PHASE 2 GROUND INVESTIGATION INTERPRETIVE REPORT

Steyning Grammar School, Steyning, West Sussex

10057335-AUK-XX-XX-RP-ZZ-0082-01-Steyning Grammar School Ground Investigation Interpretative Report
SEPTEMBER 2023

SRP1121-ARC-XX-XX-T-O-0303

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Report No	10057335-AUK-XX-XX-RP-ZZ-0082-01-Steyning Grammar School Ground Investigation Interpretative Report
Date	SEPTEMBER 2023

VERSION CONTROL

Version	Date	Author	Changes
00	13/09/2023	James Davies / Elizabeth Yeatman	

This report dated 13 September 2023 has been prepared for the Department for Education (DfE) (the “Client”) in accordance with the terms and conditions of the appointment (the “Appointment”) between the Client and Arcadis LLP (“Arcadis”) for the purposes specified in the Appointment. For avoidance of doubt, no other person(s) may use or rely upon this report or its contents, and Arcadis accepts no responsibility for any such use or reliance thereon by any other third party.

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1 INTRODUCTION

1.1 Terms of Reference

The Department for Education (DfE) has appointed Arcadis LLP (Arcadis) to prepare a Phase 2 Ground Investigation Interpretive Report including an intrusive ground investigation for a proposed development at Steyning Grammar School, Shooting Field, Steyning, West Sussex, BN44 3RX ('the site').

This report aims to assess the suitability of the ground for redevelopment; with two development options currently under consideration. The concept development option sketches are presented in Appendix A. The proposed development includes reconfiguration of the site with new school buildings, sports pitches and parking and other external areas. If the proposed plans differ from those presented in Appendix A, a separate site-specific investigation may be required. Further investigation may be required when the proposed plan is finalised.

1.2. Scope and Objectives

A separate Phase 1 desk study report has been prepared (Ref 1) and the key findings are summarised in Section 2 of this report.

The purpose of this report is to identify characteristics of the near surface site conditions in terms of geology and contamination and aid in the design of foundations in accordance with recommended guidance including LC:RM (Ref 2), BS10175 (Ref 3), BS EN 1997 (Ref 4) and any other relevant guidance and best practices.

The investigation was designed to address the following:

- Assess the potential ground risks that may affect the development;
- Update the conceptual site model presented in the desk study report;
- Confirm ground conditions, including presenting borehole logs etc;
- Assess the contamination profile;
- Assess the nature and engineering properties of materials (Made Ground and natural deposits) to inform foundation options and pavement design; and,
- Provide conclusions and recommendations to inform the future site redevelopment.

Figure 2- Site Location (Ref 5)

Figure 1 - Site boundary (Red line indicates site boundary) Ref 6

1.3. Sources of Information

A desk study report has been prepared by Arcadis and should be read in conjunction with this report:

- Arcadis – Phase 1 Geo-environmental Assessment 10057335-ARL-XX-XX-RP-GE-0026-01-Phase 1 Steyning Grammar School (Ref 1).

Arcadis has previously issued a Ground Investigation Factual Report based on the findings of this intrusive ground investigation. The Factual Report is presented in Appendix C.

- Arcadis – Phase 2 Ground Investigation Factual Report (10057335-AUK-XX-XX-RP-ZZ-0078-01-Steyning Grammar School Ground Investigation Factual Report) (Ref 7).

1.4. Limitations and Expectations

This report has been prepared for DfE in accordance with the terms and conditions of appointment. Arcadis cannot accept any responsibility for any use of or reliance on the contents of this report by any third party. The copyright of this document shall remain the property of Arcadis.

This report has been compiled from several sources that Arcadis believes to be trustworthy. However, Arcadis is unable to guarantee the accuracy of information provided by others. The report is based on information available at the time of writing. Additional information may become available in the future, or development plans may change, which may have a bearing on the conclusions of this report, for which Arcadis cannot be held responsible.

Ground investigations by nature only reveal a small percentage of the ground conditions present beneath the site. The possibility of significant variation in ground conditions existing between sampling locations cannot be discounted. No ground investigation works could be completed beneath existing school buildings, hence ground conditions beneath existing buildings on the site are unknown. Soil borne gas and groundwater

conditions are based on observations made at the time of the investigation and during subsequent monitoring visits and may be subject to significant variation due to atmospheric, seasonal, or other effects.

The ground Investigation itself was designed generally to meet the objectives of an exploratory / preliminary investigation in accordance with the general practice described in LC:RM (Ref 2), BS10175 (Ref 3) and BS5930 (Ref 8).

All exploratory holes except BH101 and WS103 were progressed to their target depths successfully. The ground around BH101 was silty and the rig became unstable during drilling, so the borehole was terminated at 3m depth for safety reasons. During the drilling of WS103, a concrete obstruction was encountered at 1.10m depth, so the borehole was relocated to the WS103A position.

Full Study Limitations are presented in Appendix B.

2 Summary of Previous Findings

2.1 Desk Study

The Arcadis Desk Study Report (Ref 1) should be read in conjunction with this report. The Desk Study covers Steyning Grammar School's Shooting Field site, BN44 3RX, an irregularly shaped plot of land covering ca. 165,900m^2. The southern third of the site comprises the main school building area in the south of the site, made up of 17 blocks, EFA-A to EFA-Q. The remainder of the site to the north is playing fields. The main boiler room is located down a set of stairs in a basement under the sixth form building (north end of EFA-A block), located in the main school building in the east of the site. All the buildings were noted by the Facilities manager as having asbestos in the skylights and between pillars – an asbestos survey was being undertaken during the ground investigation by another 3rd party. Two more boiler rooms are located under the cafeteria (EFA-B) and in a room in EFA-C, both located in the southern area of the site.

In the north of the main school building area are two tarmac Multi-Use Games Areas (MUGAs) which are in good condition. Further north of these is a larger artificial grass MUGA.

The surrounding area is predominantly residential, with Horsham Road and Steyning bypass road north of the site. To the east of the site is mostly residential, with a primary school directly adjacent to the eastern boundary of the site. To the south of the site is further residential areas. Directly to the west of site is a leisure centre with a swimming pool and associated boiler room and chemical (chlorine) store; the South Downs National Park is beyond.

A review of historic maps was undertaken to produce a summary of the site history. Up until 1932 the site was used as a series of fields, and two unnamed roads boarded the west and east side of the site. Circa 1957 the school was built in the southeast corner of the site and the road bordering the east side of the site was named as the A283. Circa 1972 playing fields existed in the southeast corner of the site, and trees were planted on the site and on the surrounding eastern side, and the road south of the site was named Horsham Road. Circa 1976 till 1993 a 'C of E Primary School' was constructed in the southeast of the site and previous school in the south was expanded and named as a Grammar school. The aforementioned electrical substation was first recorded on historic maps in 1976. A swimming pool was constructed circa 1976 in the north east of the main school area, and was deconstructed circa 1993. Circa 2009 until present the school underwent a period of expansion, with a sports centre and youth wing constructed.

The published geology of the site is summarised in the table below:

Table 2.1: Published Geology for Steyning Grammar School

Stratum	Rock type	Aquifer designation
Made ground	Made ground	N/A
Superficial geology	Northern half of the site: River Terrace deposits – sand and gravel, flint, chalk and sandstone, with silt and clay.	Secondary A

Stratum	Rock type	Aquifer designation
	Gault Formation – mudstone.	Unproductive
Bedrock geology	Southern site boundary only: Upper Greensand Formation – siltstone and sandstone	Principal

The site is not located within the Source Protection Zone and there are no recorded SPZ's within 500m of the site. A river flows to the east, through the northern corner of the site, and there is a potentially canalised and culverted watercourse along parts of the eastern boundary, flowing northwards towards the river. One small area in the north of the site is noted as being at high risk of flooding from rivers and sea (the area is within Flood zones 2 and 3); the majority of the site however is deemed to be at very low risk of flooding.

The site is located in a lower probability radon area, where less than 1% of homes are above the recommended action level requiring radon protection measures. Therefore, radon protection measures are not required.

A preliminary UXO Risk Assessment obtained from Zetica UXO Risk Maps shows the site to be within a low-risk area.

The site is not located within an area of historic coal mining activity, however, there has been previous mining of sand and chalk on site, therefore a CON29M mining report was obtained from the Groundsure to further assess the risk from. A copy of the CON29M is included within the Phase 1 report. The site has been deemed acceptably free from mining related risk, and therefore no further action is required with regards to past mining activity.

The following potential areas of concern were identified:

- Four drum barrels containing Des E Spray (flammable) which is a cleaning agent used during the covid-19 pandemic.
- An electricity substation is located along the eastern boundary in the south east of the site.
- An old bunded diesel tank is located in the far southeast end of the site.
- Three boiler rooms associated with the school.
- Asbestos insultation within the skylights and between pillars in blocks EFA-A, EFA-B, EFA-C and EFA-D.
- The off-site leisure centre's boiler and chemical (chlorine) storage areas.
- The site of a former gas works and leather factory (150m off-site to the south).
- Made Ground associated with the site's development.

2.2 Factual Ground Investigation Report

Following completion of the desk study, Arcadis undertook a ground investigation to provide an assessment of the contamination regime, ground conditions, potential ground abnormalities and to inform potential founding

options. The site works were carried out between the 3rd and 12th April 2023, with subsequent monitoring rounds between 21st April and 4th May 2023. The completed scope of works, including laboratory analysis and monitoring results are provided in the Arcadis Factual Report (Ref 7) attached in Appendix C.

3. Ground Conditions

3.1. Introduction

The anticipated ground conditions identified within the Arcadis Desk Study report (Ref 1) comprised River Terrace deposits in the northernmost two thirds of the site only, underlain by mudstone of Gault Formation across the entire site. No superficial cover is indicated to be present over the southernmost third of the site i.e. the area of proposed development – however made ground is assumed to be present in this area due to the nature of the current development over this area. Siltstone and sandstone of the Upper Greensand Formation was indicated to outcrop directly to the south of the site. During the ground investigation, Made Ground, Head Deposits (which were mapped immediately off site to the west) and the Gault Formation were encountered. River Terrace Deposits were not encountered; they could potentially be present to the north of the investigation/ development area. If proposed plans change to include development further to the north of the investigation area, further investigation will be required to characterise the River Terrace deposits.

Full engineering logs are included within the Arcadis Factual Report (Ref 7) (Appendix C) while a summary of the general succession of strata encountered is presented in Table 3.1 below.

Table 3.1: Ground Conditions Summary

Strata	Location	Top Depths Encountered (m bgl)	Thickness Range (m)	General Description (Variable, but not limited to)	In situ Data SPT N value Range
Made Ground	BH102, BH103, BH104, WS101, WS102, WS104	0.00 (Ground Level)	0.1 – 0.35	Asphalt / bituminous surfacing or tarmac	--
	WS101, WS102, WS103, WS104	0.10	>0.1 – depth not proven in WS103 or WS104	Concrete generally encountered beneath the asphalt / bituminous surfacing.	--
	BH101, BH102, BH103, BH104, WS101, WS102, WS103, WS103A, WS104A WS105	0.00 – 0.35	0.2 – 2.0	Made Ground was generally encountered up to a maximum depth of 0.6m bgl, with the exception of WS103A and WS101, where Made Ground was recorded up to 1.3 and 2.2m bgl respectively. Variable, described as: • Very soft or firm light brown or dark grey slightly sandy clayey SILT or CLAY with gravel of chalk, flint, concrete, brick and bituminous material. • Firm yellowish brown gravelly CLAY with gravel of concrete, flint. occasional black organic material *(WS101 1.3-2.2m only)*.	8 - 14

Strata	Location	Top Depths Encountered (m bgl)	Thickness Range (m)	General Description (Variable, but not limited to)	In situ Data SPT N value Range
				• Light brown clayey locally silty and sandy GRAVEL of flint. • Dark brown sandy GRAVEL of bituminous material. • Light grey GRAVEL of flint and chalk.	
Head Deposits	BH103, WS104A, WS105, WS106	0.0 - 0.6	0.9 – 2.1	Generally encountered across the southern site area only. • Very soft to soft dark grey slightly sandy gravelly CLAY with gravel of flint. with occasional sand pockets and organic material. • Firm orangish brown silty or sandy gravelly CLAY with gravel of flint. • Firm orangish brown mottled grey CLAY with occasional black organic material *(WS105 only).*	4 - 10
Weathered Gault Formation	BH101, BH102, BH103, BH104, WS101, WS102, WS103A, WS104A, WS105, WS106	0.33 - 2.3	>2.4 – 6.17 (depth not fully proven in all holes)	Encountered beneath the Made Ground or Head Deposits where present. • Very soft becoming very stiff grey locally gravelly locally sandy CLAY with gravel of flint and chalk. • Firm yellowish brown sandy gravelly SILT with gravel of flint. • Very stiff yellowish or greyish brown mottled orange slightly sandy gravelly CLAY with gravel of flint. • Soft becoming very stiff with depth greenish grey, brown, grey or brown mottled orange CLAY.	5 - 47
Gault Formation	BH102, BH103, BH104	4.60 – 7.10	>0.40 – >4.50 (full depth not proven in any hole)	Extremely weak to weak dark grey MUDSTONE with pockets of orange bioturbation, rare silt pockets and gravel of flint.	>50

3.2. Potential Olfactory/ Visual Contamination Evidence

No visual or olfactory evidence of contamination was noted during the ground investigation. No elevated PID readings were recorded in soil samples screened.

Organic material was encountered in the Made Ground in WS101 between 1.3m and 2.2m, and in the Head Deposits within WS105.

3.3. Groundwater

Groundwater strikes were recorded within BH101 and BH102 at 1.00 and 1.25m bgl respectively; groundwater strikes were not recorded in the other exploratory holes, although the use of water flush to advance the rotary

boreholes may have masked any water strikes. Post-fieldwork groundwater monitoring has been undertaken on the 9 monitoring wells installed, on the following dates and all the groundwater levels recorded are summarised in Table 3.2 below.

- 21st April 2023
- 28th April 2023
- 4th May 2023

Prior to groundwater monitoring, purging of the wells was undertaken on the first visit on 21st April 2023, where 3x the wetted well volume of groundwater was removed from the well.

A summary of the groundwater depths is shown in Table 3.2 below and the complete results are presented in the Arcadis Factual Report (Ref 7) (Appendix C).

Table 3.2: Groundwater Summary Data

BH ID	Response Zone (m bgl)	Response Zone (m aOD)	Stratum	21/04/2023		28/04/2023		04/05/2023	
				Clear weather		Clear weather		Clear weather	
				m bgl	m aOD	m bgl	m aOD	m bgl	m aOD
BH102	0.50-5.50	16.56 – 11.56	GF	0.88	12.12	1.63	11.37	0.93	12.07
BH103	1.00-7.00	16.51 – 10.51	HD + GF	1.74	11.26	1.65	11.35	1.60	11.4
BH104	6.50-9.50	7.91 – 4.91	GF	1.11	11.89	1.24	11.76	0.90	12.10
WS101	1.00-5.00	15.38 – 11.38	MG + GF	0.73	12.27	0.32	12.68	0.82	12.18
WS102	1.00-4.00	15.57 – 12.57	GF	0.95	12.05	0.16	12.84	0.95	12.05
WS103A	1.50-4.00	13.34 – 10.84	GF	1.37	11.63	3.06	9.94	2.68	10.32
WS104A	1.00-4.00	13.39 – 10.39	HD + GF	1.81	11.19	1.74	11.26	1.91	11.09
WS105	1.00-3.00	16.46 – 14.46	HD + GF	1.49	11.51	0.98	12.02	1.26	11.74
WS106	1.00-4.00	14.04 – 11.04	HD + GF	1.41	11.59	1.22	11.78	1.57	11.43

Note: m bgl = metres below ground level, mAOD = metres Above Ordnance Datum, HD = Head Deposits, GF = Gault Formation

Groundwater levels during monitoring were between 0.16 and 3.06m bgl (12.84 and 9.94m aOD).

3.4. Gas

Post fieldwork ground gas monitoring has been undertaken on the 9 monitoring wells installed on three occasions on the following dates:

- 21st April 2023 during a period of rising pressure
- 28th April 2023 during a period of rising pressure
- 4th May 2023 during a period of rising pressure.

The results are presented in the Factual Report (Ref 7) (Appendix C) and summarised in Table 3.3 below:

Table 3.3: Gas Monitoring Summary Data

BH ID	Date	Response Zone (m bgl)	Response Zone (m aOD)	Strata	Barometric pressure (mbar)	Flow rate (l/h)	Steady CH_4 (%v/v)	Steady CO_2 (%v/v)	Steady O_2 (%v/v)	Steady H_2S (ppm)	Steady CO (ppm)	Depth to water (m bgl)
BH102	21/04/23	0.50 – 5.50	16.56 – 11.56	GF	1010	0	0	0.4	12.3	0	0	0.88
	28/04/23				1010	0	0.1	0.7	20	0	0	1.63
	04/05/23				1012	-0.7	0	0.6	19.7	0	0	0.93
BH103	21/04/23	1.00 – 7.00	16.51 – 10.51	HD + GF	1010	0	0	0.2	15.8	0	0	1.74
	28/04/23				1010	-2.5	1.6	5.1	4.6	0	3	1.65
	04/05/23				1013	0	0.4	6.7	6	0	2	1.60
BH104	21/04/23	6.50 – 9.50	7.91 – 4.91	GF	1010	NR	0	0.5	9.1	0	0	1.11
	28/04/23				1011	17.9	0.1	1.3	19.5	0	1	1.24
	04/05/23				1012	-6.6	0	1	18.7	0	2	0.90
WS101	21/04/23	1.00 – 5.00	15.38 – 11.38	MG + GF	NR	NR	NR	NR	NR	NR	NR	0.73
	28/04/23				1011	0	0.1	0.4	20.7	0	15	0.32
	04/05/23				1011	0	0.1	1.5	19.3	0	12	0.82
WS102	21/04/23	1.00 – 4.00	15.57 – 12.57	GF	1010	0	0	0.3	14.1	0	0	0.95
	28/04/23				1010	-16.1	0.1	0.6	19.6	0	0	0.16
	04/05/23				1011	-13.7	0	0.1	19.9	0	0	0.95
WS103A	21/04/23	1.50 – 4.00		GF	1010	0	0	0.4	11.8	0	0	1.37

BH ID	Date	Response Zone (m bgl)	Response Zone (m aOD)	Strata	Barometric pressure (mbar)	Flow rate (l/h)	Steady CH_4 (%v/v)	Steady CO_2 (%v/v)	Steady O_2 (%v/v)	Steady H_2S (ppm)	Steady CO (ppm)	Depth to water (m bgl)
	28/04/23		13.34 – 10.84		1011	0	0.1	1.5	18.7	0	1	3.06
	04/05/23				1012	0	0	1.3	7.5	0	1	2.68
WS104A	21/04/23	1.00 – 4.00	13.39 – 10.39	HD + GF	1010	0	0	0.1	16.9	0	0	1.81
	28/04/23				1011	0	0.1	0.2	14	0	1	1.74
	04/05/23				1011	0	0.2	2.9	13.6	0	1	1.91
WS105	21/04/23	1.00 – 3.00	16.46 – 14.46	HD + GF	1010	0	NR	NR	NR	NR	NR	1.49
	28/04/23				1010	0	0.2	1.5	14.5	0	0	0.98
	04/05/23				1012	0	0	1.7	12.8	0	0	1.26
WS106	21/04/23	1.00 – 4.00	14.04 – 11.04	HD + GF	1010	0	0	0.3	14.5	0	0	1.41
	28/04/23				1010	0	0.2	4.8	12.7	0	0	1.22
	04/05/23				1012	0	0	5.2	10.6	0	0	1.57

Note: m bgl = metres below ground level, m aOD = metres Above Ordnance Datum, MG = Made Ground, HD = Head Deposits, GF = Gault Formation

Readings from BH104, WS101, WS102 and WS105 have been greyed out due to the response zones of the monitoring installations being submerged with groundwater at the time of monitoring. These gas results may not be representative of the surrounding unsaturated ground conditions, as such these readings have been discounted from the ground gas assessment within this report.

3.5. Range of Geotechnical Parameters

The range of laboratory and in situ geotechnical tests results for ground conditions encountered within the exploratory holes are summarised in Tables 3.4 to 3.7 below. These are based on laboratory test results, in situ test results and published data.

Geotechnical test results are presented in the Arcadis Factual Report (Ref 7) (Appendix C).

Table 3.4: Summary of Geotechnical Properties for Made Ground

Made Ground			
Test	No. of results	Min	Max
SPT N Values	3	8	14
SPT N Values corrected to N_{60}	3	9	16
Laboratory CBR test (%) (recompacted Made Ground Gravel)	1	7.2 (Top)	
		8.4 (Bottom)	
pH	6	8.35	8.91
Water soluble sulphate as SO_4 (mg/l)	6	<4	112
Total Acid Soluble Sulphate as SO_4 (%)	1	0.028	
Total Sulphur (%)	1	<10	
Water Soluble Chloride (mg/l)	1	<10	
Water Soluble Nitrate (mg/l)	1	<10	
Water Soluble Magnesium (mg/l)	1	<10	
Moisture Content (%)	1	3.6	

Table 3.5: Summary of Geotechnical Properties for Head Deposits

Head Deposits			
Test	No. of results	Min	Max
SPT N Values	5	4	10
SPT N Value corrected to N_{60}	5	4	11
Cu from N_{60} SPT correlations (kPa)*	5	20	50
Moisture Content %	4	22.9	38.4
Liquid Limit (LL) %	4	36	48
Plastic Limit (PL) %	4	16	20
Plasticity Index (PI) %	4	16	30
Modified Plasticity Index (MPI) %**	4	15	30
Laboratory CBR test (recompacted sample) (%)	1	1.7 (Top)	

		2.2 (Bottom)	
pH	5	7.22	8.7
Water soluble sulphate as SO_4 (mg/l)	5	<4	23.6
Total Acid Soluble Sulphate as SO_4 (%)	1	0.052	
Total Sulphur (%)	1	<0.01	
Water Soluble Chloride (mg/l)	1	<10	
Water Soluble Nitrate (mg/l)	1	<10	
Water Soluble Magnesium (mg/l)	1	<10	

* Derived from Stroud, 1974 – f_1 5

** Modified Plasticity Index (NHBC) (I'p = Ip x % less than 425µm 100%)

Table 3.6: Summary of Geotechnical Properties for weathered Gault Formation

Weathered Gault Formation			
Test	No. of results	Min	Max
SPT N Values	28	5	47
SPT N Value corrected to N_{60}	28	5	49
Cu from N_{60} SPT correlations (kPa)*	28	22	207
Cu from hand shear vanes (kPa)	11	34	88
Cu from unconsolidated undrained triaxial compression (kPa)	2	64	86
Dry Density (Mg/m^3)	2	1.5	
Bulk Density (Mg/m^3)	2	1.93	1.95
Moisture Content %	10	24.5	38.8
Liquid Limit (LL) %	10	60	81
Plastic Limit (PL) %	10	24	34
Plasticity Index (PI) %	10	32	51
Modified Plasticity Index (MPI) %**	10	32	51
pH	20	8.03	9.2
Water soluble sulphate as SO_4 (mg/l)	20	<4	40
Total Acid Soluble Sulphate as SO_4 (%)	11	<10	220
Total Sulphur (%)	11	<10	120
Water Soluble Chloride (mg/l)	11	<10	22
Water Soluble Nitrate (mg/l)	11	<10	16
Water Soluble Magnesium (mg/l)	11	<10	

* Derived from Stroud, 1974 – f_1 4.4

** Modified Plasticity Index (NHBC) (I'p = Ip x % less than 425µm 100%)

Table 3.7: Summary of Geotechnical Properties for Gault Mudstone Formation (rock)

Gault Mudstone Formation			
Test	No. of results	Min	Max
SPT N Values	11	>50	>50
SPT N Value corrected to N_{60}	11	>52	>60
pH	3	8	8.5
Water soluble sulphate as SO_4 (mg/l)	3	110	520
Total Acid Soluble Sulphate as SO_4 (%)	2	0.27	0.67
Total Sulphur (%)	2	0.43	0.64
Water Soluble Chloride (mg/l)	2	12	44
Water Soluble Nitrate (mg/l)	2	<10	
Water Soluble Magnesium (mg/l)	2	<10	

3.6. Particle Size Distribution (PSD) Sieve Test Results

Two PSD tests were undertaken on samples of the weathered Gault Formation. The results were obtained by wet sieving and sedimentation to achieve a percentage passing for each grain size.

The weathered Gault Formation results recorded 19.2% to 38.8% coarse material (3% to 22.5% sand and 16.2% to 16.3% gravel) and 61.2% to 80.8% fines. The samples were described by the laboratory as light grey slightly sandy gravelly silt / clay or dark brown sandy gravelly silty clay based on the PSD results.

No PSD tests were undertaken on any of the other stratum types.

The geotechnical laboratory results are attached as part of the Arcadis Factual Report (Appendix C).

3.7. Atterberg Tests

One sample of Made Ground was tested, however the results showed this to be non-plastic, and moisture content test only was recorded.

Four samples of Head Deposits were tested. Calculation of the modified plasticity index has been completed in accordance with NHBC Chapter 4.2 guidelines (Ref 10). The sample classification ranged between very low to low plasticity with low to medium volume change potential.

Eleven samples of the weathered Gault Formation were tested. Calculation of the modified plasticity index has been completed in accordance with NHBC Chapter 4.2 guidelines (Ref 10). The sample classification ranged between medium to very high plasticity with a medium to high volume change potential.

The Atterberg results were also used to show the relationship between the liquid limit and plasticity index of the soils in order to determine the plasticity; the results are plotted on the below graph in Figure 3. All the samples plot above the A-line indicating that they classify as clay soils.

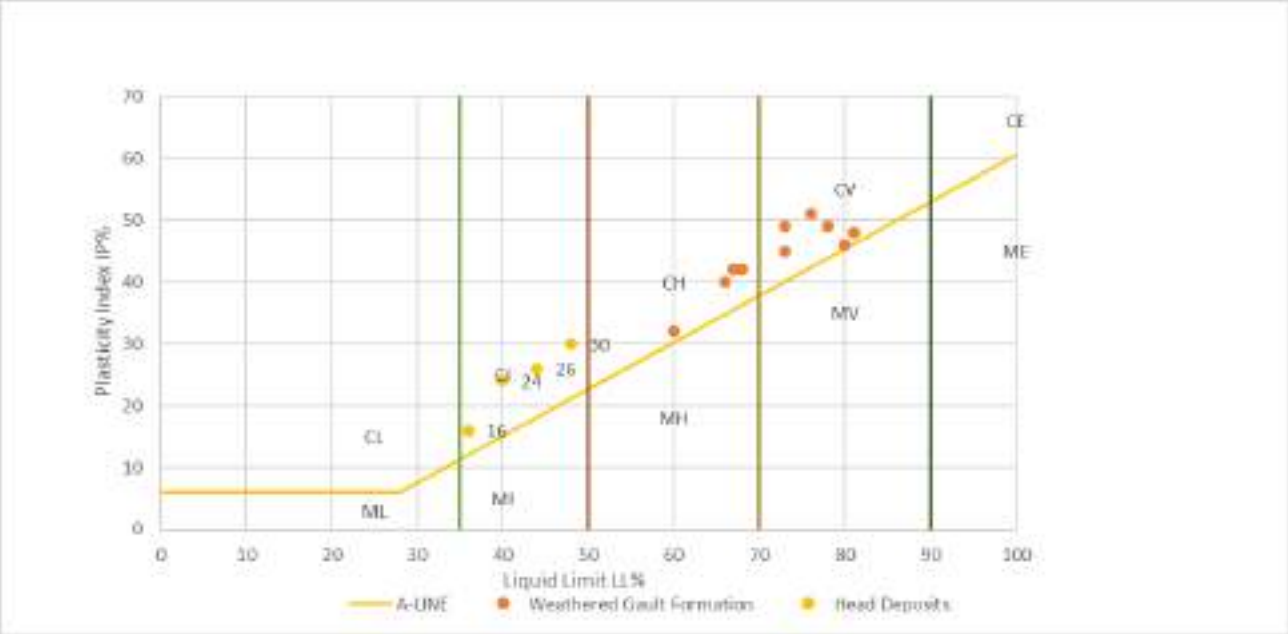

Figure 3 – Plasticity Chart for cohesive soils

3.8. Standard Penetration Testing (SPTs)

SPT tests were undertaken within all boreholes, with the shallowest SPT in each hole commencing at 1.2m bgl (at the base of the hand dug inspection pit for utility avoidance purposes).

Three SPT tests were undertaken within the Made Ground, with an N-values ranging between 8 and 14, indicative of loose soils in WS103A and firm cohesive soils in WS101.

Within the Head Deposits, five SPT tests were conducted, and N values ranged between 4 and 10, correlating to Cu of 20 to 45kPa indicative of low to medium strength soils.

Within the weathered Gault Formation, N values ranged between 5 and 47 (generally >10), correlating to Cu of 22 to 193kPa (generally >40kPa) indicative of low to very high strength soils, generally seen to be increasing in strength with depth.

Within the bedrock Gault Formation, N values were all recorded as >50.

The SPT data has been corrected to an equivalent free fall energy efficiency of 64% for the rotary rig and 73% for the windowless sample rig, N_{60}. Figure 4 shows the correlation between SPT N_{60} values and depth (m bgl).

An increase in SPT N_{60} values with depth is generally seen in all soil types.

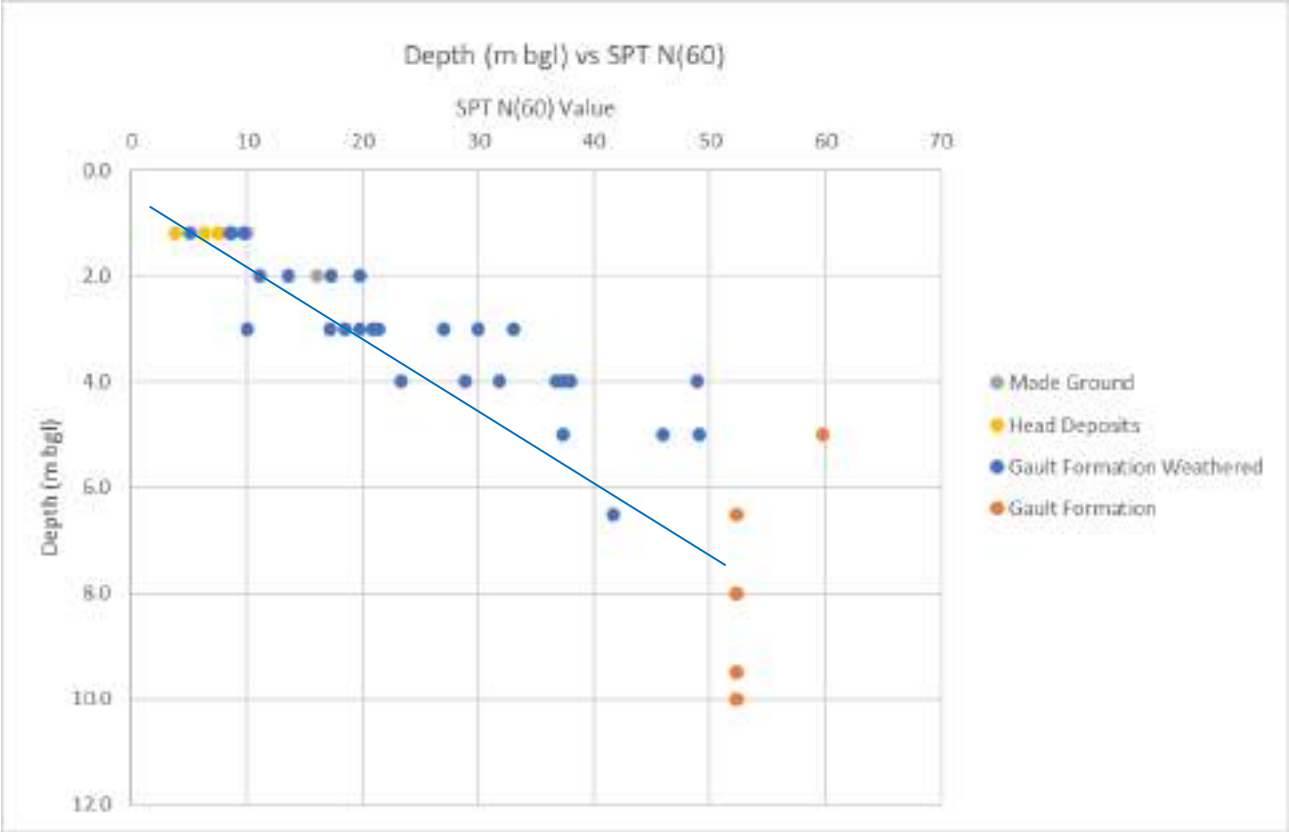

Figure 4 - SPT (N_{60}) vs depth (m bgl) within soils Blue line represents suggested design line

3.9. Undrained Shear Strength

Two undrained shear strength in triaxial compression tests were conducted on samples of the Gault Formation from 2 and 4m bgl (BH104). The shear strength for these samples was found to be 64 and 86 kPa respectively, indicative of medium to high strength clays.

3.10. Recompacted CBR

Two samples were submitted to the laboratory for recompacted CBR testing with a 2.5kg rammer.

One sample of Made Ground gravel recorded CBR at the top and base of the specimen of 7.2 and 8.4% respectively.

One cohesive sample of the Head Deposits recorded CBR at the top and base of the specimen of 1.7 and 2.2% respectively.

3.11. Lightweight Deflectometer

Light weight deflectometer (LWD) testing was carried out at 0.15m bgl within the made ground of three of the window sample locations (WS104A, WS105 and WS106). The test was carried out in accordance with the operating instructions for the LWD.

The underlying soil strength is determined by measuring the amount of deflection in mm after each weight drop. The EVd value in MN/m^2 and the distance/speed ratio (s/v value) are then calculated, providing a direct measure of the modulus value of the subgrade, which aligns with the CD225 methodology for highway foundation designs.

The EVd results recorded range between 4.28 – 4.61 MN/m^2. Full results are presented in Appendix I of the Factual report (Appendix C).

4. Preliminary Geotechnical Assessment

4.1. Introduction

It is understood that two potential redevelopment options are currently under consideration for the site. The concept option sketches are presented in Appendix A. The proposed development includes reconfiguration of the site with new school buildings, sports pitches, parking and other external areas.

Proposed finished levels are unknown, although it is considered unlikely that ground levels will change significantly across the site; therefore, no significant earthworks are anticipated. A detailed foundation assessment should be completed once the proposed design with line load requirements and settlement criteria for foundations have been finalised.

The following assessment is based upon the information and ground conditions presented within this report and the Arcadis Factual Report (Ref 7) (Appendix C).

4.2. Ground Summary

Ground conditions across the site were found to comprise Made Ground encountered from the surface within the majority of exploratory holes. Made Ground was observed to be variable comprising granular or cohesive deposits with anthropogenic inclusions including concrete, brick and occasional bituminous fragments. Made Ground was generally recorded up to 0.6m bgl, however was recorded to greater depths in two locations WS103/A and WS101 (1.3 and 2.2m bgl respectively).

Made Ground was underlain by Head Deposits, recorded only in exploratory holes formed within the southern site area, to depths of between 1.4 and 2.3m bgl (15.6 and 14.7m aOD). Head Deposits were described as very soft to firm slightly sandy or silty gravelly clay or firm clay.

Underlying the superficial deposits / Made Ground was the Gault Formation. The Gault Formation comprised a weathered upper zone of between 2.4 to >6.17m in thickness, however the full depth was not proven in all holes. The weathered strata was generally described as firm to very stiff clay or slightly sandy gravelly clay. Unweathered Gault Formation was encountered at depths of between 4.6 to 7.1m bgl (12.4 to 9.9m aOD) and comprised extremely weak to weak dark grey mudstone. Boreholes terminated within this unit at a maximum depth of 10.2m (6.8m aOD); the unweathered Gault Formation was not fully penetrated but was found to be at least 4.5m thick.

Groundwater strikes were recorded within BH101 and BH102 at 1.00 and 1.25m bgl (14.33 and 13.5m aOD) respectively. During follow-up monitoring, groundwater was measured at depths between 0.16m and 3.06m bgl (12.84 and 9.94 mAOD).

4.3. Foundations

The following recommendations are for guidance purposes only and should be subject to detailed design when a confirmed site layout has been established and finished formation levels as well as the loading and settlement criteria become available.

The proposed school building is likely to have an extensive footprint (final proposed development layout not yet known), with a significantly variable point and line loading depending on the use of the different areas. It was not stated whether or not subsurface structures (for example basement/ half basement areas or lift shaft bases) will be present within the proposed structure.

It is anticipated that the proposed footprint area will be turned over to remove relic foundations and services of previous structures. Typically this is to a depth circa 1m to 2m, although will be dependent on the existing foundations.

The ground investigation indicates that Made Ground is likely to be present in all of the proposed development areas. The Made Ground varied in thickness between 0.30m and 2.20m and is not anticipated to provide a suitable foundation bearing stratum.

Head Deposits were encountered in exploratory holes within the south of the site to depths of between 1.40 and 2.30m bgl. Head Deposits were generally described as cohesive low to medium strength clay soils. Head deposits are not anticipated to provide a suitable foundation platform due to their variability, insufficient strength and potential for consolidation and differential settlement. All foundations should fully penetrate this stratum where present.

The Made Ground / Head Deposits (where present) was underlain by the Gault Formation generally comprising firm to very stiff slightly sandy gravelly clay, becoming extremely weak to weak mudstone with depth. The weathered Gault Formation is considered suitable as a founding stratum. At a depth of 2m bgl, an undrained shear strength of 50 to 65kPa can be inferred increasing with depth within the material, based on the relationship with SPTs proposed by Stroud.

Preliminary calculations indicate a net allowable bearing capacity in the order of 100kPa for traditional shallow foundations (pads up to 2m square or strip footings up to 1m width) at a depth of 2m bgl, bearing within firm to stiff natural clay and where settlement has been limited to 25mm.

All foundations will need to fully penetrate any Made Ground deposits or softer natural soils including Head Deposits and be founded a minimum of 150mm into the founding stratum. Foundations should be within consistent strata to reduce the risk of differential settlement.

Where the serviceability limits of structures cannot be fulfilled by shallow foundations (i.e. estimated settlements are above the limits of the structures), then piled foundations should be considered.

Detailed pile designs (in terms of pile type, length, heave protection requirements and method of installation) would be dependent upon the required working loads and should be undertaken in conjunction with a reputable, specialist piling contractor, ideally with local experience.

Given the proposed foundation depths of around 2.0m, it is not anticipated that the effect of trees or new planting will be significantly detrimental to the foundations, however the foundation design should comply with the guidance given in NHBC standards. Atterberg Limits have been tested for the Gault Formation clays, with modified plasticity index values indicating a medium to high volume change potential. Within the NHBC

standards, the minimum depth for foundations within soils with high shrinkage potential is 1.5m, or 1.0m where outside the zone of influence of trees.

Given the range of potential building layouts and siting options provided prior to completing the ground investigation, the scope of intrusive work was spread across the school site to provide a general spread of data across the site. Investigation was also not possible under existing buildings. Further investigation will be required post demolition to assess the ground conditions beneath the existing buildings and the proposed building footprint when proposals are finalised.

4.4. Floor Slabs

Made Ground was observed to be present generally up to 0.6m depth, but up to a maximum depth of 2.2m bgl, comprising predominantly cohesive soils. The Made Ground is underlain by the Gault Clay across much of the site area, which was generally described as medium to very high plasticity with a medium to high volume change potential.

Given that Made Ground is present at thicknesses greater than 600mm, and there is presence of high plasticity shallow soils, suspended floor slabs are likely to be required. Suspended slabs may be designed as precast concrete floors (beam and block type) with void below or use suitable compressible void former to support cast in-situ slabs.

4.5. Formations & Excavations

Overlying Made Ground, superficial deposits and weathered strata of the Gault Formation should be readily excavated in areas of proposed development using a conventional backhoe excavator. The use of pneumatic breakers may be required where obstructions are encountered (e.g., remnant foundations from current or historic buildings). All remnant foundations, slabs and other obstructions should be removed from beneath the proposed new building.

Open excavations are likely to be feasible, where there is sufficient space to batter slopes to a safe angle. Where there is insufficient space, or in areas of deeper granular Made Ground appropriate trench support will be required. All temporary works must be designed by an appropriate engineer based on the proposed excavation and required duration.

Groundwater monitoring has identified groundwater as shallow as 0.16m bgl (12.84m aOD), therefore dewatering measures such as sump pumping may be necessary during excavation works.

Consideration should be given in the design for the potential water pressure, including checks for uplift forces due to the shallow design groundwater level, that the characteristic groundwater level may apply to any proposed temporary or permanent works.

4.6. Roads and Subgrade

Light weight deflectometer (LWD) testing was carried out at 0.15m bgl within the Made Ground of three of the window sample locations (WS104, WS105 and WS106). The EVd results recorded range between 4.28 – 4.61

MN/m^2. The results are likely to provide an underestimate of the load bearing capacity of the subgrade, due to the nature of completing the test in a hand excavated pit.

Two recompacted CBR tests were carried out in the laboratory. A sample of Made Ground gravel recorded a CBR at the top and base of the specimen of 7.2 and 8.4% respectively. A cohesive sample of the Head Deposits recorded CBR at the top and base of the specimen of 1.7 and 2.2% respectively.

In consideration of the ground conditions encountered, and assuming final levels will largely mimic the existing, it is likely that the pavement subgrade exposed at formation levels will comprise predominantly cohesive Made Ground or natural clay of the Head Deposits or shallow weathered Gault Formation.

It is therefore recommended that new road pavement construction design should be based upon (an estimated) Equilibrium CBR value of around 2 to 3% with consideration given to the likely moisture conditions applying during construction, assuming that appropriate precautions are taken against excessive disturbance, and the likely long-term equilibrium moisture condition, making reasonable allowance for moisture ingress through the pavement, but assuming drainage is correctly installed as designed.

The design CBR value will need to be reviewed and confirmed by suitable in-situ testing at formation levels following any site preparation and earthwork operations, prior to pavement construction.

Notwithstanding this, the formation at all levels should be proof-rolled prior to pavement construction, and any soft zones thus revealed should be excavated out, with the resulting excavation in-filled with appropriately graded engineered granular fill.

4.7. Chemical Aggressivity

Design of buried concrete should be undertaken in accordance with BRE Special Digest 1 (2005) (Ref 11).

The chemical analysis results indicate the following:

- Sulphate content is below 3.7g/l in water extract and 3.0g/l in groundwater. Consideration of magnesium content not necessary.
- pH was not recorded below 5.5 and therefore chemically equivalent sulphate concentrations from chloride and nitrate have not been assessed.
- The characteristic soil soluble sulphate value has been calculated as 200mg/l (170mg/l rounded to nearest 100mg/l), based on the mean of the highest 20% of 2:1 water soluble sulphate.
- The characteristic groundwater sulphate value is 500mg/l (451mg/l rounded to nearest 100mg/l), the highest determined concentration.
- Oxidisable sulphides have been calculated at values above 0.3% SO_4 in the two samples of the Gault Formation taken from depths of 5.5 and 7.0m bgl, indicating that pyrite is likely to be present in this unit. Oxidisable sulphides were calculated at values below 0.3% SO_4 in all of the eleven samples of the weathered Gault Formation.

- The characteristic site pH has been calculated as 7.4, based on the lower of the mean of the lowest 20% of values from soil and groundwater samples.
- Groundwater has been assessed as mobile.

Should the solid strata of the Gault Formation remain undisturbed, then the above results fall within “Design Sulphate Class” DS-2, and the “Aggressive Chemical Environment for Concrete” (ACEC) class for the site is considered to be AC-2.

However, if development proposals are such that the solid strata of the Gault Formation may be disturbed (e.g., requirement for piled foundations), design of below ground concrete may need to consider the likely presence of pyrite in this unit. The available total potential sulphate values recorded in samples of the unweathered Gault Formation clay would alter the classification to DS-4 AC-4.

5. Geo-environmental Assessment

5.1. Generic Assessment Criteria (GAC)

In order to assess the significance of the potential contaminants of concern (CoC) in relation to the possible active source-pathway-receptor linkages identified, the measured concentrations of CoC in soil and groundwater have been compared to the applicable Generic Assessment Criteria (GAC) (Appendix F) based on the site's current and proposed continued use as a school.

For the human health receptor and given the use of the site, the Arcadis GAC for a low density residential end use with plant uptake has been used to assess the risk to human health from soils which is considered to provide an appropriately conservative assessment.

For controlled waters, the on-site watercourse was identified as a possible surface water receptor, so groundwater sample results were compared to the Arcadis GAC protective of surface water receptors.

The Head Deposits on site are classified as a Secondary (Undifferentiated) Aquifer and the Gault Formation as Unproductive, both of which are considered low sensitivity. There are no groundwater abstraction points recorded within 500m of the site. The Upper Greensand Formation bedrock is a Principal Aquifer which is mapped directly to the south of the site, considered to be high sensitivity. The Upper Greensands are stratigraphically above the Gault Formation however the Upper Greensand is not present below the site and therefore not a receptor for vertical migration. The groundwater results have been compared against the Arcadis GAC protective of aquifers to assess the risk to the underlying aquifer.

Appendix E shows the soil and groundwater results against the GAC recorded in an ES-DAT output.

Laboratory testing was undertaken for each stratum type for a range of geo-environmental determinants, targeting potential sources of contamination (as detailed in Table 4.2 and 4.3 of the Arcadis Factual Report) (Ref 7) (Appendix C).

5.1 Comparison to GAC Protective of Human Health

5.1.1 Soil

Eighteen soil samples were tested for a range of possible contaminants as per Table 4.2 of the Factual Report (Appendix C). The soil samples were compared against the Arcadis low density residential GAC protective of human health (residential combined pathways) and all concentrations of potential contaminants were recorded below the GAC.

Ten samples were screened for asbestos, eight of which were Made Ground, and two were natural soils. No asbestos fibres were detected in the samples tested. Results are shown within the Arcadis Factual Report (Appendix C).

Due to the discrete nature of asbestos in soil, asbestos may be present within localised areas, so its possible presence within Made Ground cannot be discounted at this stage.

5.2 Comparison to GAC Protective of Surface Waters and Aquifers

5.2.1 Groundwater

Nine groundwater samples were tested for a range of possible contaminants as per Table 4.3 of the Factual Report (Appendix C).

Exceedance of the GAC protective of surface waters and aquifers was recorded for numerous metals across all nine groundwater wells. Exceedances of Nickel and Selenium were also recorded above the GAC protective of aquifers. Exceedances of the GAC are summarised below in Tables 5.1 and 5.2:

Table 5.1: Groundwater contaminants exceeding GAC - Aquifers

Contaminant	GAC (µg/l)	Concentration (µg/l)	Monitoring Well ID
Lead	10	50.7	WS103
Nickel	20	25.7	BH103
Selenium	10	13.9	WS105
Benzo(b)fluoranthene	0.025	0.0576	BH104
Benzo(a)pyrene	0.01	0.391	WS105
Ideno(1,2,3-c,d)pyrene	0.025	0.875	WS105
TPH >C5-C35 Aliphatics/Aromatics	10	96	BH102
		485	BH103

Table 5.2: Groundwater contaminants exceeding GAC – Surface Waters

Contaminant	GAC (µg/l)	Concentration (µg/l)	Monitoring Well ID
Chromium (III)	4.7	36	WS102
Chromium (total)	3.4	20.9	BH102
		7.05	BH103
		20.9	WS101

Contaminant	GAC (µg/l)	Concentration (µg/l)	Monitoring Well ID
		12.5	WS104
		20.0	WS106
Copper	1	1.89	WS101
		1.91	WS103
		1.64	WS104
		1.62	WS105
		1.55	WS106
Lead	1.2	3.55	BH102
		1.99	BH103
		6.20	BH104
		50.7	WS103
Nickel	4	25.7	BH103
Selenium	10	13.9	WS105
Zinc	12.1	26.6	WS103
Benzo(a)pyrene	0.00017	0.391	WS105
TPH >C5-C35 Aliphatics/Aromatics	10	96	BH102
		485	BH103

Exceedances of the aquifer GAC were found for groundwater for lead, nickel, selenium, PAH and total TPH.

Exceedances of the surface water GAC were found for groundwater for chromium (III), total chromium, copper, nickel, selenium, zinc, PAH and total TPH.

5.3 Risk Evaluation

5.3.1 Human Health

The Low-density Residential end-use was considered the most appropriate screening criteria on the basis of the proposed continuing site use as a school. Given the lack of exceedances above the GAC for low density residential end use there is negligible risk to human health and no remediation is anticipated with respect to soils and risk to human health based on the ground conditions and analysis undertaken to date. No investigation has been undertaken below the existing buildings on site, as such the contamination status of these soils is unknown. Further investigation is recommended below the footprints of the existing buildings following demolition.

It is recommended that a watching brief should be adopted during construction in accordance with best practice. If any unforeseen contamination not detected during the ground investigation is encountered, a suitably qualified geo-environmental consultancy should be contacted.

Due to the discrete nature of asbestos in soil, asbestos may be present within localised areas, so its possible presence cannot be discounted at this stage. A watching brief is recommended during the groundworks by someone suitably trained in asbestos identification within soils. Should any visible asbestos containing materials (ACMs) be identified they should be segregated and disposed of to a suitably licensed facility.

5.3.2 Controlled Waters – Groundwater

Surface waters

Based on the laboratory analyses, all nine groundwater samples taken on site exceeded the GAC for at least one of the following - chromium (III), total chromium, copper, lead, nickel, selenium, zinc, PAH and TPH.

Other than Made Ground, no significant source of metals or PAH have been identified on-site and the detections of metals in groundwater samples are expected to either be associated with Made Ground from development, naturally occurring background concentrations within the soil and groundwater, or from off-site sources.

The TPH elevations were found within BH102 and BH103 in the west of the site – BH103 is within an existing car park and BH102 directly adjacent to one. These hydrocarbons could potentially be associated with leaks from parked vehicles.

The Head deposits are a secondary undifferentiated aquifer and the Gault Formation is an unproductive aquifer of low permeability. As a result, it is likely that groundwater encountered is isolated volumes within more granular portions of the Gault Formation and Head deposits. The aboveground river in the northern corner of the site is approximately 500m to the north of the wells and proposed development area; given that the Head Deposits and Gault Formation encountered are of low permeability, vertical and lateral migration of contaminants will be restricted and the distance is too great for the river to be significantly impacted. The watercourse located directly to the east of the site is culverted and thus should be lined, which should prevent penetration of contaminants. Given the low permeability of the Gault Formation, the distance to the on-site river and lining of the culverted watercourse, the risk to surface waters is likely to be low.

Aquifers

Exceedances of the Arcadis Aquifer GAC were recorded across site for lead, nickel, selenium, PAH and TPH. The metal exceedances were fairly marginal except for the value of 50.7µg/l in WS103 (GAC 1.27µg/l). Other than Made Ground, no significant source of metals or PAH have been identified on-site. The detections of metals in groundwater samples are expected to either be associated with Made Ground from development, naturally occurring background concentrations within the soil and groundwater, or from off site sources.

Concentrations of PAHs were slightly elevated within the Made Ground soils results within WS105, where the elevations in groundwater PAH were also detected. This suggests that the elevated PAH within groundwater is likely to originate within the Made Ground in the area of WS105.

The Head deposits are a secondary undifferentiated aquifer and the Gault Formation is an unproductive aquifer of low permeability, neither of which are considered significantly sensitive receptors. There are no groundwater abstractions recorded within 500m of the site. It is likely that groundwater encountered is isolated volumes within more granular portions of the Gault Formation and Head deposits. The Upper Greensand Formation bedrock outcrops directly to the south of the site, and is a Principal Aquifer, considered to be a high sensitivity aquifer. It overlies the Gault Formation so there is no vertical migration pathway to the Upper Greensand. Given the low permeability of the Head Deposits and Gault Formation, lateral migration of contaminants to the Upper Greensand Formation is also likely to be low.

Consideration should be taken where pumping out groundwater potentially impacted by hydrocarbons. Where groundwater may be impacted by hydrocarbons, it should be pumped into an IBC for subsequent chemical testing. If results show hydrocarbons above their respective GAC, suitable disposal will be required.

5.4 Ground Gas Monitoring Results

Three gas monitoring visits have been undertaken on all borehole wells with an installation; the results are presented in the Arcadis Factual Report (Ref 7) (Appendix C) and are summarised below in Table 5.1. Maximum gas concentrations are maximum steady state readings only.

Table 5.3: Summary of Ground Gas Data

Maximum Steady State Gas Concentrations
• Maximum carbon dioxide – 6.7 % (BH103 4th May 2023) • Maximum methane – 1.6 % (BH103 on 28th April 2023) • Hydrogen Sulphide – 0 pp • Carbon monoxide – 3 ppm (BH103 on 28th April 2023) • Maximum flow rate – -2.5 l/hr (BH103 on 28th April 2023) Atmospheric pressure across the visits ranged between 1010 mb and 1013mb.

A ground gas assessment has been undertaken with reference to BS:8485 (Ref 12) and CIRIA C665 (Ref 13); guidance has been used which sets out the current method of undertaking gas risk assessment.

Hazardous gas flow rates (Q_{hg}) can be calculated using the following equation:

Q_{hg} = borehole flow rate (l/h) x (gas concentration (v/v %) / 100)

Maximum steady state rates determined from gas monitoring results have been used in these calculations:

- Maximum Methane – 1.6 (v/v %)
- Maximum Carbon Dioxide – 6.7 (v/v %)
- Maximum Flow Rate – 0.0 l/h

Q_{hg} value for methane = 0.0176 l/h

Q_{hg} value for carbon dioxide = 0.0737 l/h

No positive flow has been detected, so the default flow rate of 0.1l/h has been used for this calculation. Based upon these results, the site would be assessed as Characteristic Situation 2 (CS2) (low risk) for BH103 located within the western section of the site, because of slightly elevated concentrations of carbon dioxide. The threshold for upgrade from CS1 to CS2 is a Q_{hg} of 0.07 l/h. Classification would be CS 1 for all other boreholes and remainder of the site. Gas protection measures are required within the ground floor slab for proposed developments with CS2 and above mitigation requirements.

Carbon dioxide concentrations were generally highest during the third visit across the site. Flow levels within BH103 were -2.5 l/h on the second visit; however, the flow on the first and third visit was negligible. Negligible flow was detected in all other holes on every visit, except for 2 l/h on the third visit for BH101. Gas and flow levels were not consistent during the monitoring; a further 3 No. ground gas monitoring visits are recommended to be undertaken on all monitoring wells, including during a period of low atmospheric pressure, to obtain a representative assessment of the site. A supplementary gas addendum letter will need to be issued to report the findings following the further monitoring visits.

Should any of the site be classified as CS2 following further gas monitoring, gas protection measures should be designed in accordance with BS:8485. Based on a building of Type B, with a CS2 classification, a minimum gas protection score of 3.5 should be achieved.

The types of protection measures should be used to achieve the minimum gas protection score of at least 3.5 points, and are likely to comprise:

- Reinforced concrete cast in situ suspended slab with minimal service penetrations and water bars around all slab penetrations and at joints. Water bars may comprise pre-formed top hats for service entries and preformed corner sections (1.5 points)
- Proprietary gas (carbon dioxide) resistant membrane taped and sealed to a reasonable level of workmanship/in line with current good practice under independent inspection (2 points)
- Integrity testing of the membrane during validation will add an extra point.

It should be noted that pre-cast block/panel and beam ground floor slabs have no points with regard to ground gas mitigation.

For school properties, additional points may be gained from monitoring of the sub flood void using handheld equipment (0.5 points) or permanent monitoring in the building and/or underfloor venting/within the building (1 and/or 2 points), although these will require maintenance and can be avoided at the construction stage.

It should be noted that 1,200g membrane is considered not to have ground gas resistance properties as this is recycled polymer sheet, and a specific membrane with associated products (i.e. girth jointing strap, double sided tape). All products must be approved prior to use.

Validation of the gas mitigation measures should be undertaken by a either a CL:AIRE or the British Verification Council (BVC) qualified engineer. It is recommended that ground gas membranes are installed by a suitably qualified contractor.

5.5 Radon

The site is situated within an area where <1% of homes are estimated to be above the current action level. At this action level, radon protection measures are not considered necessary for new structures at the site.

5.6 Upgraded Water Pipes

A Southern Water potable water risk assessment will be required for this site for new connections for the school.

It is anticipated that PE pipework may be required, due to elevations in hydrocarbons in some laboratory test results; however this will require clarification and potential specific analysis along the proposed route. Southern Water should be consulted to assess this risk.

6 Preliminary Quantitative Risk Assessment

6.1 Methodology

A geo-environmental assessment is necessary to consider the significance of potential contamination in terms of plausible contaminant source-pathway-receptor pollutant linkages. As part of this process, it is necessary to develop a conceptual site model (CSM) of these potential pollutant linkages by identifying the potential contaminants of concern and contamination sources, sensitive receptors and potential exposure pathways. A preliminary quantitative risk assessment is then undertaken to determine the likelihood and significance of these potential linkages. Development of the CSM, in Table 6.1 below, has been undertaken in accordance with current UK guidance for contaminated land assessment and remediation (Land Contamination: Risk Management (LC:RM), (Ref 2). This defines a risk based “suitable for use” approach to delivery of redevelopment on brownfield land.

Risk assessment involves identifying hazards and determining their potential severity and likelihood of an impact occurring on identified receptors. Risks are generally managed by changing the receptor, isolating the sensitive receptor by intercepting or interrupting the exposure pathway, or removing the source. If no significant pollutant linkages are formed, there is no risk.

The following risk assessment focuses on the potential contaminants identified on the site and the proposed development of the site.

6.2 Conceptual Site Model (CSM)

Table 6.1 below is updated from the Arcadis Desk Study Report (Ref 1) following the intrusive ground investigation, and identifies plausible and significant Source-Pathway-Receptor Contamination Linkages (CL) and the preliminary qualitative risk assessment to sensitive receptors. Only contaminant linkages that are considered potentially complete or requiring further investigation are included in Table 6.1.

Table 6.1: Conceptual Site Model

Contaminant Linkage (CL)	Source	Sensitive Receptor	Pathway	Probability	Consequence	Potential Risk	Justification / Mitigation
CL1	Made Ground on site associated with school development.	Buildings	Direct contact, chemical attack	**Unlikely**	**Medium**	**Moderate/ Low**	Soil and groundwater samples were tested for pH and sulphate content. The appropriate concrete classification within the Made Ground is DS-1 AC-1. However, the sulphate concentrations within natural strata require upgraded concrete (see CL7).
CL2			Migration of ground gas and build-up in confined areas leading to explosion of buildings Migration along services / foundations	**Low**	**Severe**	**Moderate**	According to guidance, an upgrade to Situation 2 (CS2) (low risk) is recommended for any proposed development within the vicinity of BH103 and WS106, because of slightly elevated concentrations of carbon dioxide. Classification would be CS1 (very low risk) for the remainder of the site. However, readings were inconsistent between visits and a further 3 No. ground gas monitoring visits are recommended to further understand the gas regime of the site and confirm whether there is a requirement for CS2.
CL3		Future users	Migration of ground gas and build-up in confined areas leading to asphyxiation				
CL4			Direct contact – inhalation, ingestion and dermal contact	**Low**	**Medium**	**Moderate/ Low**	No concentrations of potential contaminants within the soil samples tested were above their respective GAC. At this stage, there is no further action required with regards to human health. However, investigation was not done below existing buildings and the contamination status of the soils below existing buildings is unknown. Further investigation is recommended post demolition to assess this risk.
CL5	Elevated metals, PAH and TPH within groundwater	Surface waters	Lateral and vertical migration of contaminants through	**Unlikely**	**Medium**	**Low**	The source of the metals and PAH are unknown, but the TPH contamination is likely to be associated with parked vehicles in car park areas. Given that the Head Deposits and Gault Formation encountered are of low permeability, vertical and lateral migration of contaminants will be

Contaminant Linkage (CL)	Source	Sensitive Receptor	Pathway	Probability	Consequence	Potential Risk	Justification / Mitigation
			groundwater in dissolved phase Surface runoff				restricted, and the distance is too great for the river in the north of the site to be significantly impacted. The watercourse located directly to the east of the site is culverted and thus should be lined, which should prevent penetration of contaminants. Given the low permeability of the Gault Formation, the distance to the on-site river and lining of the culverted watercourse, the risk to surface waters is likely to be low.
CL6		Controlled Waters (Principal Aquifer)	Vertical and lateral migration of contaminants to aquifer	**Unlikely**	**Medium**	**Low**	The Upper Greensand Formation bedrock outcrops directly to the south of the site, and is a Principal Aquifer, considered to be a high sensitivity aquifer. It overlies the Gault Formation so there is no vertical migration pathway to the Upper Greensand. Given the low permeability of the Head Deposits and Gault Formation, lateral migration of contaminants to the Upper Greensand Formation is also likely to be low.
CL7	Gault Formation Bedrock	Buried concrete e.g. foundations	Direct contact, chemical attack	**Likely**	**Medium**	**Moderate**	Should the solid strata of the Gault Formation remain undisturbed, then the above results fall within “Design Sulphate Class” DS-2, and the “Aggressive Chemical Environment for Concrete” (ACEC) class for the site is considered to be AC-2. However, if development proposals are such that the solid strata of the Gault Formation may be disturbed (e.g., requirement for piled foundations), design of below ground concrete may need to consider the likely presence of pyrite in this unit. Concrete within the unweathered Gault Formation should be upgraded to DS-4 AC-4.

7 Recommendations and Conclusions

Arcadis was instructed to undertake an intrusive site investigation for the proposed school development of which the final proposed plan has not been confirmed yet.

Based upon the information outlined within this report, the following conclusions were made:

7.1 Geo-environmental

- No soil results were recorded in excess of the GAC protective of human health. No remediation is necessary with respect to soils and risk to human health at this stage.
- Exceedances of the aquifer GAC were found within groundwater samples for lead, nickel, selenium, PAH and total TPH. Given the low permeability of the Head Deposits and Gault Formation, migration of contaminants to the Upper Greensand Formation Principal Aquifer is likely to be low.
- Exceedances of the surface water GAC were found for groundwater for chromium (III), total chromium, copper, nickel, selenium, zinc, PAH and total TPH. However the risk to surface waters is likely to be low.
- According to guidance, an upgrade to Situation 2 (CS2) (low risk) is recommended for any proposed development within the vicinity of BH103 and WS106, because of slightly elevated concentrations of carbon dioxide. Classification would be CS1 (very low risk) for the remainder of the site. However, readings were inconsistent between visits and a further 3 No. ground gas monitoring visits are recommended to further understand the gas regime of the site and confirm whether there is a requirement for CS2.
- Buried Services: Elevated TPH was identified within groundwater at BH102 and BH103. A water pipe assessment is recommended to determine whether upgraded water supply pipes may be required. The final specification for water supply pipework should be agreed with the relevant water company.
- A watching brief during construction should be undertaken in line with best practice in the event that unforeseen contamination or deeper Made Ground is encountered.
- Investigation is recommended in areas of proposed development below footprints of existing buildings following demolition.

7.2 Geotechnical

Ground conditions

- Ground conditions across the site were found to comprise Made Ground encountered from the surface within the majority of exploratory holes. Made Ground was observed to be variable comprising granular or cohesive deposits and was generally recorded up to 0.6m bgl, however was recorded to greater depths in two locations WS103A and WS101 (1.3 and 2.2m bgl respectively).
- Made Ground was underlain by Head Deposits, recorded only in exploratory holes formed within the southern site area, to depths of between 1.4 and 2.3m bgl. Head Deposits were described as soft to firm slightly sandy or silty gravelly clay.
- Underlying the superficial deposits / Made Ground was the Gault Formation. The Gault Formation comprised a weathered upper zone generally described as firm to very stiff slightly sandy gravelly clay. Solid strata of the Gault Formation was encountered at depths of between 4.6 to 7.1m bgl, and comprised extremely weak to weak dark grey mudstone.
- Groundwater strikes were recorded within BH101 and BH102 at 1.0 and 1.25m bgl respectively. During follow-up monitoring, groundwater was measured at depths between 0.16m and 3.06m bgl
- Further investigation is recommended below the footprint of the proposed development once the plans are finalised.

Foundations

- Made Ground and the Head Deposits are not anticipated to provide a suitable foundation platform. These were underlain by weathered strata of the Gault Formation. The Gault Formation clays are considered suitable as a foundation stratum. At 2m bgl, undrained shear strengths of 50 to 65kPa can be inferred increasing with depth, based on the relationship with SPTs proposed by Stroud.
- Preliminary calculations indicate a net allowable bearing capacity in the order of 100kPa for traditional shallow foundations (pads up to 2m square or strip footings up to 1m width) at a depth of 2m bgl, bearing within firm to stiff Gault Formation clays and where settlement has been limited to 25mm.
- Where the serviceability limits of structures cannot be fulfilled by shallow foundations (i.e. estimated settlements are above the limits of the structures), then piled foundations should be considered.
- It is recommended that foundation options be reviewed once the structural loading and settlement tolerances have been finalised.
- Given the proposed foundation depths, it is not anticipated that the effect of trees or new planting will be significantly detrimental to the foundations, however the foundation design should comply with the guidance given in NHBC standards. Atterberg Limits have been tested for the Gault Formation clays, with modified plasticity index values indicating a medium to high volume change potential. Within the

NHBC standards, the minimum depth for foundations within soils with high shrinkage potential is 1.5m, or 1m where outside the zone of influence of trees.

Floor Slabs

- Given Made Ground is present at thicknesses greater than 600mm, and the presence of high plasticity shallow soils, suspended floor slabs are likely to be required.

Excavations

- It is anticipated that the overlying Made Ground, Head Deposits and the upper Gault Formation clays should be readily excavated in areas of proposed development using a conventional backhoe excavator. The use of pneumatic breakers may be required where obstructions are encountered. Trench support and battering may be necessary to form a stable slope angle in excavations.
- Shallow groundwater was recorded during monitoring, and therefore dewatering measures such as sump pumping may be necessary during excavation works.

Pavements

- In consideration of the ground conditions encountered, and assuming final levels will largely mimic the existing, it is likely that the pavement subgrade exposed at formation levels across the majority of the site will comprise predominantly cohesive Made Ground or natural clay of the Head Deposits or shallow weathered Gault Formation.
- It is therefore recommended that new road pavement construction design should be based upon (an estimated) Equilibrium CBR value of around 2-3% with consideration given to the likely moisture conditions applying during construction, assuming that appropriate precautions are taken against excessive disturbance, and the likely long-term equilibrium moisture condition, making reasonable allowance for moisture ingress through the pavement, but assuming drainage is correctly installed as designed.

Concrete

- Should the solid strata of the Gault Formation remain undisturbed, then the chemical analysis results fall within “Design Sulphate Class” DS-2, and the “Aggressive Chemical Environment for Concrete” (ACEC) class for the site is considered to be AC-2.
- If development proposals are such that the solid strata of the Gault Formation may be disturbed (e.g., requirement for piled foundations), design of below ground concrete may need to consider the likely presence of pyrite in this unit. The available total potential sulphate values recorded in samples of the unweathered Gault Formation clay would alter the classification to DS-4 AC-4.

8 References

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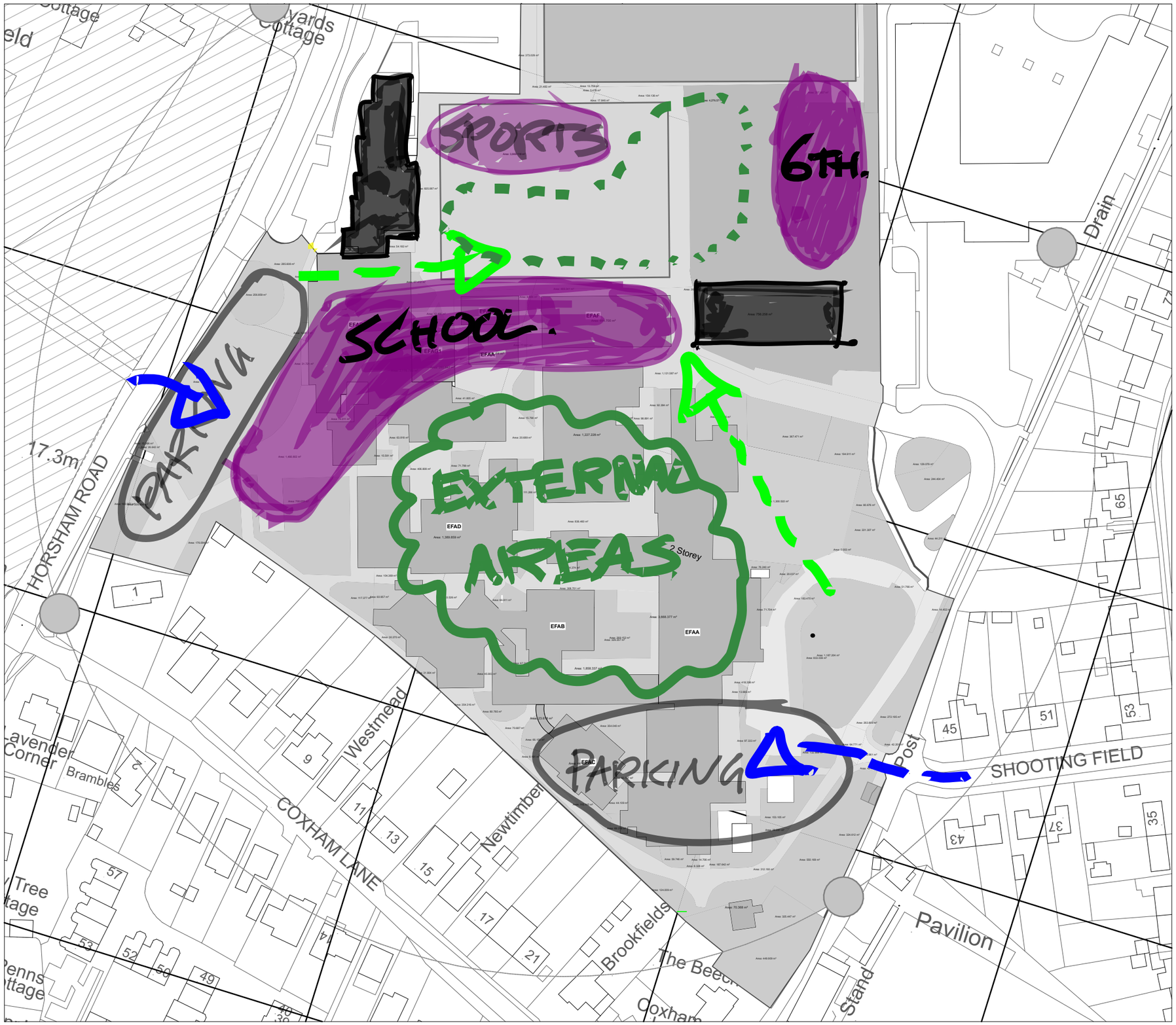
APPENDIX A

Proposed Development Plan

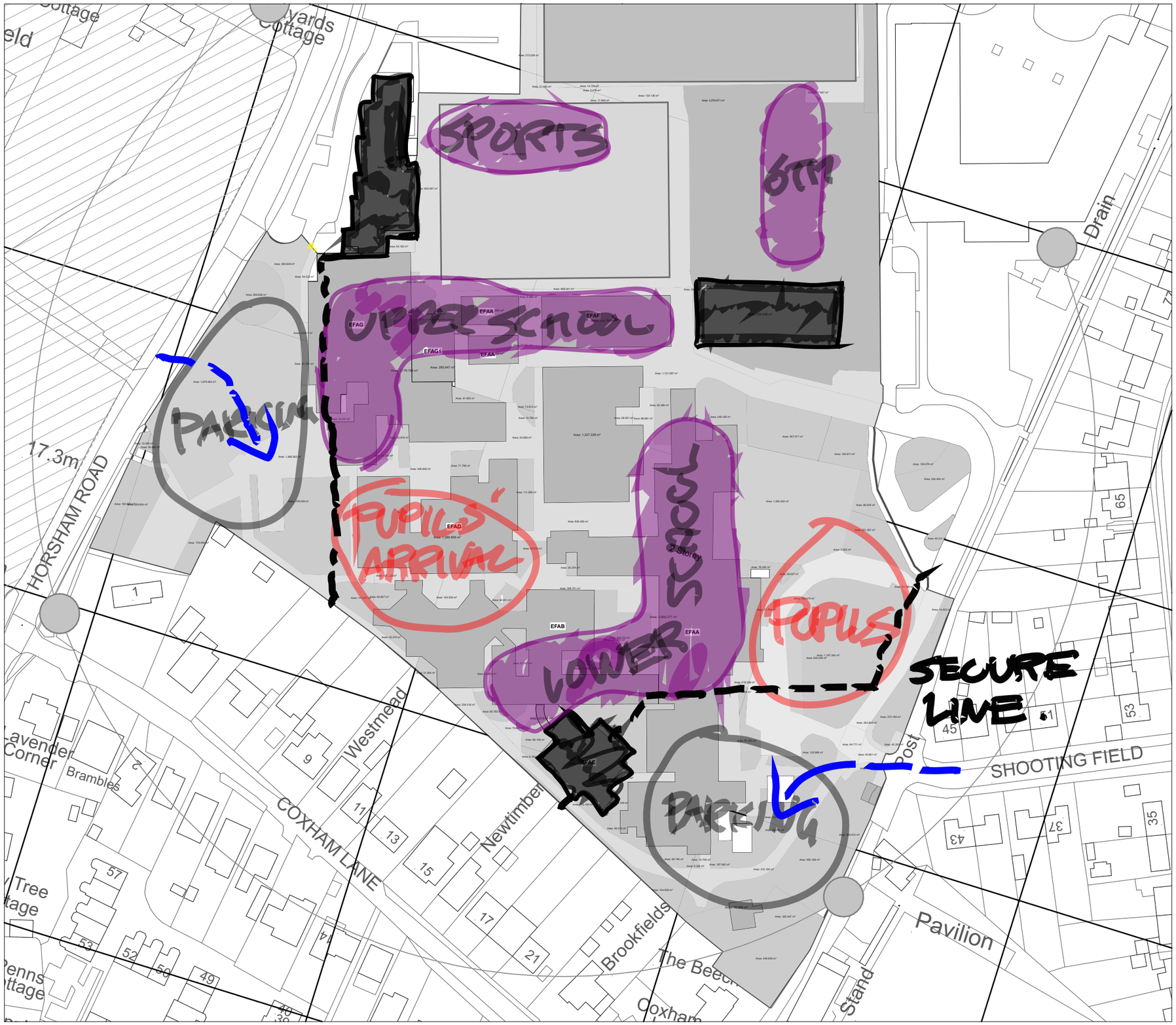


KEY:

- Site Boundary
- Untouched Block
- Consequential Block
- Refurbishment/ Remodelling Block
- New Build
- Demolished Building
- Hard Landscape
- Non-Net Parking/ Vehicle Access
- Non-Net Soft Landscape
- Woodland/ Dense Planting
- Watercourse
- Easement (Extent)
- Soft Outdoor PE
- Hard Outdoor PE
- Soft Informal and Social
- Hard Informal and Social
- Site Pedestrian Entrance
- Site Vehicle Access
- Retained Secure Fence Line
- Slope
- 120 Contour
- Culvert
- Right of Way
- Major Services Route/ Sewer etc.
- A Existing Tree (Grade A/B)

N

Project: **Feasibility** **Steyning Grammar School**	Location: #Site Full Address	Drawing: **Concept Development Option Site Plan 2**	MOTT MACDONALD	LYALL BILLS & YOUNG Lyall Bills & Young Architects Ltd Telephone House, 69-77 Paul Street London EC2A 4NW +44 (0) 20 7253 1630 www.lbyarchitects.com	Scale 1:1250 @A3	Drawing Number - Revision: **1083-STY-LBY-ZZ-ZZ-D-A-3010_P01**



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APPENDIX B

Study Limitations

IMPORTANT. The study limitations should be read before reliance is placed on any of the information, opinions, advice, recommendations or conclusions contained in this report.

