked
A	24/04/23	As built levels/contours updated post stockpile removal.	D.J.W	B.C

Urban Regen
ESTABLISHED 2001

Client:
Dorchester Homes

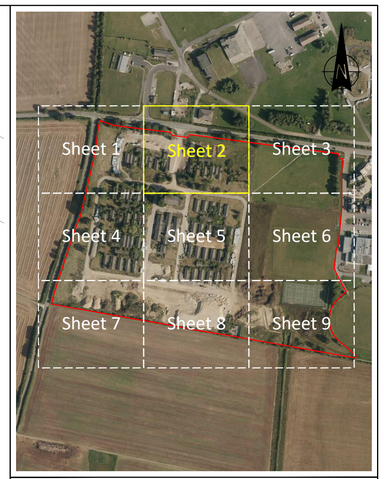
Project:
Upper Heyford (Phase 9)

Title:
As built topographic survey and constraints (Sheet 1 of 9)

Scale:	First Issue:	Drawn:	Checked:
1:250 @A1	23rd Jul 2021	D.J.Woodrow	B.Carter

Drawing No: 351-20-001-01

Revision: A



Sheet Plan Scale 1:5000

Notes:

- Site boundary
- Approximate extent of remediation works
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- Building footprints (see note 2)
- In ground excavations (see note 3)
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- POL pipeline as surveyed by Vertase (approximate position only)
- Developer compound area (see note 10)

Notes

1. This plan is to be read in conjuction with the associated SGP validation report.
2. Made ground associated with the removal of the historic building foundations extends to approximately 0.5-1.5m below remediated ground levels.
3. Made ground associated with the removal of building service trenches, deep foundations and EWS's extends to approximately 1.5-2.5m below remediated ground levels.
4. Made ground associated with the removal of in-ground tanks extends to approximately 4m below remediated ground levels.
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7. In-ground contamination excavations extend to 2-3m below remediated ground levels.
8. Fill materials used to make up any bulk deficit due to contamination excavation was provided by the Client
9. Contamination unremediated due to restrictions (and extending beyond the site boundary).
10. A layer of crush approximately 300mm thick was established on top of remediated levels to establish the developer compound.

Survey Information:

Co-ord System:	Co-ord Type:	Primary Survey Control:	Secondary Survey Control:
OSGB36(15)	Grid	Leica SmartNet	Site

Rev	Date	Amendment	Drawn	Checked
B	24/04/23	As built and constraints information updated.	D.J.W	B.C
A	23/07/21	As built and constraints information updated.	D.J.W	B.C

Urban Regen
ESTABLISHED 2001

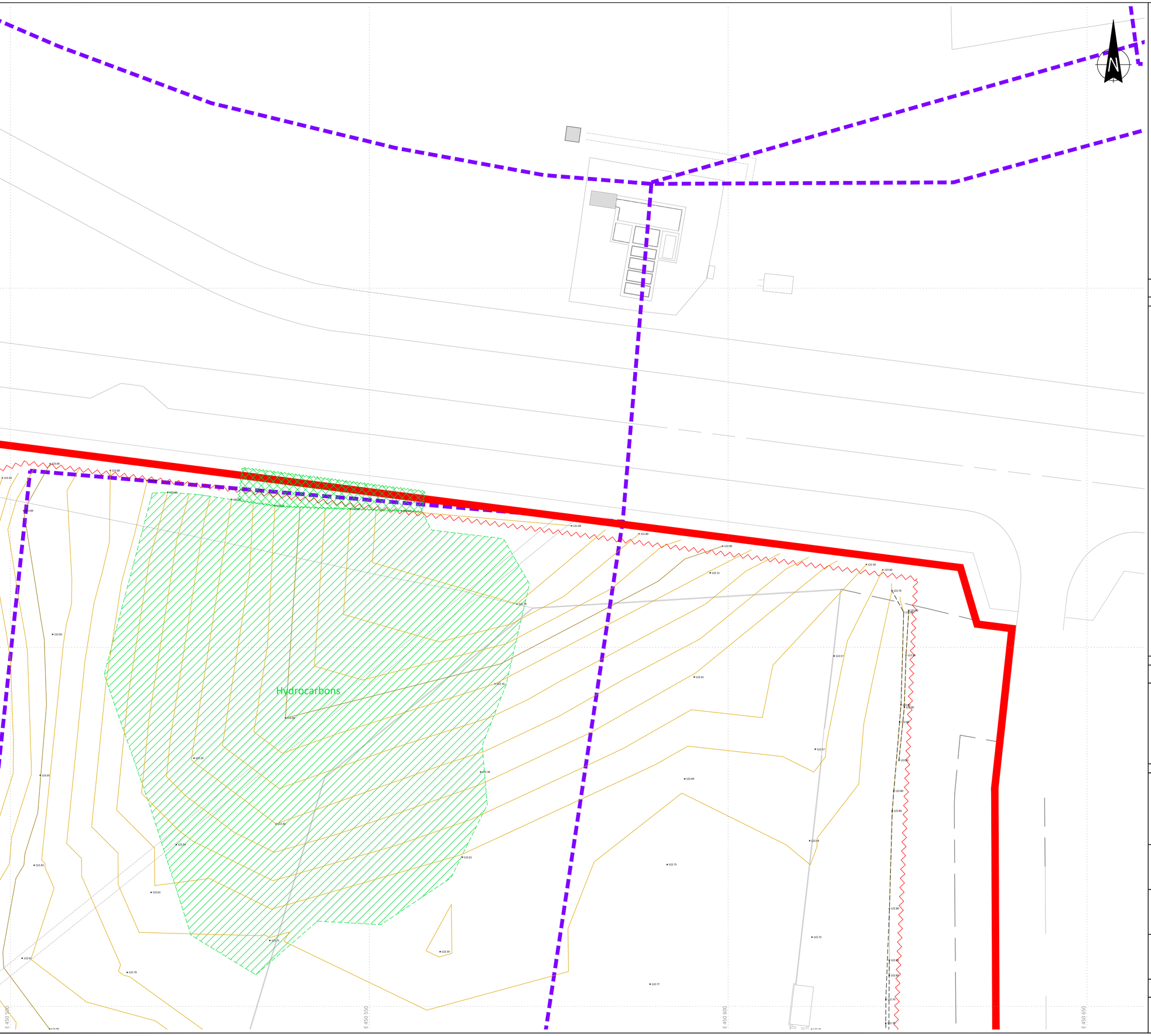
Client: Dorchester Homes

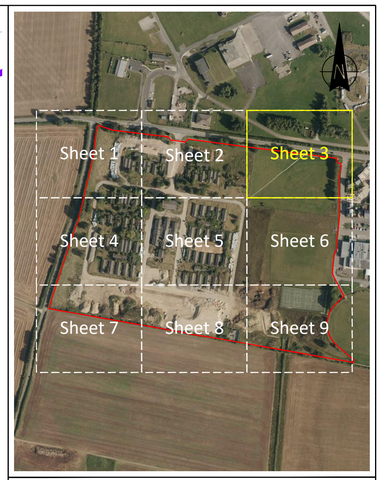
Project: Upper Heyford (Phase 9)

Title: As built topographic survey and constraints (Sheet 2 of 9)

Scale:	First Issue:	Drawn:	Checked:
1:250 @A1	1st Mar 2021	D.J.Woodrow	B.Carter

Drawing No: 351-20-001-02 Revision: B





Sheet Plan Scale 1:5000

Notes:

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- Spot level ×120.12
- Bottom / top of bank
- Building footprints (see note 2)
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Survey Information:

Co-ord System:	Co-ord Type:	Primary Survey Control:	Secondary Survey Control:
OSGB36(15)	Grid	Leica SmartNet	Site

Rev	Date	Amendment	Drawn	Checked
B	24/04/23	As built levels/contours updated post stockpile removal.	D.J.W	B.C
A	23/07/21	As built and constraints information updated.	D.J.W	B.C

Urban Regen
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Client:
Dorchester Homes

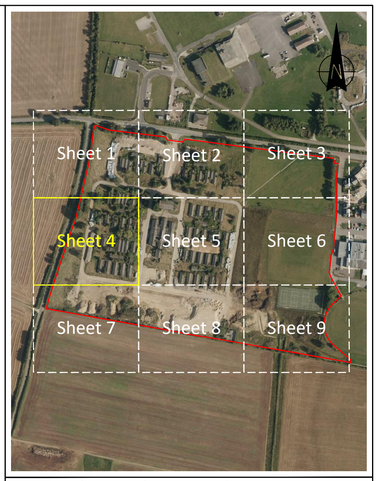
Project:
Upper Heyford (Phase 9)

Title:
As built topographic survey and constraints (Sheet 3 of 9)

Scale:	First Issue:	Drawn:	Checked:
1:250 @A1	1st Mar 2021	D.J.Woodrow	B.Carter

Drawing No: 351-20-001-03

Revision: B



Sheet Plan Scale 1:5000

Notes:

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Survey Information:

Co-ord System:	Co-ord Type:	Primary Survey Control:	Secondary Survey Control:
OSGB36(15)	Grid	Leica SmartNet	Site

Rev	Date	Amendment	Drawn	Checked
A	24/04/23	As built levels and contours updated post stockpile removal.	D.J.W	B.C

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Client: Dorchester Homes

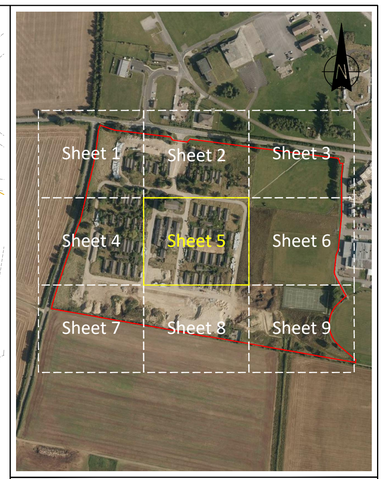
Project: Upper Heyford (Phase 9)

Title: As built topographic survey and constraints (Sheet 4 of 9)

Scale:	First Issue:	Drawn:	Checked:
1:250 @A1	23rd Jul 2021	D.J.Woodrow	B.Carter

Drawing No: 351-20-001-04

Revision: A



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Notes:

- Site boundary
- Approximate extent of remediation works
- Contour (0.1m interval)
- Spot level ×120.12
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Survey Information:

Co-ord System:	Co-ord Type:	Primary Survey Control:	Secondary Survey Control:
OSGB36(15)	Grid	Leica SmartNet	Site

Rev	Date	Amendment	Drawn	Checked
A	24/04/23	As built levels/contours updated post stockpile removal.	D.J.W	B.C

Urban Regen
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Client: Dorchester Homes

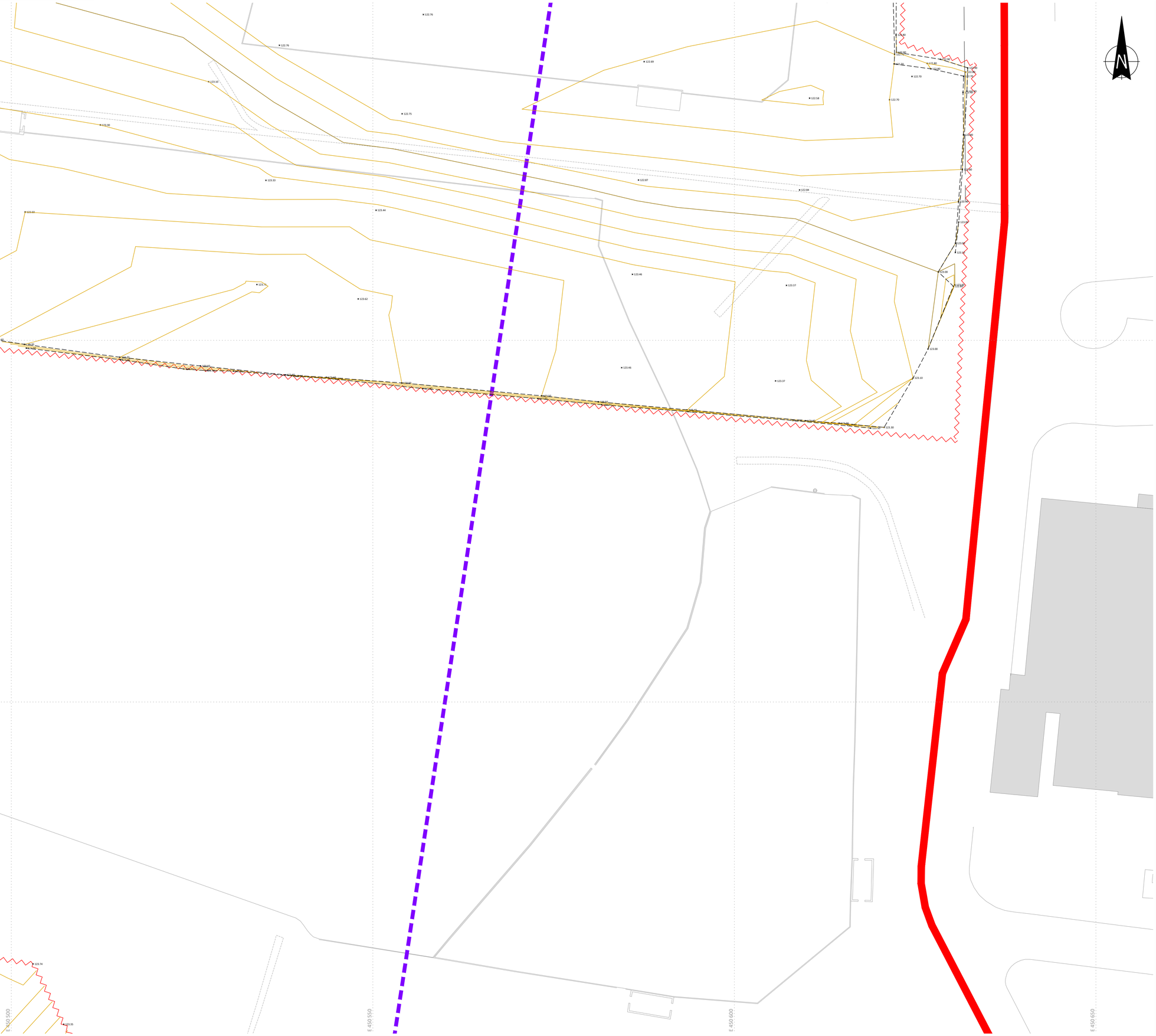
Project: Upper Heyford (Phase 9)

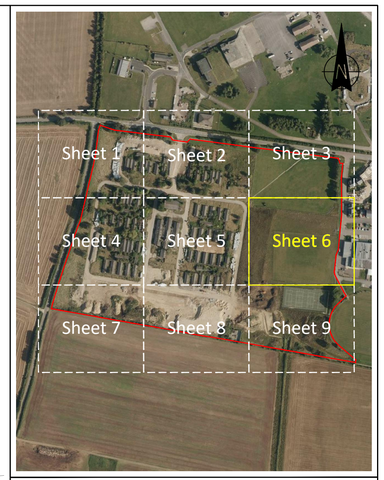
Title: As built topographic survey and constraints (Sheet 5 of 9)

Scale:	First Issue:	Drawn:	Checked:
1:250 @A1	23d Jul 2021	D.J.Woodrow	B.Carter

Drawing No: 351-20-001-05

Revision: A





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Notes:

Site boundary	
Approximate extent of remediation works	
Contour (0.1m interval)	
Spot level	×120.12
Bottom / top of bank	
Building footprints (see note 2)	
In ground excavations (see note 3)	
Tank excavation (see note 4)	
Contamination excavation (see notes 6, 7, and 8)	
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POL pipeline as surveyed by Vertase (approximate position only)	
Developer compound area (see note 10)	

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OSGB36(15)	Grid	Leica SmartNet	Site

Rev	Date	Amendment	Drawn	Checked
B	24/04/23	As built levels/contours updated post stockpile removal.	D.J.W	B.C
A	23/07/21	As built and constraints information updated.	D.J.W	B.C

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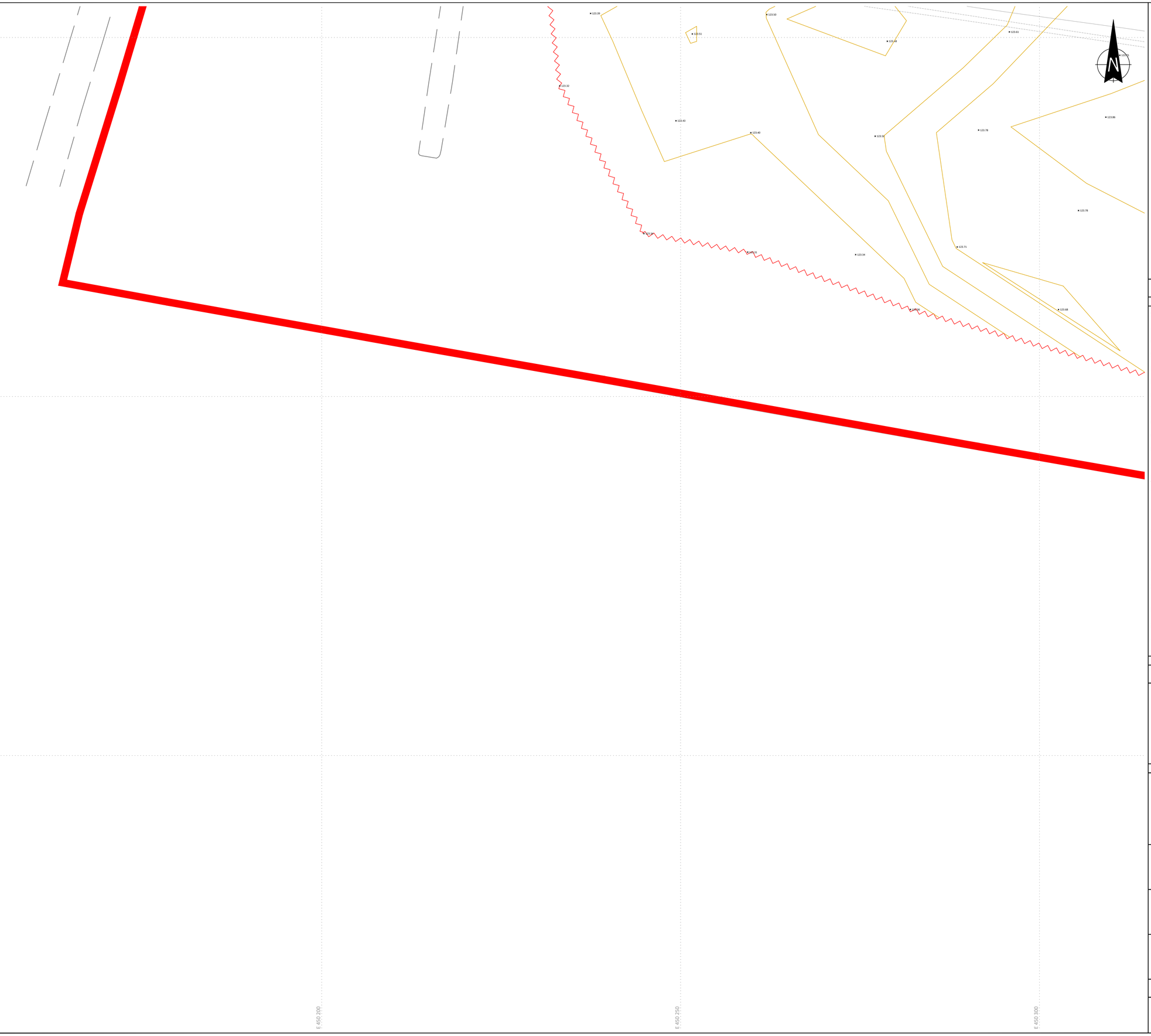
Client:
Dorchester Homes

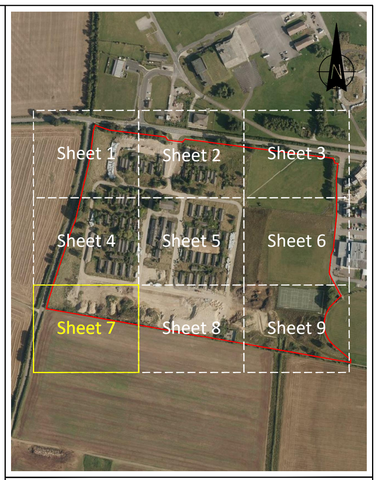
Project:
Upper Heyford (Phase 9)

Title:
As built topographic survey and constraints (Sheet 6 of 9)

Scale:	First Issue:	Drawn:	Checked:
1:250 @A1	1st Mar 2021	D.J.Woodrow	B.Carter

Drawing No:	Revision:
351-20-001-06	B





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Notes:

Site boundary	
Approximate extent of remediation works	
Contour (0.1m interval)	
Spot level	×120.12
Bottom / top of bank	
Building footprints (see note 2)	
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OSGB36(15)	Grid	Leica SmartNet	Site

Rev	Date	Amendment	Drawn	Checked
A	24/04/23	As built levels/contours updated post stockpile removal.	D.J.W	B.C

Urban Regen
ESTABLISHED 2001

Client:
Dorchester Homes

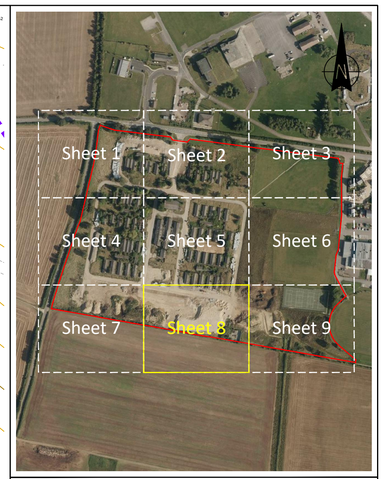
Project:
Upper Heyford (Phase 9)

Title:
As built topographic survey and constraints (Sheet 7 of 9)

Scale:	First Issue:	Drawn:	Checked:
1:250 @A1	23rd Jul 2021	D.J.Woodrow	B.Carter

Drawing No: 351-20-001-07

Revision: A



Sheet Plan Scale 1:5000

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OSGB36(15)	Grid	Leica SmartNet	Site

Rev	Date	Amendment	Drawn	Checked
A	24/04/23	As built levels/contours updated post stockpile removal.	D.J.W	B.C

Urban Regen
ESTABLISHED 2001

Client:
Dorchester Homes

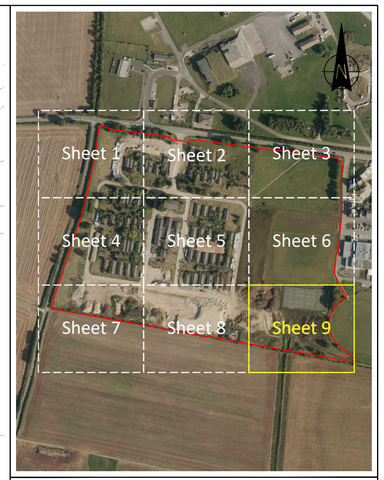
Project:
Upper Heyford (Phase 9)

Title:
As built topographic survey and constraints (Sheet 8 of 9)

Scale:	First Issue:	Drawn:	Checked:
1:250 @A1	23rd Jul 2021	D.J.Woodrow	B.Carter

Drawing No: 351-20-001-08

Revision: A



Sheet Plan Scale 1:5000

Notes:

Site boundary	
Approximate extent of remediation works	
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OSGB36(15)	Grid	Leica SmartNet	Site

Rev	Date	Amendment	Drawn	Checked
A	24/04/23	As built levels/contours updated post stockpile removal.	D.J.W	B.C

Urban Regen
ESTABLISHED 2001

Client:
Dorchester Homes

Project:
Upper Heyford (Phase 9)

Title:
As built topographic survey and constraints (Sheet 9 of 9)

Scale:	First Issue:	Drawn:	Checked:
1:250 @A1	23rd Jul 2021	D.J.Woodrow	B.Carter

Drawing No:	Revision:
351-20-001-09	A

APPENDIX A

Site Photographs

1.

22.05.18 – Eastern view across north of site. Derelict buildings lined across site associated with former school classrooms.

2.

22.05.18 – Building's present across centre of the site

3.

22.05.18 – Former boiler house in the centre of the site (chimney) with USTs

4.

22.05.18 – boilers within boiler house

5.

22.05.18 – Northwestern view across site

6.

22.05.18 – Eastern view across the southern half of the site

7.

22.05.18 – Temporary stockpile storage area in the south. Development arisings generated from wider Heyford development

8.

20.01.21 - Recovery of vegetation from northeast

9.

20.01.21 - Recovery and recycling of demolition materials

10.

20.01.21 - Asbestos strip in northern buildings

11.

02.02.21 – Building demolition in north

12.

02.02.21 – Recovery of metal and wood wastes following building demolition for recycling

13.

02.02.21 – Building demolition and hardstanding removal

14.

08.02.21 – Easternmost line of building demolished and hardstanding removal prior to surface level regrade

15.

08.02.21 – Western view across site from eastern boundary

16.

08.02.21 – Regrading to east of boiler house

17.

16.02.21 – Building demolition in south

18.

16.02.21 – Turf recovery of verge area around boiler house

19.

16.02.21 – Breaking out of walls around former substation

20.

16.02.21 – ACM strip from boiler house

21.

16.02.21 – Eastern view across site within area of recent building demolition

22.

16.02.21 – Stockpile of recovered hardstanding prior to processing

23.

02.03.21 – Formation soils ready for sampling in northeast of site

24.

02.03.21 – ACM strip of boiler house complete, internal strip of boilers on-going

.

25.

02.03.21 – Boiler house

26.

02.03.21 – Demolition of buildings in north/centre of site following ACM strip

27.

02.03.21 – Northern view of site from southern end. Buildings awaiting ACM strip

28.

02.03.21 – Recovery of metal waste in to recycling skip in the southeast

29.

09.03.21 – Eastern view following regrade completion

30.

09.03.21 – Breaking out of hardstanding (slab) below demolished building footprint

31.

09.03.21 – Western view across the southern half of the site

32.

09.03.21 – Building demolition complete in the northern part of the site, recovery of hardstanding for processing

33.

09.03.21 – Eastern part of the site trimmed awaiting formation testing

34.

09.03.21 – Stockpile of recovered hardstanding awaiting processing to generate aggregate

35.

09.03.21 – Building demolition

36.

09.03.21 – Exposure of USTs following demolition of boiler house

37.

06.04.21 – Western part of site demolition complete, hardstanding removed, and site regraded ahead of formation sampling

38.

06.04.21 – Crushing site-won hardstanding commencing

39.

06.04.21 – Formation of site-generated aggregate stockpile (Agg-SP1) in the south

40.

06.04.21 – North-western view across the site following building demolition and regrade

41.

06.04.21 – Recovery of demolition waste materials in the north

42.

06.04.21 – Temporary stockpiles of wastes (metal, wood and masonry) prior to recovery

43.

20.04.21 – Stockpile of site-generated aggregate (Agg-SP2)

44.

20.04.21 – Northern view across site

45.

20.04.21 – Aggregate processing on-going

46.

20.04.21 – Dust suppression taking place during dry conditions

47.

20.04.21 – Eastern view across the north of the site following building demolition and hardstanding removal but prior to regrade

48.

20.04.21 – Eastern view across the north of the site

49.

20.04.21 – Handpicking of ACM fragments within localised area in the north (HS-ACM) by specialist sub-contractor

50.

28.04.21 – Northern view along the western end of the site

51.

28.04.21 - Northern view across centre of site

52.

28.04.21 – Eastern view of southern end of site with site-generated aggregate stockpiles present

53.

28.04.21 – Stockpiles of arisings generated from wider Heyford development temporarily stored in the south

54.

13.05.21 – Northern view following completion of works

55.

13.05.21 – North-eastern view following completion of works

56.

13.05.21 – Eastern view

57.

13.05.21 -South-eastern view. Temporary stockpile of contaminated soils from Phase 9 baseball pitch remains within quarantine area

58.