1 This report has been prepared by Arcadis, with all reasonable skill, care and diligence within the terms of the Appointment and with the resources and manpower agreed with DfE (the 'Client'). Arcadis does not accept responsibility for any matters outside the agreed scope.

2 This report has been prepared for the sole benefit of the Client unless agreed otherwise in writing. The contents of this report may not be used or relied upon by any person other than this party without the express written consent and authorisation of Arcadis.

3 Unless stated otherwise, no consultations with authorities or funders or other interested third parties have been carried out. Arcadis is unable to give categorical assurance that the findings will be accepted by these third parties as such bodies may have unpublished, more stringent objectives. Further work may be required by these parties.

4 All work carried out in preparing this report has used, and is based on, Arcadis' professional knowledge and understanding of current relevant legislation. Changes in legislation or regulatory guidance may cause the opinion or advice contained in this report to become inappropriate or incorrect. In giving opinions and advice, pending changes in legislation, of which Arcadis is aware, have been considered. Following delivery of the report, Arcadis has no obligation to advise the Client or any other party of such changes or their repercussions.

5 This report is only valid when used in its entirety. Any information or advice included in the report should not be relied upon until considered in the context of the whole report.

6 Whilst this report and the opinions made are correct to the best of Arcadis' belief, Arcadis cannot guarantee the accuracy or completeness of any information provided by third parties. provided by third parties. Arcadis has taken reasonable steps to ensure that the information sources used for this assessment provided accurate information and has therefore assumed this to be the case.

7 This report has been prepared based on the information reasonably available during the project programme. All information relevant to the scope may not have been received.

8 This report refers, within the limitations stated, to the condition of the Site at the time of the inspection. No warranty is given as to the possibility of changes in the condition of the Site since the time of the investigation.

9 The content of this report represents the professional opinion of experienced environmental consultants. Arcadis does not provide specialist legal or other professional advice. The advice of other professionals may be required.

10 Where intrusive investigation techniques have been employed they have been designed to provide a reasonable level of assurance on the conditions. Given the discrete nature of sampling, no investigation technique is capable of identifying all conditions present in all areas. In some cases the investigation is further limited by Site operations, underground obstructions and above ground structures. Unless otherwise stated, areas beyond the boundary of the Site have not been investigated.

11 If below ground intrusive investigations have been conducted as part of the scope, safe location of exploratory holes has been carried out with reference to the Arcadis ground disturbances procedure. No guarantee can be given that all services have been identified. Additional services, structures or other below ground obstructions, not indicated on the drawing, may be present on Site.

12 Unless otherwise stated the report provides no comment on the nature of building materials, operational integrity of the facility or on any regulatory compliance issues.

13 Unless otherwise stated, an inspection of the Site has not been undertaken and there may be conditions present at the Site which have not been identified within the scope of this assessment.

14 Unless otherwise stated, samples from the Site (soil, groundwater, building fabric or other samples) have not been obtained.

15 Arcadis has relied upon the accuracy of documents, oral information and other material and information provided by the Client and others, and Arcadis assumes no liability for the accuracy of such data, although in the event of apparent conflicts in information, Arcadis would highlight this and seek to resolve.

16 Unless otherwise stated, the scope of works has not included an environmental compliance review, health and safety compliance review, hazardous building materials assessment, interviews or contacting Local Authority, requests for information to the petroleum officer, sampling or analyses of soil, ground water, surface water, air or hazardous building materials or a chain of title review.

17 Unless otherwise stated, this assessment has considered the ongoing use of the Site and has not been prepared for the purposes of redevelopment which may act as a trigger for Site investigation and remediation works not needed for ongoing use.

APPENDIX C

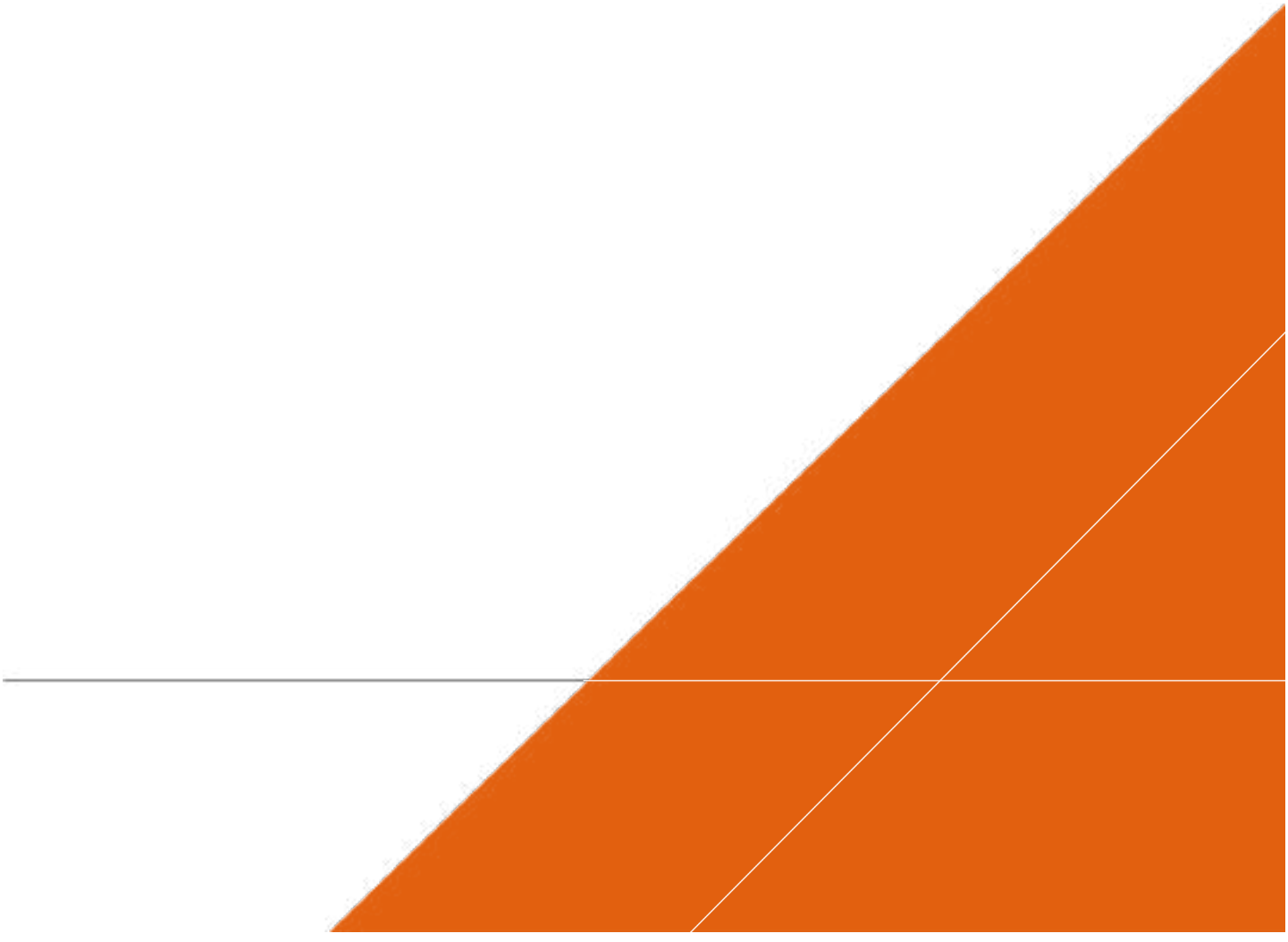
Arcadis Factual Report

PHASE 2 GROUND INVESTIGATION FACTUAL REPORT

Steyning Grammar School, Steyning, West Sussex

10057335-AUK-XX-XX-RP-ZZ-0078-01-Steyning Grammar School Factual Report

JULY 2023



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Phase 2 Ground Investigation Factual Report - Draft

Steyning Grammar School, Steyning, West Sussex

Authorised Signatures

Author	James Davies
Checker	Elizabeth Yeatman
Approver	Paul Wrigley
Report No	10057335-AUK-XX-XX-RP-ZZ-0078-01-Steyning Grammar School Factual Report
Date	JULY 2023

Version control

Version	Date	Author	Changes
01	29/06/2023	JD	First issue – Draft awaiting CBR testing results
02	21/07/2023	AH	Second Issue with remaining CBR testing results

This report dated June 2023 has been prepared for Department for Education (DfE) (the "Client") in accordance with the terms and conditions of appointment dated 12th July 2022 (the "Appointment") between the Client and Arcadis LLP ("Arcadis") for the purposes specified in the Appointment. For avoidance of doubt, no other person(s) may use or rely upon this report or its contents, and Arcadis accepts no responsibility for any such use or reliance thereon by any other third party.

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LWD RESULTS

1 INTRODUCTION

The Department for Education (DfE) require an assessment of the land quality for a site within Steyning Grammar School, Shooting Field, Steyning, West Sussex, BN44 3RX ('the site') to understand the current ground related development constraints at the site for the School Rebuilding Programme (SRP). Arcadis LLP (Arcadis) was commissioned by the DfE to undertake an intrusive ground investigation and prepare a Factual Site Investigation Report for the site.

The scope of the ground investigation was determined by Arcadis and the work commenced on the 3rd of April 2023.

This report provides a factual account of the fieldwork undertaken including engineering descriptions of the various strata encountered, results of in situ testing and the subsequent geotechnical and geo-environmental laboratory testing undertaken on samples obtained.

1.1 Limitations

This report has been prepared for the Client in accordance with the terms and conditions of appointment. Arcadis cannot accept any responsibility for any use of or reliance on the contents of this report by any third party. The copyright of this document, including the electronic format and any AGS data, shall remain the property of Arcadis.

Arcadis do not accept liability for any use of the information presented in this report unless it is signed by the author, checker and approver and marked as final.

It should be noted that ground conditions between exploratory holes may vary from those identified during this ground investigation; any design should take this into consideration. It should also be noted that groundwater levels may be subject to diurnal, seasonal and climatic variations and those recorded in this report are solely dependent on the time the ground investigation was carried out and the weather before and during the investigation.

1.2 Proposal

The Government announced in June 2020 a new 10-year programme to address condition need in the school estate. The School Rebuilding Programme (SRP) carries out major rebuilding and refurbishment projects on school and sixth form college buildings across England, with buildings prioritised according to their condition. Further information can be found in the Arcadis Desk Study within the Geo-Environmental Assessment report (Ref 1).

The school comprises 17 blocks: EFAA – EFAQ, 3 multi-use games areas (MUGA) or tennis courts, a carpark and two large grass playing fields.

A site boundary plan is shown in Figure 2-1 below, and the current indictive proposals are presented in Appendix A.

1.3 Existing Information

There are no known previous ground investigation reports provided to Arcadis for the site. The following desk study report is available:

- Arcadis, Phase 1 Geo-Environmental Assessment, (Ref: 10057335-ARL-XX-XX-RP-GE-0026-01-Phase 1 Steyning Grammar School). Hereafter referred to as the Arcadis desk study.

2 SITE DETAILS

2.1 Site Location and Description

Steyning Grammar School comprises of three parcels of land; however, this investigation focuses on the Shooting Field site (the 'site') (Figure 2-1). The main school campus is to the south, and external playing fields to the north.

The site is located at Shooting Field, Steyning, West Sussex, BN44 3RX. The site is an irregular shaped plot of land covering ca. 165,900m^2. Site elevation varies approximately between 11m Above Ordnance Datum (AOD) in the north to 13m AOD in the south. The centre of the site is at approximate National Grid Reference 517488, 111965.

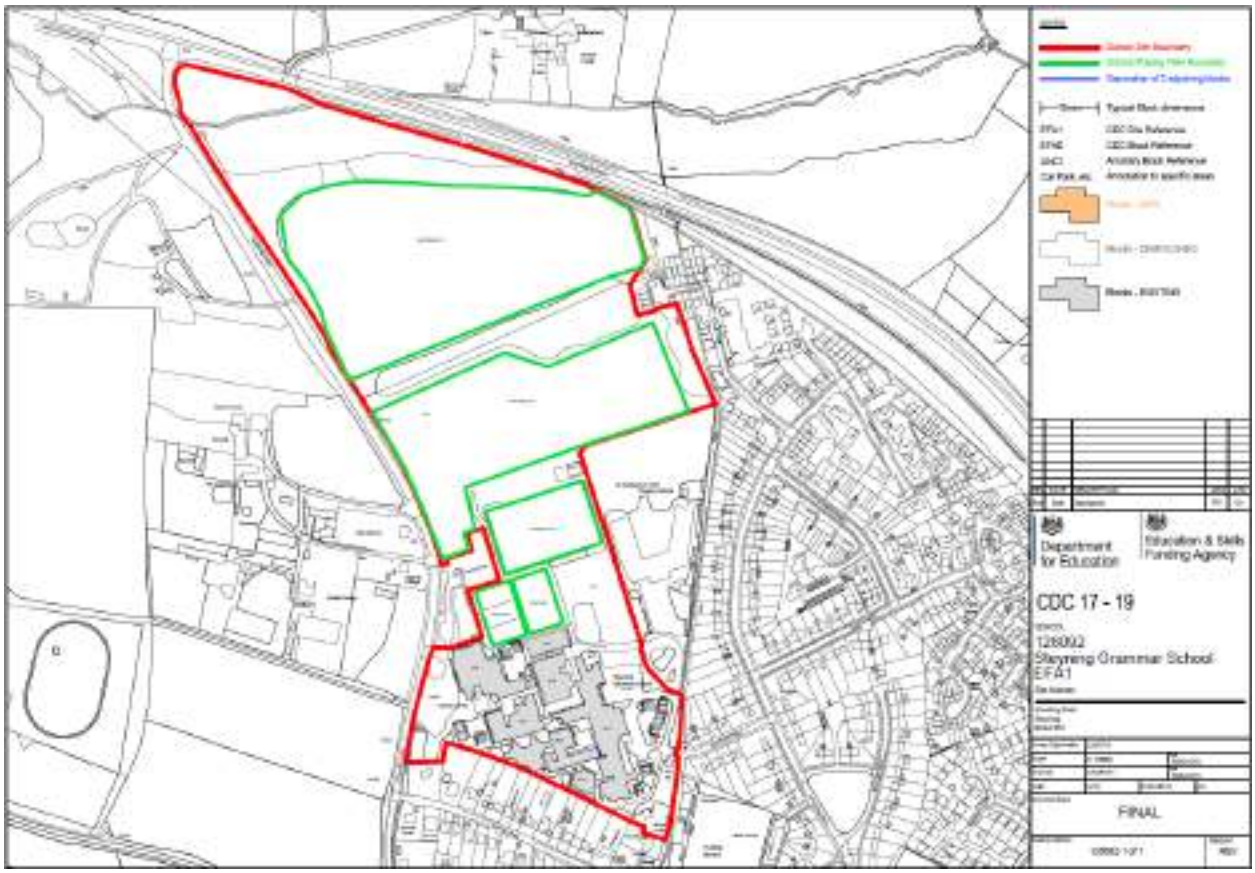

Figure 2-1 - Site layout plan. Source: DfE (Ref. 1)

Note: Red indicates site boundary; Green indicates the playing field areas; Blue shows the separation of the adjoining buildings; Grey shows existing blocks.

The main campus site at Shooting Field, Steyning, comprises 17 blocks, EFA-A to EFA-Q, two car parks, three Multi Use Games Areas (MUGA) and two large grass playing fields. A walkover was undertaken as part of the Arcadis Desk Study (Ref 1) where five areas of concern on site were identified; potential asbestos insultation within skylights and between pillars in blocks A, B, C and D; an electrical substation; four drum barrels contains Des E Spray (a flammable disinfectant); an old bunded diesel oil tank and standing water

observed by blocks, A, B and D. Additionally the leisure centre's boiler and chemical (chlorine) storage areas (offsite) were identified as an area of concern.

The surrounding area is predominantly residential, with the Steyning by-pass road north of the site and the leisure centre and the South Downs National Park west of the site.

2.2 Geology

According to the online British Geological Survey (BGS) GeoIndex (Ref. 3) and the published geology sheet (Ref. 4) the bedrock consists of the Gault Formation – Mudstone and to the very south of the site the Upper Greensand Formation – Siltstone underlain by the Gault Formation. The north of the site is shown to be covered by River Terrace Deposits comprising of chalk and sandstone, see Figure 2-2.

The Groundsure report within the desk study (Ref 1) does not indicate any artificial deposits on site, however they are anticipated in the area due to historical landscaping, and as such it is likely that Made Ground will be encountered on site.

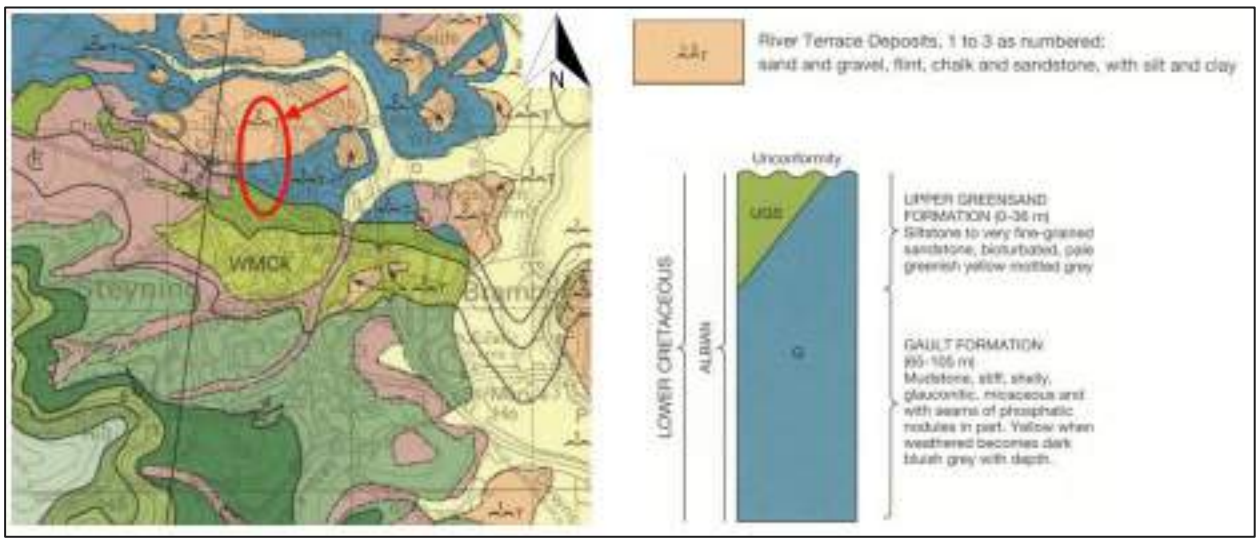

Figure 2-2 - Geological map (1:50,000) showing superficial and bedrock and site location (Ref. 4)

2.3 Hydrogeology and Hydrology

Public Register information obtained from Groundsure (Appendix C of Ref 1) indicates that the River Terrace Deposits and Upper Greensand Formation are both productive aquifers, classed as Secondary A and Principal Aquifers respectively. The Gault Formation Mudstone is classed as an Unproductive Aquifer.

The site is not located within a groundwater Source Protection Zone. There are 23 surface water locations within 500m of the site, four of which are on site.

3 FIELDWORK

3.1 General

Ground investigation works were carried out between 3rd and 12th of April 2023. The scope of the boreholes in the ground investigation, including the location, scheduled depth and type of exploratory holes undertaken was determined by Arcadis and is summarised in Table 3-1 below.

The ground investigation methods were undertaken in general accordance with the principles set out in BS EN 1997-2:2007 (Ref 5) and with the general practice described in BS5930:2020 (Ref 6). The geo-environmental aspects of the ground investigation complied with the general requirements of BS 10175+A2:2017 (Ref 7).

Table 3-1 Initial ground investigation scope

Location ID	Hole Type	Scheduled Depth (m bgl)	Requirements
BH101	RH	10.00	Determine thickness of and composition of soils and to investigate the superficial deposits and bedrock; collect representative samples (inc. U100s) of strata; undertake in situ tests (SPTs and CPTs); and obtain rock core to assess the competency of the rock. To install a monitoring standpipe to determine gas levels and to confirm groundwater levels within the deeper clays and silts. Exploratory hole placed for general site coverage.
BH102	RH	10.00	Determine thickness of and composition of soils and to investigate the superficial deposits and bedrock; collect representative samples (inc. U100s) of strata; undertake in situ tests (SPTs and CPTs); and obtain rock core to assess the competency of the rock. To install a monitoring standpipe to determine gas levels and to confirm groundwater levels within the deeper clays and silts. Exploratory hole placed for general site coverage.
BH103	RH	10.00	Determine thickness of and composition of soils and to investigate the superficial deposits and bedrock; collect representative samples (inc. U100s) of strata; undertake in situ tests (SPTs and CPTs); and obtain rock core to assess the competency of the rock. To install a monitoring standpipe to determine gas levels and to confirm

Location ID	Hole Type	Scheduled Depth (m bgl)	Requirements
			groundwater levels within the deeper clays and silts. Exploratory hole placed for general site coverage.
BH104	RH	10.00	Determine thickness of and composition of soils and to investigate the superficial deposits and bedrock; collect representative samples (inc. U100s) of strata; undertake in situ tests (SPTs and CPTs); and obtain rock core to assess the competency of the rock. To install a monitoring standpipe to determine gas levels and to confirm groundwater levels within the deeper clays and silts. Exploratory hole placed for general site coverage.
WS101	WS	6.00	Determine thickness of and composition of Made Ground; collect representative samples of strata and undertake in situ tests (SPT). To install a monitoring standpipe to determine gas and groundwater levels. Exploratory hole placed for general site coverage.
WS102	WS	4.00	Determine thickness of and composition of Made Ground; collect representative samples of strata and undertake in situ tests (SPT and LWD). To install a monitoring standpipe to determine gas and groundwater levels. Exploratory hole placed for general site coverage.
WS103	WS	4.00	Determine thickness of and composition of Made Ground; collect representative samples of strata and undertake in situ tests (SPT). To install a monitoring standpipe to determine gas and groundwater levels. Exploratory hole placed for general site coverage.
WS104	WS	4.00	Determine thickness of and composition of Made Ground; collect representative samples of strata and undertake in situ tests (SPT and LWD). To install a monitoring standpipe to determine gas and groundwater levels. Exploratory hole placed for general site coverage.
WS105	WS	3.00	Determine thickness of and composition of Made Ground; collect representative samples of strata and undertake in situ tests (SPT and LWD). To install a monitoring standpipe

Location ID	Hole Type	Scheduled Depth (m bgl)	Requirements
			to determine gas and groundwater levels. Exploratory hole placed for general site coverage.
WS106	WS	4.00	Determine thickness of and composition of Made Ground; collect representative samples of strata and undertake in situ tests (SPT and LWD). To install a monitoring standpipe to determine gas and groundwater levels. Exploratory hole placed for general site coverage.

Notes

RH – rotary borehole, WS = windowless sample borehole, U100 = undisturbed sample, SPT = Standard Penetration Test, LWD = Light Weight Deflectometer (taken at surface level only).

The investigation works were carried out under the supervision of an Arcadis geo-environmental consultant who completed the logging and reporting of the exploratory holes. Utility clearance was carried out by SVS Ltd.

3.2 Unexploded Ordnance

The Unexploded bomb risk map produced by Zetica within the Steyning Grammar School desk study (Ref. 1) has indicated the site to be within a “Low Risk” area, therefore UXO clearance was not required for the intrusive investigation.

3.3 Exploratory Holes

3.3.1 Exploratory Hole Locations

The co-ordinates and elevations of the exploratory holes were surveyed by SVS using a GPS system, allowing an accuracy of +/50 mm. The utility clearance for each exploratory hole was also undertaken by SVS and consisted of CAT (Cable Avoidance Tool) and Genny (signal generator) and GPR (Ground Penetrating Radar) scanning, prior to the commencement of each exploratory hole.

3.3.2 Investigation Methodology

Details of the methods of investigation and associated standards adopted are presented in Appendix B; the exploratory hole records and a key to the notation and symbols used on the logs are presented in Appendix C.

3.3.3 Hand Dug Inspection Pits

Hand dug inspection pits were excavated by Arcadis and Geotron in all borehole locations for utility avoidance purposes using insulated hand tools including a post hole digger and bar. Holes were dug to a depth of 1.2m, with a diameter of approximately 0.3m.

3.3.4 Dynamic Sampling and Rotary Drilling

Rotary dynamic sampling was carried out by Arcadis using a Comacchio Geo 250. The dynamic sampling function was used to progress through the superficial deposits by driving windowless sampling tubes using a mechanical hammer dropped repeatedly from a self-governed height/ hydraulic hammer drive head to advance window sample tubes into the ground. Standard Penetration Tests (SPTs) were conducted at 1m intervals down to a depth of 5.0m and then at 1.5m intervals thereafter.

The number of blows for the mechanical hammer was recorded by the lead driller, together with a description of the recovered materials recorded by the Arcadis Consultant.

Within cohesive strata encountered within BH104 undisturbed samples (U100) were obtained at alternating intervals with SPTs.

Due to the method of investigation, the materials recovered within the sampler apparatus were generally disturbed and were assessed as complying with Class 3 to Class 5 of BS EN 22475-2 (Ref 8). Samples were taken to enable representative laboratory testing. Generally, geo-environmental samples were taken of each type of Made Ground in each hole and of the underlying natural soil. Small geotechnical disturbed samples were taken at the depth of each SPT test.

When bedrock was encountered, the rig switched to a rotary core technique, whereby a tube sampler, 1.5m in length, was rotated into the rock to a maximum depth of 10m bgl. Cylindrical cores of rock were obtained from the tube sampler when it came back up to ground level.

3.3.5 Window Sample Boreholes

Windowless sampling was carried out using a track-mounted sampling rig (Archway Competitor Dart type) by Geotron, capable of driving windowless sampling tubes using a mechanical hammer dropped repeatedly from a self-governed height/ hydraulic hammer drive head to advance window sample tubes into the ground.

Standard penetration tests (SPT) were generally undertaken at 1.0 m intervals until the termination depth of the hole. The number of blows for the mechanical hammer was recorded by the lead driller, with a description of the recovered materials recorded by the Arcadis Consultant.

Due to the method of investigation, the materials recovered within the sampler apparatus were generally disturbed and were assessed as complying with Class 3 to Class 5 of BS EN 22475-2 (Ref 8). Sub-samples of the material recovered in the liners were taken to enable representative laboratory testing. Samples were

taken at each change in stratum and where any contamination was present and at approximately 0.5 m intervals thereafter in clay (cohesive) soils; and bulk samples were taken at 1.0 m intervals where the sand and gravel (granular) content of the soil was significant.

3.3.6 Completed Works

Exploratory hole locations are shown within the exploratory hole location plan drawing within Appendix D (Drawing Ref: 10057335-AUK-XX-XX-RP-GE-0026-01). Surveyed co-ordinates and elevation of the ground surface at each exploratory hole location are presented on the individual logs. The completed scope of investigation is summarised in Table 3-2 below.

Table 3-2 - Summary of completed exploratory holes

Location ID	Hole Type	Start Date	End Date	Final depth (m bgl)	Termination Reason	Comment
BH101	IP + RH	04/04/2023	04/04/2023	3	Terminated due to the ground around the drilling rig started to crack and become unstable, it was therefore declared unsafe to continue drilling.	No well installed and location backfilled
BH102	IP + RH	05/04/2023	06/04/2023	10.00	Target depth achieved	Well installed within the weathered Gault Formation for gas and groundwater monitoring purposes.
BH103	IP + RH	12/04/2023	12/04/2023	10.00	Target depth achieved	Well installed within the superficial deposits and weathered Gault Formation for gas and groundwater monitoring purposes.
BH104	IP + RH	03/04/2023	03/04/2023	10.00	Target depth achieved	Well installed within the Gault Mudstone for gas

Location ID	Hole Type	Start Date	End Date	Final depth (m bgl)	Termination Reason	Comment
						and groundwater monitoring purposes.
WS101	IP + WS	04/04/2023	04/04/2023	5.00	Target depth achieved	Well installed within the Made Ground and weathered Gault Formation for gas and groundwater monitoring purposes.
WS102	IP + WS	04/04/2023	04/04/2023	4.00	Target depth achieved	Well installed within weathered Gault Formation for gas and groundwater monitoring purposes.
WS103	IP	04/04/2023	04/04/2023	1.10	Concrete layer encountered during hand pitting	Borehole terminated due to encountering concrete which prevented further excavation.
WS103A	IP + WS	04/04/2023	04/04/2023	4.00	Target depth achieved	Well installed within weathered Gault Formation for gas and groundwater monitoring purposes.
WS104	IP	05/04/2023	05/04/2023	0.33	Concrete encountered preventing further excavation.	Borehole terminated due to encountering concrete which prevented further excavation.
WS104A	IP + WS	05/04/2023	05/04/2023	4.00	Target depth achieved	Well installed within superficial deposits and weathered Gault Formation for gas and groundwater monitoring purposes. LWD test also undertaken at this location.

Location ID	Hole Type	Start Date	End Date	Final depth (m bgl)	Termination Reason	Comment
WS105	IP + WS	05/04/2023	05/04/2023	3.00	Target depth achieved	Well installed within superficial deposits and weathered Gault Formation for gas and groundwater monitoring purposes. LWD test also undertaken at this location.
WS106	IP + WS	05/04/2023	05/04/2023	4.00	Target depth achieved	Well installed within superficial deposits and weathered Gault Formation for gas and groundwater monitoring purposes. LWD test also undertaken at this location.

Notes

RH = rotary borehole, WS = window sample borehole, IP = hand dug inspection pit, LWD = Light Weight Deflectometer.

3.4 In-situ Testing

3.4.1 General

In-situ testing was carried out within the rotary boreholes, window sample boreholes, and hand dug inspection pits. Where tests were undertaken within or associated with a specific borehole, the test data is presented on the relevant exploratory hole log or as additional sheets to that log. As such, the location details will be the same as the associated exploratory hole.

3.4.2 Standard Penetration Testing

Standard penetration tests (SPT) were carried out as required in the investigation scope and in accordance with the methods given in the standard procedures presented within Appendix B. Generally, tests were undertaken in each borehole at 1.2m bgl then at 1.0m regular intervals until 5.0m depth, then at 1.5m intervals thereafter to provide a profile of the soil's resistance with depth and disturbed soil samples were recovered from the SPT split-spoon tool. A final test was undertaken at the bottom of each borehole.

The N-values as determined in the field are presented on the borehole logs as uncorrected values that do not take into account the energy losses or efficiency of the automatic trip hammer used to drive the test tool

into the ground. The calibration certification for the test devices used in the investigation is presented in Appendix E and a summary of the SPT equipment used at each location is presented in Table 3-3.

Table 3-3 - Test Hammer Calibrations

Location ID	SPT Hammer Reference No.	Energy Efficiency Ratio, E_r %	Comment
BH101, BH102, BH103, and BH104	2110256	64	-
WS101, WS102, WS103A, WS104A, WS105 and WS106	DART423	73	-

3.4.3 Light Weight Deflectometer Testing

Light Weight Deflectometer (LWD) tests were undertaken at the surface of three boreholes WS104, WS105 and WS106 to assess the compaction of material at each location. The LWD consists of a 10kg weight which is dropped 3 times onto the loading plate. The underlying soil strength is determined by measuring the amount of deflection in mm after each weight drop. the EVd value in meganewtons per square meter and the distance/speed ratio (s/v value) are then calculated. LWD results are presented in Appendix I.

3.4.4 Handheld Shear Vane Tests

Handheld shear vane tests were conducted within cohesive materials recovered from the boreholes at 1m intervals. The vane head is pushed 70 to 80mm into the material and the test records the torque required to shear a fixed volume of soil.

3.4.5 VOC Head Space Screening

The presence of Volatile Organic Compounds (VOC) within the ground and groundwater was determined using a photoionization detector (PID) to detect the ‘headspace’ vapours emitted by the compounds. The method is applicable to a wide range of compounds that have sufficiently high volatility to be effectively liberated from the soil or water matrix in normal temperature and pressure ranges.

The headspace tests were undertaken on the freshly extracted soil samples at regular intervals from the boreholes by placing a small amount of material into polythene bags which were enclosed to capture as much air as possible around the soil sample. The soil sample was gently broken up and left for approximately 15 minutes prior to the bag being pierced and a PID fitted with a 10.6eV Ultraviolet (UV) lamp inserted set to isobutylene to test for ionisable VOCs. The results of the PID testing are presented on the Logs in Appendix C.

3.5 Installations and Post-fieldwork Monitoring

3.5.1 Installations

Monitoring standpipes were installed in the majority of exploratory holes completed as summarised in Table 3-4 below.

Table 3-4 - Summary of monitoring standpipes installations

Location ID	Installation type	Response Zone Top (m bgl)	Response Zone Bottom (m bgl)	Comment
BH102	G&GW	0.50	5.50	Response zone within Gault Mudstone Formation
BH103	G&GW	0.50	7.00	Response zone within Head Deposits and Gault Mudstone Formation
BH104	G&GW	6.50	9.50	Response zone within Gault Mudstone Formation
WS101	G&GW	1.00	4.00	Response zone within Made Ground and Gault Mudstone Formation
WS102A	G&GW	1.00	4.00	Response zone within Gault Mudstone Formation
WS103A	G&GW	1.50	4.00	Response zone within Gault Mudstone Formation
WS104A	G&GW	1.00	4.00	Response zone within Head Deposits and Gault Mudstone Formation
WS105	G&GW	1.00	3.00	Response zone within Head Deposits and Gault Mudstone Formation
WS106	G&GW	1.00	4.00	Response zone within Head Deposits and Gault Mudstone Formation

Note: G&GW = Gas and groundwater monitoring standpipe (50mm)

3.5.2 Post-fieldwork Monitoring

Standpipes were installed in nine borehole locations at varying depths to allow for groundwater and gas monitoring. Groundwater and gas monitoring has been undertaken on three occasions on the following dates and the results are presented in Appendix F:

- 21st April 2023 in mostly clear conditions.
- 28th April 2023 in mostly clear conditions.
- 4th May 2023 in mostly clear conditions.

3.5.3 Groundwater

A summary of the groundwater depths is show in Table 3-5 below.

BH ID	Response Zone (m bgl)	Response Zone (m aOD)	Stratum	21/04/2023		28/04/2023		04/05/2023	
				Clear weather		Clear weather		Clear weather	
				m bgl	m aOD	m bgl	m aOD	**m bgl**	**m aOD**
BH102	0.50-5.50	16.56 – 11.56	GF	0.88	12.12	1.63	11.37	0.93	12.07
BH103	1.00-7.00	16.51 – 10.51	HD + GF	1.74	11.26	1.65	11.35	1.60	11.4
BH104	6.50-9.50	7.91 – 4.91	GF	1.11	11.89	1.24	11.76	0.90	12.10
WS101	1.00-5.00	15.38 – 11.38	MG + GF	0.73	12.27	0.32	12.68	0.82	12.18
WS102	1.00-4.00	15.57 – 12.57	GF	0.95	12.05	0.16	12.84	0.95	12.05
WS103A	1.50-4.00	13.34 – 10.84	GF	1.37	11.63	3.06	9.94	2.68	10.32
WS104A	1.00-4.00	13.39 – 10.39	HD + GF	1.81	11.19	1.74	11.26	1.91	11.09
WS105	1.00-3.00	16.46 – 14.46	HD + GF	1.49	11.51	0.98	12.02	1.26	11.74

BH ID	Response Zone (m bgl)	Response Zone (m aOD)	Stratum	21/04/2023		28/04/2023		04/05/2023	
				Clear weather		Clear weather		Clear weather	
				m bgl	m aOD	m bgl	m aOD	**m bgl**	**m aOD**
WS106	1.00-4.00	14.04 – 11.04	HD + GF	1.41	11.59	1.22	11.78	1.57	11.43

Table 3-5 - Groundwater Summary Data

Note: m bgl = metres below ground level, m AOD = metres Above Ordnance Datum, HD = Head Deposits, GF = Gault Formation

3.5.4 Gas

Post fieldwork gas monitoring has been undertaken on three occasions on the following dates and the results are presented in Appendix F:

- 21st April 2023 during clear conditions.
- 28th April 2023 during clear conditions.
- 5th May 2023 during clear conditions.

A GA5000 gas analyser was used to record gas levels within the borehole installations. The parameters measured were flow rate, atmospheric pressure, well pressure, methane (CH_4), carbon dioxide (CO_2), oxygen (O), hydrogen sulphide (H_2S) and carbon monoxide (CO).

4 LABORATORY TESTING

4.1 General

Geotechnical and geo-environmental chemical testing was undertaken on selected samples obtained from the exploratory holes. The testing was scheduled by Arcadis and the testing was undertaken by an Arcadis approved testing laboratory.

4.2 Geotechnical Laboratory Testing

The geotechnical tests detailed in Table 4.1 were carried out in accordance with BS1377-2: 2022: Parts 1, 2, and 4-8 (Ref 10); BS 1377-3:2018+A1:2021 (Ref 11); BS EN ISO 17892:1 and 2 (Ref 12 and 13); BRE, 2005: Concrete in aggressive ground (Ref 15); or other methods as listed in Table 4.1. Tests were carried out on soil and groundwater samples.

The geotechnical laboratory testing is summarised in Table 4.1 below and the results are presented in Appendix H.

Table 4-1: Summary of geotechnical test data

Test	Method	No of Determinations
Moisture content	BS 1377 Pt 2 - 3.2	16
4-point liquid and plastic limit	BS 1377 Pt 2 – method 5	15
Particle Size Distribution - Wet sieving	BS 1377 Pt 2 – 9.2 & 9.4	2
Particle Size Distribution - Sedimentation	BS 1377 Pt 2	1
BRE suite D – brownfield including pyritic ground	BRE SD1 preferred methods	15
Unconsolidated Undrained Triaxial Compression	BS EN ISO 17892-8 : 2018	2
CBR compaction test – 2.5kg proctor	BS 1377 Pt 2 – 3.3	2

4.3 Geo-Environmental Laboratory Testing

Geo-environmental data for the site are presented in Appendix H and the laboratory analysis testing is summarised below and was undertaken on soil and groundwater samples collected from the site. Testing was carried out for the contaminants detailed in Table 4-2 and 4-3.

Table 4-1 - Summary of geo-environmental test data - soil matrix

Test type	Method	Maximum no of Determinations
Antimony, Arsenic, Barium, Beryllium, Boron, Chromium (III & VI), Copper, Iron, Lead, Molybdenum, Nickel, Selenium, Vanadium, Zinc, Cyanide (Comp/Free/Total/Thiocyanate), Cadmium	Soil iCap 6500 Duo ICP-OES Kone analyser Skalar SANS+ System Segmented Flow Analyser	18
Speciated Polycyclic Aromatic Hydrocarbon compounds (PAH)	Gas Chromatography –Mass Spectrometry (GC-MS)	18
Sulphur (Total)	ICP OES	19
Sulphate (water soluble)	Kone analyser	19
Total Petroleum Hydrocarbons (TPH) CWG	GC x GC-FID Headspace GC-FID (C4-C12)	18
VOCs	Headspace / GC-MS	3
Asbestos screen	HSG 248	10
pH	GLpH pH Meter	19
Total organic carbon (TOC)	ELTRA CS800 Operators Guide	17
BTEX and MTBE	Headspace / GC-MS	18
Polychlorinated biphenyls (PCBs)	Gas Chromatography –Mass Spectrometry (GC-MS)	2

Table 4-2 - Summary of geo-environmental test data – groundwater matrix

Test type	Method	Maximum no of Determinations
Antimony, Arsenic, Barium, Beryllium, Boron, Chromium (III & VI), Copper, Iron, Lead, Molybdenum, Nickel, Selenium, Vanadium, Zinc, Cyanide (Comp/Free/Total/Thiocyanate), Cadmium, Mercury (filtered/unfiltered), Manganese, Magnesium, Calcium, Chloride, Fluoride	Kone analyser ICP-MS PSA Cold Vapour Atomic Fluorescence Spectrometry Kone Spectrophotometric Analysers	9
Speciated Polycyclic Aromatic Hydrocarbon compounds (PAH)	Gas Chromatography –Mass Spectrometry (GC-MS)	9
Sulphate	Kone Spectrophotometric Analysers	9
Total Petroleum Hydrocarbons (TPH) CWG	Headspace GC-FID (C4-C12)	9
BTEX and MTBE	Headspace / GC-MS	9
pH	GLpH pH Meter	9

5 REFERENCES

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10. BS 1377-3:2018+A1:2021. Methods of test for soils for civil engineering purposes Chemical and electro-chemical testing. British Standards Institution.
11. BS EN ISO 17892-1: Geotechnical investigation and testing – Laboratory testing of soil – Determination of water content. British Standards Institution.
12. BS EN ISO 17892-2: Geotechnical investigation and testing – Laboratory testing of soil – Determination of bulk density. British Standards Institution.

APPENDIX A

PROPOSED DEVELOPMENT PLAN

LEGEND

SCHOOL SITE BOUNDARY

NOTES

SYMBOLS FOR BOREHOLES, TRIAL PITS AND OTHER SPECIFIC FEATURES ARE REPRESENTATIONS OF LOCATION ONLY AND UNLESS OTHERWISE SPECIFIED, DO NOT REPRESENT THE TRUE SIZE OF THE FEATURE.

0 10 20 40 60 80 100 Metres

N

TITLE:

SITE LAYOUT PLAN

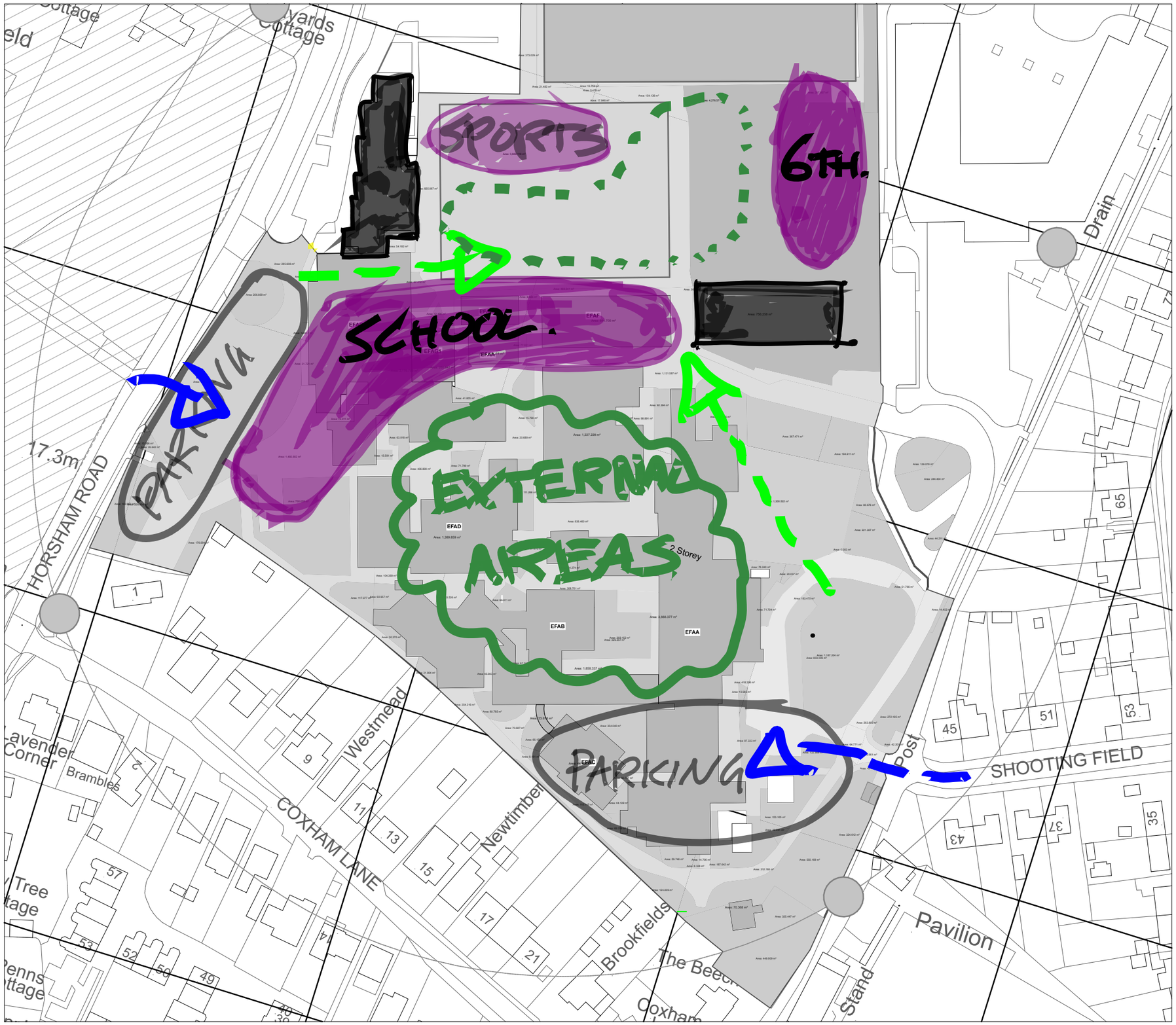
SITE : **STEYNING GRAMMA SCHOOL**

CLIENT :

DEPARTMENT OF EDUCATION

PROJECT :	**10057335**	**FIGURE 1**	
DATE :	24/04/23	DRAWN BY :	AP
DRG No. :	10057335-AUK-XX-XX-DR-ZZ-0073-P1		
SCALE :	**1:3,000**	PRINT :	**A3**

ARCADIS

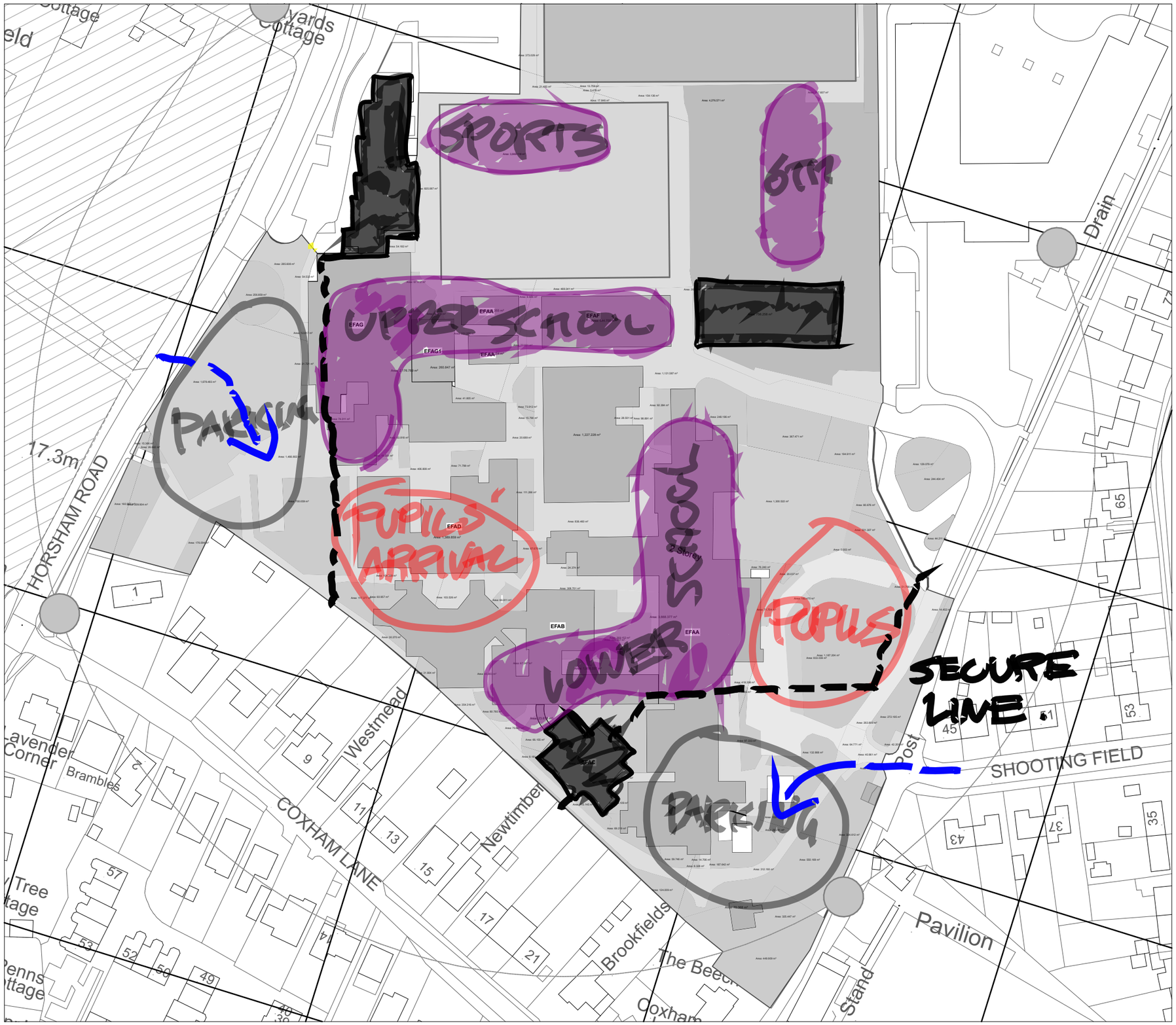


KEY:

- Site Boundary
- Untouched Block
- Consequential Block
- Refurbishment/ Remodelling Block
- New Build
- Demolished Building
- Hard Landscape
- Non-Net Parking/ Vehicle Access
- Non-Net Soft Landscape
- Woodland/ Dense Planting
- Watercourse
- Easement (Extent)
- Soft Outdoor PE
- Hard Outdoor PE
- Soft Informal and Social
- Hard Informal and Social
- Site Pedestrian Entrance
- Site Vehicle Access
- Retained Secure Fence Line
- Slope
- 120 Contour
- Culvert
- Right of Way
- Major Services Route/ Sewer etc.
- A Existing Tree (Grade A/B)

N

Project: **Feasibility** **Steyning Grammar School**	Location: #Site Full Address	Drawing: **Concept Development Option Site Plan 2**	MOTT MACDONALD	LYALL BILLS & YOUNG Lyall Bills & Young Architects Ltd Telephone House, 69-77 Paul Street London EC2A 4NW +44 (0) 20 7253 1630 www.lbyarchitects.com	Scale 1:1250 @A3	Drawing Number - Revision: **1083-STY-LBY-ZZ-ZZ-D-A-3010_P01**



KEY:

- Site Boundary
- Untouched Block
- Consequential Block
- Refurbishment/ Remodelling Block
- New Build
- Demolished Building
- Hard Landscape
- Non-Net Parking/ Vehicle Access
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- Hard Outdoor PE
- Soft Informal and Social
- Hard Informal and Social
- Site Pedestrian Entrance
- Site Vehicle Access
- Retained Secure Fence Line
- Slope
- 120 Contour
- Culvert
- Right of Way
- Major Services Route/ Sewer etc.
- A Existing Tree (Grade A/B)

N

Project: **Feasibility** **Steyning Grammar School**	Location: #Site Full Address	Drawing: **Concept Development Option Site Plan 2**	M MOTT MACDONALD	LYALL BILLS & YOUNG Lyall Bills & Young Architects Ltd Telephone House, 69-77 Paul Street London EC2A 4NW +44 (0) 20 7253 1630 www.lbyarchitects.com	Scale 1:1250 @A3	Drawing Number - Revision: **1083-STY-LBY-ZZ-ZZ-D-A-3010_P01**

APPENDIX B

STANDARD PROCEDURES

B0 General Principles

This ground investigation was undertaken in general accordance with the principles of BS EN 1997-1 (Ref 1) and BS EN 1997-2 (Ref 2) and the advice given in BS 5930:2015 +A1:2020 (Ref 3), which, provides complimentary guidance on the application of the primary standards. Where the requirements of the ground investigation specification differ from these primary standards, the investigation methodology was adapted as required and specific notes regarding methods and techniques employed were made in the appropriate report sections.

B1 Buried Services

Service clearance was undertaken in accordance with Arcadis' *Safety, Health and Environment (SHE) Standard – Avoidance of Sub-Surface Hazards and Structures Standard.* This document details the methods and safe working practices used to undertake excavations safely. Prior to breaking ground, services plans were consulted, and the area scanned using a Cable Avoidance Tool (CAT) with detected signals marked on the ground. For all investigation positions, other than for machine excavated trial pits, hand excavated inspection pits are completed to 1.20 m bgl prior to the use of drilling and boring plant.

B2 Sampling requirements

The selection of sample types and sampling techniques has been chosen to take account of the soil fabric, size and quality of sample required based on whether the soils mass properties or the intact material properties of the ground are to be determined in subsequent laboratory tests. BS EN ISO 22475-1 (Ref 4) describes three generic sample groups that are:

a. Sampling by drilling. Generally, a disturbed sample recovered from the drilling tool or digging equipment, typically meeting Class 3 to Class 5 requirements, with the recovered material being stored in bulk bags or sealed jar or tub containers.
b. Sampling by sampler. Typically referred to as open tube or drive sampling in which a tube with a sharp cutting edge is driven into the ground either by static thrust or dynamically driven to give a relatively undisturbed sample of Class 1 or Class 2 but may result in a Class 3 sample.
c. Block sampling. Cylindrical large diameter samples or cuboid hand-cut samples usually relatively undisturbed Class 1 and Class 2.

The open-tube sampling equipment used on the site was of a type and design that conformed to BS EN ISO 22475-1 (Ref 4). For the purpose of this ground investigation block sampling was not required.

Generally, samples were assessed on site and any unexpected deterioration in sample quality was reported to the ground engineer by the lead drilling technician.

Sufficient and representative samples were taken to allow the geo-mechanical properties of the ground to be adequately characterised and to enable the sequence of soil strata to be described by an engineering geologist or geotechnical engineer.

Where samples have been taken for chemical tests the drilling method attempted to adopt dry drilling over the sampling range that generally was achieved by the use of drill casing to separate and isolate the upper soil layers and exclude groundwater. Cross-contamination was further reduced by regular cleaning of sampling tools. Sample integrity was maintained by sealing samples immediately on collection and storing the samples in a temperature controlled cool box. Samples were despatched from the site at the end of the shift on which they were collected or as required in the project specification. Details of best practice storage, preservation and decontamination measures undertaken are given below:

Task	Soil	Groundwater	Ground Gas
Storage	Glass jars and vials supplied by the laboratory were used for the collection of soil samples to be analysed for volatile compounds. Plastic one-litre tubs were used to collect soil samples for metals analysis.	Glass vials supplied by the laboratory were used for the collection of samples to be analysed for volatile compounds. Samples to be analysed for lower volatility compounds were stored in laboratory prepared glass bottles.	1.4L Canisters supplied by the laboratory.
Preservation	Filling of sample containers as far as practicable to minimise headspace and low storage temperature to minimise the potential for volatilisation and biodegradation of petroleum hydrocarbon compounds prior to analysis.		Not required.
Decontamination	Disposable gloves were worn and changed between sample collection to prevent cross-contamination.	Groundwater samples were collected using dedicated disposable tubing / bailers, that were changed between monitoring well locations in order to prevent cross-contamination.	Disposable gloves were worn and changed between sample collection to prevent cross contamination.
Transport	Samples stored in dedicated sample boxes provided by the laboratory. Sample details and analytical requests were recorded on the laboratory chain of custody form included with samples, prior to dispatching to laboratory for analysis. Samples were dispatched to the laboratory on the day of sampling.		

B3 Sample description

Sample description was undertaken by the Arcadis site geologist in accordance with BS 5930:2015 +A1:2020 (Ref 3). The descriptions of the individual samples were used to identify the sequence of strata at the exploratory hole location and from which representative exploratory hole logs were drawn.

B4 *In situ* testing

In situ geotechnical tests were undertaken taking account of the investigation scope and requirement to attain the appropriate parameters required in the geotechnical design. The tests were undertaken in accordance with the requirements of the relevant parts of BS EN ISO 22476 (Ref 5) and BS 1377-9 (Ref 6) for cable percussive drilling.

B5 Data transfer format

The data collated during the ground investigation has been organised and managed using the “AGS data format” that allows data transfer between different disciplines and organisations in accordance with BS 8574 (Ref 7).

B6 References

1. BS EN 1997-1. 2004. Eurocode 7: Geotechnical Design. Part 1 General Rules. British Standards Institution, 2013 (revised text).
2. BS EN 1997-2. 2007. Eurocode 7: Geotechnical Design. Part 2 Ground Investigation and testing. British Standards Institution, 2010 (revised text).
3. BS 5930:2015+A1:2020. Code of practice for ground investigation. British Standards Institution.
4. BS EN ISO 22475-1. Geotechnical investigation and testing – Sampling methods and groundwater measurements – Part 1 Technical principles for execution.
5. BS EN ISO 22476-3 2005. Geotechnical investigation and testing – Field testing – Part 3: Standard penetration test. British Standards Institution
6. BS 1377-9. 1990. Methods of test for soils for civil engineering purposes. Part 9: In-situ tests. British Standards Institution.
7. BS 8574. Code of practice for the management of geotechnical data for ground engineering projects.

APPENDIX C

EXPLORATORY HOLE LOGS

Dynamic Sampling to Rotary Coring Log

BH101

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**15.33**	**04/04/2023**	**1:50**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517565.52**	**111902.11**	**04/04/2023**	**Sheet 1 of 1**

Progress	Samples	Tests and Measurements		Strata				
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details / TCR SCR RQD	Description	Legend	Depth (Thickness)	Level	Install/ Backfill
2023/04/04 12:00 - / -				MADE GROUND: Grass over very soft light brown clayey SILT with occasional gravel. Gravel is subangular to subrounded medium chalk (moist)		(0.51)		
	(B2) 0.60-1.00			Very soft becoming stiff light grey very gravelly CLAY. Gravel is very angular to subrounded fine to coarse chert and chalk (Moist) [Weathered Gault Formation]		0.51	14.82	
	(D6) 1.00-1.20 (ES3) 1.00-1.20 (SPTLS1) 1.20-1.65	PID 1.00m 3ppm SPT(S) 1.20m N=9 *(2,3/3,2,2,2)* Depth water:1.00m				(1.29)		
	(D7) 1.50-1.75 (ES4) 1.50-1.75					1.80	13.53	
	(D8) 2.50-2.75 (ES5) 2.50-2.75	PID 2.00m 6ppm HV(1) 2.00m 48 (2)kPa		Soft to firm dark grey slightly sandy CLAY/SILT with frequent gravel. Gravel is subangular fine flint. Sand is fine. Unit is moist [Weathered Gault Formation]		(1.20)		
2023/04/04 16:45 0.00 / 0.00		PID 3.00m 5ppm HV(1) 3.00m 42 (10)kPa				3.00	12.33	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00 1.20	1.20 3.00	Inspection Pit DS								04/04/2023 13:50	1.00			0.00								

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	Terminated due to the ground around the drilling rig started to crack and become unstable, it was therefore declared unsafe to continue drilling. Groundwater strike at 1m bgl

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used	Termination Depth	Logged By	Checked By
Hand Tools, Comacchio Geo 250	**3.00m**	**James Davies**	**NR**

Dynamic Sampling to Rotary Coring Log

BH102

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**17.06**	**05/04/2023**	**1:50**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517460.64**	**111881.11**	**06/04/2023**	**Sheet 1 of 1**

Progress	Samples	Tests and Measurements			Strata				
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend	Depth (Thickness)	Level	Install/ Backfill
2023/04/05 08:00 - / -	(B3) 0.20-0.40 (D12) 0.20-0.30 (ES4) 0.20-0.30	PID 0.20m 8ppm			MADE GROUND : bituminous material		(0.15) 0.15	16.91	
					MADE GROUND: Medium dense light brown clayey GRAVEL. Gravel is very angular to subangular fine to coarse chert (Moist)		(0.37) 0.52	16.54	
	(B1) 0.75-1.00				Firm light yellowish brown slightly sandy CLAY. Sand is fine. (Moist) [Weathered Gault Formation]				
	(D13) 1.00-1.20 (ES2) 1.00-1.20	PID 1.00m 7ppm SPT(S) 1.20m N=10 *(2,2/2,2,2,4)*							
	(D14) 1.80-2.00 (ES5) 1.80-2.00	PID 2.00m 4ppm HV(1) 2.00m 38 (12)kPa					(2.48)		
	(B6) 3.00-3.75	HV(1) 2.95m 46 (4)kPa PID 3.00m 6ppm SPT(S) 3.00m N=21 *(2,3/4,5,5,7)*			Firm yellowish brown very gravelly slightly sandy SILT. Gravel is very angular to angular fine to coarse chert. Sand is fine. (Moist) [Weathered Gault Formation]		3.00	14.06	
							(1.00)		
	(D15) 3.85-4.00 (ES7) 3.85-4.00	PID 4.00m 7ppm HV(1) 4.00m 48 (20)kPa SPT(S) 4.00m N=28 *(3,4/6,7,7,8)*			NO RECOVERY		4.00 4.10	13.06 12.96	
	(D16) 4.30-4.40 (ES8) 4.30-4.40				Firm to stiff yellowish brown gravelly SILT. Gravel is subangular fine to medium chert (Moist) [Weathered Gault Formation]		4.20	12.86	
					Very stiff yellowish brown with pockets of orange silty CLAY (Moist) [Weathered Gault Formation]		(1.30)		
		PID 5.00m 2ppm HV(1) 5.00m 46 (22)kPa SPT(S) 5.00m N=44 *(6,10/11,11,12,10)*		TCR 53 SCR 40 RQD 20			5.50	11.56	
	(B9) 6.50-8.00	SPT(C) 6.50m N>50 *(10,14/22,26,2 for 5mm)*		TCR 100 SCR 87 RQD 61	Extremely weak to weak massive dark grey MUDSTONE with pockets of orange bioturbation and rare silt pockets Unweathered (dry) [Gault Formation]		(2.50)		
		SPT(C) 8.00m N>50 *(11,14/15,20,15 for 35mm)*			NO RECOVERY		8.00 (0.28)	9.06	
	(D10) 8.50-8.75			TCR 84 SCR 84 RQD 75	Weak massive light grey MUDSTONE Unweathered (dry) [Gault Formation]		8.28	8.78	
							(1.72)		
	(D11) 9.50-9.75	SPT(C) 9.50m N>50 *(12,13/17,20,13 for 30mm)*		TCR 100 SCR 100 RQD 70					
		SPT(C) 10.00m N>50 *(13,14/18,22,10 for 15mm)*					10.00	7.06	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00 1.20 3.00	1.20 3.00	Inspection Pit DS Rotary Open								05/04/2023 09:30	1.25											

INSTRUMENTS			WELL SCREEN DESIGN			
Name	Type	m AGL	Well Name	From	To	Dia.
BH102	Standpipe	0.000	BH102	0.50	5.50	50

REMARKS

Target depth reached.
Groundwater strike at 1.25m bgl
U100 sample attempted at 2m bgl but no recovery (14 blows)

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used: **Hand Tools and Jack, Comacchio Geo 250**

Termination Depth: **10.00m**

Logged By: **James Davies**

Checked By: **NR**

Dynamic Sampling to Rotary Coring Log

BH103

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**17.51**	**12/04/2023**	**1:50**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517426.22**	**111778.07**	**12/04/2023**	**Sheet 1 of 2**

Progress	Samples	Tests and Measurements			Strata				
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend	Depth (Thickness)	Level	Install/ Backfill
					MADE GROUND: BITUMINOUS SURFACING		(0.35)		
							0.35	17.16	
	(B1) 0.50-0.60				MADE GROUND: SUB BASE MATERIAL Brownish yellow slightly clayey silty sandy GRAVEL. Gravel is angular fine to coarse flint. Sand is fine to coarse (Dry)		(0.25)		
	(ES2) 0.70-0.80	PID 0.60m 5ppm					0.60	16.91	
	(D3) 1.00-1.10	PID 1.00m 6ppm			Very soft to soft dark grey slightly sandy gravelly CLAY with occasional sand pockets. Sand is fine. Gravel is subangular fine to coarse flint (Dry) [Head Deposits]		(0.90)		
		SPT(S) 1.20m N=9 (2,1/2,1,3,3)							
	(D4) 1.50-1.65						1.50	16.01	
					Firm dark grey slightly gravelly CLAY Gravel is subangular fine to coarse flint (Moist) [Weathered Gault Formation]		(0.50)		
							2.00	15.51	
	(D5) 2.10-2.25	PID 2.10m 2ppm			NO RECOVERY		2.10	15.41	
	(ES6) 2.50-2.60				Firm to stiff light grey with orange staining slightly sandy gravelly CLAY. Gravel is subangular fine to coarse flint. Sand is fine. (Dry) [Weathered Gault Formation]				
	(D7) 3.00-3.15	PID 3.00m 4ppm					(1.90)		
		SPT(S) 3.00m N=29 (3,3/6,7,8,8)							
		SPT(S) 4.00m N=36			NO RECOVERY		4.00	13.51	
	(D8) 4.10-4.25	(3,5/7,9,10,10)			Stiff to very stiff light brown with mottled orange CLAY (Moist) [Weathered Gault Formation]		4.10	13.41	
	(ES9) 4.50-4.70								
	(D10) 5.00-5.15	PID 5.00m 6ppm							
		SPT(C) 5.00m N=36 (4,6/7,8,10,11)					(2.30)		
		PID 6.00m 3ppm							
2023/04/12 16:59 5.00 / -	(D11) 6.50-6.70	SPT(C) 6.50m N=40 (5,6/8,10,10,12)			Very stiff thinly bedded light grey CLAY (Moist) [Weathered Gault Formation]		6.40	11.11	
2023/04/13 08:00 5.00 / -					Very stiff grey mottled brown CLAY with occasional iron staining (Dry) [Weathered Gault Formation]		6.50	11.01	
							(0.60)		
					Extremely weak dark grey MUDSTONE Partially weathered throughout (dry) [Gault Formation]		7.10	10.41	
	(D12) 7.50-7.70								
		SPT(C) 8.00m N>50 (10,11/12,14,15,9 for 40mm)							
	(D13) 8.50-8.70						(3.10)		
	(D14) 9.50-9.70	SPT(C) 9.50m N>50 (10,12/11,16,16,8 for 35mm)							
	(D15) 10.00-10.20								

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration
0.00	1.20	Inspection Pit							
1.20	10.20	Dynamic Sample							

WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres

INSTRUMENTS			WELL SCREEN DESIGN			
Name	Type	m AGL	Well Name	From	To	Dia.
BH103	Standpipe	0.000	BH103	1.00	7.00	50

REMARKS

Target depth reached.
No groundwater encountered.
U100 sample attempted at 3m bgl but no recovery (15 blows)

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used: **Tarmac Breaker and Hand tools, Comacchio Geo 250**

Termination Depth: **10.20m**

Logged By: **James Davies**

Checked By: **NR**

Dynamic Sampling to Rotary Coring Log

BH103

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**17.51**	**12/04/2023**	**1:50**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517426.22**	**111778.07**	**12/04/2023**	**Sheet 2 of 2**

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/04/13 14:00 5.00 / -					Extremely weak dark grey MUDSTONE Partially weathered throughout (dry) [Gault Formation]		10.20	7.31	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit																				
1.20	10.20	Dynamic Sample																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	
BH103	Standpipe	0.000	BH103	1.00	7.00	50	Target depth reached. No groundwater encountered. U100 sample attempted at 3m bgl but no recovery (15 blows)

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used: **Tarmac Breaker and Hand tools, Comacchio Geo 250**

Termination Depth: **10.20m**

Logged By: **James Davies**

Checked By: **NR**

Dynamic Sampling to Rotary Coring Log

BH104

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**14.41**	**03/04/2023**	**1:50**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517592.02**	**111789.72**	**04/04/2023**	**Sheet 1 of 2**

Progress	Samples	Tests and Measurements		Strata				
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details / TCR SCR RQD	Description	Legend	Depth (Thickness)	Level	Install/ Backfill
2023/04/03 11:00 - / -				MADE GROUND: Light grey tarmac		0.10	14.32	
				MADE GROUND: Bituminous material. Loose dark brown sandy GRAVEL. Sand is coarse bituminous material. Gravel is subangular fine to coarse bituminous material (Dry).		(0.24) 0.33	14.08	
	(B1) 0.40-0.70	PID 0.50m 2ppm		Soft dark greenish grey sandy gravelly silty CLAY. Gravel is subrounded fine flint. Sand is fine. (Dry) [Weathered Gault Formation]		(0.72)		
	(D16) 1.20-1.40 (ES4) 1.20-1.40 (SPTLS2) 1.20-1.65	SPT(S) 1.20m N=9 *(2,2/2,2,2,3)*		Soft to firm light greenish grey sandy CLAY. Sand is fine to medium. (Dry) [Weathered Gault Formation]		1.05 (0.45)	13.36	
	(D17) 1.50-2.00 (ES5) 1.50-2.00	PID 1.50m 5ppm		Firm to stiff fissured dark greenish grey mottled yellowish brown slightly gravelly sandy silty CLAY. Gravel is subangular medium chert. Sand is fine (Moist) [Weathered Gault Formation]		1.50	12.91	
	(UT3) 2.00-2.60					(1.10)		
	(D18) 2.60-3.00 (ES7) 2.60-3.00	PID 2.60m 5ppm		Stiff dark greenish grey slightly sandy CLAY. Sand is fine (Moist) [Weathered Gault Formation]		2.60 (0.40)	11.81	
	(SPTLS6) 3.00-3.45	HV(1) 3.00m 34 (6)kPa SPT(S) 3.00m N=17 *(2,2/4,4,4,5)*		NO RECOVERY Stiff brownish grey with pockets of brownish red CLAY with rare sand pockets. Sand is fine and brownish red (Moist) [Weathered Gault Formation]		3.00 3.10	11.41 11.31	
	(D19) 3.75-4.00 (ES8) 3.75-4.00	PID 3.50m 6ppm				(0.90)		
	(UT9) 4.00-4.60	HV(2) 4.00m 74 (14)kPa		Stiff greenish grey slightly sandy silty CLAY. Sand is fine to medium (Moist) [Weathered Gault Formation]		4.00	10.41	
	(B10) 4.60-4.75					(1.00)		
	(D20) 4.75-5.00 (ES11) 4.75-5.00	PID 4.75m 4ppm						
2023/04/03 16:09 5.00 / 1.40 2023/04/04 08:00 5.00 / 1.40	(SPTLS12) 5.00	SPT(S) 5.00m N=47 *(4,6/10,11,12,14)* Depth water:1.40m		NO RECOVERY		5.00 (0.40)	9.41	
	(D21) 5.40-5.70 (ES13) 5.40-5.70			Stiff becoming very stiff brownish grey slightly sandy CLAY (Moist) [Weathered Gault Formation]		5.40 (1.10)	9.01	
	(D22) 7.00-7.20 (ES14) 7.00-7.20	SPT(C) 6.50m N>50 *(4,12/16,14,14,6 for 30mm)* Depth water:1.40m	TCR 100 SCR 100 RQD 73	Weak massive dark grey MUDSTONE with rare gravel pockets. Gravel is fine angular chert (Dry). [Gault Formation]		6.50	7.91	
	(B15) 8.00-9.50	SPT(C) 8.00m N>50 *(10,14/14,20,16 for 70mm)* Depth water:1.40m	TCR 100 SCR 87 RQD 73			(3.50)		
		SPT(C) 9.50m N>50 *(9,11/16,32,2 for 5mm)* Depth water:1.40m	TCR 100 SCR 84 RQD 84					
2023/04/04 11:55 0.00 / 1.40		SPT(C) 10.00m N>50				10.00	4.41	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit	116	10.00	139	5.00										5.00	10.00		Water	5.00	10.00	
1.20	6.50	DS																				
6.50	10.00	Rotary Core																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	Target depth reached. No groundwater encountered.
BH104	Standpipe	0.000	BH104	6.50	9.50	50	