13.05.21 – Stockpiles of site-generated aggregate present in the south

59.

25.10.22 – Stockpiles of site-generated aggregate present along western boundary: Ph9-Agg-4 (left) & Ph9-DH-Agg (right).

NO PHOTOGRAPH

APPENDIX B

Hotspot Photographic Record

Job Number: R1742b (Heyford Park – Phase 9)	**Date:** 28.04.21	**Hotspot Location:** ACM-HS	**Compiled By:** DW
Lab Ref: 21-14505		**Samples:** Ph9-ACMHS-S1 to S8	

 28.04.21 – Excavation to 0.6m bgl and collection of sample (S1) following completion of hand-picking. No visible ACM observed	 28.04.21 - Excavation to 0.6m bgl and collection of sample (S2) following completion of hand-picking. No visible ACM observed	 28.04.21 - Excavation to 0.6m bgl and collection of sample (S3) following completion of hand-picking. No visible ACM observed
 28.04.21 - Excavation to 0.6m bgl and collection of sample (S4) following completion of hand-picking. No visible ACM observed	 28.04.21 - Excavation to 0.6m bgl and collection of sample (S5) following completion of hand-picking. No visible ACM observed	 28.04.21 - Excavation to 0.6m bgl and collection of sample (S6) following completion of hand-picking. No visible ACM observed

Job Number: R1742b (Heyford Park – Phase 9)	**Date:** 28.04.21	**Hotspot Location:** HS-TP102	**Compiled By:** DW
Lab Ref: 21-14505		**Samples:** HS-TP102-HS1 (contam); HS-TP102-SS1 to SS6 (stripped surface)	

28.04.21 – Excavation of trench 1 within Hydrock hotspot area TP102.

28.04.21 – Black gravel present below surface cover of reworked natural (0-0.2m) and underlain by natural limestone gravel

28.04.21 – Black gravel within approximate area of former aerial mast, possible former base

28.04.21 – Trench 2 excavated adjacent to access road into site, no black gravel encountered

28.04.21 – Natural strata of limestone gravel in clays soil (weathered bedrock) within trench confirming limited extend of area impacted by black gravel

28.04.21 – URL removal of black stained gravel

Job Number: R1742b (Heyford Park – Phase 9)	**Date:** 17.02.21	**Hotspot Location:** HS-TP104	**Compiled By:** DW
Lab Ref: 21-2316		**Samples:** HS-TP104-S1 to -S3	

17.02.21 – Location of Hydrock hotspot located by GPS

17.02.21 – Excavation of trench to 0.8m due to presence of possible drain and water pipe

17.02.21 – Arisings side cast and consisted of coarse limestone gravel in brown clay (weathered bedrock). No visual or olfactory evidence of contamination, PID <0.1ppm.

17.02.21 – Excavation of second trench to 1.1m bgl

17.02.21 – Natural soils encountered from the surface to the base, consisting of limestone gravel in clay soil

17.02.21 – Inspection of arisings and collection of validation samples. No visual or olfactory evidence of contamination, PID <0.1ppm.

Job Number: R1742b (Heyford Park – Phase 9)	**Date:** 28.04.21	**Hotspot Location:** USTs	**Compiled By:** DW
Lab Ref: 21-14505		**Samples:** Ph9-UST-SS1 to SS12	

09.03.21 – Exposure of tank locations following demolition of boiler house

09.03.21 – Tank surface exposed confirming 3 tanks present. Removal of cover confirms water filled with some floating oil product

28.04.21 – Excavation void following removal of tanks. Natural soils present on all sides. No evidence of staining on sidewalls or base

28.04.21 – Base of excavation at approximately 2.8m bgl. Limestone gravel present to 2.3m bgl with limestone bedrock to base

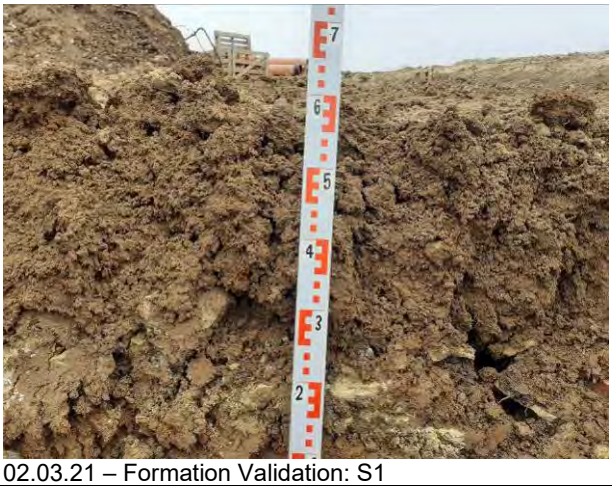
28.04.21 – No visual or olfactory evidence of contamination with PID <0.1ppm in all instances

28.04.21 – Sidewalls and base absent from staining or indicators of fuel contamination

APPENDIX C

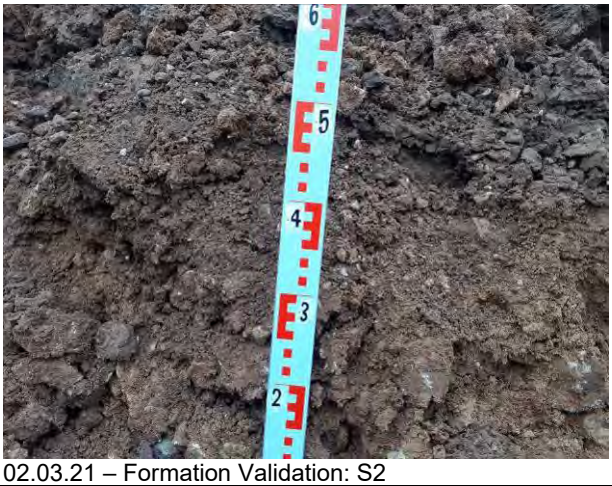
Formation Validation Photographic Record

1.



02.03.21 – Formation Validation: S1

2.



02.03.21 – Formation Validation: S2

3.

02.03.21 – Formation Validation: S3

4.

02.03.21 – Formation Validation: S4

5.

02.03.21 – Formation Validation: S5

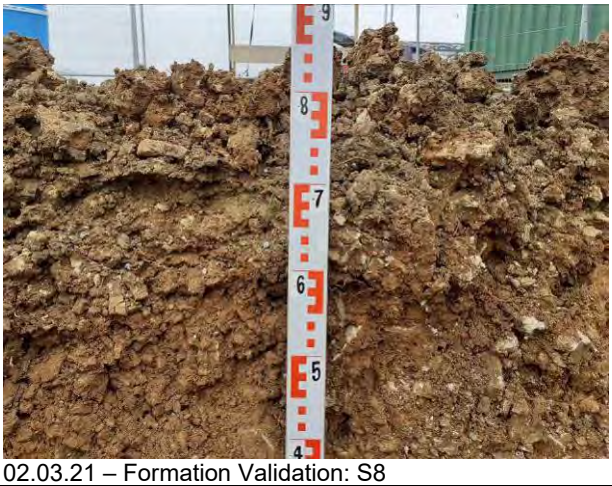
6.

02.03.21 – Formation Validation: S6

7.

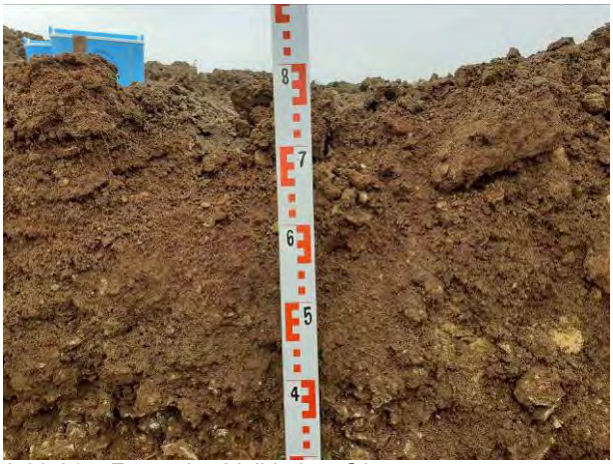
02.03.21 – Formation Validation: S7

8.



02.03.21 – Formation Validation: S8

9.

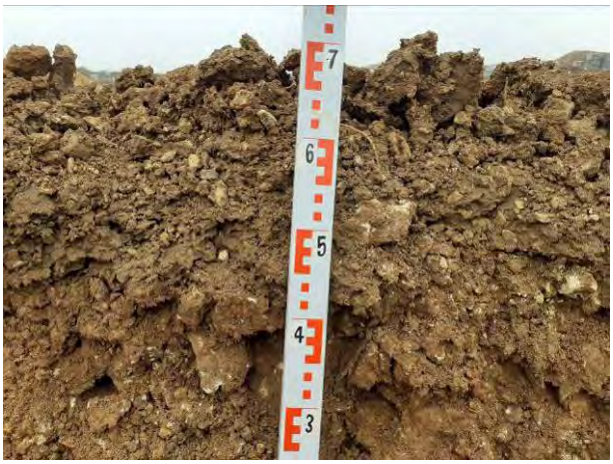


02.03.21 – Formation Validation: S9

10.

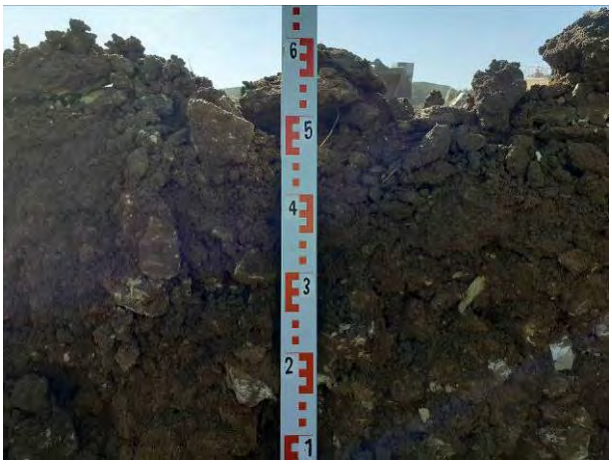
02.03.21 – Formation Validation: S10

11.



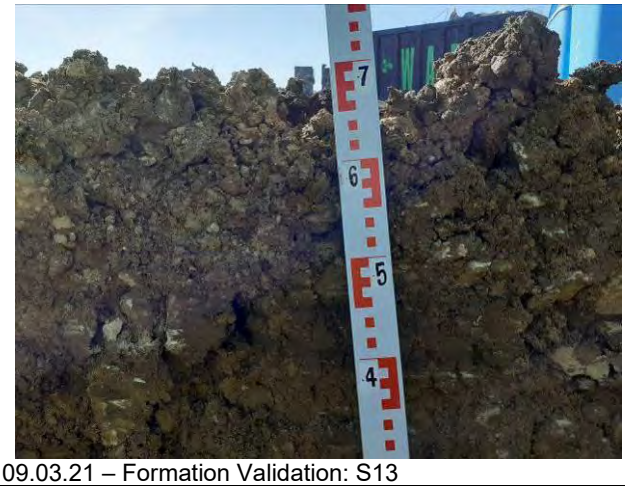
02.03.21 – Formation Validation: S11

12.



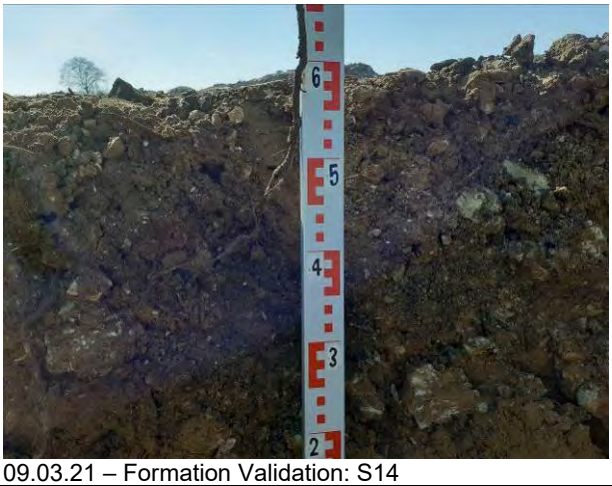
09.03.21 – Formation Validation: S12

13.



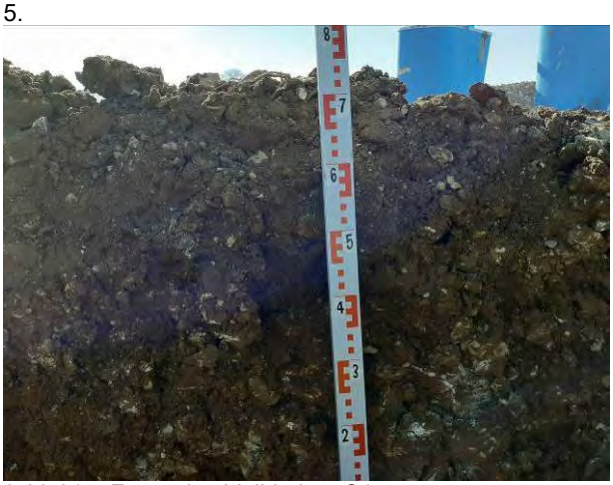
09.03.21 – Formation Validation: S13

14.



09.03.21 – Formation Validation: S14

15.



09.03.21 – Formation Validation: S15

16.

09.03.21 – Formation Validation: S16

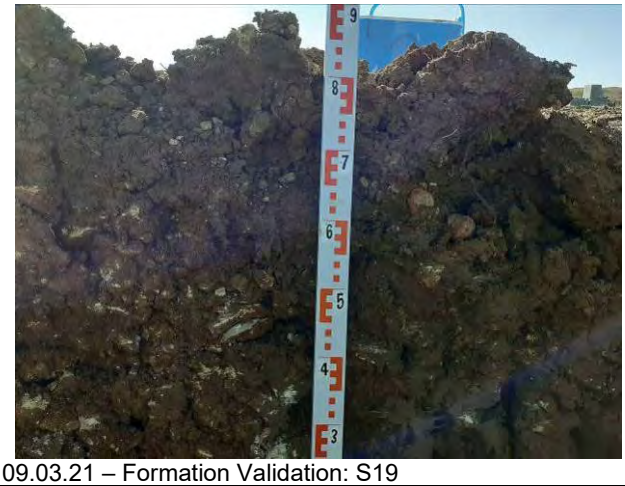
17.

09.03.21 – Formation Validation: S17

18.

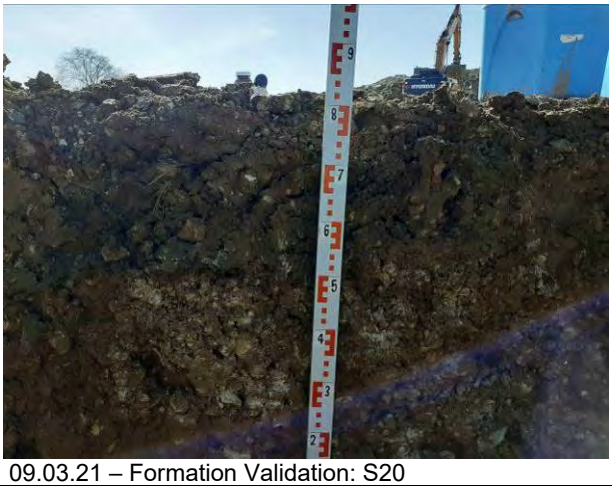
09.03.21 – Formation Validation: S18

19.



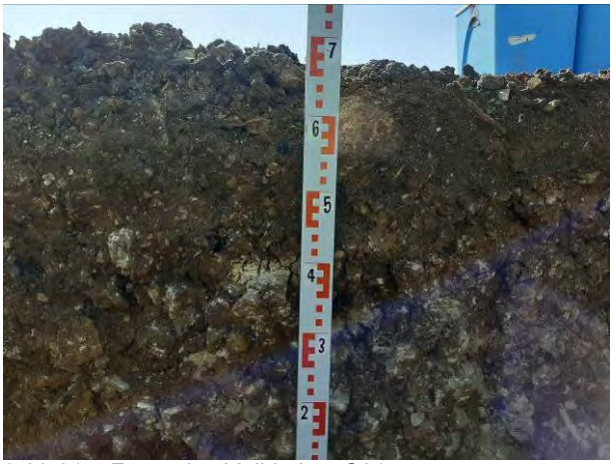
09.03.21 – Formation Validation: S19

20.



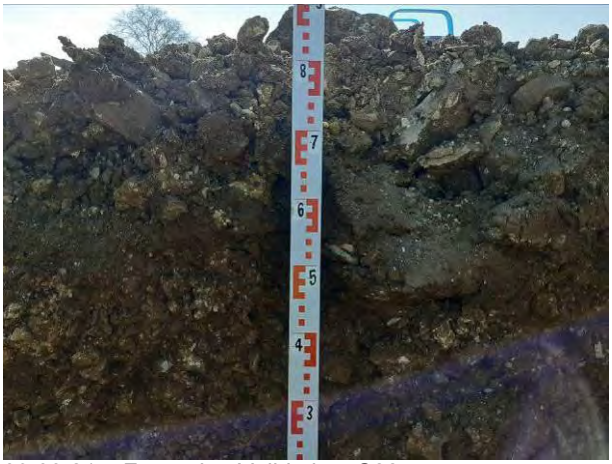
09.03.21 – Formation Validation: S20

21.



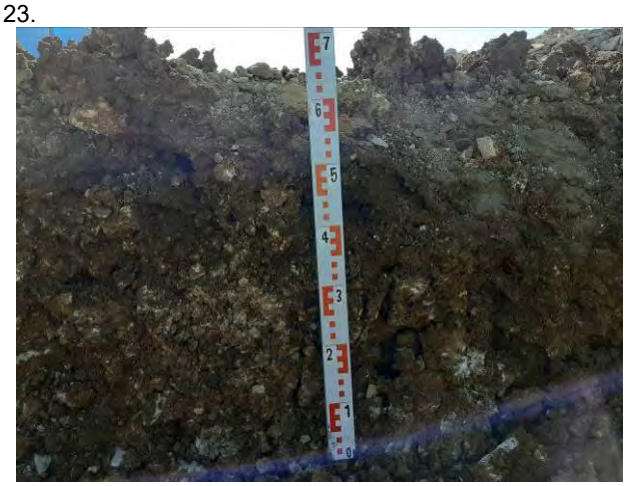
09.03.21 – Formation Validation: S21

22.



09.03.21 – Formation Validation: S22

23.



09.03.21 – Formation Validation: S23

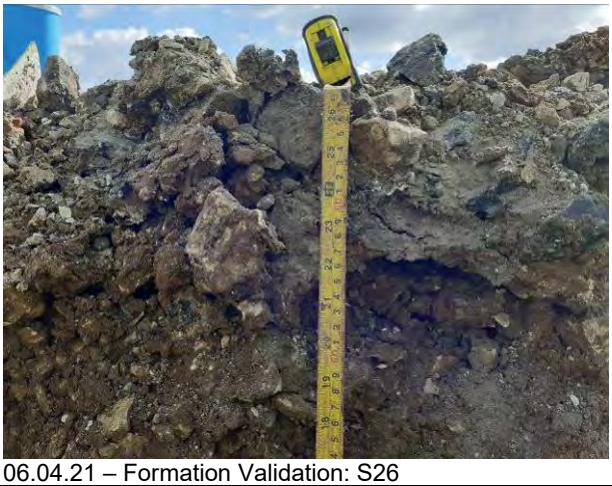
24.

06.04.21 – Formation Validation: S24

25.

06.04.21 – Formation Validation: S25

26.



06.04.21 – Formation Validation: S26

27.

06.04.21 – Formation Validation: S27

28.

06.04.21 – Formation Validation: S28

29.

06.04.21 – Formation Validation: S29

30.

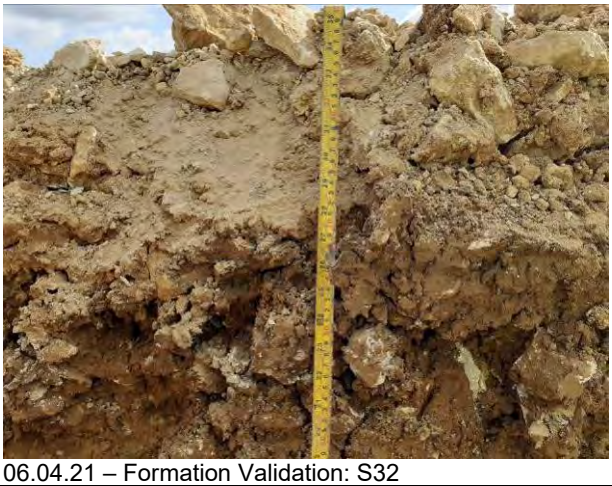
No Photo

06.04.21 – Formation Validation: S30

31.

06.04.21 – Formation Validation: S31

32.



06.04.21 – Formation Validation: S32

33.

06.04.21 – Formation Validation: S33

34.

06.04.21 – Formation Validation: S34

35.

06.04.21 – Formation Validation: S35

36.

06.04.21 – Formation Validation: S36

37.

06.04.21 – Formation Validation: S37

38.

28.04.21 – Formation Validation: S38

39.

28.04.21 – Formation Validation: S39

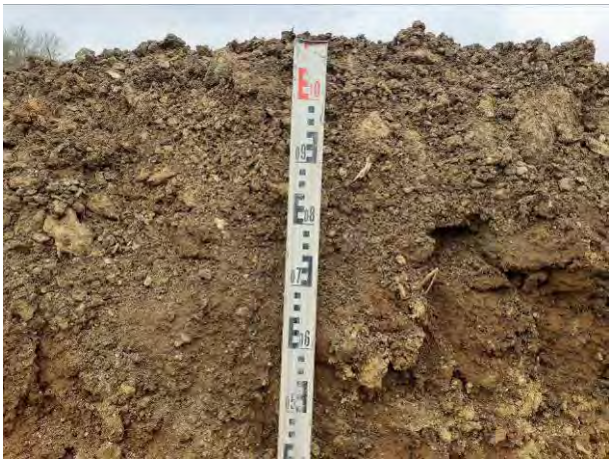
40.

28.04.21 – Formation Validation: S40

41.

28.04.21 – Formation Validation: S41

42.



28.04.21 – Formation Validation: S42

43.

28.04.21 – Formation Validation: S43

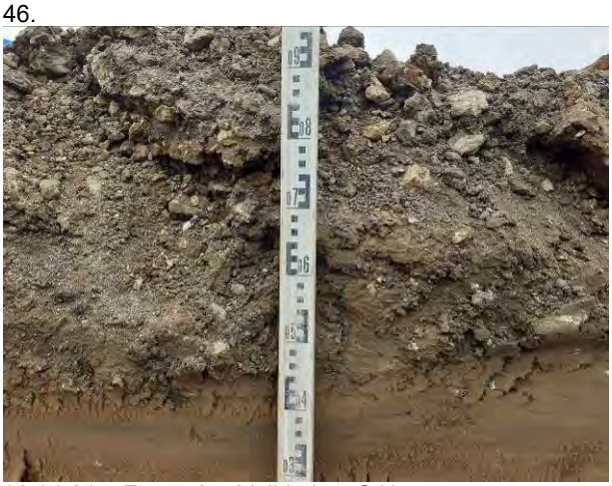
44.

28.04.21 – Formation Validation: S44

45.

28.04.21 – Formation Validation: S45

46.



28.04.21 – Formation Validation: S46

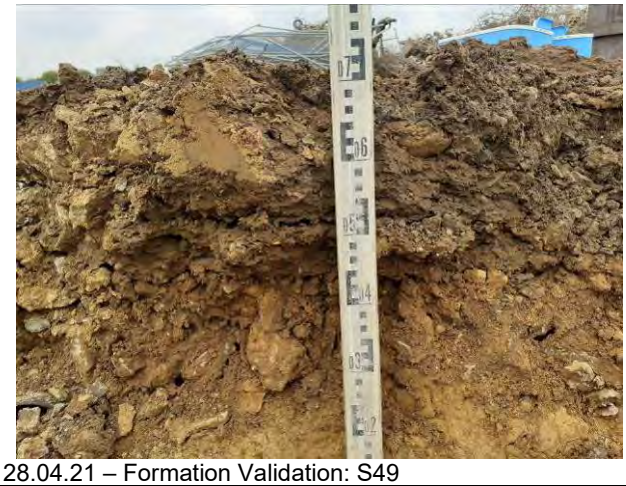
47.

28.04.21 – Formation Validation: S47

48.

28.04.21 – Formation Validation: S48

49.



28.04.21 – Formation Validation: S49

50.

28.04.21 – Formation Validation: S50

51.

28.04.21 – Formation Validation: S51

52.

18.10.22 – Formation Validation: S52

53.

18.10.22 – Formation Validation: S53 (1/2)

54.

18.10.22 – Formation Validation: S53 (2/2)

55.

18.10.22 – Formation Validation: S54

56.

18.10.22 – Formation Validation: S55 (1/2)

57.

18.10.22 – Formation Validation: S56

58.

18.10.22 – Formation Validation: S57

59.

18.10.22 – Formation Validation: S58 (1/2)

60.

18.10.22 – Formation Validation: S58 (2/2)

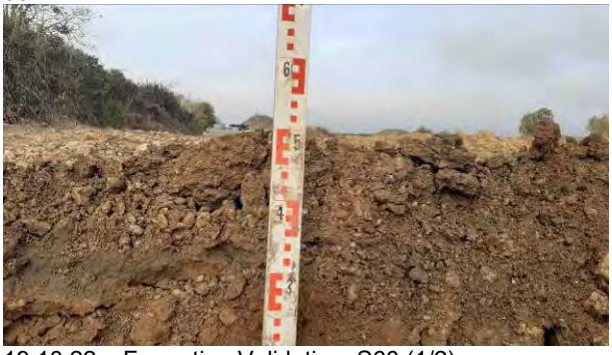
61.

19.10.22 – Formation Validation: S59 (1/2)

62.

19.10.22 – Formation Validation: S59 (2/2)

63.



19.10.22 – Formation Validation: S60 (1/2)

64.

19.10.22 – Formation Validation: S60 (2/2)

65.

19.10.22 – Formation Validation: S61

66.

19.10.22 – Formation Validation: S62

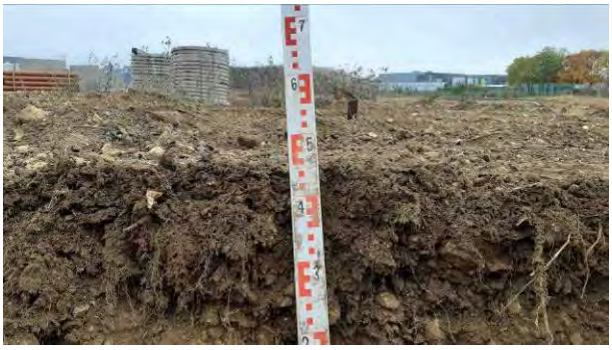
67.

19.10.22 – Formation Validation: S63

68.

19.10.22 – Formation Validation: S64

69.



19.10.22 – Formation Validation: S65 (1/2)

70.

19.10.22 – Formation Validation: S65 (2/2)

71.

19.10.22 – Formation Validation: S66 (1/2)

72.

19.10.22 – Formation Validation: S66 (2/2)

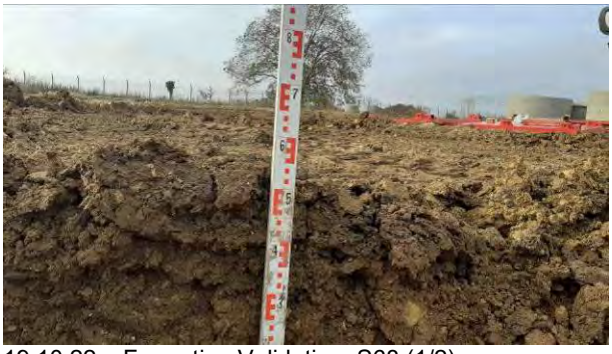
73.