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used	Termination Depth	Logged By	Checked By
Concrete Jack, Comacchio	**10.00m**	**James Davies**	**NR**

Dynamic Sampling to Rotary Coring Log

BH104

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**14.41**	**03/04/2023**	**1:50**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517592.02**	**111789.72**	**04/04/2023**	**Sheet 2 of 2**

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
		(11,13/18,28,4 for 10mm) Depth water:1.40m							

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00 1.20 6.50	1.20 6.50 10.00	Inspection Pit DS Rotary Core	116	10.00	139	5.00										5.00	10.00		Water	5.00	10.00	

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	Target depth reached. No groundwater encountered.
BH104	Standpipe	0.000	BH104	6.50	9.50	50	

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used	Termination Depth	Logged By	Checked By
Concrete Jack, Comacchio	**10.00m**	**James Davies**	**NR**

ARCADIS Window Sampler Log

WS101

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**16.38**	**04/04/2023**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517503.27**	**111893.48**	**04/04/2023**	**Sheet 1 of 1**

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/04/04 14:00 - / -					MADE GROUND: BITUMINOUS SURFACING		0.10	16.28	
					MADE GROUND: CONCRETE (Non- reinforced)		0.20	16.18	
	(ES6) 0.20-0.40				MADE GROUND: Firm dark grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint, concrete fragments and bituminous material		(0.20)		
					MADE GROUND: Firm yellowish brown gravelly CLAY. Gravel is fine to medium concrete fragments		0.40	15.98	
	(ES7) 0.70-0.80						(0.90)		
	(SPTLS1) 1.20-1.65	SPT(S) 1.20m N=8 (1,1/1,1,2,4)							
	(D9) 1.40-1.55				MADE GROUND: Firm yellowish brown mottled orange gravelly CLAY. Gravel is fine to medium concrete fragments and with occasional black organic material		1.30	15.08	
							(0.90)		
	(SPTLS2) 2.00-2.45	SPT(S) 2.00m N=14 (2,2/2,3,3,6)							
					Stiff yellowish brown mottled orange CLAY [Weathered Gault Formation]		2.20	14.18	
	(D10) 2.80-2.95						(1.30)		
	(SPTLS3) 3.00-3.45	SPT() 3.00m N=18 (2,3/4,3,4,7)							
	(ES8) 3.50-3.65				Stiff yellowish brown CLAY [Weathered Gault Formation]		3.50	12.88	
	(SPTLS4) 4.00-4.45	SPT(S) 4.00m N=32 (5,4/6,7,8,11)					(1.10)		
					Extremely weak dark grey MUDSTONE [Gault Formation]		4.60	11.78	
	(D11) 4.70-4.85						(0.40)		
2023/04/04 16:30 - / -	(SPTLS5) 5.00	SPT(S) 5.00m N>50 (8,7/11,15,16,8 for 0mm)					5.00	11.38	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit																				
1.20	5.45	Window Sample																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	Target depth reached.
WS101	Standpipe	0.000	WS101	1.00	5.00	50	No groundwater encountered.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used: **Window Sampler Rig, Insulated Hand Tools**

Termination Depth: **5.00m**

Logged By: **Emma Warrington**

Checked By: **NR**

ARCADIS Window Sampler Log

WS102

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**16.57**	**04/04/2023**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517478.26**	**111836.72**	**04/04/2023**	**Sheet 1 of 1**

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/04/04 16:30 - / -					MADE GROUND: BITUMINOUS SURFACING		0.10	16.47	
					MADE GROUND: CONCRETE (Non-Reinforced)		0.20	16.37	
					MADE GROUND: Firm brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse flint and concrete		(0.20)		
	(ES5) 0.40-0.55				Firm yellowish brown gravelly CLAY. Gravel is fine to medium flint and chalk [Weathered Gault Formation]		0.40	16.17	
	(ES6) 0.80-0.95						(1.00)		
	(SPTLS1) 1.20-1.65	SPT(S) 1.20m N=5 *(1,1/1,1,1,2)*							
					Stiff orangish brown mottled grey slightly sandy silty CLAY. Sand is fine [Weathered Gault Formation]		1.40	15.17	
	(D8) 1.80-1.95								
	(SPTLS2) 2.00-2.45	SPT(S) 2.00m N=15 *(1,2/3,3,4,5)*					(1.80)		
	(ES7) 2.50-2.65								
	(SPTLS3) 3.00-3.45	SPT(S) 3.00m N=28 *(3,3/5,5,7,11)*							
					Stiff yellowish brown CLAY [Weathered Gault Formation]		3.20	13.37	
	(D9) 3.80-3.95						(1.25)		
2023/04/04 18:00 - / -	(SPTLS4) 4.00-4.45	SPT(S) 4.00m N=31 *(5,4/5,8,8,10)*					4.45	12.12	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit																				
1.20	4.45	Window Sample																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	Target depth reached.
WS102	Standpipe	0.000	WS102	1.00	4.00	50	No groundwater encountered.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used: **Window Sampler, Insulated Hand Tools**

Termination Depth: **4.45m**

Logged By: **Emma Warrington**

Checked By: **NR**

ARCADIS Window Sampler Log

WS103

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**14.84**	**04/04/2023**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517576.03**	**111872.56**	**04/04/2023**	**Sheet 1 of 1**

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/04/04 10:30 - / -					MADE GROUND: Dark brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse flint		(0.40)		
	(ES1) 0.40-0.50				MADE GROUND: Firm light brown slightly silty slightly gravelly CLAY. Gravel is subangular fine to medium flint and brick		0.40	14.44	
	(D2) 0.80-0.90						(0.70)		
2023/04/04 11:00 - / -					CONCRETE		1.10	13.74 13.74	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.10	Inspection Pit																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	Terminated in buried concrete. No groundwater encountered.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used	Termination Depth	Logged By	Checked By
Insulated Hand Tools	**1.10m**	**Emma Warrington**	**NR**

ARCADIS Window Sampler Log

WS103A

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**14.84**	**04/04/2023**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517631.00**	**111726.00**	**04/04/2023**	**Sheet 1 of 1**

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/04/04 11:00 - / -					MADE GROUND: Dark brown silty gravelly CLAY occasional roots Gravel is flint and chalk		(0.30)		
	(ES6) 0.20-0.30						0.30	14.54	
					MADE GROUND: Light grey GRAVEL. Gravel is angular to subangular fine to coarse flint and chalk		(1.00)		
	(ES5) 0.90-1.10								
	(SPTLS1) 1.20-1.65	SPT(S) 1.20m N=9 *(1,1/1,2,3,3)*							
					Stiff brown mottled orange silty CLAY [Weathered Gault Formation]		1.30	13.54	
							(0.40)		
					Stiff brown mottled orange slightly sandy silty CLAY. Sand is fine. [Weathered Gault Formation]		1.70	13.14	
	(D8) 1.80-1.90								
	(SPTLS2) 2.00-2.45	SPT(S) 2.00m N=17 *(2,2/3,3,5,6)*					(1.00)		
		HV(1) 2.60m 86 (8)kPa							
	(ES7) 2.70-2.80						2.70	12.14	
					Very stiff brown mottled orange CLAY [Weathered Gault Formation]				
		HV(2) 2.90m 88 (16)kPa							
	(SPTLS3) 3.00-3.45	SPT(S) 3.00m N=23 *(2,4/5,6,7,5)*					(0.70)		
							3.40	11.44	
	(D9) 3.50-3.60	HV(1) 3.50m 70 (8)kPa			Very stiff dark brown gravelly CLAY. Gravel is angular to well rounded fine to coarse flint and chalk [Weathered Gault Formation]		(0.20)		
					Very stiff brown mottled orange sandy CLAY. Sand is fine to coarse [Weathered Gault Formation]		3.60	11.24	
	(D10) 3.80-3.90								
2023/04/04 14:00 - / -	(SPTLS4) 4.00-4.45	SPT(S) 4.00m N=27 *(3,5/5,5,7,10)*					(0.85)		
							4.45	10.39	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit																				
1.20	4.45	Window Sample																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	Target depth reached.
WS103A	Standpipe	0.000	WS103A	1.50	4.00	50	No groundwater encountered.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used: **Window Sampler, Insulated Hand Tools**

Termination Depth: **4.45m**

Logged By: **Emma Warrington**

Checked By: **NR**

ARCADIS Window Sampler Log

WS104

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**14.39**	**05/04/2023**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517611.68**	**111741.81**	**05/04/2023**	**Sheet 1 of 1**

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/04/05 13:30 - / -					MADE GROUND: BITUMINOUS SURFACING		(0.30)		
2023/04/05 14:00 - / -					MADE GROUND: CONCRETE		0.30	14.09	
								14.09	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	0.30	Inspection Pit																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	Hole terminated due to concrete obstruction. No groundwater encountered.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used	Termination Depth	Logged By	Checked By
Concrete corer	**0.30m**	**Emma Warrington**	**NR**

ARCADIS Window Sampler Log

WS104A

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**14.39**	**04/04/2023**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517631.00**	**111726.00**	**05/04/2023**	**Sheet 1 of 1**

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/04/05 14:30 - / -					MADE GROUND: Grass over soft brown silty gravelly CLAY. Gravel is fine to coarse subangular flint		(0.30)		
	(ES3) 0.20-0.30								
	(B1) 0.30-0.60						0.30	14.09	
					Firm orangish brown silty gravelly CLAY. Gravel is fine subangular to coarse flint [Head Deposits]				
	(ES2) 0.60-0.80						(1.10)		
	(SPTLS7) 1.20-1.65	SPT(S) 1.20m N=4 (1,2/1,1,1,1)							
					Firm greyish brown mottled orange CLAY [Weathered Gault Formation]		1.40	12.99	
	(D5) 1.50-1.65								
		HV(1) 1.80m 42 (8)kPa							
	(SPTLS8) 2.00-2.45	SPT(S) 2.00m N=10 (1,2/1,2,3,4)							
		HV(2) 2.40m 78 (20)kPa							
	(ES4) 2.60-2.80								
		HV(3) 2.80m 58 (12)kPa					(3.05)		
	(SPTLS9) 3.00-3.45	SPT(S) 3.00m N=17 (2,4/3,4,4,6)							
		HV(5) 3.30m 45 (12)kPa							
		HV(4) 3.50m 34 (14)kPa							
	(D6) 3.70-3.85								
2023/04/05 16:30 - / -	(SPTLS10) 4.00-4.45	SPT(S) 4.00m N=20 (2,2/4,5,4,7)					4.45	9.94	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit																				
1.20	4.45	Window Sample																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	Target depth reached.
WS104A	Standpipe	0.000	WS104A	1.00	4.00	50	No groundwater encountered.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used: **Window Sampler, Insulated Hand Tools**

Termination Depth: **4.45m**

Logged By: **Emma Warrington**

Checked By: **NR**

ARCADIS Window Sampler Log

WS105

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**17.46**	**05/04/2023**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517441.64**	**111745.91**	**05/04/2023**	**Sheet 1 of 1**

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/04/05 08:30 - / -					MADE GROUND: Grass over Firm dark brown sandy gravelly CLAY Gravel is angular to subrounded fine to coarse flint		(0.60)		
	(ES4) 0.50-0.60						0.60	16.86	
	(ES5) 0.80-0.90				Firm orangish brown CLAY with frequent black organic material [Head Deposits]		(0.90)		
	(SPTLS1) 1.20-1.65	SPT(S) 1.20m N=7 (1,1/1,1,2,3)					1.50	15.96	
	(D6) 1.60-1.75				Firm orangish brown mottled grey CLAY with occasional black organic material [Head Deposits]		(0.80)		
	(SPTLS2) 2.00-2.45	SPT(S) 2.00m N=10 (1,1/2,2,2,4)					2.30	15.16	
	(D7) 2.40-2.55				Firm greyish brown slightly sandy silty CLAY. Sand is fine. [Weathered Gault Formation]		(1.15)		
2023/04/05 10:15 - / -	(SPTLS3) 3.00-3.45	SPT(S) 3.00m N=9 (1,1/1,2,3,3)					3.45	14.01	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit																				
1.20	3.45	Window Sample																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	Target depth reached.
WS105	Standpipe	0.000	WS105	1.00	3.00	50	No groundwater encountered.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used: **Insulting Hand Tools, Window Sampler**

Termination Depth: **3.45m**

Logged By: **Emma Warrington**

Checked By: **NR**

ARCADIS Window Sampler Log

WS106

Project	Project No.	Ground Level (mAOD)	Start Date	Scale
Steyning Grammar School GROUND Investigation	**10057335**	**15.04**	**05/04/2023**	**1:25**
Client	Easting (OS mE)	Northing (OS mN)	End Date	
DfE	**517552.18**	**111746.45**	**05/04/2023**	**Sheet 1 of 1**

Progress	Samples	Tests and Measurements			Strata		Depth (Thickness)	Level	Install/ Backfill
Date / Time Casing / DTW	Type - Depth (m)	Type - Depth (m) - Result	Fracture Details	TCR SCR RQD	Description	Legend			
2023/04/05 11:00 - / -					Grass over Firm brown silty gravelly CLAY. Gravel is subangular fine to coarse flint [Head Deposits]		(0.60)		
	(ES5) 0.40-0.50						0.60	14.44	
	(ES6) 0.70-0.80				Firm brown sandy gravelly CLAY. Sand is fine to coarse gravel is fine to coarse flint [Head Deposits]		(1.10)		
	(SPTLS1) 1.20-1.65	SPT(S) 1.20m N=6 (1,1/1,1,2,2)							
	(D7) 1.40-1.55						1.70	13.34	
					Firm to stiff brown very sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse flint. [Head Deposits]		(0.40)		
	(D8) 2.00-2.15 (SPTLS2) 2.00-2.45	SPT(S) 2.00m N=12 (2,2/2,3,4,3)					2.10	12.94	
					Stiff greyish brown mottled orange CLAY [Weathered Gault Formation]				
	(SPTLS3) 3.00-3.45	SPT(S) 3.00m N=16 (2,2/2,3,5,6)					(2.35)		
	(D9) 3.70-3.85								
2023/04/05 13:30 - / -	(SPTLS4) 4.00-4.45	SPT(S) 4.00m N=41 (2,5/5,6,18,12)					4.45	10.59	

DRILLING TECHNIQUE			HOLE / CASING DIAMETER				CHISELLING			WATER OBSERVATIONS						FLUSH DETAILS				WATER ADDED		
From	To	Type	Hole Dia.	Depth	Casing Dia.	Depth	From	To	Duration	Date/Time	Strike	Rest	Mins	Casing	Sealed	From	To	Rtn%	Type	From	To	Litres
0.00	1.20	Inspection Pit																				
1.20	4.45	Window Sample																				

INSTRUMENTS			WELL SCREEN DESIGN				REMARKS
Name	Type	m AGL	Well Name	From	To	Dia.	Target depth reached.
WS106	Standpipe	0.000	WS106	1.00	4.00	50	No groundwater encountered.

Unless otherwise stated:
Depth (m), Diameter (mm), Time (hhmm), Thickness (m), Level (mAOD), Height Above Ground Level (m AGL)

Equipment Used: **Window Sampler, Insulated Hand Tools**

Termination Depth: **4.45m**

Logged By: **Emma Warrington**

Checked By: **NR**

APPENDIX D

EXPLORATORY HOLE LOCATION PLAN

(Drawing Ref: 10057335-AUK-XX-XX-DR-ZZ-0074-P1 - BH location plan)

LEGEND

- BOREHOLE LOCATION
- WINDOW SAMPLE LOCATION
- SCHOOL SITE BOUNDARY

NOTES

SYMBOLS FOR BOREHOLES, TRIAL PITS AND OTHER SPECIFIC FEATURES ARE REPRESENTATIONS OF LOCATION ONLY AND UNLESS OTHERWISE SPECIFIED, DO NOT REPRESENT THE TRUE SIZE OF THE FEATURE.

N

0 5 10 20 30 40 50 Metres

TITLE:

EXPLORATORY HOLE LOCATION PLAN

SITE : **STEYNING GRAMMA SCHOOL**

CLIENT : **DEPARTMENT OF EDUCATION**

PROJECT :	**10057335**	**FIGURE 2**	
DATE :	24/04/23	DRAWN BY :	AP
DRG No. :	10057335-AUK-XX-XX-DR-ZZ-0074-P1		
SCALE :	**1:1,500**	PRINT :	**A3**

ARCADIS

APPENDIX E

CERTIFICATION OF FIELD APPARATUS

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING UK LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref:	DART423
Test Date:	15/03/2023
Report Date:	15/03/2023
File Name:	DART423.spt
Test Operator:	MT

Instrumented Rod Data

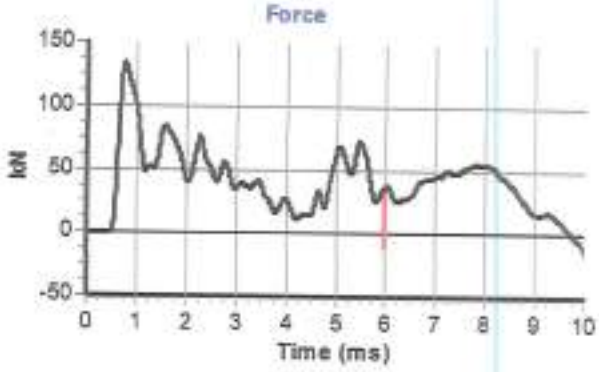
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.5
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	72572
Accelerometer No.2:	72757

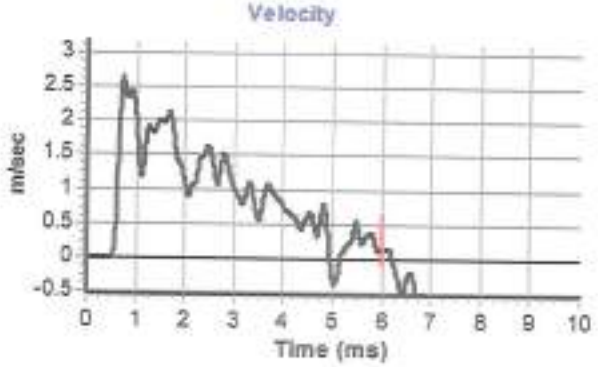
SPT Hammer Information

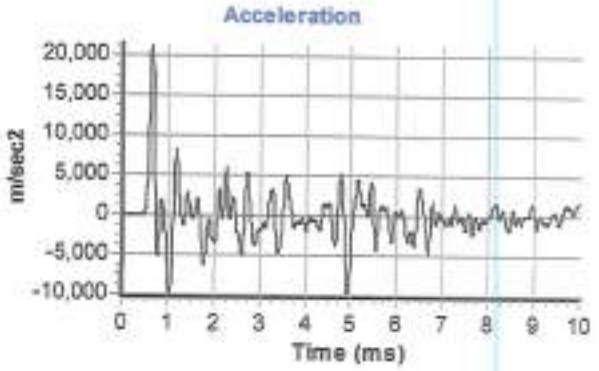
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	10.0

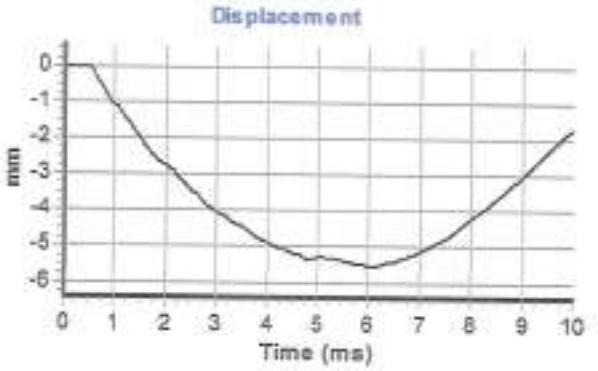
Comments / Location

GEOTRON UK LTD - 84114









Calculations

Area of Rod A (mm2):	970
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	344

Energy Ratio E_r (%): 73

Signed: M.TONER

Title: FITTER

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SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

22-24 Aaron Road
Whittlesey
Peterborough
PE7 2EX

SPT Hammer Ref:	2110256
Test Date:	06/01/2023
Report Date:	06/01/2023
File Name:	2110256.spt
Test Operator:	PR

Instrumented Rod Data

Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.3
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	11941
Accelerometer No.2:	11942

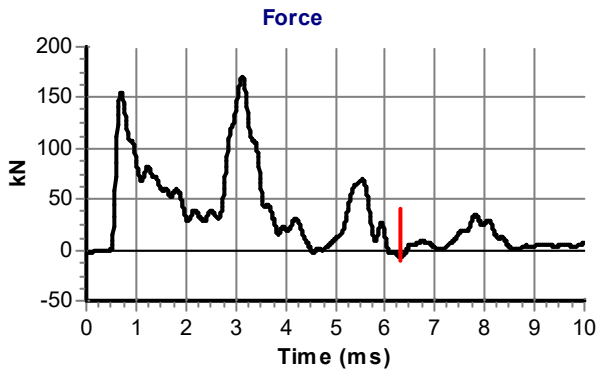
SPT Hammer Information

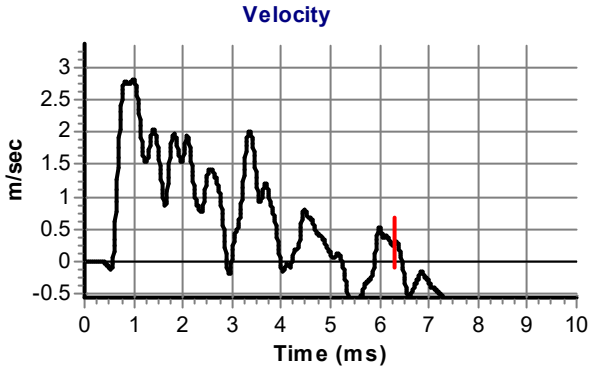
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	15.0

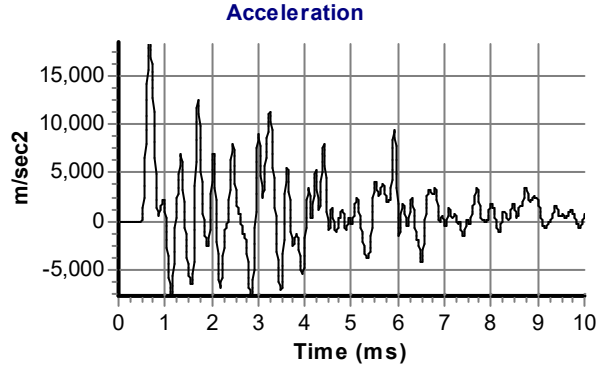
Comments / Location

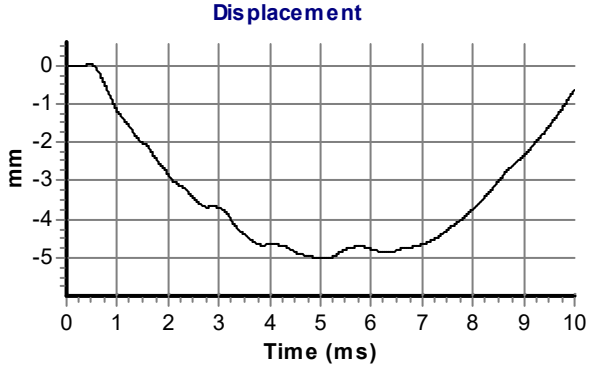
Maximum calibration interval is 12 months

(Geo 205 S/N 4443)









Calculations

Area of Rod A (mm2):	944
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	302

Energy Ratio E_r (%): **64**

P. Rodgman

Signed: Phil Rodgman

Title: Mr

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APPENDIX F

GAS AND GROUNDWATER MONITORING RESULTS

Well ID	Date / Time	Baro mbar	Peak Flow l/h	Steady Flow l/h	O2 % min	CH4 % max	CO2 % max	CO ppm max	H2S ppm max	O2 % steady	CH4 % steady	CO2 % steady	CO ppm steady	H2S ppm steady	DTW m	DTB m	Weather	Comments
BH102	21-04-2023 08:55	1010	0	0	10.5	1.4	0.5	0	0	12.3	0	0.4	0	0	0.875	4.68	Clear	Good condition
BH103	21-04-2023 09:46	1010	0	0	15.7	0	0.2	0	0	15.8	0	0.2	0	0	1.74	5.795	Clear	Good condition
BH104	21-04-2023 08:24	1010			9.1	0	0.5	10	0	9.1	0	0.5	0	0	1.11	8.425	Clear	Good condition
WS101	21-04-2023 08:51														0.73	5.001	Clear	No gas tap nozzle so can't monitor
WS102	21-04-2023 09:09	1010	0	0	13.5	0	0.3	41	0	14.1	0	0.3	0	0	0.945	4.015	Clear	
WS103	21-04-2023 08:38	1010	0	0	9.6	0	0.6	0	0	11.8	0	0.4	0	0	1.37	4.1	Clear	Good condition
WS104	21-04-2023 10:01	1010	0	0	16.8	1.5	0.2	0	0	16.9	0	0.1	0	0	1.805	4.06	Clear	Good condition
WS105	21-04-2023 09:32	1010	0	0											1.49	3	Clear	No gas tap nozzle again, so can monitor
WS106	21-04-2023 09:19	1010	0	0	14	0	0.3	0	0	14.5	0	0.3	0	0	1.41	4.0854	Clear	Good condition
BH102	28-04-2023 09:06	1010	0	0	20	0.1	0.7	0	0	20	0.1	0.7	0	0	1.63	4.61	Clear	Good condition
BH103	28-04-2023 08:27	1010	-2.5	-2.5	4.4	1.6	5.1	3	0	4.6	1.6	5.1	3	0	1.65	5.82	Clear	Good condition
BH104	28-04-2023 10:04	1011	18.4	17.9	19.5	0.1	1.3	1	0	19.5	0.1	1.3	1	0	1.24	8.95	Clear	Good condition
WS101	28-04-2023 09:18	1011	0	0	20.6	0.1	0.4	15	0	20.7	0.1	0.4	15	0	0.32	5	Clear	Water in well head, gas tap now fitted but is too high to close well cover
WS102	28-04-2023 08:53	1010	-17.3	-16.1	19.6	0.2	0.6	1	0	19.6	0.1	0.6	0	0	0.16	4.02	Clear	Good condition
WS103	28-04-2023 09:40	1011	0	0	18.7	0.1	1.5	2	0	18.7	0.1	1.5	1	0	3.06	4.11	Clear	Good condition
WS104	28-04-2023 09:51	1011	0	0	14	0.1	2.7	5	0	14	0.1	2.6	1	0	1.74	4.06	Clear	Good condition
WS105	28-04-2023 08:40	1010	0	0	14.5	0.4	1.5	1	0	14.5	0.2	1.5	0	0	0.98	2.98	Clear	Good condition, gas tap now fitted
WS106	28-04-2023 08:13	1010	0	0	12.7	0.2	4.8	0	0	12.7	0.2	4.8	0	0	1.22	4.08	Clear	Good condition
BH102	04-05-2023 12:11	1012	-0.85	-0.7	19.6	0.1	0.6	0	0	19.7	0	0.6	0	0	0.93	4.65	Clear	Good condition
BH103	05-05-2023 07:29	1013	0	0	6	0.4	6.7	5	0	6	0.4	6.7	2	0	1.6	5.8	Clear	Good condition
BH104	04-05-2023 13:19	1012	-6.6	-6.6	18.7	0	1	2	0	18.7	0	1	2	0	0.9	8.91	Clear	Good condition
WS101	04-05-2023 14:02	1011	0	0	19.3	0.1	1.5	12	0	19.3	0.1	1.5	12	0	0.82	5.01	Clear	Water in well head, can't close with gas tap on
WS102	04-05-2023 12:19	1011	-14	-13.7	19.7	0	0.1	1	0	19.9	0	0.1	0	0	0.95	4.01	Clear	Good condition
WS103	04-05-2023 13:10	1012	0	0	7.5	0	1.3	0	0	7.5	0	1.3	0	0	2.68	4.1	Clear	Good condition
WS104	04-05-2023 13:30	1011	0	0	13.6	0	2.9	1	0	13.6	0	2.9	1	0	1.91	4.08	Clear	Good condition
WS105	04-05-2023 12:41	1012	0	0	12.8	0	1.7	0	0	12.8	0	1.7	0	0	1.26	2.98	Clear	Good condition
WS106	04-05-2023 12:30	1012	0	0	10.6	0	5.2	0	0	10.6	0	5.2	0	0	1.57	4.08	Clear	Good condition

Notes:

mbar	Millibars
l/h	Litres per Hour
ppm	Parts per Million
-	No information recorded
DTW	Depth to Water
DTB	Depth to Base

Well ID	Date / Time	Baro mbar	Peak Flow l/h	Steady Flow l/h	O2 % min	CH4 % max	CO2 % max	CO ppm max	H2S ppm max	O2 % steady	CH4 % steady	CO2 % steady	CO ppm steady	H2S ppm steady	DTW m	DTB m	Weather	Comments
BH102	21/04/2023 08:55	1010	0	0	10.5	1.4	0.5	0	0	12.3	0	0.4	0	0	0.875	4.68	Clear	Good condition
BH103	21/04/2023 09:46	1010	0	0	15.7	0	0.2	0	0	15.8	0	0.2	0	0	1.74	5.795	Clear	Good condition
BH104	21/04/2023 08:24	1010			9.1	0	0.5	10	0	9.1	0	0.5	0	0	1.11	8.425	Clear	Good condition
WS101	21/04/2023 08:51														0.73	5.001	Clear	No gas tap nozzle so can't monitor
WS102	21/04/2023 09:09	1010	0	0	13.5	0	0.3	41	0	14.1	0	0.3	0	0	0.945	4.015	Clear	
WS103	21/04/2023 08:38	1010	0	0	9.6	0	0.6	0	0	11.8	0	0.4	0	0	1.37	4.1	Clear	Good condition
WS104	21/04/2023 10:01	1010	0	0	16.8	1.5	0.2	0	0	16.9	0	0.1	0	0	1.805	4.06	Clear	Good condition
WS105	21/04/2023 09:32	1010	0	0											1.49	3	Clear	No gas tap nozzle again, so can monitor
WS106	21/04/2023 09:19	1010	0	0	14	0	0.3	0	0	14.5	0	0.3	0	0	1.41	4.0854	Clear	Good condition
BH102	28/04/2023 09:06	1010	0	0	20	0.1	0.7	0	0	20	0.1	0.7	0	0	1.63	4.61	Clear	Good condition
BH103	28/04/2023 08:27	1010	-2.5	-2.5	4.4	1.6	5.1	3	0	4.6	1.6	5.1	3	0	1.65	5.82	Clear	Good condition
BH104	28/04/2023 10:04	1011	18.4	17.9	19.5	0.1	1.3	1	0	19.5	0.1	1.3	1	0	1.24	8.95	Clear	Good condition
WS101	28/04/2023 09:18	1011	0	0	20.6	0.1	0.4	15	0	20.7	0.1	0.4	15	0	0.32	5	Clear	Water in well head, gas tap now fitted but is too high to close well cover
WS102	28/04/2023 08:53	1010	-17.3	-16.1	19.6	0.2	0.6	1	0	19.6	0.1	0.6	0	0	0.16	4.02	Clear	Good condition
WS103	28/04/2023 09:40	1011	0	0	18.7	0.1	1.5	2	0	18.7	0.1	1.5	1	0	3.06	4.11	Clear	Good condition
WS104	28/04/2023 09:51	1011	0	0	14	0.1	2.7	5	0	14	0.1	2.6	1	0	1.74	4.06	Clear	Good condition
WS105	28/04/2023 08:40	1010	0	0	14.5	0.4	1.5	1	0	14.5	0.2	1.5	0	0	0.98	2.98	Clear	Good condition, gas tap now fitted
WS106	28/04/2023 08:13	1010	0	0	12.7	0.2	4.8	0	0	12.7	0.2	4.8	0	0	1.22	4.08	Clear	Good condition
BH102	04/05/2023 12:11	1012	-0.85	-0.7	19.6	0.1	0.6	0	0	19.7	0	0.6	0	0	0.93	4.65	Clear	Good condition
BH103	05/05/2023 07:29	1013	0	0	6	0.4	6.7	5	0	6	0.4	6.7	2	0	1.6	5.8	Clear	Good condition
BH104	04/05/2023 13:19	1012	-6.6	-6.6	18.7	0	1	2	0	18.7	0	1	2	0	0.9	8.91	Clear	Good condition
WS101	04/05/2023 14:02	1011	0	0	19.3	0.1	1.5	12	0	19.3	0.1	1.5	12	0	0.82	5.01	Clear	Water in well head, can't close with gas tap on
WS102	04/05/2023 12:19	1011	-14	-13.7	19.7	0	0.1	1	0	19.9	0	0.1	0	0	0.95	4.01	Clear	Good condition
WS103	04/05/2023 13:10	1012	0	0	7.5	0	1.3	0	0	7.5	0	1.3	0	0	2.68	4.1	Clear	Good condition
WS104	04/05/2023 13:30	1011	0	0	13.6	0	2.9	1	0	13.6	0	2.9	1	0	1.91	4.08	Clear	Good condition
WS105	04/05/2023 12:41	1012	0	0	12.8	0	1.7	0	0	12.8	0	1.7	0	0	1.26	2.98	Clear	Good condition
WS106	04/05/2023 12:30	1012	0	0	10.6	0	5.2	0	0	10.6	0	5.2	0	0	1.57	4.08	Clear	Good condition

Notes:

mbar	Millibars
l/h	Litres per Hour
ppm	Parts per Million
-	No information recorded
DTW	Depth to Water
DTB	Depth to Base

Well ID	Date	Sample Time	Depth to water (m bgl)	Depth to base (m bgl)	Weather	Sample Depth (m bgl)	Temp °C	Dissolved Oxygen %	Dissolved Oxygen mg/l	Specific Conductance us/cm	Conductivity us/cm	pH	ORP mV
BH102	28-04-2023	10:52:00 AM	1.65	4.6	Clear	3.5	13.8	7.5	0.77	645	0.508	6.87	159.1
BH103	05-05-2023	7:36:00 AM	1.65	5.8	Clear	4	13.7	4.2	0.45	1949	1.526	6.86	-139.4
BH104	04-05-2023	1:29:00 PM	0.555	8.776	Sunny	8	17.8	3.7	0.35	674	581	6.96	-78.9
WS101	28-04-2023	11:19:00 AM	0.3	5	Clear	4	14	58.6	6.03	727	0.574	6.84	143.5
WS102	28-04-2023	10:26:00 AM	0.16	4.02	Clear	3	14.6	73.5	7.47	645	0.516	7.17	172.4
WS103	04-05-2023	3:04:00 PM	2.741	4.012	Sunny	4	14.2	44.3	4.52	407	322.7	7.16	118.8
WS104	28-04-2023	11:49:00 AM	1.75	4.05	Clear	3	13.8	25	2.58	768	0.603	6.66	126.1
WS105	05-05-2023	8:35:00 AM	1.25	3	Clear	2	12.2	20.6	2.2	934	0.707	7.01	35.2
WS106	05-05-2023	9:22:00 AM	1.55	4.1	Clear	3	14.3	10.4	1.05	736	0.586	6.92	64

Notes:

m bgl	Meters Below Ground Level
-	No information recorded
°C	Degrees Celsius
µS/cm	Microsiemens per Centimeter
mg/l	Milligrams per Litre
mV	Millivolt
NR	Not recorded

Well ID	Date	Sample Time	Depth to water (m bgl)	Depth to base (m bgl)	Weather	Sample Depth (m bgl)	Temp °C	Dissolved Oxygen %	Dissolved Oxygen mg/l	Specific Conductance us/cm	Conductivity us/cm	pH	ORP mV
BH102	28/04/2023	10:52:00 AM	1.65	4.6	Clear	3.5	13.8	7.5	0.77	645	0.508	6.87	159.1
BH103	05/05/2023	7:36:00 AM	1.65	5.8	Clear	4	13.7	4.2	0.45	1949	1.526	6.86	-139.4
BH104	04/05/2023	1:29:00 PM	0.555	8.776	Sunny	8	17.8	3.7	0.35	674	581	6.96	-78.9
WS101	28/04/2023	11:19:00 AM	0.3	5	Clear	4	14	58.6	6.03	727	0.574	6.84	143.5
WS102	28/04/2023	10:26:00 AM	0.16	4.02	Clear	3	14.6	73.5	7.47	645	0.516	7.17	172.4
WS103	04/05/2023	3:04:00 PM	2.741	4.012	Sunny	4	14.2	44.3	4.52	407	322.7	7.16	118.8
WS104	28/04/2023	11:49:00 AM	1.75	4.05	Clear	3	13.8	25	2.58	768	0.603	6.66	126.1
WS105	05/05/2023	8:35:00 AM	1.25	3	Clear	2	12.2	20.6	2.2	934	0.707	7.01	35.2
WS106	05/05/2023	9:22:00 AM	1.55	4.1	Clear	3	14.3	10.4	1.05	736	0.586	6.92	64

Notes:

m bgl	Meters Below Ground Level
-	No information recorded
°C	Degrees Celsius
µS/cm	Microsiemens per Centimeter
mg/l	Milligrams per Litre
mV	Millivolt
NR	Not recorded

APPENDIX G

GEOTECHNICAL LABORATORY TEST DATA

GEOLABS Limited
Bucknalls Lane
Garston
Watford
Hertfordshire
WD25 9XX

Tel: +44(0) 1923 892 190
Fax: +44(0) 1923 892 191
email: admin@geolabs.co.uk
web: www.geolabs.co.uk

Arcadis Consulting (UK) Ltd
1 Whitehall Riverside
Leeds
West Yorkshire
LS1 4BN

20 July 2023
Report No : GEO/38135/02

For the attention of Ms A Harding / Ms A Vergette-Hollingworth

Date samples received	17/04/2023
Date written instructions received	23/05/2023
Date testing commenced	24/05/2023
Date of sample disposal	**17/08/2023**

Our ref **GEO / 38135**
Your Ref **10057335**

Project **STEYNING GRAMMAR SCHOOL**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	~	Geotechnical Test Summary
2	~	Liquid & Plastic Limits Summary
	15	Water Content
	15	Liquid & Plastic Limits Summary
3	~	Geochemical Test Summary
	15	BRE SD1 Suite D - Brownfield + pyrite
4	2	Particle Size Distribution
5	2	California Bearing Ratio - soaked
6	2	Unconsolidated Undrained Triaxial Compression

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated. This report should not be reproduced, except in full, without the written approval of the laboratory. The results reported are applicable only to the test items received by the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of **GEOLABS Limited**

J Sturges
Operations Manager

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Registered Office: Bucknalls Lane Garston Watford Hertfordshire WD25 9XX Registered in England and Wales No: 3177641

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Location	Depth (m)	Sample Ref	Type	Description	WC %	LL %	PL %	PI %	<425 µm %	Bulk Mg/m³	Dry Mg/m³	Condition	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 g/L	W/S Mg mg/L	
BH101	0.60-1.00		B																Chemical
BH101	2.50-2.75		D	Brown slightly sandy CLAY. Sand is fine.	29.3	66	26	40	100										
BH101	3.00-3.45		D																Chemical
BH102	0.75-1.00		B																Chemical
BH102	1.00-1.20		D	Light brown slightly sandy CLAY. Sand is fine.	31.8	68	26	42	100										
BH102	3.00-3.75		B	Light grey slightly sandy gravelly SILT / CLAY.															Particle Size Distribution Chemical
BH102	3.00		D	Light brown slightly sandy CLAY. Sand is fine.	30.0	78	29	49	100										
BH102	5.50-6.50		B																Chemical
BH103	0.50-0.60		B	Brown slightly clayey silty sandy GRAVEL	3.6		NP		13										
BH103	1.00-1.10		D	Brown slightly sandy gravelly CLAY.	38.4	36	20	16	91										

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed) NP=Non Plastic

Checked and Approved by

S Burke

S Burke - Senior Technician
21/06/2023

Project Number:

GEO / 38135

Project Name:

STEYNING GRAMMAR SCHOOL
10057335

GEOLABS

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Location	Depth (m)	Sample Ref	Type	Description	WC %	LL %	PL %	PI %	<425 µm %	Bulk Mg/m³	Dry Mg/m³	Condition	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 g/L	W/S Mg mg/L	
BH103	2.10-2.25		D	Multicolour slightly sandy gravelly CLAY. Sand is fine. Gravel is fine to medium.	38.4	72	28	44	95										
BH103	3.00-3.45		D																Chemical
BH103	4.10-4.25		D																Chemical
BH104	0.40-0.70	1	B	Dark brown sandy gravelly silty CLAY.															Particle Size Distribution
BH104	2.00-2.60		U	Firm to stiff fissured grey mottled yellowish brown sandy silty CLAY. Sand is fine.	28.5	60	28	32	100	1.93	1.50	Undisturbed	40	129	64				Chemical
BH104	3.00-3.45		D	Light brown mottled orangish brown slightly sandy CLAY. Sand is fine.	37.5	80	34	46	100										
BH104	4.00-4.60		U	Stiff fissured light brown silty CLAY.	29.5					1.95	1.50	Undisturbed	80	172	86				Chemical
BH104	5.40-5.70		D	Light brown mottled orangish brown slightly sandy CLAY. Sand is fine.	34.6	67	25	42	100										
BH104	7.00-7.20		D																Chemical
WS101	1.40-1.50		D																Chemical

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed) NP=Non Plastic

Checked and Approved by

S Burke

S Burke - Senior Technician
21/06/2023

Project Number:

GEO / 38135

Project Name:

STEYNING GRAMMAR SCHOOL
10057335

GEOLABS

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Location	Depth (m)	Sample Ref	Type	Description	WC %	LL %	PL %	PI %	<425 µm %	Bulk Mg/m³	Dry Mg/m³	Condition	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 g/L	W/S Mg mg/L	
WS102	2.00-2.45		D																Chemical
WS102	3.00-3.45		D	Light brown mottled brown slightly sandy silty CLAY. Sand is fine.	24.5	73	24	49	100										
WS103A	1.80-1.90		D																Chemical
WS103A	2.00-2.45		D	Light brown mottled brown slightly sandy silty CLAY. Sand is fine.	30.2	76	25	51	100										
WS104A	0.30-0.60		B	Brown slightly sandy slightly gravelly silty CLAY.	24.0	44	18	26	99										
WS104A	1.20-1.65		D	Brown sandy CLAY.	22.9	48	18	30	100										
WS105	2.40-2.50		D																Chemical
WS105	3.00-3.45		D	Light brown mottled brown slightly sandy silty CLAY. Sand is fine.	38.8	81	33	48	100										
WS106	2.00-2.10		D	Brown slightly sandy slightly gravelly CLAY. Sand is fine.	24.4	40	16	24	98										Chemical

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed) NP=Non Plastic

Checked and Approved by

S Burke

S Burke - Senior Technician
21/06/2023

Project Number:

GEO / 38135

Project Name:

STEYNING GRAMMAR SCHOOL
10057335

GEOLABS

BS EN ISO 17892-12 : 2018

SUMMARY OF LIQUID AND PLASTIC LIMIT TESTS

Location	Depth m	Sample Ref	Sample Type	Description	Water Content BS EN ISO 17892-1 : 2014 %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Percentage Passing 425µm %	Atterberg Classification	Test Type	Sample Condition
BH101	2.50-2.75		D	Brown slightly sandy CLAY. Sand is fine.	29.3	66	26	40	100	CH	2	1
BH102	1.00-1.20		D	Light brown slightly sandy CLAY. Sand is fine.	31.8	68	26	42	100	CH	2	1
BH102	3.00		D	Light brown slightly sandy CLAY. Sand is fine.	30.0	78	29	49	100	CV	2	1
BH103	0.50-0.60		B	Brownish grey clayey sandy GRAVEL.	3.6	~	NP		13	~	3	3
BH103	1.00-1.10		D	Brown slightly sandy gravelly CLAY.	38.4	36	20	16	91	CI	2	3
BH103	2.10-2.25		D	Multicoloured slightly sandy gravelly CLAY. Sand is fine. Gravel is fine to medium.	38.4	73	28	45	95	CV	2	3
BH104	2.00-2.60		U	Firm to stiff fissured grey mottled yellowish brown sandy silty CLAY. Sand is fine.	28.5	60	28	32	100	CH	2	1
BH104	3.00-3.45		D	Light brown mottled orangish brown slightly sandy CLAY. Sand is fine.	37.5	80	34	46	100	CV	2	1
BH104	5.40-5.70		D	Light brown mottled orangish brown slightly sandy CLAY. Sand is fine.	34.6	67	25	42	100	CH	2	1
WS102	3.00-3.45		D	Light brown mottled brown slightly sandy silty CLAY. Sand is fine.	24.5	73	24	49	100	CV	2	1
WS103A	2.00-2.45		D	Light brown mottled brown slightly sandy silty CLAY. Sand is fine.	30.2	76	25	51	100	CV	2	1
WS104A	0.30-0.60		B	Brown slightly gravelly slightly sandy silty CLAY.	24.0	44	18	26	99	CI	2	1
WS104A	1.20-1.65		D	Brown sandy CLAY.	22.9	48	18	30	100	CI	2	1
WS105	3.00-3.45		D	Light brown mottled brown slightly sandy silty CLAY. Sand is fine.	38.8	81	33	48	100	CV	2	1
WS106	2.00-2.10		D	Brown slightly gravelly slightly sandy silty CLAY. Sand is fine.	24.4	40	16	24	98	CI	2	1

Test Type:
1 - 1 point 80g / 30° fall cone method.
2 - 4 point 80g / 30° fall cone method.
3 - Non plastic determination.

Sample condition:
1 - As Received
2 - Air Dried
3 - Washed & Air Dried

Checked and Approved by:

J Sturges - Operations Manager
20/07/2023

Project Number:

GEO / 38135

Project Name:

STEYNING GRAMMAR SCHOOL
10057335

GEOLABS
UKAS TESTING

SUMMARY OF CHEMICAL TESTS ON SOIL

Location	Depth m	Sample Ref	Sample Type	pH Value	Total Acid Soluble Sulphate as SO4 %	Water Soluble Sulphate as SO4 2:1 Water:Soil Extract g/l	Total Sulphur %	Water Soluble Chloride g/l	Water Soluble Nitrate g/l	Magnesium g/l	Organic Content %	Mass Loss on Ignition %	Carbonate Content %
BH101	0.60-1.00		B	8.9	0.015	< 0.010	0.027	< 0.010	< 0.010	< 0.010	-	-	-
BH101	3.00-3.45		D	8.7	<0.01	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-
BH102	0.75-1.00		B	8.4	0.038	0.016	0.020	< 0.010	< 0.010	< 0.010	-	-	-
BH102	3.00-3.75		B	8.6	0.037	< 0.010	0.026	< 0.010	< 0.010	< 0.010	-	-	-
BH102	5.50-6.50		B	8.5	0.27	0.11	0.64	0.012	< 0.010	< 0.010	-	-	-
BH103	3.00-3.45		D	8.5	0.035	0.012	0.019	< 0.010	< 0.010	< 0.010	-	-	-
BH103	4.10-4.25		D	8.5	0.016	0.016	0.017	0.022	< 0.010	< 0.010	-	-	-
BH104	2.00-2.60		U	8.8	0.024	0.040	0.024	< 0.010	< 0.010	< 0.010	-	-	-
BH104	4.00-4.60		U	8.7	0.026	< 0.010	0.026	0.012	< 0.010	< 0.010	-	-	-
BH104	7.00-7.20		D	8.0	0.67	0.52	0.43	0.044	< 0.010	< 0.010	-	-	-
WS101	1.40-1.50		D	8.8	0.028	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-
WS102	2.00-2.45		D	8.6	0.015	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-
WS103A	1.80-1.90		D	8.6	0.027	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-
WS105	2.40-2.50		D	8.3	0.22	0.036	0.12	< 0.010	0.016	< 0.010	-	-	-
WS106	2.00-2.10		D	8.7	0.052	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	-	-	-

Tested by Chemtest Ltd : MCERTS / UKAS No 2183

Checked and Approved by:

S Burke

S Burke - Senior Technician
20/06/2023

Project Number:

GEO / 38135

Project Name:

STEYNING GRAMMAR SCHOOL
10057335

GEOLABS

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

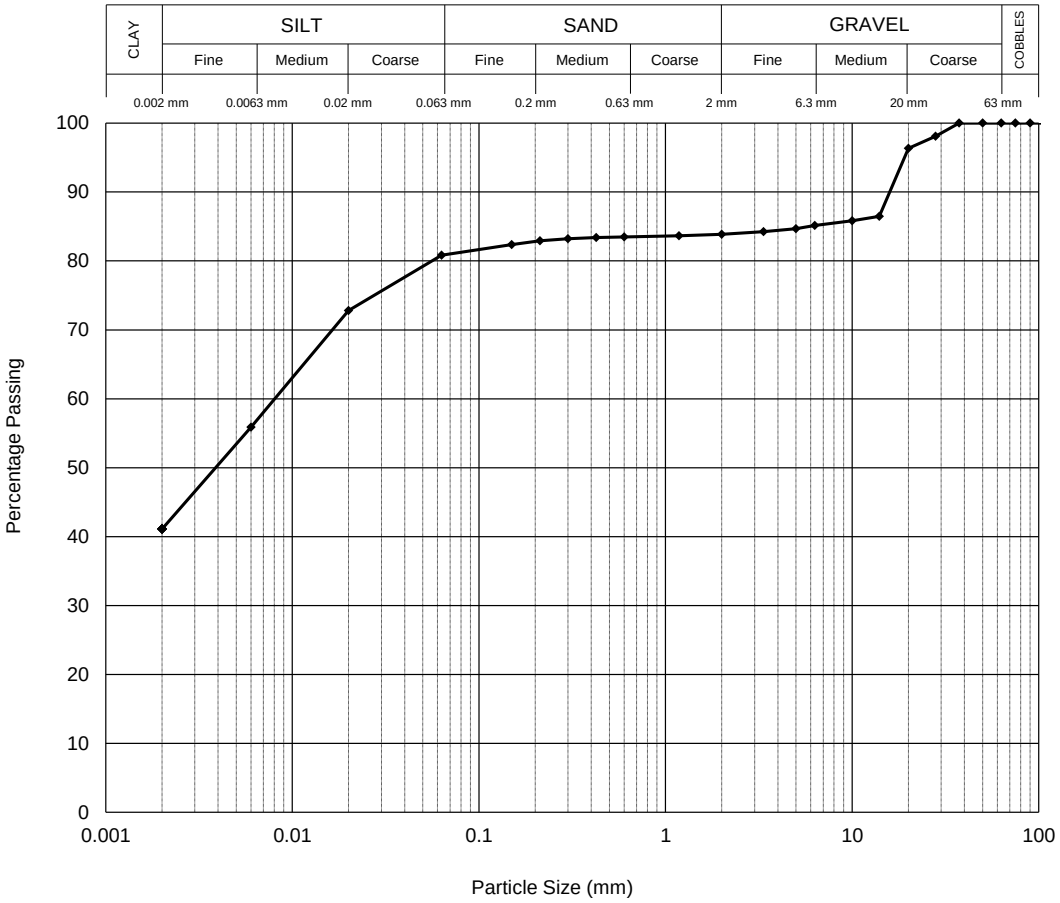
Location	BH102
Depth (m)	3.00-3.75
Sample Type	B

Description

Light grey slightly sandy gravelly SILT / CLAY.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	98
20.0 mm	96
14.0 mm	86
10.0 mm	86
6.30 mm	85
5.00 mm	85
3.35 mm	84
2.00 mm	84
1.18 mm	84
600 µm	83
425 µm	83
300 µm	83
212 µm	83
150 µm	82
63 µm	81



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	73
6 µm	56
2 µm	41

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	16.2
Sand	3.0
Silt	39.7
Clay	41.1

Tested by XW
Checked and Approved by

S Burke - Senior Technician
21/06/2023

Project Number:

GEO / 38135

Project Name:

STEYNING GRAMMAR SCHOOL
10057335

GEOLABS
UKAS TESTING

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

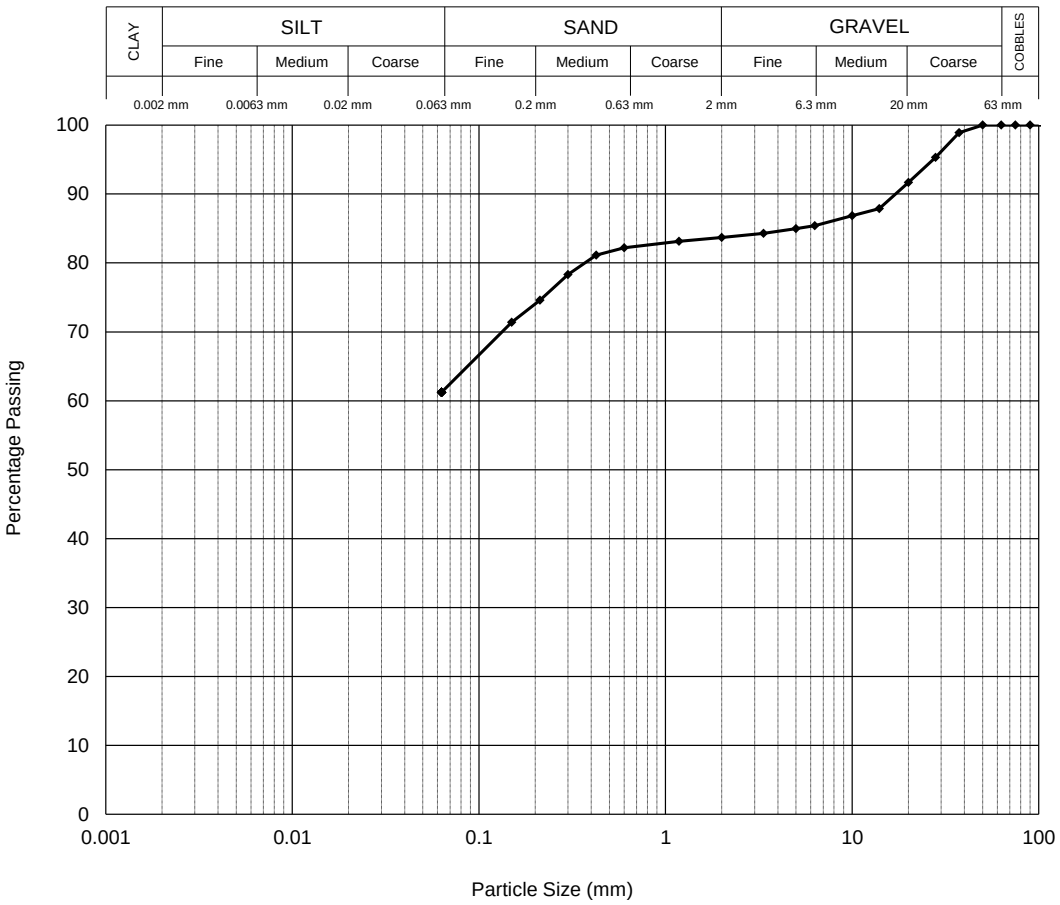
Location	BH104
Sample Ref	1
Depth (m)	0.40-0.70
Sample Type	B

Description

Dark brown sandy gravelly silty CLAY.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	99
28.0 mm	95
20.0 mm	92
14.0 mm	88
10.0 mm	87
6.30 mm	85
5.00 mm	85
3.35 mm	84
2.00 mm	84
1.18 mm	83
600 µm	82
425 µm	81
300 µm	78
212 µm	75
150 µm	71
63 µm	61



Particle Proportions	
Cobbles	0.0
Gravel	16.3
Sand	22.5
Silt & Clay	61.2

Tested by XW
Checked and Approved by

S Burke

S Burke - Senior Technician
21/06/2023

Project Number:

GEO / 38135

Project Name:

STEYNING GRAMMAR SCHOOL
10057335

BS1377 : Part 4 : Clause 7 : 1990

CALIFORNIA BEARING RATIO

Location	BH103
Depth (m)	0.50-0.60
Sample Type	B

Description:

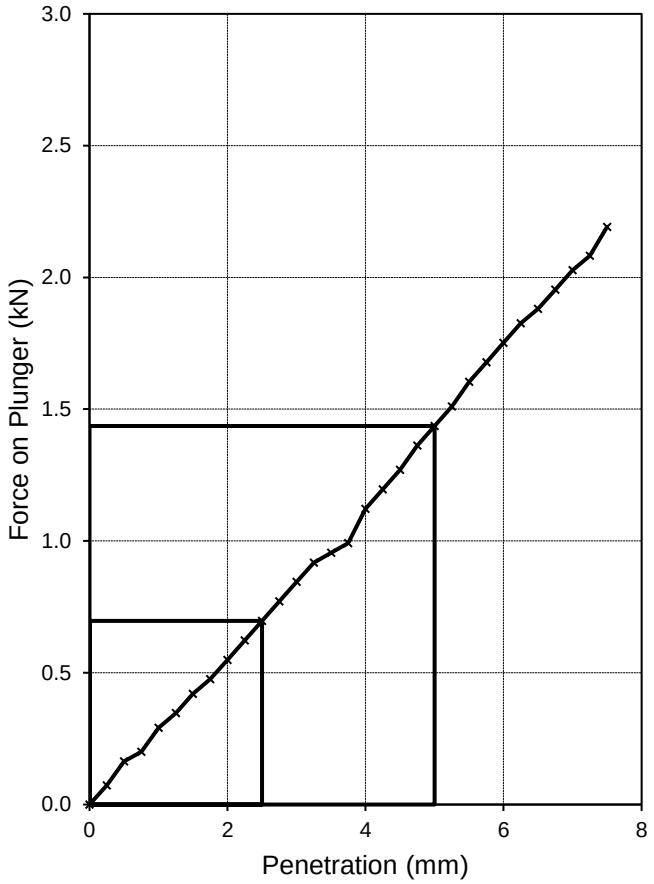
Brownish grey clayey sandy GRAVEL.

PREPARATION DETAILS

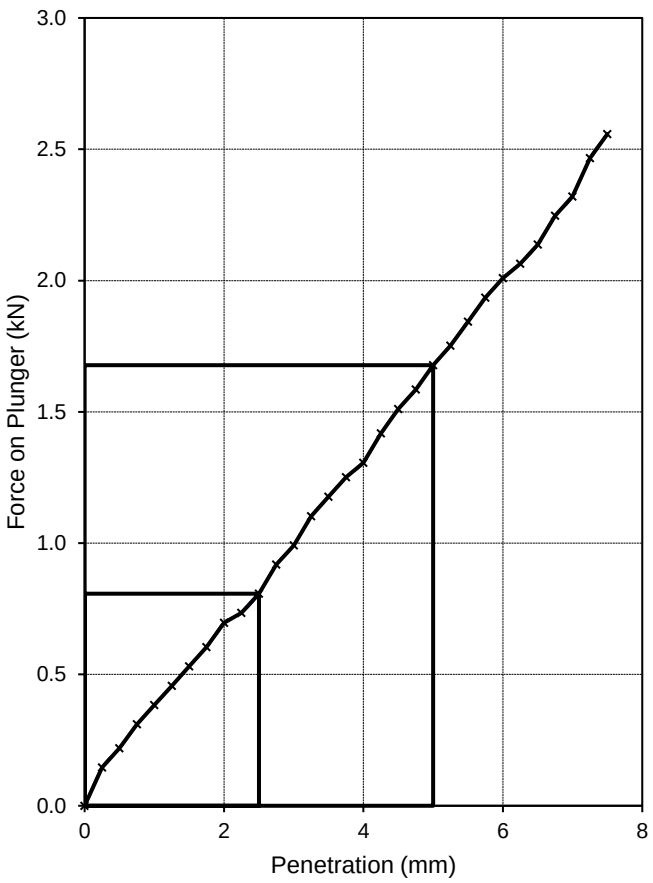
The specimen was soaked for 4 days, after which swelling equilibrium had been reached with -0.3 % vertical swell.
The specimen was prepared at the as received water content of 4.8%
The specimen was prepared by dynamic compaction using a 2.5 kg rammer
Soaked specimen bulk density 2.12 Mg/m³ (1.99 Mg/m³ before soaking)
Soaked specimen dry density 1.89 Mg/m³ (1.90 Mg/m³ before soaking)
50.3 % of the sample was retained on a 20mm sieve

Test Details	Top	Base
Surcharge	0.0 kg	0.0 kg
Seating load	50 N	50 N
Water content	12 %	12 %
CBR Value	7.2 %	8.4 %

Top of Specimen



Base of Specimen



Tested by JM
Checked and Approved by

J Sturges - Operations Manager
20/07/2023

Project Number:

GEO / 38135

Project Name:

STEYNING GRAMMAR SCHOOL
10057335

GEOLABS

UKAS TESTING

BS1377 : Part 4 : Clause 7 : 1990

CALIFORNIA BEARING RATIO

Location	WS104A
Depth (m)	0.30-0.60
Sample Type	B

Description:

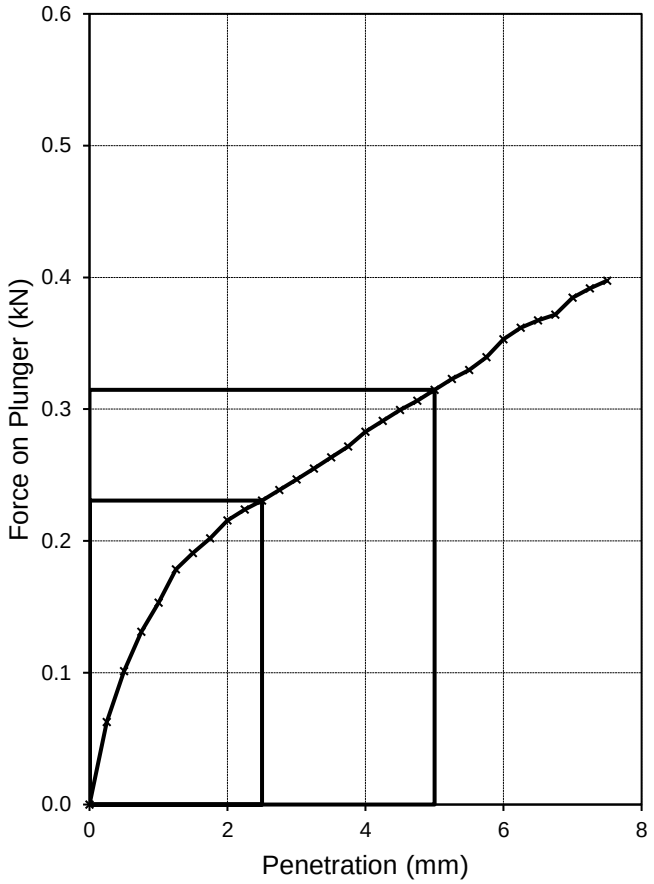
Brown sandy CLAY.

PREPARATION DETAILS

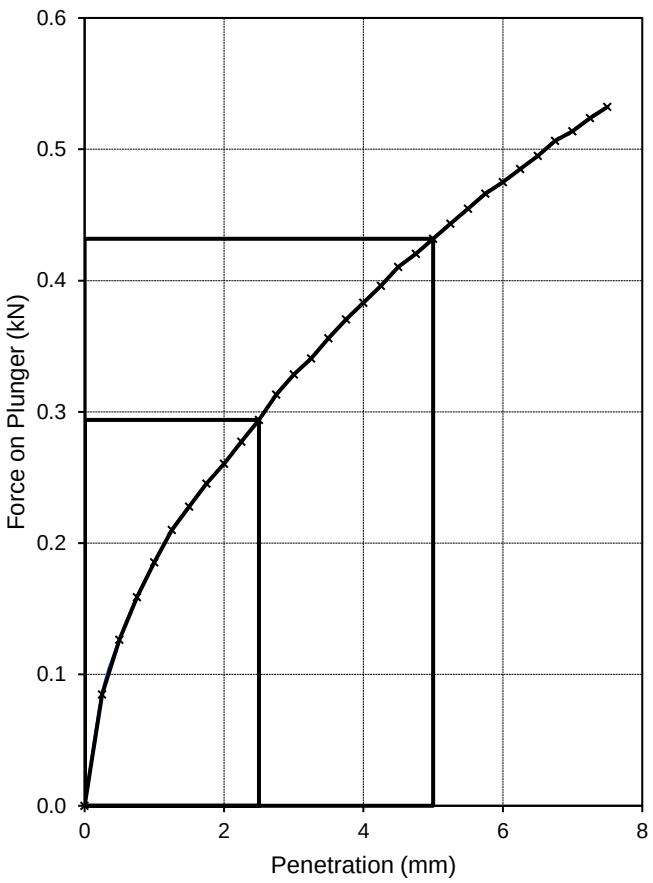
The specimen was soaked for 4 days, after which swelling equilibrium had been reached with 0.2 % vertical swell.
The specimen was prepared at the as received water content of 25%
The specimen was prepared by dynamic compaction using a 2.5 kg rammer
Soaked specimen bulk density 1.99 Mg/m³ (1.99 Mg/m³ before soaking)
Soaked specimen dry density 1.59 Mg/m³ (1.60 Mg/m³ before soaking)
0.9 % of the sample was retained on a 20mm sieve

Test Details	Top	Base
Surcharge	0.0 kg	0.0 kg
Seating load	10 N	10 N
Water content	25 %	25 %
CBR Value	1.7 %	2.2 %

Top of Specimen



Base of Specimen



Tested by JM
Checked and Approved by

J Sturges - Operations Manager
20/07/2023

Project Number:

GEO / 38135

Project Name:

STEYNING GRAMMAR SCHOOL
10057335

GEOLABS
UKAS TESTING

BS EN ISO 17892-8 : 2018

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

Location	BH104
Depth (m)	2.00-2.60
Sample Type	U

Description:

Firm to stiff fissured grey mottled yellowish brown sandy silty CLAY. Sand is fine.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	200.7
Diameter	(mm)	102.3
Water content	(%)	28.5
Bulk density	(Mg/m³)	1.93
Dry density	(Mg/m³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	200.6
Membrane correction	(kPa)	0.4
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	40
Strain at failure	(%)	6.0
Maximum deviator stress	(kPa)	129
Shear Stress Cu	(kPa)	64

Mode of failure

Orientation of the sample	Vertical
Distance from top of tube mm	250

Tested by SB
Checked and Approved by

S Burke

S Burke - Senior Technician
21/06/2023

Project Number:

GEO / 38135

Project Name:

STEYNING GRAMMAR SCHOOL
10057335

GEOLABS UKAS TESTING

BS EN ISO 17892-8 : 2018

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

Location	BH104
Depth (m)	4.00-4.60
Sample Type	U

Description:

Stiff fissured light brown silty CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.7
Diameter	(mm)	102.7
Water content	(%)	29.5
Bulk density	(Mg/m³)	1.95
Dry density	(Mg/m³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	201.6
Membrane correction	(kPa)	0.7
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	80
Strain at failure	(%)	9.9
Maximum deviator stress	(kPa)	172
Shear Stress Cu	(kPa)	86

Mode of failure

Orientation of the sample	Vertical
Distance from top of tube mm	240

Tested by SB
Checked and Approved by

S Burke

S Burke - Senior Technician
21/06/2023

Project Number:

GEO / 38135

Project Name:

STEYNING GRAMMAR SCHOOL
10057335

APPENDIX H

GEO-ENVIRONMENTAL LABORATORY TEST DATA

Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

ARCADIS UK Ltd
Charter House
62-68 Hills Road
Cambridge
CB2 1LA

Attention: Annie Harding

CERTIFICATE OF ANALYSIS

Date of report Generation:	25 April 2023
Customer:	ARCADIS UK Ltd
Sample Delivery Group (SDG):	230415-36
Your Reference:	10057335
Location:	Steyning Grammar
Report No:	686846
Order Number:	10057335

We received 6 samples on Saturday April 15, 2023 and 3 of these samples were scheduled for analysis which was completed on Tuesday April 25, 2023. 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 Laboratories (UK) Limited Hawarden.

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:

Sonia McWhan

Operations Manager

1291

CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27841670	BH103		0.70 - 0.80	12/04/2023
27841671	BH103		2.50 - 2.60	12/04/2023
27841672	BH103		4.50 - 4.70	12/04/2023
27841667	BH104		4.75 - 5.00	03/04/2023
27841668	BH104		5.40 - 5.70	04/04/2023
27841669	BH104		7.00 - 7.20	04/04/2023

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

CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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)	27841670		27841672		27841669
			Customer Sample Reference	BH103		BH103		BH104
			AGS Reference					
			Depth (m)	0.70 - 0.80		4.50 - 4.70		7.00 - 7.20
			Container	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 3		X		X	X	
Chromium III	All	NDPs: 0 Tests: 2		X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2		X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 2		X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 2			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 2		X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 2		X			X	
PAH by GCMS	All	NDPs: 0 Tests: 2		X			X	
pH	All	NDPs: 0 Tests: 3		X		X	X	
Sample description	All	NDPs: 0 Tests: 3		X		X	X	
Total Organic Carbon	All	NDPs: 0 Tests: 3		X		X	X	
Total Sulphur	All	NDPs: 0 Tests: 3		X		X	X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 2		X			X	
VOC MS (S)	All	NDPs: 0 Tests: 2			X			X

CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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
27841670	BH103	0.70 - 0.80	Light Brown	Clay	None	None
27841672	BH103	4.50 - 4.70	Light Brown	Silty Clay	Stones	None
27841669	BH104	7.00 - 7.20	Grey	Silty Clay	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.

CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH103	BH103	BH104			
			Depth (m)	0.70 - 0.80	4.50 - 4.70	7.00 - 7.20			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	12/04/2023	12/04/2023	04/04/2023			
			Sampled Time	13:19:00	15:48:00	10:27:00			
			Date Received	15/04/2023	15/04/2023	15/04/2023			
			SDG Ref	230415-36	230415-36	230415-36			
			Lab Sample No.(s)	27841670	27841672	27841669			
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		18	22	13			
Organic Carbon, Total	<0.2 %	TM132		0.302 M	<0.2 M	0.276 M			
Sulphur, Total	<0.02 %	TM132		<0.02 #	<0.02 #	0.163 #			
pH	1 pH Units	TM133		7.22 M	8.73 M	8.46 M			
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 M		<0.6 M			
Cyanide, Free	<1 mg/kg	TM153		<1 M		<1 @ M			
Chromium, Trivalent	<0.9 mg/kg	TM181		13.2		3.4			
Antimony	<0.6 mg/kg	TM181		<0.6 #		<0.6 #			
Arsenic	<0.6 mg/kg	TM181		8.65 M		3.4 M			
Barium	<0.6 mg/kg	TM181		82.6 #		45.1 #			
Beryllium	<0.01 mg/kg	TM181		0.653 M		0.399 M			
Boron	<0.7 mg/kg	TM181		7.81 #		8.72 #			
Chromium	<0.9 mg/kg	TM181		13.2 M		3.4 M			
Copper	<1.4 mg/kg	TM181		11.3 M		9.78 M			
Iron	<1000 mg/kg	TM181		22000 #		7030 #			
Lead	<0.7 mg/kg	TM181		15.7 M		6.64 M			
Molybdenum	<0.1 mg/kg	TM181		<0.1 #		<0.1 #			
Nickel	<0.2 mg/kg	TM181		17.9 M		20.9 M			
Selenium	<1 mg/kg	TM181		1.17 #		1.09 #			
Vanadium	<0.2 mg/kg	TM181		30.5 #		6.5 #			
Zinc	<1.9 mg/kg	TM181		53.6 M		21.7 M			
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0236 M	0.0222 M	0.371 M			

CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.						
			BH103	BH104					
			Depth (m)	0.70 - 0.80	7.00 - 7.20				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	12/04/2023	04/04/2023				
			Sampled Time	13:19:00	10:27:00				
			Date Received	15/04/2023	15/04/2023				
			SDG Ref	230415-36	230415-36				
			Lab Sample No.(s)	27841670	27841669				
			AGS Reference						
Naphthalene-d8 % recovery**	%	TM218	96.1	103					
Acenaphthene-d10 % recovery**	%	TM218	90	88.4					
Phenanthrene-d10 % recovery**	%	TM218	87.4	93.1					
Chrysene-d12 % recovery**	%	TM218	82.4	84.7					
Perylene-d12 % recovery**	%	TM218	93.4	95.6					
Naphthalene	<0.009 mg/kg	TM218	<0.009 M	<0.009 @ M					
Acenaphthylene	<0.012 mg/kg	TM218	<0.012 M	<0.012 @ M					
Acenaphthene	<0.008 mg/kg	TM218	<0.008 M	<0.008 @ M					
Fluorene	<0.01 mg/kg	TM218	<0.01 M	<0.01 @ M					
Phenanthrene	<0.015 mg/kg	TM218	<0.015 M	<0.015 @ M					
Anthracene	<0.016 mg/kg	TM218	<0.016 M	<0.016 @ M					
Fluoranthene	<0.017 mg/kg	TM218	<0.017 M	<0.017 @ M					
Pyrene	<0.015 mg/kg	TM218	<0.015 M	<0.015 @ M					
Benz(a)anthracene	<0.014 mg/kg	TM218	<0.014 M	<0.014 @ M					
Chrysene	<0.01 mg/kg	TM218	<0.01 M	<0.01 @ M					
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	<0.015 M	<0.015 @ M					
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	<0.014 M	<0.014 @ M					
Benzo(a)pyrene	<0.015 mg/kg	TM218	<0.015 M	<0.015 @ M					
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	<0.018 M	<0.018 @ M					
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.023 M	<0.023 @ M					
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	<0.024 M	<0.024 @ M					
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	<0.118	<0.118					

CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

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+5@	Sample deviation (see appendix)

Customer Sample Ref.	BH103	BH104
Depth (m)	0.70 - 0.80	7.00 - 7.20
Sample Type	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	12/04/2023	04/04/2023
Sampled Time	13:19:00	10:27:00
Date Received	15/04/2023	15/04/2023
SDG Ref	230415-36	230415-36
Lab Sample No.(s)	27841670	27841669
AGS Reference		

Component	LOD/Units	Method		
GRO Surrogate % recovery**	%	TM089	95.6	101 @
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01 @
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01 @
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01	<0.01 @
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 #	<1 @ #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 #	<1 @ #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 #	<1 @ #
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414	1.01 #	3.39 @ #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1	<1 @
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414	<5	<5 @
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414	<10	<10
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01 @
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01 @
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01	<0.01 @
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 #	<1 @ #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 #	<1 @ #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 #	<1 @ #
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414	1.32 #	1.65 @ #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1	<1 @
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1	<1 @
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414	<5	<5
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414	<10	<10
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089	<0.05	<0.05 @
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089	<0.05	<0.05 @
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089	<0.02	<0.02 @

CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH103	BH104
			Depth (m)	0.70 - 0.80	7.00 - 7.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/04/2023	04/04/2023
			Sampled Time	13:19:00	10:27:00
			Date Received	15/04/2023	15/04/2023
			SDG Ref	230415-36	230415-36
			Lab Sample No.(s)	27841670	27841669
			AGS Reference		
Dibromofluoromethane**	%	TM116		107	99.6 @
Toluene-d8**	%	TM116		97.5	95.7 @
4-Bromofluorobenzene**	%	TM116		94.6	90.3 @
Methyl Tertiary Butyl Ether	<0.01 mg/kg	TM116		<0.01 M	<0.01 @ M
Benzene	<0.009 mg/kg	TM116		<0.009 M	<0.009 @ M
Toluene	<0.007 mg/kg	TM116		<0.007 M	<0.007 @ M
Ethylbenzene	<0.004 mg/kg	TM116		<0.004 M	<0.004 @ M
p/m-Xylene	<0.01 mg/kg	TM116		<0.01 #	<0.01 @ #
o-Xylene	<0.01 mg/kg	TM116		<0.01 M	<0.01 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02 @
Sum of BTEX	<0.04 mg/kg	TM116		<0.04	<0.04 @

CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM089	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Determination of Hexavalent Chromium using Kone analyser
TM153	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM181	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	The determination of PAH in soil samples by GC-MS
TM243	Mixed Anions In Soils By Kone
TM414	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Test Completion Dates

Lab Sample No(s)	27841670	27841672	27841669
Customer Sample Ref.	BH103	BH103	BH104
AGS Ref.			
Depth	0.70 - 0.80	4.50 - 4.70	7.00 - 7.20
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	21-Apr-2023	21-Apr-2023	21-Apr-2023
Chromium III	24-Apr-2023		24-Apr-2023
Cyanide Comp/Free/Total/Thiocyanate	21-Apr-2023		21-Apr-2023
EPH CWG GC (S)	21-Apr-2023		21-Apr-2023
GRO by GC-FID (S)			21-Apr-2023
Hexavalent Chromium (s)	20-Apr-2023		20-Apr-2023
Metals in solid samples by OES	24-Apr-2023		24-Apr-2023
PAH by GCMS	24-Apr-2023		24-Apr-2023
pH	21-Apr-2023	21-Apr-2023	21-Apr-2023
Sample description	19-Apr-2023	19-Apr-2023	19-Apr-2023
Total Organic Carbon	25-Apr-2023	25-Apr-2023	25-Apr-2023
Total Sulphur	24-Apr-2023	24-Apr-2023	20-Apr-2023
TPH CWG GC (S)	21-Apr-2023		21-Apr-2023
VOC MS (S)	20-Apr-2023		20-Apr-2023

ASSOCIATED AQC DATA

Anions by Kone (soil)

Component	Method Code	QC 2713
Chloride (soluble)	TM243	**99.43** 93.18 : 112.38
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**91.98** 79.99 : 117.30

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2743
Free Cyanide	TM153	**99.01** 83.00 : 113.00
Thiocyanate	TM153	**91.03** 87.27 : 113.27
Total Cyanide	TM153	**100.7** 72.73 : 109.93

EPH CWG GC (S)

Component	Method Code	QC 2783
EPH >C8-C40 Raw	TM414	**100.35** 72.07 : 116.69
Total Aliphatics Raw	TM414	**102.79** 73.18 : 116.06
Total Aromatics Raw	TM414	**140.31** 69.77 : 129.02

GRO by GC-FID (S)

Component	Method Code	QC 2747	QC 2703
QC	TM089	**82.76** 59.51 : 102.93	**78.82** 59.51 : 102.93

Hexavalent Chromium (s)

Component	Method Code	QC 2714
Hexavalent Chromium	TM151	**108.0** 84.37 : 115.69

Metals in solid samples by OES

Component	Method Code	QC 2700
Aluminium	TM181	**103.51** 84.95 : 125.04
Antimony	TM181	**103.15** 81.24 : 112.95
Arsenic	TM181	**101.86** 87.39 : 110.81

Metals in solid samples by OES

		QC 2700
Barium	TM181	**111.0** 92.16 : 121.75
Beryllium	TM181	**108.99** 85.72 : 122.69
Boron	TM181	**110.49** 93.63 : 124.95
Cadmium	TM181	**104.17** 82.04 : 114.28
Chromium	TM181	**110.93** 97.18 : 117.32
Cobalt	TM181	**98.39** 90.33 : 109.99
Copper	TM181	**108.24** 90.40 : 118.14
Iron	TM181	**103.67** 76.44 : 123.20
Lead	TM181	**106.51** 84.55 : 119.89
Manganese	TM181	**108.11** 85.97 : 117.31
Mercury	TM181	**103.04** 79.17 : 111.30
Molybdenum	TM181	**101.28** 87.03 : 110.33
Nickel	TM181	**104.52** 83.87 : 113.53
Phosphorus	TM181	**102.87** 84.16 : 113.49
Selenium	TM181	**100.98** 81.18 : 111.13
Strontium	TM181	**110.8** 92.60 : 122.34
Thallium	TM181	**105.21** 85.37 : 116.45
Tin	TM181	**103.94** 86.96 : 122.18
Titanium	TM181	**102.83** 80.16 : 123.61
Vanadium	TM181	**108.43** 89.30 : 122.79
Zinc	TM181	**114.35** 89.16 : 121.48

PAH by GCMS

Component	Method Code	QC 2758
Acenaphthene	TM218	**89.5** 74.70 : 106.04
Acenaphthylene	TM218	**86.5** 73.12 : 105.14
Anthracene	TM218	**93.0** 73.99 : 113.85
Benz(a)anthracene	TM218	**91.0** 69.31 : 119.18

PAH by GCMS

		QC 2758
Benzo(a)pyrene	TM218	**78.5** 66.97 : 114.92
Benzo(b)fluoranthene	TM218	**76.0** 60.94 : 110.94
Benzo(ghi)perylene	TM218	**89.0** 62.92 : 114.36
Benzo(k)fluoranthene	TM218	**77.0** 64.37 : 112.56
Chrysene	TM218	**90.0** 69.86 : 114.50
Dibenzo(ah)anthracene	TM218	**88.0** 64.54 : 115.22
Fluoranthene	TM218	**82.0** 65.27 : 115.60
Fluorene	TM218	**91.0** 76.17 : 102.87
Indeno(123cd)pyrene	TM218	**88.0** 61.22 : 113.25
Naphthalene	TM218	**90.5** 73.52 : 105.12
Phenanthrene	TM218	**91.5** 72.65 : 111.50
Pyrene	TM218	**85.0** 64.72 : 112.44

pH

Component	Method Code	QC 2707
pH	TM133	**99.85** 96.27 : 101.64

Total Organic Carbon

Component	Method Code	QC 2736
Total Organic Carbon	TM132	**103.52** 89.45 : 124.61

Total Sulphur

Component	Method Code	QC 2754	QC 2792
Total Sulphur %	TM132	**103.63** 56.98 : 119.13	**113.99** 56.98 : 119.13

VOC MS (S)

CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

Component	Method Code	QC 2737
1,1,1,2-tetrachloroethane	TM116	**103.6** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**106.0** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**103.0** 77.12 : 116.04
1,1-Dichloroethane	TM116	**112.2** 74.46 : 129.15
1,2-Dichloroethane	TM116	**120.4** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**97.8** 76.78 : 122.98
2-Chlorotoluene	TM116	**86.4** 68.55 : 109.58
4-Chlorotoluene	TM116	**81.6** 66.29 : 107.51
Benzene	TM116	**105.2** 93.16 : 114.90
Carbon Disulphide	TM116	**100.0** 74.91 : 122.14
Carbontetrachloride	TM116	**103.6** 80.31 : 124.50
Chlorobenzene	TM116	**99.6** 83.81 : 114.18
Chloroform	TM116	**112.2** 87.40 : 122.49
Chloromethane	TM116	**95.8** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**110.0** 80.67 : 126.72
Dibromomethane	TM116	**101.0** 73.23 : 118.35
Dichloromethane	TM116	**119.2** 81.11 : 133.25
Ethylbenzene	TM116	**90.0** 75.92 : 110.41
Hexachlorobutadiene	TM116	**37.2** 12.82 : 152.73
Isopropylbenzene	TM116	**77.2** 54.30 : 105.91
Naphthalene	TM116	**95.8** 80.86 : 128.81
o-Xylene	TM116	**86.2** 69.99 : 108.74
p/m-Xylene	TM116	**84.6** 68.32 : 108.91
Sec-Butylbenzene	TM116	**61.0** 38.50 : 101.50
Tetrachloroethene	TM116	**95.8** 76.95 : 121.02
Toluene	TM116	**93.0** 74.24 : 107.42
Trichloroethene	TM116	**97.2** 85.28 : 109.36

VOC MS (S)

		QC 2737
Trichlorofluoromethane	TM116	**109.8** 81.46 : 120.52
Vinyl Chloride	TM116	**103.4** 68.02 : 143.37

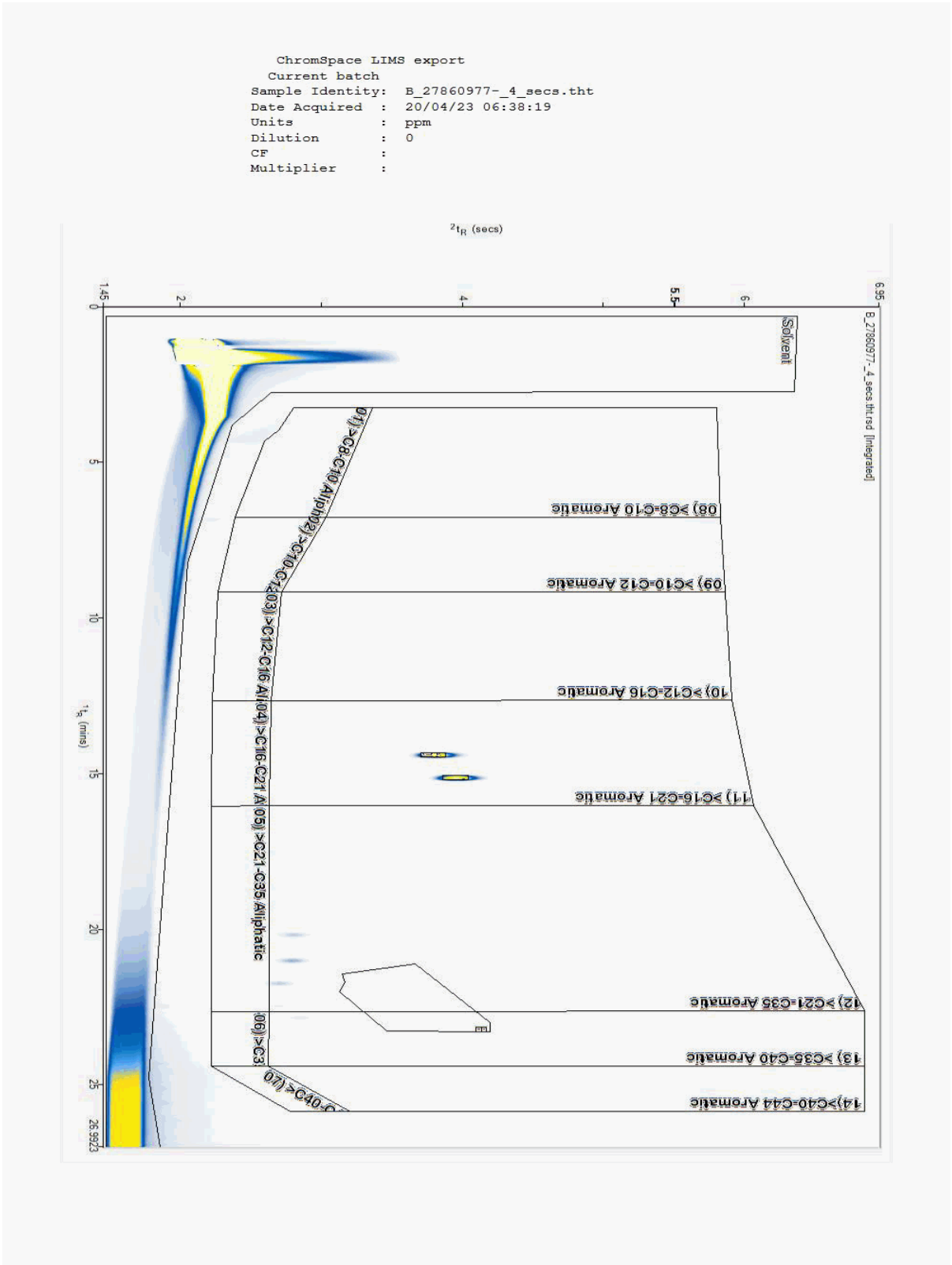
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27860977 **Depth :** 7.00 - 7.20
Sample ID : BH104



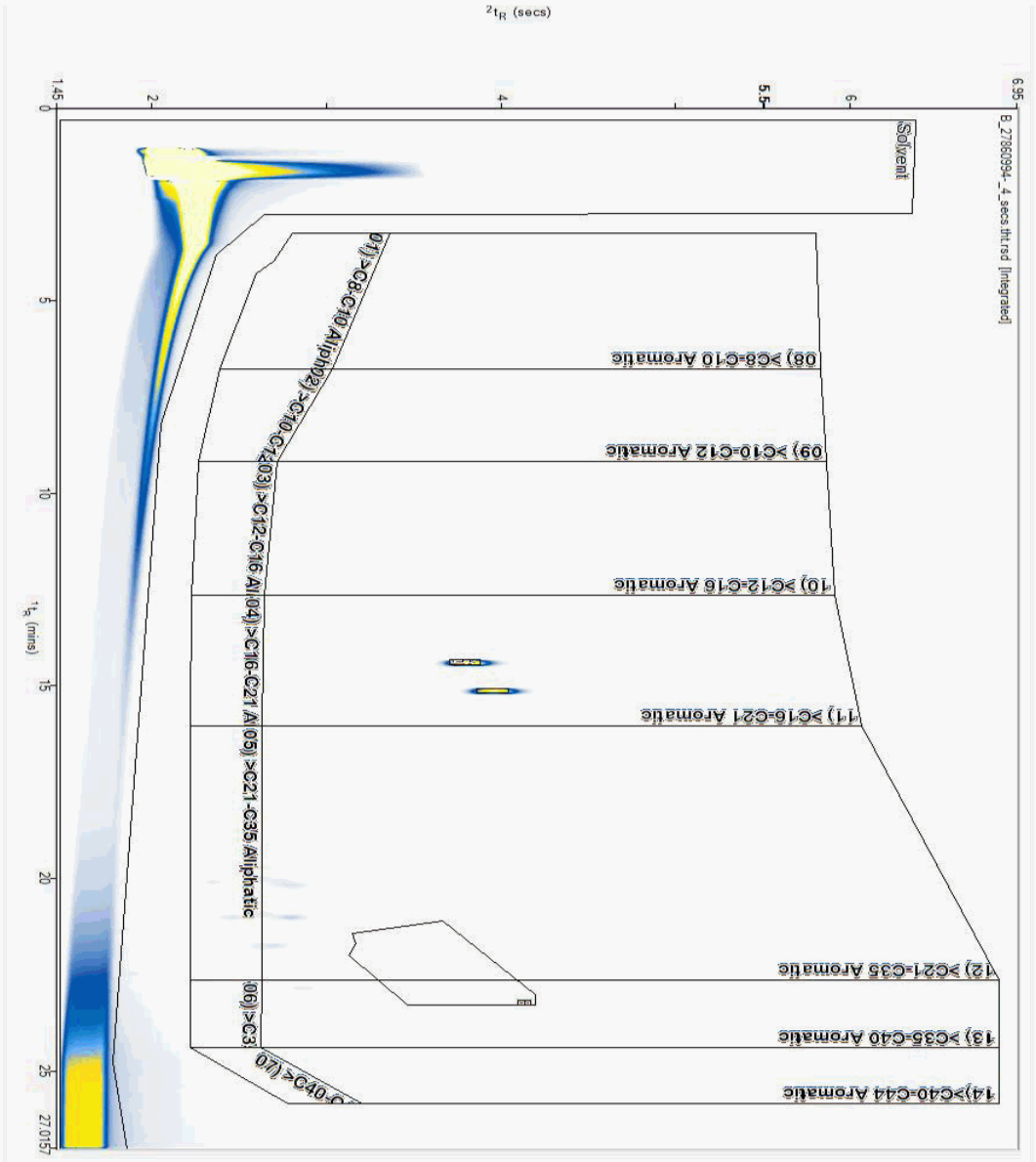
CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27860994 **Depth :** 0.70 - 0.80
Sample ID : BH103

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_27860994-_4_secs.tht
Date Acquired   :  20/04/23 05:35:43
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

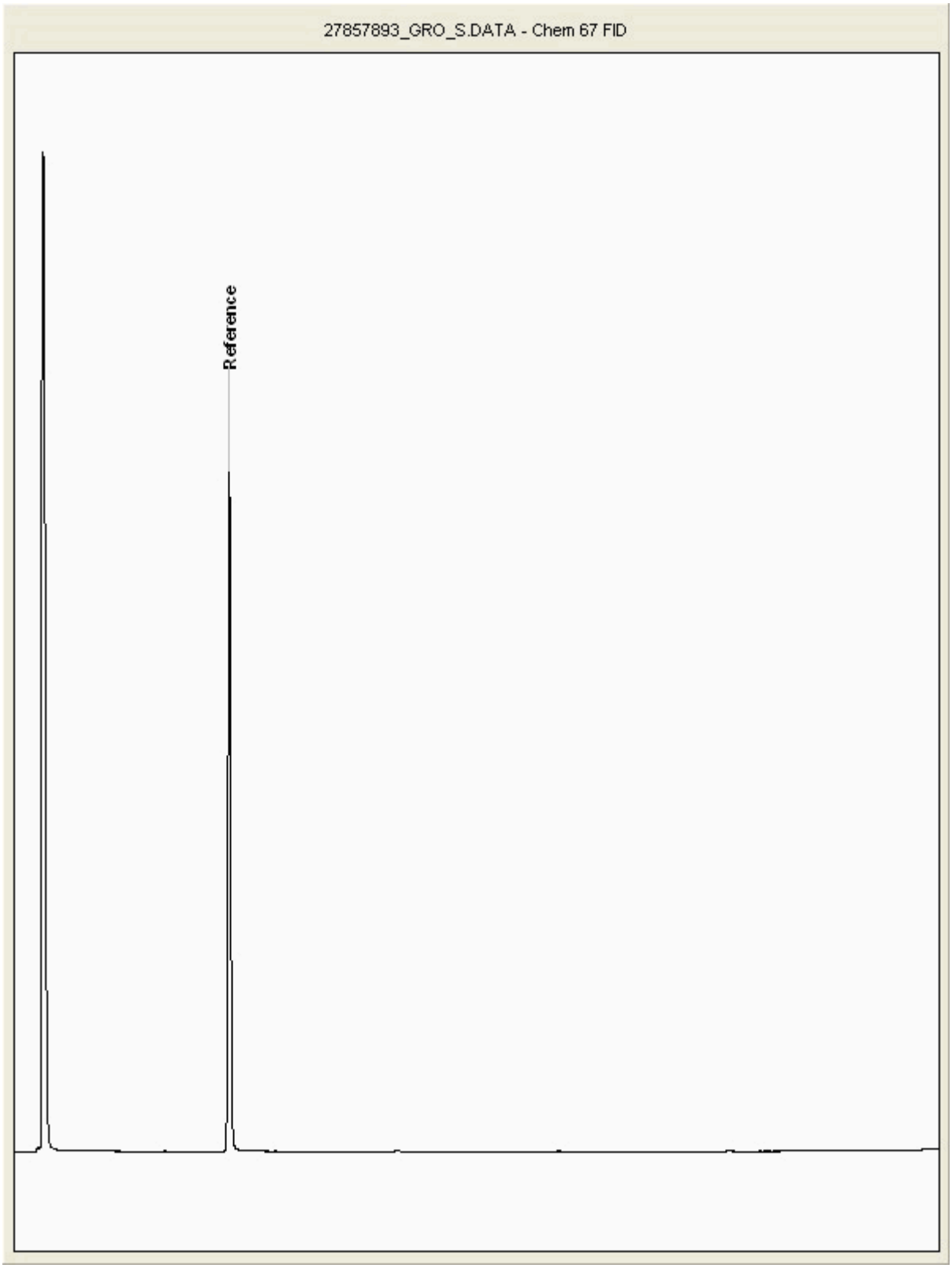


CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27857893 **Depth :** 7.00 - 7.20
Sample ID : BH104

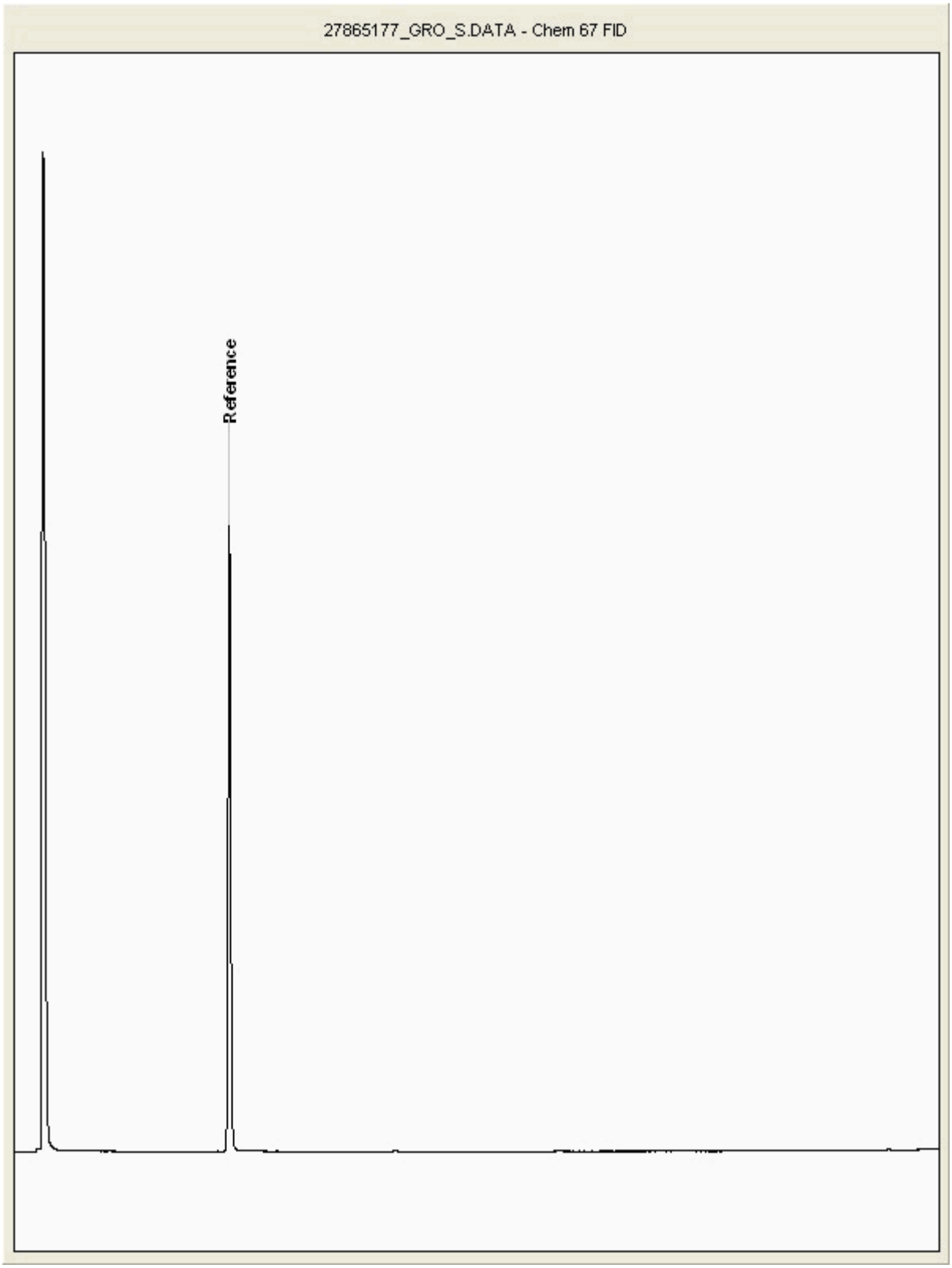


CERTIFICATE OF ANALYSIS

SDG: 230415-36 **Report Number:** 686846 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27865177 **Depth :** 0.70 - 0.80
Sample ID : BH103



SDG:	230415-36	**Report Number:**	686846	**Superseded Report:**	
Client Ref:	10057335	**Location:**	Steyning Grammar		

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 15 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. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

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 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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.

19. **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**

20. **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 (2021), 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 and soils are obtained from supplied bulk materials andd soils 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 (2021).

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.

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.

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.

Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

ARCADIS UK Ltd
Charter House
62-68 Hills Road
Cambridge
CB2 1LA

Attention: Annie Harding

CERTIFICATE OF ANALYSIS

Date of report Generation:	26 April 2023
Customer:	ARCADIS UK Ltd
Sample Delivery Group (SDG):	230415-38
Your Reference:	10057335
Location:	Steyning Grammar
Report No:	687041
Order Number:	10057335

We received 2 samples on Saturday April 15, 2023 and 2 of these samples were scheduled for analysis which was completed on Wednesday April 26, 2023. 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 Laboratories (UK) Limited Hawarden.

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:

Sonia McWhan

Operations Manager

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CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27841741	WS105	ES1	0.50 - 0.60	05/04/2023
27841742	WS105	ES2	0.80 - 0.90	05/04/2023

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

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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)					
			27841741			27841742		
			Customer Sample Reference					
			WS105			WS105		
			AGS Reference					
			ES1			ES2		
			Depth (m)					
			0.50 - 0.60			0.80 - 0.90		
			Container					
			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type					
			S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 2		X			X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2	X			X		
Chromium III	All	NDPs: 0 Tests: 2		X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2		X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 2		X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 2			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 2		X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 2		X			X	
PAH by GCMS	All	NDPs: 0 Tests: 2		X			X	
pH	All	NDPs: 0 Tests: 2		X			X	
Sample description	All	NDPs: 0 Tests: 2		X			X	
Total Organic Carbon	All	NDPs: 0 Tests: 2		X			X	
Total Sulphur	All	NDPs: 0 Tests: 2		X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 2		X			X	
VOC MS (S)	All	NDPs: 0 Tests: 2			X			X

CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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
27841741	WS105	0.50 - 0.60	Light Brown	Clay Loam	Vegetation	Stones
27841742	WS105	0.80 - 0.90	Light Brown	Clay	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: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

			WS105 0.50 - 0.60 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-38 27841741 ES1	WS105 0.80 - 0.90 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-38 27841742 ES2
Moisture Content Ratio (% of as received sample)	% PM024		19	19
Organic Carbon, Total	<0.2 % TM132		0.706 M	0.304 M
Sulphur, Total	<0.02 % TM132		0.0219 #	0.03 #
pH	1 pH Units TM133		8.46 M	7.97 M
Chromium, Hexavalent	<0.6 mg/kg TM151		<0.6 M	<0.6 M
Cyanide, Free	<1 mg/kg TM153		<1 @ M	<1 @ M
Chromium, Trivalent	<0.9 mg/kg TM181		11.4	18.8
Antimony	<0.6 mg/kg TM181		<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg TM181		8.52 M	12.6 M
Barium	<0.6 mg/kg TM181		65.2 #	65.3 #
Beryllium	<0.01 mg/kg TM181		0.581 M	0.888 M
Boron	<0.7 mg/kg TM181		8.41 #	12.2 #
Chromium	<0.9 mg/kg TM181		11.4 M	18.8 M
Copper	<1.4 mg/kg TM181		14.8 M	15.8 M
Iron	<1000 mg/kg TM181		17600 #	25300 #
Lead	<0.7 mg/kg TM181		30.3 M	16.3 M
Molybdenum	<0.1 mg/kg TM181		<0.1 #	0.145 #
Nickel	<0.2 mg/kg TM181		15.7 M	26.8 M
Selenium	<1 mg/kg TM181		<1 #	<1 #
Vanadium	<0.2 mg/kg TM181		25.3 #	42.1 #
Zinc	<1.9 mg/kg TM181		97 M	60.8 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l TM243		<0.004 M	0.0107 M

CERTIFICATE OF ANALYSIS

SDG:	230415-38	**Report Number:**	687041	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

PAH by GCMS

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH by GCMS

			WS105 0.50 - 0.60 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-38 27841741 ES1	WS105 0.80 - 0.90 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-38 27841742 ES2
Naphthalene-d8 % recovery**	%	TM218	84.7	88.4
Acenaphthene-d10 % recovery**	%	TM218	81.7	83.1
Phenanthrene-d10 % recovery**	%	TM218	83.3	81.8
Chrysene-d12 % recovery**	%	TM218	79.8	75.6
Perylene-d12 % recovery**	%	TM218	87.1	82.8
Naphthalene	<0.009 mg/kg	TM218	0.0114 @ M	<0.009 @ M
Acenaphthylene	<0.012 mg/kg	TM218	0.0646 @ M	<0.012 @ M
Acenaphthene	<0.008 mg/kg	TM218	0.0141 @ M	<0.008 @ M
Fluorene	<0.01 mg/kg	TM218	0.0193 @ M	<0.01 @ M
Phenanthrene	<0.015 mg/kg	TM218	0.482 @ M	<0.015 @ M
Anthracene	<0.016 mg/kg	TM218	0.12 @ M	<0.016 @ M
Fluoranthene	<0.017 mg/kg	TM218	1.74 @ M	<0.017 @ M
Pyrene	<0.015 mg/kg	TM218	1.53 @ M	<0.015 @ M
Benz(a)anthracene	<0.014 mg/kg	TM218	0.766 @ M	<0.014 @ M
Chrysene	<0.01 mg/kg	TM218	0.774 @ M	<0.01 @ M
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	0.835 @ M	<0.015 @ M
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	0.341 @ M	<0.014 @ M
Benzo(a)pyrene	<0.015 mg/kg	TM218	0.789 @ M	<0.015 @ M
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	0.452 @ M	<0.018 @ M
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	0.0628 @ M	<0.023 @ M
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	0.483 @ M	<0.024 @ M
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	8.49	<0.118

CERTIFICATE OF ANALYSIS

SDG:	230415-38	**Report Number:**	687041	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

TPH CWG (S)

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

			WS105 0.50 - 0.60 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-38 27841741 ES1	WS105 0.80 - 0.90 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-38 27841742 ES2
GRO Surrogate % recovery**	%	TM089	133 4 @	120 @
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 4 @	<0.01 @
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 4 @	<0.01 @
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 4 @	<0.01 @
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414	1.04 @ #	<1 @ #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @	<1 @
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414	<5 @	<5 @
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414	12.1	<10
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 4 @	<0.01 @
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 4 @	<0.01 @
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 4 @	<0.01 @
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414	1.8 @ #	<1 @ #
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414	8.27 @ #	2.99 @ #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @	<1 @
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @	<1 @
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414	11.1	<5
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414	11.1	<10
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089	<0.05 4 @	<0.05 @
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089	<0.05 4 @	<0.05 @
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089	<0.02 4 @	<0.02 @

VOC MS (S)

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

			WS105 0.50 - 0.60 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-38 27841741 ES1	WS105 0.80 - 0.90 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-38 27841742 ES2
Dibromofluoromethane**	%	TM116	101	100
Toluene-d8**	%	TM116	97.8	98.4
4-Bromofluorobenzene**	%	TM116	90.3	100
Dichlorodifluoromethane	<0.006 mg/kg	TM116	<0.006 #	
Chloromethane	<0.007 mg/kg	TM116	<0.007 #	
Vinyl Chloride	<0.006 mg/kg	TM116	<0.006 @ M	
Bromomethane	<0.01 mg/kg	TM116	<0.01 M	
Chloroethane	<0.01 mg/kg	TM116	<0.01 M	
Trichlorofluorormethane	<0.006 mg/kg	TM116	<0.006 M	
1,1-Dichloroethene	<0.01 mg/kg	TM116	<0.01 #	
Carbon Disulphide	<0.007 mg/kg	TM116	<0.007 M	
Dichloromethane	<0.01 mg/kg	TM116	<0.01 #	
Methyl Tertiary Butyl Ether	<0.01 mg/kg	TM116	<0.01 M	<0.01 M
trans-1,2-Dichloroethene	<0.01 mg/kg	TM116	<0.01 M	
1,1-Dichloroethane	<0.008 mg/kg	TM116	<0.008 M	
cis-1,2-Dichloroethene	<0.006 mg/kg	TM116	<0.006 M	
2,2-Dichloropropane	<0.01 mg/kg	TM116	<0.01	
Bromochloromethane	<0.01 mg/kg	TM116	<0.01 M	
Chloroform	<0.008 mg/kg	TM116	<0.008 M	
1,1,1-Trichloroethane	<0.007 mg/kg	TM116	<0.007 M	
1,1-Dichloropropene	<0.01 mg/kg	TM116	<0.01 M	
Carbontetrachloride	<0.01 mg/kg	TM116	<0.01 M	
1,2-Dichloroethane	<0.005 mg/kg	TM116	<0.005 M	
Benzene	<0.009 mg/kg	TM116	<0.009 M	<0.009 M
Trichloroethene	<0.009 mg/kg	TM116	<0.009 #	
1,2-Dichloropropane	<0.01 mg/kg	TM116	<0.01 M	
Dibromomethane	<0.009 mg/kg	TM116	<0.009 M	
Bromodichloromethane	<0.007 mg/kg	TM116	<0.007 M	
cis-1,3-Dichloropropene	<0.01 mg/kg	TM116	<0.01 M	
Toluene	<0.007 mg/kg	TM116	<0.007 M	<0.007 M
trans-1,3-Dichloropropene	<0.01 mg/kg	TM116	<0.01	
1,1,2-Trichloroethane	<0.01 mg/kg	TM116	<0.01 M	

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CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
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			WS105 0.50 - 0.60 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-38 27841741 ES1	WS105 0.80 - 0.90 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-38 27841742 ES2
1,3-Dichloropropane	<0.007 mg/kg	TM116	<0.007 M	
Tetrachloroethene	<0.005 mg/kg	TM116	<0.005 M	
Dibromochloromethane	<0.01 mg/kg	TM116	<0.01 M	
1,2-Dibromoethane	<0.01 mg/kg	TM116	<0.01 M	
Chlorobenzene	<0.005 mg/kg	TM116	<0.005 M	
1,1,1,2-Tetrachloroethane	<0.01 mg/kg	TM116	<0.01 M	
Ethylbenzene	<0.004 mg/kg	TM116	<0.004 M	<0.004 M
p/m-Xylene	<0.01 mg/kg	TM116	<0.01 #	<0.01 #
o-Xylene	<0.01 mg/kg	TM116	<0.01 M	<0.01 M
Styrene	<0.01 mg/kg	TM116	<0.01 @ #	
Bromoform	<0.01 mg/kg	TM116	<0.01 M	
Isopropylbenzene	<0.005 mg/kg	TM116	<0.005 #	
1,1,2,2-Tetrachloroethane	<0.01 mg/kg	TM116	<0.01 #	
1,2,3-Trichloropropane	<0.016 mg/kg	TM116	<0.016 M	
Bromobenzene	<0.01 mg/kg	TM116	<0.01 M	
Propylbenzene	<0.01 mg/kg	TM116	<0.01 M	
2-Chlorotoluene	<0.009 mg/kg	TM116	<0.009 M	
1,3,5-Trimethylbenzene	<0.008 mg/kg	TM116	<0.008 M	
4-Chlorotoluene	<0.01 mg/kg	TM116	<0.01 M	
tert-Butylbenzene	<0.014 mg/kg	TM116	<0.014 #	
1,2,4-Trimethylbenzene	<0.009 mg/kg	TM116	<0.009 #	
sec-Butylbenzene	<0.01 mg/kg	TM116	<0.01	
4-Isopropyltoluene	<0.01 mg/kg	TM116	<0.01	
1,3-Dichlorobenzene	<0.008 mg/kg	TM116	<0.008 M	
1,4-Dichlorobenzene	<0.005 mg/kg	TM116	<0.005 M	
n-Butylbenzene	<0.011 mg/kg	TM116	<0.011	
1,2-Dichlorobenzene	<0.01 mg/kg	TM116	<0.01 M	
1,2-Dibromo-3-chloropropane	<0.014 mg/kg	TM116	<0.014 M	
Tert-amyl methyl ether	<0.01 mg/kg	TM116	<0.01 #	
1,2,4-Trichlorobenzene	<0.02 mg/kg	TM116	<0.02	
Hexachlorobutadiene	<0.02 mg/kg	TM116	<0.02	
Naphthalene	<0.013 mg/kg	TM116	<0.013 M	

CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

			WS105 0.50 - 0.60 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-38 27841741 ES1	WS105 0.80 - 0.90 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-38 27841742 ES2
1,2,3-Trichlorobenzene	<0.02 mg/kg	TM116	<0.02 #	
1,3,5-Trichlorobenzene	<0.02 mg/kg	TM116	<0.02	
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02	<0.02
Sum of BTEX	<0.04 mg/kg	TM116	<0.04	<0.04

CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS105ES1 0.50 - 0.60 SOLID 05/04/2023 00:00:00 15/04/2023 05:00:00 230415-38 27841741 TM048	21/04/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS105ES2 0.80 - 0.90 SOLID 05/04/2023 00:00:00 15/04/2023 05:00:00 230415-38 27841742 TM048	19/04/23	Eva Guerra	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	230415-38	**Report Number:**	687041	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	Identification of Asbestos in Bulk Material
TM089	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Determination of Hexavalent Chromium using Kone analyser
TM153	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM181	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	The determination of PAH in soil samples by GC-MS
TM243	Mixed Anions In Soils By Kone
TM414	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Test Completion Dates

Lab Sample No(s)	27841741	27841742
Customer Sample Ref.	WS105	WS105
AGS Ref.	ES1	ES2
Depth	0.50 - 0.60	0.80 - 0.90
Type	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	25-Apr-2023	25-Apr-2023
Asbestos ID in Solid Samples	21-Apr-2023	19-Apr-2023
Chromium III	25-Apr-2023	25-Apr-2023
Cyanide Comp/Free/Total/Thiocyanate	21-Apr-2023	21-Apr-2023
EPH CWG GC (S)	21-Apr-2023	21-Apr-2023
GRO by GC-FID (S)		21-Apr-2023
Hexavalent Chromium (s)	25-Apr-2023	25-Apr-2023
Metals in solid samples by OES	25-Apr-2023	25-Apr-2023
PAH by GCMS	21-Apr-2023	20-Apr-2023
pH	21-Apr-2023	21-Apr-2023
Sample description	19-Apr-2023	19-Apr-2023
Total Organic Carbon	25-Apr-2023	25-Apr-2023
Total Sulphur	26-Apr-2023	26-Apr-2023
TPH CWG GC (S)	21-Apr-2023	21-Apr-2023
VOC MS (S)	20-Apr-2023	20-Apr-2023

ASSOCIATED AQC DATA

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2743
Free Cyanide	TM153	**99.01** 83.00 : 113.00
Thiocyanate	TM153	**91.03** 87.27 : 113.27
Total Cyanide	TM153	**100.7** 72.73 : 109.93

GRO by GC-FID (S)

Component	Method Code	QC 2747	QC 2703
QC	TM089	**82.76** 59.51 : 102.93	**78.82** 59.51 : 102.93

Hexavalent Chromium (s)

Component	Method Code	QC 2790
Hexavalent Chromium	TM151	**106.0** 84.37 : 115.69

Metals in solid samples by OES

Component	Method Code	QC 2707	QC 2730
Aluminium	TM181	**105.26** 84.95 : 125.04	**100.0** 84.95 : 125.04
Antimony	TM181	**103.5** 81.24 : 112.95	**103.5** 81.24 : 112.95
Arsenic	TM181	**100.31** 87.39 : 110.81	**101.55** 87.39 : 110.81
Barium	TM181	**112.0** 92.16 : 121.75	**108.0** 92.16 : 121.75
Beryllium	TM181	**103.77** 85.72 : 122.69	**104.06** 85.72 : 122.69
Boron	TM181	**106.56** 93.63 : 124.95	**107.87** 93.63 : 124.95
Cadmium	TM181	**102.43** 82.04 : 114.28	**103.47** 82.04 : 114.28
Chromium	TM181	**108.27** 97.18 : 117.32	**111.2** 97.18 : 117.32
Cobalt	TM181	**96.59** 90.33 : 109.99	**97.49** 90.33 : 109.99
Copper	TM181	**105.24** 90.40 : 118.14	**105.06** 90.40 : 118.14
Iron	TM181	**104.59** 76.44 : 123.20	**99.08** 76.44 : 123.20

CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Metals in solid samples by OES

		QC 2707	QC 2730
Lead	TM181	**101.69** 84.55 : 119.89	**104.1** 84.55 : 119.89
Manganese	TM181	**104.59** 85.97 : 117.31	**104.86** 85.97 : 117.31
Mercury	TM181	**102.13** 79.17 : 111.30	**103.04** 79.17 : 111.30
Molybdenum	TM181	**98.4** 87.03 : 110.33	**99.36** 87.03 : 110.33
Nickel	TM181	**101.98** 83.87 : 113.53	**103.11** 83.87 : 113.53
Phosphorus	TM181	**103.35** 84.16 : 113.49	**103.99** 84.16 : 113.49
Selenium	TM181	**99.02** 81.18 : 111.13	**99.34** 81.18 : 111.13
Strontium	TM181	**107.71** 92.60 : 122.34	**108.23** 92.60 : 122.34
Thallium	TM181	**104.23** 85.37 : 116.45	**105.86** 85.37 : 116.45
Tin	TM181	**103.94** 86.96 : 122.18	**100.85** 86.96 : 122.18
Titanium	TM181	**100.94** 80.16 : 123.61	**100.0** 80.16 : 123.61
Vanadium	TM181	**106.13** 89.30 : 122.79	**107.28** 89.30 : 122.79
Zinc	TM181	**108.71** 89.16 : 121.48	**110.12** 89.16 : 121.48

PAH by GCMS

Component	Method Code	QC 2731	QC 2781
Acenaphthene	TM218	**84.5** 76.79 : 103.90	**85.0** 76.79 : 103.90
Acenaphthylene	TM218	**84.5** 74.19 : 106.17	**84.5** 74.19 : 106.17
Anthracene	TM218	**85.0** 70.90 : 109.22	**82.5** 70.90 : 109.22
Benz(a)anthracene	TM218	**87.5** 69.64 : 111.59	**76.0** 69.64 : 111.59
Benzo(a)pyrene	TM218	**91.0** 67.65 : 109.09	**83.0** 67.65 : 109.09
Benzo(b)fluoranthene	TM218	**89.0** 61.54 : 111.57	**75.0** 61.54 : 111.57
Benzo(ghi)perylene	TM218	**89.5** 65.23 : 106.40	**87.5** 65.23 : 106.40
Benzo(k)fluoranthene	TM218	**79.5** 69.09 : 107.83	**77.5** 69.09 : 107.83
Chrysene	TM218	**87.0** 69.26 : 107.71	**76.0** 69.26 : 107.71
Dibenzo(ah)anthracene	TM218	**81.0** 63.87 : 105.95	**72.5** 63.87 : 105.95
Fluoranthene	TM218	**98.0** 66.06 : 114.63	**81.5** 66.06 : 114.63

CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH by GCMS

		QC 2731	QC 2781
Fluorene	TM218	**85.0** 76.66 : 107.56	**85.5** 76.66 : 107.56
Indeno(123cd)pyrene	TM218	**80.5** 62.77 : 111.19	**72.5** 62.77 : 111.19
Naphthalene	TM218	**86.5** 72.14 : 105.72	**87.5** 72.14 : 105.72
Phenanthrene	TM218	**89.0** 73.62 : 109.34	**84.5** 73.62 : 109.34
Pyrene	TM218	**94.0** 69.79 : 109.70	**80.0** 69.79 : 109.70

pH

Component	Method Code	QC 2709
pH	TM133	**99.4** 96.27 : 101.64

Total Organic Carbon

Component	Method Code	QC 2741
Total Organic Carbon	TM132	**99.61** 89.45 : 124.61

Total Sulphur

Component	Method Code	QC 2718
Total Sulphur %	TM132	**103.11** 56.98 : 119.13

VOC MS (S)

Component	Method Code	QC 2737
1,1,1,2-tetrachloroethane	TM116	**103.6** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**106.0** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**103.0** 77.12 : 116.04
1,1-Dichloroethane	TM116	**112.2** 74.46 : 129.15
1,2-Dichloroethane	TM116	**120.4** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**97.8** 76.78 : 122.98

CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

		QC 2737
2-Chlorotoluene	TM116	**86.4** 68.55 : 109.58
4-Chlorotoluene	TM116	**81.6** 66.29 : 107.51
Benzene	TM116	**105.2** 93.16 : 114.90
Carbon Disulphide	TM116	**100.0** 74.91 : 122.14
Carbontetrachloride	TM116	**103.6** 80.31 : 124.50
Chlorobenzene	TM116	**99.6** 83.81 : 114.18
Chloroform	TM116	**112.2** 87.40 : 122.49
Chloromethane	TM116	**95.8** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**110.0** 80.67 : 126.72
Dibromomethane	TM116	**101.0** 73.23 : 118.35
Dichloromethane	TM116	**119.2** 81.11 : 133.25
Ethylbenzene	TM116	**90.0** 75.92 : 110.41
Hexachlorobutadiene	TM116	**37.2** 12.82 : 152.73
Isopropylbenzene	TM116	**77.2** 54.30 : 105.91
Naphthalene	TM116	**95.8** 80.86 : 128.81
o-Xylene	TM116	**86.2** 69.99 : 108.74
p/m-Xylene	TM116	**84.6** 68.32 : 108.91
Sec-Butylbenzene	TM116	**61.0** 38.50 : 101.50
Tetrachloroethene	TM116	**95.8** 76.95 : 121.02
Toluene	TM116	**93.0** 74.24 : 107.42
Trichloroethene	TM116	**97.2** 85.28 : 109.36
Trichlorofluoromethane	TM116	**109.8** 81.46 : 120.52
Vinyl Chloride	TM116	**103.4** 68.02 : 143.37