19.10.22 – Formation Validation: S67 (1/2)

74.

19.10.22 – Formation Validation: S67 (2/2)

75.

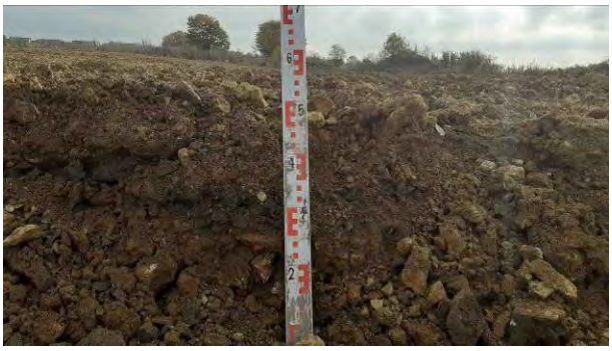


19.10.22 – Formation Validation: S68 (1/2)

76.

19.10.22 – Formation Validation: S68 (2/2)

77.



19.10.22 – Formation Validation: S69

78.

19.10.22 – Formation Validation: S70

75.

19.10.22 – Formation Validation: S71 (1/2)

76.

19.10.22 – Formation Validation: S71 (2/2)

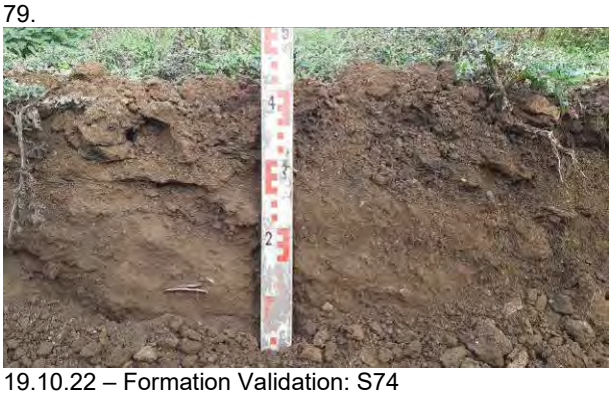
77.

19.10.22 – Formation Validation: S72

78.

19.10.22 – Formation Validation: S73

79.



19.10.22 – Formation Validation: S74

NO PHOTOGRAPH

APPENDIX C

Laboratory Certificates

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
LL14 6DL

Attention :	Dan Wayland
Date :	3rd March, 2021
Your reference :	R1742B
Our reference :	Test Report 21/2316 Batch 1
Location :	Heyford PH9
Date samples received :	19th February, 2021
Status :	Final report
Issue :	1

Three samples were received for analysis on 19th February, 2021 of which three were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

[redacted]

Bruce Leslie
Project Manager

Client Name: Smith Grant LLP
Reference: R1742B
Location: Heyford PH9
Contact: Dan Wayland
EMT Job No: 21/2316

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-2	3-4	5-6									
Sample ID	HS-TP104-S1	HS-TP104-S2	HS-TP104-S3									
Depth	0.0-0.4	0.0-0.4	0.4-1.1									
COC No / misc												
Containers	V J	V J	V J									
Sample Date	17/02/2021	17/02/2021	17/02/2021									
Sample Type	Clay	Clay	Clay									
Batch Number	1	1	1									
Date of Receipt	19/02/2021	19/02/2021	19/02/2021									

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #M	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>C6-C8 #M	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>C10-C12 #M	<0.2 SV	<0.2 SV	<0.2 SV								<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #M	<4 SV	<4 SV	<4 SV								<4	mg/kg	TM5/PM8/PM16
>C16-C21 #M	14 SV	<7 SV	<7 SV								<7	mg/kg	TM5/PM8/PM16
>C21-C35 #M	63 SV	<7 SV	<7 SV								<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	77	<19	<19								<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>EC8-EC10 #M	<0.1	<0.1	<0.1								<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2 SV	<0.2 SV	<0.2 SV								<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4 SV	<4 SV	<4 SV								<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	33 SV	<7 SV	<7 SV								<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	231 SV	<7 SV	<7 SV								<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 #	264	<19	<19								<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35)	341	<38	<38								<38	mg/kg	TM5/TM36/PM8/PM12/PM16
MTBE #	<5	<5	<5								<5	ug/kg	TM36/PM12
Benzene #	<5	<5	<5								<5	ug/kg	TM36/PM12
Toluene #	<5	<5	<5								<5	ug/kg	TM36/PM12
Ethylbenzene #	<5	<5	<5								<5	ug/kg	TM36/PM12
m/p-Xylene #	<5	<5	<5								<5	ug/kg	TM36/PM12
o-Xylene #	<5	<5	<5								<5	ug/kg	TM36/PM12
Natural Moisture Content	22.9	11.2	12.0								<0.1	%	PM4/PM0
Sample Type	Clay	Clay	Clay									None	PM13/PM0
Sample Colour	Medium Brown	Medium Brown	Medium Brown									None	PM13/PM0
Other Items	stones	stones	stones									None	PM13/PM0

Client Name: Smith Grant LLP
Reference: R1742B
Location: Heyford PH9
Contact: Dan Wayland

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 21/2316						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/2316

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 21/2316

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes

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Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	21-06789-1		
Initial Date of Issue:	10-Mar-2021		
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R1742b Heyford - Phase 9		
Quotation No.:	Q15-02887	**Date Received:**	04-Mar-2021
Order No.:		**Date Instructed:**	04-Mar-2021
No. of Samples:	11		
Turnaround (Wkdays):	5	**Results Due:**	10-Mar-2021
Date Approved:	10-Mar-2021		
Approved By:	[redacted]		
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789
Quotation No.: Q15-02887			**Chemtest Sample ID.:**		1153713	1153714	1153715	1153716	1153717	1153718	1153719	1153720	1153721
			Sample Location:		PH9-S1	PH9-S2	PH9-S3	PH9-S4	PH9-S5	PH9-S6	PH9-S7	PH9-S8	PH9-S9
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0	0	0	0	0	0	0	0	0
			Bottom Depth (m):		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
			Date Sampled:		02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	15	13	15	15	11	10	12	6.9	13
pH	U	2010		4.0	8.7	8.6	8.6	8.6	8.7	8.6	8.6	8.7	8.6
Arsenic	U	2450	mg/kg	1.0	12	20	15	16	25	24	25	10	21
Cadmium	U	2450	mg/kg	0.10	0.18	0.12	0.13	0.16	0.16	0.15	0.15	< 0.10	0.23
Chromium	U	2450	mg/kg	1.0	21	20	26	25	20	18	18	4.0	25
Copper	U	2450	mg/kg	0.50	14	9.0	13	14	10	10	9.8	1.7	11
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	20	20	24	26	21	18	19	3.9	24
Lead	U	2450	mg/kg	0.50	17	9.8	12	15	10	12	9.8	1.9	17
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	0.24	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50	47	28	47	44	28	30	26	4.6	41
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	0.95	0.67	0.84	1.4	0.55	1.1	0.74	< 0.40	1.2
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789
Quotation No.: Q15-02887			**Chemtest Sample ID.:**		1153713	1153714	1153715	1153716	1153717	1153718	1153719	1153720	1153721
			Sample Location:		PH9-S1	PH9-S2	PH9-S3	PH9-S4	PH9-S5	PH9-S6	PH9-S7	PH9-S8	PH9-S9
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0	0	0	0	0	0	0	0	0
			Bottom Depth (m):		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
			Date Sampled:		02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-06789	21-06789
Quotation No.: Q15-02887			**Chemtest Sample ID.:**		1153722	1153723
			Sample Location:		PH9-S10	PH9-S11
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0	0
			Bottom Depth (m):		0.4	0.4
			Date Sampled:		02-Mar-2021	02-Mar-2021
			Asbestos Lab:		COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-
Moisture	N	2030	%	0.020	12	7.5
pH	U	2010		4.0	8.4	8.6
Arsenic	U	2450	mg/kg	1.0	13	13
Cadmium	U	2450	mg/kg	0.10	< 0.10	< 0.10
Chromium	U	2450	mg/kg	1.0	9.4	7.2
Copper	U	2450	mg/kg	0.50	5.0	3.8
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	9.3	7.0
Lead	U	2450	mg/kg	0.50	7.7	5.8
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20
Zinc	U	2450	mg/kg	0.50	21	12
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	1.1	0.60
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-06789	21-06789
Quotation No.: Q15-02887			**Chemtest Sample ID.:**		1153722	1153723
			Sample Location:		PH9-S10	PH9-S11
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0	0
			Bottom Depth (m):		0.4	0.4
			Date Sampled:		02-Mar-2021	02-Mar-2021
			Asbestos Lab:		COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	0.78
Anthracene	U	2700	mg/kg	0.10	< 0.10	0.40
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	1.7
Pyrene	U	2700	mg/kg	0.10	< 0.10	1.6
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	0.90
Chrysene	U	2700	mg/kg	0.10	< 0.10	0.90
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	0.60
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	0.17
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	0.56
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	7.6
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Amended Report

Report No.:	21-06789-2		
Initial Date of Issue:	10-Mar-2021	**Date of Re-Issue:**	18-Mar-2021
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R1742b Heyford - Phase 9		
Quotation No.:	Q15-02887	**Date Received:**	04-Mar-2021
Order No.:		**Date Instructed:**	04-Mar-2021
No. of Samples:	11		
Turnaround (Wkdays):	15	**Results Due:**	24-Mar-2021
Date Approved:	18-Mar-2021		
Approved By:	[redacted]		
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789
Quotation No.: Q15-02887		**Chemtest Sample ID.:**			1153713	1153714	1153715	1153716	1153717	1153718	1153719	1153720	1153721
		Sample Location:			PH9-S1	PH9-S2	PH9-S3	PH9-S4	PH9-S5	PH9-S6	PH9-S7	PH9-S8	PH9-S9
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0	0	0	0	0	0	0	0	0
		Bottom Depth (m):			0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
		Date Sampled:			02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	15	13	15	15	11	10	12	6.9	13
pH	U	2010		4.0	8.7	8.6	8.6	8.6	8.7	8.6	8.6	8.7	8.6
Arsenic	U	2450	mg/kg	1.0	12	20	15	16	25	24	25	10	21
Cadmium	U	2450	mg/kg	0.10	0.18	0.12	0.13	0.16	0.16	0.15	0.15	< 0.10	0.23
Chromium	U	2450	mg/kg	1.0	21	20	26	25	20	18	18	4.0	25
Copper	U	2450	mg/kg	0.50	14	9.0	13	14	10	10	9.8	1.7	11
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	20	20	24	26	21	18	19	3.9	24
Lead	U	2450	mg/kg	0.50	17	9.8	12	15	10	12	9.8	1.9	17
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	0.24	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	40	40	45	49	41	38	41	7.8	49
Zinc	U	2450	mg/kg	0.50	47	28	47	44	28	30	26	4.6	41
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	0.95	0.67	0.84	1.4	0.55	1.1	0.74	< 0.40	1.2
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789	21-06789
Quotation No.: Q15-02887			**Chemtest Sample ID.:**		1153713	1153714	1153715	1153716	1153717	1153718	1153719	1153720	1153721
			Sample Location:		PH9-S1	PH9-S2	PH9-S3	PH9-S4	PH9-S5	PH9-S6	PH9-S7	PH9-S8	PH9-S9
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0	0	0	0	0	0	0	0	0
			Bottom Depth (m):		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
			Date Sampled:		02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021	02-Mar-2021
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-06789	21-06789
Quotation No.: Q15-02887			**Chemtest Sample ID.:**		1153722	1153723
			Sample Location:		PH9-S10	PH9-S11
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0	0
			Bottom Depth (m):		0.4	0.4
			Date Sampled:		02-Mar-2021	02-Mar-2021
			Asbestos Lab:		COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-
Moisture	N	2030	%	0.020	12	7.5
pH	U	2010		4.0	8.4	8.6
Arsenic	U	2450	mg/kg	1.0	13	13
Cadmium	U	2450	mg/kg	0.10	< 0.10	< 0.10
Chromium	U	2450	mg/kg	1.0	9.4	7.2
Copper	U	2450	mg/kg	0.50	5.0	3.8
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	9.3	7.0
Lead	U	2450	mg/kg	0.50	7.7	5.8
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	19	15
Zinc	U	2450	mg/kg	0.50	21	12
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	1.1	0.60
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-06789	21-06789
Quotation No.: Q15-02887			**Chemtest Sample ID.:**		1153722	1153723
			Sample Location:		PH9-S10	PH9-S11
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0	0
			Bottom Depth (m):		0.4	0.4
			Date Sampled:		02-Mar-2021	02-Mar-2021
			Asbestos Lab:		COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	0.78
Anthracene	U	2700	mg/kg	0.10	< 0.10	0.40
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	1.7
Pyrene	U	2700	mg/kg	0.10	< 0.10	1.6
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	0.90
Chrysene	U	2700	mg/kg	0.10	< 0.10	0.90
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	0.60
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	0.17
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	0.56
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	7.6
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	21-07749-1
Initial Date of Issue:	17-Mar-2021
Client	Smith Grant LLP
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL
Contact(s):	Dan Wayland
Project	R172B Heyford - Ph9

Quotation No.:		**Date Received:**	11-Mar-2021
Order No.:		**Date Instructed:**	11-Mar-2021
No. of Samples:	12		
Turnaround (Wkdays):	5	**Results Due:**	17-Mar-2021
Date Approved:	17-Mar-2021		

Approved By:

[redacted]

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: R172B Heyford - Ph9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749
Quotation No.:		**Chemtest Sample ID.:**			1158239	1158240	1158241	1158242	1158243	1158244	1158245	1158246	1158247
		Sample Location:			PH9-SS12	PH9-SS13	PH9-SS14	PH9-SS15	PH9-SS16	PH9-SS17	PH9-SS18	PH9-SS19	PH9-SS20
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0	0	0	0	0	0	0	0	0
		Bottom Depth (m):			0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
		Date Sampled:			09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	9.6	10	9.5	9.1	10	10	12	11	11
pH	U	2010		4.0	8.9	8.9	9.0	9.0	8.8	8.9	8.9	8.9	8.9
Arsenic	U	2450	mg/kg	1.0	26	31	21	35	26	33	27	24	26
Cadmium	U	2450	mg/kg	0.10	0.15	0.11	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chromium	U	2450	mg/kg	1.0	13	14	7.8	14	16	18	16	14	19
Copper	U	2450	mg/kg	0.50	7.2	5.8	3.5	5.9	6.9	7.8	5.9	5.1	7.4
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	12	11	7.2	12	16	17	13	11	17
Lead	U	2450	mg/kg	0.50	8.3	7.2	3.3	6.7	6.6	9.0	6.6	6.4	8.2
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	30	36	22	37	35	43	35	32	39
Zinc	U	2450	mg/kg	0.50	30	19	7.9	15	18	19	54	16	23
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	0.90	< 0.40	< 0.40	0.41	< 0.40	< 0.40	< 0.40	0.69	< 0.40
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R172B Heyford - Ph9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749	21-07749
Quotation No.:			**Chemtest Sample ID.:**		1158239	1158240	1158241	1158242	1158243	1158244	1158245	1158246	1158247
			Sample Location:		PH9-SS12	PH9-SS13	PH9-SS14	PH9-SS15	PH9-SS16	PH9-SS17	PH9-SS18	PH9-SS19	PH9-SS20
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0	0	0	0	0	0	0	0	0
			Bottom Depth (m):		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
			Date Sampled:		09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021	09-Mar-2021
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R172B Heyford - Ph9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-07749	21-07749	21-07749
Quotation No.:			**Chemtest Sample ID.:**		1158248	1158249	1158250
			Sample Location:		PH9-SS21	PH9-SS22	PH9-SS23
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		0	0	0
			Bottom Depth (m):		0.4	0.4	0.4
			Date Sampled:		09-Mar-2021	09-Mar-2021	09-Mar-2021
			Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type	U	2192		N/A	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-
Moisture	N	2030	%	0.020	27	38	16
pH	U	2010		4.0	8.9	9.0	9.1
Arsenic	U	2450	mg/kg	1.0	30	12	10
Cadmium	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Chromium	U	2450	mg/kg	1.0	16	4.7	3.2
Copper	U	2450	mg/kg	0.50	6.4	1.9	1.4
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	16	4.3	2.8
Lead	U	2450	mg/kg	0.50	7.1	2.1	1.5
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	36	11	10
Zinc	U	2450	mg/kg	0.50	18	5.3	3.9
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	< 0.40	< 0.40	< 0.40
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R172B Heyford - Ph9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-07749	21-07749	21-07749
Quotation No.:			**Chemtest Sample ID.:**		1158248	1158249	1158250
			Sample Location:		PH9-SS21	PH9-SS22	PH9-SS23
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		0	0	0
			Bottom Depth (m):		0.4	0.4	0.4
			Date Sampled:		09-Mar-2021	09-Mar-2021	09-Mar-2021
			Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	21-11315-1		
Initial Date of Issue:	16-Apr-2021		
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R1742b Heyford Ph9		
Quotation No.:		**Date Received:**	09-Apr-2021
Order No.:		**Date Instructed:**	09-Apr-2021
No. of Samples:	14		
Turnaround (Wkdays):	5	**Results Due:**	15-Apr-2021
Date Approved:	15-Apr-2021		
Approved By:	[redacted]		
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: R1742b Heyford Ph9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-11315	21-11315	21-11315	21-11315	21-11315	21-11315	21-11315	21-11315	21-11315
Quotation No.:			**Chemtest Sample ID.:**		1175986	1175987	1175988	1175989	1175990	1175991	1175992	1175993	1175994
			Client Sample ID.:		S24	S25	S26	S27	S28	S29	S30	S31	S32
			Sample Location:		Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Date Sampled:		06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020	6.0	10	9.6	8.9	12	10	18	14	15
pH	U	2010		4.0	8.0	8.4	8.3	8.2	8.4	8.5	8.6	8.2	8.5
Arsenic	U	2450	mg/kg	1.0	18	20	17	17	23	18	16	22	13
Cadmium	U	2450	mg/kg	0.10	0.17	0.12	< 0.10	< 0.10	0.22	0.11	< 0.10	0.15	< 0.10
Chromium	U	2450	mg/kg	1.0	16	14	14	13	25	15	12	21	9.6
Copper	U	2450	mg/kg	0.50	9.3	6.3	6.3	7.2	14	7.4	7.7	12	4.8
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	22	11	13	11	22	14	13	21	9.0
Lead	U	2450	mg/kg	0.50	25	8.5	7.2	6.5	23	8.4	7.3	15	5.0
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	29	32	29	28	53	36	24	44	19
Zinc	U	2450	mg/kg	0.50	28	23	18	18	46	29	13	37	12
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	0.86	< 0.40	0.52	< 0.40	2.2	1.0	< 0.40	0.69	< 0.40
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	27	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	18	26	< 1.0	< 1.0	34	140	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	18	26	< 5.0	< 5.0	34	170	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	18	26	< 10	< 10	34	170	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford Ph9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-11315	21-11315	21-11315	21-11315	21-11315	21-11315	21-11315	21-11315	21-11315
Quotation No.:			**Chemtest Sample ID.:**		1175986	1175987	1175988	1175989	1175990	1175991	1175992	1175993	1175994
			Client Sample ID.:		S24	S25	S26	S27	S28	S29	S30	S31	S32
			Sample Location:		Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-	Ph9-
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Date Sampled:		06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	2.5	0.23	2.0	1.3	1.4	1.5	< 0.10	0.58	< 0.10
Anthracene	U	2700	mg/kg	0.10	0.63	0.10	0.77	0.42	0.45	0.45	< 0.10	0.14	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	3.2	0.94	6.9	1.8	6.5	3.2	< 0.10	1.0	< 0.10
Pyrene	U	2700	mg/kg	0.10	2.9	1.1	7.0	1.7	6.7	3.0	< 0.10	1.1	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	0.95	0.50	3.0	0.51	3.3	1.2	< 0.10	0.36	< 0.10
Chrysene	U	2700	mg/kg	0.10	1.2	0.61	3.0	0.69	3.6	1.3	< 0.10	0.51	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	1.3	1.1	3.9	< 0.10	5.1	1.9	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	0.51	0.38	1.6	< 0.10	2.0	0.77	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	0.81	0.72	2.8	< 0.10	3.5	1.1	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	0.59	0.49	2.3	< 0.10	2.7	0.79	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	0.64	< 0.10	0.67	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	0.50	0.50	1.8	< 0.10	2.4	0.78	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	15	6.7	36	6.4	38	16	< 2.0	3.7	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R1742b Heyford Ph9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-11315	21-11315	21-11315	21-11315	21-11315
Quotation No.:		**Chemtest Sample ID.:**			1175995	1175996	1175997	1175998	1175999
		Client Sample ID.:			S33	S34	S35	S36	S37
		Sample Location:			Ph9-	Ph9-	Ph9-	Ph9-	Ph9-
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:			06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-	-
Moisture	N	2030	%	0.020	16	13	13	17	11
pH	U	2010		4.0	8.4	8.4	8.2	8.3	8.3
Arsenic	U	2450	mg/kg	1.0	14	16	23	23	25
Cadmium	U	2450	mg/kg	0.10	0.12	0.13	0.18	0.18	0.21
Chromium	U	2450	mg/kg	1.0	16	26	34	38	25
Copper	U	2450	mg/kg	0.50	7.8	8.9	15	16	13
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	15	20	27	34	21
Lead	U	2450	mg/kg	0.50	8.4	14	17	17	20
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	31	44	63	65	52
Zinc	U	2450	mg/kg	0.50	19	43	53	59	39
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	< 0.40	0.52	0.83	0.78	0.88
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	12
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	12
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	12
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.18
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford Ph9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-11315	21-11315	21-11315	21-11315	21-11315
Quotation No.:			**Chemtest Sample ID.:**		1175995	1175996	1175997	1175998	1175999
			Client Sample ID.:		S33	S34	S35	S36	S37
			Sample Location:		Ph9-	Ph9-	Ph9-	Ph9-	Ph9-
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Date Sampled:		06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.39
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.31
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	3.6
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.2
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	11
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	11
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	4.3
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	4.0
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	5.1
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	2.3
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	4.0
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	2.9
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.3
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	2.5
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	54
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	21-11321-1
Initial Date of Issue:	16-Apr-2021
Client	Smith Grant LLP
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL
Contact(s):	Dan Wayland
Project	R1742b Heyford - Ph9
Quotation No.:	
Date Received:	09-Apr-2021
Order No.:	
Date Instructed:	09-Apr-2021
No. of Samples:	10
Turnaround (Wkdays):	5
Results Due:	15-Apr-2021
Date Approved:	15-Apr-2021
Approved By:	[redacted]
Details:	Rachel Robertson, Deputy Technical Manager

Results - Miscellaneous Solid

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-11321	21-11321
Quotation No.:		**Chemtest Sample ID.:**			1176016	1176017
		Sample Location:			Shilling St - Tarmac	Altus St - Tarmac
		Sample Type:			MISCSOLID	MISCSOLID
		Date Sampled:			06-Apr-2021	06-Apr-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Chromatogram (TPH)	N			N/A	See Attached	See Attached
Diesel Present	N	2670		N/A	False	False
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	330	32
Coal Tar Quantification (%)	N		%	0.001	0.15	0.017
Coal Tar Quantification	N		mg/kg	10.0	1500	170
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	1500	170
Total Petroleum Hydrocarbons	N	2680	mg/kg	10	1900	200
Naphthalene	N	2700	mg/kg	0.10	2.0	1.4
Acenaphthylene	N	2700	mg/kg	0.10	4.3	7.3
Acenaphthene	N	2700	mg/kg	0.10	8.8	18
Fluorene	N	2700	mg/kg	0.10	7.7	15
Phenanthrene	N	2700	mg/kg	0.10	55	130
Anthracene	N	2700	mg/kg	0.10	21	58
Fluoranthene	N	2700	mg/kg	0.10	85	360
Pyrene	N	2700	mg/kg	0.10	84	380
Benzo[a]anthracene	N	2700	mg/kg	0.10	34	150
Chrysene	N	2700	mg/kg	0.10	40	140
Benzo[b]fluoranthene	N	2700	mg/kg	0.10	63	200
Benzo[k]fluoranthene	N	2700	mg/kg	0.10	26	76
Benzo[a]pyrene	N	2700	mg/kg	0.10	46	160

Results - Miscellaneous Solid

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-11321	21-11321
Quotation No.:		**Chemtest Sample ID.:**			1176016	1176017
		Sample Location:			Shilling St - Tarmac	Altus St - Tarmac
		Sample Type:			MISCSOLID	MISCSOLID
		Date Sampled:			06-Apr-2021	06-Apr-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Indeno(1,2,3-c,d)Pyrene	N	2700	mg/kg	0.10	35	120
Dibenz(a,h)Anthracene	N	2700	mg/kg	0.10	9.8	25
Benzo[g,h,i]perylene	N	2700	mg/kg	0.10	29	98
Coronene	N	2700	mg/kg	0.10	< 0.10	< 0.10
Total Of 17 PAH's	N	2700	mg/kg	2.0	550	1900
Double Ratio Fluoranthene:Pyrene	N	2700		0.010	1.0	0.96
Double Ratio Benzo(a)Anthracene:Chrysene	N	2700		0.010	0.86	1.1
N-Nitrosodimethylamine	N	2790	mg/kg	0.50	< 0.50	< 0.50
Phenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
2-Chlorophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
1,3-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
1,4-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
1,2-Dichlorobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
2-Methylphenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.50	< 0.50	< 0.50
Hexachloroethane	N	2790	mg/kg	0.50	< 0.50	< 0.50
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.50	< 0.50	< 0.50
4-Methylphenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
Nitrobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
Isophorone	N	2790	mg/kg	0.50	< 0.50	< 0.50

Results - Miscellaneous Solid

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-11321	21-11321
Quotation No.:		**Chemtest Sample ID.:**			1176016	1176017
		Sample Location:			Shilling St - Tarmac	Altus St - Tarmac
		Sample Type:			MISCSOLID	MISCSOLID
		Date Sampled:			06-Apr-2021	06-Apr-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
2-Nitrophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
2,4-Dimethylphenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.50	< 0.50	< 0.50
2,4-Dichlorophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
Naphthalene	N	2790	mg/kg	0.50	6.5	< 0.50
4-Chloroaniline	N	2790	mg/kg	0.50	< 0.50	< 0.50
Hexachlorobutadiene	N	2790	mg/kg	0.50	< 0.50	< 0.50
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
2-Methylnaphthalene	N	2790	mg/kg	0.50	5.7	< 0.50
4-Nitrophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
Hexachlorocyclopentadiene	N	2790	mg/kg	0.50	< 0.50	< 0.50
2,4,6-Trichlorophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
2,4,5-Trichlorophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
2-Chloronaphthalene	N	2790	mg/kg	0.50	< 0.50	< 0.50
2-Nitroaniline	N	2790	mg/kg	0.50	< 0.50	< 0.50
Acenaphthylene	N	2790	mg/kg	0.50	0.67	< 0.50
Dimethylphthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50
2,6-Dinitrotoluene	N	2790	mg/kg	0.50	< 0.50	< 0.50
Acenaphthene	N	2790	mg/kg	0.50	10	< 0.50

Results - Miscellaneous Solid

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-11321	21-11321
Quotation No.:		**Chemtest Sample ID.:**			1176016	1176017
		Sample Location:			Shilling St - Tarmac	Altus St - Tarmac
		Sample Type:			MISCSOLID	MISCSOLID
		Date Sampled:			06-Apr-2021	06-Apr-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
3-Nitroaniline	N	2790	mg/kg	0.50	< 0.50	< 0.50
Dibenzofuran	N	2790	mg/kg	0.50	6.8	< 0.50
4-Chlorophenylphenylether	N	2790	mg/kg	0.50	< 0.50	< 0.50
2,4-Dinitrotoluene	N	2790	mg/kg	0.50	< 0.50	< 0.50
Fluorene	N	2790	mg/kg	0.50	6.3	< 0.50
Diethyl Phthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50
4-Nitroaniline	N	2790	mg/kg	0.50	< 0.50	< 0.50
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
Azobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.50	< 0.50	< 0.50
Hexachlorobenzene	N	2790	mg/kg	0.50	< 0.50	< 0.50
Pentachlorophenol	N	2790	mg/kg	0.50	< 0.50	< 0.50
Phenanthrene	N	2790	mg/kg	0.50	60	9.5
Anthracene	N	2790	mg/kg	0.50	17	3.0
Carbazole	N	2790	mg/kg	0.50	5.0	0.73
Di-N-Butyl Phthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50
Fluoranthene	N	2790	mg/kg	0.50	62	18
Pyrene	N	2790	mg/kg	0.50	46	15
Butylbenzyl Phthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50
Benzo[a]anthracene	N	2790	mg/kg	0.50	19	6.9

Results - Miscellaneous Solid

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-11321	21-11321
Quotation No.:		**Chemtest Sample ID.:**			1176016	1176017
		Sample Location:			Shilling St - Tarmac	Altus St - Tarmac
		Sample Type:			MISCSOLID	MISCSOLID
		Date Sampled:			06-Apr-2021	06-Apr-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Chrysene	N	2790	mg/kg	0.50	19	6.3
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50
Di-N-Octyl Phthalate	N	2790	mg/kg	0.50	< 0.50	< 0.50
Benzo[b]fluoranthene	N	2790	mg/kg	0.50	26	7.7
Benzo[k]fluoranthene	N	2790	mg/kg	0.50	8.0	2.7
Benzo[a]pyrene	N	2790	mg/kg	0.50	21	6.5
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.50	10	3.1
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.50	2.4	0.69
Benzo[g,h,i]perylene	N	2790	mg/kg	0.50	12	3.9
Moisture	N		%	0.10	< 0.10	< 0.10
Interpretive Report	N			N/A	See Below	See Below
SVOC TIC	N	2790	mg/kg	N/A	See Below	None Detected
(SVOC TIC) Dibenzothiophene	N	2790	mg/kg	N/A	3.7	

Sample 1176016 contains coal tar contamination. Dibenzothiphene, a biomarker present in coal tar, has been detected by SVOC analysis. This, in conjunction with the elevated PAH contamination detected, confirms the presence of coal tar in this sample.