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

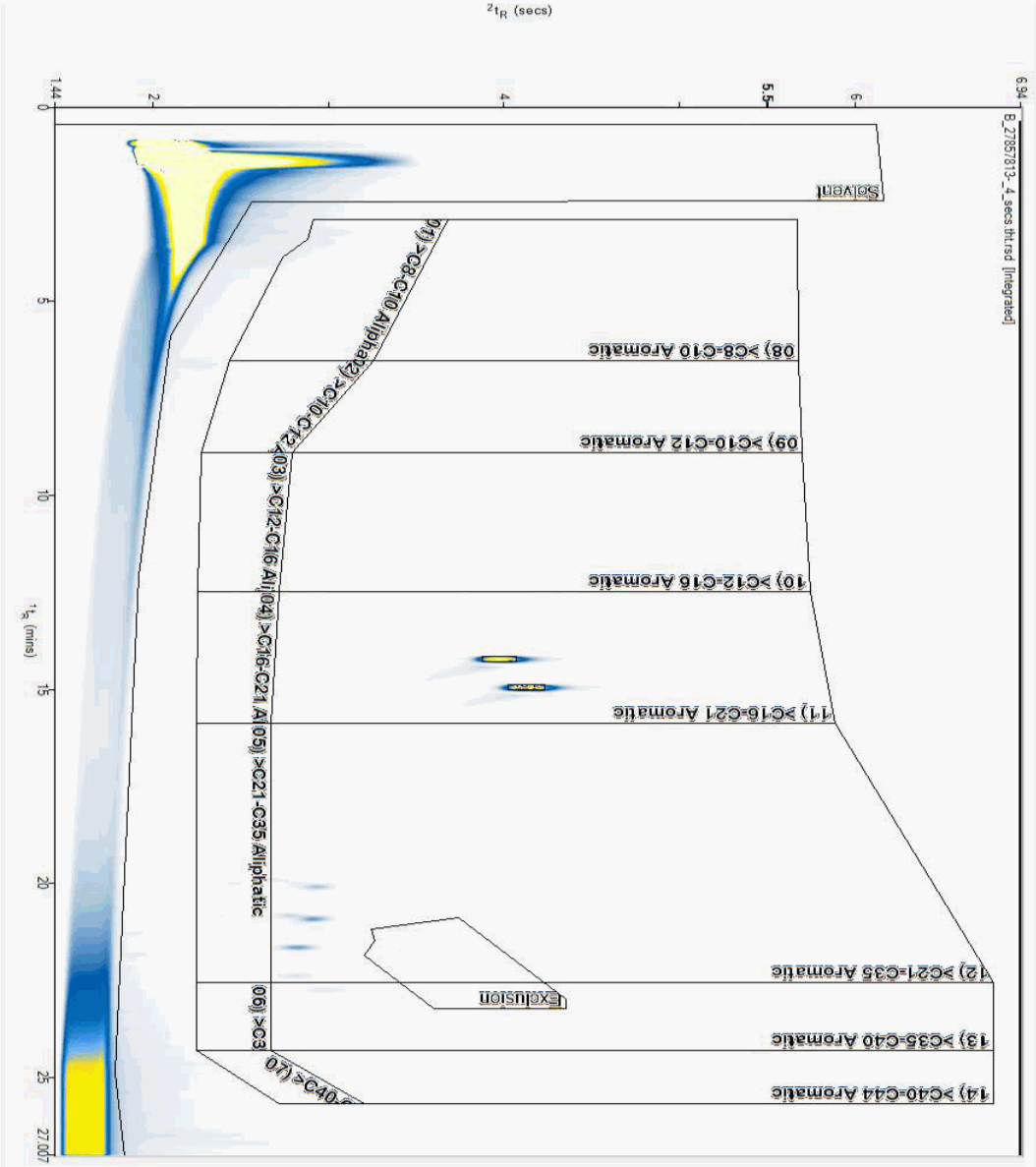
CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27857813 **Depth :** 0.80 - 0.90
Sample ID : WS105

```
ChromSpace LIMS export
Current batch
Sample Identity:  B_27857813-_4_secs.tht
Date Acquired   :  20/04/23 08:17:22
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



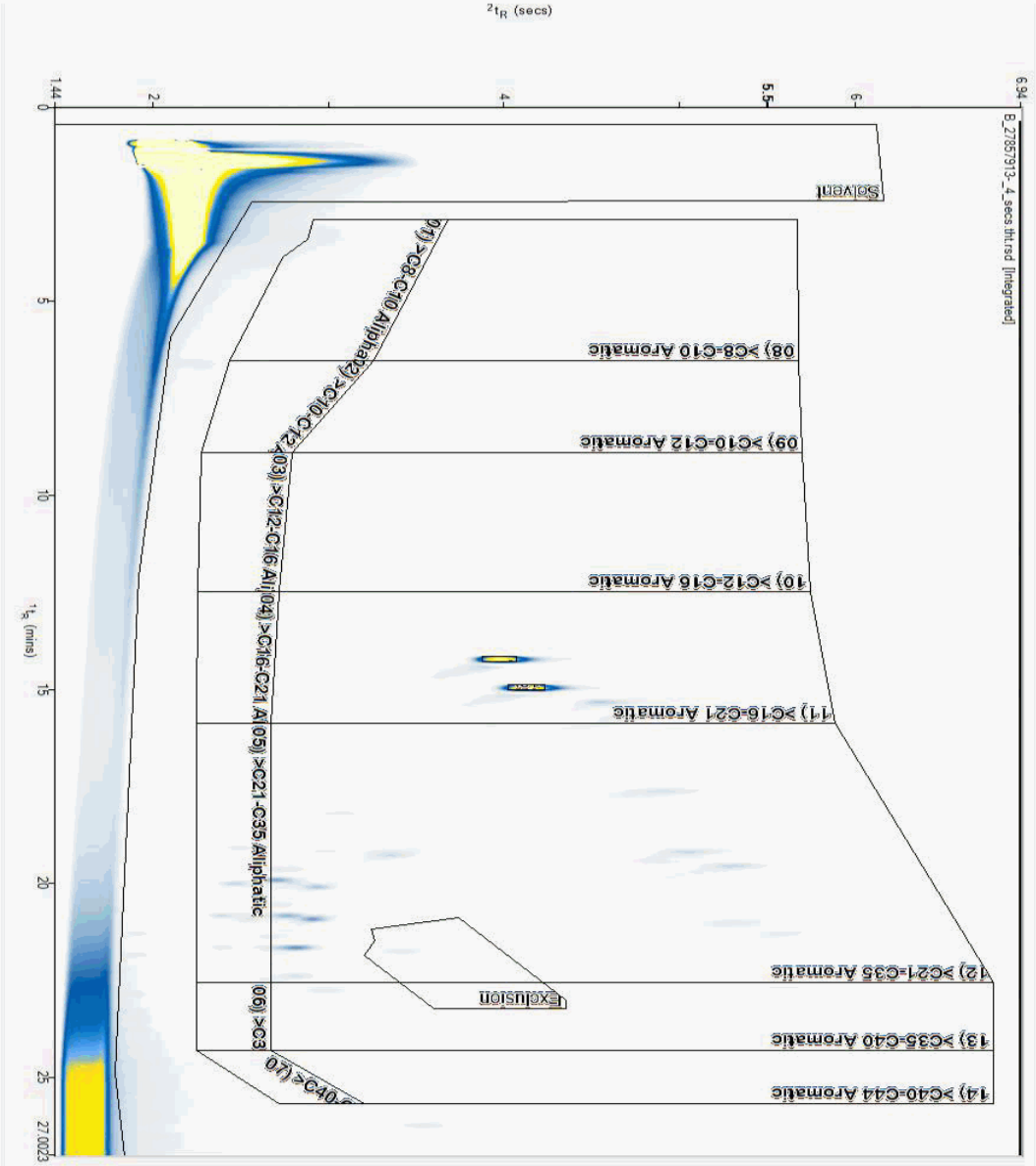
CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27857913 **Depth :** 0.50 - 0.60
Sample ID : WS105

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_27857913-_4_secs.tht
Date Acquired   :  20/04/23 08:48:46
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

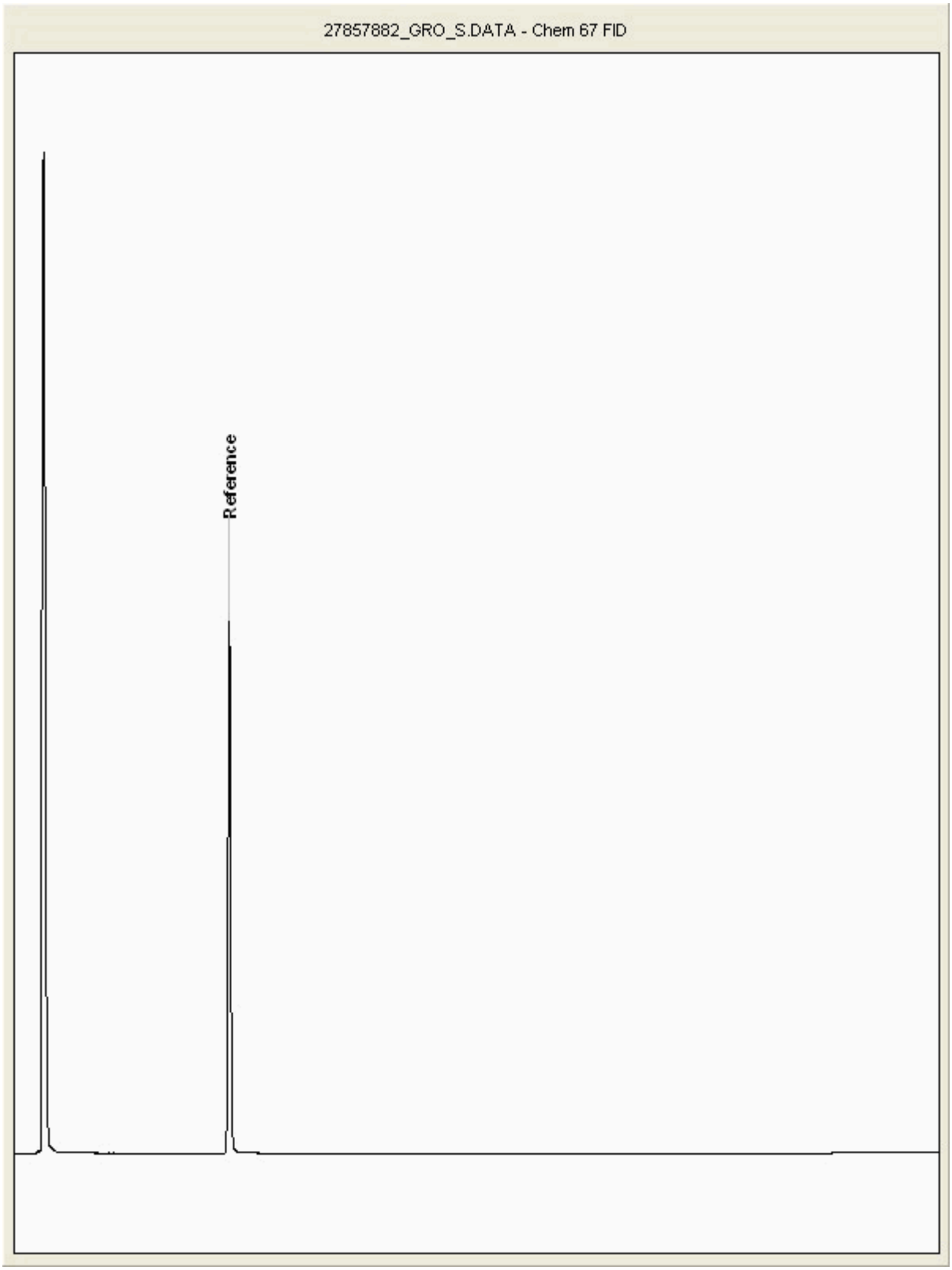


CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27857882 **Depth :** 0.80 - 0.90
Sample ID : WS105

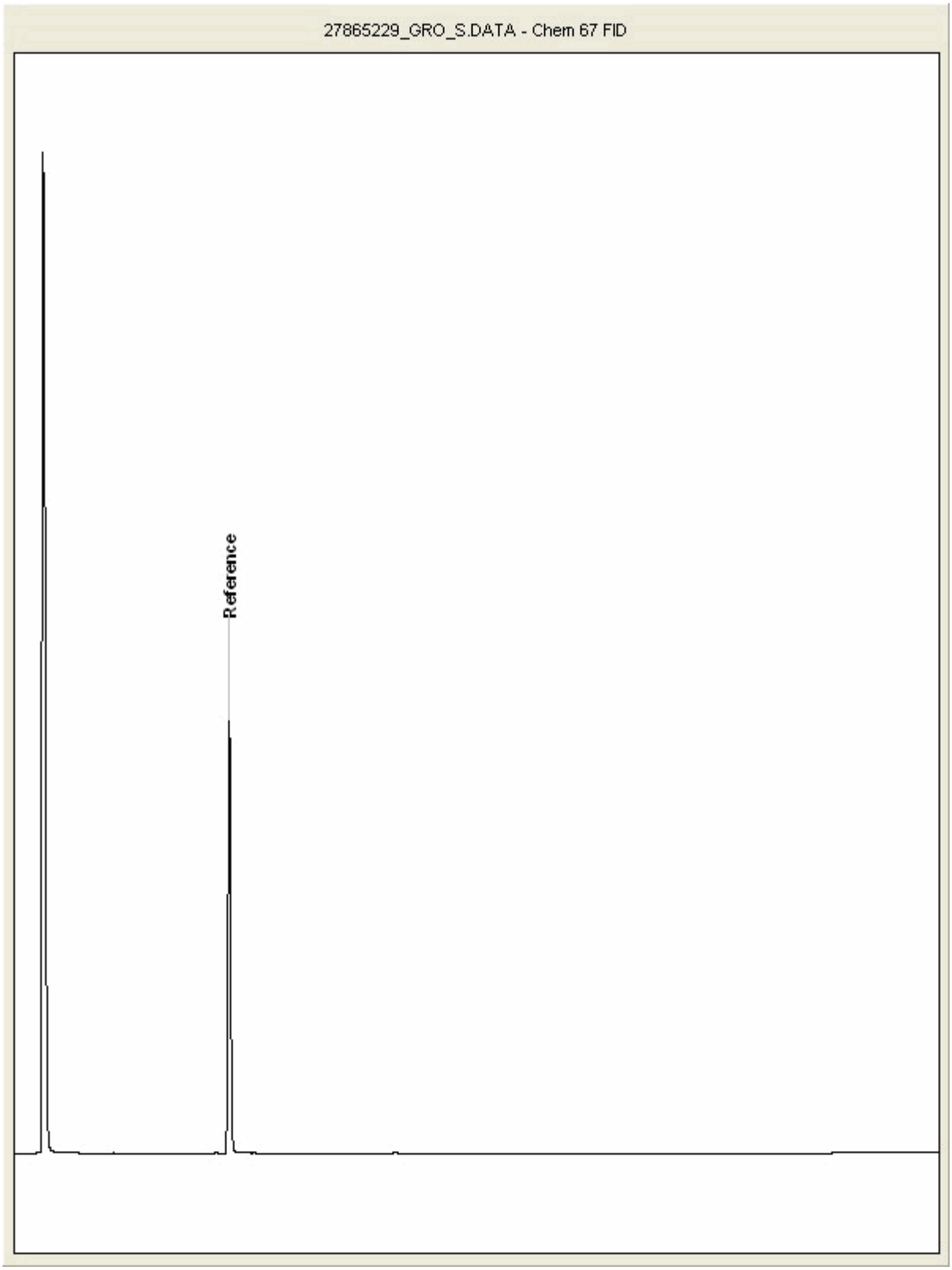


CERTIFICATE OF ANALYSIS

SDG: 230415-38 **Report Number:** 687041 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27865229 **Depth :** 0.50 - 0.60
Sample ID : WS105



SDG:	230415-38	**Report Number:**	687041	**Superseded Report:**	
Client Ref:	10057335	**Location:**	Steyning Grammar		

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 15 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. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

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 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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.

19. **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**

20. **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 (2021), 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 and soils are obtained from supplied bulk materials andd soils 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 (2021).

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.

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.

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.

Units 7-8 Hawarden Business Park
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ARCADIS UK Ltd
Charter House
62-68 Hills Road
Cambridge
CB2 1LA

Attention: Annie Harding

CERTIFICATE OF ANALYSIS

Date of report Generation:	26 April 2023
Customer:	ARCADIS UK Ltd
Sample Delivery Group (SDG):	230415-39
Your Reference:	10057335
Location:	Steyning Grammar
Report No:	687042
Order Number:	10057335

We received 4 samples on Saturday April 15, 2023 and 1 of these samples were scheduled for analysis which was completed on Wednesday April 26, 2023. 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 Laboratories (UK) Limited Hawarden.

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:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27841782	WS102	ES2	0.80 - 0.95	04/04/2023
27841783	WS102	ES3	2.50 - 2.65	04/04/2023
27841784	WS106	ES1	0.40 - 0.50	05/04/2023
27841785	WS106	ES2	0.70 - 0.80	05/04/2023

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

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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)			27841784		
Customer Sample Reference			WS106		
AGS Reference			ES1		
Depth (m)			0.40 - 0.50		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 1		X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1	X		
Chromium III	All	NDPs: 0 Tests: 1		X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 1		X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 1		X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 1		X	
PAH by GCMS	All	NDPs: 0 Tests: 1		X	
pH	All	NDPs: 0 Tests: 1		X	
Sample description	All	NDPs: 0 Tests: 1		X	
Total Organic Carbon	All	NDPs: 0 Tests: 1		X	
Total Sulphur	All	NDPs: 0 Tests: 1		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
VOC MS (S)	All	NDPs: 0 Tests: 1			X

CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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
27841784	WS106	0.40 - 0.50	Dark Brown	Sandy Loam	Stones	Vegetation

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: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

			WS106 0.40 - 0.50 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-39 27841784 ES1
Moisture Content Ratio (% of as received sample)	% PM024		17
Organic Carbon, Total	<0.2 % TM132		1.18 M
Sulphur, Total	<0.02 % TM132		0.021 #
pH	1 pH Units TM133		8.67 M
Chromium, Hexavalent	<0.6 mg/kg TM151		<0.6 M
Cyanide, Free	<1 mg/kg TM153		<1 @ M
Chromium, Trivalent	<0.9 mg/kg TM181		11.6
Antimony	<0.6 mg/kg TM181		<0.6 #
Arsenic	<0.6 mg/kg TM181		8.77 M
Barium	<0.6 mg/kg TM181		66.6 #
Beryllium	<0.01 mg/kg TM181		0.585 M
Boron	<0.7 mg/kg TM181		7.37 #
Chromium	<0.9 mg/kg TM181		11.6 M
Copper	<1.4 mg/kg TM181		14.5 M
Iron	<1000 mg/kg TM181		14400 #
Lead	<0.7 mg/kg TM181		40.8 M
Molybdenum	<0.1 mg/kg TM181		<0.1 #
Nickel	<0.2 mg/kg TM181		14.8 M
Selenium	<1 mg/kg TM181		<1 #
Vanadium	<0.2 mg/kg TM181		28.3 #
Zinc	<1.9 mg/kg TM181		49.1 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l TM243		<0.004 M

PAH by GCMS

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH by GCMS

			WS106 0.40 - 0.50 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-39 27841784 ES1
Naphthalene-d8 % recovery**	%	TM218	91.7
Acenaphthene-d10 % recovery**	%	TM218	87.6
Phenanthrene-d10 % recovery**	%	TM218	85.2
Chrysene-d12 % recovery**	%	TM218	85.1
Perylene-d12 % recovery**	%	TM218	86.3
Naphthalene	<0.009 mg/kg	TM218	<0.009 @ M
Acenaphthylene	<0.012 mg/kg	TM218	<0.012 @ M
Acenaphthene	<0.008 mg/kg	TM218	<0.008 @ M
Fluorene	<0.01 mg/kg	TM218	<0.01 @ M
Phenanthrene	<0.015 mg/kg	TM218	0.0258 @ M
Anthracene	<0.016 mg/kg	TM218	<0.016 @ M
Fluoranthene	<0.017 mg/kg	TM218	0.0802 @ M
Pyrene	<0.015 mg/kg	TM218	0.0727 @ M
Benz(a)anthracene	<0.014 mg/kg	TM218	0.0423 @ M
Chrysene	<0.01 mg/kg	TM218	0.0493 @ M
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	0.0565 @ M
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	0.0268 @ M
Benzo(a)pyrene	<0.015 mg/kg	TM218	0.0465 @ M
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	0.0363 @ M
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.023 @ M
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	0.0402 @ M
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	0.477

CERTIFICATE OF ANALYSIS

SDG:	230415-39	**Report Number:**	687042	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

TPH CWG (S)

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

			WS106 0.40 - 0.50 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-39 27841784 ES1
GRO Surrogate % recovery**	%	TM089	97.4 @
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414	3.04 @ #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414	<5 @
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414	<10
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414	2.73 @ #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414	<5
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414	<10
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089	<0.05 @
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089	<0.05 @
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089	<0.02 @

CERTIFICATE OF ANALYSIS

SDG:	230415-39	**Report Number:**	687042	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

VOC MS (S)

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

			WS106 0.40 - 0.50 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-39 27841784 ES1
Dibromofluoromethane**	%	TM116	98.8 @
Toluene-d8**	%	TM116	96.2 @
4-Bromofluorobenzene**	%	TM116	88.8 @
Methyl Tertiary Butyl Ether	mg/kg	TM116	<0.01 @ M
Benzene	mg/kg	TM116	<0.009 @ M
Toluene	mg/kg	TM116	<0.007 @ M
Ethylbenzene	mg/kg	TM116	<0.004 @ M
p/m-Xylene	mg/kg	TM116	<0.01 @ #
o-Xylene	mg/kg	TM116	<0.01 @ M
Sum of Detected Xylenes	mg/kg	TM116	<0.02 @
Sum of BTEX	mg/kg	TM116	<0.04 @

CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref.	WS106ES1 0.40 - 0.50	21/04/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	SOLID										
Sample Type	05/04/2023 00:00:00										
Date Sampled	15/04/2023 05:00:00										
Date Receieved	230415-39										
SDG	27841784										
Original Sample	TM048										
Method Number											

CERTIFICATE OF ANALYSIS

SDG:	230415-39	**Report Number:**	687042	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

CERTIFICATE OF ANALYSIS

SDG:	230415-39	**Report Number:**	687042	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

CERTIFICATE OF ANALYSIS

SDG:	230415-39	**Report Number:**	687042	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	Identification of Asbestos in Bulk Material
TM089	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Determination of Hexavalent Chromium using Kone analyser
TM153	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM181	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	The determination of PAH in soil samples by GC-MS
TM243	Mixed Anions In Soils By Kone
TM414	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Test Completion Dates

Lab Sample No(s)	27841784
Customer Sample Ref.	WS106
AGS Ref.	ES1
Depth	0.40 - 0.50
Type	Soil/Solid (S)
Anions by Kone (soil)	25-Apr-2023
Asbestos ID in Solid Samples	21-Apr-2023
Chromium III	25-Apr-2023
Cyanide Comp/Free/Total/Thiocyanate	21-Apr-2023
EPH CWG GC (S)	21-Apr-2023
GRO by GC-FID (S)	21-Apr-2023
Hexavalent Chromium (s)	24-Apr-2023
Metals in solid samples by OES	25-Apr-2023
PAH by GCMS	24-Apr-2023
pH	21-Apr-2023
Sample description	19-Apr-2023
Total Organic Carbon	25-Apr-2023
Total Sulphur	26-Apr-2023
TPH CWG GC (S)	21-Apr-2023
VOC MS (S)	20-Apr-2023

ASSOCIATED AQC DATA

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2703
Free Cyanide	TM153	**100.99** 83.00 : 113.00
Thiocyanate	TM153	**91.67** 87.27 : 113.27
Total Cyanide	TM153	**102.1** 72.73 : 109.93

EPH CWG GC (S)

Component	Method Code	QC 2783
EPH >C8-C40 Raw	TM414	**100.35** 72.07 : 116.69
Total Aliphatics Raw	TM414	**102.79** 73.18 : 116.06
Total Aromatics Raw	TM414	**140.31** 69.77 : 129.02

GRO by GC-FID (S)

Component	Method Code	QC 2747
QC	TM089	**82.76** 59.51 : 102.93

Hexavalent Chromium (s)

Component	Method Code	QC 2714
Hexavalent Chromium	TM151	**108.0** 84.37 : 115.69

Metals in solid samples by OES

Component	Method Code	QC 2707
Aluminium	TM181	**105.26** 84.95 : 125.04
Antimony	TM181	**103.5** 81.24 : 112.95
Arsenic	TM181	**100.31** 87.39 : 110.81
Barium	TM181	**112.0** 92.16 : 121.75
Beryllium	TM181	**103.77** 85.72 : 122.69
Boron	TM181	**106.56** 93.63 : 124.95
Cadmium	TM181	**102.43** 82.04 : 114.28

CERTIFICATE OF ANALYSIS

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Client Ref.: 10057335 **Location:** Steyning Grammar

Metals in solid samples by OES

		QC 2707
Chromium	TM181	**108.27** 97.18 : 117.32
Cobalt	TM181	**96.59** 90.33 : 109.99
Copper	TM181	**105.24** 90.40 : 118.14
Iron	TM181	**104.59** 76.44 : 123.20
Lead	TM181	**101.69** 84.55 : 119.89
Manganese	TM181	**104.59** 85.97 : 117.31
Mercury	TM181	**102.13** 79.17 : 111.30
Molybdenum	TM181	**98.4** 87.03 : 110.33
Nickel	TM181	**101.98** 83.87 : 113.53
Phosphorus	TM181	**103.35** 84.16 : 113.49
Selenium	TM181	**99.02** 81.18 : 111.13
Strontium	TM181	**107.71** 92.60 : 122.34
Thallium	TM181	**104.23** 85.37 : 116.45
Tin	TM181	**103.94** 86.96 : 122.18
Titanium	TM181	**100.94** 80.16 : 123.61
Vanadium	TM181	**106.13** 89.30 : 122.79
Zinc	TM181	**108.71** 89.16 : 121.48

PAH by GCMS

Component	Method Code	QC 2758
Acenaphthene	TM218	**89.5** 74.70 : 106.04
Acenaphthylene	TM218	**86.5** 73.12 : 105.14
Anthracene	TM218	**93.0** 73.99 : 113.85
Benz(a)anthracene	TM218	**91.0** 69.31 : 119.18
Benzo(a)pyrene	TM218	**78.5** 66.97 : 114.92
Benzo(b)fluoranthene	TM218	**76.0** 60.94 : 110.94
Benzo(ghi)perylene	TM218	**89.0** 62.92 : 114.36

CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH by GCMS

		QC 2758
Benzo(k)fluoranthene	TM218	**77.0** 64.37 : 112.56
Chrysene	TM218	**90.0** 69.86 : 114.50
Dibenzo(ah)anthracene	TM218	**88.0** 64.54 : 115.22
Fluoranthene	TM218	**82.0** 65.27 : 115.60
Fluorene	TM218	**91.0** 76.17 : 102.87
Indeno(123cd)pyrene	TM218	**88.0** 61.22 : 113.25
Naphthalene	TM218	**90.5** 73.52 : 105.12
Phenanthrene	TM218	**91.5** 72.65 : 111.50
Pyrene	TM218	**85.0** 64.72 : 112.44

pH

Component	Method Code	QC 2709
pH	TM133	**99.4** 96.27 : 101.64

Total Organic Carbon

Component	Method Code	QC 2766
Total Organic Carbon	TM132	**106.64** 89.45 : 124.61

Total Sulphur

Component	Method Code	QC 2718
Total Sulphur %	TM132	**103.11** 56.98 : 119.13

VOC MS (S)

CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

Component	Method Code	QC 2711
1,1,1,2-tetrachloroethane	TM116	**102.4** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**98.6** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**92.6** 77.12 : 116.04
1,1-Dichloroethane	TM116	**101.0** 74.46 : 129.15
1,2-Dichloroethane	TM116	**104.8** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**100.8** 76.78 : 122.98
2-Chlorotoluene	TM116	**86.0** 68.55 : 109.58
4-Chlorotoluene	TM116	**79.8** 66.29 : 107.51
Benzene	TM116	**98.6** 93.16 : 114.90
Carbon Disulphide	TM116	**94.6** 74.91 : 122.14
Carbontetrachloride	TM116	**98.6** 80.31 : 124.50
Chlorobenzene	TM116	**99.6** 83.81 : 114.18
Chloroform	TM116	**102.4** 87.40 : 122.49
Chloromethane	TM116	**79.4** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**102.2** 80.67 : 126.72
Dibromomethane	TM116	**94.2** 73.23 : 118.35
Dichloromethane	TM116	**107.4** 81.11 : 133.25
Ethylbenzene	TM116	**88.2** 75.92 : 110.41
Hexachlorobutadiene	TM116	**43.4** 12.82 : 152.73
Isopropylbenzene	TM116	**75.4** 54.30 : 105.91
Naphthalene	TM116	**100.8** 80.86 : 128.81
o-Xylene	TM116	**85.8** 69.99 : 108.74
p/m-Xylene	TM116	**84.1** 68.32 : 108.91
Sec-Butylbenzene	TM116	**62.2** 38.50 : 101.50
Tetrachloroethene	TM116	**98.6** 76.95 : 121.02
Toluene	TM116	**87.2** 74.24 : 107.42

CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

		QC 2711
Trichloroethene	TM116	**94.0** 85.28 : 109.36
Trichlorofluoromethane	TM116	**97.4** 81.46 : 120.52
Vinyl Chloride	TM116	**90.6** 68.02 : 143.37

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

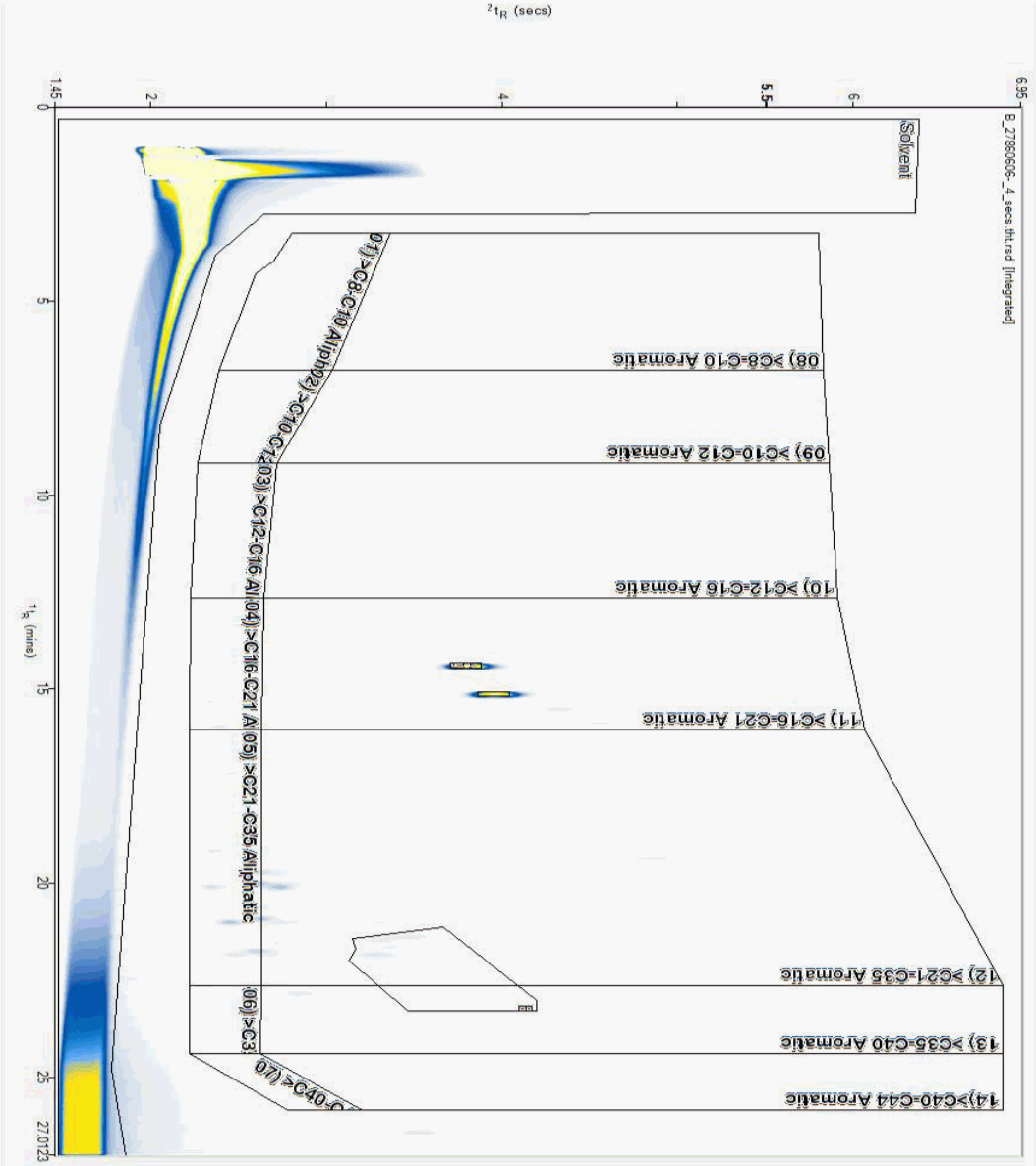
CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27860606 **Depth :** 0.40 - 0.50
Sample ID : WS106

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_27860606-_4_secs.tht
Date Acquired   :  20/04/23 09:14:38
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

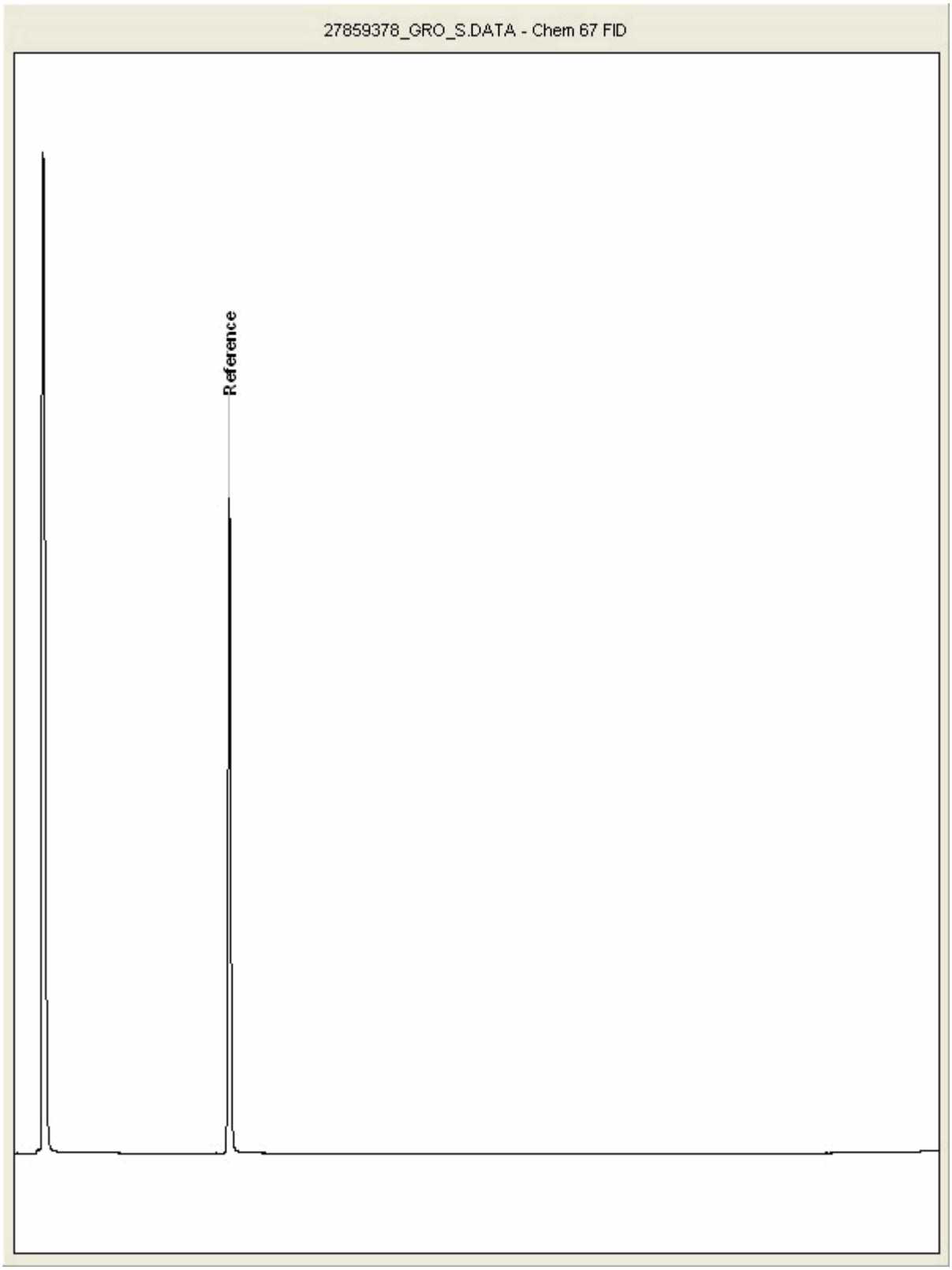


CERTIFICATE OF ANALYSIS

SDG: 230415-39 **Report Number:** 687042 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27859378 **Depth :** 0.40 - 0.50
Sample ID : WS106



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 15 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. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

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 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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.

19. **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**

20. **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 (2021), 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 and soils are obtained from supplied bulk materials andd soils 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 (2021).

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.

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.

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.

Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

ARCADIS UK Ltd
Charter House
62-68 Hills Road
Cambridge
CB2 1LA

Attention: Annie Harding

CERTIFICATE OF ANALYSIS

Date of report Generation:	26 April 2023
Customer:	ARCADIS UK Ltd
Sample Delivery Group (SDG):	230415-42
Your Reference:	10057335
Location:	Steyning Grammar
Report No:	687043
Order Number:	10057335

We received 4 samples on Saturday April 15, 2023 and 3 of these samples were scheduled for analysis which was completed on Wednesday April 26, 2023. 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 Laboratories (UK) Limited Hawarden.

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:

Sonia McWhan

Operations Manager

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CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27842001	WS103	ES1	0.40 - 0.50	04/04/2023
27842003	WS103A	ES2	0.20 - 0.30	04/04/2023
27842002	WS103A	ES1	0.90 - 1.10	04/04/2023
27842005	WS103A	ES3	2.70 - 2.85	04/04/2023

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

CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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)			27842001			27842002			27842005	
Customer Sample Reference			WS103			WS103A			WS103A	
AGS Reference			ES1			ES1			ES3	
Depth (m)			0.40 - 0.50			0.90 - 1.10			2.70 - 2.85	
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 3		X			X		X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2	X			X				
Chromium III	All	NDPs: 0 Tests: 3		X			X		X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 3		X			X		X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 3		X			X		X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 3			X			X		X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 3		X			X		X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 3		X			X		X	
PAH by GCMS	All	NDPs: 0 Tests: 3		X			X		X	
pH	All	NDPs: 0 Tests: 3		X			X		X	
Sample description	All	NDPs: 0 Tests: 3		X			X		X	
Total Organic Carbon	All	NDPs: 0 Tests: 2		X			X			
Total Sulphur	All	NDPs: 0 Tests: 3		X			X		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 3		X			X		X	
VOC MS (S)	All	NDPs: 0 Tests: 3			X			X		X

CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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
27842001	WS103	0.40 - 0.50	Dark Brown	Sandy Loam	Stones	Vegetation
27842002	WS103A	0.90 - 1.10	Light Brown	Loamy Sand	Stones	N/A
27842005	WS103A	2.70 - 2.85	Light Brown	Silty Clay Loam	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: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Results Legend		Customer Sample Ref.						
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.	Depth (m)						
tot.unfilt	Total / unfiltered sample.	Sample Type						
*	Subcontracted - refer to subcontractor report for accreditation status.	Date Sampled						
**	% 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	Sampled Time						
		Date Received						
		SDG Ref						
(F)	Trigger breach confirmed	Lab Sample No.(s)						
1-4+§@	Sample deviation (see appendix)	AGS Reference						
Component	**LOD/Units**	**Method**						

CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

			WS103 0.40 - 0.50 Soil/Solid (S) 04/04/2023 . 15/04/2023 230415-42 27842001 ES1	WS103A 0.90 - 1.10 Soil/Solid (S) 04/04/2023 . 15/04/2023 230415-42 27842002 ES1	WS103A 2.70 - 2.85 Soil/Solid (S) 04/04/2023 00:00:00 15/04/2023 230415-42 27842005 ES3
Moisture Content Ratio (% of as received sample)	% PM024		17	9.8	19
Organic Carbon, Total	<0.2 % TM132		1.41 M	0.231 M	
Sulphur, Total	<0.02 % TM132		0.0312 #	<0.02 #	<0.02 #
pH	1 pH Units TM133		8.51 M	8.91 M	8.97 M
Chromium, Hexavalent	<0.6 mg/kg TM151		<0.6 M	<0.6 M	<0.6 M
Cyanide, Free	<1 mg/kg TM153		<1 @ M	<1 @ M	<1 @ M
Chromium, Trivalent	<0.9 mg/kg TM181		9.91	2.86	4.58
Antimony	<0.6 mg/kg TM181		<0.6 #	<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg TM181		9.75 M	4.14 M	4.55 M
Barium	<0.6 mg/kg TM181		64.1 #	21.1 #	28.8 #
Beryllium	<0.01 mg/kg TM181		0.615 M	0.212 M	0.51 M
Boron	<0.7 mg/kg TM181		8.37 #	5.32 #	10.4 #
Chromium	<0.9 mg/kg TM181		9.91 M	2.98 M	4.58 M
Copper	<1.4 mg/kg TM181		12.8 M	4.58 M	11.3 M
Iron	<1000 mg/kg TM181		18900 #	6600 #	9360 #
Lead	<0.7 mg/kg TM181		47 M	5.92 M	8.34 M
Molybdenum	<0.1 mg/kg TM181		0.297 #	<0.1 #	<0.1 #
Nickel	<0.2 mg/kg TM181		15.1 M	10.1 M	18.2 M
Selenium	<1 mg/kg TM181		<1 #	1.03 #	<1 #
Vanadium	<0.2 mg/kg TM181		28.4 #	7.19 #	9.85 #
Zinc	<1.9 mg/kg TM181		55.7 M	19.6 M	23.9 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l TM243		0.0063 M	<0.004 M	0.0069 M

PAH by GCMS

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH by GCMS

			WS103 0.40 - 0.50 Soil/Solid (S) 04/04/2023 . 15/04/2023 230415-42 27842001 ES1	WS103A 0.90 - 1.10 Soil/Solid (S) 04/04/2023 . 15/04/2023 230415-42 27842002 ES1	WS103A 2.70 - 2.85 Soil/Solid (S) 04/04/2023 00:00:00 15/04/2023 230415-42 27842005 ES3
Naphthalene-d8 % recovery**	%	TM218	95.9	97.1	103
Acenaphthene-d10 % recovery**	%	TM218	91.3	88.1	89.9
Phenanthrene-d10 % recovery**	%	TM218	100	91.2	93.4
Chrysene-d12 % recovery**	%	TM218	94.1	83.4	83.9
Perylene-d12 % recovery**	%	TM218	92.3	93.5	83.2
Naphthalene	<0.009 mg/kg	TM218	<0.009 @ M	<0.009 @ M	<0.009 @ M
Acenaphthylene	<0.012 mg/kg	TM218	0.0263 @ M	<0.012 @ M	<0.012 @ M
Acenaphthene	<0.008 mg/kg	TM218	<0.008 @ M	<0.008 @ M	<0.008 @ M
Fluorene	<0.01 mg/kg	TM218	<0.01 @ M	<0.01 @ M	<0.01 @ M
Phenanthrene	<0.015 mg/kg	TM218	0.0918 @ M	<0.015 @ M	<0.015 @ M
Anthracene	<0.016 mg/kg	TM218	0.0313 @ M	<0.016 @ M	<0.016 @ M
Fluoranthene	<0.017 mg/kg	TM218	0.362 @ M	<0.017 @ M	<0.017 @ M
Pyrene	<0.015 mg/kg	TM218	0.35 @ M	<0.015 @ M	<0.015 @ M
Benz(a)anthracene	<0.014 mg/kg	TM218	0.229 @ M	<0.014 @ M	<0.014 @ M
Chrysene	<0.01 mg/kg	TM218	0.235 @ M	<0.01 @ M	<0.01 @ M
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	0.299 @ M	<0.015 @ M	<0.015 @ M
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	0.128 @ M	<0.014 @ M	<0.014 @ M
Benzo(a)pyrene	<0.015 mg/kg	TM218	0.254 @ M	<0.015 @ M	<0.015 @ M
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	0.198 @ M	<0.018 @ M	<0.018 @ M
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	0.0332 @ M	<0.023 @ M	<0.023 @ M
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	0.216 @ M	<0.024 @ M	<0.024 @ M
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	2.45	<0.118	<0.118

CERTIFICATE OF ANALYSIS

SDG:	230415-42	**Report Number:**	687043	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

TPH CWG (S)

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

13:46:21 26/04/2023

CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

			WS103 0.40 - 0.50 Soil/Solid (S) 04/04/2023 . 15/04/2023 230415-42 27842001 ES1	WS103A 0.90 - 1.10 Soil/Solid (S) 04/04/2023 . 15/04/2023 230415-42 27842002 ES1	WS103A 2.70 - 2.85 Soil/Solid (S) 04/04/2023 00:00:00 15/04/2023 230415-42 27842005 ES3
GRO Surrogate % recovery**	%	TM089	90.6 @	103 @	103 @
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @	<0.01 @
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @	<0.01 @
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @	<0.01 @
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #	<1 @ #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #	<1 @ #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #	<1 @ #
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414	5.69 @ #	1.03 @ #	<1 @ #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @	<1 @	<1 @
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414	6.06 @	<5 @	<5 @
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414	24.2	<10	<10
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @	<0.01 @
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @	<0.01 @
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @	<0.01 @
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #	<1 @ #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #	<1 @ #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414	1.15 @ #	<1 @ #	<1 @ #
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414	15.1 @ #	<1 @ #	<1 @ #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	1.88 @	<1 @	<1 @
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @	<1 @	<1 @
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414	18.2	<5	<5
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414	24.2	<10	<10
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089	<0.05 @	<0.05 @	<0.05 @
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089	<0.05 @	<0.05 @	<0.05 @
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089	<0.02 @	<0.02 @	<0.02 @

VOC MS (S)

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

13:46:21 26/04/2023

CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

			WS103 0.40 - 0.50 Soil/Solid (S) 04/04/2023 . 15/04/2023 230415-42 27842001 ES1	WS103A 0.90 - 1.10 Soil/Solid (S) 04/04/2023 . 15/04/2023 230415-42 27842002 ES1	WS103A 2.70 - 2.85 Soil/Solid (S) 04/04/2023 00:00:00 15/04/2023 230415-42 27842005 ES3
Dibromofluoromethane**	%	TM116	105 @	98.6 @	102 @
Toluene-d8**	%	TM116	90.5 @	96.8 @	96.7 @
4-Bromofluorobenzene**	%	TM116	80.3 @	99 @	104 @
Methyl Tertiary Butyl Ether	<0.01 mg/kg	TM116	<0.01 @ M	<0.01 @ M	<0.01 @ M
Benzene	<0.009 mg/kg	TM116	<0.009 @ M	<0.009 @ M	<0.009 @ M
Toluene	<0.007 mg/kg	TM116	<0.007 @ M	<0.007 @ M	<0.007 @ M
Ethylbenzene	<0.004 mg/kg	TM116	<0.004 @ M	<0.004 @ M	<0.004 @ M
p/m-Xylene	<0.01 mg/kg	TM116	<0.01 @ #	<0.01 @ #	<0.01 @ #
o-Xylene	<0.01 mg/kg	TM116	<0.01 @ M	<0.01 @ M	<0.01 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @	<0.02 @	<0.02 @
Sum of BTEX	<0.04 mg/kg	TM116	<0.04 @	<0.04 @	<0.04 @

CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS103ES1 0.40 - 0.50 SOLID 04/04/2023 00:00:00 15/04/2023 05:00:00 230415-42 27842001 TM048	21/04/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS103AES1 0.90 - 1.10 SOLID 04/04/2023 00:00:00 15/04/2023 05:00:00 230415-42 27842002 TM048	20/04/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	Identification of Asbestos in Bulk Material
TM089	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Determination of Hexavalent Chromium using Kone analyser
TM153	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM181	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	The determination of PAH in soil samples by GC-MS
TM243	Mixed Anions In Soils By Kone
TM414	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Test Completion Dates

Lab Sample No(s)	27842001	27842002	27842005
Customer Sample Ref.	WS103	WS103A	WS103A
AGS Ref.	ES1	ES1	ES3
Depth	0.40 - 0.50	0.90 - 1.10	2.70 - 2.85
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	24-Apr-2023	25-Apr-2023	21-Apr-2023
Asbestos ID in Solid Samples	21-Apr-2023	21-Apr-2023	
Chromium III	25-Apr-2023	25-Apr-2023	24-Apr-2023
Cyanide Comp/Free/Total/Thiocyanate	21-Apr-2023	21-Apr-2023	21-Apr-2023
EPH CWG GC (S)	21-Apr-2023	21-Apr-2023	21-Apr-2023
GRO by GC-FID (S)		21-Apr-2023	21-Apr-2023
Hexavalent Chromium (s)	24-Apr-2023	25-Apr-2023	20-Apr-2023
Metals in solid samples by OES	25-Apr-2023	25-Apr-2023	24-Apr-2023
PAH by GCMS	24-Apr-2023	24-Apr-2023	24-Apr-2023
pH	21-Apr-2023	21-Apr-2023	21-Apr-2023
Sample description	19-Apr-2023	19-Apr-2023	19-Apr-2023
Total Organic Carbon	25-Apr-2023	25-Apr-2023	
Total Sulphur	24-Apr-2023	26-Apr-2023	24-Apr-2023
TPH CWG GC (S)	21-Apr-2023	21-Apr-2023	21-Apr-2023
VOC MS (S)	20-Apr-2023	20-Apr-2023	20-Apr-2023

ASSOCIATED AQC DATA

Anions by Kone (soil)

Component	Method Code	QC 2713	QC 2710
Chloride (soluble)	TM243	**99.43** 93.18 : 112.38	**104.53** 93.18 : 112.38
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**91.98** 79.99 : 117.30	**94.74** 79.99 : 117.30

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2743
Free Cyanide	TM153	**99.01** 83.00 : 113.00
Thiocyanate	TM153	**91.03** 87.27 : 113.27
Total Cyanide	TM153	**100.7** 72.73 : 109.93

EPH CWG GC (S)

Component	Method Code	QC 2783
EPH >C8-C40 Raw	TM414	**100.35** 72.07 : 116.69
Total Aliphatics Raw	TM414	**102.79** 73.18 : 116.06
Total Aromatics Raw	TM414	**140.31** 69.77 : 129.02

GRO by GC-FID (S)

Component	Method Code	QC 2747	QC 2703
QC	TM089	**82.76** 59.51 : 102.93	**78.82** 59.51 : 102.93

Hexavalent Chromium (s)

Component	Method Code	QC 2714	QC 2790
Hexavalent Chromium	TM151	**108.0** 84.37 : 115.69	**106.0** 84.37 : 115.69

Metals in solid samples by OES

CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Metals in solid samples by OES

Component	Method Code	QC 2700	QC 2733	QC 2750
Aluminium	TM181	**103.51** 84.95 : 125.04	**103.51** 84.95 : 125.04	**102.63** 84.95 : 125.04
Antimony	TM181	**103.15** 81.24 : 112.95	**98.6** 81.24 : 112.95	**100.0** 81.24 : 112.95
Arsenic	TM181	**101.86** 87.39 : 110.81	**98.76** 87.39 : 110.81	**98.14** 87.39 : 110.81
Barium	TM181	**111.0** 92.16 : 121.75	**110.0** 92.16 : 121.75	**110.0** 92.16 : 121.75
Beryllium	TM181	**108.99** 85.72 : 122.69	**106.67** 85.72 : 122.69	**106.96** 85.72 : 122.69
Boron	TM181	**110.49** 93.63 : 124.95	**107.87** 93.63 : 124.95	**107.87** 93.63 : 124.95
Cadmium	TM181	**104.17** 82.04 : 114.28	**104.17** 82.04 : 114.28	**104.17** 82.04 : 114.28
Chromium	TM181	**110.93** 97.18 : 117.32	**110.13** 97.18 : 117.32	**111.73** 97.18 : 117.32
Cobalt	TM181	**98.39** 90.33 : 109.99	**98.75** 90.33 : 109.99	**97.85** 90.33 : 109.99
Copper	TM181	**108.24** 90.40 : 118.14	**106.74** 90.40 : 118.14	**106.37** 90.40 : 118.14
Iron	TM181	**103.67** 76.44 : 123.20	**102.75** 76.44 : 123.20	**100.92** 76.44 : 123.20
Lead	TM181	**106.51** 84.55 : 119.89	**101.2** 84.55 : 119.89	**104.1** 84.55 : 119.89
Manganese	TM181	**108.11** 85.97 : 117.31	**104.59** 85.97 : 117.31	**105.41** 85.97 : 117.31
Mercury	TM181	**103.04** 79.17 : 111.30	**99.39** 79.17 : 111.30	**99.09** 79.17 : 111.30
Molybdenum	TM181	**101.28** 87.03 : 110.33	**99.36** 87.03 : 110.33	**99.36** 87.03 : 110.33
Nickel	TM181	**104.52** 83.87 : 113.53	**99.72** 83.87 : 113.53	**99.72** 83.87 : 113.53
Phosphorus	TM181	**102.87** 84.16 : 113.49	**99.04** 84.16 : 113.49	**99.36** 84.16 : 113.49
Selenium	TM181	**100.98** 81.18 : 111.13	**99.67** 81.18 : 111.13	**99.67** 81.18 : 111.13
Strontium	TM181	**110.8** 92.60 : 122.34	**107.97** 92.60 : 122.34	**108.74** 92.60 : 122.34
Thallium	TM181	**105.21** 85.37 : 116.45	**105.21** 85.37 : 116.45	**105.54** 85.37 : 116.45
Tin	TM181	**103.94** 86.96 : 122.18	**101.41** 86.96 : 122.18	**101.97** 86.96 : 122.18
Titanium	TM181	**102.83** 80.16 : 123.61	**98.11** 80.16 : 123.61	**98.11** 80.16 : 123.61
Vanadium	TM181	**108.43** 89.30 : 122.79	**107.28** 89.30 : 122.79	**107.66** 89.30 : 122.79
Zinc	TM181	**114.35** 89.16 : 121.48	**111.29** 89.16 : 121.48	**110.12** 89.16 : 121.48

PAH by GCMS

CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH by GCMS

Component	Method Code	QC 2758
Acenaphthene	TM218	**89.5** 74.70 : 106.04
Acenaphthylene	TM218	**86.5** 73.12 : 105.14
Anthracene	TM218	**93.0** 73.99 : 113.85
Benz(a)anthracene	TM218	**91.0** 69.31 : 119.18
Benzo(a)pyrene	TM218	**78.5** 66.97 : 114.92
Benzo(b)fluoranthene	TM218	**76.0** 60.94 : 110.94
Benzo(ghi)perylene	TM218	**89.0** 62.92 : 114.36
Benzo(k)fluoranthene	TM218	**77.0** 64.37 : 112.56
Chrysene	TM218	**90.0** 69.86 : 114.50
Dibenzo(ah)anthracene	TM218	**88.0** 64.54 : 115.22
Fluoranthene	TM218	**82.0** 65.27 : 115.60
Fluorene	TM218	**91.0** 76.17 : 102.87
Indeno(123cd)pyrene	TM218	**88.0** 61.22 : 113.25
Naphthalene	TM218	**90.5** 73.52 : 105.12
Phenanthrene	TM218	**91.5** 72.65 : 111.50
Pyrene	TM218	**85.0** 64.72 : 112.44

pH

Component	Method Code	QC 2705	QC 2707
pH	TM133	**99.85** 96.27 : 101.64	**99.85** 96.27 : 101.64

Total Organic Carbon

Component	Method Code	QC 2741
Total Organic Carbon	TM132	**99.61** 89.45 : 124.61

Total Sulphur

CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Total Sulphur

Component	Method Code	QC 2792	QC 2718
Total Sulphur %	TM132	**113.99** 56.98 : 119.13	**103.11** 56.98 : 119.13

VOC MS (S)

Component	Method Code	QC 2711
1,1,1,2-tetrachloroethane	TM116	**102.4** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**98.6** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**92.6** 77.12 : 116.04
1,1-Dichloroethane	TM116	**101.0** 74.46 : 129.15
1,2-Dichloroethane	TM116	**104.8** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**100.8** 76.78 : 122.98
2-Chlorotoluene	TM116	**86.0** 68.55 : 109.58
4-Chlorotoluene	TM116	**79.8** 66.29 : 107.51
Benzene	TM116	**98.6** 93.16 : 114.90
Carbon Disulphide	TM116	**94.6** 74.91 : 122.14
Carbontetrachloride	TM116	**98.6** 80.31 : 124.50
Chlorobenzene	TM116	**99.6** 83.81 : 114.18
Chloroform	TM116	**102.4** 87.40 : 122.49
Chloromethane	TM116	**79.4** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**102.2** 80.67 : 126.72
Dibromomethane	TM116	**94.2** 73.23 : 118.35
Dichloromethane	TM116	**107.4** 81.11 : 133.25
Ethylbenzene	TM116	**88.2** 75.92 : 110.41
Hexachlorobutadiene	TM116	**43.4** 12.82 : 152.73
Isopropylbenzene	TM116	**75.4** 54.30 : 105.91
Naphthalene	TM116	**100.8** 80.86 : 128.81

VOC MS (S)

		QC 2711
o-Xylene	TM116	**85.8** 69.99 : 108.74
p/m-Xylene	TM116	**84.1** 68.32 : 108.91
Sec-Butylbenzene	TM116	**62.2** 38.50 : 101.50
Tetrachloroethene	TM116	**98.6** 76.95 : 121.02
Toluene	TM116	**87.2** 74.24 : 107.42
Trichloroethene	TM116	**94.0** 85.28 : 109.36
Trichlorofluoromethane	TM116	**97.4** 81.46 : 120.52
Vinyl Chloride	TM116	**90.6** 68.02 : 143.37

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

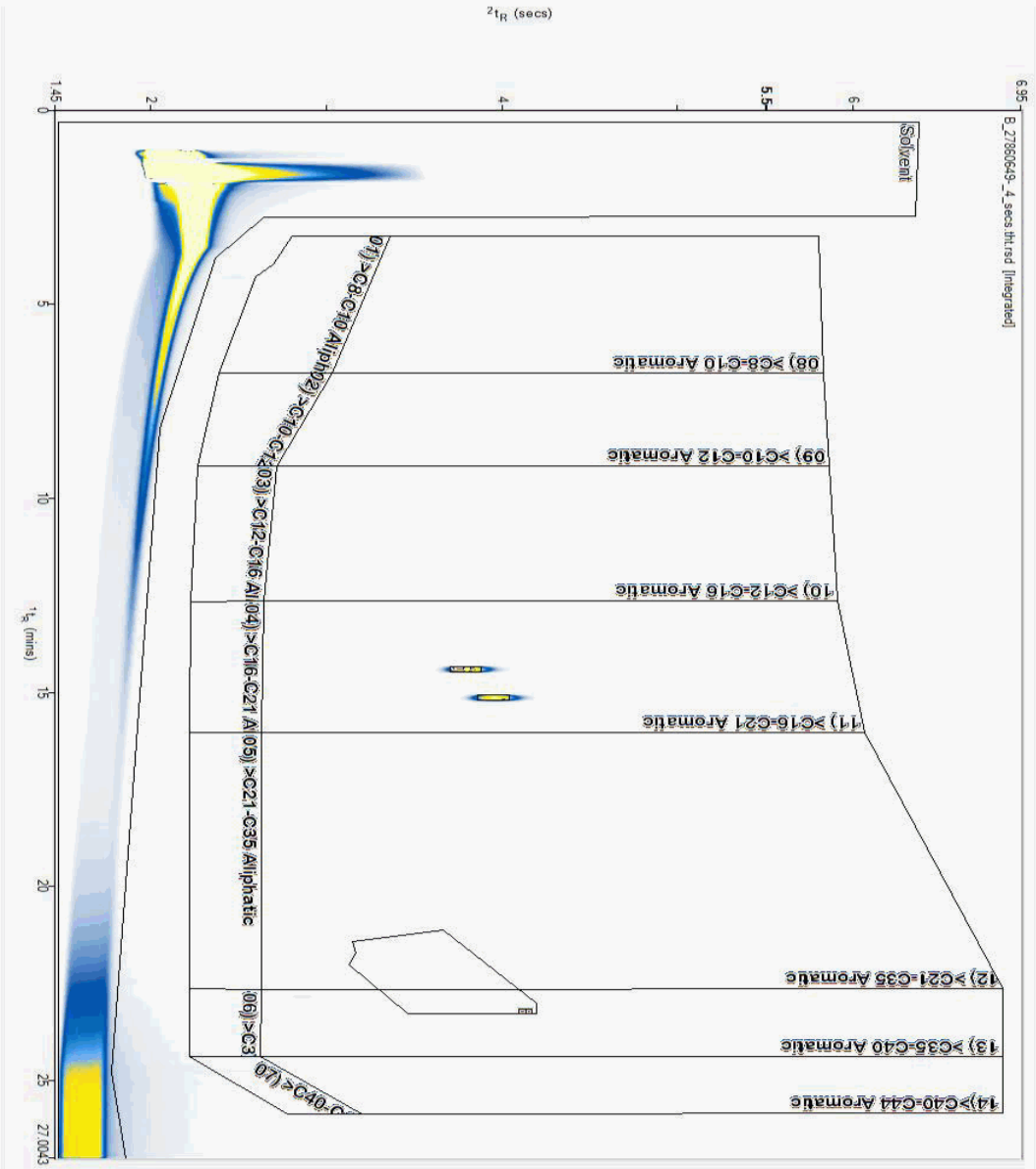
CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27860649 **Depth :** 2.70 - 2.85
Sample ID : WS103A

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_27860649-_4_secs.tht
Date Acquired   :  20/04/23 05:04:27
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

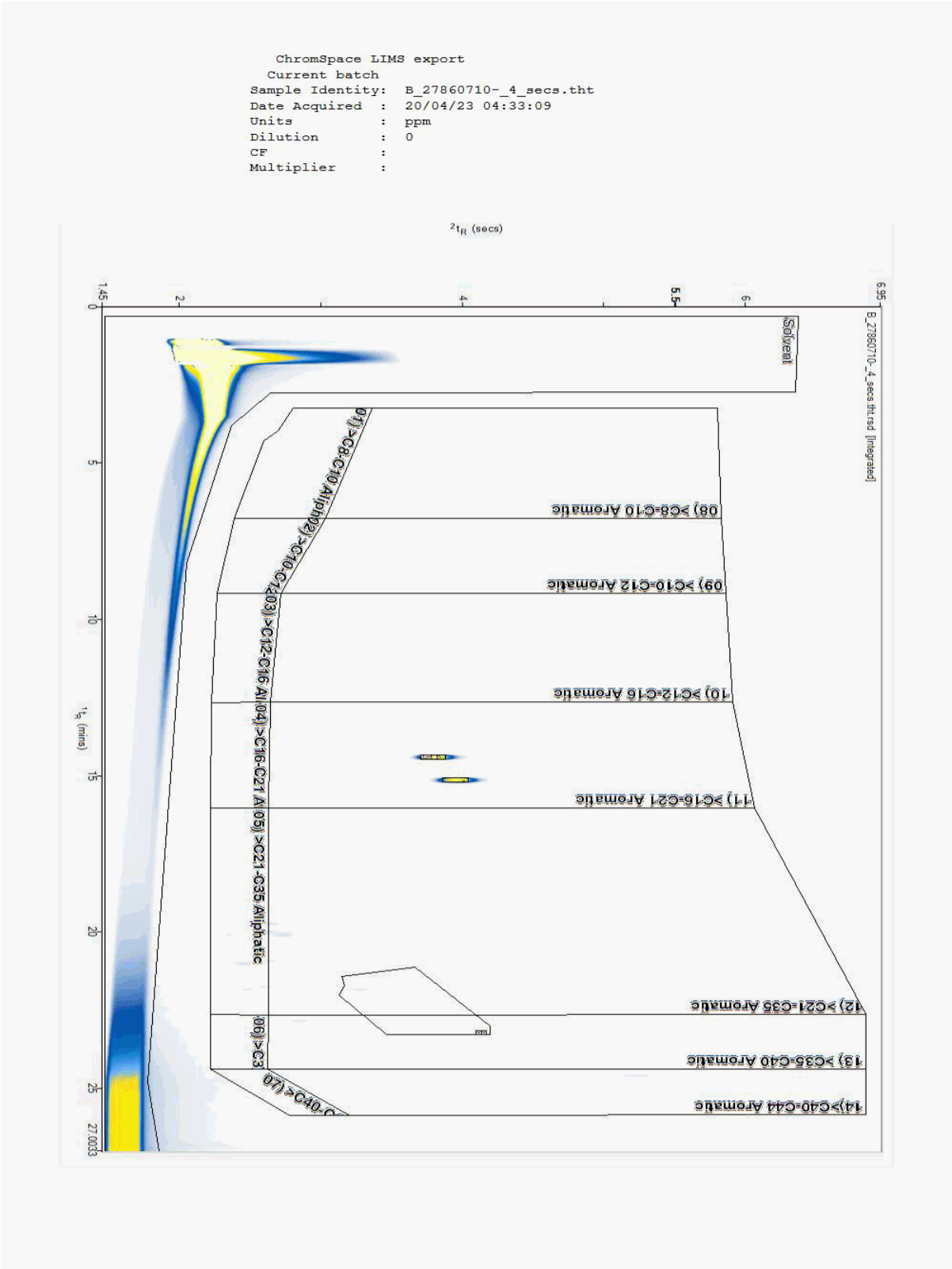


CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27860710 **Depth :** 0.90 - 1.10
Sample ID : WS103A



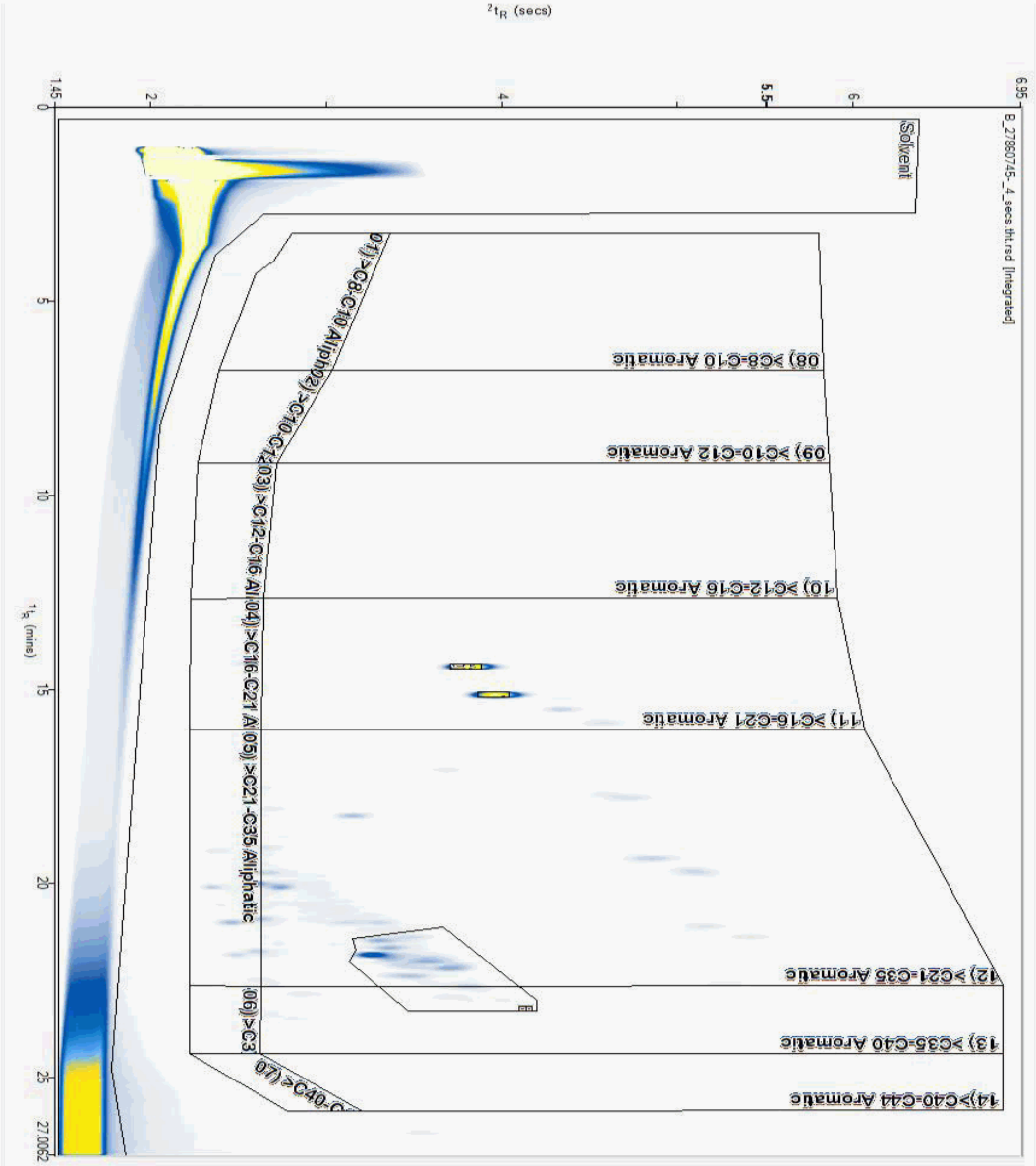
CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27860745 **Depth :** 0.40 - 0.50
Sample ID : WS103

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_27860745-_4_secs.tht
Date Acquired   :  20/04/23 10:57:53
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

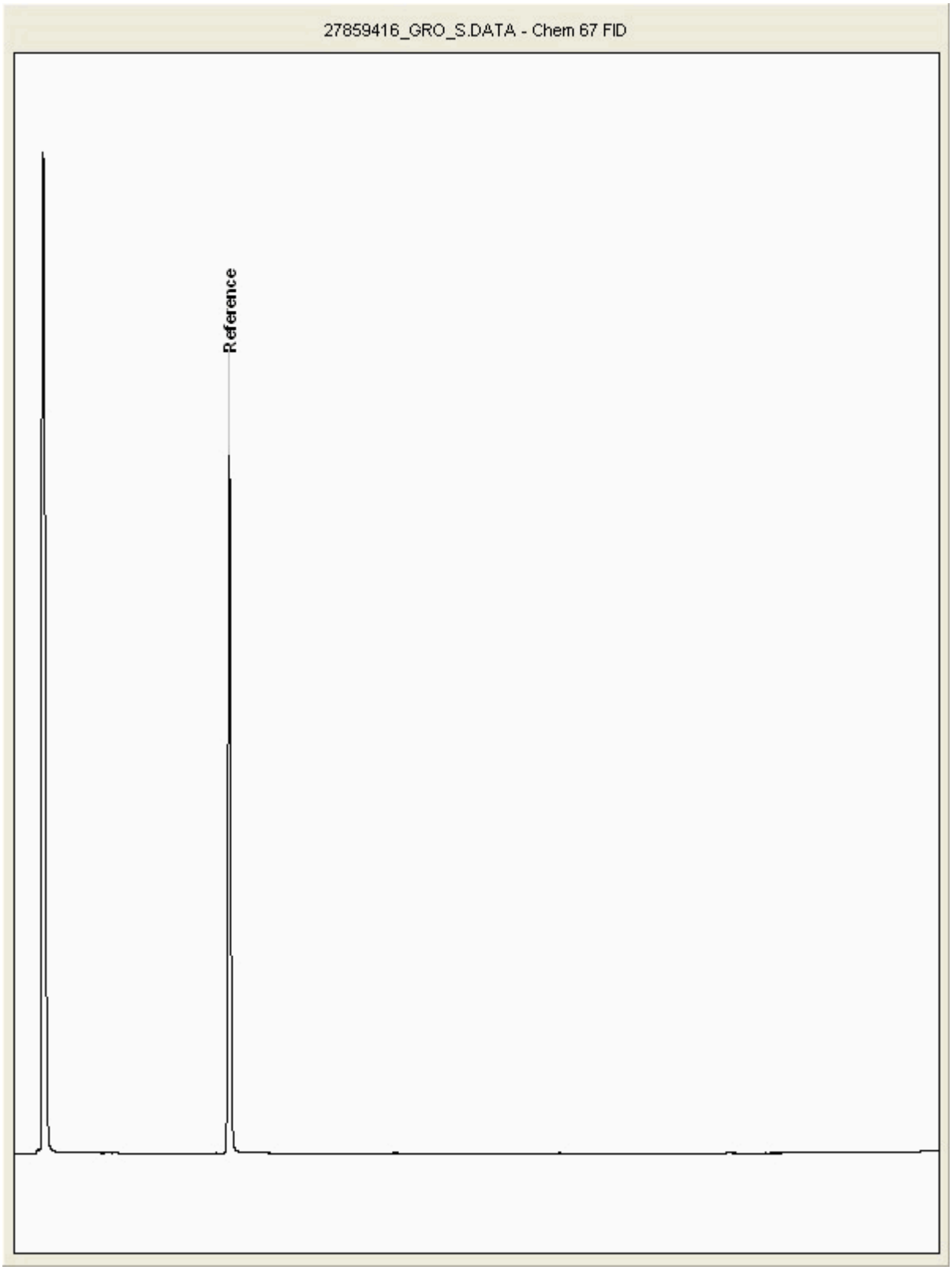


CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27859416 **Depth :** 0.90 - 1.10
Sample ID : WS103A

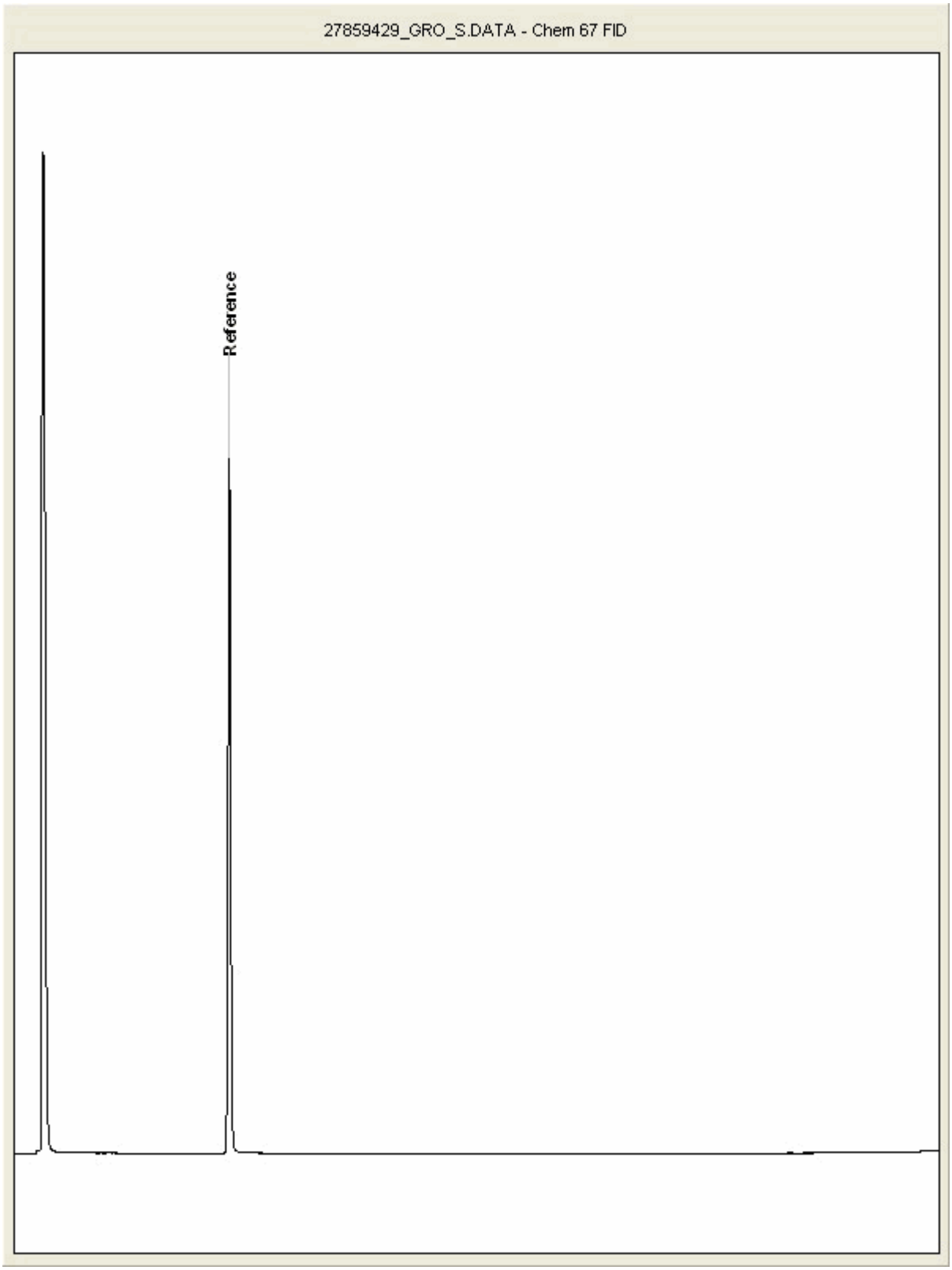


CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27859429 **Depth :** 2.70 - 2.85
Sample ID : WS103A

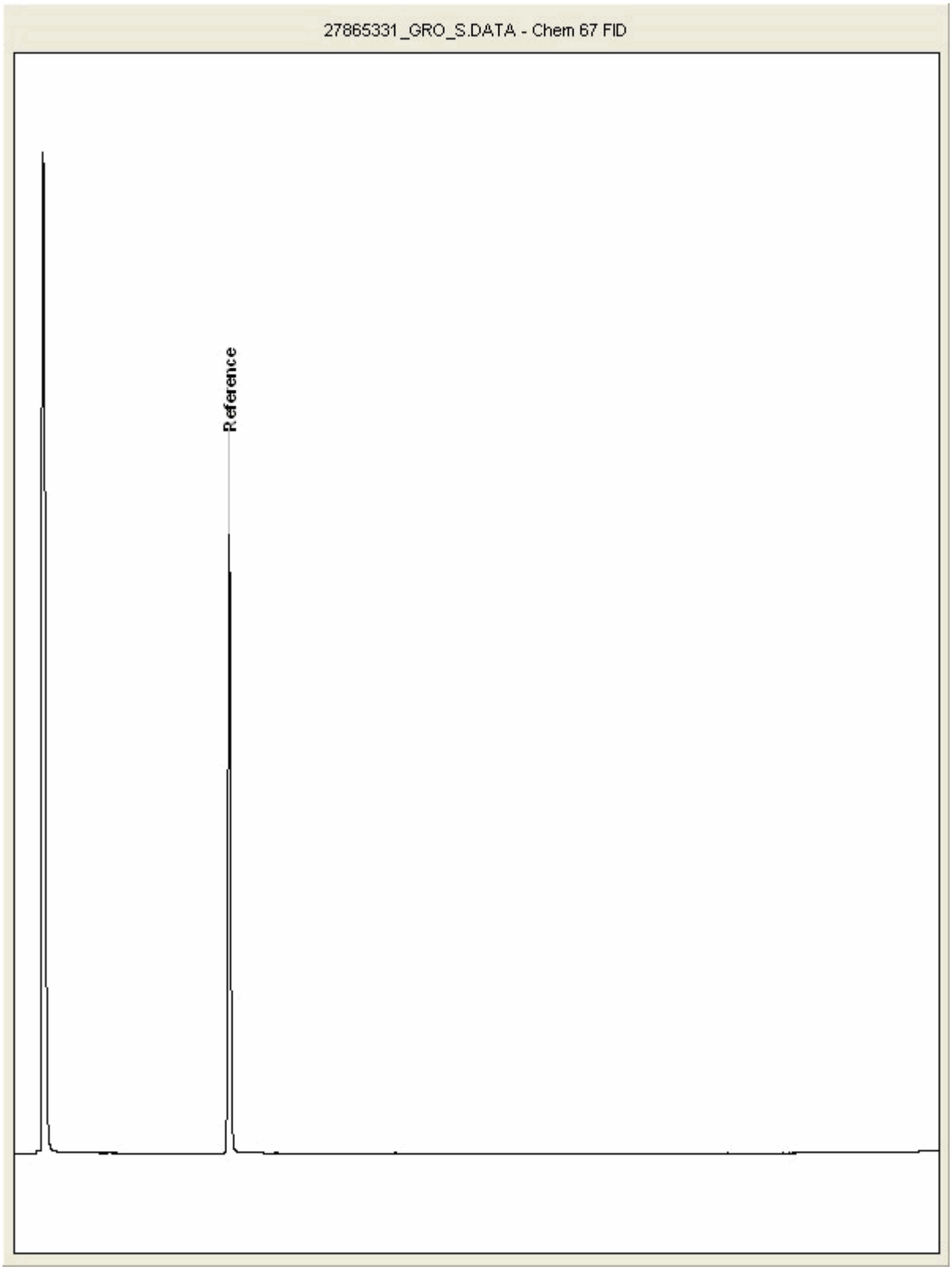


CERTIFICATE OF ANALYSIS

SDG: 230415-42 **Report Number:** 687043 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27865331 **Depth :** 0.40 - 0.50
Sample ID : WS103



SDG:	230415-42	**Report Number:**	687043	**Superseded Report:**	
Client Ref:	10057335	**Location:**	Steyning Grammar		

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 15 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. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

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 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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.

19. **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**

20. **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 (2021), 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 and soils are obtained from supplied bulk materials andd soils 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 (2021).

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.

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.

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.

Units 7-8 Hawarden Business Park
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Deeside
CH5 3US
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Website: www.alsenvironmental.co.uk

ARCADIS UK Ltd
Charter House
62-68 Hills Road
Cambridge
CB2 1LA

Attention: Annie Harding

CERTIFICATE OF ANALYSIS

Date of report Generation:	25 April 2023
Customer:	ARCADIS UK Ltd
Sample Delivery Group (SDG):	230415-44
Your Reference:	10057335
Location:	Steyning Grammar
Report No:	686852
Order Number:	10057335

We received 3 samples on Saturday April 15, 2023 and 1 of these samples were scheduled for analysis which was completed on Tuesday April 25, 2023. 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 Laboratories (UK) Limited Hawarden.

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:

Sonia McWhan

Operations Manager

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CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27842103	WS101	ES1	0.20 - 0.40	04/04/2023
27842104	WS101	ES2	0.70 - 0.80	04/04/2023
27842105	WS101	ES3	3.50 - 3.60	04/04/2023

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

CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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)			27842103		
Customer Sample Reference			WS101		
AGS Reference			ES1		
Depth (m)			0.20 - 0.40		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 1		X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1	X		
Chromium III	All	NDPs: 0 Tests: 1		X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 1		X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 1		X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 1		X	
PAH by GCMS	All	NDPs: 0 Tests: 1		X	
pH	All	NDPs: 0 Tests: 1		X	
Sample description	All	NDPs: 0 Tests: 1		X	
Total Organic Carbon	All	NDPs: 0 Tests: 1		X	
Total Sulphur	All	NDPs: 0 Tests: 1		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 1		X	
VOC MS (S)	All	NDPs: 0 Tests: 1			X

CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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
27842103	WS101	0.20 - 0.40	Dark Brown	Clay Loam	Stones	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.

CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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+5@	Sample deviation (see appendix)

Customer Sample Ref.	WS101
Depth (m)	0.20 - 0.40
Sample Type	Soil/Solid (S)
Date Sampled	04/04/2023
Sampled Time	.
Date Received	15/04/2023
SDG Ref	230415-44
Lab Sample No.(s)	27842103
AGS Reference	ES1

Component	LOD/Units	Method	
Moisture Content Ratio (% of as received sample)	%	PM024	17
Organic Carbon, Total	<0.2 %	TM132	0.544 M
Sulphur, Total	<0.02 %	TM132	0.0219 #
pH	1 pH Units	TM133	8.35 M
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 M
Cyanide, Free	<1 mg/kg	TM153	<1 @ M
Chromium, Trivalent	<0.9 mg/kg	TM181	14.6
Antimony	<0.6 mg/kg	TM181	<0.6 #
Arsenic	<0.6 mg/kg	TM181	12.1 M
Barium	<0.6 mg/kg	TM181	93.5 #
Beryllium	<0.01 mg/kg	TM181	0.848 M
Boron	<0.7 mg/kg	TM181	9.01 #
Chromium	<0.9 mg/kg	TM181	14.6 M
Copper	<1.4 mg/kg	TM181	15.7 M
Iron	<1000 mg/kg	TM181	23300 #
Lead	<0.7 mg/kg	TM181	19.8 M
Molybdenum	<0.1 mg/kg	TM181	<0.1 #
Nickel	<0.2 mg/kg	TM181	24.7 M
Selenium	<1 mg/kg	TM181	1.14 #
Vanadium	<0.2 mg/kg	TM181	34.1 #
Zinc	<1.9 mg/kg	TM181	45.9 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0232 M

CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sampled Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			WS101	0.20 - 0.40	Soil/Solid (S)	04/04/2023	.	15/04/2023	230415-44	27842103	ES1
Naphthalene-d8 % recovery**	%	TM218	92								
Acenaphthene-d10 % recovery**	%	TM218	88								
Phenanthrene-d10 % recovery**	%	TM218	88.8								
Chrysene-d12 % recovery**	%	TM218	82.3								
Perylene-d12 % recovery**	%	TM218	84.9								
Naphthalene	<0.009 mg/kg	TM218	<0.009 @ M								
Acenaphthylene	<0.012 mg/kg	TM218	<0.012 @ M								
Acenaphthene	<0.008 mg/kg	TM218	<0.008 @ M								
Fluorene	<0.01 mg/kg	TM218	<0.01 @ M								
Phenanthrene	<0.015 mg/kg	TM218	0.116 @ M								
Anthracene	<0.016 mg/kg	TM218	0.0269 @ M								
Fluoranthene	<0.017 mg/kg	TM218	0.196 @ M								
Pyrene	<0.015 mg/kg	TM218	0.132 @ M								
Benz(a)anthracene	<0.014 mg/kg	TM218	0.0782 @ M								
Chrysene	<0.01 mg/kg	TM218	0.0892 @ M								
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	0.0949 @ M								
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	0.148 @ M								
Benzo(a)pyrene	<0.015 mg/kg	TM218	0.0681 @ M								
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	0.0602 @ M								
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.023 @ M								
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	0.0638 @ M								
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	1.07								

CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

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+5@	Sample deviation (see appendix)

Customer Sample Ref.	WS101
Depth (m)	0.20 - 0.40
Sample Type	Soil/Solid (S)
Date Sampled	04/04/2023
Sampled Time	.
Date Received	15/04/2023
SDG Ref	230415-44
Lab Sample No.(s)	27842103
AGS Reference	ES1

Component	LOD/Units	Method	
GRO Surrogate % recovery**	%	TM089	111 @
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414	1.73 @ #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414	<5 @
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414	<10
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414	1.32 @ #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414	<5
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414	<10
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089	<0.05 @
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089	<0.05 @
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089	<0.02 @

CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Customer Sample Ref.	WS101
Depth (m)	0.20 - 0.40
Sample Type	Soil/Solid (S)
Date Sampled	04/04/2023
Sampled Time	.
Date Received	15/04/2023
SDG Ref	230415-44
Lab Sample No.(s)	27842103
AGS Reference	ES1

Component	LOD/Units	Method	
Dibromofluoromethane**	%	TM116	102 @
Toluene-d8**	%	TM116	96.8 @
4-Bromofluorobenzene**	%	TM116	94.6 @
Dichlorodifluoromethane	<0.006 mg/kg	TM116	<0.006 @ #
Chloromethane	<0.007 mg/kg	TM116	<0.007 @ #
Vinyl Chloride	<0.006 mg/kg	TM116	<0.006 @ M
Bromomethane	<0.01 mg/kg	TM116	<0.01 @ M
Chloroethane	<0.01 mg/kg	TM116	<0.01 @ M
Trichlorofluorormethane	<0.006 mg/kg	TM116	<0.006 @ M
1,1-Dichloroethene	<0.01 mg/kg	TM116	<0.01 @ #
Carbon Disulphide	<0.007 mg/kg	TM116	<0.007 @ M
Dichloromethane	<0.01 mg/kg	TM116	<0.01 @ #
Methyl Tertiary Butyl Ether	<0.01 mg/kg	TM116	<0.01 @ M
trans-1,2-Dichloroethene	<0.01 mg/kg	TM116	<0.01 @ M
1,1-Dichloroethane	<0.008 mg/kg	TM116	<0.008 @ M
cis-1,2-Dichloroethene	<0.006 mg/kg	TM116	<0.006 @ M
2,2-Dichloropropane	<0.01 mg/kg	TM116	<0.01 @
Bromochloromethane	<0.01 mg/kg	TM116	<0.01 @ M
Chloroform	<0.008 mg/kg	TM116	<0.008 @ M
1,1,1-Trichloroethane	<0.007 mg/kg	TM116	<0.007 @ M
1,1-Dichloropropene	<0.01 mg/kg	TM116	<0.01 @ M
Carbontetrachloride	<0.01 mg/kg	TM116	<0.01 @ M
1,2-Dichloroethane	<0.005 mg/kg	TM116	<0.005 @ M
Benzene	<0.009 mg/kg	TM116	<0.009 @ M
Trichloroethene	<0.009 mg/kg	TM116	<0.009 @ #
1,2-Dichloropropane	<0.01 mg/kg	TM116	<0.01 @ M
Dibromomethane	<0.009 mg/kg	TM116	<0.009 @ M
Bromodichloromethane	<0.007 mg/kg	TM116	<0.007 @ M
cis-1,3-Dichloropropene	<0.01 mg/kg	TM116	<0.01 @ M
Toluene	<0.007 mg/kg	TM116	<0.007 @ M
trans-1,3-Dichloropropene	<0.01 mg/kg	TM116	<0.01 @
1,1,2-Trichloroethane	<0.01 mg/kg	TM116	<0.01 @ M

CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

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+5@	Sample deviation (see appendix)

Customer Sample Ref.	WS101
Depth (m)	0.20 - 0.40
Sample Type	Soil/Solid (S)
Date Sampled	04/04/2023
Sampled Time	.
Date Received	15/04/2023
SDG Ref	230415-44
Lab Sample No.(s)	27842103
AGS Reference	ES1

Component	LOD/Units	Method	
1,3-Dichloropropane	<0.007 mg/kg	TM116	<0.007 @ M
Tetrachloroethene	<0.005 mg/kg	TM116	<0.005 @ M
Dibromochloromethane	<0.01 mg/kg	TM116	<0.01 @ M
1,2-Dibromoethane	<0.01 mg/kg	TM116	<0.01 @ M
Chlorobenzene	<0.005 mg/kg	TM116	<0.005 @ M
1,1,1,2-Tetrachloroethane	<0.01 mg/kg	TM116	<0.01 @ M
Ethylbenzene	<0.004 mg/kg	TM116	<0.004 @ M
p/m-Xylene	<0.01 mg/kg	TM116	<0.01 @ #
o-Xylene	<0.01 mg/kg	TM116	<0.01 @ M
Styrene	<0.01 mg/kg	TM116	<0.01 @ #
Bromoform	<0.01 mg/kg	TM116	<0.01 @ M
Isopropylbenzene	<0.005 mg/kg	TM116	<0.005 @ #
1,1,2,2-Tetrachloroethane	<0.01 mg/kg	TM116	<0.01 @ #
1,2,3-Trichloropropane	<0.016 mg/kg	TM116	<0.016 @ M
Bromobenzene	<0.01 mg/kg	TM116	<0.01 @ M
Propylbenzene	<0.01 mg/kg	TM116	<0.01 @ M
2-Chlorotoluene	<0.009 mg/kg	TM116	<0.009 @ M
1,3,5-Trimethylbenzene	<0.008 mg/kg	TM116	<0.008 @ M
4-Chlorotoluene	<0.01 mg/kg	TM116	<0.01 @ M
tert-Butylbenzene	<0.014 mg/kg	TM116	<0.014 @ #
1,2,4-Trimethylbenzene	<0.009 mg/kg	TM116	<0.009 @ #
sec-Butylbenzene	<0.01 mg/kg	TM116	<0.01 @
4-Isopropyltoluene	<0.01 mg/kg	TM116	<0.01 @
1,3-Dichlorobenzene	<0.008 mg/kg	TM116	<0.008 @ M
1,4-Dichlorobenzene	<0.005 mg/kg	TM116	<0.005 @ M
n-Butylbenzene	<0.011 mg/kg	TM116	<0.011 @
1,2-Dichlorobenzene	<0.01 mg/kg	TM116	<0.01 @ M
1,2-Dibromo-3-chloropropane	<0.014 mg/kg	TM116	<0.014 @ M
Tert-amyl methyl ether	<0.01 mg/kg	TM116	<0.01 @ #
1,2,4-Trichlorobenzene	<0.02 mg/kg	TM116	<0.02 @
Hexachlorobutadiene	<0.02 mg/kg	TM116	<0.02 @
Naphthalene	<0.013 mg/kg	TM116	<0.013 @ M

CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

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+5@	Sample deviation (see appendix)

Customer Sample Ref.	WS101
Depth (m)	0.20 - 0.40
Sample Type	Soil/Solid (S)
Date Sampled	04/04/2023
Sampled Time	.
Date Received	15/04/2023
SDG Ref	230415-44
Lab Sample No.(s)	27842103
AGS Reference	ES1

Component	LOD/Units	Method	
1,2,3-Trichlorobenzene	<0.02 mg/kg	TM116	<0.02 @ #
1,3,5-Trichlorobenzene	<0.02 mg/kg	TM116	<0.02
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @
Sum of BTEX	<0.04 mg/kg	TM116	<0.04 @

CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref.	WS101ES1	21/04/2023	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	0.20 - 0.40										
Sample Type	SOLID										
Date Sampled	04/04/2023 00:00:00										
Date Receieved	15/04/2023 05:00:00										
SDG	230415-44										
Original Sample	27842103										
Method Number	TM048										

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	Identification of Asbestos in Bulk Material
TM089	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Determination of Hexavalent Chromium using Kone analyser
TM153	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM181	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	The determination of PAH in soil samples by GC-MS
TM243	Mixed Anions In Soils By Kone
TM414	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Test Completion Dates

Lab Sample No(s)	27842103
Customer Sample Ref.	WS101
AGS Ref.	ES1
Depth	0.20 - 0.40
Type	Soil/Solid (S)
Anions by Kone (soil)	24-Apr-2023
Asbestos ID in Solid Samples	21-Apr-2023
Chromium III	25-Apr-2023
Cyanide Comp/Free/Total/Thiocyanate	21-Apr-2023
EPH CWG GC (S)	21-Apr-2023
GRO by GC-FID (S)	21-Apr-2023
Hexavalent Chromium (s)	24-Apr-2023
Metals in solid samples by OES	25-Apr-2023
PAH by GCMS	24-Apr-2023
pH	21-Apr-2023
Sample description	19-Apr-2023
Total Organic Carbon	25-Apr-2023
Total Sulphur	24-Apr-2023
TPH CWG GC (S)	21-Apr-2023
VOC MS (S)	20-Apr-2023

ASSOCIATED AQC DATA

Anions by Kone (soil)

Component	Method Code	QC 2710
Chloride (soluble)	TM243	**104.53** 93.18 : 112.38
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**94.74** 79.99 : 117.30

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2743
Free Cyanide	TM153	**99.01** 83.00 : 113.00
Thiocyanate	TM153	**91.03** 87.27 : 113.27
Total Cyanide	TM153	**100.7** 72.73 : 109.93

EPH CWG GC (S)

Component	Method Code	QC 2783
EPH >C8-C40 Raw	TM414	**100.35** 72.07 : 116.69
Total Aliphatics Raw	TM414	**102.79** 73.18 : 116.06
Total Aromatics Raw	TM414	**140.31** 69.77 : 129.02

GRO by GC-FID (S)

Component	Method Code	QC 2747
QC	TM089	**82.76** 59.51 : 102.93

Hexavalent Chromium (s)

Component	Method Code	QC 2714
Hexavalent Chromium	TM151	**108.0** 84.37 : 115.69

Metals in solid samples by OES

Component	Method Code	QC 2733
Aluminium	TM181	**103.51** 84.95 : 125.04
Antimony	TM181	**98.6** 81.24 : 112.95
Arsenic	TM181	**98.76** 87.39 : 110.81

CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Metals in solid samples by OES

		QC 2733
Barium	TM181	**110.0** 92.16 : 121.75
Beryllium	TM181	**106.67** 85.72 : 122.69
Boron	TM181	**107.87** 93.63 : 124.95
Cadmium	TM181	**104.17** 82.04 : 114.28
Chromium	TM181	**110.13** 97.18 : 117.32
Cobalt	TM181	**98.75** 90.33 : 109.99
Copper	TM181	**106.74** 90.40 : 118.14
Iron	TM181	**102.75** 76.44 : 123.20
Lead	TM181	**101.2** 84.55 : 119.89
Manganese	TM181	**104.59** 85.97 : 117.31
Mercury	TM181	**99.39** 79.17 : 111.30
Molybdenum	TM181	**99.36** 87.03 : 110.33
Nickel	TM181	**99.72** 83.87 : 113.53
Phosphorus	TM181	**99.04** 84.16 : 113.49
Selenium	TM181	**99.67** 81.18 : 111.13
Strontium	TM181	**107.97** 92.60 : 122.34
Thallium	TM181	**105.21** 85.37 : 116.45
Tin	TM181	**101.41** 86.96 : 122.18
Titanium	TM181	**98.11** 80.16 : 123.61
Vanadium	TM181	**107.28** 89.30 : 122.79
Zinc	TM181	**111.29** 89.16 : 121.48

PAH by GCMS

Component	Method Code	QC 2758
Acenaphthene	TM218	**89.5** 74.70 : 106.04
Acenaphthylene	TM218	**86.5** 73.12 : 105.14
Anthracene	TM218	**93.0** 73.99 : 113.85
Benz(a)anthracene	TM218	**91.0** 69.31 : 119.18

PAH by GCMS

		QC 2758
Benzo(a)pyrene	TM218	**78.5** 66.97 : 114.92
Benzo(b)fluoranthene	TM218	**76.0** 60.94 : 110.94
Benzo(ghi)perylene	TM218	**89.0** 62.92 : 114.36
Benzo(k)fluoranthene	TM218	**77.0** 64.37 : 112.56
Chrysene	TM218	**90.0** 69.86 : 114.50
Dibenzo(ah)anthracene	TM218	**88.0** 64.54 : 115.22
Fluoranthene	TM218	**82.0** 65.27 : 115.60
Fluorene	TM218	**91.0** 76.17 : 102.87
Indeno(123cd)pyrene	TM218	**88.0** 61.22 : 113.25
Naphthalene	TM218	**90.5** 73.52 : 105.12
Phenanthrene	TM218	**91.5** 72.65 : 111.50
Pyrene	TM218	**85.0** 64.72 : 112.44

pH

Component	Method Code	QC 2707
pH	TM133	**99.85** 96.27 : 101.64

Total Organic Carbon

Component	Method Code	QC 2741
Total Organic Carbon	TM132	**99.61** 89.45 : 124.61

Total Sulphur

Component	Method Code	QC 2792
Total Sulphur %	TM132	**113.99** 56.98 : 119.13

VOC MS (S)

VOC MS (S)

Component	Method Code	QC 2711
1,1,1,2-tetrachloroethane	TM116	**102.4** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**98.6** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**92.6** 77.12 : 116.04
1,1-Dichloroethane	TM116	**101.0** 74.46 : 129.15
1,2-Dichloroethane	TM116	**104.8** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**100.8** 76.78 : 122.98
2-Chlorotoluene	TM116	**86.0** 68.55 : 109.58
4-Chlorotoluene	TM116	**79.8** 66.29 : 107.51
Benzene	TM116	**98.6** 93.16 : 114.90
Carbon Disulphide	TM116	**94.6** 74.91 : 122.14
Carbontetrachloride	TM116	**98.6** 80.31 : 124.50
Chlorobenzene	TM116	**99.6** 83.81 : 114.18
Chloroform	TM116	**102.4** 87.40 : 122.49
Chloromethane	TM116	**79.4** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**102.2** 80.67 : 126.72
Dibromomethane	TM116	**94.2** 73.23 : 118.35
Dichloromethane	TM116	**107.4** 81.11 : 133.25
Ethylbenzene	TM116	**88.2** 75.92 : 110.41
Hexachlorobutadiene	TM116	**43.4** 12.82 : 152.73
Isopropylbenzene	TM116	**75.4** 54.30 : 105.91
Naphthalene	TM116	**100.8** 80.86 : 128.81
o-Xylene	TM116	**85.8** 69.99 : 108.74
p/m-Xylene	TM116	**84.1** 68.32 : 108.91
Sec-Butylbenzene	TM116	**62.2** 38.50 : 101.50
Tetrachloroethene	TM116	**98.6** 76.95 : 121.02
Toluene	TM116	**87.2** 74.24 : 107.42
Trichloroethene	TM116	**94.0** 85.28 : 109.36

VOC MS (S)

		QC 2711
Trichlorofluoromethane	TM116	**97.4** 81.46 : 120.52
Vinyl Chloride	TM116	**90.6** 68.02 : 143.37

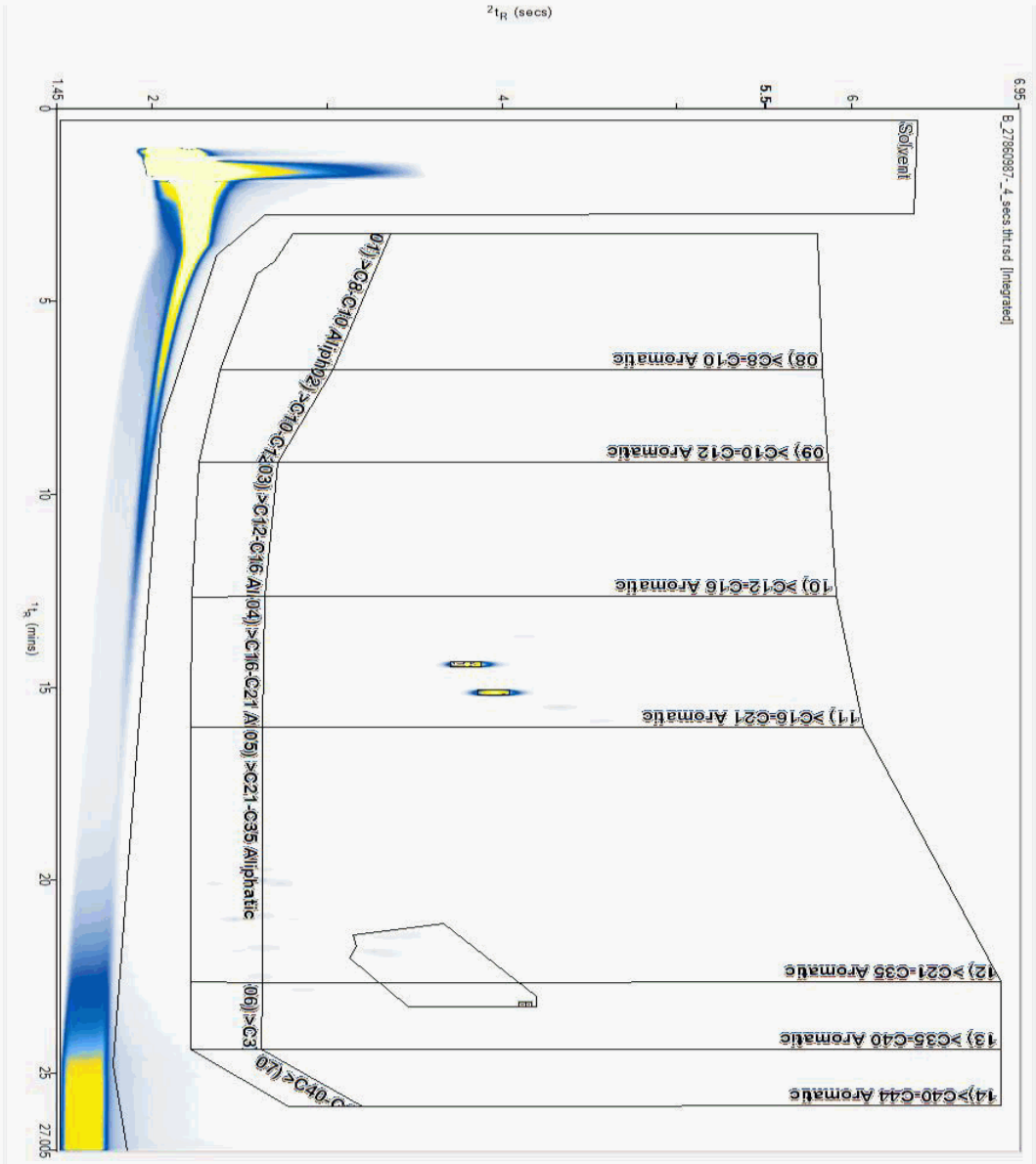
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27860987 **Depth :** 0.20 - 0.40
Sample ID : WS101

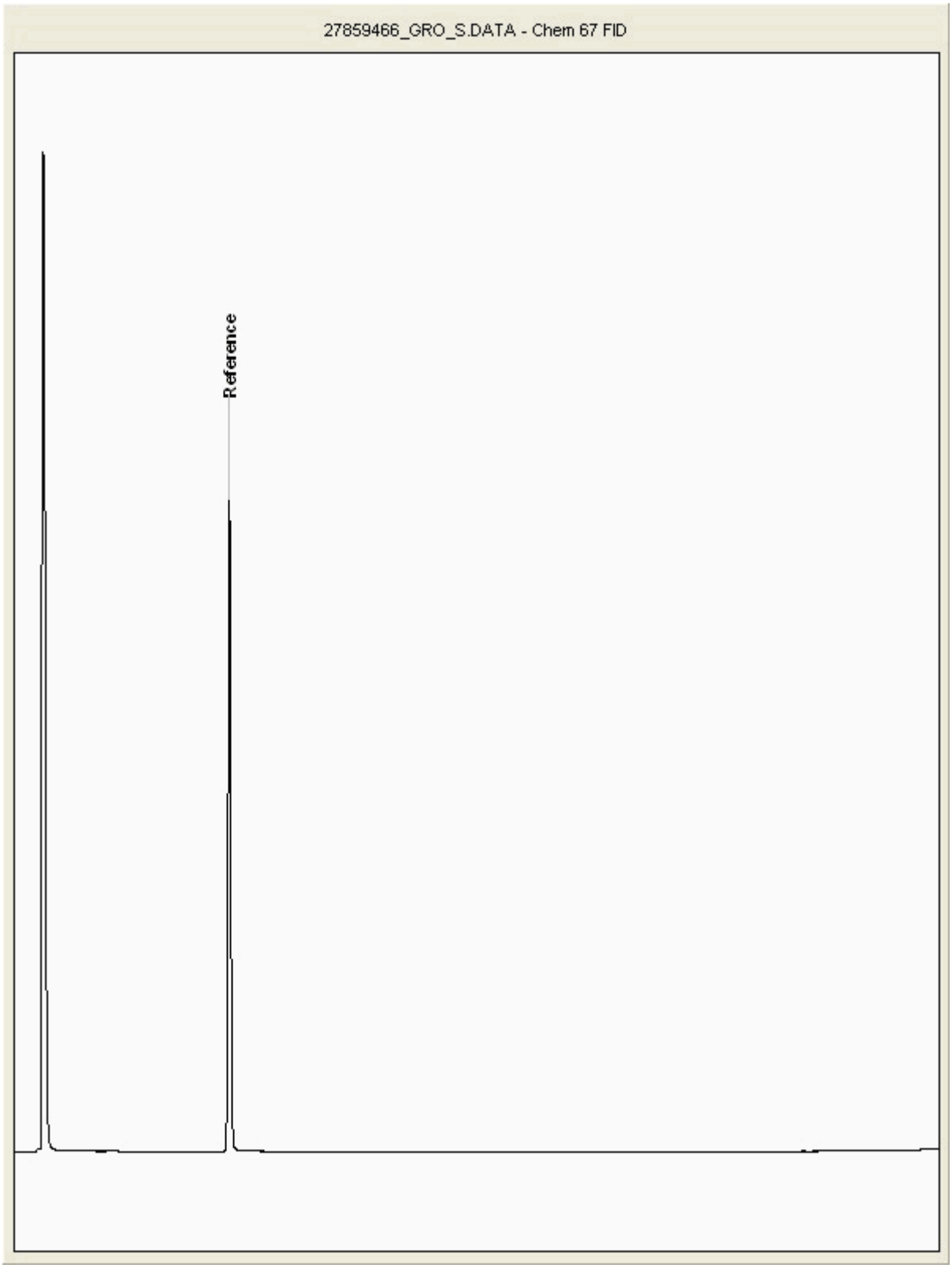


CERTIFICATE OF ANALYSIS

SDG: 230415-44 **Report Number:** 686852 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27859466 **Depth :** 0.20 - 0.40
Sample ID : WS101



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 15 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. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

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 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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.

19. **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**

20. **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 (2021), 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 and soils are obtained from supplied bulk materials andd soils 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 (2021).

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.

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.

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.

Units 7-8 Hawarden Business Park
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Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

ARCADIS UK Ltd
Charter House
62-68 Hills Road
Cambridge
CB2 1LA

Attention: Annie Harding

CERTIFICATE OF ANALYSIS

Date of report Generation:	26 April 2023
Customer:	ARCADIS UK Ltd
Sample Delivery Group (SDG):	230415-47
Your Reference:	10057335
Location:	Steyning Grammar
Report No:	687044
Order Number:	10057335

We received 12 samples on Saturday April 15, 2023 and 6 of these samples were scheduled for analysis which was completed on Wednesday April 26, 2023. 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 Laboratories (UK) Limited Hawarden.

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:

Sonia McWhan

Operations Manager

1291

CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27842366	BH101		1.00 - 1.20	04/04/2023
27842367	BH101		1.50 - 1.75	04/04/2023
27842368	BH101		2.50 - 2.75	04/04/2023
27842369	BH102		0.20 - 0.30	05/04/2023
27842370	BH102		1.00 - 1.20	05/04/2023
27842371	BH102		1.80 - 2.00	05/04/2023
27842372	BH102		3.85 - 4.00	05/04/2023
27842373	BH102		4.30 - 4.40	05/04/2023
27842374	BH104		1.20 - 1.40	03/04/2023
27842375	BH104		1.50 - 2.00	03/04/2023
27842376	BH104		2.60 - 3.00	03/04/2023
27842378	BH104		3.75 - 4.00	03/04/2023

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

CERTIFICATE OF ANALYSIS

SDG: 230415-47
Client Ref.: 10057335
Report Number: 687044
Location: Steyning Grammar
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)			27842366		27842368		27842369		27842372		27842374		27842378
Customer Sample Reference			BH101		BH101		BH102		BH102		BH104		BH104
AGS Reference													
Depth (m)			1.00 - 1.20		2.50 - 2.75		0.20 - 0.30		3.85 - 4.00		1.20 - 1.40		3.75 - 4.00
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 6	X		X		X		X		X		X
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2	X				X						
Chromium III	All	NDPs: 0 Tests: 5	X		X		X		X		X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 5	X		X		X		X		X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 5	X		X		X		X		X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 5		X		X		X		X		X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 5	X		X		X		X		X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 5	X		X		X		X		X		
PAH by GCMS	All	NDPs: 0 Tests: 5	X		X		X		X		X		
pH	All	NDPs: 0 Tests: 6	X		X		X		X		X		X
Sample description	All	NDPs: 0 Tests: 5			X		X		X		X		X
Total Organic Carbon	All	NDPs: 0 Tests: 5	X				X		X		X		X
Total Sulphur	All	NDPs: 0 Tests: 6	X		X		X		X		X		X
TPH CWG GC (S)	All	NDPs: 0 Tests: 5	X		X		X		X		X		
VOC MS (S)	All	NDPs: 0 Tests: 5		X		X		X		X		X	

CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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
27842366	BH101	1.00 - 1.20	Light Brown	Clay Loam	Vegetation	Stones
27842368	BH101	2.50 - 2.75	Light Brown	Silty Clay	None	None
27842369	BH102	0.20 - 0.30	Light Brown	Sandy Clay Loam	Stones	Coal fragments
27842372	BH102	3.85 - 4.00	Light Brown	Silty Clay	None	None
27842374	BH104	1.20 - 1.40	Light Brown	Sandy Clay	Stones	None
27842378	BH104	3.75 - 4.00	Light Brown	Silty Clay	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: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

			BH101 1.00 - 1.20 Soil/Solid (S) 04/04/2023 13:58:00 15/04/2023 230415-47 27842366	BH101 2.50 - 2.75 Soil/Solid (S) 04/04/2023 16:46:00 15/04/2023 230415-47 27842368	BH102 0.20 - 0.30 Soil/Solid (S) 05/04/2023 09:46:00 15/04/2023 230415-47 27842369	BH102 3.85 - 4.00 Soil/Solid (S) 05/04/2023 11:07:00 15/04/2023 230415-47 27842372	BH104 1.20 - 1.40 Soil/Solid (S) 03/04/2023 13:27:00 15/04/2023 230415-47 27842374
Moisture Content Ratio (% of as received sample)	% PM024		16	18	9.6	18	18
Organic Carbon, Total	<0.2 % TM132		<0.2 M		0.468 M	<0.2 M	0.214 M
Sulphur, Total	<0.02 % TM132		0.0214 #	<0.02 #	0.0377 #	<0.02 #	<0.02 #
pH	1 pH Units TM133		8.89 M	8.97 M	8.8 M	8.96 M	8.03 M
Chromium, Hexavalent	<0.6 mg/kg TM151		<0.6 M	<0.6 M	<0.6 M	<0.6 M	<0.6 M
Cyanide, Free	<1 mg/kg TM153		<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 @ M
Chromium, Trivalent	<0.9 mg/kg TM181		2.34	8.96	7.2	4.52	13.8
Antimony	<0.6 mg/kg TM181		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg TM181		3.94 M	5.6 M	7.66 M	6.9 M	15 M
Barium	<0.6 mg/kg TM181		22.5 #	36 #	111 #	35.9 #	77.4 #
Beryllium	<0.01 mg/kg TM181		0.253 M	0.696 M	1.04 M	0.515 M	0.869 M
Boron	<0.7 mg/kg TM181		6.76 #	14.8 #	6.79 #	9.61 #	9.24 #
Chromium	<0.9 mg/kg TM181		2.54 M	8.96 M	7.61 M	4.52 M	13.8 M
Copper	<1.4 mg/kg TM181		5.59 M	13.5 M	9.53 M	10.3 M	14.8 M
Iron	<1000 mg/kg TM181		11200 #	14000 #	14500 #	9590 #	25000 #
Lead	<0.7 mg/kg TM181		4.61 M	8.92 M	9.97 M	8.26 M	14.2 M
Molybdenum	<0.1 mg/kg TM181		<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
Nickel	<0.2 mg/kg TM181		10.8 M	25.9 M	18.2 M	20.9 M	32.4 M
Selenium	<1 mg/kg TM181		1.17 #	<1 #	1.49 #	<1 #	<1 #
Vanadium	<0.2 mg/kg TM181		7.96 #	16.8 #	26.4 #	9.71 #	36.9 #
Zinc	<1.9 mg/kg TM181		22.9 M	30.4 M	59.4 M	22.7 M	43.6 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l TM243		<0.004 M	0.005 M	0.112 M	0.0165 M	0.0186 M

BH104 3.75 - 4.00 Soil/Solid (S) 03/04/2023 14:40:00 15/04/2023 230415-47 27842378
21
<0.2 M
<0.02 #
9.2 M
0.02 M

PAH by GCMS

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH by GCMS

			BH101 1.00 - 1.20 Soil/Solid (S) 04/04/2023 13:58:00 15/04/2023 230415-47 27842366	BH101 2.50 - 2.75 Soil/Solid (S) 04/04/2023 16:46:00 15/04/2023 230415-47 27842368	BH102 0.20 - 0.30 Soil/Solid (S) 05/04/2023 09:46:00 15/04/2023 230415-47 27842369	BH102 3.85 - 4.00 Soil/Solid (S) 05/04/2023 11:07:00 15/04/2023 230415-47 27842372	BH104 1.20 - 1.40 Soil/Solid (S) 03/04/2023 13:27:00 15/04/2023 230415-47 27842374
Naphthalene-d8 % recovery**	%	TM218	102	86.7	92.9	106	98.2
Acenaphthene-d10 % recovery**	%	TM218	93.5	82.5	86.3	100	88.9
Phenanthrene-d10 % recovery**	%	TM218	90.4	81	97.4	89.6	104
Chrysene-d12 % recovery**	%	TM218	101	73.9	95.2	101	83.9
Perylene-d12 % recovery**	%	TM218	101	82.8	88.8	90.5	91.9
Naphthalene	<0.009 mg/kg	TM218	<0.009 @ M	<0.009 @ M	<0.09 @ M	<0.009 @ M	<0.009 @ M
Acenaphthylene	<0.012 mg/kg	TM218	<0.012 @ M	<0.012 @ M	<0.12 @ M	<0.012 @ M	<0.012 @ M
Acenaphthene	<0.008 mg/kg	TM218	<0.008 @ M	<0.008 @ M	<0.08 @ M	<0.008 @ M	<0.008 @ M
Fluorene	<0.01 mg/kg	TM218	<0.01 @ M	<0.01 @ M	<0.1 @ M	<0.01 @ M	<0.01 @ M
Phenanthrene	<0.015 mg/kg	TM218	<0.015 @ M	<0.015 @ M	<0.15 @ M	<0.015 @ M	0.191 @ M
Anthracene	<0.016 mg/kg	TM218	<0.016 @ M	<0.016 @ M	<0.16 @ M	<0.016 @ M	0.0566 @ M
Fluoranthene	<0.017 mg/kg	TM218	<0.017 @ M	<0.017 @ M	<0.17 @ M	<0.017 @ M	0.723 @ M
Pyrene	<0.015 mg/kg	TM218	<0.015 @ M	<0.015 @ M	<0.15 @ M	<0.015 @ M	0.75 @ M
Benz(a)anthracene	<0.014 mg/kg	TM218	<0.014 @ M	<0.014 @ M	<0.14 @ M	<0.014 @ M	0.245 @ M
Chrysene	<0.01 mg/kg	TM218	<0.01 @ M	<0.01 @ M	<0.1 @ M	<0.01 @ M	0.241 @ M
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	<0.015 @ M	<0.015 @ M	<0.15 @ M	<0.015 @ M	0.289 @ M
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	<0.014 @ M	<0.014 @ M	<0.14 @ M	<0.014 @ M	0.114 @ M
Benzo(a)pyrene	<0.015 mg/kg	TM218	<0.015 @ M	<0.015 @ M	<0.15 @ M	<0.015 @ M	0.292 @ M
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	<0.018 @ M	<0.018 @ M	<0.18 @ M	<0.018 @ M	0.218 @ M
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.023 @ M	<0.023 @ M	<0.23 @ M	<0.023 @ M	0.0289 @ M
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	<0.024 @ M	<0.024 @ M	<0.24 @ M	<0.024 @ M	0.242 @ M
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	<0.118	<0.118	<1.18	<0.118	3.39

CERTIFICATE OF ANALYSIS

SDG:	230415-47	**Report Number:**	687044	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

TPH CWG (S)

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

			BH101 1.00 - 1.20 Soil/Solid (S) 04/04/2023 13:58:00 15/04/2023 230415-47 27842366	BH101 2.50 - 2.75 Soil/Solid (S) 04/04/2023 16:46:00 15/04/2023 230415-47 27842368	BH102 0.20 - 0.30 Soil/Solid (S) 05/04/2023 09:46:00 15/04/2023 230415-47 27842369	BH102 3.85 - 4.00 Soil/Solid (S) 05/04/2023 11:07:00 15/04/2023 230415-47 27842372	BH104 1.20 - 1.40 Soil/Solid (S) 03/04/2023 13:27:00 15/04/2023 230415-47 27842374
GRO Surrogate % recovery**	%	TM089	124 @	105 @	94 @	102 @	120 @
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @	<0.01 @	<0.01 @	<0.01 @
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @	<0.01 @	<0.01 @	<0.01 @
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @	<0.01 @	<0.01 @	<0.01 @
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #	<1 @ #	<1 @ #	<1 @ #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #	<1 @ #	<1 @ #	<1 @ #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #	2.51 @ #	<1 @ #	<1 @ #
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #	3.34 @ #	<1 @ #	<1 @ #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @	<1 @	68.7 @	<1 @	<1 @
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414	<5 @	<5 @	74.5 @	<5 @	<5 @
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414	<10	10.6	93.9	<10	<10
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @	<0.01 @	<0.01 @	<0.01 @
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @	<0.01 @	<0.01 @	<0.01 @
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @	<0.01 @	<0.01 @	<0.01 @
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #	<1 @ #	<1 @ #	<1 @ #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #	<1 @ #	<1 @ #	<1 @ #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #	1.84 @ #	<1 @ #	<1 @ #
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414	1.75 @ #	8.98 @ #	15.4 @ #	<1 @ #	1.36 @ #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @	<1 @	2.17 @	<1 @	<1 @
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @	<1 @	<1 @	<1 @	<1 @
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414	<5	10.4	19.4	<5	<5
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414	<10	10.4	93.9	<10	<10
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089	<0.05 @	<0.05 @	<0.05 @	<0.05 @	<0.05 @
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089	<0.05 @	<0.05 @	<0.05 @	<0.05 @	<0.05 @
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089	<0.02 @	<0.02 @	<0.02 @	<0.02 @	<0.02 @

VOC MS (S)

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

			BH101 1.00 - 1.20 Soil/Solid (S) 04/04/2023 13:58:00 15/04/2023 230415-47 27842366	BH101 2.50 - 2.75 Soil/Solid (S) 04/04/2023 16:46:00 15/04/2023 230415-47 27842368	BH102 0.20 - 0.30 Soil/Solid (S) 05/04/2023 09:46:00 15/04/2023 230415-47 27842369	BH102 3.85 - 4.00 Soil/Solid (S) 05/04/2023 11:07:00 15/04/2023 230415-47 27842372	BH104 1.20 - 1.40 Soil/Solid (S) 03/04/2023 13:27:00 15/04/2023 230415-47 27842374
Dibromofluoromethane**	%	TM116	99.2 @	100 @	103	100	105 @
Toluene-d8**	%	TM116	97.6 @	97 @	90	96.9	96.1 @
4-Bromofluorobenzene**	%	TM116	106 @	101 @	89	101	99.8 @
Methyl Tertiary Butyl Ether	<0.01 mg/kg	TM116	<0.01 @ M	<0.01 @ M	<0.01 M	<0.01 M	<0.01 @ M
Benzene	<0.009 mg/kg	TM116	<0.009 @ M	<0.009 @ M	<0.009 M	<0.009 M	<0.009 @ M
Toluene	<0.007 mg/kg	TM116	<0.007 @ M	<0.007 @ M	<0.007 M	<0.007 M	<0.007 @ M
Ethylbenzene	<0.004 mg/kg	TM116	<0.004 @ M	<0.004 @ M	<0.004 M	<0.004 M	<0.004 @ M
p/m-Xylene	<0.01 mg/kg	TM116	<0.01 @ #	<0.01 @ #	<0.01 #	<0.01 #	<0.01 @ #
o-Xylene	<0.01 mg/kg	TM116	<0.01 @ M	<0.01 @ M	<0.01 M	<0.01 M	<0.01 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @	<0.02 @	<0.02	<0.02	<0.02 @
Sum of BTEX	<0.04 mg/kg	TM116	<0.04 @	<0.04 @	<0.04	<0.04	<0.04 @

CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH101 1.00 - 1.20 SOLID 04/04/2023 00:00:00 15/04/2023 05:00:00 230415-47 27842366 TM048	24/04/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH102 0.20 - 0.30 SOLID 05/04/2023 00:00:00 15/04/2023 05:00:00 230415-47 27842369 TM048	24/04/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	230415-47	**Report Number:**	687044	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	Identification of Asbestos in Bulk Material
TM089	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Determination of Hexavalent Chromium using Kone analyser
TM153	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM181	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	The determination of PAH in soil samples by GC-MS
TM243	Mixed Anions In Soils By Kone
TM414	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Test Completion Dates

Lab Sample No(s)	27842366	27842368	27842369	27842372	27842374	27842378
Customer Sample Ref.	BH101	BH101	BH102	BH102	BH104	BH104
AGS Ref.						
Depth	1.00 - 1.20	2.50 - 2.75	0.20 - 0.30	3.85 - 4.00	1.20 - 1.40	3.75 - 4.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	25-Apr-2023	24-Apr-2023	25-Apr-2023	24-Apr-2023	24-Apr-2023	24-Apr-2023
Asbestos ID in Solid Samples	24-Apr-2023		24-Apr-2023			
Chromium III	25-Apr-2023	25-Apr-2023	25-Apr-2023	25-Apr-2023	25-Apr-2023	
Cyanide Comp/Free/Total/Thiocyanate	24-Apr-2023	24-Apr-2023	24-Apr-2023	24-Apr-2023	24-Apr-2023	
EPH CWG GC (S)	24-Apr-2023	24-Apr-2023	24-Apr-2023	24-Apr-2023	24-Apr-2023	
GRO by GC-FID (S)	21-Apr-2023	21-Apr-2023	21-Apr-2023	21-Apr-2023	21-Apr-2023	
Hexavalent Chromium (s)	25-Apr-2023	25-Apr-2023	25-Apr-2023	25-Apr-2023	25-Apr-2023	
Metals in solid samples by OES	25-Apr-2023	25-Apr-2023	25-Apr-2023	25-Apr-2023	25-Apr-2023	
PAH by GCMS	24-Apr-2023	21-Apr-2023	24-Apr-2023	24-Apr-2023	24-Apr-2023	
pH	20-Apr-2023	20-Apr-2023	20-Apr-2023	20-Apr-2023	20-Apr-2023	24-Apr-2023
Sample description	20-Apr-2023	20-Apr-2023	20-Apr-2023	20-Apr-2023	20-Apr-2023	20-Apr-2023
Total Organic Carbon	25-Apr-2023		25-Apr-2023	25-Apr-2023	25-Apr-2023	25-Apr-2023
Total Sulphur	26-Apr-2023	24-Apr-2023	26-Apr-2023	24-Apr-2023	24-Apr-2023	24-Apr-2023
TPH CWG GC (S)	24-Apr-2023	24-Apr-2023	24-Apr-2023	24-Apr-2023	24-Apr-2023	
VOC MS (S)	21-Apr-2023	21-Apr-2023	21-Apr-2023	21-Apr-2023	21-Apr-2023	

ASSOCIATED AQC DATA

Anions by Kone (soil)

Component	Method Code	QC 2710
Chloride (soluble)	TM243	**104.53** 93.18 : 112.38
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**94.74** 79.99 : 117.30

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2752
Free Cyanide	TM153	**104.95** 83.00 : 113.00
Thiocyanate	TM153	**98.08** 87.27 : 113.27
Total Cyanide	TM153	**106.99** 72.73 : 109.93

GRO by GC-FID (S)

Component	Method Code	QC 2747
QC	TM089	**82.76** 59.51 : 102.93

Hexavalent Chromium (s)

Component	Method Code	QC 2739
Hexavalent Chromium	TM151	**100.0** 84.37 : 115.69

Metals in solid samples by OES

Component	Method Code	QC 2708	QC 2750
Aluminium	TM181	**107.02** 84.95 : 125.04	**102.63** 84.95 : 125.04
Antimony	TM181	**101.05** 81.24 : 112.95	**100.0** 81.24 : 112.95
Arsenic	TM181	**100.0** 87.39 : 110.81	**98.14** 87.39 : 110.81
Barium	TM181	**111.0** 92.16 : 121.75	**110.0** 92.16 : 121.75
Beryllium	TM181	**107.83** 85.72 : 122.69	**106.96** 85.72 : 122.69
Boron	TM181	**108.85** 93.63 : 124.95	**107.87** 93.63 : 124.95
Cadmium	TM181	**104.86** 82.04 : 114.28	**104.17** 82.04 : 114.28

CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Metals in solid samples by OES

		QC 2708	QC 2750
Chromium	TM181	**110.4** 97.18 : 117.32	**111.73** 97.18 : 117.32
Cobalt	TM181	**99.46** 90.33 : 109.99	**97.85** 90.33 : 109.99
Copper	TM181	**107.68** 90.40 : 118.14	**106.37** 90.40 : 118.14
Iron	TM181	**106.42** 76.44 : 123.20	**100.92** 76.44 : 123.20
Lead	TM181	**105.78** 84.55 : 119.89	**104.1** 84.55 : 119.89
Manganese	TM181	**106.22** 85.97 : 117.31	**105.41** 85.97 : 117.31
Mercury	TM181	**100.3** 79.17 : 111.30	**99.09** 79.17 : 111.30
Molybdenum	TM181	**100.0** 87.03 : 110.33	**99.36** 87.03 : 110.33
Nickel	TM181	**100.85** 83.87 : 113.53	**99.72** 83.87 : 113.53
Phosphorus	TM181	**100.32** 84.16 : 113.49	**99.36** 84.16 : 113.49
Selenium	TM181	**101.64** 81.18 : 111.13	**99.67** 81.18 : 111.13
Strontium	TM181	**108.74** 92.60 : 122.34	**108.74** 92.60 : 122.34
Thallium	TM181	**107.49** 85.37 : 116.45	**105.54** 85.37 : 116.45
Tin	TM181	**104.23** 86.96 : 122.18	**101.97** 86.96 : 122.18
Titanium	TM181	**100.0** 80.16 : 123.61	**98.11** 80.16 : 123.61
Vanadium	TM181	**106.9** 89.30 : 122.79	**107.66** 89.30 : 122.79
Zinc	TM181	**111.76** 89.16 : 121.48	**110.12** 89.16 : 121.48

PAH by GCMS

Component	Method Code	QC 2781	QC 2709
Acenaphthene	TM218	**85.0** 76.79 : 103.90	**83.5** 74.70 : 106.04
Acenaphthylene	TM218	**84.5** 74.19 : 106.17	**81.0** 73.12 : 105.14
Anthracene	TM218	**82.5** 70.90 : 109.22	**90.5** 73.99 : 113.85
Benz(a)anthracene	TM218	**76.0** 69.64 : 111.59	**84.5** 69.31 : 119.18
Benzo(a)pyrene	TM218	**83.0** 67.65 : 109.09	**76.5** 66.97 : 114.92
Benzo(b)fluoranthene	TM218	**75.0** 61.54 : 111.57	**72.5** 60.94 : 110.94
Benzo(ghi)perylene	TM218	**87.5** 65.23 : 106.40	**81.0** 62.92 : 114.36

CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH by GCMS

		QC 2781	QC 2709
Benzo(k)fluoranthene	TM218	**77.5** 69.09 : 107.83	**77.5** 64.37 : 112.56
Chrysene	TM218	**76.0** 69.26 : 107.71	**83.5** 69.86 : 114.50
Dibenzo(ah)anthracene	TM218	**72.5** 63.87 : 105.95	**79.5** 64.54 : 115.22
Fluoranthene	TM218	**81.5** 66.06 : 114.63	**89.5** 65.27 : 115.60
Fluorene	TM218	**85.5** 76.66 : 107.56	**86.0** 76.17 : 102.87
Indeno(123cd)pyrene	TM218	**72.5** 62.77 : 111.19	**81.5** 61.22 : 113.25
Naphthalene	TM218	**87.5** 72.14 : 105.72	**80.0** 73.52 : 105.12
Phenanthrene	TM218	**84.5** 73.62 : 109.34	**92.5** 72.65 : 111.50
Pyrene	TM218	**80.0** 69.79 : 109.70	**84.5** 64.72 : 112.44

pH

Component	Method Code	QC 2788	QC 2704
pH	TM133	**99.4** 96.27 : 101.64	**100.6** 96.27 : 101.64

Total Organic Carbon

Component	Method Code	QC 2736	QC 2741
Total Organic Carbon	TM132	**103.52** 89.45 : 124.61	**99.61** 89.45 : 124.61

Total Sulphur

Component	Method Code	QC 2792	QC 2718
Total Sulphur %	TM132	**113.99** 56.98 : 119.13	**103.11** 56.98 : 119.13

VOC MS (S)

CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

Component	Method Code	QC 2737
1,1,1,2-tetrachloroethane	TM116	**103.6** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**106.0** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**103.0** 77.12 : 116.04
1,1-Dichloroethane	TM116	**112.2** 74.46 : 129.15
1,2-Dichloroethane	TM116	**120.4** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**97.8** 76.78 : 122.98
2-Chlorotoluene	TM116	**86.4** 68.55 : 109.58
4-Chlorotoluene	TM116	**81.6** 66.29 : 107.51
Benzene	TM116	**105.2** 93.16 : 114.90
Carbon Disulphide	TM116	**100.0** 74.91 : 122.14
Carbontetrachloride	TM116	**103.6** 80.31 : 124.50
Chlorobenzene	TM116	**99.6** 83.81 : 114.18
Chloroform	TM116	**112.2** 87.40 : 122.49
Chloromethane	TM116	**95.8** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**110.0** 80.67 : 126.72
Dibromomethane	TM116	**101.0** 73.23 : 118.35
Dichloromethane	TM116	**119.2** 81.11 : 133.25
Ethylbenzene	TM116	**90.0** 75.92 : 110.41
Hexachlorobutadiene	TM116	**37.2** 12.82 : 152.73
Isopropylbenzene	TM116	**77.2** 54.30 : 105.91
Naphthalene	TM116	**95.8** 80.86 : 128.81
o-Xylene	TM116	**86.2** 69.99 : 108.74
p/m-Xylene	TM116	**84.6** 68.32 : 108.91
Sec-Butylbenzene	TM116	**61.0** 38.50 : 101.50
Tetrachloroethene	TM116	**95.8** 76.95 : 121.02
Toluene	TM116	**93.0** 74.24 : 107.42

CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

		QC 2737
Trichloroethene	TM116	**97.2** 85.28 : 109.36
Trichlorofluoromethane	TM116	**109.8** 81.46 : 120.52
Vinyl Chloride	TM116	**103.4** 68.02 : 143.37

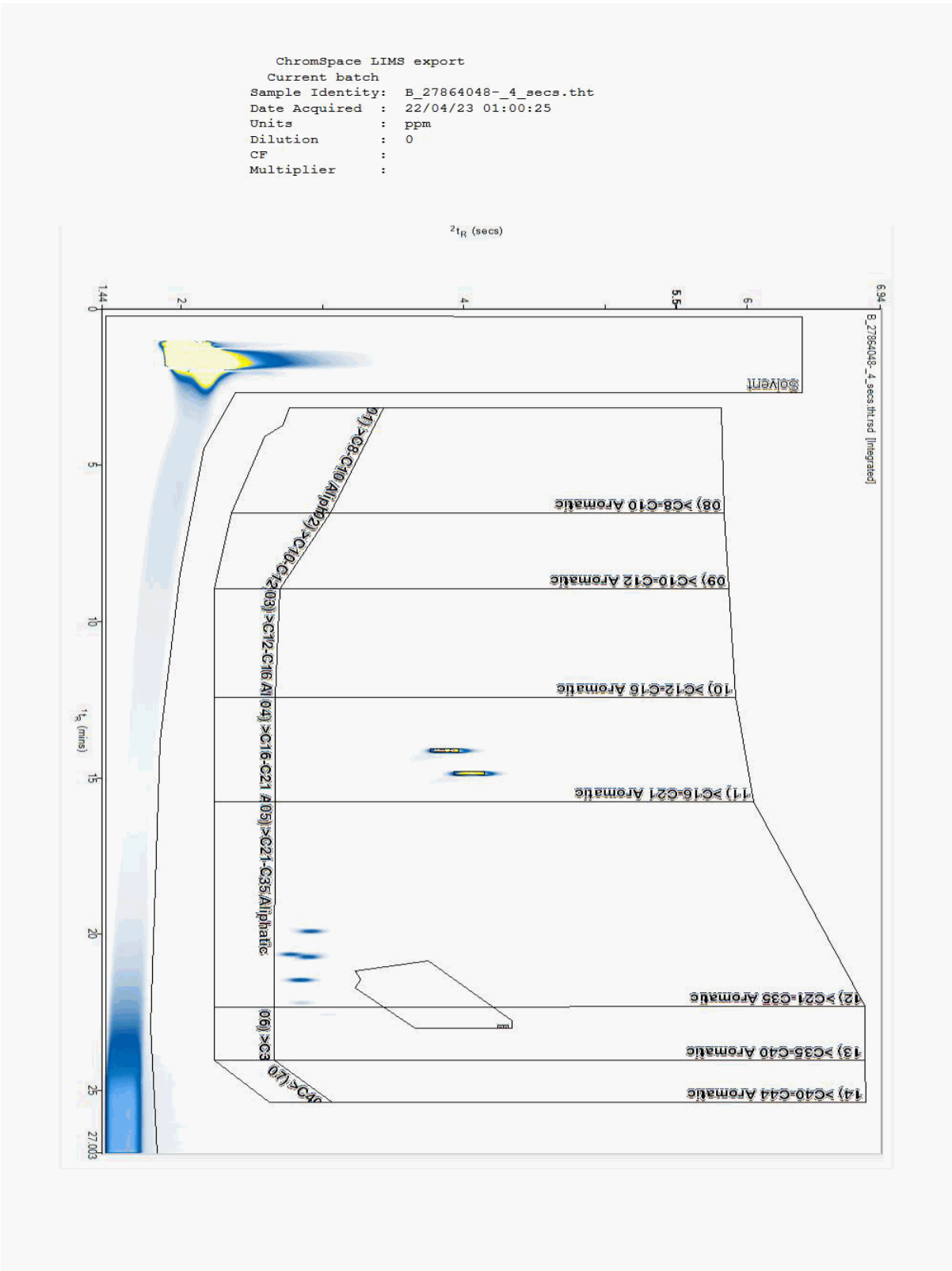
The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27864048 **Depth :** 2.50 - 2.75
Sample ID : BH101



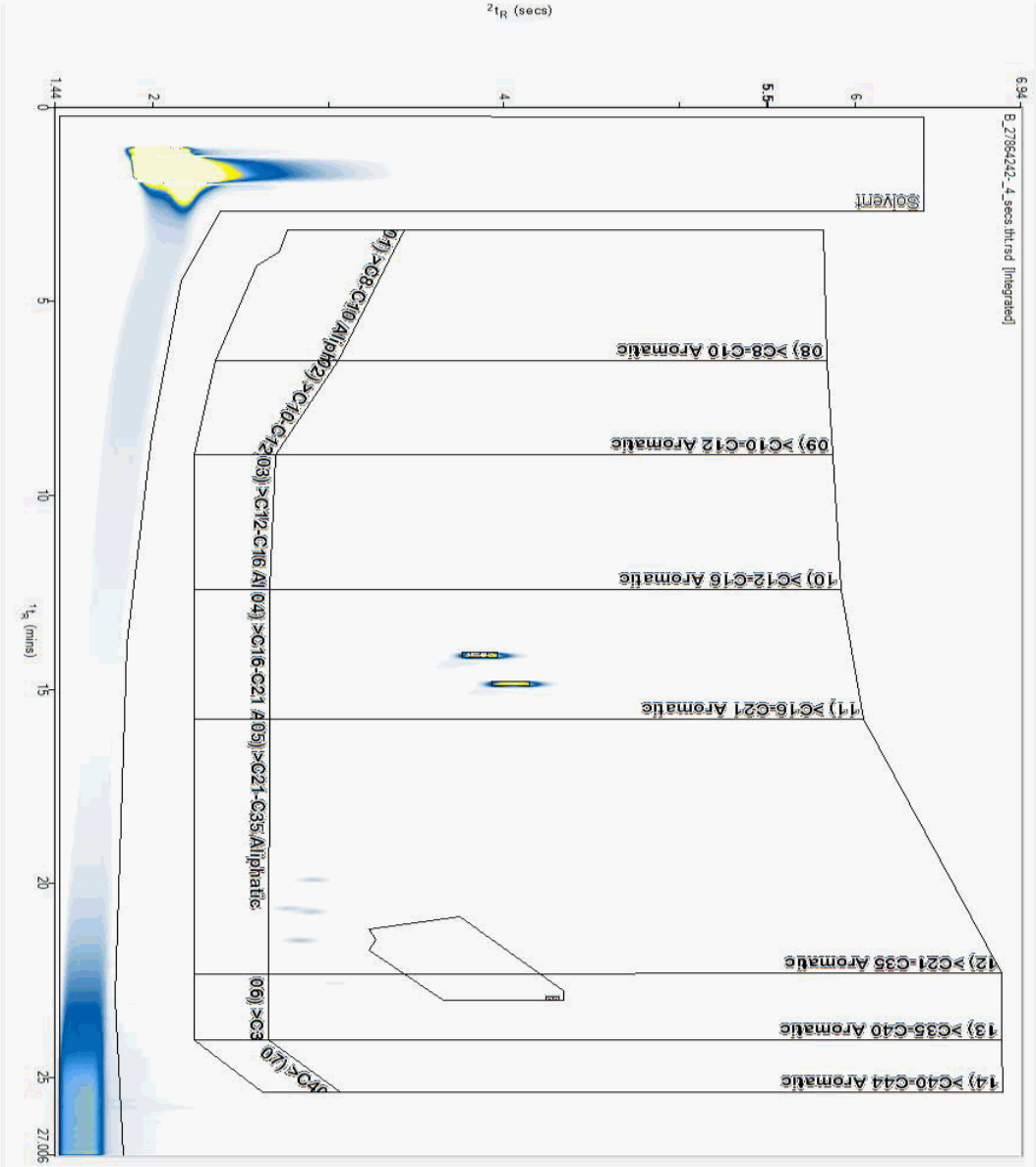
CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27864242 **Depth :** 1.00 - 1.20
Sample ID : BH101

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_27864242-_4_secs.tht
Date Acquired   :  21/04/23 11:26:04
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

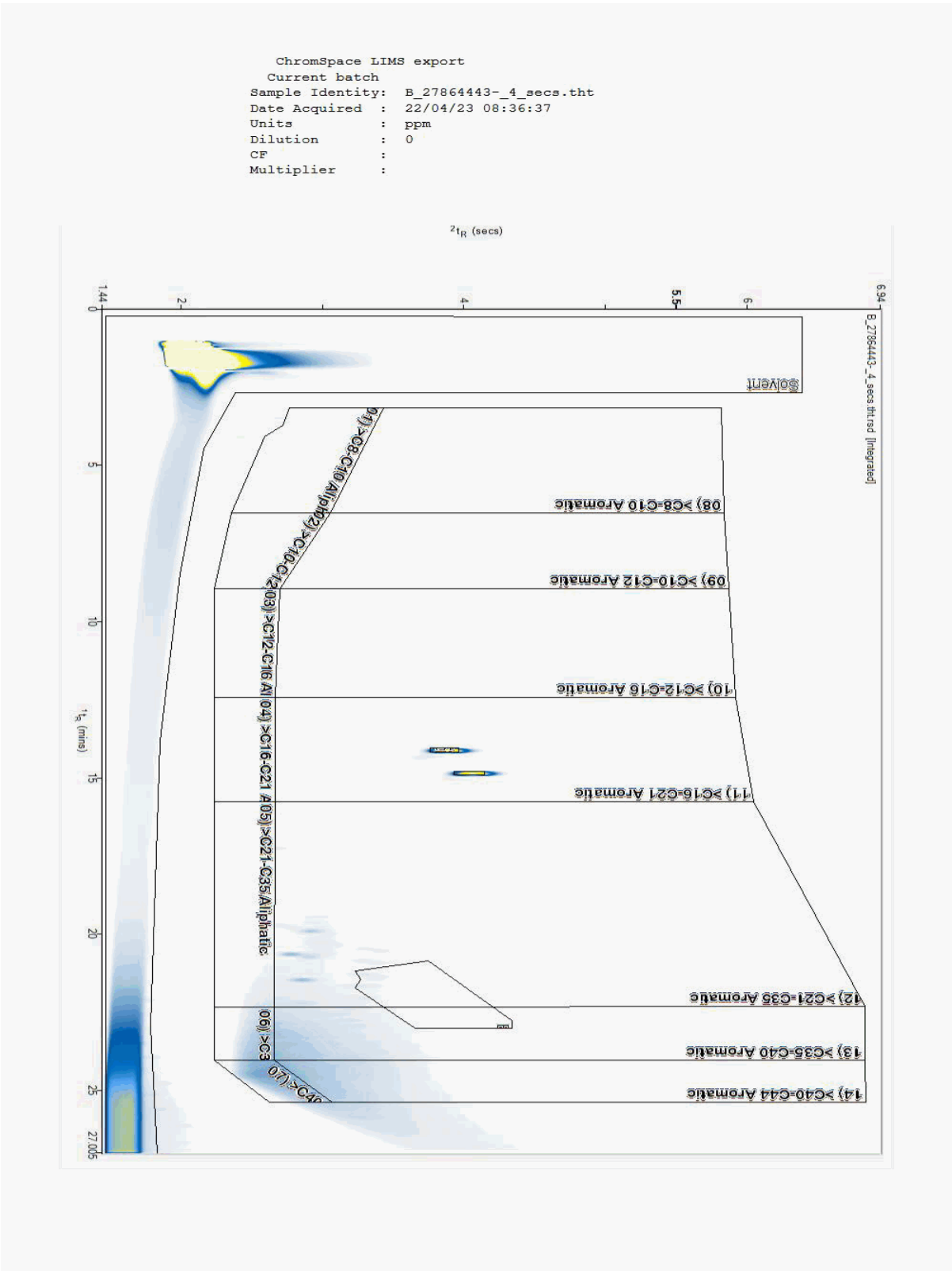


CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27864443 **Depth :** 0.20 - 0.30
Sample ID : BH102



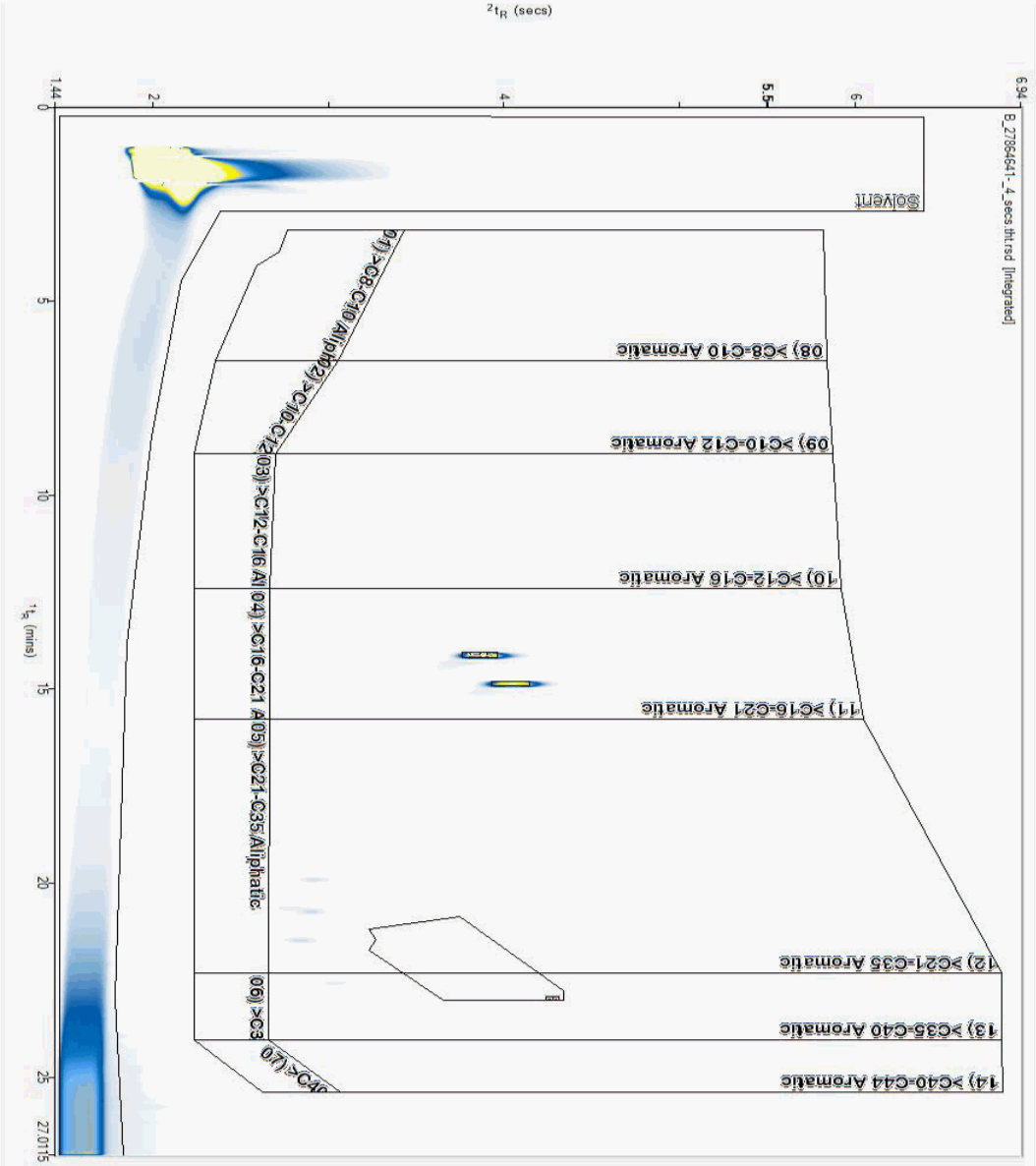
CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27864641 **Depth :** 1.20 - 1.40
Sample ID : BH104

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_27864641-_4_secs.tht
Date Acquired   :  21/04/23 10:23:12
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



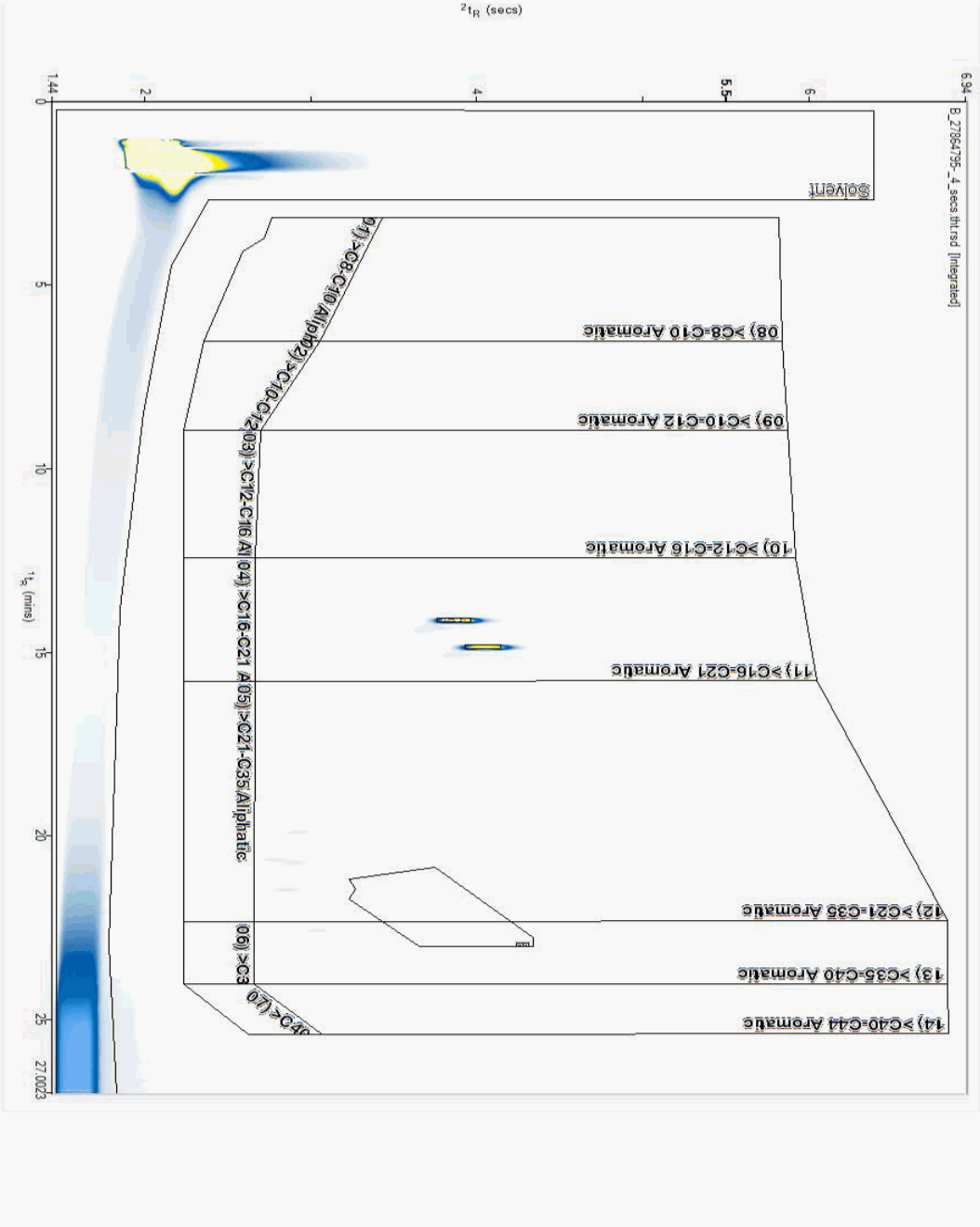
CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27864795 **Depth :** 3.85 - 4.00
Sample ID : BH102

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_27864795-_4_secs.tht
Date Acquired   :  22/04/23 12:28:58
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

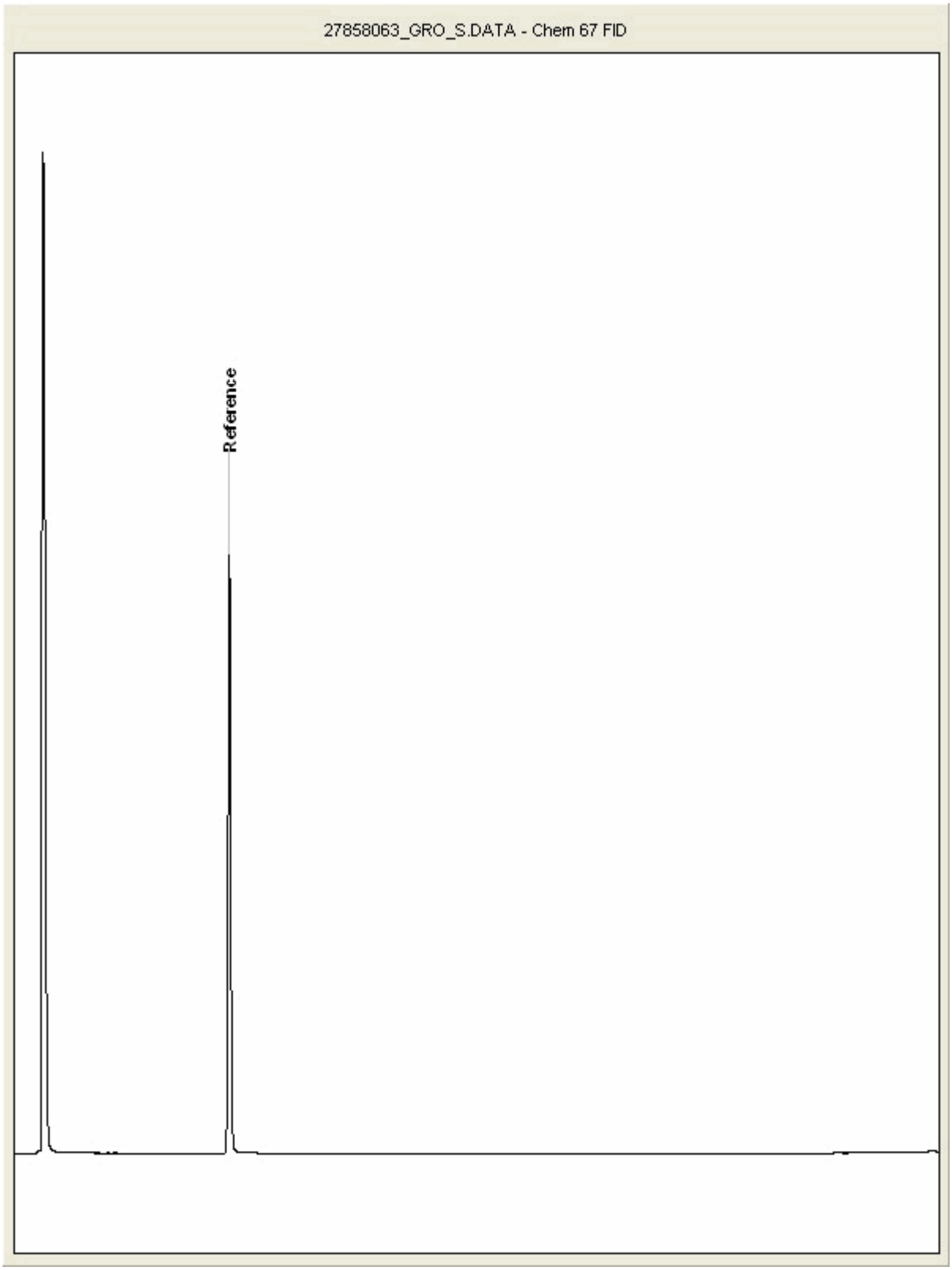


CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27858063 **Depth :** 1.00 - 1.20
Sample ID : BH101

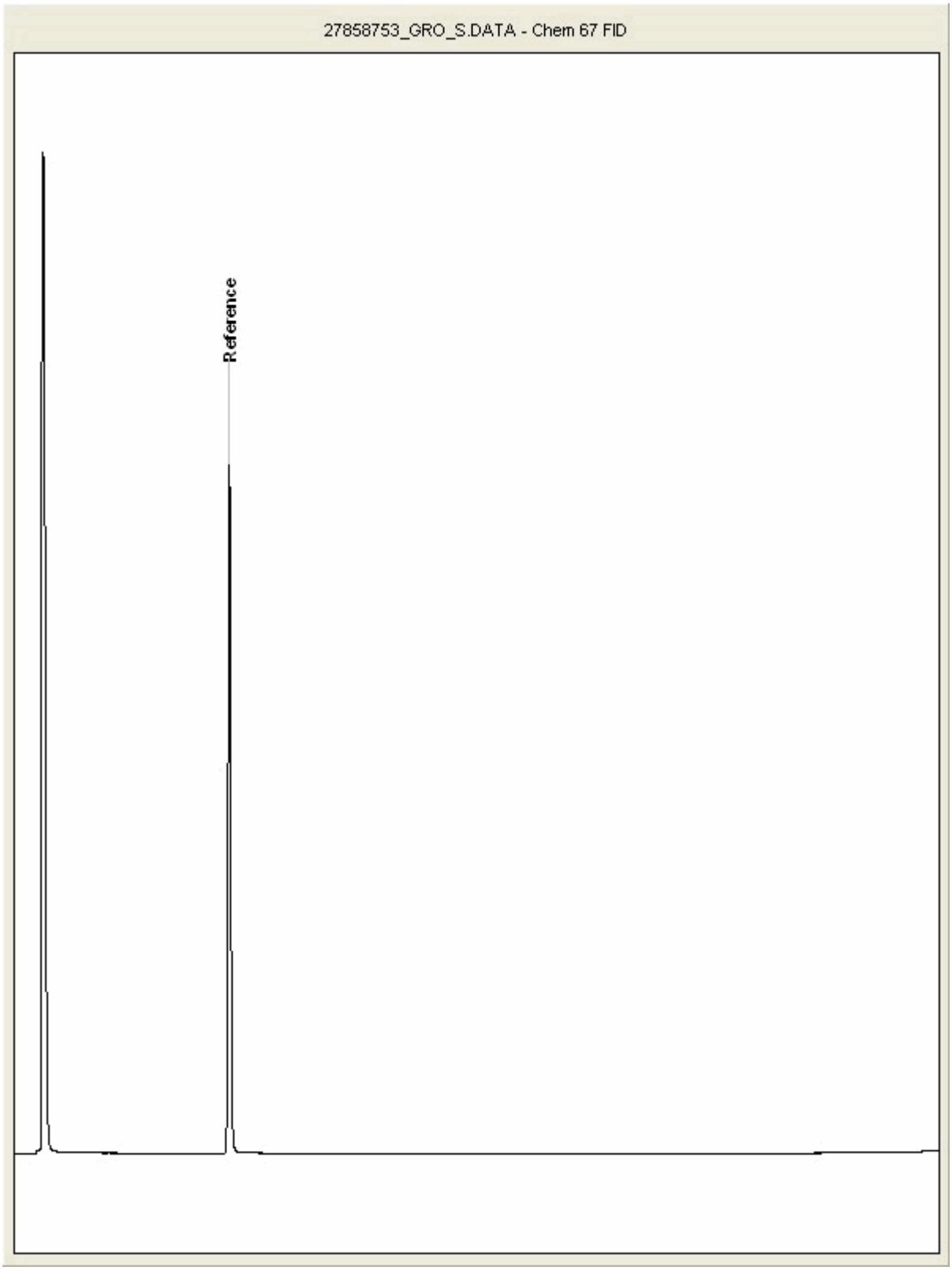


CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27858753 **Depth :** 2.50 - 2.75
Sample ID : BH101

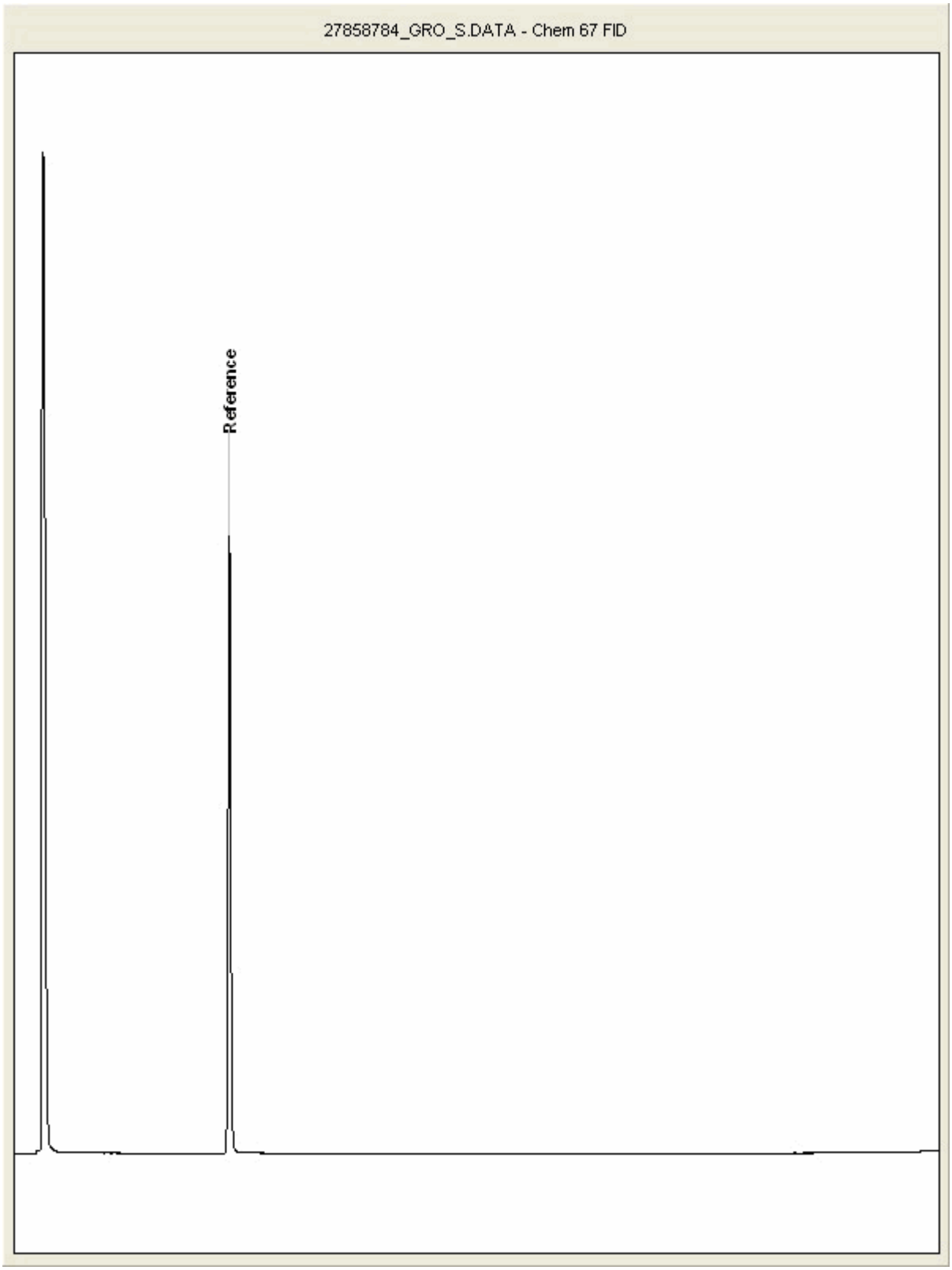


CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27858784 **Depth :** 0.20 - 0.30
Sample ID : BH102

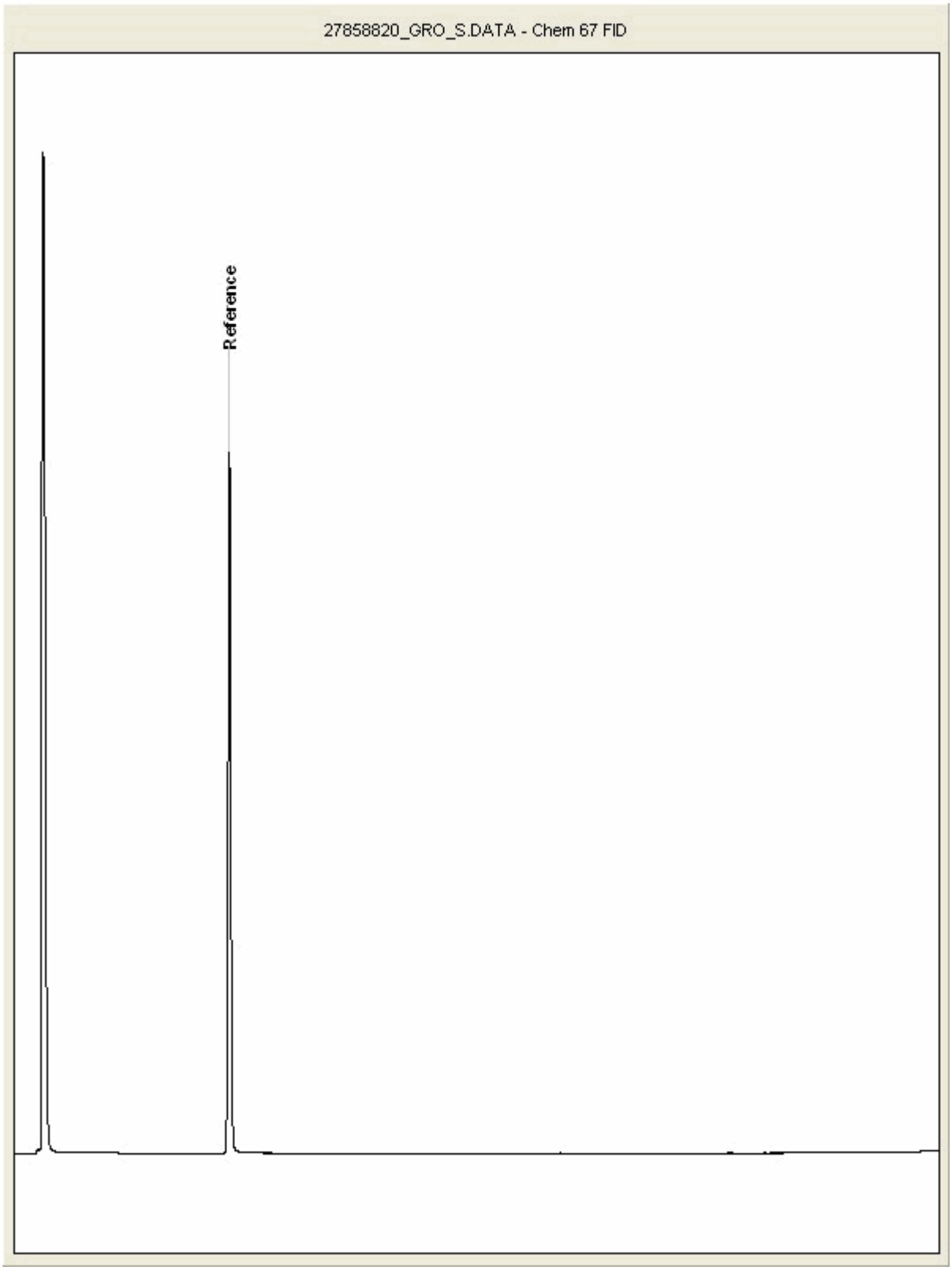


CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27858820 **Depth :** 3.85 - 4.00
Sample ID : BH102

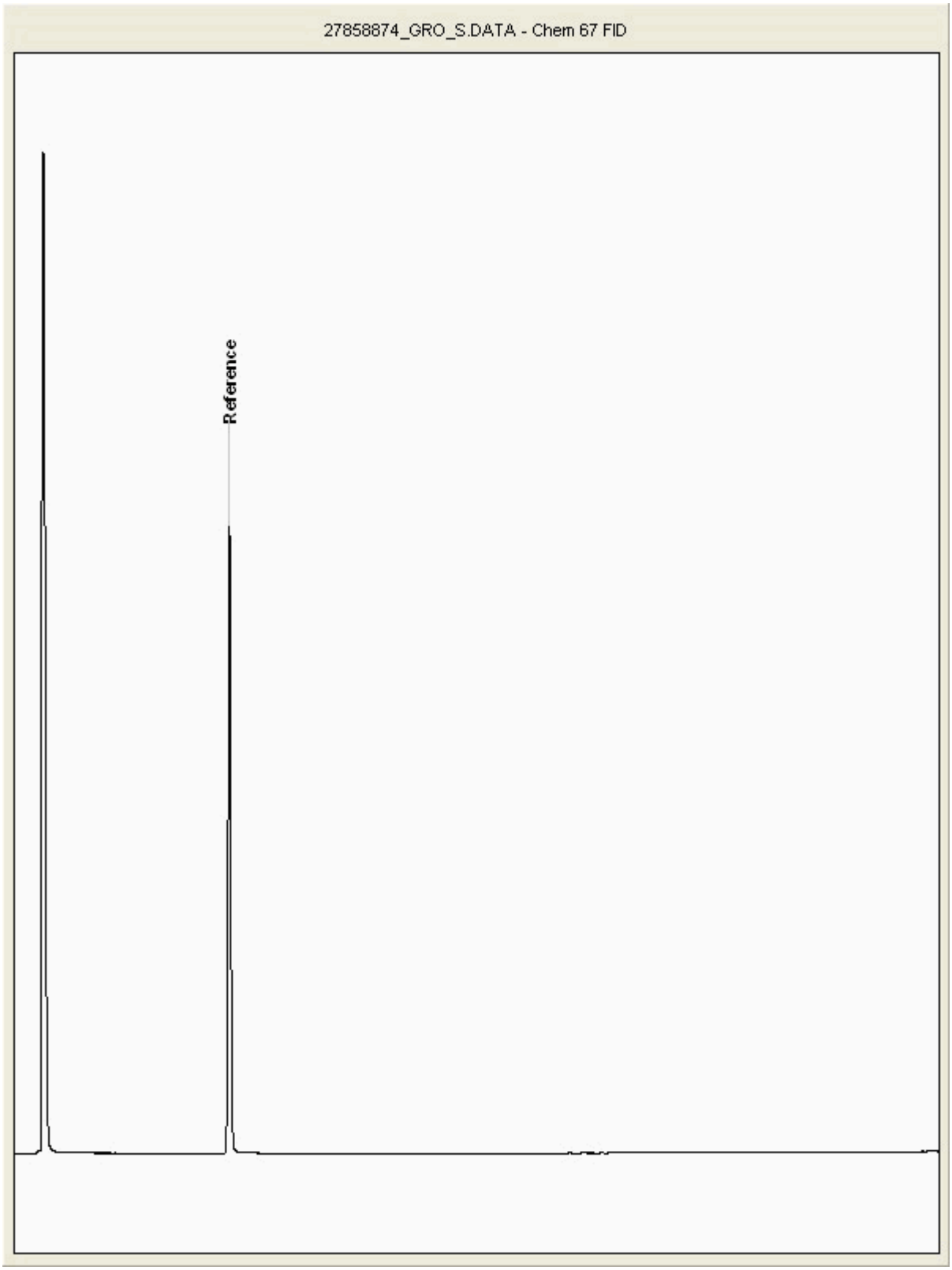


CERTIFICATE OF ANALYSIS

SDG: 230415-47 **Report Number:** 687044 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27858874 **Depth :** 1.20 - 1.40
Sample ID : BH104



SDG:	230415-47	**Report Number:**	687044	**Superseded Report:**	
Client Ref:	10057335	**Location:**	Steyning Grammar		

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 15 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. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

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 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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.

19. **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**

20. **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 (2021), 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 and soils are obtained from supplied bulk materials andd soils 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 (2021).

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.

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.

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.

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Website: www.alsenvironmental.co.uk

ARCADIS UK Ltd
Charter House
62-68 Hills Road
Cambridge
CB2 1LA

Attention: Annie Harding

CERTIFICATE OF ANALYSIS

Date of report Generation:	26 April 2023
Customer:	ARCADIS UK Ltd
Sample Delivery Group (SDG):	230415-51
Your Reference:	10057335
Location:	Steyning Grammar
Report No:	687045
Order Number:	10057335

We received 3 samples on Saturday April 15, 2023 and 2 of these samples were scheduled for analysis which was completed on Wednesday April 26, 2023. 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 Laboratories (UK) Limited Hawarden.

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:

Sonia McWhan

Operations Manager

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CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27842602	WS104A	ES2	0.20 - 0.30	05/04/2023
27842600	WS104A	ES1	0.60 - 0.80	05/04/2023
27842603	WS104A	ES3	2.60 - 2.80	05/04/2023

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

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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)			27842602				27842600	
Customer Sample Reference			WS104A				WS104A	
AGS Reference			ES2				ES1	
Depth (m)			0.20 - 0.30				0.60 - 0.80	
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	
Sample Type			S	S	S	S	S	
Anions by Kone (soil)	All	NDPs: 0 Tests: 1		X				
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1	X					
Chromium III	All	NDPs: 0 Tests: 2		X		X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2		X		X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 2		X		X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 2			X		X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 2		X		X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 2		X		X		
PAH by GCMS	All	NDPs: 0 Tests: 2		X		X		
PCBs by GCMS	All	NDPs: 0 Tests: 2		X		X		
pH	All	NDPs: 0 Tests: 1		X				
Sample description	All	NDPs: 0 Tests: 2		X		X		
Total Organic Carbon	All	NDPs: 0 Tests: 1		X				
Total Sulphur	All	NDPs: 0 Tests: 1		X				
TPH CWG GC (S)	All	NDPs: 0 Tests: 2		X		X		

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SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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)			27842602					27842600
Customer Sample Reference			WS104A					WS104A
AGS Reference			ES2					ES1
Depth (m)			0.20 - 0.30					0.60 - 0.80
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S
VOC MS (S)	All	NDPs: 0 Tests: 2			X		X

CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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
27842600	WS104A	0.60 - 0.80	Dark Brown	Clay Loam	None	None
27842602	WS104A	0.20 - 0.30	Dark Brown	Clay Loam	Stones	Vegetation

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: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

			WS104A 0.20 - 0.30 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-51 27842602 ES2	WS104A 0.60 - 0.80 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-51 27842600 ES1
Moisture Content Ratio (% of as received sample)	% PM024		20	18
Organic Carbon, Total	<0.2 % TM132		0.978 M	
Sulphur, Total	<0.02 % TM132		<0.02 #	
pH	1 pH Units TM133		8.47 M	
Chromium, Hexavalent	<0.6 mg/kg TM151		<0.6 M	<0.6 M
Cyanide, Free	<1 mg/kg TM153		<1 @ M	<1 @ M
PCB congener 28	<0.003 mg/kg TM168		<0.003 M	<0.003 M
PCB congener 52	<0.003 mg/kg TM168		<0.003 M	<0.003 M
PCB congener 101	<0.003 mg/kg TM168		<0.003 M	<0.003 M
PCB congener 118	<0.003 mg/kg TM168		<0.003 M	<0.003 M
PCB congener 138	<0.003 mg/kg TM168		<0.003 M	<0.003 M
PCB congener 153	<0.003 mg/kg TM168		<0.003 M	<0.003 M
PCB congener 180	<0.003 mg/kg TM168		<0.003 M	<0.003 M
Sum of detected PCB 7 Congeners	<0.021 mg/kg TM168		<0.021	<0.021
Chromium, Trivalent	<0.9 mg/kg TM181		11.7	19.9
Antimony	<0.6 mg/kg TM181		<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg TM181		9.75 M	11.5 M
Barium	<0.6 mg/kg TM181		85.1 #	68.7 #
Beryllium	<0.01 mg/kg TM181		0.715 M	0.779 M
Boron	<0.7 mg/kg TM181		9.94 #	11.3 #
Chromium	<0.9 mg/kg TM181		11.7 M	19.9 M
Copper	<1.4 mg/kg TM181		15.9 M	13.4 M
Iron	<1000 mg/kg TM181		19900 #	20300 #
Lead	<0.7 mg/kg TM181		33.4 M	15.4 M
Molybdenum	<0.1 mg/kg TM181		<0.1 #	0.196 #
Nickel	<0.2 mg/kg TM181		20.8 M	21.5 M
Selenium	<1 mg/kg TM181		<1 #	<1 #
Vanadium	<0.2 mg/kg TM181		26.1 #	33.4 #
Zinc	<1.9 mg/kg TM181		53.6 M	45.4 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l TM243		<0.004 M	

PAH by GCMS

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH by GCMS

			WS104A 0.20 - 0.30 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-51 27842602 ES2	WS104A 0.60 - 0.80 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-51 27842600 ES1
Naphthalene-d8 % recovery**	%	TM218	85.3	86.3
Acenaphthene-d10 % recovery**	%	TM218	81	81.7
Phenanthrene-d10 % recovery**	%	TM218	79.6	80.2