Sample 1176017 is inconclusive for coal tar contamination. Dibenzothiphene, a biomarker present in coal tar, has not been detected by SVOC analysis. This, in conjunction with the elevated PAH contamination detected, means we cannot confirm the presence of coal tar in this sample.

Results - Soil

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP					Chemtest Job No.:	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321
Quotation No.:					Chemtest Sample ID.:	1176008	1176009	1176010	1176011	1176012	1176013	1176014	1176015
					Sample Location:	Ph9-TS-S1	Ph9-TS-S2	Ph9-TS-S3	Ph9-TS-S4	Ph9-TS-S5	Ph9-TS-S6	AGG-060421-S1	AGG-060421-S2
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Date Sampled:	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
					Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A		-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A		-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020		21	26	20	20	22	23		
pH	U	2010		4.0		8.4	8.3	8.3	8.2	8.3	8.2		
Arsenic	U	2450	mg/kg	1.0		23	21	24	54	28	24		
Cadmium	U	2450	mg/kg	0.10		0.37	0.35	0.29	0.29	0.36	0.38		
Chromium	U	2450	mg/kg	1.0		30	25	27	63	35	32		
Copper	U	2450	mg/kg	0.50		21	23	15	19	20	19		
Mercury	U	2450	mg/kg	0.10		0.13	< 0.10	< 0.10	< 0.10	0.10	0.12		
Nickel	U	2450	mg/kg	0.50		24	20	21	38	30	26		
Lead	U	2450	mg/kg	0.50		45	42	33	44	77	46		
Selenium	U	2450	mg/kg	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20		
Vanadium	U	2450	mg/kg	5.0		53	45	52	100	61	56		
Zinc	U	2450	mg/kg	0.50		80	74	62	130	91	86		
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Organic Matter	U	2625	%	0.40		3.6	5.3	3.1	4.8	4.5	5.3		
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		

Results - Soil

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP					Chemtest Job No.:	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321
Quotation No.:					Chemtest Sample ID.:	1176008	1176009	1176010	1176011	1176012	1176013	1176014	1176015
					Sample Location:	Ph9-TS-S1	Ph9-TS-S2	Ph9-TS-S3	Ph9-TS-S4	Ph9-TS-S5	Ph9-TS-S6	AGG-060421-S1	AGG-060421-S2
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Date Sampled:	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
					Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	7.9		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	7.9		
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		34	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		34	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0		
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		34	< 10	< 10	< 10	< 10	< 10		
Naphthalene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Acenaphthylene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		

Results - Soil

Project: R1742b Heyford - Ph9

Client: Smith Grant LLP					Chemtest Job No.:	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321
Quotation No.:					Chemtest Sample ID.:	1176008	1176009	1176010	1176011	1176012	1176013	1176014	1176015
					Sample Location:	Ph9-TS-S1	Ph9-TS-S2	Ph9-TS-S3	Ph9-TS-S4	Ph9-TS-S5	Ph9-TS-S6	AGG-060421-S1	AGG-060421-S2
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Date Sampled:	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
					Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Acenaphthene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Fluorene	U	2700	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Phenanthrene	U	2700	mg/kg	0.10		0.57	2.5	0.58	3.9	1.7	0.72		
Anthracene	U	2700	mg/kg	0.10		0.19	0.63	0.20	1.1	0.53	0.22		
Fluoranthene	U	2700	mg/kg	0.10		2.1	9.7	1.9	5.1	3.7	2.0		
Pyrene	U	2700	mg/kg	0.10		2.1	9.6	1.9	4.9	3.6	2.0		
Benzo[a]anthracene	U	2700	mg/kg	0.10		1.0	4.3	0.37	2.0	1.7	1.1		
Chrysene	U	2700	mg/kg	0.10		1.2	5.1	0.87	2.3	1.9	1.2		
Benzo[b]fluoranthene	U	2700	mg/kg	0.10		1.9	7.8	1.6	2.7	2.7	1.6		
Benzo[k]fluoranthene	U	2700	mg/kg	0.10		0.95	2.8	0.51	1.0	1.3	0.49		
Benzo[a]pyrene	U	2700	mg/kg	0.10		1.2	5.6	1.2	1.7	1.7	1.1		
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10		1.1	4.8	0.19	1.1	1.4	0.85		
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10		0.26	0.77	0.56	< 0.10	0.32	0.10		
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10		0.88	4.1	0.65	1.3	1.2	1.0		
Total Of 16 PAH's	U	2700	mg/kg	2.0		14	58	11	27	22	12		
Benzene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Toluene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
Ethylbenzene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		
m & p-Xylene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		

Results - Soil

Project: R1742b Heyford - Ph9

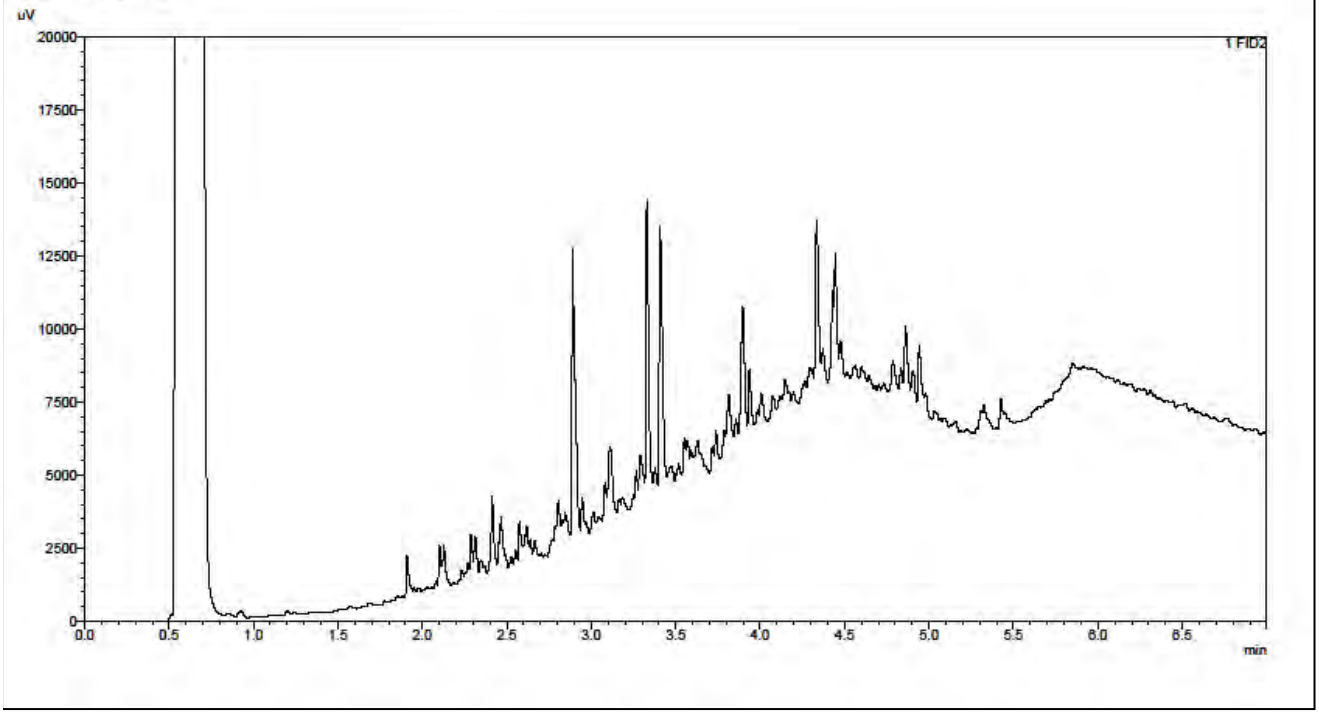
Client: Smith Grant LLP				**Chemtest Job No.:**	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321	21-11321
Quotation No.:				**Chemtest Sample ID.:**	1176008	1176009	1176010	1176011	1176012	1176013	1176014	1176015
				Sample Location:	Ph9-TS-S1	Ph9-TS-S2	Ph9-TS-S3	Ph9-TS-S4	Ph9-TS-S5	Ph9-TS-S6	AGG-060421-S1	AGG-060421-S2
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Date Sampled:	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021	06-Apr-2021
				Asbestos Lab:	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0		

TPH Chromatogram on Misc Sample: 1176016

<Sample Information>

Sample Name : 1176016 21-11321
Data Filename : 12 April 2021_12042021_1176016 21-11321_086.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 118
Date Acquired : 13/04/2021 01:25:53
Date Processed : 13/04/2021

<Chromatogram>

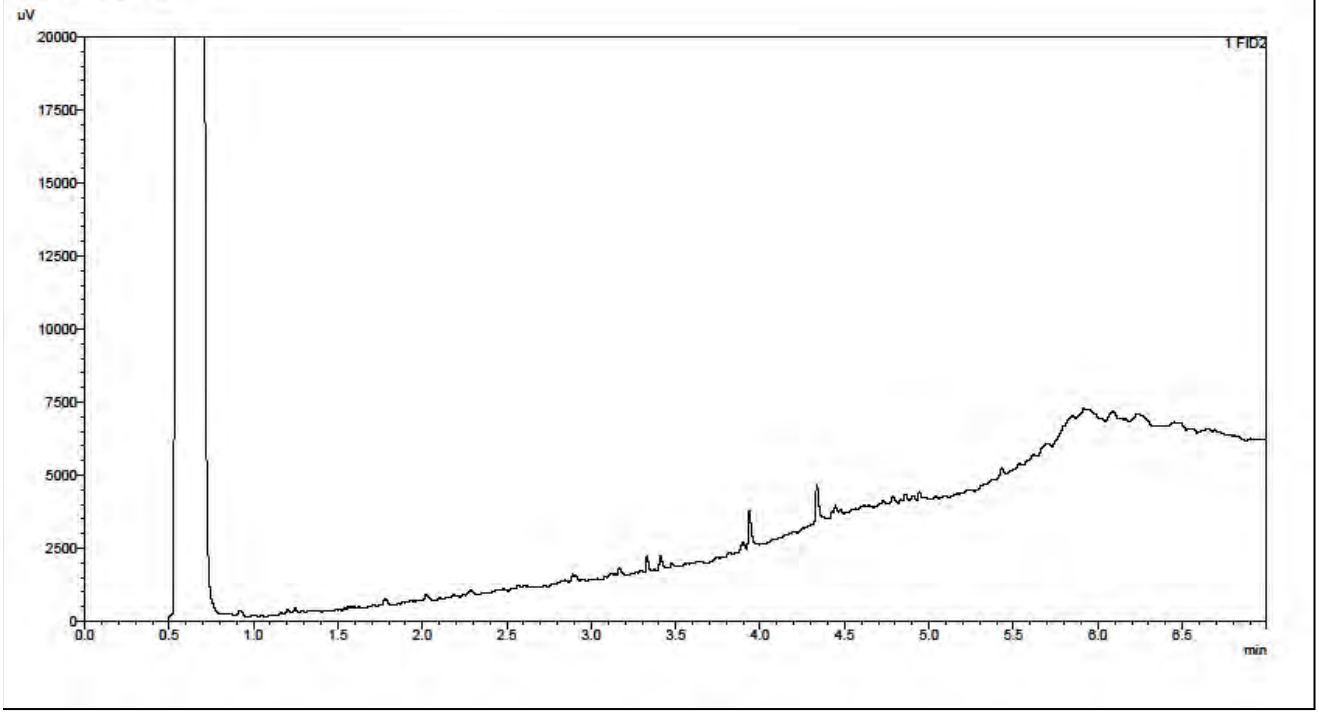


TPH Chromatogram on Misc Sample: 1176017

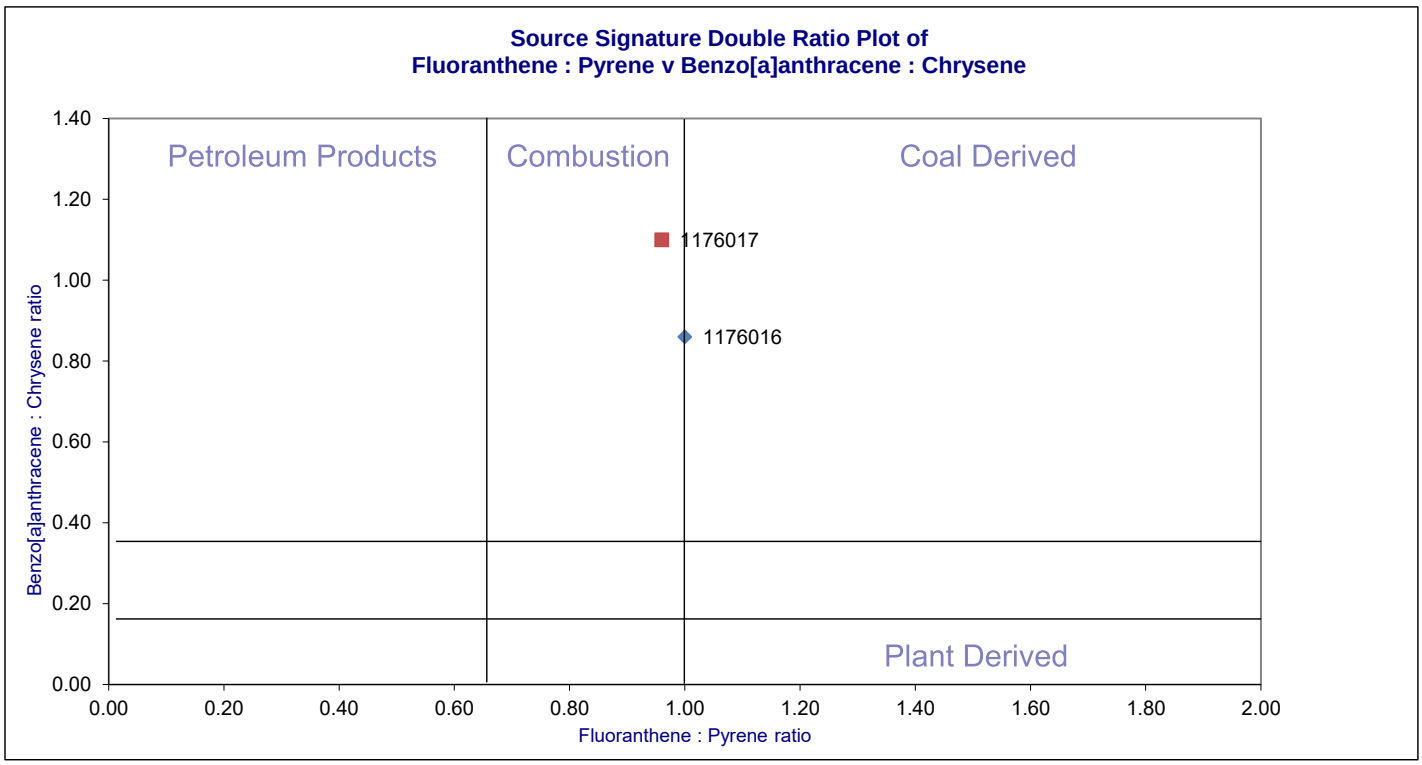
<Sample Information>

Sample Name : 1176017 21-11321
Data Filename : 12 April 2021_12042021_1176017 21-11321_088.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 119
Date Acquired : 13/04/2021 01:38:43
Date Processed : 13/04/2021

<Chromatogram>



Double Ratio Plot



Sample No.	Fluoranthene	Pyrene	Benzo[a]Anthracene	Chrysene	Fluoranthene : Pyrene Ratio	Benzo[a]Anthracene : Chrysene Ratio
1176016	85	84	34	40	1.00	0.86
1176017	360	380	150	140	0.96	1.10

TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
21-11321	1176016	M	Shilling St - Tarmac				No	PAH and Heavy Oil
21-11321	1176017	M	Altus St - Tarmac				No	PAH and Heavy Oil

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Amended Report

Report No.:	21-13303-2		
Initial Date of Issue:	27-Apr-2021	**Date of Re-Issue:**	05-May-2021
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R1742b Hayford - Phase 9		
Quotation No.:		**Date Received:**	23-Apr-2021
Order No.:		**Date Instructed:**	23-Apr-2021
No. of Samples:	6		
Turnaround (Wkdays):	8	**Results Due:**	05-May-2021
Date Approved:	05-May-2021		
Approved By:	[redacted]		
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: R1742b Hayford - Phase 9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-13303	21-13303	21-13303	21-13303	21-13303	21-13303
Quotation No.:		**Chemtest Sample ID.:**			1185894	1185895	1185896	1185897	1185898	1185899
		Sample Location:			Ph9-AGG2-S1	Ph9-AGG2-S2	Ph9-AGG2-S3	Ph9-AGG2-S4	Ph9-AGG2-S5	Ph9-AGG2-S6
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:			20-Apr-2021	20-Apr-2021	20-Apr-2021	20-Apr-2021	20-Apr-2021	20-Apr-2021
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
ACM Type	U	2192		N/A	Fibres/Clumps	Fibres/Clumps	-	Fibres/Clumps	-	-
Asbestos Identification	U	2192		N/A	Chrysotile	Chrysotile	No Asbestos Detected	Chrysotile	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	Stereo Microscopy	Stereo Microscopy	-	Stereo Microscopy	-	-
Asbestos by Gravimetry	U	2192	%	0.001	0.009	<0.001		<0.001		
Total Asbestos	U	2192	%	0.001	0.009	<0.001		<0.001		

Test Methods

SOP	Title	Parameters included	Method summary
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Amended Report

Report No.:	21-14505-3		
Initial Date of Issue:	12-May-2021	**Date of Re-Issue:**	17-May-2021
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R1742B Heyford - Phase 9		
Quotation No.:		**Date Received:**	04-May-2021
Order No.:		**Date Instructed:**	04-May-2021
No. of Samples:	23		
Turnaround (Wkdays):	12	**Results Due:**	19-May-2021
Date Approved:	15-May-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: R1742B Heyford - Phase 9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-14505	21-14505	21-14505	21-14505	21-14505	21-14505	21-14505	21-14505	21-14505
Quotation No.:		**Chemtest Sample ID.:**			1192608	1192609	1192610	1192611	1192612	1192613	1192614	1192615	1192616
		Sample Location:			PH9-AGG2-S7	PH9-AGG2-S8	PH9-AGG2-S9	PH9-AGG2-S10	PH9-AGG3-S1	PH9-AGG3-S2	PH9-AGG3-S3	PH9-AGG3-S4	PH9-ACMHS-S1
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):											0
		Bottom Depth (m):											0.5
		Date Sampled:			28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	Fibres/Clumps	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	Amosite	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	Stereo Microscopy	-	-	-	-	-	-
Asbestos by Gravimetry	U	2192	%	0.001			<0.001						
Total Asbestos	U	2192	%	0.001			<0.001						
Moisture	N	2030	%	0.020									
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0									
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0									
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0									
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0									
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0									
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0									
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0									
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0									
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0									
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0									
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0									
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0									
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0									
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0									
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0									
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0									
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0									
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0									
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0									
Benzene	U	2760	µg/kg	1.0									
Toluene	U	2760	µg/kg	1.0									
Ethylbenzene	U	2760	µg/kg	1.0									
m & p-Xylene	U	2760	µg/kg	1.0									
o-Xylene	U	2760	µg/kg	1.0									
PAH-MS	SN			N/A									

Results - Soil

Project: R1742B Heyford - Phase 9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-14505	21-14505	21-14505	21-14505	21-14505	21-14505	21-14505	21-14505	21-14505
Quotation No.:		**Chemtest Sample ID.:**			1192617	1192618	1192619	1192620	1192621	1192622	1192623	1192624	1192625
		Sample Location:			PH9-ACMHS-S2	PH9-ACMHS-S3	PH9-ACMHS-S4	PH9-ACMHS-S5	PH9-ACMHS-S6	PH9-ACMHS-S7	PH9-ACMHS-S8	TP102-HS-S1	TP102-HS-SS1
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0	0	0	0	0	0	0	0.2	
		Bottom Depth (m):			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.3	
		Date Sampled:			28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	Fibres/Clumps	-	-	-	-	-	-		
Asbestos Identification	U	2192		N/A	Amosite	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected		
ACM Detection Stage	U	2192		N/A	Stereo Microscopy	-	-	-	-	-	-		
Asbestos by Gravimetry	U	2192	%	0.001	<0.001								
Total Asbestos	U	2192	%	0.001	<0.001								
Moisture	N	2030	%	0.020								9.2	8.9
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0								< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0								< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0								4.2	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0								42	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0								99	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0								78	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0								320	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0								130	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0								680	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0								< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0								< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0								2.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0								11	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0								660	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0								2400	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0								6700	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0								460	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0								10000	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0								11000	< 10
Benzene	U	2760	µg/kg	1.0								< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0								< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0								< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0								< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0								< 1.0	< 1.0
PAH-MS	SN			N/A								See Attached	See Attached

Results - Soil

Project: R1742B Heyford - Phase 9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-14505	21-14505	21-14505	21-14505	21-14505
Quotation No.:		**Chemtest Sample ID.:**			1192626	1192627	1192628	1192629	1192630
		Sample Location:			TP102-HS-SS2	TP102-HS-SS3	TP102-HS-SS4	TP102-HS-SS5	TP102-HS-SS6
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):							
		Bottom Depth (m):							
		Date Sampled:			28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021
		Asbestos Lab:							
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A					
Asbestos Identification	U	2192		N/A					
ACM Detection Stage	U	2192		N/A					
Asbestos by Gravimetry	U	2192	%	0.001					
Total Asbestos	U	2192	%	0.001					
Moisture	N	2030	%	0.020	11	11	24	23	22
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.2
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	4.6
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	6.8
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	5.4	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	17	< 1.0	< 1.0	< 1.0	46
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	23	< 5.0	< 5.0	< 5.0	46
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	23	< 10	< 10	< 10	53
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
PAH-MS	SN			N/A	See Attached	See Attached	See Attached	See Attached	See Attached

Test Methods

SOP	Title	Parameters included	Method summary
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	21-14506-1
Initial Date of Issue:	12-May-2021
Client	Smith Grant LLP
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL
Contact(s):	Dan Wayland
Project	R1742b Heyford - Phase 9

Quotation No.:		**Date Received:**	04-May-2021
Order No.:		**Date Instructed:**	04-May-2021
No. of Samples:	14		
Turnaround (Wkdays):	7	**Results Due:**	12-May-2021
Date Approved:	12-May-2021	**Subcon Results Due:**	25-May-2021

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP					Chemtest Job No.:	21-14506	21-14506	21-14506	21-14506	21-14506	21-14506	21-14506	21-14506	21-14506	21-14506
Quotation No.:					Chemtest Sample ID.:	1192631	1192632	1192633	1192634	1192635	1192636	1192637	1192638	1192639	1192640
					Sample Location:	Ph9 - S38	Ph9 - S39	Ph9 - S40	Ph9 - S41	Ph9 - S42	Ph9 - S43	Ph9 - S44	Ph9 - S45	Ph9 - S46	Ph9 - S47
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Date Sampled:	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021
					Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**											
ACM Type	U	2192		N/A		-	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A		-	-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020		29	43	33	22	32	11	13	38	19	38
pH	U	2010		4.0		8.7	8.6	8.5	8.9	8.8	8.7	8.5	8.7	8.5	8.5
Arsenic	U	2450	mg/kg	1.0		40	32	30	36	27	43	23	24	21	17
Cadmium	U	2450	mg/kg	0.10		< 0.10	0.10	< 0.10	< 0.10	0.11	0.12	< 0.10	0.11	0.11	0.11
Chromium	U	2450	mg/kg	1.0		20	15	14	17	43	24	45	45	39	26
Copper	U	2450	mg/kg	0.50		9.6	8.6	6.9	7.6	17	11	18	16	17	14
Mercury	U	2450	mg/kg	0.10		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50		19	14	14	16	39	25	38	36	35	22
Lead	U	2450	mg/kg	0.50		9.8	13	7.4	8.3	21	12	20	18	19	17
Selenium	U	2450	mg/kg	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	0.29	0.35	< 0.20	0.23
Vanadium	U	2450	mg/kg	5.0		47	38	37	44	76	59	73	73	68	50
Zinc	U	2450	mg/kg	0.50		24	21	17	19	53	27	61	61	50	42
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40		< 0.40	0.41	< 0.40	< 0.40	0.72	< 0.40	0.66	0.45	0.79	0.71
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0		< 1.0	< 1.0	12	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0	< 5.0	12	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		< 1.0	< 1.0	6.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		< 1.0	< 1.0	170	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		< 5.0	< 5.0	170	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		< 10	< 10	180	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
PAH-MS	SN			N/A		See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached	See Attached

Results - Soil

Project: R1742b Heyford - Phase 9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-14506	21-14506	21-14506	21-14506
Quotation No.:		**Chemtest Sample ID.:**			1192641	1192642	1192643	1192644
		Sample Location:			Ph9 - S48	Ph9 - S49	Ph9 - S50	Ph9 - S51
		Sample Type:			SOIL	SOIL	SOIL	SOIL
		Date Sampled:			28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
ACM Type	U	2192		N/A	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-	-
Moisture	N	2030	%	0.020	52	44	38	32
pH	U	2010		4.0	8.5	8.7	8.6	8.9
Arsenic	U	2450	mg/kg	1.0	14	12	31	18
Cadmium	U	2450	mg/kg	0.10	< 0.10	< 0.10	0.15	< 0.10
Chromium	U	2450	mg/kg	1.0	11	9.0	26	7.1
Copper	U	2450	mg/kg	0.50	8.1	6.8	15	4.2
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	12	9.4	27	8.3
Lead	U	2450	mg/kg	0.50	8.0	6.9	17	5.2
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	21	17	66	21
Zinc	U	2450	mg/kg	0.50	14	9.2	38	13
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	< 0.40	< 0.40	0.88	< 0.40
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0
PAH-MS	SN			N/A	See Attached	See Attached	See Attached	See Attached