Chrysene-d12 % recovery**	%	TM218	71.6	72
Perylene-d12 % recovery**	%	TM218	77	77.8
Naphthalene	<0.009 mg/kg	TM218	0.0207 @ M	0.324 @ M
Acenaphthylene	<0.012 mg/kg	TM218	<0.012 @ M	<0.012 @ M
Acenaphthene	<0.008 mg/kg	TM218	0.0271 @ M	0.236 @ M
Fluorene	<0.01 mg/kg	TM218	<0.01 @ M	0.0804 @ M
Phenanthrene	<0.015 mg/kg	TM218	0.0328 @ M	0.0201 @ M
Anthracene	<0.016 mg/kg	TM218	<0.016 @ M	<0.016 @ M
Fluoranthene	<0.017 mg/kg	TM218	0.0714 @ M	0.127 @ M
Pyrene	<0.015 mg/kg	TM218	0.0631 @ M	0.122 @ M
Benz(a)anthracene	<0.014 mg/kg	TM218	0.0359 @ M	0.0586 @ M
Chrysene	<0.01 mg/kg	TM218	0.0437 @ M	0.0705 @ M
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	0.0498 @ M	0.0369 @ M
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	0.0198 @ M	<0.014 @ M
Benzo(a)pyrene	<0.015 mg/kg	TM218	0.0426 @ M	0.0237 @ M
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	0.0287 @ M	<0.018 @ M
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.023 @ M	<0.023 @ M
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	0.0341 @ M	<0.024 @ M
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	0.47	1.1

CERTIFICATE OF ANALYSIS

SDG:	230415-51	**Report Number:**	687045	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

TPH CWG (S)

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

			WS104A 0.20 - 0.30 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-51 27842602 ES2	WS104A 0.60 - 0.80 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-51 27842600 ES1
GRO Surrogate % recovery**	%	TM089	98.1 @	104 @
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414	1.76 @ #	<1 @ #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @	<1 @
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414	<5 @	<5 @
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414	<10	<10
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @ #	<1 @ #
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414	2.47 @ #	<1 @ #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	1.08 @	<1 @
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @	<1 @
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414	<5	<5
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414	<10	<10
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089	<0.05 @	<0.05 @
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089	<0.05 @	<0.05 @
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089	<0.02 @	<0.02 @

CERTIFICATE OF ANALYSIS

SDG:	230415-51	**Report Number:**	687045	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

VOC MS (S)

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
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VOC MS (S)

			WS104A 0.20 - 0.30 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-51 27842602 ES2	WS104A 0.60 - 0.80 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-51 27842600 ES1
Dibromofluoromethane**	%	TM116	99.1	103
Toluene-d8**	%	TM116	97.2	97.3
4-Bromofluorobenzene**	%	TM116	95.2	93.4
Dichlorodifluoromethane	<0.006 mg/kg	TM116	<0.006 #	
Chloromethane	<0.007 mg/kg	TM116	<0.007 #	
Vinyl Chloride	<0.006 mg/kg	TM116	<0.006 @ M	
Bromomethane	<0.01 mg/kg	TM116	<0.01 M	
Chloroethane	<0.01 mg/kg	TM116	<0.01 M	
Trichlorofluoromethane	<0.006 mg/kg	TM116	<0.006 M	
1,1-Dichloroethene	<0.01 mg/kg	TM116	<0.01 #	
Carbon Disulphide	<0.007 mg/kg	TM116	<0.007 M	
Dichloromethane	<0.01 mg/kg	TM116	<0.01 #	
Methyl Tertiary Butyl Ether	<0.01 mg/kg	TM116	<0.01 M	<0.01 M
trans-1,2-Dichloroethene	<0.01 mg/kg	TM116	<0.01 M	
1,1-Dichloroethane	<0.008 mg/kg	TM116	<0.008 M	
cis-1,2-Dichloroethene	<0.006 mg/kg	TM116	<0.006 M	
2,2-Dichloropropane	<0.01 mg/kg	TM116	<0.01	
Bromochloromethane	<0.01 mg/kg	TM116	<0.01 M	
Chloroform	<0.008 mg/kg	TM116	<0.008 M	
1,1,1-Trichloroethane	<0.007 mg/kg	TM116	<0.007 M	
1,1-Dichloropropene	<0.01 mg/kg	TM116	<0.01 M	
Carbontetrachloride	<0.01 mg/kg	TM116	<0.01 M	
1,2-Dichloroethane	<0.005 mg/kg	TM116	<0.005 M	
Benzene	<0.009 mg/kg	TM116	<0.009 M	<0.009 M
Trichloroethene	<0.009 mg/kg	TM116	<0.009 #	
1,2-Dichloropropane	<0.01 mg/kg	TM116	<0.01 M	
Dibromomethane	<0.009 mg/kg	TM116	<0.009 M	
Bromodichloromethane	<0.007 mg/kg	TM116	<0.007 M	
cis-1,3-Dichloropropene	<0.01 mg/kg	TM116	<0.01 M	
Toluene	<0.007 mg/kg	TM116	<0.007 M	<0.007 M
trans-1,3-Dichloropropene	<0.01 mg/kg	TM116	<0.01	
1,1,2-Trichloroethane	<0.01 mg/kg	TM116	<0.01 M	

			WS104A 0.20 - 0.30 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-51 27842602 ES2	WS104A 0.60 - 0.80 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-51 27842600 ES1
1,3-Dichloropropane	<0.007 mg/kg	TM116	<0.007 M	
Tetrachloroethene	<0.005 mg/kg	TM116	<0.005 M	
Dibromochloromethane	<0.01 mg/kg	TM116	<0.01 M	
1,2-Dibromoethane	<0.01 mg/kg	TM116	<0.01 M	
Chlorobenzene	<0.005 mg/kg	TM116	<0.005 M	
1,1,1,2-Tetrachloroethane	<0.01 mg/kg	TM116	<0.01 M	
Ethylbenzene	<0.004 mg/kg	TM116	<0.004 M	<0.004 M
p/m-Xylene	<0.01 mg/kg	TM116	<0.01 #	<0.01 #
o-Xylene	<0.01 mg/kg	TM116	<0.01 M	<0.01 M
Styrene	<0.01 mg/kg	TM116	<0.01 @ #	
Bromoform	<0.01 mg/kg	TM116	<0.01 M	
Isopropylbenzene	<0.005 mg/kg	TM116	<0.005 #	
1,1,2,2-Tetrachloroethane	<0.01 mg/kg	TM116	<0.01 #	
1,2,3-Trichloropropane	<0.016 mg/kg	TM116	<0.016 M	
Bromobenzene	<0.01 mg/kg	TM116	<0.01 M	
Propylbenzene	<0.01 mg/kg	TM116	<0.01 M	
2-Chlorotoluene	<0.009 mg/kg	TM116	<0.009 M	
1,3,5-Trimethylbenzene	<0.008 mg/kg	TM116	<0.008 M	
4-Chlorotoluene	<0.01 mg/kg	TM116	<0.01 M	
tert-Butylbenzene	<0.014 mg/kg	TM116	<0.014 #	
1,2,4-Trimethylbenzene	<0.009 mg/kg	TM116	<0.009 #	
sec-Butylbenzene	<0.01 mg/kg	TM116	<0.01	
4-Isopropyltoluene	<0.01 mg/kg	TM116	<0.01	
1,3-Dichlorobenzene	<0.008 mg/kg	TM116	<0.008 M	
1,4-Dichlorobenzene	<0.005 mg/kg	TM116	<0.005 M	
n-Butylbenzene	<0.011 mg/kg	TM116	<0.011	
1,2-Dichlorobenzene	<0.01 mg/kg	TM116	<0.01 M	
1,2-Dibromo-3-chloropropane	<0.014 mg/kg	TM116	<0.014 M	
Tert-amyl methyl ether	<0.01 mg/kg	TM116	<0.01 #	
1,2,4-Trichlorobenzene	<0.02 mg/kg	TM116	<0.02	
Hexachlorobutadiene	<0.02 mg/kg	TM116	<0.02	
Naphthalene	<0.013 mg/kg	TM116	<0.013 M	

CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

			WS104A 0.20 - 0.30 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-51 27842602 ES2	WS104A 0.60 - 0.80 Soil/Solid (S) 05/04/2023 . 15/04/2023 230415-51 27842600 ES1
1,2,3-Trichlorobenzene	<0.02 mg/kg	TM116	<0.02 #	
1,3,5-Trichlorobenzene	<0.02 mg/kg	TM116	<0.02	
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02	<0.02
Sum of BTEX	<0.04 mg/kg	TM116	<0.04	<0.04

CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref.	WS104AES2	20/04/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	0.20 - 0.30										
Sample Type	SOLID										
Date Sampled	05/04/2023 00:00:00										
Date Receieved	15/04/2023 05:00:00										
SDG	230415-51										
Original Sample	27842602										
Method Number	TM048										

CERTIFICATE OF ANALYSIS

SDG:	230415-51	**Report Number:**	687045	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	Identification of Asbestos in Bulk Material
TM089	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Determination of Hexavalent Chromium using Kone analyser
TM153	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM168	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM181	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	The determination of PAH in soil samples by GC-MS
TM243	Mixed Anions In Soils By Kone
TM414	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Test Completion Dates

Lab Sample No(s)	27842600	27842602
Customer Sample Ref.	WS104A	WS104A
AGS Ref.	ES1	ES2
Depth	0.60 - 0.80	0.20 - 0.30
Type	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)		25-Apr-2023
Asbestos ID in Solid Samples		21-Apr-2023
Chromium III	22-Apr-2023	25-Apr-2023
Cyanide Comp/Free/Total/Thiocyanate	21-Apr-2023	21-Apr-2023
EPH CWG GC (S)	21-Apr-2023	21-Apr-2023
GRO by GC-FID (S)		21-Apr-2023
Hexavalent Chromium (s)	20-Apr-2023	24-Apr-2023
Metals in solid samples by OES	25-Apr-2023	25-Apr-2023
PAH by GCMS	20-Apr-2023	20-Apr-2023
PCBs by GCMS	20-Apr-2023	20-Apr-2023
pH		21-Apr-2023
Sample description	19-Apr-2023	19-Apr-2023
Total Organic Carbon		25-Apr-2023
Total Sulphur		26-Apr-2023
TPH CWG GC (S)	21-Apr-2023	21-Apr-2023
VOC MS (S)	20-Apr-2023	20-Apr-2023

ASSOCIATED AQC DATA

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2743
Free Cyanide	TM153	**99.01** 83.00 : 113.00
Thiocyanate	TM153	**91.03** 87.27 : 113.27
Total Cyanide	TM153	**100.7** 72.73 : 109.93

GRO by GC-FID (S)

Component	Method Code	QC 2747	QC 2703
QC	TM089	**82.76** 59.51 : 102.93	**78.82** 59.51 : 102.93

Hexavalent Chromium (s)

Component	Method Code	QC 2714
Hexavalent Chromium	TM151	**108.0** 84.37 : 115.69

Metals in solid samples by OES

Component	Method Code	QC 2778	QC 2708	QC 2730
Aluminium	TM181	**116.67** 87.31 : 119.03	**107.02** 84.95 : 125.04	**100.0** 84.95 : 125.04
Antimony	TM181	**111.89** 81.24 : 112.95	**101.05** 81.24 : 112.95	**103.5** 81.24 : 112.95
Arsenic	TM181	**110.53** 81.08 : 110.00	**100.0** 87.39 : 110.81	**101.55** 87.39 : 110.81
Barium	TM181	**116.0** 95.44 : 117.86	**111.0** 92.16 : 121.75	**108.0** 92.16 : 121.75
Beryllium	TM181	**116.23** 85.72 : 122.69	**107.83** 85.72 : 122.69	**104.06** 85.72 : 122.69
Boron	TM181	**123.61** 87.57 : 122.93	**108.85** 93.63 : 124.95	**107.87** 93.63 : 124.95
Cadmium	TM181	**110.76** 82.04 : 114.28	**104.86** 82.04 : 114.28	**103.47** 82.04 : 114.28
Chromium	TM181	**114.67** 92.87 : 124.29	**110.4** 97.18 : 117.32	**111.2** 97.18 : 117.32
Cobalt	TM181	**105.2** 91.50 : 109.70	**99.46** 90.33 : 109.99	**97.49** 90.33 : 109.99
Copper	TM181	**110.86** 89.85 : 125.46	**107.68** 90.40 : 118.14	**105.06** 90.40 : 118.14
Iron	TM181	**120.18** 86.44 : 122.27	**106.42** 76.44 : 123.20	**99.08** 76.44 : 123.20

CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Metals in solid samples by OES

		QC 2778	QC 2708	QC 2730
Lead	TM181	**112.53** 84.55 : 119.89	**105.78** 84.55 : 119.89	**104.1** 84.55 : 119.89
Manganese	TM181	**110.54** 85.97 : 117.31	**106.22** 85.97 : 117.31	**104.86** 85.97 : 117.31
Mercury	TM181	**110.33** 79.17 : 111.30	**100.3** 79.17 : 111.30	**103.04** 79.17 : 111.30
Molybdenum	TM181	**109.62** 81.81 : 117.80	**100.0** 87.03 : 110.33	**99.36** 87.03 : 110.33
Nickel	TM181	**111.58** 83.87 : 113.53	**100.85** 83.87 : 113.53	**103.11** 83.87 : 113.53
Phosphorus	TM181	**114.04** 84.16 : 113.49	**100.32** 84.16 : 113.49	**103.99** 84.16 : 113.49
Selenium	TM181	**108.2** 74.15 : 115.93	**101.64** 81.18 : 111.13	**99.34** 81.18 : 111.13
Strontium	TM181	**116.2** 90.82 : 128.13	**108.74** 92.60 : 122.34	**108.23** 92.60 : 122.34
Thallium	TM181	**106.84** 82.25 : 119.12	**107.49** 85.37 : 116.45	**105.86** 85.37 : 116.45
Tin	TM181	**109.86** 86.96 : 122.18	**104.23** 86.96 : 122.18	**100.85** 86.96 : 122.18
Titanium	TM181	**112.26** 88.06 : 116.75	**100.0** 80.16 : 123.61	**100.0** 80.16 : 123.61
Vanadium	TM181	**115.33** 89.60 : 123.09	**106.9** 89.30 : 122.79	**107.28** 89.30 : 122.79
Zinc	TM181	**122.82** 89.25 : 127.54	**111.76** 89.16 : 121.48	**110.12** 89.16 : 121.48

PAH by GCMS

Component	Method Code	QC 2731
Acenaphthene	TM218	**84.5** 76.79 : 103.90
Acenaphthylene	TM218	**84.5** 74.19 : 106.17
Anthracene	TM218	**85.0** 70.90 : 109.22
Benz(a)anthracene	TM218	**87.5** 69.64 : 111.59
Benzo(a)pyrene	TM218	**91.0** 67.65 : 109.09
Benzo(b)fluoranthene	TM218	**89.0** 61.54 : 111.57
Benzo(ghi)perylene	TM218	**89.5** 65.23 : 106.40
Benzo(k)fluoranthene	TM218	**79.5** 69.09 : 107.83
Chrysene	TM218	**87.0** 69.26 : 107.71
Dibenzo(ah)anthracene	TM218	**81.0** 63.87 : 105.95
Fluoranthene	TM218	**98.0** 66.06 : 114.63

CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH by GCMS

		QC 2731
Fluorene	TM218	**85.0** 76.66 : 107.56
Indeno(123cd)pyrene	TM218	**80.5** 62.77 : 111.19
Naphthalene	TM218	**86.5** 72.14 : 105.72
Phenanthrene	TM218	**89.0** 73.62 : 109.34
Pyrene	TM218	**94.0** 69.79 : 109.70

PCBs by GCMS

Component	Method Code	QC 2741
PCB congener 101	TM168	**87.6** 58.69 : 103.69
PCB congener 105	TM168	**83.7** 58.10 : 106.34
PCB congener 114	TM168	**80.5** 55.91 : 100.61
PCB congener 118	TM168	**81.4** 60.02 : 106.23
PCB congener 123	TM168	**83.0** 65.01 : 99.81
PCB congener 126	TM168	**83.9** 56.35 : 103.21
PCB congener 138	TM168	**84.3** 63.95 : 107.63
PCB congener 153	TM168	**78.6** 62.65 : 108.85
PCB congener 156	TM168	**82.7** 54.88 : 102.64
PCB congener 157	TM168	**81.2** 53.71 : 99.31
PCB congener 167	TM168	**81.6** 56.16 : 103.14
PCB congener 169	TM168	**86.5** 56.84 : 112.10
PCB congener 180	TM168	**85.5** 57.42 : 105.48
PCB congener 189	TM168	**83.7** 52.17 : 103.59
PCB congener 28	TM168	**86.9** 65.82 : 104.46
PCB congener 52	TM168	**83.6** 60.31 : 103.09
PCB congener 77	TM168	**80.0** 57.96 : 99.66
PCB congener 81	TM168	**95.0** 66.73 : 115.93

pH

CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

pH

Component	Method Code	QC 2705
pH	TM133	**99.85** 96.27 : 101.64

Total Organic Carbon

Component	Method Code	QC 2741
Total Organic Carbon	TM132	**99.61** 89.45 : 124.61

Total Sulphur

Component	Method Code	QC 2718
Total Sulphur %	TM132	**103.11** 56.98 : 119.13

VOC MS (S)

Component	Method Code	QC 2737
1,1,1,2-tetrachloroethane	TM116	**103.6** 84.84 : 116.25
1,1,1-Trichloroethane	TM116	**106.0** 85.52 : 113.22
1,1,2-Trichloroethane	TM116	**103.0** 77.12 : 116.04
1,1-Dichloroethane	TM116	**112.2** 74.46 : 129.15
1,2-Dichloroethane	TM116	**120.4** 92.38 : 131.65
1,4-Dichlorobenzene	TM116	**97.8** 76.78 : 122.98
2-Chlorotoluene	TM116	**86.4** 68.55 : 109.58
4-Chlorotoluene	TM116	**81.6** 66.29 : 107.51
Benzene	TM116	**105.2** 93.16 : 114.90
Carbon Disulphide	TM116	**100.0** 74.91 : 122.14
Carbontetrachloride	TM116	**103.6** 80.31 : 124.50
Chlorobenzene	TM116	**99.6** 83.81 : 114.18

CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

		QC 2737
Chloroform	TM116	**112.2** 87.40 : 122.49
Chloromethane	TM116	**95.8** 63.11 : 124.36
Cis-1,2-Dichloroethene	TM116	**110.0** 80.67 : 126.72
Dibromomethane	TM116	**101.0** 73.23 : 118.35
Dichloromethane	TM116	**119.2** 81.11 : 133.25
Ethylbenzene	TM116	**90.0** 75.92 : 110.41
Hexachlorobutadiene	TM116	**37.2** 12.82 : 152.73
Isopropylbenzene	TM116	**77.2** 54.30 : 105.91
Naphthalene	TM116	**95.8** 80.86 : 128.81
o-Xylene	TM116	**86.2** 69.99 : 108.74
p/m-Xylene	TM116	**84.6** 68.32 : 108.91
Sec-Butylbenzene	TM116	**61.0** 38.50 : 101.50
Tetrachloroethene	TM116	**95.8** 76.95 : 121.02
Toluene	TM116	**93.0** 74.24 : 107.42
Trichloroethene	TM116	**97.2** 85.28 : 109.36
Trichlorofluoromethane	TM116	**109.8** 81.46 : 120.52
Vinyl Chloride	TM116	**103.4** 68.02 : 143.37

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

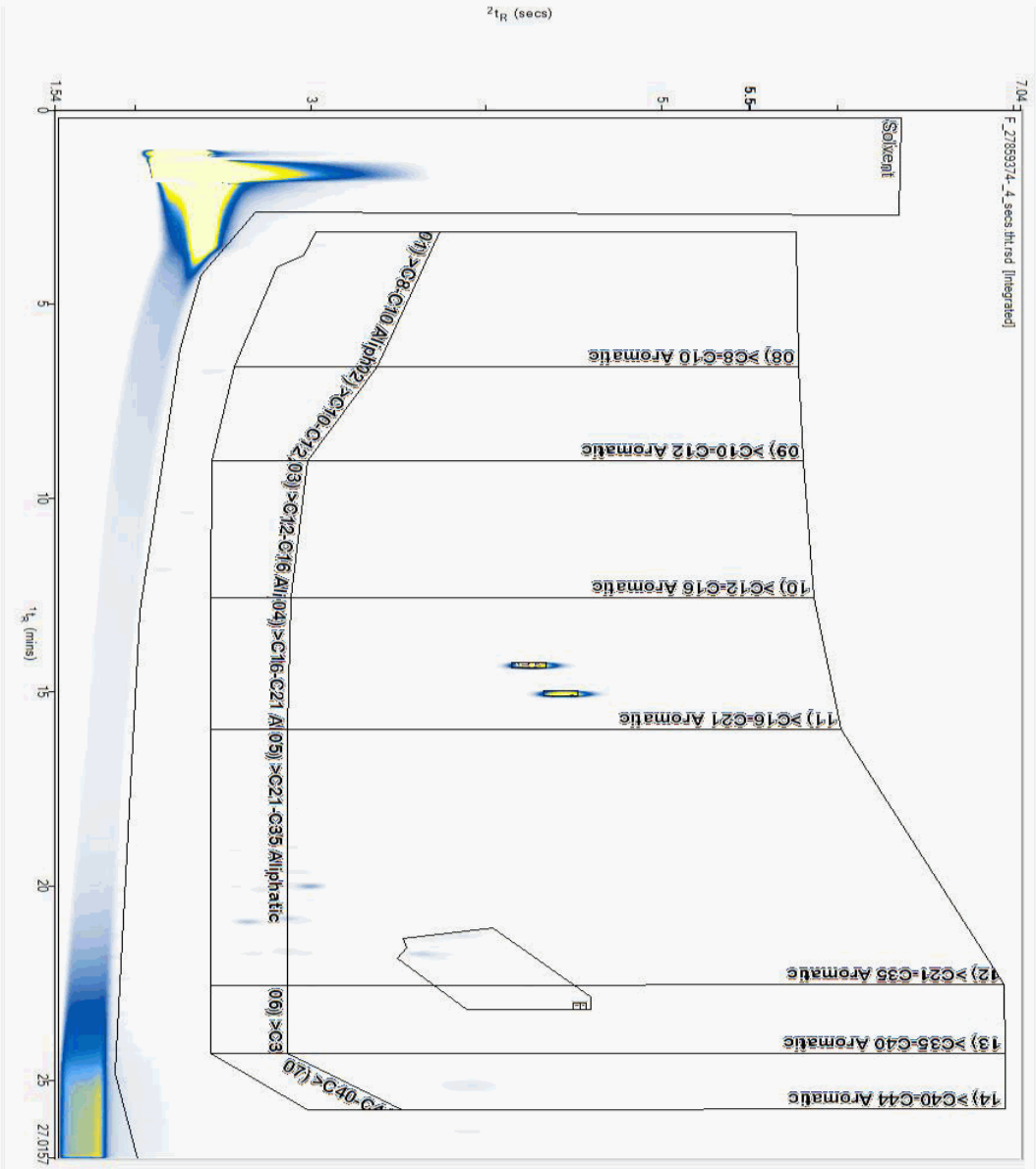
CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27859374 **Depth :** 0.20 - 0.30
Sample ID : WS104A

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_27859374-_4_secs.tht
Date Acquired   :  20/04/23 05:35:43
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



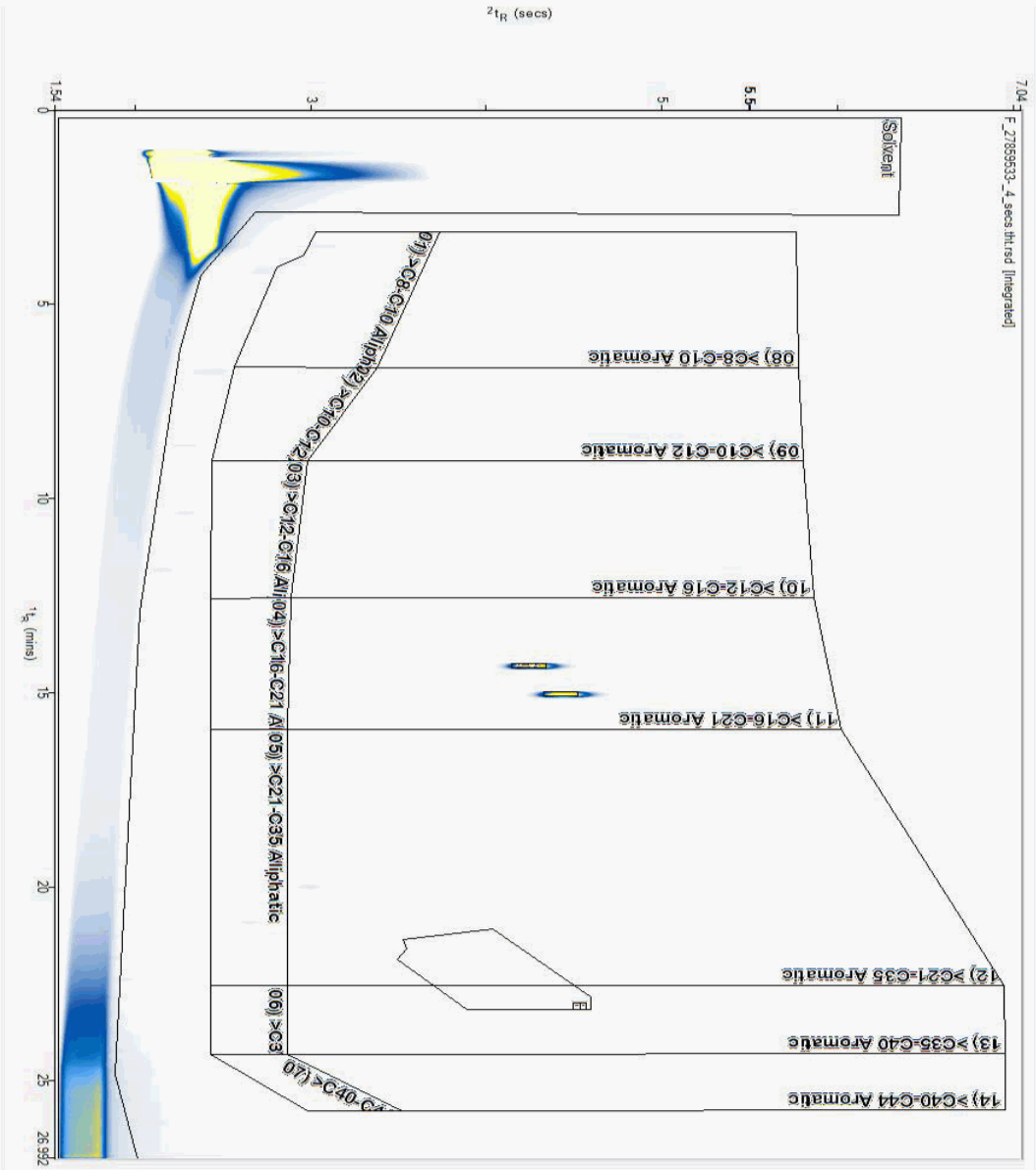
CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27859533 **Depth :** 0.60 - 0.80
Sample ID : WS104A

ChromSpace LIMS export
Current batch
Sample Identity: F_27859533-_4_secs.tht
Date Acquired : 20/04/23 06:38:18
Units : ppm
Dilution : 0
CF :
Multiplier :

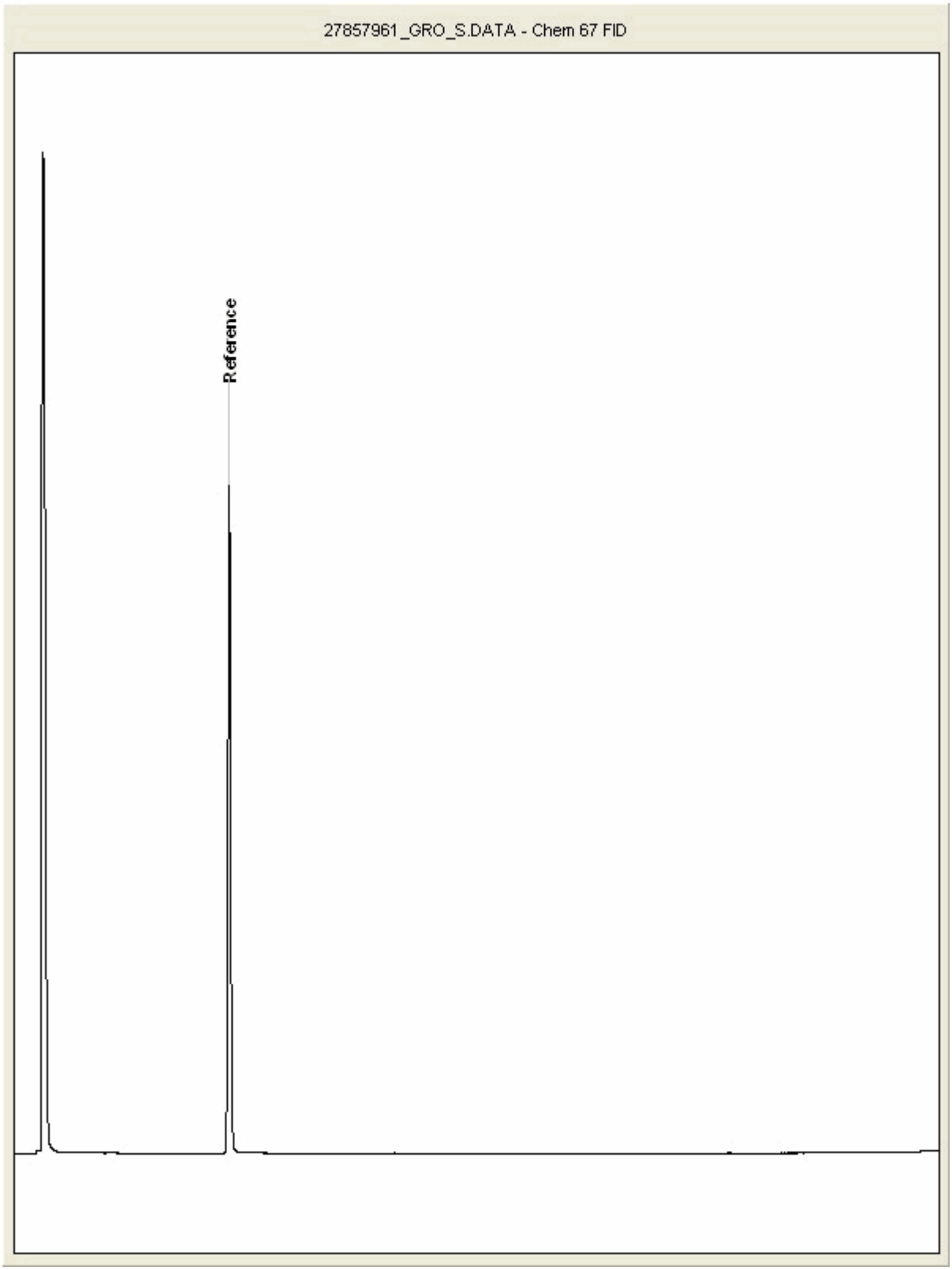


CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27857961 **Depth :** 0.20 - 0.30
Sample ID : WS104A

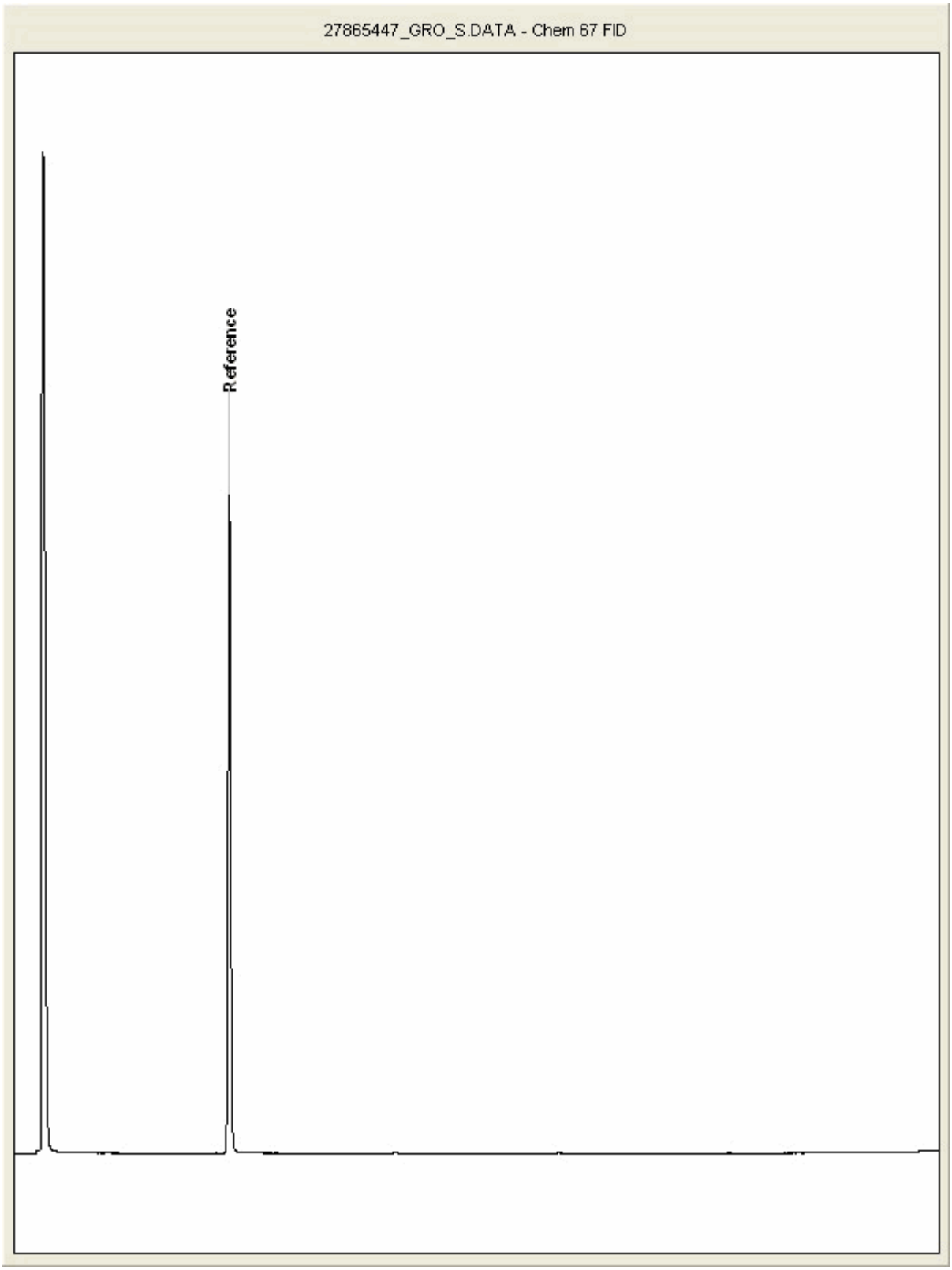


CERTIFICATE OF ANALYSIS

SDG: 230415-51 **Report Number:** 687045 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27865447 **Depth :** 0.60 - 0.80
Sample ID : WS104A



SDG:	230415-51	**Report Number:**	687045	**Superseded Report:**	
Client Ref:	10057335	**Location:**	Steyning Grammar		

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 15 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. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

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 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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.

19. **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**

20. **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 (2021), 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 and soils are obtained from supplied bulk materials andd soils 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 (2021).

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.

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.

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.

Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

ARCADIS UK Ltd
Charter House
62-68 Hills Road
Cambridge
CB2 1LA

Attention: Annie Harding

CERTIFICATE OF ANALYSIS

Date of report Generation:	26 April 2023
Customer:	ARCADIS UK Ltd
Sample Delivery Group (SDG):	230415-56
Your Reference:	10057335
Location:	Steyning Grammar
Report No:	687046
Order Number:	10057335

We received 5 samples on Saturday April 15, 2023 and 2 of these samples were scheduled for analysis which was completed on Wednesday April 26, 2023. 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 Laboratories (UK) Limited Hawarden.

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:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27842758	BH102		2.85 - 3.00	05/04/2023
27842761	BH102		5.00 - 5.10	05/04/2023
27842763	BH103		3.50 - 3.70	12/04/2023
27842752	WS102		0.40 - 0.55	04/04/2023
27842755	WS102		1.90 - 2.00	03/04/2023

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

CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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)			27842758				27842752		
Customer Sample Reference			BH102				WS102		
AGS Reference									
Depth (m)			2.85 - 3.00				0.40 - 0.55		
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)		
Sample Type			S	S	S	S	S		
Anions by Kone (soil)	All	NDPs: 0 Tests: 2	X			X			
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1			X				
Chromium III	All	NDPs: 0 Tests: 2	X			X			
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2	X			X			
EPH CWG GC (S)	All	NDPs: 0 Tests: 2	X			X			
GRO by GC-FID (S)	All	NDPs: 0 Tests: 2		X			X		
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 2	X			X			
Metals in solid samples by OES	All	NDPs: 0 Tests: 2	X			X			
PAH by GCMS	All	NDPs: 0 Tests: 2	X			X			
pH	All	NDPs: 0 Tests: 2	X			X			
Sample description	All	NDPs: 0 Tests: 2	X			X			
Total Organic Carbon	All	NDPs: 0 Tests: 2	X			X			
Total Sulphur	All	NDPs: 0 Tests: 2	X			X			
TPH CWG GC (S)	All	NDPs: 0 Tests: 2	X			X			
VOC MS (S)	All	NDPs: 0 Tests: 2		X			X		

CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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
27842758	BH102	2.85 - 3.00	Light Brown	Silty Clay Loam	None	None
27842752	WS102	0.40 - 0.55	Light Brown	Clay	Stones	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.

CERTIFICATE OF ANALYSIS

SDG:	230415-56	**Report Number:**	687046	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

			BH102 2.85 - 3.00 Unspecified Solid (UNS) 05/04/2023 . 15/04/2023 230415-56 27842758	WS102 0.40 - 0.55 Unspecified Solid (UNS) 04/04/2023 . 15/04/2023 230415-56 27842752
Moisture Content Ratio (% of as received sample)	% %	PM024	21	7
Organic Carbon, Total	<0.2 %	TM132	<0.2	0.2
Sulphur, Total	<0.02 %	TM132	<0.02	<0.02
pH	1 pH Units	TM133	9	8.94
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6	<0.6
Cyanide, Free	<1 mg/kg	TM153	<1 @	<1 @
Chromium, Trivalent	<0.9 mg/kg	TM181	9.67	11.6
Antimony	<0.6 mg/kg	TM181	<0.6	<0.6
Arsenic	<0.6 mg/kg	TM181	5.47	7.65
Barium	<0.6 mg/kg	TM181	37.5	63.5
Beryllium	<0.01 mg/kg	TM181	0.625	0.547
Boron	<0.7 mg/kg	TM181	13.6	4.52
Chromium	<0.9 mg/kg	TM181	9.67	11.6
Copper	<1.4 mg/kg	TM181	13.8	13.3
Iron	<1000 mg/kg	TM181	11400	14400
Lead	<0.7 mg/kg	TM181	7.76	12.2
Molybdenum	<0.1 mg/kg	TM181	<0.1	<0.1
Nickel	<0.2 mg/kg	TM181	25.1	20.7
Selenium	<1 mg/kg	TM181	<1	1.23
Vanadium	<0.2 mg/kg	TM181	13.7	21.5
Zinc	<1.9 mg/kg	TM181	28.2	49
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0178	0.0095

CERTIFICATE OF ANALYSIS

SDG:	230415-56	**Report Number:**	687046	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

PAH by GCMS

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH by GCMS

			BH102 2.85 - 3.00 Unspecified Solid (UNS) 05/04/2023 . 15/04/2023 230415-56 27842758	WS102 0.40 - 0.55 Unspecified Solid (UNS) 04/04/2023 . 15/04/2023 230415-56 27842752
Naphthalene-d8 % recovery**	%	TM218	86.5	85.8
Acenaphthene-d10 % recovery**	%	TM218	82.6	82.2
Phenanthrene-d10 % recovery**	%	TM218	82.6	83.6
Chrysene-d12 % recovery**	%	TM218	79.5	78
Perylene-d12 % recovery**	%	TM218	84.4	86.5
Naphthalene	<0.009 mg/kg	TM218	<0.009 @	<0.009 @
Acenaphthylene	<0.012 mg/kg	TM218	<0.012 @	<0.012 @
Acenaphthene	<0.008 mg/kg	TM218	<0.008 @	<0.008 @
Fluorene	<0.01 mg/kg	TM218	<0.01 @	<0.01 @
Phenanthrene	<0.015 mg/kg	TM218	<0.015 @	<0.015 @
Anthracene	<0.016 mg/kg	TM218	<0.016 @	<0.016 @
Fluoranthene	<0.017 mg/kg	TM218	<0.017 @	0.0468 @
Pyrene	<0.015 mg/kg	TM218	<0.015 @	0.0491 @
Benz(a)anthracene	<0.014 mg/kg	TM218	<0.014 @	0.0279 @
Chrysene	<0.01 mg/kg	TM218	<0.01 @	0.0298 @
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	<0.015 @	0.0369 @
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	<0.014 @	<0.014 @
Benzo(a)pyrene	<0.015 mg/kg	TM218	<0.015 @	0.0349 @
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	<0.018 @	0.0242 @
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.023 @	<0.023 @
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	<0.024 @	0.0351 @
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	<0.118	0.285

TPH CWG (S)

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

			BH102 2.85 - 3.00 Unspecified Solid (UNS) 05/04/2023 . 15/04/2023 230415-56 27842758	WS102 0.40 - 0.55 Unspecified Solid (UNS) 04/04/2023 . 15/04/2023 230415-56 27842752
GRO Surrogate % recovery**	%	TM089	118 @	115 @
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @	<1 @
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @	<1 @
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @	<1 @
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @	<1 @
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414	<1 @	<1 @
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414	<5 @	<5 @
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414	<10	<10
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089	<0.01 @	<0.01 @
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @	<1 @
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @	<1 @
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @	<1 @
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @	7.08 @
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @	1.05 @
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414	<1 @	<1 @
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414	<5	8.95
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414	<10	<10
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089	<0.05 @	<0.05 @
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089	<0.05 @	<0.05 @
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089	<0.02 @	<0.02 @

VOC MS (S)

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

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.					
			Depth (m)					
			Sample Type					
			Date Sampled					
			Sampled Time					
			Date Received					
			SDG Ref					
			Lab Sample No.(s)					
			AGS Reference					

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CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

			BH102 2.85 - 3.00 Unspecified Solid (UNS) 05/04/2023 . 15/04/2023 230415-56 27842758	WS102 0.40 - 0.55 Unspecified Solid (UNS) 04/04/2023 . 15/04/2023 230415-56 27842752
Dibromofluoromethane**	%	TM116	116 @	123 @
Toluene-d8**	%	TM116	100 @	80.7 @
4-Bromofluorobenzene**	%	TM116	85.8 @	75.2 @
Methyl Tertiary Butyl Ether	<0.01 mg/kg	TM116	<0.01 @	<0.01 @
Benzene	<0.009 mg/kg	TM116	<0.009 @	<0.009 @
Toluene	<0.007 mg/kg	TM116	<0.007 @	<0.007 @
Ethylbenzene	<0.004 mg/kg	TM116	<0.004 @	<0.004 @
p/m-Xylene	<0.01 mg/kg	TM116	<0.01 @	<0.01 @
o-Xylene	<0.01 mg/kg	TM116	<0.01 @	<0.01 @
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 @	<0.02 @
Sum of BTEX	<0.04 mg/kg	TM116	<0.04 @	<0.04 @

Validated

CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref.	WS102 0.40 - 0.55	21/04/2023	Odhran McLernon	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	MISC_SOLID										
Sample Type	04/04/2023 00:00:00										
Date Sampled	15/04/2023 05:00:00										
Date Receieved	230415-56										
SDG	27842752										
Original Sample	TM048										
Method Number											

CERTIFICATE OF ANALYSIS

SDG:	230415-56	**Report Number:**	687046	**Superseded Report:**	
Client Ref.:	10057335	**Location:**	Steyning Grammar		

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	Identification of Asbestos in Bulk Material
TM089	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Determination of Hexavalent Chromium using Kone analyser
TM153	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM181	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	The determination of PAH in soil samples by GC-MS
TM243	Mixed Anions In Soils By Kone
TM414	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Test Completion Dates

Lab Sample No(s)	27842758	27842752
Customer Sample Ref.	BH102	WS102
AGS Ref.		
Depth	2.85 - 3.00	0.40 - 0.55
Type	Unspecified So	Unspecified So
Anions by Kone (soil)	21-Apr-2023	25-Apr-2023
Asbestos ID in Solid Samples		21-Apr-2023
Chromium III	24-Apr-2023	25-Apr-2023
Cyanide Comp/Free/Total/Thiocyanate	21-Apr-2023	21-Apr-2023
EPH CWG GC (S)	21-Apr-2023	21-Apr-2023
GRO by GC-FID (S)	21-Apr-2023	21-Apr-2023
Hexavalent Chromium (s)	20-Apr-2023	24-Apr-2023
Metals in solid samples by OES	25-Apr-2023	25-Apr-2023
PAH by GCMS	21-Apr-2023	21-Apr-2023
pH	21-Apr-2023	21-Apr-2023
Sample description	19-Apr-2023	19-Apr-2023
Total Organic Carbon	25-Apr-2023	25-Apr-2023
Total Sulphur	24-Apr-2023	26-Apr-2023
TPH CWG GC (S)	21-Apr-2023	21-Apr-2023
VOC MS (S)	20-Apr-2023	20-Apr-2023

ASSOCIATED AQC DATA

Anions by Kone (soil)

Component	Method Code	QC 2713
Chloride (soluble)	TM243	**99.43** 93.18 : 112.38
Water Soluble Sulphate as SO4 2:1 Extract	TM243	**91.98** 79.99 : 117.30

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2743
Free Cyanide	TM153	**99.01** 83.00 : 113.00
Thiocyanate	TM153	**91.03** 87.27 : 113.27
Total Cyanide	TM153	**100.7** 72.73 : 109.93

GRO by GC-FID (S)

Component	Method Code	QC 2791
QC	TM089	**83.31** 60.04 : 103.64

Hexavalent Chromium (s)

Component	Method Code	QC 2714
Hexavalent Chromium	TM151	**108.0** 84.37 : 115.69

Metals in solid samples by OES

Component	Method Code	QC 2778	QC 2730
Aluminium	TM181	**116.67** 87.31 : 119.03	**100.0** 84.95 : 125.04
Antimony	TM181	**111.89** 81.24 : 112.95	**103.5** 81.24 : 112.95
Arsenic	TM181	**110.53** 81.08 : 110.00	**101.55** 87.39 : 110.81
Barium	TM181	**116.0** 95.44 : 117.86	**108.0** 92.16 : 121.75
Beryllium	TM181	**116.23** 85.72 : 122.69	**104.06** 85.72 : 122.69
Boron	TM181	**123.61** 87.57 : 122.93	**107.87** 93.63 : 124.95
Cadmium	TM181	**110.76** 82.04 : 114.28	**103.47** 82.04 : 114.28

CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
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Metals in solid samples by OES

		QC 2778	QC 2730
Chromium	TM181	**114.67** 92.87 : 124.29	**111.2** 97.18 : 117.32
Cobalt	TM181	**105.2** 91.50 : 109.70	**97.49** 90.33 : 109.99
Copper	TM181	**110.86** 89.85 : 125.46	**105.06** 90.40 : 118.14
Iron	TM181	**120.18** 86.44 : 122.27	**99.08** 76.44 : 123.20
Lead	TM181	**112.53** 84.55 : 119.89	**104.1** 84.55 : 119.89
Manganese	TM181	**110.54** 85.97 : 117.31	**104.86** 85.97 : 117.31
Mercury	TM181	**110.33** 79.17 : 111.30	**103.04** 79.17 : 111.30
Molybdenum	TM181	**109.62** 81.81 : 117.80	**99.36** 87.03 : 110.33
Nickel	TM181	**111.58** 83.87 : 113.53	**103.11** 83.87 : 113.53
Phosphorus	TM181	**114.04** 84.16 : 113.49	**103.99** 84.16 : 113.49
Selenium	TM181	**108.2** 74.15 : 115.93	**99.34** 81.18 : 111.13
Strontium	TM181	**116.2** 90.82 : 128.13	**108.23** 92.60 : 122.34
Thallium	TM181	**106.84** 82.25 : 119.12	**105.86** 85.37 : 116.45
Tin	TM181	**109.86** 86.96 : 122.18	**100.85** 86.96 : 122.18
Titanium	TM181	**112.26** 88.06 : 116.75	**100.0** 80.16 : 123.61
Vanadium	TM181	**115.33** 89.60 : 123.09	**107.28** 89.30 : 122.79
Zinc	TM181	**122.82** 89.25 : 127.54	**110.12** 89.16 : 121.48

PAH by GCMS

Component	Method Code	QC 2781
Acenaphthene	TM218	**85.0** 76.79 : 103.90
Acenaphthylene	TM218	**84.5** 74.19 : 106.17
Anthracene	TM218	**82.5** 70.90 : 109.22
Benz(a)anthracene	TM218	**76.0** 69.64 : 111.59
Benzo(a)pyrene	TM218	**83.0** 67.65 : 109.09
Benzo(b)fluoranthene	TM218	**75.0** 61.54 : 111.57
Benzo(ghi)perylene	TM218	**87.5** 65.23 : 106.40

CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH by GCMS

		QC 2781
Benzo(k)fluoranthene	TM218	**77.5** 69.09 : 107.83
Chrysene	TM218	**76.0** 69.26 : 107.71
Dibenzo(ah)anthracene	TM218	**72.5** 63.87 : 105.95
Fluoranthene	TM218	**81.5** 66.06 : 114.63
Fluorene	TM218	**85.5** 76.66 : 107.56
Indeno(123cd)pyrene	TM218	**72.5** 62.77 : 111.19
Naphthalene	TM218	**87.5** 72.14 : 105.72
Phenanthrene	TM218	**84.5** 73.62 : 109.34
Pyrene	TM218	**80.0** 69.79 : 109.70

pH

Component	Method Code	QC 2705	QC 2707
pH	TM133	**99.85** 96.27 : 101.64	**99.85** 96.27 : 101.64

Total Organic Carbon

Component	Method Code	QC 2736	QC 2741
Total Organic Carbon	TM132	**103.52** 89.45 : 124.61	**99.61** 89.45 : 124.61

Total Sulphur

Component	Method Code	QC 2792	QC 2718
Total Sulphur %	TM132	**113.99** 56.98 : 119.13	**103.11** 56.98 : 119.13

VOC MS (S)

CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

Component	Method Code	QC 2725
1,1,1,2-tetrachloroethane	TM116	**98.6** 84.42 : 110.51
1,1,1-Trichloroethane	TM116	**106.8** 88.34 : 114.50
1,1,2-Trichloroethane	TM116	**100.8** 81.29 : 113.79
1,1-Dichloroethane	TM116	**115.2** 91.34 : 123.49
1,2-Dichloroethane	TM116	**114.2** 90.04 : 132.28
1,4-Dichlorobenzene	TM116	**89.2** 80.81 : 125.07
2-Chlorotoluene	TM116	**98.6** 73.13 : 114.13
4-Chlorotoluene	TM116	**94.0** 68.66 : 109.13
Benzene	TM116	**105.2** 88.77 : 112.03
Carbon Disulphide	TM116	**89.6** 75.11 : 124.81
Carbontetrachloride	TM116	**108.0** 86.07 : 115.14
Chlorobenzene	TM116	**101.2** 86.98 : 112.64
Chloroform	TM116	**113.0** 93.80 : 123.25
Chloromethane	TM116	**112.2** 67.89 : 143.51
Cis-1,2-Dichloroethene	TM116	**108.6** 85.88 : 113.97
Dibromomethane	TM116	**110.6** 76.00 : 120.73
Dichloromethane	TM116	**115.6** 97.64 : 133.75
Ethylbenzene	TM116	**86.6** 77.27 : 102.90
Hexachlorobutadiene	TM116	**36.8** 14.55 : 147.92
Isopropylbenzene	TM116	**70.8** 47.44 : 104.62
Naphthalene	TM116	**97.4** 80.90 : 124.24
o-Xylene	TM116	**80.6** 69.86 : 96.58
p/m-Xylene	TM116	**82.3** 72.78 : 100.00
Sec-Butylbenzene	TM116	**58.0** 27.03 : 135.73
Tetrachloroethene	TM116	**93.6** 80.10 : 120.38
Toluene	TM116	**96.2** 79.34 : 104.16

CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

		QC 2725
Trichloroethene	TM116	**100.8** 79.80 : 112.33
Trichlorofluoromethane	TM116	**110.0** 83.13 : 123.97
Vinyl Chloride	TM116	**110.2** 69.66 : 136.55

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

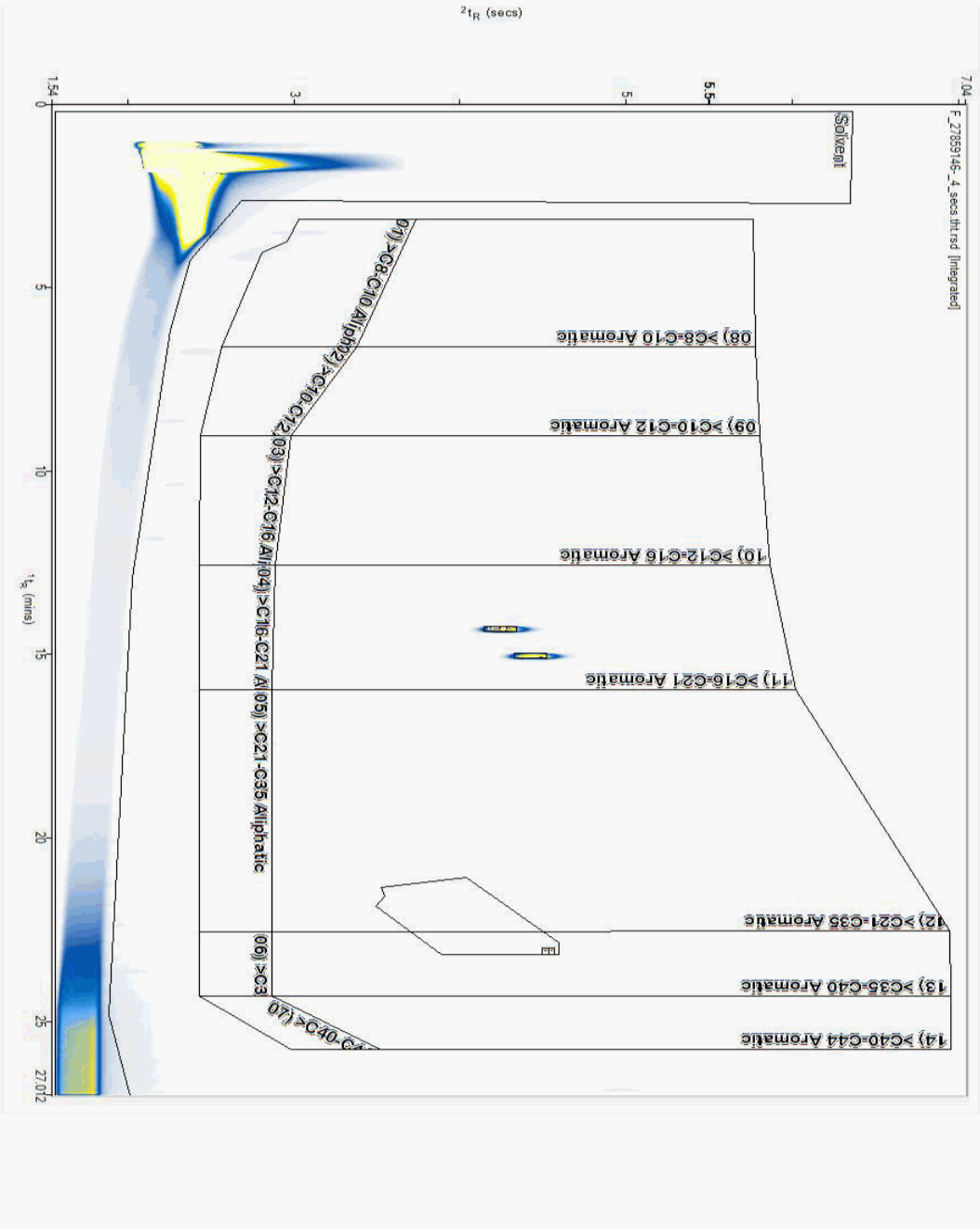
CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27859146 **Depth :** 2.85 - 3.00
Sample ID : BH102

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_27859146-_4_secs.tht
Date Acquired   :  20/04/23 06:07:01
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



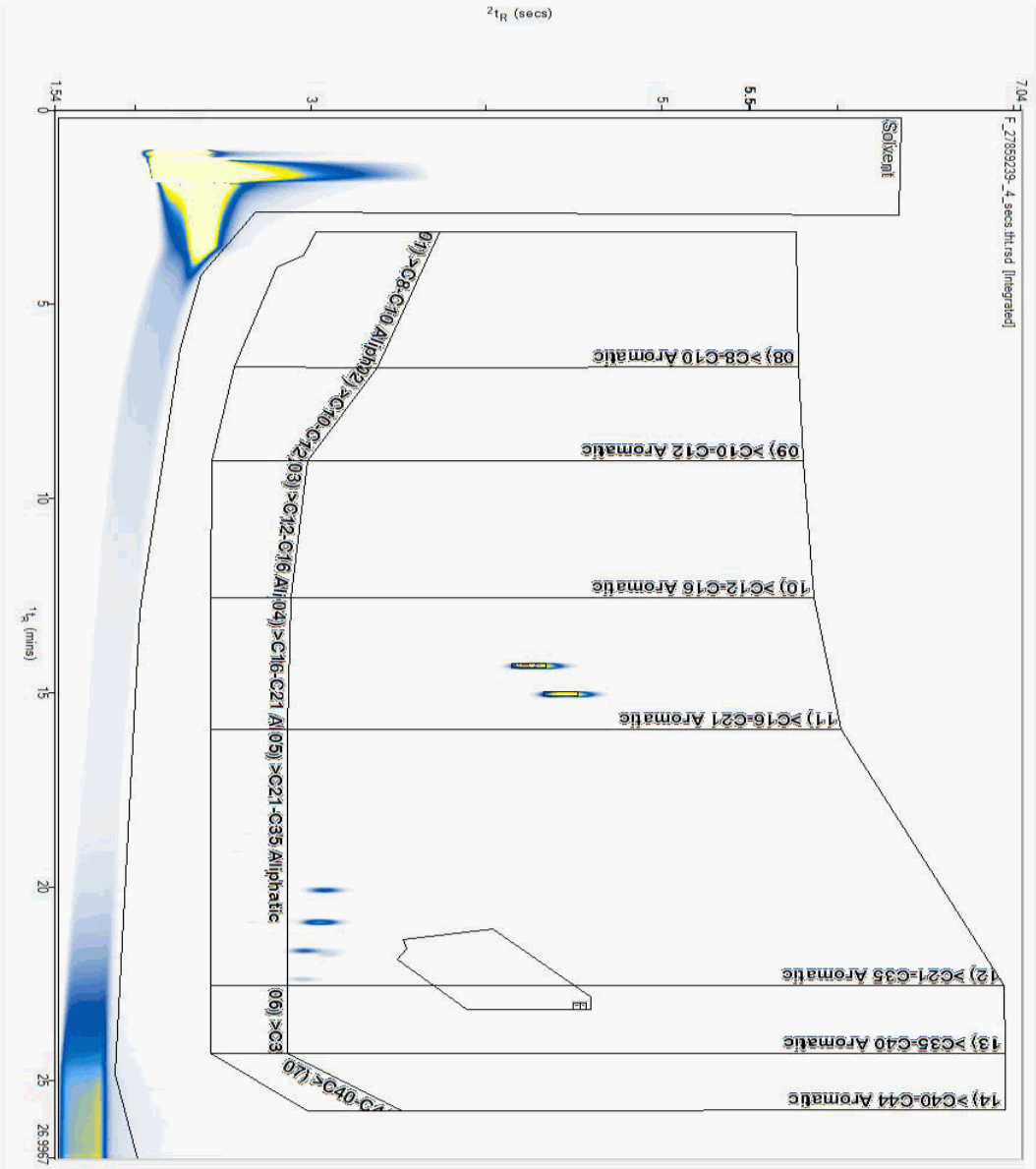
CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27859239 **Depth :** 0.40 - 0.55
Sample ID : WS102

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_27859239-_4_secs.tht
Date Acquired   :  21/04/23 01:00:22
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

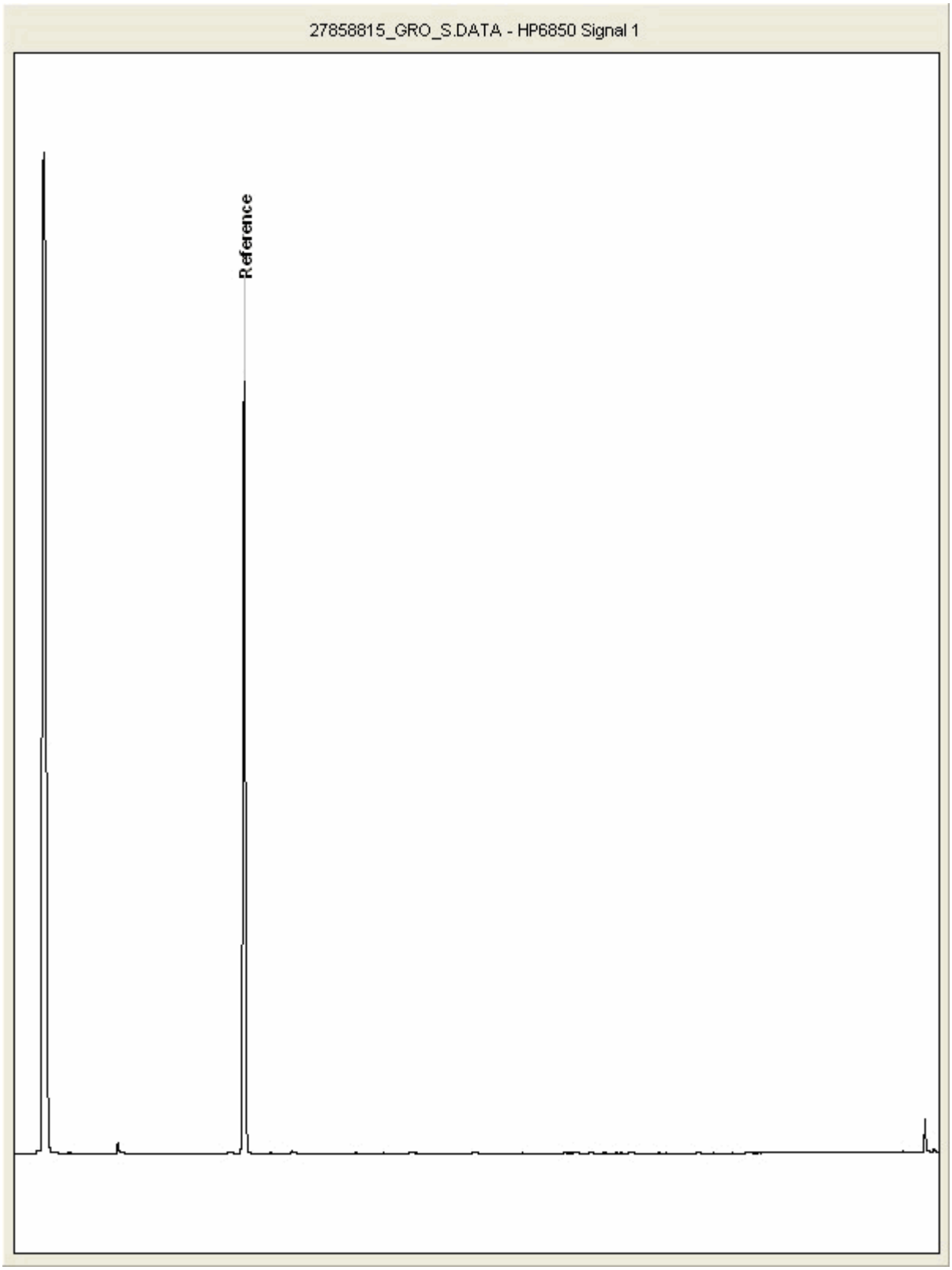


CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27858815 **Depth :** 0.40 - 0.55
Sample ID : WS102

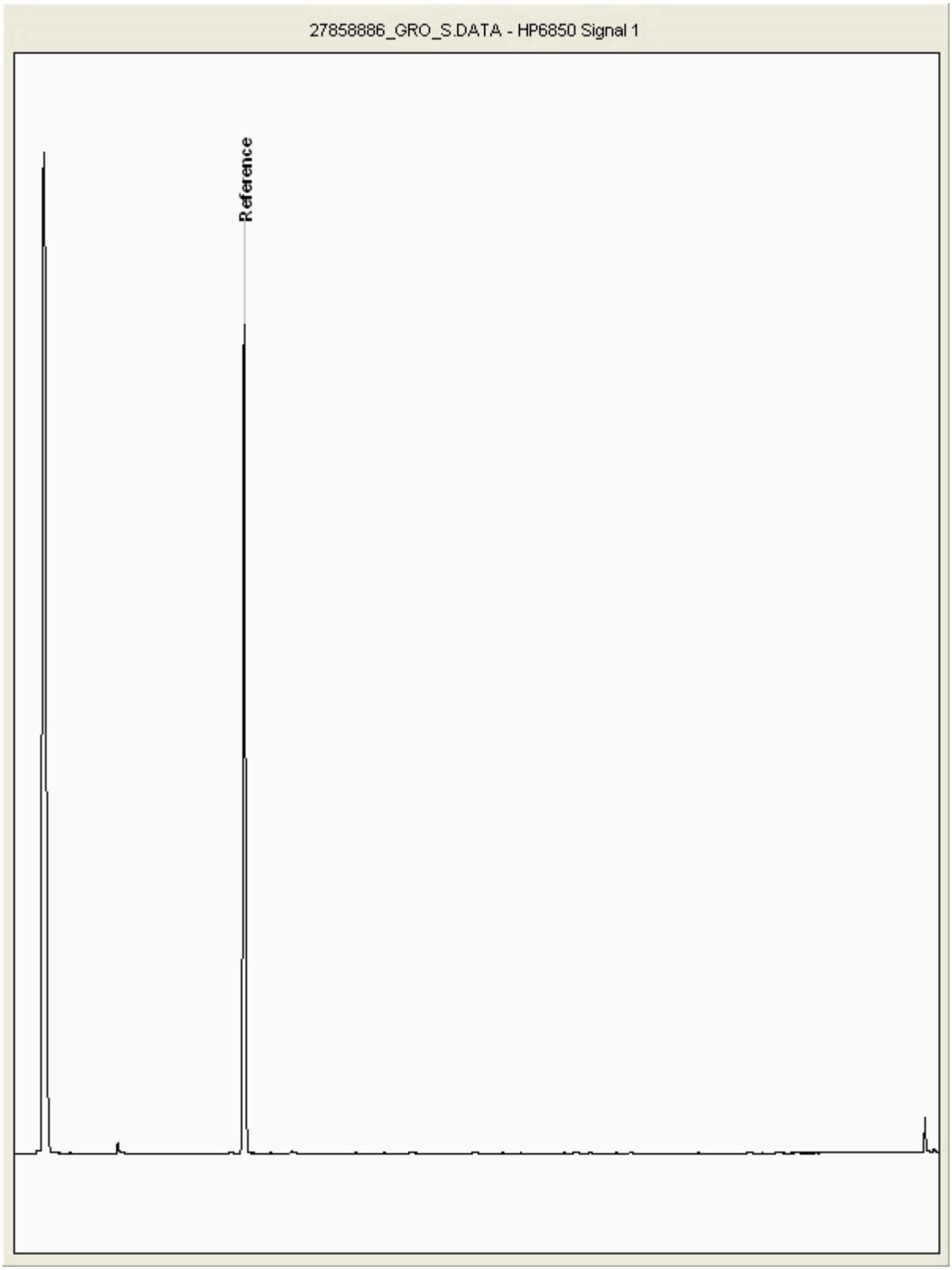


CERTIFICATE OF ANALYSIS

SDG: 230415-56 **Report Number:** 687046 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27858886 **Depth :** 2.85 - 3.00
Sample ID : BH102



SDG:	230415-56	**Report Number:**	687046	**Superseded Report:**	
Client Ref:	10057335	**Location:**	Steyning Grammar		

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 15 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. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

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 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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.

19. **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**

20. **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 (2021), 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 and soils are obtained from supplied bulk materials andd soils 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 (2021).

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.

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.

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.

Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

ARCADIS UK Ltd
Charter House
62-68 Hills Road
Cambridge
CB2 1LA

Attention: Annie Harding

CERTIFICATE OF ANALYSIS

Date of report Generation:	16 May 2023
Customer:	ARCADIS UK Ltd
Sample Delivery Group (SDG):	230505-55
Your Reference:	10057335
Location:	Steyning Grammar
Report No:	689008
Order Number:	10057335

This report has been revised and directly supersedes 688974 in its entirety.

We received 7 samples on Friday May 05, 2023 and 7 of these samples were scheduled for analysis which was completed on Monday May 15, 2023. 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 Laboratories (UK) Limited Hawarden.

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:

Sonia McWhan
Operations Manager

1291

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27948529	BH102		3.50	04/05/2023
27948380	BH104		8.00	04/05/2023
27948531	SKIP			04/05/2023
27948526	WS101		3.50	04/05/2023
27948527	WS102		3.00	04/05/2023
27948377	WS103		4.00	04/05/2023
27948530	WS104		3.00	04/05/2023

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

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

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)	27948529	27948380	27948531	27948526
			Customer Sample Reference	BH102	BH104	SKIP	WS101
			AGS Reference				
			Depth (m)	3.50	8.00		3.50
			Container	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	ZnAc (ALE246)	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	ZnAc (ALE246)	1kg TUB with Handle (ALE210)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	ZnAc (ALE246)
			Sample Type	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	S	S	S	GW	GW	GW	GW	GW	GW
Alkali Metals by iCap-OES (Soil)	All	NDPs: 0 Tests: 1															X							
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 6			X						X										X			
ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 1															X							
Anions by Kone (w)	All	NDPs: 0 Tests: 7		X						X						X				X				
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1														X								
CEN Readings	All	NDPs: 0 Tests: 1														X								
Chromium III	All	NDPs: 0 Tests: 7				X						X					X					X		
Coronene	All	NDPs: 0 Tests: 1															X							
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 7		X						X							X			X				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 7				X						X				X						X		
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 1														X								
EPH by GCxGC-FID	All	NDPs: 0 Tests: 1															X							
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 6	X						X										X					
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 6	X						X										X					
EPH CWG GC (S)	All	NDPs: 0 Tests: 1															X							

27948530	WS104		3.00	ZnAc (ALE246)	GW																														
				Vial (ALE297)	GW																														
				HNO3 Filtered (ALE204)	GW														X						X										
				H2SO4 (ALE244)	GW				X																										
				500ml Plastic (ALE208)	GW								X										X												
				1000ml glass bottle (ALE220)	GW																										X		X		
27948377	WS103		4.00	ZnAc (ALE246)	GW																														
				Vial (ALE297)	GW																														
				HNO3 Filtered (ALE204)	GW														X						X										
				H2SO4 (ALE244)	GW				X																										
				500ml Plastic (ALE208)	GW								X										X												
				1000ml glass bottle (ALE220)	GW																										X		X		
27948527	WS102		3.00	ZnAc (ALE246)	GW																														
				Vial (ALE297)	GW																														
				HNO3 Filtered (ALE204)	GW														X						X										
				H2SO4 (ALE244)	GW				X																										
				500ml Plastic (ALE208)	GW								X										X												
				1000ml glass bottle (ALE220)	GW																										X		X		

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

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)	27948529	27948380	27948531	27948526
			Customer Sample Reference	BH102	BH104	SKIP	WS101
			AGS Reference				
			Depth (m)	3.50	8.00		3.50
			Container	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	ZnAc (ALE246)	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	ZnAc (ALE246)	1kg TUB with Handle (ALE232)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	ZnAc (ALE246)
			Sample Type	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	S	S	S	GW	GW	GW	GW	GW	GW
Fluoride	All	NDPs: 0 Tests: 7			X						X					X				X				
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1																X						
GRO by GC-FID (W)	All	NDPs: 0 Tests: 6						X						X										X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 1															X								
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 6			X						X									X				
Loss on Ignition in soils	All	NDPs: 0 Tests: 1															X								
Mercury Dissolved	All	NDPs: 0 Tests: 1														X									
Metals in solid samples by OES	All	NDPs: 0 Tests: 1															X								
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 1															X								
PAH by GCMS	All	NDPs: 0 Tests: 1															X								
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 6	X						X											X					
PCBs by GCMS	All	NDPs: 0 Tests: 1															X								
pH	All	NDPs: 0 Tests: 1															X								
pH Value	All	NDPs: 0 Tests: 6			X						X									X					
pH Value of Filtered Water	All	NDPs: 0 Tests: 1														X									

27948530	WS104		3.00	ZnAc (ALE246)	GW															
				Vial (ALE297)	GW			X												
				HNO3 Filtered (ALE204)	GW															
				H2SO4 (ALE244)	GW															
				500ml Plastic (ALE208)	GW	X				X									X	
				1000ml glass bottle (ALE220)	GW											X				
27948377	WS103		4.00	ZnAc (ALE246)	GW															
				Vial (ALE297)	GW			X												
				HNO3 Filtered (ALE204)	GW															
				H2SO4 (ALE244)	GW															
				500ml Plastic (ALE208)	GW	X				X									X	
				1000ml glass bottle (ALE220)	GW											X				
27948527	WS102		3.00	ZnAc (ALE246)	GW															
				Vial (ALE297)	GW			X												
				HNO3 Filtered (ALE204)	GW															
				H2SO4 (ALE244)	GW															
				500ml Plastic (ALE208)	GW	X				X									X	
				1000ml glass bottle (ALE220)	GW											X				

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

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)	27948529	27948380	27948531	27948526
			Customer Sample Reference	BH102	BH104	SKIP	WS101