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
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I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

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Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	21-14510-1		
Initial Date of Issue:	10-May-2021		
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R1742b Heyford Ph9		
Quotation No.:		**Date Received:**	04-May-2021
Order No.:		**Date Instructed:**	04-May-2021
No. of Samples:	12		
Turnaround (Wkdays):	5	**Results Due:**	10-May-2021
Date Approved:	10-May-2021		
Approved By:	[redacted]		
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: R1742b Heyford Ph9

Client: Smith Grant LLP			**Chemtest Job No.:**		21-14510	21-14510	21-14510	21-14510	21-14510	21-14510	21-14510	21-14510	21-14510
Quotation No.:			**Chemtest Sample ID.:**		1192654	1192655	1192656	1192657	1192658	1192659	1192660	1192661	1192662
			Sample Location:		Ph9 - UST - SS1	Ph9 - UST - SS2	Ph9 - UST - SS3	Ph9 - UST - SS4	Ph9 - UST - SS5	Ph9 - UST - SS6	Ph9 - UST - SS7	Ph9 - UST - SS8	Ph9 - UST - SS9
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80
			Bottom Depth (m):		2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	
			Date Sampled:		28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021	28-Apr-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Moisture	N	2030	%	0.020	6.2	10	14	15	21	22	13	12	10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	26	17	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	51
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	150	110	< 1.0	< 1.0	< 1.0	< 1.0	7.5	< 1.0	280
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	180	130	< 1.0	< 1.0	< 1.0	< 1.0	14	< 1.0	300
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	210	180	< 1.0	< 1.0	< 1.0	< 1.0	28	< 1.0	250
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	560	430	< 5.0	< 5.0	< 5.0	< 5.0	49	< 5.0	880
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	47	40	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	70
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	190	250	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	330
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	32000	610	< 1.0	< 1.0	< 1.0	< 1.0	40	56	390
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	560	1100	< 1.0	< 1.0	< 1.0	< 1.0	170	200	580
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	32000	2000	< 5.0	< 5.0	< 5.0	< 5.0	210	250	1400
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	33000	2400	< 10	< 10	< 10	< 10	260	250	2300
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R1742b Heyford Ph9

Client: Smith Grant LLP		**Chemtest Job No.:**			21-14510	21-14510	21-14510
Quotation No.:		**Chemtest Sample ID.:**			1192663	1192664	1192665
			Sample Location:		Ph9 - UST - SS10	Ph9 - UST - SS11	Ph9 - UST - SS12
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		2.80	2.80	2.80
			Bottom Depth (m):				
			Date Sampled:		28-Apr-2021	28-Apr-2021	28-Apr-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Moisture	N	2030	%	0.020	9.4	9.4	11
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	34	6.7	9.2
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	230	40	62
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	230	47	74
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	180	52	67
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	670	150	210
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	35	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	250	46	75
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	280	69	120
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	370	180	220
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	930	290	410
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	1600	440	620
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	1.4	< 1.0	< 1.0

Test Methods

SOP	Title	Parameters included	Method summary
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

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>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

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None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
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Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Amended Report

Report No.:	21-16265-2		
Initial Date of Issue:	20-May-2021	**Date of Re-Issue:**	27-May-2021
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Scott Miller		
Project	R1742b Heyford (Phase 9)		
Quotation No.:	Q15-02887	**Date Received:**	17-May-2021
Order No.:		**Date Instructed:**	17-May-2021
No. of Samples:	2		
Turnaround (Wkdays):	9	**Results Due:**	27-May-2021
Date Approved:	27-May-2021		
Approved By:	[redacted]		
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: R1742b Heyford (Phase 9)

Client: Smith Grant LLP		**Chemtest Job No.:**			21-16265	21-16265
Quotation No.: Q15-02887		**Chemtest Sample ID.:**			1201418	1201419
			Sample Location:		Agg-SP3-S5	Agg-SP3-S6
			Sample Type:		SOIL	SOIL
			Date Sampled:		13-May-2021	13-May-2021
			Asbestos Lab:		COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type	U	2192		N/A	Fibres/Clumps	Fibres/Clumps
Asbestos Identification	U	2192		N/A	Chrysotile	Chrysotile
ACM Detection Stage	U	2192		N/A	Stereo Microscopy	Stereo Microscopy
Asbestos by Gravimetry	U	2192	%	0.001	0.008	<0.001
Total Asbestos	U	2192	%	0.001	0.008	<0.001

Test Methods

SOP	Title	Parameters included	Method summary
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

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<	"less than"
>	"greater than"
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LOD	Limit of detection

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All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

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All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

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customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	21-19648-1		
Initial Date of Issue:	15-Jun-2021		
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Scott Miller		
Project	RI742d Heyford, Dorchester		
Quotation No.:	Q15-02887	**Date Received:**	10-Jun-2021
Order No.:		**Date Instructed:**	10-Jun-2021
No. of Samples:	11		
Turnaround (Wkdays):	5	**Results Due:**	16-Jun-2021
Date Approved:	15-Jun-2021		
Approved By:	[redacted]		
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: RI742d Heyford, Dorchester

Client: Smith Grant LLP			**Chemtest Job No.:**		21-19648	21-19648	21-19648	21-19648	21-19648	21-19648	21-19648	21-19648	21-19648
Quotation No.: Q15-02887			**Chemtest Sample ID.:**		1218258	1218259	1218260	1218261	1218262	1218263	1218264	1218265	1218266
			Client Sample ID.:		TP1-S1	TP2-S1	S11	S12	S13	S14	S15	S16	S17
			Sample Location:		CULV	CULC	AGG-SP2	AGG-SP2	AGG-SP2	AGG-SP2	AGG-SP2	AGG-SP2	AGG-SP2
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
			Bottom Depth (m):		2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
			Date Sampled:		08-Jun-2021	08-Jun-2021	08-Jun-2021	08-Jun-2021	08-Jun-2021	08-Jun-2021	08-Jun-2021	08-Jun-2021	08-Jun-2021
			Asbestos Lab:				DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A			-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A			No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	16	11							
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0							
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0							
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0	< 1.0							
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0							
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0							
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10							
Benzene	M	2760	µg/kg	1.0	< 1.0	< 1.0							
Toluene	M	2760	µg/kg	1.0	< 1.0	< 1.0							
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0	< 1.0							
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0							
o-Xylene	M	2760	µg/kg	1.0	< 1.0	< 1.0							

Results - Soil

Project: RI742d Heyford, Dorchester

Client: Smith Grant LLP		**Chemtest Job No.:**			21-19648	21-19648
Quotation No.: Q15-02887		**Chemtest Sample ID.:**			1218267	1218268
		Client Sample ID.:			S3	S4
		Sample Location:			AGG-SP1	AGG-SP1
		Sample Type:			SOIL	SOIL
		Top Depth (m):			2.1	2.1
		Bottom Depth (m):			2.4	2.4
		Date Sampled:			08-Jun-2021	08-Jun-2021
		Asbestos Lab:			DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020		
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0		
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0		
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0		
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0		
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0		
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0		
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0		
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0		
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		
Benzene	M	2760	µg/kg	1.0		
Toluene	M	2760	µg/kg	1.0		
Ethylbenzene	M	2760	µg/kg	1.0		
m & p-Xylene	M	2760	µg/kg	1.0		
o-Xylene	M	2760	µg/kg	1.0		

Test Methods

SOP	Title	Parameters included	Method summary
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

TEST CERTIFICATE

PSD Assessment of material for use in Earthworks

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

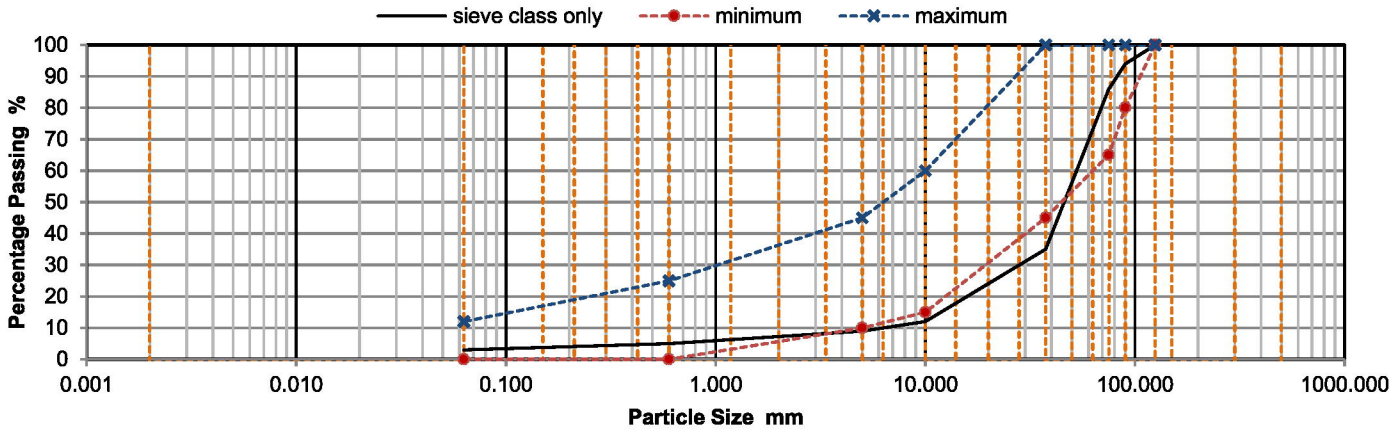
Tested in Accordance with: BS 1377-2:1990: Clause 9.2

Client:	Smith Grant LLP	Client Reference:	R1742B
Client Address:	Station House, Station Road, Ruabon, Wrexham, LL146DL	Job Number:	21-68265
		Date Sampled:	06/04/2021
		Date Received:	09/04/2021
Contact:	Daniel Wayland	Date Tested:	27/04/2021
Site Address:	Hayford Phase 9	Sampled By:	Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1834720	Depth Top [m]:	Not Given
Hole No.:	AGG 060421 S1	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	CRUSHED CONCRETE		
Sample Preparation:	Sample was whole tested, oven dried at 106.0 °C and broken down by hand.		



Sieving		Material Type 6F2 Selected granular material			
Particle Size mm	Passing %	Material Specification			Pass or Fail
500	100				
300	100				
150	100				
125	100	100	-	100	PASS
90	94	80	-	100	PASS
75	86	65	-	100	PASS
63	61				
50	49				
37.5	35	45	-	100	FAIL
28	27				
20	20				
14	15				
10	12	15	-	60	FAIL
6.3	10				
5	9	10	-	45	FAIL
3.35	8				
2	7				
1.18	6				
0.6	5	0	-	25	PASS
0.425	5				
0.3	4				
0.212	4				
0.15	3				
0.063	3	0	-	12	PASS

Uniformity Coefficient [Cu]		9.5
D60	mm	62.3
D10	mm	6.55

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Earthworks
Specification for Highway Works, Volume 1, Series 600, TABLE 6/2

Remarks:

Signed:

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 30/04/2021

GF 471.1

TEST CERTIFICATE

Testing for Constituents of Coarse Recycled Aggregate

Tested in Accordance with: BS EN 933-11:2009

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Client:	Smith Grant LLP	Client Reference:	R1742B
Client Address:	Station House, Station Road, Ruabon, Wrexham, LL146DL	Job Number:	21-68265
		Date Sampled:	06/04/2021
		Date Received:	09/04/2021
Contact:	Daniel Wayland	Date Tested:	27/04/2021
Site Address:	Hayford Phase 9	Sampled By:	Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1834720	Depth Top [m]:	Not Given
Hole No.:	AGG 060421 S1	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	CRUSHED CONCRETE		

Sample preparation: Sample was dried at 106°C

Constituents	Proportion (cm3/kg)
Floating (FL)	1.4

Constituents	Proportion (%)
Concrete/ Concrete units and Mortar (Rc)	92
Unbound Aggregate (Ru)	1
Masonry (Rb)	8.2
Bituminous materials (Ra)	0
Glass (Rg)	0
Other (X)	0.1

Remarks:

Signed: [redacted]

Monika Janoszek
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 30/04/2021

TEST CERTIFICATE

PSD Assessment of material for use in Earthworks

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

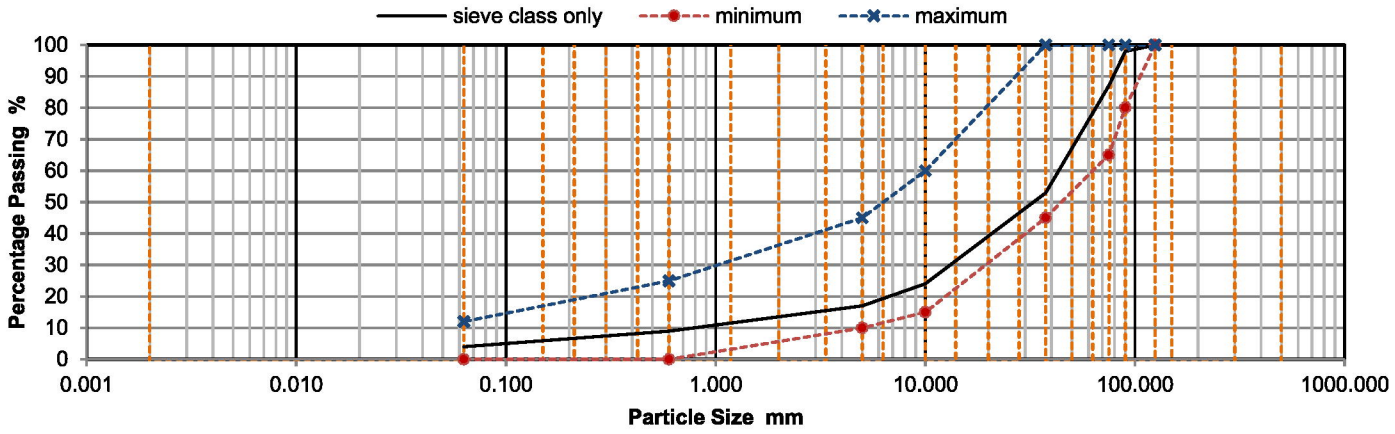
Tested in Accordance with: BS 1377-2:1990: Clause 9.2

Client:	Smith Grant LLP	Client Reference:	R1742B
Client Address:	Station House, Station Road, Ruabon, Wrexham, LL146DL	Job Number:	21-75647
		Date Sampled:	12/05/2021
		Date Received:	13/05/2021
Contact:	Scott Miller	Date Tested:	03/06/2021
Site Address:	Heyford Phase 9	Sampled By:	Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1874622	Depth Top [m]:	Not Given
Hole No.:	Agg SP3 - GS1 to GS3	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	CRUSHED CONCRETE		
Sample Preparation:	Sample was whole tested, oven dried at 40.0 °C and broken down by hand.		



Sieving		Material Type 6F2 Selected granular material			
Particle Size mm	Passing %	Material Specification			Pass or Fail
500	100				
300	100				
150	100				
125	100	100	-	100	PASS
90	98	80	-	100	PASS
75	87	65	-	100	PASS
63	75				
50	64				
37.5	53	45	-	100	PASS
28	48				
20	39				
14	30				
10	24	15	-	60	PASS
6.3	19				
5	17	10	-	45	PASS
3.35	15				
2	13				
1.18	11				
0.6	9	0	-	25	PASS
0.425	8				
0.3	7				
0.212	6				
0.15	5				
0.063	4	0	-	12	PASS

Uniformity Coefficient [Cu]		55
D60	mm	45.1
D10	mm	0.824

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Earthworks
Specification for Highway Works, Volume 1, Series 600, TABLE 6/2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Signed: [redacted]

Szczepan Bielatowicz
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 11/06/2021

GF 471.1

TEST CERTIFICATE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Testing for Constituents of Coarse Recycled Aggregate

Tested in Accordance with: BS EN 933-11:2009

Client:	Smith Grant LLP	Client Reference:	R1742B
Client Address:	Station House, Station Road, Ruabon, Wrexham, LL146DL	Job Number:	21-75647
		Date Sampled:	12/05/2021
		Date Received:	13/05/2021
Contact:	Scott Miller	Date Tested:	03/06/2021
Site Address:	Heyford Phase 9	Sampled By:	Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1874622	Depth Top [m]:	Not Given
Hole No.:	Agg SP3 - GS1 to GS3	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	CRUSHED CONCRETE		

Sample preparation: Sample was dried at 40°C

Constituents	Proportion (cm3/kg)
Floating (FL)	1

Constituents	Proportion (%)
Concrete/ Concrete units and Mortar (Rc)	88
Unbound Aggregate (Ru)	0.9
Masonry (Rb)	9.9
Bituminous materials (Ra)	0.4
Glass (Rg)	0.1
Other (X)	0.1

Remarks:

Signed: [redacted]

Szczepan Bielatowicz
PL Deputy Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 11/06/2021

GF 147.16

TEST CERTIFICATE

PSD Assessment of material for use in Earthworks

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

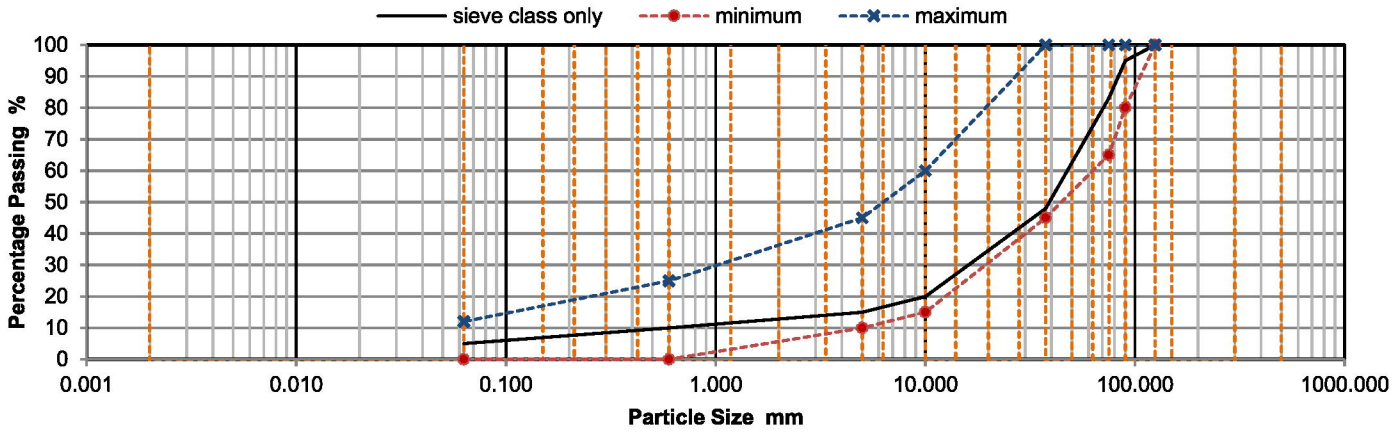
Tested in Accordance with: BS 1377-2:1990: Clause 9.2

Client:	Smith Grant LLP	Client Reference:	R1742B
Client Address:	Station House, Station Road Ruabon, Wrexham LL146DL	Job Number:	21-75652
		Date Sampled:	12/05/2021
		Date Received:	13/05/2021
Contact:	megan.jones@smithgrant.co.uk	Date Tested:	03/06/2021
Site Address:	Heyford Phase 9	Sampled By:	Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1874642	Depth Top [m]:	Not Given
Hole No.:	Agg SP2 - GS1 to GS3	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Multicolor slightly clayey sandy GRAVEL with cobbles		
Sample Preparation:	Sample was whole tested, oven dried at 40.0 °C and broken down by hand.		



Sieving		Material Type 6F2 Selected granular material			
Particle Size mm	Passing %	Material Specification			Pass or Fail
500	100				
300	100				
150	100				
125	100	100	-	100	PASS
90	95	80	-	100	PASS
75	83	65	-	100	PASS
63	69				
50	56				
37.5	48	45	-	100	PASS
28	39				
20	31				
14	24				
10	20	15	-	60	PASS
6.3	16				
5	15	10	-	45	PASS
3.35	13				
2	12				
1.18	11				
0.6	10	0	-	25	PASS
0.425	9				
0.3	8				
0.212	7				
0.15	6				
0.063	5	0	-	12	PASS

Uniformity Coefficient [Cu]		76
D60	mm	53.9
D10	mm	0.709

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

Earthworks
Specification for Highway Works, Volume 1, Series 600, TABLE 6/2

Remarks: Re-issue 1: PSD classified.

Signed: [redacted]

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 15/06/2021

GF 471.1

TEST CERTIFICATE

Testing for Constituents of Coarse Recycled Aggregate

Tested in Accordance with: BS EN 933-11:2009

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Client:	Smith Grant LLP	Client Reference:	R1742B
Client Address:	Station House, Station Road, Ruabon, Wrexham, LL146DL	Job Number:	21-75652
		Date Sampled:	12/05/2021
		Date Received:	13/05/2021
Contact:	megan.jones@smithgrant.co.uk	Date Tested:	03/06/2021
Site Address:	Heyford Phase 9	Sampled By:	Client

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1874642	Depth Top [m]:	Not Given
Hole No.:	Agg SP2 - GS1 to GS3	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Multicolor slightly clayey sandy GRAVEL with cobbles		

Sample preparation: Sample was dried at 40°C

Constituents	Proportion (cm3/kg)
Floating (FL)	1

Constituents	Proportion (%)
Concrete/ Concrete units and Mortar (Rc)	88
Unbound Aggregate (Ru)	1.4
Masonry (Rb)	7
Bituminous materials (Ra)	2.9
Glass (Rg)	0
Other (X)	0.1

Remarks: Re-issue 1: PSD classified.

Signed: [redacted]

Aleksandra Jurochnik
PL Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 15/06/2021

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	22-40691-1		
Initial Date of Issue:	31-Oct-2022		
Client	Smith Grant LLP		
Client Address:	Bryn Estyn Business Centre Bryn Estyn Road Wrexham LL13 9TY		
Contact(s):	Scott Miller		
Project	R1742b Heyford (Dorchester)		
Quotation No.:	Q15-02887	**Date Received:**	24-Oct-2022
Order No.:		**Date Instructed:**	24-Oct-2022
No. of Samples:	23		
Turnaround (Wkdays):	5	**Results Due:**	28-Oct-2022
Date Approved:	31-Oct-2022		
Approved By:	[redacted]		
Details:	Stuart Henderson, Technical Manager		

Results - Soil

Project: R1742b Heyford (Dorchester)

Client: Smith Grant LLP		**Chemtest Job No.:**			22-40691	22-40691	22-40691	22-40691	22-40691	22-40691	22-40691	22-40691	22-40691
Quotation No.: Q15-02887		**Chemtest Sample ID.:**			1531155	1531156	1531157	1531158	1531159	1531160	1531161	1531162	1531163
		Sample Location:			Ph9-S52	Ph9-S53	Ph9-S54	Ph9-S55	Ph9-S56	Ph9-S57	Ph9-S58	Ph9-S59	Ph9-S60
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:			18-Oct-2022	18-Oct-2022	18-Oct-2022	18-Oct-2022	18-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022
		Asbestos Lab:			NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	11	7.5	11	9.1	8.9	12	11	8.0	11
pH	U	2010		4.0	8.2	8.2	8.3	8.4	8.3	8.1	8.0	8.2	7.9
Arsenic	U	2455	mg/kg	0.5	7.8	8.1	7.9	11	6.8	7.5	9.3	6.7	11
Cadmium	U	2455	mg/kg	0.10	0.20	0.22	0.10	< 0.10	< 0.10	0.11	0.11	0.11	0.13
Chromium	U	2455	mg/kg	0.5	13	11	12	10	7.0	12	16	9.6	17
Copper	U	2455	mg/kg	0.50	7.4	9.9	7.5	5.1	4.3	6.2	8.5	6.2	10
Mercury	U	2455	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	U	2455	mg/kg	0.50	10	9.4	10	7.6	6.1	8.1	13	7.7	14
Lead	U	2455	mg/kg	0.50	11	15	11	12	8.9	19	8.9	14	14
Selenium	U	2455	mg/kg	0.25	0.58	0.50	0.48	0.49	0.34	0.35	0.61	0.37	0.69
Vanadium	U	2455	mg/kg	0.5	23	22	24	21	14	22	31	19	35
Zinc	U	2455	mg/kg	0.50	40	45	28	22	19	39	35	62	39
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	2.5	5.9	2.5	1.8	3.4	1.5	1.7	1.9	3.3
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	45	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	120	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	75	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	86	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	330	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	6.6	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0	< 1.0	< 1.0	170	15	15	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	1200	120	45	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	1400	140	60	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	1700	140	60	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	1.2	< 0.10	< 0.10	0.59	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	0.98	< 0.10	< 0.10	0.51	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	1.5	< 0.10	< 0.10	2.0	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	1.1	< 0.10	< 0.10	1.9	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford (Dorchester)

Client: Smith Grant LLP			**Chemtest Job No.:**		22-40691	22-40691	22-40691	22-40691	22-40691	22-40691	22-40691	22-40691	22-40691
Quotation No.: Q15-02887			**Chemtest Sample ID.:**		1531155	1531156	1531157	1531158	1531159	1531160	1531161	1531162	1531163
			Sample Location:		Ph9-S52	Ph9-S53	Ph9-S54	Ph9-S55	Ph9-S56	Ph9-S57	Ph9-S58	Ph9-S59	Ph9-S60
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Date Sampled:		18-Oct-2022	18-Oct-2022	18-Oct-2022	18-Oct-2022	18-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022
			Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	9.6	1.5	9.2	14	3.8	< 0.10	1.3	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	4.4	0.41	3.3	4.7	1.2	< 0.10	0.41	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	1.7	36	2.4	20	26	7.0	< 0.10	3.7	1.5
Pyrene	U	2700	mg/kg	0.10	2.0	38	2.4	19	24	7.0	< 0.10	3.7	1.6
Benzo[a]anthracene	U	2700	mg/kg	0.10	1.1	21	1.1	9.2	11	3.3	< 0.10	2.2	0.78
Chrysene	U	2700	mg/kg	0.10	1.0	24	1.3	10	8.3	3.2	< 0.10	2.3	0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	37	1.6	12	14	4.2	< 0.10	3.6	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	14	0.69	4.8	5.9	1.8	< 0.10	1.5	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	32	1.4	9.8	12	3.5	< 0.10	2.7	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	22	< 0.10	< 0.10	7.8	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	5.7	< 0.10	< 0.10	3.1	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	21	< 0.10	< 0.10	7.4	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	5.8	270	13	97	140	35	< 2.0	21	4.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R1742b Heyford (Dorchester)

Client: Smith Grant LLP		**Chemtest Job No.:**			22-40691	22-40691	22-40691	22-40691	22-40691	22-40691	22-40691	22-40691	22-40691
Quotation No.: Q15-02887		**Chemtest Sample ID.:**			1531164	1531165	1531166	1531167	1531168	1531169	1531170	1531171	1531172
		Sample Location:			Ph9-S61	Ph9-S62	Ph9-S63	Ph9-S64	Ph9-S65	Ph9-S66	Ph9-S67	Ph9-S68	Ph9-S69
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:			19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022
		Asbestos Lab:			NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	9.3	12	9.1	12	7.8	10	9.4	14	12
pH	U	2010		4.0	8.4	8.7	9.0	8.4	8.1	8.1	8.1	8.2	8.1
Arsenic	U	2455	mg/kg	0.5	7.3	11	8.3	11	12	9.5	12	7.1	8.7
Cadmium	U	2455	mg/kg	0.10	0.10	0.14	0.22	0.24	0.20	0.15	0.14	0.10	0.11
Chromium	U	2455	mg/kg	0.5	10	16	14	23	16	14	20	10	13
Copper	U	2455	mg/kg	0.50	7.4	10	7.6	9.4	19	8.8	11	6.5	7.2
Mercury	U	2455	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	U	2455	mg/kg	0.50	8.4	12	9.6	12	12	11	16	8.2	10
Lead	U	2455	mg/kg	0.50	11	16	25	65	24	19	16	9.5	14
Selenium	U	2455	mg/kg	0.25	0.39	0.60	0.48	0.60	0.56	0.47	0.67	0.36	0.56
Vanadium	U	2455	mg/kg	0.5	21	30	24	30	28	27	31	21	25
Zinc	U	2455	mg/kg	0.50	30	42	53	48	60	38	35	27	28
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	4.3	3.8	2.9	1.9	2.9	1.6	3.3	1.3	2.7
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	18	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	82	57	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	99	57	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0	< 1.0	48	51	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	830	540	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	880	590	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	980	640	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	0.99	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	0.59	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	1.2	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	1.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford (Dorchester)

Client: Smith Grant LLP		**Chemtest Job No.:**			22-40691	22-40691	22-40691	22-40691	22-40691	22-40691	22-40691	22-40691	22-40691
Quotation No.: Q15-02887		**Chemtest Sample ID.:**			1531164	1531165	1531166	1531167	1531168	1531169	1531170	1531171	1531172
		Sample Location:			Ph9-S61	Ph9-S62	Ph9-S63	Ph9-S64	Ph9-S65	Ph9-S66	Ph9-S67	Ph9-S68	Ph9-S69
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:			19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022
		Asbestos Lab:			NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Phenanthrene	U	2700	mg/kg	0.10	1.4	1.1	8.6	< 0.10	0.56	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	0.45	0.73	3.5	< 0.10	0.22	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	3.4	14	26	< 0.10	2.4	1.2	1.7	0.61	0.68
Pyrene	U	2700	mg/kg	0.10	3.7	18	28	< 0.10	2.6	1.6	1.7	0.98	0.59
Benzo[a]anthracene	U	2700	mg/kg	0.10	2.1	9.8	14	< 0.10	1.3	1.0	0.76	0.43	< 0.10
Chrysene	U	2700	mg/kg	0.10	2.4	12	15	< 0.10	1.5	1.1	1.0	0.41	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	3.5	20	23	< 0.10	1.9	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	1.5	8.3	8.5	< 0.10	0.83	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	2.6	17	19	< 0.10	1.7	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	14	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	5.7	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	13	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	21	100	180	< 2.0	13	4.9	5.2	2.4	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R1742b Heyford (Dorchester)

Client: Smith Grant LLP		**Chemtest Job No.:**			22-40691	22-40691	22-40691	22-40691	22-40691
Quotation No.: Q15-02887		**Chemtest Sample ID.:**			1531173	1531174	1531175	1531176	1531177
			Sample Location:		Ph9-S70	Ph9-S71	Ph9-S72	Ph9-S73	Ph9-S74
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Date Sampled:		19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	18-Oct-2022
			Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	11	8.4	9.0	6.8	8.6
pH	U	2010		4.0	8.1	8.1	8.1	8.5	8.0
Arsenic	U	2455	mg/kg	0.5	9.8	7.0	14	8.5	5.8
Cadmium	U	2455	mg/kg	0.10	0.14	0.17	0.11	0.12	< 0.10
Chromium	U	2455	mg/kg	0.5	13	9.6	17	13	9.0
Copper	U	2455	mg/kg	0.50	8.5	5.1	7.6	7.9	7.0
Mercury	U	2455	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06
Nickel	U	2455	mg/kg	0.50	11	7.9	13	9.7	8.2
Lead	U	2455	mg/kg	0.50	16	12	11	14	13
Selenium	U	2455	mg/kg	0.25	0.62	0.40	0.48	0.45	0.46
Vanadium	U	2455	mg/kg	0.5	25	18	26	24	14
Zinc	U	2455	mg/kg	0.50	35	25	31	28	27
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	3.6	0.94	1.9	2.0	3.2
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0	4.4	4.1	< 1.0	6.3	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	11	18	< 1.0	96	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	16	22	< 5.0	100	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	16	22	< 10	100	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford (Dorchester)

Client: Smith Grant LLP			**Chemtest Job No.:**		22-40691	22-40691	22-40691	22-40691	22-40691
Quotation No.: Q15-02887			**Chemtest Sample ID.:**		1531173	1531174	1531175	1531176	1531177
			Sample Location:		Ph9-S70	Ph9-S71	Ph9-S72	Ph9-S73	Ph9-S74
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Date Sampled:		19-Oct-2022	19-Oct-2022	19-Oct-2022	19-Oct-2022	18-Oct-2022
			Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	1.9	< 0.10	5.4	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	0.69	< 0.10	2.1	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	1.4	3.9	0.33	12	0.28
Pyrene	U	2700	mg/kg	0.10	1.4	3.7	0.33	11	0.34
Benzo[a]anthracene	U	2700	mg/kg	0.10	0.75	2.0	< 0.10	5.9	< 0.10
Chrysene	U	2700	mg/kg	0.10	0.76	2.5	< 0.10	7.4	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	2.9	< 0.10	9.1	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	1.3	< 0.10	3.6	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	2.4	< 0.10	7.5	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	4.3	21	< 2.0	64	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	22-41389-1		
Initial Date of Issue:	07-Nov-2022		
Client	Smith Grant LLP		
Client Address:	Bryn Estyn Business Centre Bryn Estyn Road Wrexham LL13 9TY		
Contact(s):	Scott Miller		
Project	R1742b Heyford (Dorchester)		
Quotation No.:	Q15-02887	**Date Received:**	28-Oct-2022
Order No.:		**Date Instructed:**	28-Oct-2022
No. of Samples:	18		
Turnaround (Wkdays):	5	**Results Due:**	03-Nov-2022
Date Approved:	07-Nov-2022		
Approved By:	[redacted]		
Details:	Stuart Henderson, Technical Manager		

Results - Soil

Project: R1742b Heyford (Dorchester)

Client: Smith Grant LLP		**Chemtest Job No.:**			22-41389	22-41389	22-41389	22-41389	22-41389	22-41389	22-41389	22-41389	22-41389
Quotation No.: Q15-02887		**Chemtest Sample ID.:**			1534351	1534352	1534353	1534354	1534355	1534356	1534357	1534358	1534359
		Sample Location:			PH10-S1	PH10-S2	PH10-S3	PH10-S4	PH10-S5	PH10-S6	PH10-S7	PH10-S8	PH10-S9
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:			25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	13	15	12	8.4	14	13	14	15	8.9
pH	U	2010		4.0	8.6	8.5	8.7	8.7	8.4	8.5	8.6	8.7	8.7
Arsenic	U	2455	mg/kg	0.5	7.1	8.5	10	11	18	10	8.6	11	8.0
Cadmium	U	2455	mg/kg	0.10	< 0.10	< 0.10	0.12	< 0.10	0.35	0.11	0.10	0.25	0.10
Chromium	U	2455	mg/kg	0.5	11	11	16	16	28	15	12	17	12
Copper	U	2455	mg/kg	0.50	5.4	5.7	7.3	7.5	14	8.1	6.5	9.8	5.6
Mercury	U	2455	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	< 0.05	< 0.05
Nickel	U	2455	mg/kg	0.50	8.5	9.2	13	15	24	13	9.9	14	9.7
Lead	U	2455	mg/kg	0.50	10	11	14	9.6	20	16	11	18	9.5
Selenium	U	2455	mg/kg	0.25	0.31	0.32	0.43	0.39	0.92	0.45	0.38	0.63	0.49
Vanadium	U	2455	mg/kg	0.5	19	21	28	28	47	29	23	32	23
Zinc	U	2455	mg/kg	0.50	31	27	30	30	62	34	27	34	22
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	5.3	3.0	2.8	1.0	2.2	2.9	3.3	1.7	2.0
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: R1742b Heyford (Dorchester)

Client: Smith Grant LLP			**Chemtest Job No.:**		22-41389	22-41389	22-41389	22-41389	22-41389	22-41389	22-41389	22-41389	22-41389
Quotation No.: Q15-02887			**Chemtest Sample ID.:**		1534351	1534352	1534353	1534354	1534355	1534356	1534357	1534358	1534359
			Sample Location:		PH10-S1	PH10-S2	PH10-S3	PH10-S4	PH10-S5	PH10-S6	PH10-S7	PH10-S8	PH10-S9
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Date Sampled:		25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	0.55	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	0.17	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	1.2	0.92	0.33	< 0.10	0.44	< 0.10	0.35	< 0.10	< 0.10
Pyrene	U	2700	mg/kg	0.10	1.3	1.1	0.38	< 0.10	0.49	< 0.10	0.48	< 0.10	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	0.57	0.34	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2700	mg/kg	0.10	1.0	0.61	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	1.1	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	0.61	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	0.74	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	7.2	3.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Soil

Project: R1742b Heyford (Dorchester)

Client: Smith Grant LLP		**Chemtest Job No.:**			22-41389	22-41389	22-41389	22-41389	22-41389	22-41389	22-41389	22-41389	22-41389
Quotation No.: Q15-02887		**Chemtest Sample ID.:**			1534360	1534361	1534362	1534363	1534364	1534365	1534366	1534367	1534368
		Sample Location:			PH10-S10	PH10-S11	PH10-S12	PH10-S13	PH10-S14	PH9-Agg-4-S1	PH9-Agg-4-S2	PH9-DH-Agg-S1	PH9-DH-Agg-S2
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:			25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	8.4	11	9.5	12	12				
pH	U	2010		4.0	8.8	8.8	8.7	8.8	8.8				
Arsenic	U	2455	mg/kg	0.5	14	12	13	6.8	9.0				
Cadmium	U	2455	mg/kg	0.10	0.11	< 0.10	0.11	< 0.10	0.16				
Chromium	U	2455	mg/kg	0.5	18	14	16	9.5	11				
Copper	U	2455	mg/kg	0.50	8.1	6.8	7.2	4.3	5.7				
Mercury	U	2455	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05				
Nickel	U	2455	mg/kg	0.50	14	12	13	7.6	9.3				
Lead	U	2455	mg/kg	0.50	13	8.1	11	8.6	13				
Selenium	U	2455	mg/kg	0.25	0.61	0.46	0.48	0.31	0.38				
Vanadium	U	2455	mg/kg	0.5	38	30	31	19	20				
Zinc	U	2455	mg/kg	0.50	31	24	27	17	23				
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50				
Organic Matter	U	2625	%	0.40	2.1	1.6	3.0	2.2	1.9				
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0				
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0				
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	< 10	< 10	< 10	< 10	< 10				
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10				
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10				
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10				

Results - Soil

Project: R1742b Heyford (Dorchester)

Client: Smith Grant LLP		Chemtest Job No.:			22-41389	22-41389	22-41389	22-41389	22-41389	22-41389	22-41389	22-41389	22-41389
Quotation No.: Q15-02887		Chemtest Sample ID.:			1534360	1534361	1534362	1534363	1534364	1534365	1534366	1534367	1534368
		Sample Location:			PH10-S10	PH10-S11	PH10-S12	PH10-S13	PH10-S14	PH9-Agg-4-S1	PH9-Agg-4-S2	PH9-DH-Agg-S1	PH9-DH-Agg-S2
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Date Sampled:			25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022	25-Oct-2022
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10				
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10				
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10				
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.40	0.40				
Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.50	0.50				
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.29				
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.51				
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10				
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10				
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10				
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10				
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10				
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10				
Total Of 16 PAH's	U	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0				
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0				

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Chemtest
Willie Snaith Rd
Newmarket
Suffolk
CB8 7SQ

Attention: Chemtest Subcontracting

CERTIFICATE OF ANALYSIS

Date of report Generation:	11 May 2021
Customer:	Chemtest
Sample Delivery Group (SDG):	210506-141
Your Reference:	
Location:	21-14506
Report No:	597497

We received 14 samples on Thursday May 06, 2021 and 14 of these samples were scheduled for analysis which was completed on Tuesday May 11, 2021. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

[redacted]

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	210506-141	**Client Reference:**		**Report Number:**	597497
Location:	21-14506	**Order Number:**	20798	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
24219553	PH9-S38			04/05/2021
24219554	PH9-S39			04/05/2021
24219555	PH9-S40			04/05/2021
24219557	PH9-S41			04/05/2021
24219558	PH9-S42			04/05/2021
24219559	PH9-S43			04/05/2021
24219560	PH9-S44			04/05/2021
24219562	PH9-S45			04/05/2021
24219563	PH9-S46			04/05/2021
24219564	PH9-S47			04/05/2021
24219565	PH9-S48			04/05/2021
24219566	PH9-S49			04/05/2021
24219567	PH9-S50			04/05/2021
24219568	PH9-S51			04/05/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	210506-141	**Client Reference:**		**Report Number:**	597497
Location:	21-14506	**Order Number:**	20798	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			24219553	PH9-S38			250g Amber Jar (ALE210)	S
			24219554	PH9-S39			250g Amber Jar (ALE210)	S
			24219555	PH9-S40			250g Amber Jar (ALE210)	S
			24219557	PH9-S41			250g Amber Jar (ALE210)	S
			24219558	PH9-S42			250g Amber Jar (ALE210)	S
			24219559	PH9-S43			250g Amber Jar (ALE210)	S
			24219560	PH9-S44			250g Amber Jar (ALE210)	S
			24219562	PH9-S45			250g Amber Jar (ALE210)	S
			24219563	PH9-S46			250g Amber Jar (ALE210)	S
			24219564	PH9-S47			250g Amber Jar (ALE210)	S
			24219565	PH9-S48			250g Amber Jar (ALE210)	S
			24219566	PH9-S49			250g Amber Jar (ALE210)	S
			24219567	PH9-S50			250g Amber Jar (ALE210)	S
			24219568	PH9-S51			250g Amber Jar (ALE210)	S
PAH by GCMS	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sample description	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X

CERTIFICATE OF ANALYSIS

SDG:	210506-141	**Client Reference:**		**Report Number:**	597497
Location:	21-14506	**Order Number:**	20798	**Superseded Report:**	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	**fine**	0.063mm - 0.1mm	**medium**	0.1mm - 2mm	**coarse**	2mm - 10mm	**very coarse**	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
24219553	PH9-S38		Dark Brown	Loamy Sand	Stones	None
24219554	PH9-S39		Dark Brown	Loamy Sand	Stones	None
24219555	PH9-S40		Dark Brown	Loamy Sand	Stones	None
24219557	PH9-S41		Dark Brown	Loamy Sand	Stones	Vegetation
24219558	PH9-S42		Dark Brown	Loamy Sand	Stones	None
24219559	PH9-S43		Dark Brown	Loamy Sand	Stones	None
24219560	PH9-S44		Dark Brown	Sandy Clay Loam	Stones	None
24219562	PH9-S45		Dark Brown	Clay Loam	None	None
24219563	PH9-S46		Dark Brown	Clay Loam	None	None
24219564	PH9-S47		Dark Brown	Loamy Sand	None	None
24219565	PH9-S48		Dark Brown	Loamy Sand	None	None
24219566	PH9-S49		Light Brown	Sandy Silt Loam	None	None
24219567	PH9-S50		Dark Brown	Loamy Sand	Stones	Vegetation
24219568	PH9-S51		Light Brown	Loamy Sand	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	210506-141	**Client Reference:**		**Report Number:**	597497
Location:	21-14506	**Order Number:**	20798	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PH9-S38	PH9-S39	PH9-S40	PH9-S41	PH9-S42	PH9-S43
			Depth (m)	.	.	.	.	.	.
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	04/05/2021	04/05/2021	04/05/2021	04/05/2021	04/05/2021	04/05/2021
			Sample Time	.	.	.	.	.	.
			Date Received	06/05/2021	06/05/2021	06/05/2021	06/05/2021	06/05/2021	06/05/2021
			SDG Ref	210506-141	210506-141	210506-141	210506-141	210506-141	210506-141
			Lab Sample No.(s)	24219553	24219554	24219555	24219557	24219558	24219559
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		9.4	11	9	11	13	7.4

Validated

CERTIFICATE OF ANALYSIS

SDG:	210506-141	**Client Reference:**		**Report Number:**	597497
Location:	21-14506	**Order Number:**	20798	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PH9-S44	PH9-S45	PH9-S46	PH9-S47	PH9-S48	PH9-S49
			Depth (m)	.	.	.	.	.	.
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	04/05/2021	04/05/2021	04/05/2021	04/05/2021	04/05/2021	04/05/2021
			Sample Time	.	.	.	.	.	.
			Date Received	06/05/2021	06/05/2021	06/05/2021	06/05/2021	06/05/2021	06/05/2021
			SDG Ref	210506-141	210506-141	210506-141	210506-141	210506-141	210506-141
			Lab Sample No.(s)	24219560	24219562	24219563	24219564	24219565	24219566
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		13	14	15	13	16	17

Validated

CERTIFICATE OF ANALYSIS

SDG:	210506-141	**Client Reference:**		**Report Number:**	597497
Location:	21-14506	**Order Number:**	20798	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PH9-S50	PH9-S51
			Depth (m)	.	.
			Sample Type	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	04/05/2021	04/05/2021
			Sample Time	.	.
			Date Received	06/05/2021	06/05/2021
			SDG Ref	210506-141	210506-141
			Lab Sample No.(s)	24219567	24219568
			AGS Reference		
Moisture Content Ratio (% of as received sample)	%	PM024		10	12

Validated

CERTIFICATE OF ANALYSIS

SDG:	210506-141	**Client Reference:**		**Report Number:**	597497
Location:	21-14506	**Order Number:**	20798	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PH9-S38	PH9-S39	PH9-S40	PH9-S41	PH9-S42	PH9-S43
			Depth (m)	.	.	.	.	.	.
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	04/05/2021	04/05/2021	04/05/2021	04/05/2021	04/05/2021	04/05/2021
			Sample Time	.	.	.	.	.	.
			Date Received	06/05/2021	06/05/2021	06/05/2021	06/05/2021	06/05/2021	06/05/2021
			SDG Ref	210506-141	210506-141	210506-141	210506-141	210506-141	210506-141
			Lab Sample No.(s)	24219553	24219554	24219555	24219557	24219558	24219559
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		78.1	76.2	85.6	85.2	76.6	76.9
Acenaphthene-d10 % recovery**	%	TM218		80.2	78.9	82.9	76.5	75.9	78
Phenanthrene-d10 % recovery**	%	TM218		90.5	84.9	93.8	81.1	84.3	90.6
Chrysene-d12 % recovery**	%	TM218		94.6	90.2	82.8	71.2	84.9	91.4
Perylene-d12 % recovery**	%	TM218		85.1	79.1	75	69.3	74	82.3
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	22.5 M	<8 M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	13.3 M	<10 M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	223 M	<15 M	44.7 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	46 M	<16 M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M	387 M	<17 M	118 M	21 M
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	324 M	<15 M	109 M	16.6 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	138 M	<14 M	67.5 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	129 M	<10 M	58.2 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	157 M	<15 M	89 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	57.6 M	<14 M	31.3 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	119 M	<15 M	60.4 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	82.7 M	<18 M	41.6 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	80.1 M	<24 M	43.5 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	1780	<118	664	<118

Validated

CERTIFICATE OF ANALYSIS

SDG:	210506-141	**Client Reference:**		**Report Number:**	597497
Location:	21-14506	**Order Number:**	20798	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PH9-S44	PH9-S45	PH9-S46	PH9-S47	PH9-S48	PH9-S49
			Depth (m)	.	.	.	.	.	.
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	04/05/2021	04/05/2021	04/05/2021	04/05/2021	04/05/2021	04/05/2021
			Sample Time	.	.	.	.	.	.
			Date Received	06/05/2021	06/05/2021	06/05/2021	06/05/2021	06/05/2021	06/05/2021
			SDG Ref	210506-141	210506-141	210506-141	210506-141	210506-141	210506-141
			Lab Sample No.(s)	24219560	24219562	24219563	24219564	24219565	24219566
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218		84.9	86.6	86.4	81.1	74.2	75.4
Acenaphthene-d10 % recovery**	%	TM218		82.6	79	81	77.7	76.5	77
Phenanthrene-d10 % recovery**	%	TM218		93.5	85.6	90.6	85.7	86.5	81
Chrysene-d12 % recovery**	%	TM218		80.2	74.9	97.1	82.6	89.7	84.1
Perylene-d12 % recovery**	%	TM218		74.1	72.7	93.4	80.6	80	72.8
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	22.3 M	<15 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M	34.6 M	119 M	<17 M	47 M
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	30.4 M	111 M	<15 M	44 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	22 M	69.8 M	<14 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	19.1 M	56.4 M	<10 M	20.7 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	28.1 M	145 M	<15 M	47.4 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	40.8 M	<14 M	18.7 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	19.4 M	101 M	<15 M	32.9 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	94.2 M	<18 M	30.1 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	106 M	<24 M	33 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	154	865	<118	274

Validated

CERTIFICATE OF ANALYSIS

SDG:	210506-141	**Client Reference:**		**Report Number:**	597497
Location:	21-14506	**Order Number:**	20798	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	PH9-S50	PH9-S51
			Depth (m)	.	.
			Sample Type	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	04/05/2021	04/05/2021
			Sample Time	.	.
			Date Received	06/05/2021	06/05/2021
			SDG Ref	210506-141	210506-141
			Lab Sample No.(s)	24219567	24219568
			AGS Reference		
Naphthalene-d8 % recovery**	%	TM218		75.2	81.2
Acenaphthene-d10 % recovery**	%	TM218		77.8	79.1
Phenanthrene-d10 % recovery**	%	TM218		90.5	88.5
Chrysene-d12 % recovery**	%	TM218		91.7	78.4
Perylene-d12 % recovery**	%	TM218		82.7	70.4
Naphthalene	<9 µg/kg	TM218		14.8 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		29.1 M	<12 M
Acenaphthene	<8 µg/kg	TM218		230 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		1920 M	45.8 M
Anthracene	<16 µg/kg	TM218		543 M	<16 M
Fluoranthene	<17 µg/kg	TM218		3140 M	182 M
Pyrene	<15 µg/kg	TM218		2540 M	171 M
Benz(a)anthracene	<14 µg/kg	TM218		1330 M	77.8 M
Chrysene	<10 µg/kg	TM218		1110 M	73.6 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		1420 M	106 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		474 M	34.6 M
Benzo(a)pyrene	<15 µg/kg	TM218		1040 M	68.1 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		630 M	51.4 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		131 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		660 M	54 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		15200	864

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	210506-141	**Client Reference:**		**Report Number:**	597497
Location:	21-14506	**Order Number:**	20798	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	24219553	24219554	24219555	24219557	24219558	24219559	24219560	24219562	24219563	24219564
Customer Sample Ref.	PH9-S38	PH9-S39	PH9-S40	PH9-S41	PH9-S42	PH9-S43	PH9-S44	PH9-S45	PH9-S46	PH9-S47
AGS Ref.										
Depth										
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
PAH by GCMS	10-May-2021	10-May-2021	10-May-2021	11-May-2021	10-May-2021	10-May-2021	10-May-2021	11-May-2021	10-May-2021	10-May-2021
Sample description	07-May-2021	07-May-2021	07-May-2021	07-May-2021	07-May-2021	07-May-2021	07-May-2021	07-May-2021	07-May-2021	07-May-2021

Lab Sample No(s)	24219565	24219566	24219567	24219568
Customer Sample Ref.	PH9-S48	PH9-S49	PH9-S50	PH9-S51
AGS Ref.				
Depth				
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
PAH by GCMS	10-May-2021	10-May-2021	10-May-2021	10-May-2021
Sample description	07-May-2021	07-May-2021	07-May-2021	07-May-2021

SDG:	210506-141	**Client Reference:**		**Report Number:**	597497
Location:	21-14506	**Order Number:**	20798	**Superseded Report:**	

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

APPENDIX D

Topsoil & Formation Validation Report
(ref. R1742b-L07; August 2018)

Contaminated Land
Air Quality
Environmental Audit

SMITH GRANT
Environmental Consultancy
LLP

Partnership No: OC 300776

Our ref: R1742B-L07
Your ref:

07th August 2018

Andy Walker
Urban Regen
23 Springvale
Bolton
BL7 0FS

by e-mail: andy.walker@urbanregen.co.uk

Dear Andy

Upper Heyford – Dorchester Phase 9 – Basketball Pitch
Supplementary Site Investigation

SGP have been instructed to produce a validation report for a parcel of land formerly occupied by a baseball pitch associated with RAF Heyford which is currently utilised as a public open space for recreational use. This parcel of land forms the north-west corner of the wider Phase 9 area (see Drawing D01).

The site is part of a wider area covered by a Hydrock Remediation Strategy (ref. HPW-HYD-PX-REM-RP-GE-3000-P1-S2, April 2017) which states that a site wide engineered cover system is required to comprise of a 200mm hard dig layer, geotextile and 400mm clean soil cover. At present it is unknown whether the Strategy has been approved, however it is proposed that a revised Strategy to cover the Phase 9 area is appropriate given the absence of made ground in some locations and that the made ground consists largely of placed uncontaminated natural soils. These remedial recommendations are consistent with those made with the approved Remediation Strategy (R1742-R01-v3) which covers other phases of the Heyford Park New Settlement Area. This report has therefore been produced to satisfy the proposed remedial recommendations.

No potential contaminative activities such as the storage of fuels (ASTs, USTs, boiler house etc.) was identified within previous reporting with historical mapping confirming the site remained undeveloped until the construction of a baseball pitch sometime between 1979 and 1992.

Given the effective Greenfield history of the site it may be underlain by natural soils or made ground comprising of reworked natural soils, negating the requirement for an engineered cover system.

In-situ sampling was therefore completed to ascertain whether the natural soils were suitable for retention within shallow garden soils and to also determine the extent and chemistry of shallow made ground soils present across the site.

<u>In-situ Topsoil Testing</u>
It is a requirement under the Hydrock Strategy that site won soils are sampled at a minimum test frequency of 1 sample per 250m^3, however proposed recommendations under a revised Strategy and in line with previous remedial works within the Heyford development specify testing of site won soils at a frequency of 1 per 500m^3.

Assuming an approximate site area of 14,650m^2 and a nominal topsoil thickness of 0.3m, this equivalates to an approximate volume of 4,395m^3. Sampling was carried out in-situ with the proposed

sampling frequency of 1 sample per 500m^3 resulting in the collection of 9 samples (achieving a frequency of 1 per 488m^3) to assess the potential for recovery and reuse within the development.

Samples were collected by SGP and were placed in appropriate laboratory-provided containers and stored in cooled boxes. Samples submitted for chemical analysis were delivered to Exova-Jones Environmental Ltd (EJEL) within 24 hours of collection and samples for asbestos screen were sent to Chemtest within 48 hours of collection. SGP retains chain of custody documentation.

The results of the soil analyses are compared to human health critical values (CVs) for initial screening purposes. The CVs adopted are appropriate to the environmental setting and proposed future residential use of the site and are taken primarily from the LQM / CIEH Suitable for Use Levels (S4ULs) which are used to define land that is 'not contaminated'. These a derived for a sandy loam soil; reference is initially made to the S4ULs derived for a soil with 1% organic matter as a conservative assumption for screening purposes.

The Defra Category 4 Screening Level (C4SL) for lead in soils under residential land-use has been utilised to allow an initial screening for risk to human health. This is intended to demonstrate that land is definitely not Contaminated Land as defined under Part IIA of the Environmental Protection Act. The adoption of the C4SL in a planning scenario has not been universally accepted, however in the absence of other generic screening criteria for lead following the withdrawal of the SGV by the EA it is considered appropriate to utilise the screening criterion.

Chemical laboratory certificate (18-7823) and asbestos laboratory certificate (18-14613) are attached. Results are summarised in the table below and are compared to assessment criteria for garden cover soils as per above.

It is noted that published criteria have been utilised to reflect those proposed within a revised Strategy with some values differing slightly from those within the current Hydrock Strategy.

Table 2. Analysis Summary for in-situ Topsoil

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
SOM	9	1.5-3.8	-	None
pH	9	7.74-8.25	-	None
asbestos fibre*	9	NAD	<0.001%	None
antimony	9	2-5	550 (GAC)	None
arsenic	9	15.2-52.1	37 (S4UL)	**(1): Ph9-S9A**
barium	9	59-107	1300 (GAC)	None
beryllium	9	0.9-3.0	1.7 (S4UL)	**(1): Ph9-S9A**
cadmium	9	0.1-0.2	11 (S4UL)	None
chromium	9	36.9-82.2	910 (S4UL)	None
chromium IV	9	<0.3	6 (S4UL)	None
cobalt	9	7.6-13.6	-	None
copper	9	10-29	2400 (S4UL)	None
lead	9	17-88	200 (C4SL)	None
mercury	9	<0.1	170 (S4UL)	None
molybdenum	9	1.5-2.3	670 (GAC)	None
nickel	9	18.3-51.50	180 (S4UL)	None

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
selenium	9	<1-2	250 (S4UL)	None
vanadium	9	52-119	410 (S4UL)	None
water soluble boron	9	0.9-2.9	290 (S4UL)	None
zinc	9	64-174	3700 (S4UL)	None
naphthalene	9	<0.04	2.3 (S4UL)	None
acenaphthylene	9	<0.03	170 (S4UL)	None
acenaphthene	9	<0.05	210 (S4UL)	None
fluorene	9	<0.04	170 (S4UL)	None
phenanthrene	9	<0.03-0.26	95(S4UL)	None
anthracene	9	<0.04-0.09	280 (S4UL)	None
fluoranthene	9	0.09-0.95	2400 (S4UL)	None
pyrene	9	0.09-0.87	620 (S4UL)	None
benzo(a)anthracene	9	0.06-0.59	7.2 (S4UL)	None
chrysene	9	0.06-0.46	15 (S4UL)	None
benzo(bk)fluoranthene	9	0.11-1.09	-	-
benzo(a)pyrene	9	0.06-0.59	2.2 (S4UL)	None
indeno(123cd)pyrene	9	0.04-0.44	27 (S4UL)	None
dibenzo(ah)anthracene	9	0.04-0.09	0.24(S4UL)	None
benzo(ghi)perylene	9	0.04-0.4	320 (S4UL)	None
aliphatic C5-C6	9	<0.1	42 (S4UL)	None
aliphatic C6-C8	9	<0.1	100 (S4UL)	None
aliphatic C8-C10	9	<0.1	27 (S4UL)	None
aliphatic C10-C12	9	<0.2	130 (S4UL)	None
aliphatic C12-C16	9	<4	1100 (S4UL)	None
aliphatic C16-C21	9	<7	5000 (S4UL)	None
aliphatic C21-C35	9	<7	5000 (S4UL)	None
aromatic C5-C7	9	<0.1	70 (S4UL)	None
aromatic C7-C8	9	<0.1	130 (S4UL)	None
aromatic C8-C10	9	<0.1	34 (S4UL)	None
aromatic C10-C12	9	<0.2	74 (S4UL)	None
aromatic C12-C16	9	<4	140 (S4UL)	None
aromatic C16-C21	9	<7	260 (S4UL)	None
aromatic C21-C35	9	<7	1100 (S4UL)	None
benzene	9	<0.005	0.08 (S4UL)	None
toluene	9	<0.005	130 (S4UL)	None
ethylbenzene	9	<0.005	47 (S4UL)	None
o-xylene	9	<0.005	60 (S4UL)	None
m-xylene	9	<0.005	56 (S4UL)	None
p-xylene	9	<0.005	56 (S4UL)	None
methyl tert butyl ether	9	<0.005		None

Notes to table:

S4UL: Suitable For Use Levels published by Chartered Institute of Environmental Health and Land Quality Management Ltd, residential with plant uptake scenario (1% SOM); copyright Land Quality Management Ltd reproduced with permission publication number S4UL3102. All rights reserved.

GAC: Generic Assessment Criteria published by CL:AIRE for human health risk assessment for a residential scenario with consumption of homegrown produce (1% SOM).

C4SL: Category 4 Screening Levels published by CL:AIRE (C4SLs); 'residential without home grown produce land use' (at 1% SOM)

Two minor exceedances were reported and were limited to a single sample (Ph9-S9A). Arsenic was recorded at 52.1 mg/kg (criteria of 37 mg/kg), and beryllium at 3 mg/kg (criteria of 1.7 mg/kg). In the absence of anthropogenic material, statistical analysis has been carried out on the sample mean, the results are tabulated in the table below:

Table 3. Statistical Analysis of Arsenic and

statistic	arsenic (mg/kg)	beryllium (mg/kg)
criterion	37	1.7
no. of samples	9	9
Grubbs outlier test for highest value (P0.05)	Ph9-S9A (max value 52.1 mg/kg) is an outlier	Ph9-S9A (max value 3.0 mg/kg) is an outlier
arithmetic mean, including outlier	22.42	1.36
upper confidence limit (UCL 0.95) including outlier	39.09 (fail)	2.28 (fail)
arithmetic mean, excluding Ph9-S9A outlier	18.71	1.15
upper confidence limit (UCL 0.95) excluding Ph9-S9A outlier	23.26 (pass)	1.25 (pass)

Statistical analysis confirms that both exceedances are outliers of the dataset and are not representative of the soil concentrations and can therefore be excluded from the dataset. When these exceedances are removed, the UCL (0.95) for arsenic is 23.26 mg/kg and 1.25 mg/kg for beryllium resulting in no exceedances.

In-Situ Future Formation Soil Validation

Under a revised Strategy and in accordance with validation works within the wider Heyford Park development, sampling of the underlying 400mm subsoil beneath any topsoil or removed hardstanding would be sampled to determine its retention as part of the 600mm garden cover providing that it is uncontaminated and suitable for such use.

In-situ sampling of subsoils below the topsoil cover was completed through the excavation and sampling of the top 400mm of soil. Sampling was completed at a test frequency of 1 sample per 500m^3, the residual depth of 400mm equating to 1 sample per 1,250m^2 plan area of development.

Twelve in-situ samples were collected from the underlying soil with depth validation photos showing the extent of the 400mm depth range appended to this report with sampling locations reproduced in Drawing D01. Assuming an approximate site area of 14,650m^{2,} the volume of validated soils is effectively 5,860m^3, exceeding the specified sampling rate of 1 sample per 500m^3 (1 per 488m^3 achieved).

Sampled soils generally comprised of a dark brown clay soil with coarse gravel of limestone although inclusions of brick fragments (S5, S6, S11 and S12) and tarmac (S7 and S11) were observed. No inclusions of ash, slag or clinker were observed but it is noted that Hydrock reported ash within 2 locations. A plan detailing the validation entries with Hydrock's trial-pits is provided in Drawing D01.

Table 4. Analysis Summary of Formation Soils

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
SOM	12		-	None
pH	12	7.53-8.47	-	None
asbestos fibre*	12	NAD	<0.001%	None
antimony	12	1-3	550 (GAC)	None
arsenic	12	14.3-25.1	37 (S4UL)	None
barium	12	49.119	1300 (GAC)	None
beryllium	12	0.9-1.4	1.7 (S4UL)	None
cadmium	12	<0.1-0.2	11 (S4UL)	None
chromium	12	32.3-47	910 (S4UL)	None
chromium IV	12	<0.3	6 (S4UL)	None
cobalt	12	6.3-12.5	-	None
copper	12	9-57	2400 (S4UL)	None
lead	12	11-59	200 (C4SL)	None
mercury	12	<0.1	170 (S4UL)	None
molybdenum	12	1.2-2.6	670 (GAC)	None
nickel	12	16.3-31.6	180 (S4UL)	None
selenium	12	<1	250 (S4UL)	None
vanadium	12	42-69	410 (S4UL)	None
water soluble boron	12	0.7-3.4	290 (S4UL)	None
zinc	12	52-204	3700 (S4UL)	None
naphthalene	12	<0.04-0.06	2.3 (S4UL)	None
acenaphthylene	12	<0.03-0.08	170 (S4UL)	None
acenaphthene	12	<0.05-0.23	210 (S4UL)	None
fluorene	12	<0.04-0.15	170 (S4UL)	None
phenanthrene	12	<0.03-2.93	95(S4UL)	None
anthracene	12	<0.04-0.87	280 (S4UL)	None
fluoranthene	12	<0.03-6.08	2400 (S4UL)	None
pyrene	12	<0.03-6.08	620 (S4UL)	None
benzo(a)anthracene	12	<0.06-2.15	7.2 (S4UL)	None
chrysene	12	<0.02-2.15	15 (S4UL)	None
benzo(bk)fluoranthene	12	<0.07-3.83	-	-
benzo(a)pyrene	12	<0.04-2.22	2.2 (S4UL)	**(2) Ph9-S4**
indeno(123cd)pyrene	12	<0.04-1.60	27 (S4UL)	None
dibenzo(ah)anthracene	12	<0.04-0.28	0.24(S4UL)	**(2) Ph9-S4 & Ph9-S11**
benzo(ghi)perylene	12	<0.04-1.51	320 (S4UL)	None
aliphatic C5-C6	12	<0.1	42 (S4UL)	None
aliphatic C6-C8	12	<0.1	100 (S4UL)	None
aliphatic C8-C10	12	<0.1	27 (S4UL)	None

Contaminant	Samples	Range of Concentrations (mg/kg unless stated)	Residential Use	
			Screening criteria (mg/kg unless stated)	Exceedances
aliphatic C10-C12	12	<0.2	130 (S4UL)	None
aliphatic C12-C16	12	<4	1100 (S4UL)	None
aliphatic C16-C21	12	<7	5000 (S4UL)	None
aliphatic C21-C35	12	<7-11	5000 (S4UL)	None
aromatic C5-C7	12	<0.1	70 (S4UL)	None
aromatic C7-C8	12	<0.1	130 (S4UL)	None
aromatic C8-C10	12	<0.1	34 (S4UL)	None
aromatic C10-C12	12	<0.2-0.3	74 (S4UL)	None
aromatic C12-C16	12	<4	140 (S4UL)	None
aromatic C16-C21	12	<7-20	260 (S4UL)	None
aromatic C21-C35	12	<7-97	1100 (S4UL)	None
benzene	12	<0.005	0.08 (S4UL)	None
toluene	12	<0.005	130 (S4UL)	None
ethylbenzene	12	<0.005	47 (S4UL)	None
o-xylene	12	<0.005	60 (S4UL)	None
m-xylene	12	<0.005	56 (S4UL)	None
p-xylene	12	<0.005	56 (S4UL)	None
methyl tert butyl ether	12	<0.005	-	None

Notes to table:

S4UL: Suitable For Use Levels published by Chartered Institute of Environmental Health and Land Quality Management Ltd, residential with plant uptake scenario (1% SOM); copyright Land Quality Management Ltd reproduced with permission publication number S4UL3102. All rights reserved.

GAC: Generic Assessment Criteria published by CL:AIRE for human health risk assessment for a residential scenario with consumption of homegrown produce (1% SOM).

C4SL: Category 4 Screening Levels published by CL:AIRE (C4SLs); 'residential without home grown produce land use' (at 1% SOM)

Exceedances were limited to a very minor elevated concentrations of benzo(a)pyrene within sample Ph9-S4 with a concentration of 2.22 mg/kg compared to the criteria of 2.2 mg/kg, and dibenzo(ah)anthracene with concentrations of 0.28 mg/kg (criteria of 0.24 mg/kg) with both Ph9-S4 and Ph9-S11.

PAH ratio analysis was completed on the exceeded samples to determine the source of the elevated PAHs, a copy of the plot is attached to this report. Source identification confirms a coal signature, no anthropogenic material such as ash or clinker were observed within Ph9-S4 whilst fragments of tarmac were recorded within Ph9-S11. Source identification indicates a likely low bio-availability due to the sequestration of PAHs within a carbon or vitrified matrix, with B(a)P concentrations below the DEFRA C4SL criteria of 5 mg/kg for garden soils. The minor PAH exceedances are unlikely to represent an unacceptable risk to human health.

Conclusions

Topsoil cover was present across the site (with exception of entry S29) extending to depths of 0.2 and 0.3m bgl. Minor exceedances of site topsoil were initially recorded for both arsenic and beryllium within sample Ph9-S9A, however further statistical analysis confirmed the exceedances are not

representative of the dataset and when removed the UCL (0.95) did not result in any exceedances. It is concluded that the topsoil is suitable for recovery and reuse within the development.

The 0.4m of soils present beneath the topsoil layer were a brown clay with frequent limestone gravel (possible weathered bedrock) and rare inclusions of brick and tarmac, tarmac fragments were limited to entries S7 and S11. It is anticipated that the clay layer may have been placed in part during construction of the baseball pitch where soils from the wider Heyford area may have been placed.

Concentrations of determinants were below the assessment criteria except with 3 minor exceedances for the PAHs benzo(a)pyrene (no 1) and dibenzo(ah)anthracene (no 2) in entries S4 and S11. Further assessment has confirmed a coal signature, possibly associated with minor tarmac inclusions and concluded that the identified sources are likely to be below significant in terms of solubility and bioavailability due to the sequestration within coal / tarmac.

SGP considers that the risk associated to future site occupants to concentrations to be negligible and that the site soils (topsoil and subsoil) are suitable for retention in future garden areas. The recommended remedial measures (i.e. engineered cover system) may be revised to be consistent with those applied to other similar areas i.e. no specific requirement for cover soils.

Recommendations
It is recommended that in the absence of a revised Strategy being produced and issued for the Phase 9 area that this report be submitted to CDC for approval, however further justification to the deviation from the submitted Strategy may be required.

Assessment of risks associated with occasional exceedances and conclusions regarding suitability for retention at shallow depths should be provided to CDC for approval.

Yours sincerely
for: Smith Grant LLP

[redacted]

D Wayland BSc MSc MCIWEM

Attached:

Drawing D01
App A: Entry Logs & Photo Record
App B: Lab Certificate: 18-7823 & 18-14613
App C: PAH Ratio Plot & Arsenic and Beryllium CLR7 Statistics

DRAWING

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Project: Heyford Park, Upper Heyford	
Drawing: Phase 9 - Basketball Pitch Insitu Validation Samples	
Drawn: DW	Checked: BJT
Date: 06.08.18	Scale: 1:500 @ A3
Job No: R1742b	Drg No: R1742b-L07-D01

APPENDIX A

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	Heyford Dorchester	DW	R1742b	Ph9-S1
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.	DATE: 1st May	

DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
		Heyford Suite	0	Dark brown CLAY topsoil with rootlets	
0.2	Ph9-S1A		0.2	MADE GROUND: Dark brown CLAY with coarse gravel (relict gas pipe at base)	
		Heyford Suite			
0.6	Ph9-S1B			Base at 0.6m bgl	

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GROUND WATER:

No groundwater encountered

REMARKS:

Sidewalls stable
PID <0.1 ppm

D: small disturbed sample
B: bulk disturbed sample
PP: pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	DW	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	Heyford Dorchester	DW	R1742b	Ph9-S2
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.	DATE: 1st May	

DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
		Heyford Suite	0	Dark brown CLAY topsoil with rootlets	
0.3	Ph9-S2A		0.3	Dark brown to red CLAY with frequent gravel of angular limestone	
		Heyford Suite			
0.7	Ph9-S2B			Base at 0.7m bgl	

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GROUND WATER:

No groundwater encountered

REMARKS:

Sidewalls stable
PID <0.1 ppm

D: small disturbed sample
B: bulk disturbed sample
PP: pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	DW	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	Heyford Dorchester	DW	R1742b	Ph9-S3
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.	DATE: 1st May	

DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
0.2	Ph9-S3A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets	
0.6	Ph9-S3B	Heyford Suite	0.2	Dark brown CLAY with frequent gravel of angular limestone	
				Base at 0.6m bgl	

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GROUND WATER:

No groundwater encountered

REMARKS:

Sidewalls stable
PID <0.1 ppm

D: small disturbed sample
B: bulk disturbed sample
PP: pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	DW	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	Heyford Dorchester	DW	R1742b	Ph9-S4
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.	DATE: 1st May	

DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
0.2	Ph9-S4A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets	
			0.2	Dark brown CLAY with frequent gravel of angular limestone	
0.6	Ph9-S4B	Heyford Suite		Base at 0.6m bgl	

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GROUND WATER:

No groundwater encountered

REMARKS:

Sidewalls stable
PID <0.1 ppm

D: small disturbed sample
B: bulk disturbed sample
PP: pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	DW	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	Heyford Dorchester	DW	R1742b	Ph9-S5
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.	DATE: 1st May	

DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
		Heyford Suite	0	Dark brown CLAY topsoil with rootlets	
0.3	Ph9-S5A		0.3	Dark brown CLAY with frequent gravel of angular limestone and rare brick fragments	
		Heyford Suite			
0.7	Ph9-S5B			Base at 0.7m bgl	

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GROUND WATER:

No groundwater encountered

REMARKS:

Sidewalls stable
PID <0.1 ppm

D: small disturbed sample
B: bulk disturbed sample
PP: pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	DW	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	Heyford Dorchester	DW	R1742b	Ph9-S6
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.	DATE: 1st May	

DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
0.2	Ph9-S6A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets	
0.6	Ph9-S6B	Heyford Suite	0.2	Dark brown CLAY with frequent gravel of angular limestone and rare brick fragments	
				Base at 0.6m bgl	

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GROUND WATER:

No groundwater encountered

REMARKS:

Sidewalls stable
PID <0.1 ppm

D: small disturbed sample
B: bulk disturbed sample
PP: pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	DW	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	Heyford Dorchester	DW	R1742b	Ph9-S7
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.	DATE: 1st May	

DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
0.2	Ph9-S7A	Heyford Suite	0	Dark brown CLAY topsoil with rootlets	
0.6	Ph9-S7B	Heyford Suite	0.2	Dark brown CLAY with frequent gravel of angular limestone and rare brick and tarmac fragments	
				Base at 0.6m bgl	

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GROUND WATER:

No groundwater encountered

REMARKS:

Sidewalls stable
PID <0.1 ppm

D: small disturbed sample
B: bulk disturbed sample
PP: pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	DW	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	Heyford Dorchester	DW	R1742b	Ph9-S8
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.	DATE: 1st May	

DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
		Heyford Suite	0	Dark brown CLAY topsoil with rootlets	
0.2	Ph9-S8A		0.2	Dark brown CLAY with frequent gravel of angular limestone	
		Heyford Suite			
0.6	Ph9-S8B			Base at 0.6m bgl	

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GROUND WATER:

No groundwater encountered

REMARKS:

Sidewalls stable
PID <0.1 ppm

D: small disturbed sample
B: bulk disturbed sample
PP: pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	DW	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	Heyford Dorchester	DW	R1742b	Ph9-S9
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.	DATE: 1st May	

DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
		Heyford Suite	0	Light brown CLAYbecoming darker with frequent gravel of angular limestone	
0.6	Ph9-S9A			Base at 0.6m bgl	

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GROUND WATER:

No groundwater encountered

REMARKS:

Sidewalls stable
PID <0.1 ppm

D: small disturbed sample
B: bulk disturbed sample
PP: pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	DW	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	Heyford Dorchester	DW	R1742b	Ph9-S1(
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.	DATE: 1st May	

DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0	Dark brown CLAY topsoil with rootlets	
		Heyford Suite	0.3	Dark brown CLAY with frequent gravel of angular limestone	
0.7	Ph9-S10A			Base at 0.7m bgl	

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GROUND WATER:

No groundwater encountered

REMARKS:

Sidewalls stable
PID <0.1 ppm

D: small disturbed sample
B: bulk disturbed sample
PP: pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	DW	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	Heyford Dorchester	DW	R1742b	Ph9-S11
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.	DATE: 1st May	

DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0	Dark brown CLAY topsoil with rootlets	
		Heyford Suite	0.3	Light brown CLAY with coarse gravel of limestone and rare brick and tarmac fragments	
0.7	Ph9-S11A			Base at 0.7m bgl	

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GROUND WATER:

No groundwater encountered

REMARKS:

Sidewalls stable
PID <0.1 ppm

D: small disturbed sample
B: bulk disturbed sample
PP: pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	DW	1

SHEET:	LOCATION:	PROJECT:	ENGINEER:	JOB NO.	TRIAL PIT NO.
1 of 1	See Plan	Heyford Dorchester	DW	R1742b	Ph9-S12
		EXCAVATED BY: Tracked 360	CLIENT: Urban Regen Ltd.	DATE: 1st May	

DEPTH (m)	SAMPLES	Lab testing	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
			0	Dark brown CLAY topsoil with rootlets	
		Heyford Suite	0.3	Light brown CLAY with coarse gravel of limestone and rare brick fragments	
0.7	Ph9-S12A			Base at 0.7m bgl	

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GROUND WATER:

No groundwater encountered

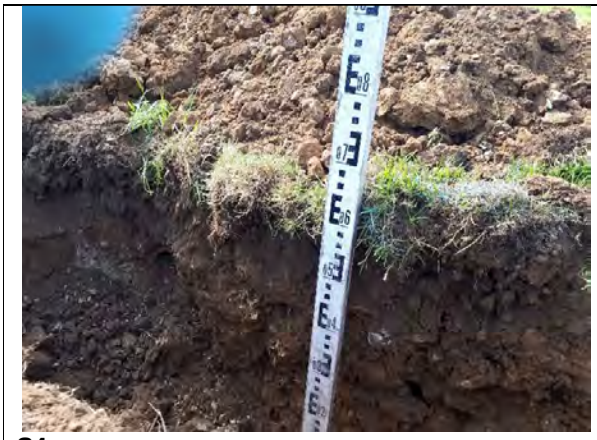
REMARKS:

Sidewalls stable
PID <0.1 ppm

D: small disturbed sample
B: bulk disturbed sample
PP: pocket penetrometer

SCALE:	LOGGED BY:	FIGURE NO.
1:250	DW	1

 S1	 S1
 S2	 S2
 S3	 S3



S4

S4

S5

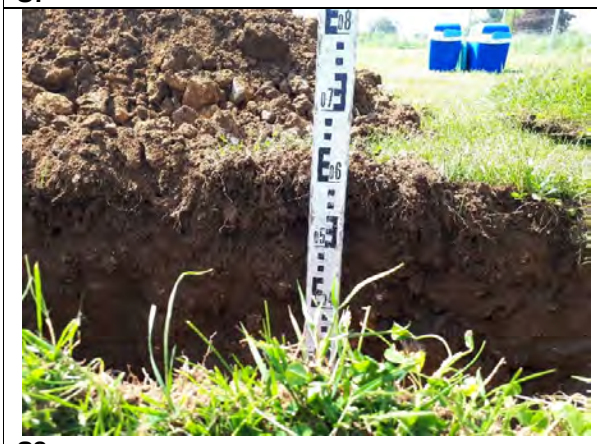
S5

S6

S6

S7

S7



S8

S8

S9

S9

S10

S10

S11

S11

S12

S12

APPENDIX B

Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

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Tel: +44 (0) 1244 833780
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Smith Grant LLP
Station House
Station Road
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Wrexham
LL14 6DL

Attention :	Dan Wayland
Date :	7th June, 2018
Your reference :	R1742B
Our reference :	Test Report 18/7823 Batch 1
Location :	Heyford (Dorchester)
Date samples received :	22nd May, 2018
Status :	Final report
Issue :	1

Twenty samples were received for analysis on 22nd May, 2018 of which twenty were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

[redacted]

Phil Sommerton BSc
Project Manager

Client Name: Smith Grant LLP
Reference: R1742B
Location: Heyford (Dorchester)
Contact: Dan Wayland
JE Job No.: 18/7823

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	LOD/LOR	Units	Method No.
Sample ID	PH9-S1A	PH9-S1B	PH9-S2A	PH9-S2B	PH9-S3A	PH9-S3B	PH9-S4A	PH9-S4B	PH9-S5A	PH9-S5B			
Depth	0.00-0.20	0.20-0.60	0.00-0.30	0.30-0.70	0.00-0.20	0.20-0.60	0.00-0.20	0.20-0.60	0.00-0.30	0.30-0.70			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018			
Antimony	2	2	2	2	2	2	3	3	2	2	<1	mg/kg	TM30/PM15
Arsenic #M	15.9	17.1	16.2	19.1	21.6	16.5	17.4	18.1	19.3	25.1	<0.5	mg/kg	TM30/PM15
Barium #M	68	68	62	49	59	51	61	69	63	95	<1	mg/kg	TM30/PM15
Beryllium	1.1	1.2	1.3	1.3	1.1	1.0	1.1	1.0	1.1	1.0	<0.5	mg/kg	TM30/PM15
Cadmium #M	0.1	0.1	<0.1	<0.1	0.2	0.2	0.1	<0.1	0.1	0.1	<0.1	mg/kg	TM30/PM15
Chromium #M	42.2	43.2	42.5	47.0	38.8	34.9	38.6	39.8	43.5	45.1	<0.5	mg/kg	TM30/PM15
Cobalt #M	8.5	9.3	9.4	9.3	8.2	6.5	8.3	9.4	8.0	6.8	<0.5	mg/kg	TM30/PM15
Copper #M	15	14	10	11	10	9	12	27	11	18	<1	mg/kg	TM30/PM15
Lead #M	21	24	17	11	38	42	36	35	35	32	<5	mg/kg	TM30/PM15
Mercury #M	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum #M	1.9	1.9	1.8	1.9	1.5	1.6	1.9	2.0	1.8	2.1	<0.1	mg/kg	TM30/PM15
Nickel #M	24.2	23.0	26.3	27.2	22.4	16.3	22.5	22.3	22.0	18.3	<0.7	mg/kg	TM30/PM15
Selenium #M	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	TM30/PM15
Vanadium	55	57	54	55	54	50	55	57	54	69	<1	mg/kg	TM30/PM15
Water Soluble Boron #M	1.2	1.2	1.1	0.7	0.9	1.1	1.6	1.4	1.8	1.1	<0.1	mg/kg	TM74/PM32
Zinc #M	64	68	64	52	78	63	71	59	67	122	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #M	<0.04	<0.04	<0.04	<0.04	<0.04	0.06	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	0.03	<0.03	0.05	<0.03	0.07	<0.03	mg/kg	TM4/PM8
Acenaphthene #M	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.23	<0.05	0.23	<0.05	mg/kg	TM4/PM8
Fluorene #M	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.12	<0.04	0.15	<0.04	mg/kg	TM4/PM8
Phenanthrene #M	0.11	<0.03	<0.03	<0.03	0.12	0.70	0.06	2.24	0.07	2.93	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	0.06	0.22	<0.04	0.87	<0.04	0.69	<0.04	mg/kg	TM4/PM8
Fluoranthene #M	0.42	0.11	0.09	<0.03	0.51	1.56	0.21	6.08	0.22	3.88	<0.03	mg/kg	TM4/PM8
Pyrene #	0.37	0.11	0.09	<0.03	0.50	1.34	0.20	4.91	0.20	3.14	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.21	0.08	0.08	<0.06	0.30	0.63	0.12	2.15	0.13	1.31	<0.06	mg/kg	TM4/PM8
Chrysene #M	0.21	0.07	0.06	<0.02	0.31	0.66	0.12	2.15	0.13	1.48	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #M	0.43	0.14	0.11	<0.07	0.67	1.26	0.25	3.83	0.26	2.88	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.23	0.08	0.06	<0.04	0.39	0.70	0.14	2.22	0.15	1.54	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #M	0.19	0.06	<0.04	<0.04	0.29	0.49	0.10	1.49	0.12	1.19	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	0.06	0.10	<0.04	0.28	<0.04	0.19	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.17	0.06	<0.04	<0.04	0.28	0.47	0.09	1.33	0.10	1.04	<0.04	mg/kg	TM4/PM8
PAH 16 Total	2.3	0.7	<0.6	<0.6	3.5	8.2	1.3	28.0	1.4	20.7	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.31	0.10	0.08	<0.05	0.48	0.91	0.18	2.76	0.19	2.07	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.12	0.04	0.03	<0.02	0.19	0.35	0.07	1.07	0.07	0.81	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	89	91	90	89	89	90	84	90	91	88	<0	%	TM4/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Smith Grant LLP
Reference: R1742B
Location: Heyford (Dorchester)
Contact: Dan Wayland
JE Job No.: 18/7823

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	LOD/LOR	Units	Method No.
Sample ID	PH9-S1A	PH9-S1B	PH9-S2A	PH9-S2B	PH9-S3A	PH9-S3B	PH9-S4A	PH9-S4B	PH9-S5A	PH9-S5B			
Depth	0.00-0.20	0.20-0.60	0.00-0.30	0.30-0.70	0.00-0.20	0.20-0.60	0.00-0.20	0.20-0.60	0.00-0.30	0.30-0.70			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018			
TPH CWG													
Aliphatics													
>C5-C6 #M	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #M	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 #M	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #M	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #M	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 #M	<7	<7	<7	<7	<7	<7	<7	<7	<7	11	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #M	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	78	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 #	<19	<19	<19	<19	<19	<19	<19	<19	<19	78	<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38	<38	<38	<38	<38	<38	<38	78	<38	mg/kg	TM5/TM36/PM8/PM12/PM16
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Natural Moisture Content	10.7	12.6	11.2	12.4	10.2	10.8	10.6	12.5	12.1	13.2	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Organic Matter	1.8	1.9	1.5	0.6	1.5	1.2	2.6	1.4	2.4	1.2	<0.2	%	TM21/PM24
Electrical Conductivity @25C (5:1 ext)	204	192	203	157	203	176	236	175	234	191	<100	uS/cm	TM76/PM58
pH #M	8.18	8.25	8.12	8.31	8.25	8.24	8.10	8.46	8.06	8.38	<0.01	pH units	TM73/PM11
Sample Type	Clayey Loam	Clayey Loam	Loam	Clay	Clayey Loam	Clay	Clayey Loam	Clay	Clayey Loam	Clayey Loam		None	PM13/PM0
Sample Colour	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown		None	PM13/PM0
Other Items	stones, vegetation, carbon	stones, vegetation	vegetation, stones	vegetation, stones	vegetation, stones	stones	stones, vegetation	loam, stones, vegetation	vegetation, stones	sones, vegeation		None	PM13/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Smith Grant LLP
Reference: R1742B
Location: Heyford (Dorchester)
Contact: Dan Wayland
JE Job No.: 18/7823

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	21-22	23-24	25-26	27-28	29-30	31-32	33-34	35-36	37-38	39-40	LOD/LOR	Units	Method No.
Sample ID	PH9-S6A	PH9-S6B	PH9-S7A	PH9-S7B	PH9-S8A	PH9-S8B	PH9-S9A	PH9-S10A	PH9-S11A	PH9-S12A			
Depth	0.00-0.20	0.20-0.60	0.00-0.20	0.20-0.60	0.00-0.20	0.20-0.60	0.00-0.60	0.30-0.70	0.30-0.70	0.30-0.70			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018			
Antimony	3	3	3	2	2	2	5	2	1	2	<1	mg/kg	TM30/PM15
Arsenic #M	23.0	22.4	21.1	14.3	15.2	15.1	52.1	15.5	17.3	15.1	<0.5	mg/kg	TM30/PM15
Barium #M	68	119	65	81	60	52	107	61	51	67	<1	mg/kg	TM30/PM15
Beryllium	1.2	1.2	1.4	1.4	0.9	1.0	3.0	1.4	0.9	1.0	<0.5	mg/kg	TM30/PM15
Cadmium #M	0.1	0.2	0.1	0.2	0.2	<0.1	<0.1	0.1	0.1	0.2	<0.1	mg/kg	TM30/PM15
Chromium #M	45.3	40.3	43.1	34.8	36.9	34.7	82.2	45.5	32.3	33.7	<0.5	mg/kg	TM30/PM15
Cobalt #M	9.7	12.5	8.8	6.9	7.6	7.4	13.6	10.6	6.3	7.1	<0.5	mg/kg	TM30/PM15
Copper #M	11	12	29	57	12	11	13	18	11	14	<1	mg/kg	TM30/PM15
Lead #M	42	59	88	40	22	17	84	21	23	23	<5	mg/kg	TM30/PM15
Mercury #M	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum #M	2.0	1.9	2.3	2.6	1.8	1.7	1.9	1.2	1.5	1.4	<0.1	mg/kg	TM30/PM15
Nickel #M	26.3	31.6	24.0	21.7	18.3	18.1	51.5	23.1	16.5	16.9	<0.7	mg/kg	TM30/PM15
Selenium #M	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	mg/kg	TM30/PM15
Vanadium	61	57	60	42	52	53	119	62	47	47	<1	mg/kg	TM30/PM15
Water Soluble Boron #M	1.7	1.1	1.7	1.3	1.8	1.2	2.9	3.4	0.9	1.2	<0.1	mg/kg	TM74/PM32
Zinc #M	75	80	128	204	87	61	174	67	64	67	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #M	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	0.08	<0.03	<0.03	<0.03	<0.03	0.08	0.07	<0.03	mg/kg	TM4/PM8
Acenaphthene #M	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	0.09	0.06	<0.05	mg/kg	TM4/PM8
Fluorene #M	<0.04	<0.04	<0.04	0.06	<0.04	<0.04	<0.04	<0.04	0.06	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #M	0.07	0.22	0.24	1.09	0.07	<0.03	0.26	0.06	0.79	0.66	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	0.08	0.09	0.43	<0.04	<0.04	0.09	<0.04	0.34	0.22	<0.04	mg/kg	TM4/PM8
Fluoranthene #M	0.24	0.92	0.95	3.47	0.28	<0.03	0.61	0.18	3.11	1.64	<0.03	mg/kg	TM4/PM8
Pyrene #	0.22	0.84	0.87	3.15	0.26	<0.03	0.50	0.18	2.88	1.42	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.15	0.47	0.47	1.61	0.15	<0.06	0.28	0.12	1.42	1.03	<0.06	mg/kg	TM4/PM8
Chrysene #M	0.15	0.46	0.46	1.64	0.17	<0.02	0.28	0.11	1.55	1.01	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #M	0.34	1.12	1.09	3.50	0.39	<0.07	0.55	0.26	3.58	1.90	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.18	0.63	0.59	2.03	0.21	<0.04	0.29	0.13	2.00	0.98	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #M	0.12	0.48	0.44	1.60	0.18	<0.04	0.21	0.11	1.55	0.74	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	0.09	0.09	0.27	<0.04	<0.04	<0.04	<0.04	0.28	0.14	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	0.11	0.40	0.40	1.36	0.18	<0.04	0.19	0.10	1.51	0.69	<0.04	mg/kg	TM4/PM8
PAH 16 Total	1.6	5.7	5.7	20.4	1.9	<0.6	3.3	1.3	19.2	10.6	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.24	0.81	0.78	2.52	0.28	<0.05	0.40	0.19	2.58	1.37	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.10	0.31	0.31	0.98	0.11	<0.02	0.15	0.07	1.00	0.53	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	88	91	91	96	90	90	84	90	89	101	<0	%	TM4/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Smith Grant LLP
Reference: R1742B
Location: Heyford (Dorchester)
Contact: Dan Wayland
JE Job No.: 18/7823

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	21-22	23-24	25-26	27-28	29-30	31-32	33-34	35-36	37-38	39-40	LOD/LOR	Units	Method No.
Sample ID	PH9-S6A	PH9-S6B	PH9-S7A	PH9-S7B	PH9-S8A	PH9-S8B	PH9-S9A	PH9-S10A	PH9-S11A	PH9-S12A			
Depth	0.00-0.20	0.20-0.60	0.00-0.20	0.20-0.60	0.00-0.20	0.20-0.60	0.00-0.60	0.30-0.70	0.30-0.70	0.30-0.70			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018	22/05/2018			
TPH CWG													
Aliphatics													
>C5-C6 #M	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #M	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 #M	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #M	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #M	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 #M	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #M	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7	<7	20	<7	<7	<7	<7	9	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	17	<7	91	<7	<7	<7	<7	97	70	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 #	<19	<19	<19	111	<19	<19	<19	<19	106	70	<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35)	<38	<38	<38	111	<38	<38	<38	<38	106	70	<38	mg/kg	TM5/TM36/PM8/PM12/PM16
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	<5	58	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Natural Moisture Content	12.4	11.9	12.0	10.9	10.1	12.8	21.7	22.1	10.7	10.6	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Organic Matter	2.5	1.7	3.8	1.8	3.3	1.2	3.6	2.7	1.3	1.7	<0.2	%	TM21/PM24
Electrical Conductivity @25C (5:1 ext)	244	214	238	166	252	191	248	247	123	197	<100	uS/cm	TM76/PM58
pH #M	8.10	8.23	7.98	8.30	7.74	8.29	7.77	7.53	8.26	8.47	<0.01	pH units	TM73/PM11
Sample Type	Clayey Loam	Clayey Loam	Loam	Clayey Loam	Loam	Clayey Loam	Clayey Loam	Clay	Clayey Loam	Clayey Loam		None	PM13/PM0
Sample Colour	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown	Medium Brown		None	PM13/PM0
Other Items	vegetation, stones	stones, vegetation	stones, vegetation	stones, vegetation	vegetation, stones, carbon	stones	stones, vegetation	loam, stones	stones, vegetation, brick fragment	stones, vegetation		None	PM13/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Smith Grant LLP
Reference: R1742B
Location: Heyford (Dorchester)
Contact: Dan Wayland

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 18/7823						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 18/7823

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Exova Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 18/7823

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes

JE Job No: 18/7823

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes	Yes	AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes	Yes	AD	Yes
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM58	Dried and ground solid samples are extracted with water in a 5:1 water to solid ratio, the samples are shaken on an orbital shaker.			AD	Yes

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

UKAS TESTING
2183

Final Report

Report No.:	18-14613-1		
Initial Date of Issue:	31-May-2018		
Client	Smith Grant LLP		
Client Address:	Station House, Station Road Ruabon Wrexham LL14 6DL		
Contact(s):	Dan Wayland		
Project	R17426 Heyford Park (Dorchester)		
Quotation No.:		**Date Received:**	24-May-2018
Order No.:		**Date Instructed:**	24-May-2018
No. of Samples:	20		
Turnaround (Wkdays):	5	**Results Due:**	31-May-2018
Date Approved:	31-May-2018		
Approved By:	[redacted]		
Details:	Glynn Harvey, Laboratory Manager		

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Results - Soil

Project: R17426 Heyford Park (Dorchester)

Client: Smith Grant LLP				**Chemtest Job No.:**	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613
Quotation No.:				**Chemtest Sample ID.:**	627756	627757	627758	627759	627760	627761	627762	627763	627764
				Client Sample ID.:	PH9-S1A	PH9-S1B	PH9-S2A	PH9-S2B	PH9-S3A	PH9-S3B	PH9-S4A	PH9-S4B	PH9-S5A
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.0	0.2	0.0	0.3	0.0	0.2	0.0	0.2	0.0
				Bottom Depth (m):	0.2	0.6	0.3	0.7	0.2	0.6	0.2	0.6	0.3
				Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected

Chemtest
The right chemistry to deliver results

Results - Soil

Project: R17426 Heyford Park (Dorchester)

Client: Smith Grant LLP				**Chemtest Job No.:**	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613	18-14613
Quotation No.:				**Chemtest Sample ID.:**	627765	627766	627767	627768	627769	627770	627771	627772	627773
				Client Sample ID.:	PH9-S5B	PH9-S6A	PH9-S6B	PH9-S7A	PH9-S7B	PH9-S8A	PH9-S8B	PH9-S9A	PH9-S10A
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.3	0.0	0.2	0.0	0.2	0.0	0.2	0.0	0.3
				Bottom Depth (m):	0.7	0.2	0.6	0.2	0.6	0.2	0.6	0.6	0.7
				Asbestos Lab:	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected

Results - Soil

Project: R17426 Heyford Park (Dorchester)

Client: Smith Grant LLP					**Chemtest Job No.:**	18-14613	18-14613
Quotation No.:					**Chemtest Sample ID.:**	627774	627775
					Client Sample ID.:	PH9-S11A	PH9-S12A
					Sample Type:	SOIL	SOIL
					Top Depth (m):	0.3	0.3
					Bottom Depth (m):	0.7	0.7
					Asbestos Lab:	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type	U	2192		N/A		-	-
Asbestos Identification	U	2192	%	0.001		No Asbestos Detected	No Asbestos Detected

Test Methods

SOP	Title	Parameters included	Method summary
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis
The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols
For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk

APPENDIX C

Contaminated Land Assessment - Statistical Spreadsheet

Ref:	R1742b	Date:	06.08.18
Site:	Heyford	Author:	DW
Substance:	Beryllium		

data entry (maximum 200 values)

identifier	observed value
Ph9-S1A	15.90
PH9-S2A	16.20
PH9-S3A	21.60
PH9-S4A	17.40
PH9-S5A	19.3
PH9-S6A	23.0
PH9-S7A	21.1
PH9-S8A	15.2

planning or Part IIA scenario: planning

select units: mg/kg

select signficance level (P): 0.05

(P 0.05 should be used by default)

enter critical concentration (Cc): 37 mg/kg

(SGV / GAC)

total number of observations: 8

number of non-detects: 0

0.04 mg/kg

0.02 mg/kg

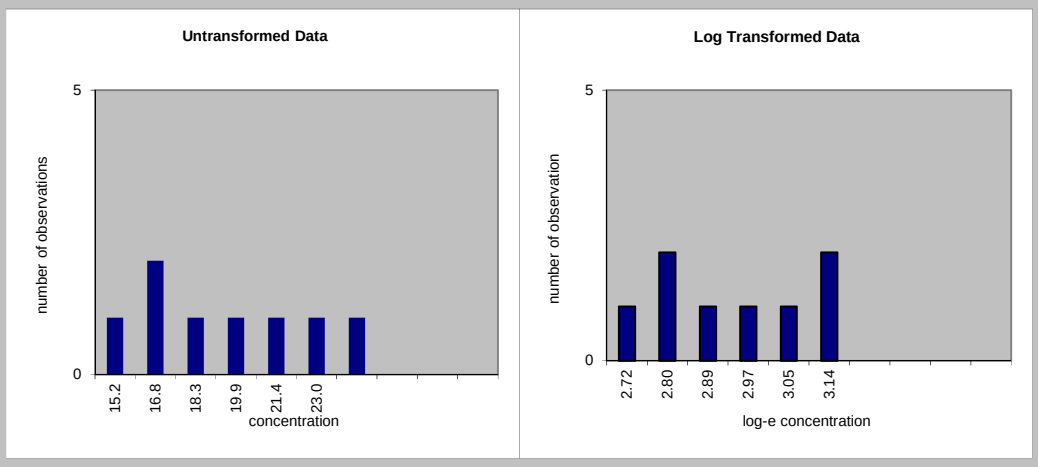
(typically 50% of the m.d.l.)

calculate

The null hypothesis (H_0) is that the true mean is equal to or greater than the critical concentration at a confidence level of 95%

Contaminated Land Assessment - Statistical Spreadsheet

1. Data review bell-shaped histograms indicate a normal-type distribution



Use log-transformed data? no

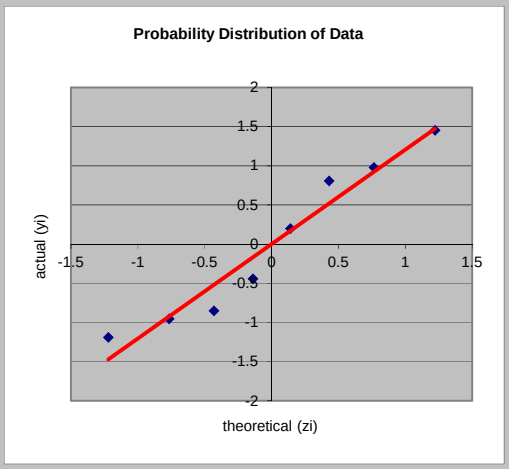
2. Check for statistical outliers Grubbs Test - assumes that data other than outlier(s) are normally distributed

T_{crit} =	2.03	T_n =	1.45	log transformed Tn =	1.38

maximum value 23 mg/kg is not an outlier

note: outliers should only be removed in particular circumstances

3. Assessment of normal distribution



Shapiro-Wilk normality test

W = 0.562

signficance level	0.01	0.05
critical level	0.749	0.818

W is less than the critical value at 5% significance level

Are data points aligned close to red line, indicating a normal distribution? yes

Non-parametric testing (Chebychev Theorem) is appropriate

4. Significance Tests Against Critical Value

Non-parametric Chebychev Test

sample mean = 18.7125 mg/kg sample unbiased standard deviation = 2.95 mg/kg

k statistic = -17.515 critical value = -4.360

k statistic is less than critical value **null hypothesis can be rejected**

upper confidence limit (UCL 0.95) = 23.26 mg/kg

Ref:	R1742b	Date:	06.08.18
Site:	Heyford	Author:	DW
Substance:	Beryllium		

Contaminated Land Assessment - Statistical Spreadsheet

Ref:	R1742b	Date:	06.08.18
Site:	Heyford	Author:	DW
Substance:	Beryllium		

data entry (maximum 200 values)

identifier	observed value
Ph9-S1A	1.10
PH9-S2A	1.30
PH9-S3A	1.10
PH9-S4A	1.10
PH9-S5A	1.1
PH9-S6A	1.2
PH9-S7A	1.4
PH9-S8A	0.9

planning or Part IIA scenario: planning

select units: mg/kg

select signficance level (P): 0.05

(P 0.05 should be used by default)

enter critical concentration (Cc): 1.7 mg/kg

(SGV / GAC)

total number of observations: 8

number of non-detects: 0

0.04 mg/kg

0.02 mg/kg

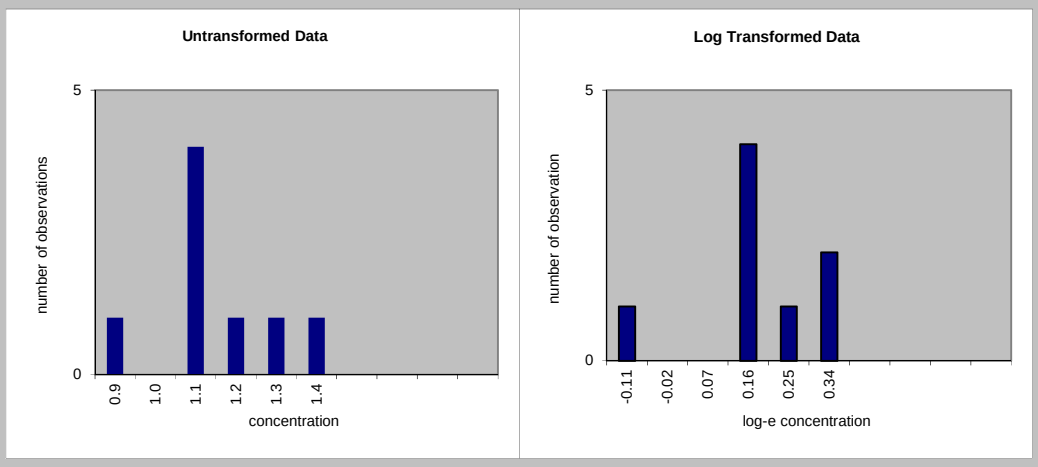
(typically 50% of the m.d.l.)

calculate

The null hypothesis (H_0) is that the true mean is equal to or greater than the critical concentration at a confidence level of 95%

Contaminated Land Assessment - Statistical Spreadsheet

1. Data review bell-shaped histograms indicate a normal-type distribution



Use log-transformed data? no

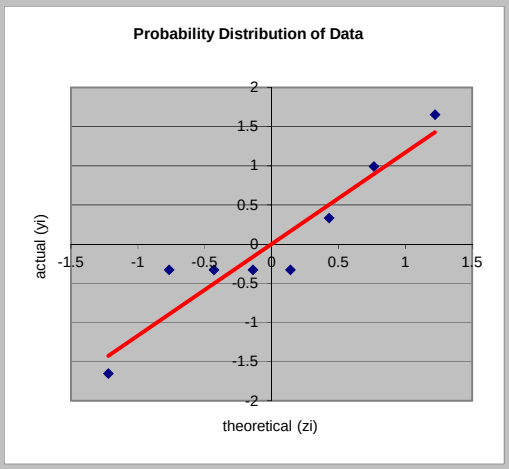
2. Check for statistical outliers Grubbs Test - assumes that data other than outlier(s) are normally distributed

T_{crit} =	2.03	T_n =	1.65	log transformed Tn =	1.54

maximum value 1.4 mg/kg is not an outlier

note: outliers should only be removed in particular circumstances

3. Assessment of normal distribution



Shapiro-Wilk normality test

W = 0.917

signficance level	0.01	0.05
critical level	0.749	0.818

data do not significantly vary from a normal distribution

Are data points aligned close to red line, indicating a normal distribution? yes

One-sample T test is appropriate

4. Significance Tests Against Critical Value

One-sample T Test

sample mean = 1.15 mg/kg sample unbiased standard deviation = 0.15 mg/kg

t statistic = -10.290 critical value = -1.895

t statistic is less than critical value **null hypothesis can be rejected**

upper confidence limit (UCL 0.95) = 1.25 mg/kg

Ref:	R1742b	Date:	06.08.18
Site:	Heyford	Author:	DW
Substance:	Beryllium		

Job name	Upper Heyford (Dorchester)
Job no.	R1742b
Date:	18.07.18
Author:	DW
Laboratory:	Exova Jones
Lab. Reference:	18-7823

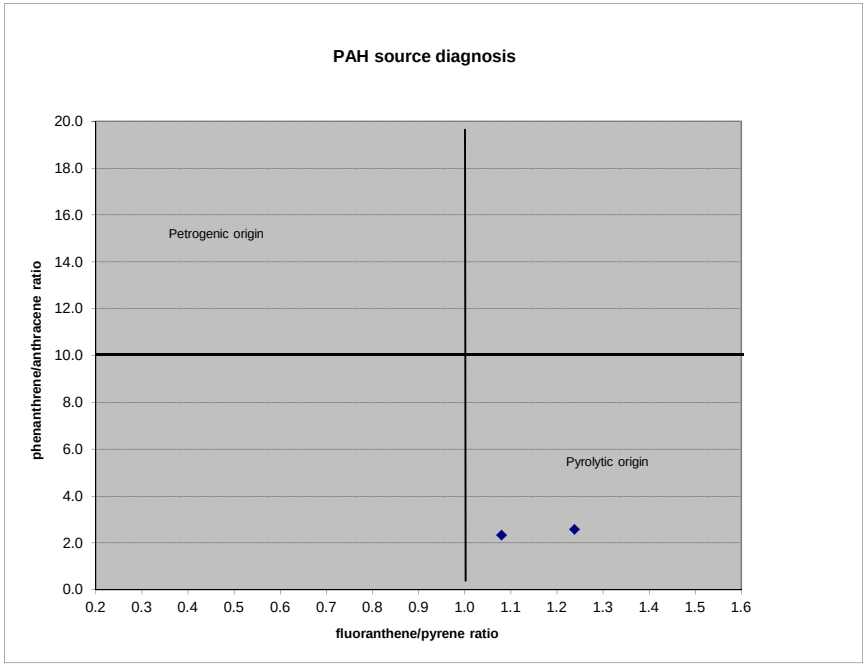
PAH concentrations

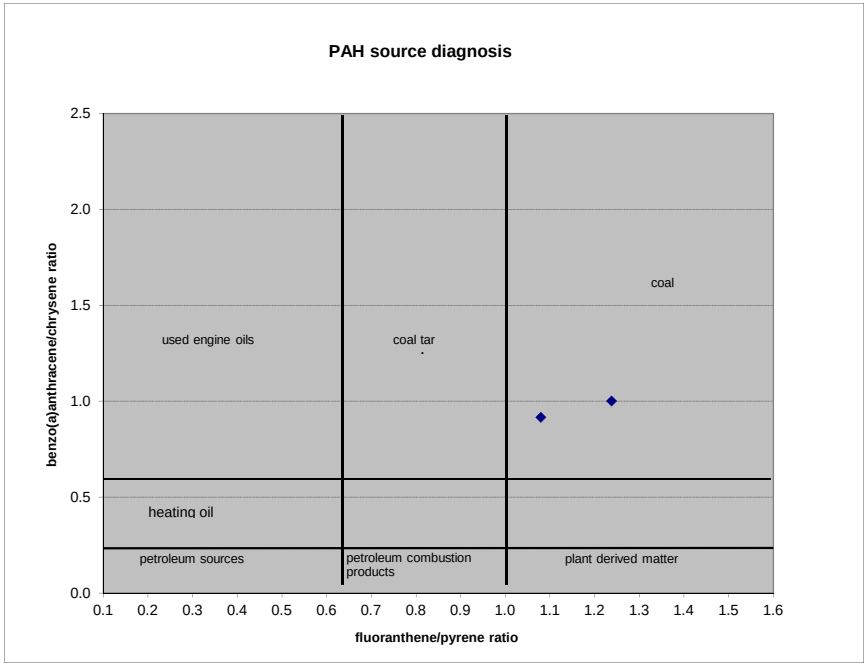
sample identity	Ph9-S4	Ph9-S11																		
phenanthrene	2.24	0.79																		
anthracene	0.87	0.34																		
fluoranthene	6.08	3.11																		
pyrene	4.91	2.88																		
benz(a)anthracene	2.15	1.42																		
chrysene	2.15	1.55																		

PAH units	mg/kg

PAH ratios

phe/ant	2.575	2.324																		
flu/pyr	1.238	1.080																		
baa/chr	1.000	0.916																		





APPENDIX E

PAH Ratio Cross-Plot

Job name	Heyford: Dorchester Phase 9
Job no.	R1742b
Date:	05.12.22
Author:	SM
Laboratory:	Eurofins Chemtest
Lab. Reference:	21-11315 & 22-40691

PAH concentrations

sample identity	PH9-SS26	PH9-SS28	PH9-SS37	Ph9-S53	Ph9-S55	Ph9-S56	Ph9-S57	Ph9-S59	Ph9-S61	Ph9-S62	Ph9-S63	Ph9-S71	Ph9-S73							
phenanthrene	2.0	1.4	3.6	9.6	9.2	14	3.8	1.3	1.4	1.1	8.6	1.9	5.4							
anthracene	0.77	0.45	1.2	4.4	3.3	4.7	1.2	0.41	0.45	0.73	3.5	0.69	2.1							
fluoranthene	6.9	6.5	11	36	20	26	7	3.7	3.4	14	26	3.9	12							
pyrene	7.0	6.7	11	38	19	24	7	3.7	3.7	18	28	3.7	11							
benz(a)anthracene	3.0	3.3	4.3	21	9.2	11	3.3	2.2	2.1	9.8	14	2	5.9							
chrysene	3.0	3.6	4.0	24	10	8.3	3.2	2.3	2.4	12	15	2.5	7.4							

PAH units	mg/kg

PAH ratios

phe/ant	2.597	3.111	3.000	2.182	2.788	2.979	3.167	3.171	3.111	1.507	2.457	2.754	2.571							
flu/pyr	0.986	0.970	1.000	0.947	1.053	1.083	1.000	1.000	0.919	0.778	0.929	1.054	1.091							
baa/chr	1.000	0.917	1.075	0.875	0.920	1.325	1.031	0.957	0.875	0.817	0.933	0.800	0.797