			AGS Reference				
			Depth (m)	3.50	8.00		3.50
			Container	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	ZnAc (ALE246)	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	ZnAc (ALE246)	1kg TUB with Handle (ALE232)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	ZnAc (ALE246)
			Sample Type	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	S	S	S	GW	GW	GW	GW	GW	GW
Phenols by HPLC (W)	All	NDPs: 0 Tests: 1														X								
Sample description	All	NDPs: 0 Tests: 1															X							
Sulphide	All	NDPs: 0 Tests: 6						X							X									X
Total Organic Carbon	All	NDPs: 0 Tests: 1															X							
TPH CWG (W)	All	NDPs: 0 Tests: 6	X						X										X					
TPH CWG GC (S)	All	NDPs: 0 Tests: 1															X							
VOC MS (S)	All	NDPs: 0 Tests: 1																X						
VOC MS (W)	All	NDPs: 0 Tests: 6					X							X									X	

27948530	WS104		3.00	ZnAc (ALE246)	GW										
				Vial (ALE297)	GW										X
				HNO3 Filtered (ALE204)	GW									X	
				H2SO4 (ALE244)	GW										
				500ml Plastic (ALE208)	GW										
				1000ml glass bottle (ALE220)	GW								X		
27948377	WS103		4.00	ZnAc (ALE246)	GW									X	
				Vial (ALE297)	GW								X		
				HNO3 Filtered (ALE204)	GW										
				H2SO4 (ALE244)	GW										
				500ml Plastic (ALE208)	GW										
				1000ml glass bottle (ALE220)	GW							X			
27948527	WS102		3.00	ZnAc (ALE246)	GW									X	
				Vial (ALE297)	GW								X		
				HNO3 Filtered (ALE204)	GW										
				H2SO4 (ALE244)	GW										
				500ml Plastic (ALE208)	GW										
				1000ml glass bottle (ALE220)	GW							X			

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

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
27948531	SKIP		Light Brown	Sandy Silt Loam	Stones	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.

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

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.	BH102	BH104	SKIP	WS101	WS102	WS103
			Depth (m)	3.50	8.00	.	3.50	3.00	4.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Soil/Solid (S)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023
			Sampled Time	.	.	.	.	.	.
			Date Received	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023
			SDG Ref	230505-55	230505-55	230505-55	230505-55	230505-55	230505-55
			Lab Sample No.(s)	27948529	27948380	27948531	27948526	27948527	27948377
			AGS Reference						
Ammoniacal Nitrogen as N	<200 µg/l	TM099		<200 #	<200 #		<200 #	<200 #	<200 #
Sulphide	<10 µg/l	TM101		<10 #	<10 #		<10 #	11.5 #	<10 #
Fluoride	<500 µg/l	TM104		<500 #	<500 #		<500 #	<500 #	<500 #
Chromium, Trivalent	<30 µg/l	TM152		<30	<30		<30	36	<30
Antimony (diss.filt)	<1 µg/l	TM152		<1 #	<1 #		<1 #	<1 #	<1 #
Arsenic (diss.filt)	<0.5 µg/l	TM152		<0.5 #	1.54 #		0.71 #	<0.5 #	0.671 #
Barium (diss.filt)	<0.2 µg/l	TM152		83.3 #	216 #		56.1 #	29 #	35.2 #
Beryllium (diss.filt)	<0.1 µg/l	TM152		<0.1 #	<0.1 #		<0.1 #	<0.1 #	<0.1 #
Boron (diss.filt)	<10 µg/l	TM152		42.2 #	46.2 #		40.7 #	17.3 #	29.6 #
Chromium (diss.filt)	<1 µg/l	TM152		20.9 #	<1 #		20.9 #	36 #	<1 #
Copper (diss.filt)	<0.3 µg/l	TM152		0.49 #	<0.3 #		1.89 #	0.927 #	1.91 #
Lead (diss.filt)	<0.2 µg/l	TM152		3.55 #	6.2 #		<0.2 #	0.328 #	50.7 #
Manganese (diss.filt)	<3 µg/l	TM152		30.7 #	173 #		5.14 #	6.54 #	5.46 #
Molybdenum (diss.filt)	<3 µg/l	TM152		<3 #	<3 #		<3 #	<3 #	<3 #
Nickel (diss.filt)	<0.4 µg/l	TM152		2.71 #	2.4 #		2.77 #	1.55 #	2.68 #
Selenium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #		3.56 #	9.51 #	1.08 #
Vanadium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #		<1 #	<1 #	<1 #
Zinc (diss.filt)	<1 µg/l	TM152		3.73 #	8.47 #		4.18 #	3.25 #	26.6 #
Magnesium (Dis.Filt)	<36 µg/l	TM152		3210 #	6580 #		2500 #	1880 #	2200 #
Calcium (Dis.Filt)	<200 µg/l	TM152		124000 #	143000 #		127000 #	89900 #	116000 #
Iron (Dis.Filt)	<19 µg/l	TM152		<19 #	822 #		<19 #	<19 #	<19 #
Sulphate	<2000 µg/l	TM184		40100 #	56800 #		81700 #	113000 #	44600 #
Chloride	<2000 µg/l	TM184		33000 #	61000 #		19000 #	25100 #	14800 #
Cyanide, Total	<50 µg/l	TM227		<50 2 #	<50 2 #		<50 2 #	<50 2 #	<50 2 #
Cyanide, Free	<50 µg/l	TM227		<50 2 #	<50 2 #		<50 2 #	<50 2 #	<50 2 #
Chromium, Hexavalent	<30 µg/l	TM241		<30 #	<30 #		<30 #	<30 #	<30 #
pH	<1 pH Units	TM256		7.91 #	7.57 #		7.73 #	7.92 #	7.83 #
Moisture Content Ratio (% of as received sample)	%	PM024				8.8			
Loss on ignition	<0.7 %	TM018				3.22 M			
Organic Carbon, Total	<0.2 %	TM132				0.561 M			
pH	1 pH Units	TM133				8.49 M			
Chromium, Hexavalent	<0.6 mg/kg	TM151				<0.6 M			

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

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.	BH102	BH104	SKIP	WS101	WS102	WS103
			Depth (m)	3.50	8.00	.	3.50	3.00	4.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Soil/Solid (S)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023
			Sampled Time	.	.	.	.	.	.
			Date Received	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023
			SDG Ref	230505-55	230505-55	230505-55	230505-55	230505-55	230505-55
			Lab Sample No.(s)	27948529	27948380	27948531	27948526	27948527	27948377
			AGS Reference						
Cyanide, Total	<1 mg/kg	TM153				<1 M			
Cyanide, Free	<1 mg/kg	TM153				<1 M			
PCB congener 28	<0.003 mg/kg	TM168				<0.03 M			
PCB congener 52	<0.003 mg/kg	TM168				<0.03 M			
PCB congener 101	<0.003 mg/kg	TM168				<0.03 M			
PCB congener 118	<0.003 mg/kg	TM168				<0.03 M			
PCB congener 138	<0.003 mg/kg	TM168				<0.03 M			
PCB congener 153	<0.003 mg/kg	TM168				<0.03 M			
PCB congener 180	<0.003 mg/kg	TM168				<0.03 M			
Sum of detected PCB 7 Congeners	<0.021 mg/kg	TM168				<0.21			
Chromium, Trivalent	<0.9 mg/kg	TM181				7.47			
Antimony	<0.6 mg/kg	TM181				<0.6 #			
Arsenic	<0.6 mg/kg	TM181				17.2 M			
Barium	<0.6 mg/kg	TM181				96.7 #			
Beryllium	<0.01 mg/kg	TM181				0.777 M			
Boron	<0.7 mg/kg	TM181				7.98 #			
Chromium	<0.9 mg/kg	TM181				7.47 M			
Copper	<1.4 mg/kg	TM181				13.6 M			
Iron	<1000 mg/kg	TM181				26100 #			
Lead	<0.7 mg/kg	TM181				24 M			
Manganese	<0.13 mg/kg	TM181				4330 M			
Molybdenum	<0.1 mg/kg	TM181				0.387 #			
Nickel	<0.2 mg/kg	TM181				18.4 M			
Selenium	<1 mg/kg	TM181				2.91 #			
Vanadium	<0.2 mg/kg	TM181				27.4 #			
Zinc	<1.9 mg/kg	TM181				55.4 M			
ANC @ pH 4	<0.03 mol/kg	TM182				0.0471			
ANC @ pH 6	<0.03 mol/kg	TM182				<0.03			
Calcium	<21 mg/kg	TM224				13600			
Magnesium	<8 mg/kg	TM224				2120			
PAH Total 17 (inc Coronene) Moisture Corrected	<10 mg/kg	TM410				<10			
Coronene	<0.2 mg/kg	TM410				<0.2			

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Results Legend		Customer Sample Ref.	BH102	BH104	SKIP	WS101	WS102	WS103
#	ISO17025 accredited.	Depth (m)	3.50	8.00	.	3.50	3.00	4.00
M	mCERTS accredited.	Sample Type	Ground Water (GW)	Ground Water (GW)	Soil/Solid (S)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
aq	Aqueous / settled sample.	Date Sampled	04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023
diss.filt	Dissolved / filtered sample.	Sampled Time	.	.	.	.	.	.
tot.unfilt	Total / unfiltered sample.	Date Received	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023
*	Subcontracted - refer to subcontractor report for accreditation status.	SDG Ref	230505-55	230505-55	230505-55	230505-55	230505-55	230505-55
**	% 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	Lab Sample No.(s)	27948529	27948380	27948531	27948526	27948527	27948377
(F)	Trigger breach confirmed	AGS Reference						
1-4+§@	Sample deviation (see appendix)							

Component	LOD/Units	Method						
EPH Surrogate % recovery**	%	TM415			95			
Mineral Oil >C10-C40 (EH_2D_AL)	<5 mg/kg	TM415			33.7			

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	WS104
Depth (m)	3.00
Sample Type	Ground Water (GW)
Date Sampled	04/05/2023
Sampled Time	.
Date Received	05/05/2023
SDG Ref	230505-55
Lab Sample No.(s)	27948530
AGS Reference	

Component	LOD/Units	Method	
Ammoniacal Nitrogen as N	<200 µg/l	TM099	<200 #
Sulphide	<10 µg/l	TM101	<10 #
Fluoride	<500 µg/l	TM104	<500 #
Chromium, Trivalent	<30 µg/l	TM152	<30
Antimony (diss.filt)	<1 µg/l	TM152	<1 #
Arsenic (diss.filt)	<0.5 µg/l	TM152	0.886 #
Barium (diss.filt)	<0.2 µg/l	TM152	36.4 #
Beryllium (diss.filt)	<0.1 µg/l	TM152	<0.1 #
Boron (diss.filt)	<10 µg/l	TM152	27.6 #
Chromium (diss.filt)	<1 µg/l	TM152	12.5 #
Copper (diss.filt)	<0.3 µg/l	TM152	1.64 #
Lead (diss.filt)	<0.2 µg/l	TM152	0.514 #
Manganese (diss.filt)	<3 µg/l	TM152	21.7 #
Molybdenum (diss.filt)	<3 µg/l	TM152	<3 #
Nickel (diss.filt)	<0.4 µg/l	TM152	3.69 #
Selenium (diss.filt)	<1 µg/l	TM152	<1 #
Vanadium (diss.filt)	<1 µg/l	TM152	<1 #
Zinc (diss.filt)	<1 µg/l	TM152	5.85 #
Magnesium (Dis.Filt)	<36 µg/l	TM152	3480 #
Calcium (Dis.Filt)	<200 µg/l	TM152	149000 #
Iron (Dis.Filt)	<19 µg/l	TM152	<19 #
Sulphate	<2000 µg/l	TM184	37900 #
Chloride	<2000 µg/l	TM184	10300 #
Cyanide, Total	<50 µg/l	TM227	<50 2 #
Cyanide, Free	<50 µg/l	TM227	<50 2 #
Chromium, Hexavalent	<30 µg/l	TM241	<30 #
pH	<1 pH Units	TM256	7.64 #

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

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)

Customer Sample Ref.	SKIP
Depth (m)	.
Sample Type	Soil/Solid (S)
Date Sampled	04/05/2023
Sampled Time	.
Date Received	05/05/2023
SDG Ref	230505-55
Lab Sample No.(s)	27948531
AGS Reference	

Component	LOD/Units	Method	
Naphthalene-d8 % recovery**	%	TM218	95.8
Acenaphthene-d10 % recovery**	%	TM218	98.9
Phenanthrene-d10 % recovery**	%	TM218	99.7
Chrysene-d12 % recovery**	%	TM218	83.5
Perylene-d12 % recovery**	%	TM218	87.4
Naphthalene	<0.009 mg/kg	TM218	<0.045 M
Acenaphthylene	<0.012 mg/kg	TM218	<0.06 M
Acenaphthene	<0.008 mg/kg	TM218	<0.04 M
Fluorene	<0.01 mg/kg	TM218	<0.05 M
Phenanthrene	<0.015 mg/kg	TM218	<0.075 M
Anthracene	<0.016 mg/kg	TM218	<0.08 M
Fluoranthene	<0.017 mg/kg	TM218	<0.085 M
Pyrene	<0.015 mg/kg	TM218	<0.075 M
Benz(a)anthracene	<0.014 mg/kg	TM218	<0.07 M
Chrysene	<0.01 mg/kg	TM218	<0.05 M
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	<0.075 M
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	<0.07 M
Benzo(a)pyrene	<0.015 mg/kg	TM218	<0.075 M
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	<0.09 M
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.115 M
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	<0.12 M
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	<0.59

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH Spec MS - Aqueous (W)

Results Legend
ISO17025 accredited.
M *m*CERTS 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.	BH102	BH104	WS101	WS102	WS103	WS104
			Depth (m)	3.50	8.00	3.50	3.00	4.00	3.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023
			Sampled Time	.	.	.	.	.	.
			Date Received	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023
			SDG Ref	230505-55	230505-55	230505-55	230505-55	230505-55	230505-55
			Lab Sample No.(s)	27948529	27948380	27948526	27948527	27948377	27948530
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		0.462 #	0.191 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	0.0307 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Phenanthrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Fluorene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Chrysene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Pyrene (aq)	<0.005 µg/l	TM178		<0.005 #	0.0395 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	0.0184 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	0.0576 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.002 #	<0.002 #	<0.002 #	<0.002 #	<0.002 #	<0.002 #
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #	<0.005 #
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		0.462 #	0.337 #	<0.082 #	<0.082 #	<0.082 #	<0.082 #

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (S)

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.	SKIP				
			Depth (m)	.				
			Sample Type	Soil/Solid (S)				
			Date Sampled	04/05/2023				
			Sampled Time	.				
			Date Received	05/05/2023				
			SDG Ref	230505-55				
			Lab Sample No.(s)	27948531				
			AGS Reference					
GRO Surrogate % recovery**	%	TM089		96.9				
Aliphatics >C5-C6 (HS_1D_AL)	<0.01 mg/kg	TM089		<0.01				
Aliphatics >C6-C8 (HS_1D_AL)	<0.01 mg/kg	TM089		<0.01				
Aliphatics >C8-C10 (HS_1D_AL)	<0.01 mg/kg	TM089		<0.01				
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1 mg/kg	TM414		<1 #				
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1 mg/kg	TM414		<1 #				
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1 mg/kg	TM414		1.75 #				
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1 mg/kg	TM414		32.3 #				
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1 mg/kg	TM414		147				
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5 mg/kg	TM414		181				
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10 mg/kg	TM414		352				
Aromatics >EC5-EC7 (HS_1D_AR)	<0.01 mg/kg	TM089		<0.01				
Aromatics >EC7-EC8 (HS_1D_AR)	<0.01 mg/kg	TM089		<0.01				
Aromatics >EC8-EC10 (HS_1D_AR)	<0.01 mg/kg	TM089		<0.01				
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1 mg/kg	TM414		<1 #				
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1 mg/kg	TM414		<1 #				
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1 mg/kg	TM414		<1 #				
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1 mg/kg	TM414		35.6 #				
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414		134				
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1 mg/kg	TM414		119				
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5 mg/kg	TM414		171				
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10 mg/kg	TM414		352				
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<0.05 mg/kg	TM089		<0.05				
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<0.05 mg/kg	TM089		<0.05				
GRO >C5-C10 (HS_1D_TOTAL)	<0.02 mg/kg	TM089		<0.02				

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (W)

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.	BH102	BH104	WS101	WS102	WS103	WS104
			Depth (m)	3.50	8.00	3.50	3.00	4.00	3.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023
			Sampled Time	.	.	.	.	.	.
			Date Received	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023
			SDG Ref	230505-55	230505-55	230505-55	230505-55	230505-55	230505-55
			Lab Sample No.(s)	27948529	27948380	27948526	27948527	27948377	27948530
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		95	93	95	96	97	101
GRO >C5-C12	<50 µg/l	TM245		<50 #	<50 #	<50 #	<50 #	<50 #	<50 #
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		96	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		96	<10	<10	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		96	<10	<10	<10	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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.	SKIP
			Depth (m)	.
			Sample Type	Soil/Solid (S)
			Date Sampled	04/05/2023
			Sampled Time	.
			Date Received	05/05/2023
			SDG Ref	230505-55
			Lab Sample No.(s)	27948531
			AGS Reference	
Dibromofluoromethane**	%	TM116		113
Toluene-d8**	%	TM116		93.5
4-Bromofluorobenzene**	%	TM116		93.2
Methyl Tertiary Butyl Ether	<0.01 mg/kg	TM116		<0.01 M
Benzene	<0.009 mg/kg	TM116		<0.009 M
Toluene	<0.007 mg/kg	TM116		<0.007 M
Ethylbenzene	<0.004 mg/kg	TM116		<0.004 M
p/m-Xylene	<0.01 mg/kg	TM116		<0.01 #
o-Xylene	<0.01 mg/kg	TM116		<0.01 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02
Sum of BTEX	<0.04 mg/kg	TM116		<0.04

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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.	BH102	BH104	WS101	WS102	WS103	WS104
			Depth (m)	3.50	8.00	3.50	3.00	4.00	3.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023	04/05/2023
			Sampled Time	.	.	.	.	.	.
			Date Received	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023	05/05/2023
			SDG Ref	230505-55	230505-55	230505-55	230505-55	230505-55	230505-55
			Lab Sample No.(s)	27948529	27948380	27948526	27948527	27948377	27948530
			AGS Reference						
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Benzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Toluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Sum of detected Xylenes	<2 µg/l	TM208		<2	<2	<2	<2	<2	<2
Sum of BTEX	<5 µg/l	TM208		<5	<5	<5	<5	<5	<5

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Asbestos Actinolite	Asbestos Anthophyllite	Asbestos Tremolite	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Non-Asbestos Fibre
Cust. Sample Ref.	SKIP	15/05/2023	Paul Poynton	N/A	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	SOLID										
Sample Type	04/05/2023 00:00:00										
Date Sampled	05/05/2023 05:00:00										
Date Receieved	230505-55										
SDG	27948531										
Original Sample	TM048										
Method Number											

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Steyning Grammar
Mass Sample taken (kg)	0.095	**Natural Moisture Content (%)**	6.03
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94.3
Particle Size <4mm	>95%		

Case	
SDG	230505-55
Lab Sample Number(s)	27948531
Sampled Date	04-May-2023
Customer Sample Ref.	SKIP
Depth (m)	

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.561	3	5	6
Loss on Ignition (%)	3.22	-	-	10
Sum of BTEX (mg/kg)	<0.04	6	-	-
Sum of 7 PCBs (mg/kg)	<0.21	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	33.7	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.49	-	>6	-
ANC to pH 6 (mol/kg)	<0.03	-	-	-
ANC to pH 4 (mol/kg)	0.0471	-	-	-

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00395	<0.0005	0.0395	<0.005	0.5	2	25
Barium	0.0091	<0.0002	0.091	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00575	<0.0003	0.0575	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.00177	<0.0004	0.0177	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	0.0014	<0.001	0.014	<0.01	0.1	0.5	7
Zinc	0.00108	<0.001	0.0108	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	-	-	-	-	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	8.09	<3	80.9	<30	500	800	1000

Leach Test Information

Date Prepared	09-May-2023
pH (pH Units)	8.10
Conductivity (µS/cm)	104
Volume Leachant (Litres)	0.895

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
Stated limits are for guidance only and ALS Laboratories (UK) Limited cannot be held responsible for any discrepancies with current legislation

16/05/2023 10:21:21

CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Steyning Grammar
Mass Sample taken (kg)	0.095	**Natural Moisture Content (%)**	6.03
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94.3
Particle Size <4mm	>95%		

Case	
SDG	230505-55
Lab Sample Number(s)	27948531
Sampled Date	04-May-2023
Customer Sample Ref.	SKIP
Depth (m)	

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved solids, Total (meter)	79.5	<10	795	<100	-	-	-

Leach Test Information

Date Prepared	09-May-2023
pH (pH Units)	8.10
Conductivity (µS/cm)	104
Volume Leachant (Litres)	0.895

Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)

16/05/2023 10:21:21

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115	Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM018	Determination of Loss on Ignition
TM048	Identification of Asbestos in Bulk Material
TM089	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM090	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Determination of Sulphide in soil and water samples using the Kone Analyser
TM104	Determination of Fluoride using the Kone Analyser
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Determination of Hexavalent Chromium using Kone analyser
TM152	Analysis of Aqueous Samples by ICP-MS
TM153	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM168	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM174	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM178	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM181	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM182	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils
TM183	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM218	The determination of PAH in soil samples by GC-MS
TM224	Determination of Alkaline Metals by iCap 6500 Duo ICP-OES
TM227	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM241	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	Determination of GRO by Headspace in waters
TM256	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM259	Determination of Phenols in Waters and Leachates by HPLC
TM410	Determination of Coronene in soils by GCMS
TM414	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID
TM415	Determination of Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

Test Completion Dates

Lab Sample No(s)	27948529	27948380	27948531	27948526	27948527	27948377	27948530
Customer Sample Ref.	BH102	BH104	SKIP	WS101	WS102	WS103	WS104
AGS Ref.							
Depth	3.50	8.00		3.50	3.00	4.00	3.00
Type	Ground Water	Ground Water	Soil/Solid (S)	Ground Water	Ground Water	Ground Water	Ground Water
Alkali Metals by iCap-OES (Soil)			11-May-2023				
Ammoniacal Nitrogen	12-May-2023	12-May-2023		12-May-2023	12-May-2023	12-May-2023	12-May-2023
ANC at pH4 and ANC at pH 6			15-May-2023				
Anions by Kone (w)	10-May-2023	10-May-2023	11-May-2023	10-May-2023	10-May-2023	10-May-2023	10-May-2023
Asbestos ID in Solid Samples			15-May-2023				
CEN 10:1 Leachate (1 Stage)			09-May-2023				
CEN Readings			12-May-2023				
Chromium III	13-May-2023	13-May-2023	13-May-2023	13-May-2023	13-May-2023	13-May-2023	13-May-2023
Coronene			11-May-2023				
Cyanide Comp/Free/Total/Thiocyanate	12-May-2023	10-May-2023	10-May-2023	12-May-2023	12-May-2023	10-May-2023	12-May-2023
Dissolved Metals by ICP-MS	10-May-2023	12-May-2023	12-May-2023	12-May-2023	10-May-2023	15-May-2023	10-May-2023
Dissolved Organic/Inorganic Carbon			11-May-2023				
EPH by GCxGC-FID			12-May-2023				
EPH CWG (Aliphatic) Aqueous GC (W)	11-May-2023	10-May-2023		11-May-2023	11-May-2023	10-May-2023	11-May-2023
EPH CWG (Aromatic) Aqueous GC (W)	11-May-2023	10-May-2023		11-May-2023	11-May-2023	10-May-2023	11-May-2023
EPH CWG GC (S)			10-May-2023				
Fluoride	13-May-2023	13-May-2023	13-May-2023	13-May-2023	13-May-2023	13-May-2023	13-May-2023
GRO by GC-FID (S)			10-May-2023				
GRO by GC-FID (W)	09-May-2023	09-May-2023		09-May-2023	09-May-2023	09-May-2023	09-May-2023
Hexavalent Chromium (s)			13-May-2023				
Hexavalent Chromium (w)	13-May-2023	13-May-2023		13-May-2023	13-May-2023	13-May-2023	13-May-2023
Loss on Ignition in soils			12-May-2023				
Mercury Dissolved			15-May-2023				
Metals in solid samples by OES			11-May-2023				
Moisture at 105C			09-May-2023				
PAH 16 & 17 Calc			11-May-2023				
PAH by GCMS			10-May-2023				
PAH Spec MS - Aqueous (W)	11-May-2023	10-May-2023		11-May-2023	11-May-2023	10-May-2023	11-May-2023
PCBs by GCMS			10-May-2023				
pH			11-May-2023				
pH Value	14-May-2023	12-May-2023		14-May-2023	14-May-2023	12-May-2023	14-May-2023
pH Value of Filtered Water			12-May-2023				
Phenols by HPLC (W)			15-May-2023				
Sample description			06-May-2023				
Sulphide	15-May-2023	15-May-2023		15-May-2023	15-May-2023	15-May-2023	15-May-2023
Total Organic Carbon			11-May-2023				
TPH CWG (W)	11-May-2023	10-May-2023		11-May-2023	11-May-2023	10-May-2023	11-May-2023
TPH CWG GC (S)			10-May-2023				
VOC MS (S)			10-May-2023				
VOC MS (W)	09-May-2023	09-May-2023		09-May-2023	09-May-2023	09-May-2023	09-May-2023

ASSOCIATED AQC DATA

Alkali Metals by iCap-OES (Soil)

Component	Method Code	QC 2784
Calcium	TM224	**110.22** 93.10 : 122.00
Magnesium	TM224	**109.47** 89.65 : 119.56
Potassium	TM224	**111.54** 82.63 : 131.58
Sodium	TM224	**108.18** 92.53 : 127.28

Ammoniacal Nitrogen

Component	Method Code	QC 2780	QC 2703	QC 2731
Ammoniacal Nitrogen as N	TM099	**102.0** 91.64 : 106.04	**101.2** 91.64 : 106.04	**102.4** 91.64 : 106.04

ANC at pH4 and ANC at pH 6

Component	Method Code	QC 2783
ANC pH_4 dry soil	TM182	**99.5** 97.67 : 102.26

Anions by Kone (w)

Component	Method Code	QC 2788	QC 2736	QC 2730
Chloride	TM184	**104.0** 100.33 : 113.05	**104.0** 100.33 : 113.05	**108.0** 100.33 : 113.05
Sulphate (soluble)	TM184	**103.2** 96.54 : 111.66	**104.4** 96.54 : 111.66	**102.4** 96.54 : 111.66

Coronene

Component	Method Code	QC 2754
Coronene RAW	TM410	**104.5** 52.42 : 138.19

Cyanide Comp/Free/Total/Thiocyanate

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2772	QC 2788	QC 2747
Free Cyanide	TM153	**97.62** 77.50 : 118.90		
Free Cyanide (W)	TM227		**113.0** 102.00 : 124.00	**110.0** 92.00 : 124.00
Thiocyanate	TM153	**99.36** 92.20 : 113.40		
Thiocyanate (W)	TM227		**108.25** 92.25 : 117.75	**106.75** 91.75 : 115.75
Total Cyanide	TM153	**103.5** 80.07 : 114.07		
Total Cyanide (W)	TM227		**112.0** 93.75 : 114.75	**104.25** 93.00 : 117.00

Dissolved Metals by ICP-MS

Component	Method Code	QC 2734	QC 2740	QC 2754	QC 2756	QC 2781
Aluminium	TM152	**103.33** 93.59 : 111.49	**100.33** 90.98 : 111.82	**104.33** 90.98 : 111.82	**104.67** 90.98 : 111.82	**102.33** 94.10 : 109.83
Antimony	TM152	**105.17** 93.85 : 110.35	**107.33** 93.58 : 111.68	**107.67** 93.58 : 111.68	**102.5** 93.58 : 111.68	**103.5** 93.51 : 108.15
Arsenic	TM152	**101.5** 94.83 : 110.43	**105.17** 95.48 : 109.88	**105.67** 95.48 : 109.88	**103.33** 95.48 : 109.88	**101.5** 93.27 : 108.08
Barium	TM152	**106.33** 93.82 : 113.06	**107.5** 90.20 : 111.19	**109.17** 90.20 : 111.19	**103.67** 90.20 : 111.19	**97.83** 88.62 : 113.14
Beryllium	TM152	**104.0** 92.53 : 113.63	**98.5** 87.77 : 113.97	**101.67** 87.77 : 113.97	**103.67** 87.77 : 113.97	**104.83** 92.23 : 111.23
Bismuth	TM152	**105.0** 95.02 : 109.82	**107.17** 91.90 : 112.20	**109.33** 91.90 : 112.20	**105.17** 91.90 : 112.20	**103.67** 91.42 : 111.52
Borate	TM152	**104.32** 88.00 : 112.00	**98.77** 88.00 : 112.00	**101.23** 88.00 : 112.00	**102.47** 88.00 : 112.00	
Boron	TM152	**104.67** 91.25 : 115.30	**98.67** 92.27 : 112.40	**101.0** 92.27 : 112.40	**102.67** 92.27 : 112.40	**104.67** 91.19 : 109.95
Cadmium	TM152	**104.33** 92.30 : 111.30	**104.33** 93.78 : 109.68	**106.33** 93.78 : 109.68	**104.83** 93.78 : 109.68	**105.17** 93.37 : 108.47
Calcium	TM152	**102.0** 95.55 : 109.91	**102.67** 95.83 : 105.97	**106.0** 95.83 : 105.97	**104.0** 95.83 : 105.97	**98.0** 93.70 : 110.52
Chromium	TM152	**100.5** 94.18 : 109.80	**101.67** 91.84 : 108.67	**103.83** 91.84 : 108.67	**103.83** 91.84 : 108.67	**100.0** 93.39 : 107.53
Cobalt	TM152	**100.17** 93.95 : 109.53	**93.17** 90.72 : 109.61	**95.0** 90.72 : 109.61	**96.33** 90.72 : 109.61	**99.83** 92.88 : 107.59
Copper	TM152	**101.0** 93.88 : 110.94	**102.17** 94.47 : 109.05	**103.33** 94.47 : 109.05	**106.0** 94.47 : 109.05	**101.33** 93.02 : 108.66
Iron	TM152	**102.0** 93.49 : 110.23	**102.0** 94.40 : 107.90	**103.33** 94.40 : 107.90	**104.0** 94.40 : 107.90	**102.0** 94.15 : 107.13
Lead	TM152	**108.0** 94.63 : 109.43	**105.5** 93.55 : 109.46	**106.83** 93.55 : 109.46	**103.5** 93.55 : 109.46	**102.5** 91.89 : 109.09
Lithium	TM152	**103.67** 92.37 : 113.27	**100.0** 91.62 : 113.12	**102.33** 91.62 : 113.12	**104.17** 91.62 : 113.12	**102.83** 91.60 : 112.80
Magnesium	TM152	**101.33** 95.64 : 109.80	**100.67** 91.64 : 107.43	**102.67** 91.64 : 107.43	**103.33** 91.64 : 107.43	**100.67** 94.69 : 109.82
Manganese	TM152	**101.5** 95.34 : 110.60	**103.83** 94.75 : 108.21	**104.67** 94.75 : 108.21	**104.17** 94.75 : 108.21	**103.0** 92.12 : 109.84
Molybdenum	TM152	**99.33** 92.46 : 108.18	**101.5** 93.94 : 106.05	**103.5** 93.94 : 106.05	**102.67** 93.94 : 106.05	**100.67** 91.48 : 106.85

Dissolved Metals by ICP-MS

		QC 2734	QC 2740	QC 2754	QC 2756	QC 2781
Nickel	TM152	**99.67** 94.48 : 110.43	**101.33** 94.12 : 109.76	**102.5** 94.12 : 109.76	**104.33** 94.12 : 109.76	**99.83** 93.20 : 108.65
Phosphorus	TM152	**101.33** 93.78 : 110.72	**100.83** 92.51 : 109.27	**102.5** 92.51 : 109.27	**102.33** 92.51 : 109.27	**97.5** 89.24 : 114.18
Potassium	TM152	**103.33** 96.61 : 109.66	**104.0** 92.16 : 109.93	**107.33** 92.16 : 109.93	**103.33** 92.16 : 109.93	**100.0** 94.63 : 111.61
Selenium	TM152	**107.5** 94.10 : 113.00	**103.67** 91.58 : 115.98	**107.33** 91.58 : 115.98	**104.5** 91.58 : 115.98	**103.83** 94.43 : 109.16
Silver	TM152	**100.0** 92.22 : 109.02	**101.67** 96.40 : 108.40	**103.83** 96.40 : 108.40	**103.67** 96.40 : 108.40	**100.0** 89.45 : 109.05
Sodium	TM152	**100.67** 95.42 : 109.86	**102.0** 89.47 : 109.62	**105.33** 89.47 : 109.62	**104.0** 89.47 : 109.62	**100.0** 90.14 : 111.29
Strontium	TM152	**104.0** 94.11 : 113.72	**105.67** 95.29 : 108.75	**107.33** 95.29 : 108.75	**103.0** 95.29 : 108.75	**103.67** 92.24 : 109.63
Tellurium	TM152	**105.17** 95.17 : 113.97	**108.17** 93.32 : 114.66	**108.0** 93.32 : 114.66	**106.5** 93.32 : 114.66	**99.5** 86.33 : 109.33
Thallium	TM152	**91.5** 80.27 : 112.27	**98.17** 80.92 : 114.72	**100.0** 80.92 : 114.72	**99.0** 80.92 : 114.72	**95.33** 82.43 : 113.83
Tin	TM152	**103.5** 93.06 : 109.94	**105.33** 92.63 : 109.70	**107.33** 92.63 : 109.70	**105.33** 92.63 : 109.70	**102.67** 94.62 : 107.79
Titanium	TM152	**102.83** 92.10 : 111.50	**100.5** 95.08 : 109.28	**103.17** 95.08 : 109.28	**102.83** 95.08 : 109.28	**102.5** 91.62 : 110.32
Tungsten	TM152	**103.33** 92.93 : 107.03	**105.0** 94.68 : 107.68	**105.33** 94.68 : 107.68	**103.33** 94.68 : 107.68	**99.83** 88.10 : 108.50
Uranium	TM152	**104.5** 91.75 : 109.25	**106.5** 94.32 : 107.92	**108.83** 94.32 : 107.92	**104.67** 94.32 : 107.92	**102.33** 87.33 : 110.63
Vanadium	TM152	**102.0** 90.06 : 113.42	**104.33** 88.43 : 114.30	**107.0** 88.43 : 114.30	**104.33** 88.43 : 114.30	**102.17** 89.61 : 115.48
Zinc	TM152	**103.0** 85.57 : 114.31	**104.0** 95.31 : 110.74	**105.0** 95.31 : 110.74	**104.0** 95.31 : 110.74	**102.67** 95.21 : 107.91

Dissolved Organic/Inorganic Carbon

Component	Method Code	QC 2725
Total Organic Carbon	TM090	**100.33** 82.63 : 116.15

EPH by GCxGC-FID

Component	Method Code	QC 2719
EPH >C10-C40 Raw	TM415	**97.6** 73.46 : 117.63

EPH CWG (Aliphatic) Aqueous GC (W)

EPH CWG (Aliphatic) Aqueous GC (W)

Component	Method Code	QC 2732	QC 2754
Total Aliphatics >C10-C40	TM174	**112.05** 79.07 : 139.72	**107.26** 79.07 : 139.72

EPH CWG (Aromatic) Aqueous GC (W)

Component	Method Code	QC 2743	QC 2766
Total Aromatics >EC10-EC40	TM174	**95.61** 57.93 : 112.52	**98.29** 57.93 : 112.52

Fluoride

Component	Method Code	QC 2781
Fluoride	TM104	**104.67** 96.67 : 108.67

GRO by GC-FID (S)

Component	Method Code	QC 2783
QC	TM089	**80.43** 60.04 : 103.64

GRO by GC-FID (W)

Component	Method Code	QC 2774
Benzene by GC	TM245	**98.0** 83.48 : 117.21
Ethylbenzene by GC	TM245	**100.0** 84.11 : 114.89
m & p Xylene by GC	TM245	**99.5** 83.73 : 116.33
MTBE GC-FID	TM245	**98.5** 84.42 : 117.50
o Xylene by GC	TM245	**100.0** 85.03 : 117.59
QC	TM245	**83.08** 48.04 : 99.13
Toluene by GC	TM245	**99.0** 84.73 : 116.85

Hexavalent Chromium (s)

Hexavalent Chromium (s)

Component	Method Code	QC 2719
Hexavalent Chromium	TM151	**94.0** 84.37 : 115.69

Hexavalent Chromium (w)

Component	Method Code	QC 2781	QC 2791
Hexavalent Chromium	TM241	**100.8** 94.17 : 106.17	**99.8** 94.17 : 106.17

Loss on Ignition in soils

Component	Method Code	QC 2782
Loss on Ignition	TM018	**93.32** 86.00 : 121.88

Mercury Dissolved

Component	Method Code	QC 2709
Mercury Dissolved (CVAF)	TM183	**99.0** 75.02 : 122.98

Metals in solid samples by OES

Component	Method Code	QC 2784
Aluminium	TM181	**100.88** 84.95 : 125.04
Antimony	TM181	**99.65** 81.24 : 112.95
Arsenic	TM181	**99.69** 87.39 : 110.81
Barium	TM181	**111.0** 92.16 : 121.75
Beryllium	TM181	**108.99** 85.72 : 122.69
Boron	TM181	**114.75** 93.63 : 124.95
Cadmium	TM181	**102.78** 82.04 : 114.28
Chromium	TM181	**116.27** 97.18 : 117.32

Metals in solid samples by OES

		QC 2784
Cobalt	TM181	**105.73** 90.33 : 109.99
Copper	TM181	**108.24** 90.40 : 118.14
Iron	TM181	**96.33** 76.44 : 123.20
Lead	TM181	**104.82** 84.55 : 119.89
Manganese	TM181	**101.35** 85.97 : 117.31
Mercury	TM181	**100.91** 79.17 : 111.30
Molybdenum	TM181	**99.68** 87.03 : 110.33
Nickel	TM181	**102.82** 83.87 : 113.53
Phosphorus	TM181	**98.56** 84.16 : 113.49
Selenium	TM181	**99.34** 81.18 : 111.13
Strontium	TM181	**112.85** 92.60 : 122.34
Thallium	TM181	**111.73** 85.37 : 116.45
Tin	TM181	**101.41** 86.96 : 122.18
Titanium	TM181	**107.55** 80.16 : 123.61
Vanadium	TM181	**109.96** 89.30 : 122.79
Zinc	TM181	**109.65** 89.16 : 121.48

PAH by GCMS

Component	Method Code	QC 2737
Acenaphthene	TM218	**90.0** 76.79 : 103.90
Acenaphthylene	TM218	**90.0** 74.19 : 106.17
Anthracene	TM218	**90.0** 70.90 : 109.22
Benz(a)anthracene	TM218	**89.0** 69.64 : 111.59
Benzo(a)pyrene	TM218	**87.5** 67.65 : 109.09
Benzo(b)fluoranthene	TM218	**84.5** 61.54 : 111.57
Benzo(ghi)perylene	TM218	**85.0** 65.23 : 106.40
Benzo(k)fluoranthene	TM218	**82.5** 69.09 : 107.83
Chrysene	TM218	**83.5** 69.26 : 107.71

PAH by GCMS

		QC 2737
Dibenzo(ah)anthracene	TM218	**77.5** 63.87 : 105.95
Fluoranthene	TM218	**91.0** 66.06 : 114.63
Fluorene	TM218	**86.5** 76.66 : 107.56
Indeno(123cd)pyrene	TM218	**80.0** 62.77 : 111.19
Naphthalene	TM218	**88.5** 72.14 : 105.72
Phenanthrene	TM218	**88.0** 73.62 : 109.34
Pyrene	TM218	**91.5** 69.79 : 109.70

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2744	QC 2778
Acenaphthene by GCMS	TM178	**103.2** 96.33 : 119.22	**102.8** 96.33 : 119.22
Acenaphthylene by GCMS	TM178	**106.0** 95.88 : 120.28	**106.4** 95.88 : 120.28
Anthracene by GCMS	TM178	**99.2** 94.40 : 116.00	**102.4** 94.40 : 116.00
Benz(a)anthracene by GCMS	TM178	**99.6** 92.80 : 116.80	**101.2** 92.80 : 116.80
Benzo(a)pyrene by GCMS	TM178	**103.6** 89.43 : 118.57	**107.2** 89.43 : 118.57
Benzo(b)fluoranthene by GCMS	TM178	**99.6** 87.80 : 121.80	**111.2** 87.80 : 121.80
Benzo(ghi)perylene by GCMS	TM178	**104.0** 92.00 : 116.00	**106.0** 92.00 : 116.00
Benzo(k)fluoranthene by GCMS	TM178	**104.8** 94.40 : 118.40	**106.8** 94.40 : 118.40
Chrysene by GCMS	TM178	**100.8** 96.00 : 117.60	**103.6** 96.00 : 117.60
Dibenzo(ah)anthracene by GCMS	TM178	**100.4** 86.24 : 118.56	**106.0** 86.24 : 118.56
Fluoranthene by GCMS	TM178	**96.8** 91.20 : 117.60	**97.6** 91.20 : 117.60
Fluorene by GCMS	TM178	**98.8** 90.76 : 121.24	**98.8** 90.76 : 121.24
Indeno(123cd)pyrene by GCMS	TM178	**99.2** 86.80 : 118.00	**101.6** 86.80 : 118.00
Naphthalene by GCMS	TM178	**103.2** 97.14 : 121.74	**103.2** 97.14 : 121.74
Phenanthrene by GCMS	TM178	**97.6** 96.00 : 117.60	**100.4** 96.00 : 117.60
Pyrene by GCMS	TM178	**98.0** 91.00 : 120.20	**102.4** 91.00 : 120.20

PCBs by GCMS

PCBs by GCMS

Component	Method Code	QC 2748
PCB congener 101	TM168	**79.5** 58.69 : 103.69
PCB congener 105	TM168	**76.7** 58.10 : 106.34
PCB congener 114	TM168	**74.0** 55.91 : 100.61
PCB congener 118	TM168	**74.3** 60.02 : 106.23
PCB congener 123	TM168	**76.8** 65.01 : 99.81
PCB congener 126	TM168	**77.5** 56.35 : 103.21
PCB congener 138	TM168	**77.3** 63.95 : 107.63
PCB congener 153	TM168	**73.4** 62.65 : 108.85
PCB congener 156	TM168	**77.1** 54.88 : 102.64
PCB congener 157	TM168	**75.8** 53.71 : 99.31
PCB congener 167	TM168	**75.5** 56.16 : 103.14
PCB congener 169	TM168	**83.6** 56.84 : 112.10
PCB congener 180	TM168	**77.0** 57.42 : 105.48
PCB congener 189	TM168	**80.7** 52.17 : 103.59
PCB congener 28	TM168	**79.1** 65.82 : 104.46
PCB congener 52	TM168	**77.9** 60.31 : 103.09
PCB congener 77	TM168	**74.0** 57.96 : 99.66
PCB congener 81	TM168	**85.8** 66.73 : 115.93

pH

Component	Method Code	QC 2745
pH	TM133	**100.75** 97.32 : 102.68

pH Value

pH Value

Component	Method Code	QC 2784	QC 2787	QC 2730	QC 2733	QC 2736
pH	TM256	**100.67** 98.80 : 102.01	**100.67** 98.80 : 102.01	**100.53** 98.80 : 102.01	**100.67** 98.80 : 102.01	**100.8** 98.80 : 102.01

pH Value of Filtered Water

Component	Method Code	QC 2789
pH	TM256	**99.87** 99.06 : 102.27

Sulphide

Component	Method Code	QC 2745
Sulphide	TM101	**100.67** 88.67 : 116.67

Total Organic Carbon

Component	Method Code	QC 2711
Total Organic Carbon	TM132	**106.25** 89.45 : 124.61

VOC MS (S)

Component	Method Code	QC 2796
1,1,1,2-tetrachloroethane	TM116	**104.6** 84.42 : 110.51
1,1,1-Trichloroethane	TM116	**99.0** 88.34 : 114.50
1,1,2-Trichloroethane	TM116	**85.4** 81.29 : 113.79
1,1-Dichloroethane	TM116	**99.6** 91.34 : 123.49
1,2-Dichloroethane	TM116	**92.8** 90.04 : 132.28
1,4-Dichlorobenzene	TM116	**98.8** 80.81 : 125.07
2-Chlorotoluene	TM116	**88.2** 73.13 : 114.13
4-Chlorotoluene	TM116	**86.0** 68.66 : 109.13

VOC MS (S)

		QC 2796
Benzene	TM116	**96.4** 88.77 : 112.03
Carbon Disulphide	TM116	**100.2** 75.11 : 124.81
Carbontetrachloride	TM116	**107.8** 86.07 : 115.14
Chlorobenzene	TM116	**101.6** 86.98 : 112.64
Chloroform	TM116	**100.4** 93.80 : 123.25
Chloromethane	TM116	**102.0** 67.89 : 143.51
Cis-1,2-Dichloroethene	TM116	**99.6** 85.88 : 113.97
Dibromomethane	TM116	**108.2** 76.00 : 120.73
Dichloromethane	TM116	**102.4** 97.64 : 133.75
Ethylbenzene	TM116	**95.8** 77.27 : 102.90
Hexachlorobutadiene	TM116	**66.0** 14.55 : 147.92
Isopropylbenzene	TM116	**83.6** 47.44 : 104.62
Naphthalene	TM116	**97.0** 80.90 : 124.24
o-Xylene	TM116	**90.6** 69.86 : 96.58
p/m-Xylene	TM116	**91.6** 72.78 : 100.00
Sec-Butylbenzene	TM116	**80.4** 27.03 : 135.73
Tetrachloroethene	TM116	**109.4** 80.10 : 120.38
Toluene	TM116	**88.0** 79.34 : 104.16
Trichloroethene	TM116	**95.6** 79.80 : 112.33
Trichlorofluoromethane	TM116	**107.4** 83.13 : 123.97
Vinyl Chloride	TM116	**105.4** 69.66 : 136.55

VOC MS (W)

Component	Method Code	QC 2746
1,1,1,2-Tetrachloroethane	TM208	**97.0** 85.64 : 109.52
1,1,1-Trichloroethane	TM208	**96.5** 87.87 : 111.93
1,1-Dichloroethane	TM208	**101.0** 82.09 : 116.41
1,2-Dichloroethane	TM208	**102.0** 80.28 : 123.63

VOC MS (W)

		QC 2746
2-Chlorotoluene	TM208	**95.5** 83.31 : 110.91
4-Chlorotoluene	TM208	**95.5** 84.01 : 111.46
Benzene	TM208	**102.5** 87.46 : 118.30
Bromomethane	TM208	**102.5** 73.35 : 126.60
Carbontetrachloride	TM208	**100.0** 89.28 : 113.46
Chlorobenzene	TM208	**97.5** 86.52 : 113.46
Chloroform	TM208	**102.0** 83.67 : 118.08
Chloromethane	TM208	**109.0** 70.42 : 127.06
Cis-1,2-Dichloroethene	TM208	**102.0** 90.00 : 116.94
Dichloromethane	TM208	**102.5** 81.65 : 120.83
Ethylbenzene	TM208	**94.0** 85.96 : 106.48
Hexachlorobutadiene	TM208	**91.0** 71.92 : 112.93
o-Xylene	TM208	**93.5** 88.07 : 108.02
p/m-Xylene	TM208	**94.75** 82.64 : 112.12
Tert-butyl methyl ether	TM208	**99.5** 68.23 : 127.69
Tetrachloroethene	TM208	**96.5** 84.37 : 107.75
Toluene	TM208	**97.5** 87.40 : 109.78
Trichloroethene	TM208	**97.5** 85.28 : 111.95
Vinyl Chloride	TM208	**105.0** 72.73 : 123.40

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

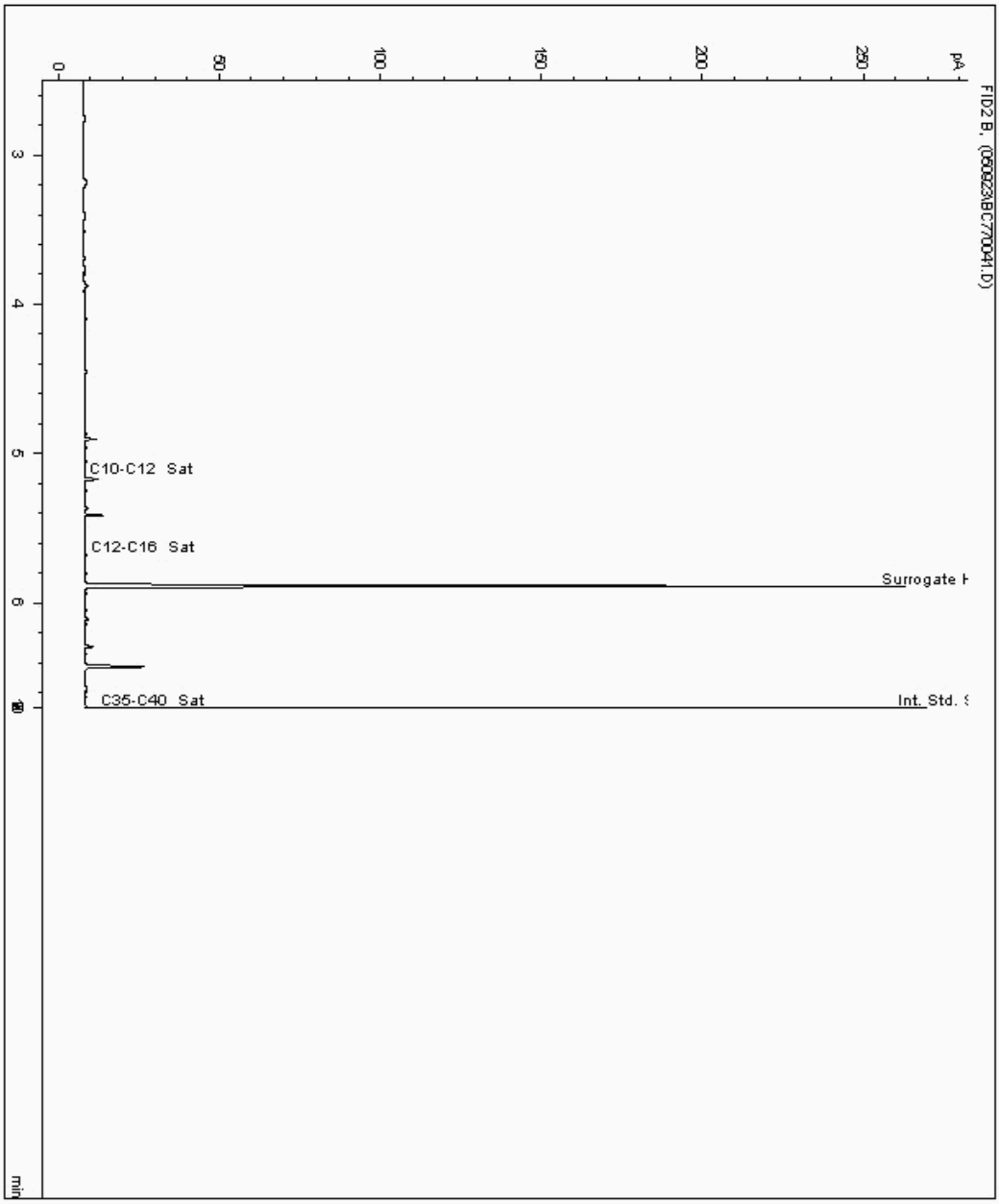
SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 27959732 **Depth :** 8.00
Sample ID : BH104

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26003309-
Date Acquired : 5/10/2023 2:20:43 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

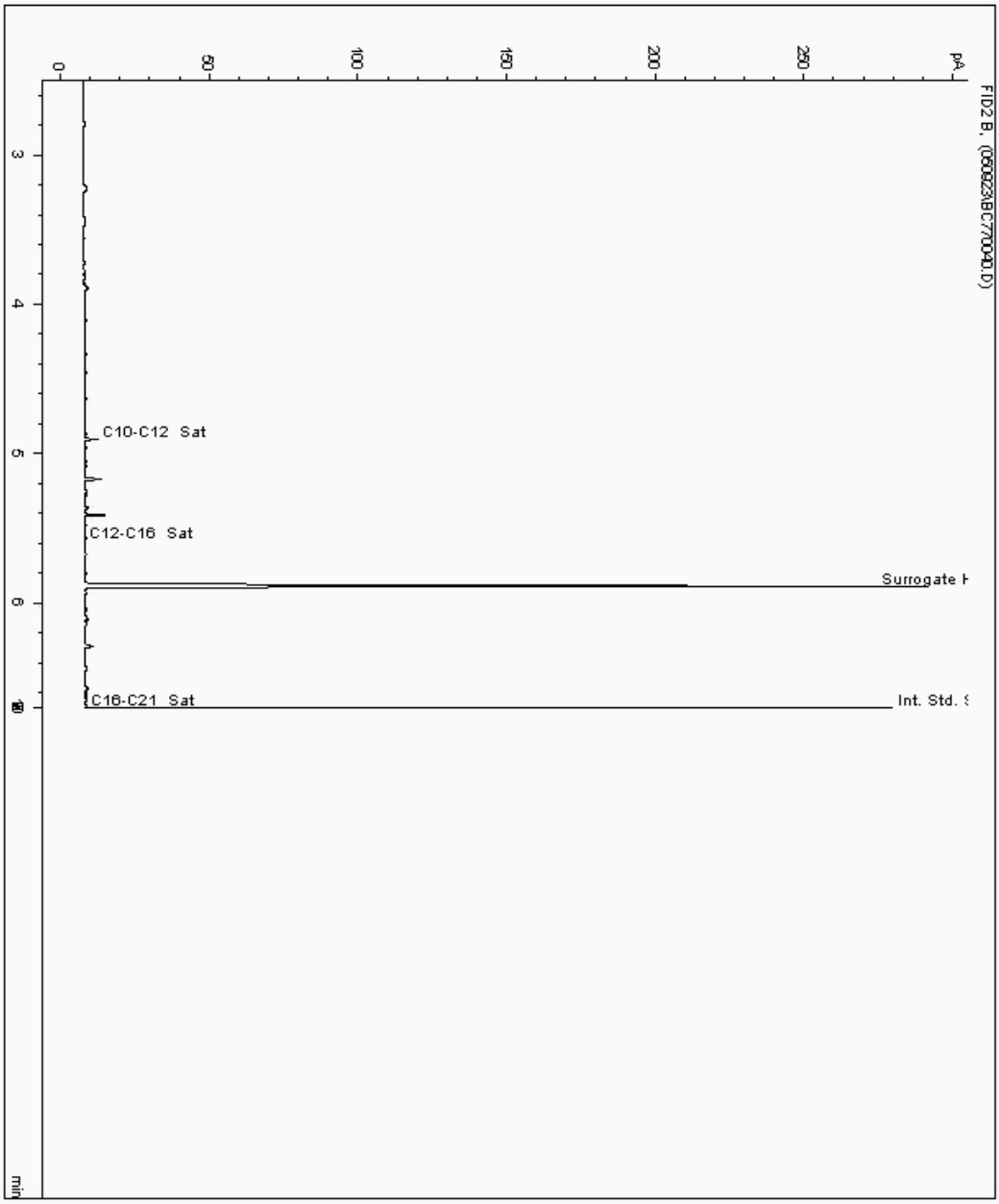
SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 27959735 **Depth :** 4.00
Sample ID : WS103

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26003292-
Date Acquired : 5/10/2023 1:57:23 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

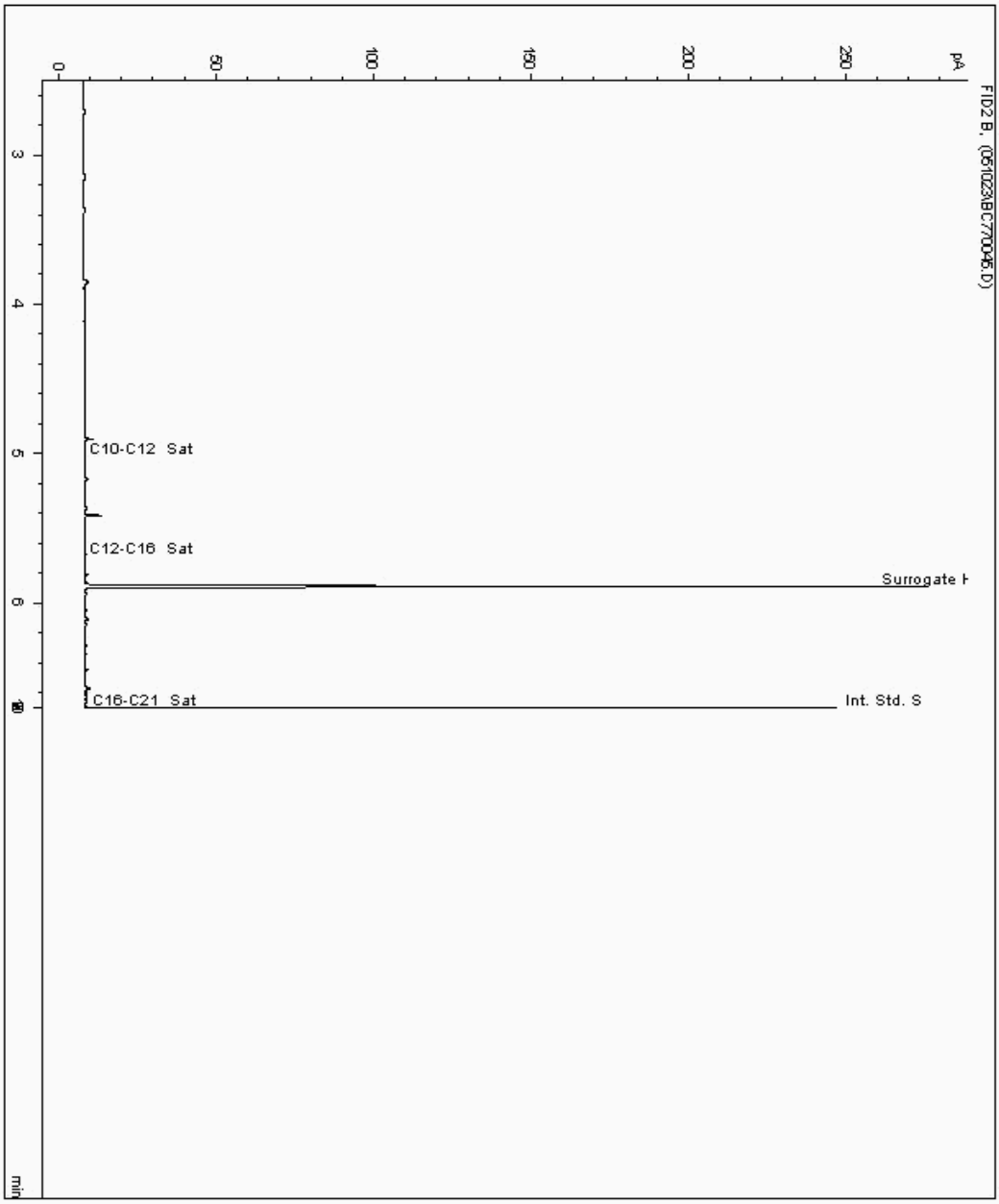
SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 27961037 **Depth :** 3.00
Sample ID : WS104

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26003171-
Date Acquired : 5/11/2023 6:02:09 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

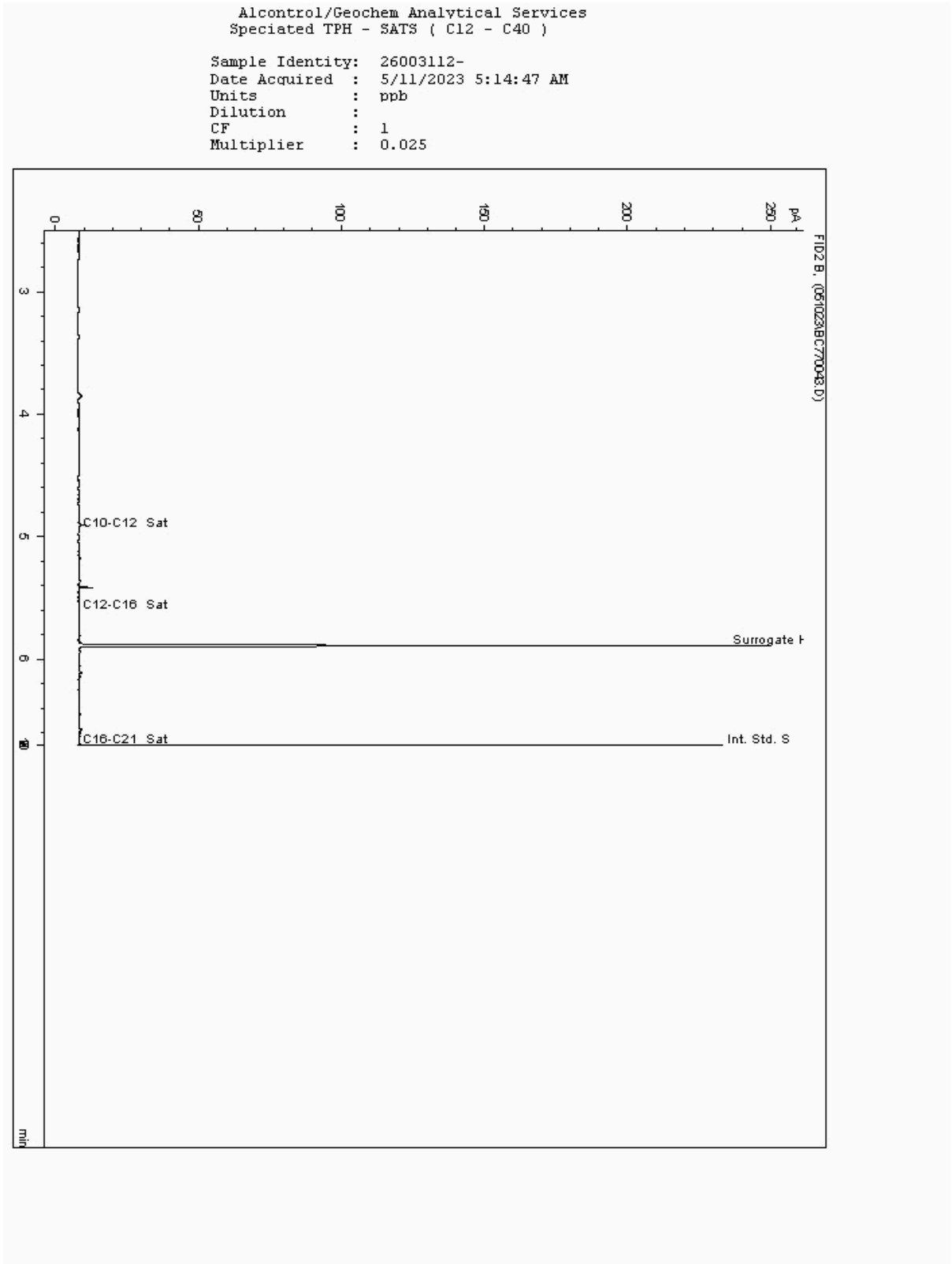


CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 27961045 **Depth :** 3.50
Sample ID : WS101

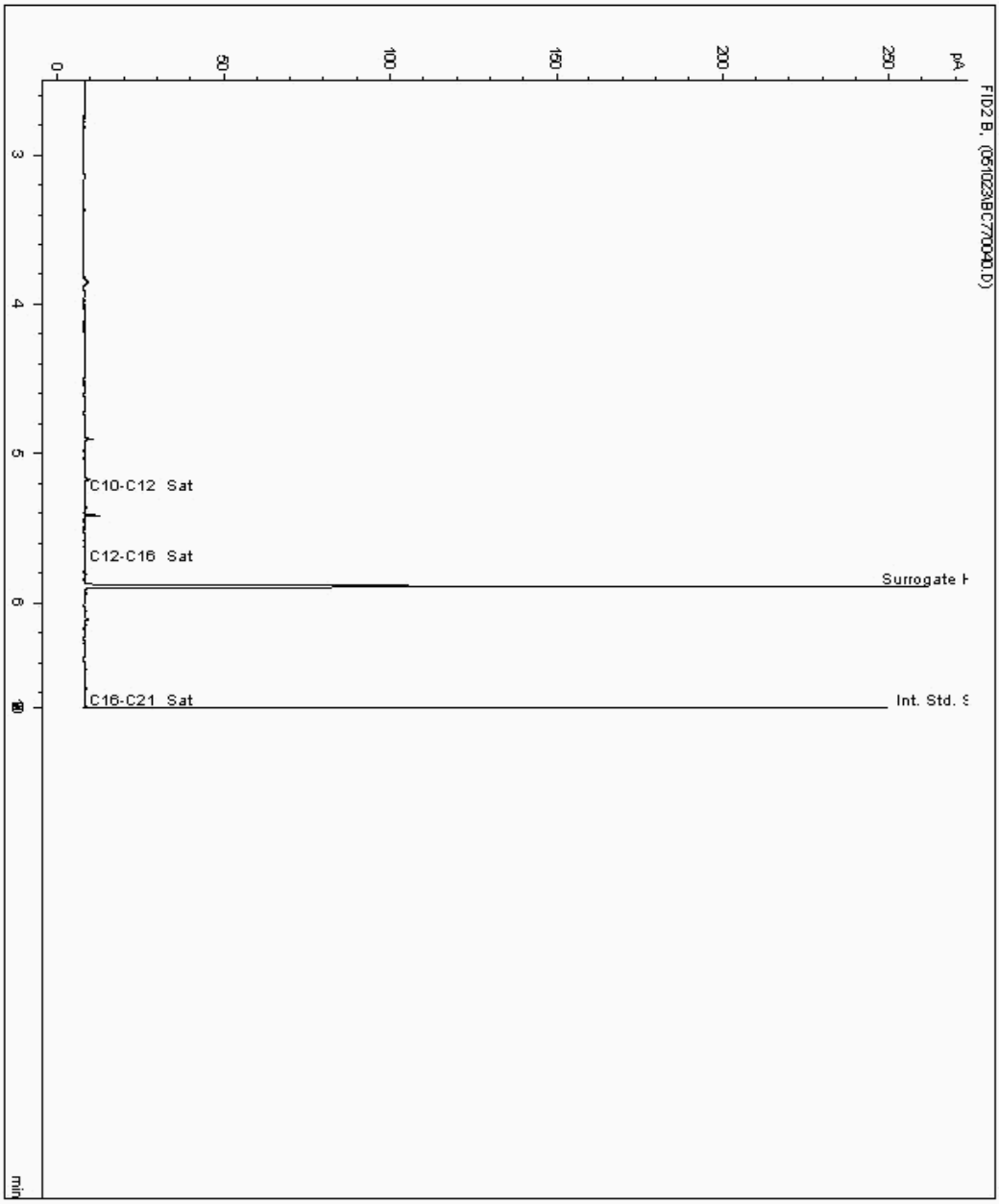


Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 27961050 **Depth :** 3.00
Sample ID : WS102

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26003129-
Date Acquired : 5/11/2023 4:04:36 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

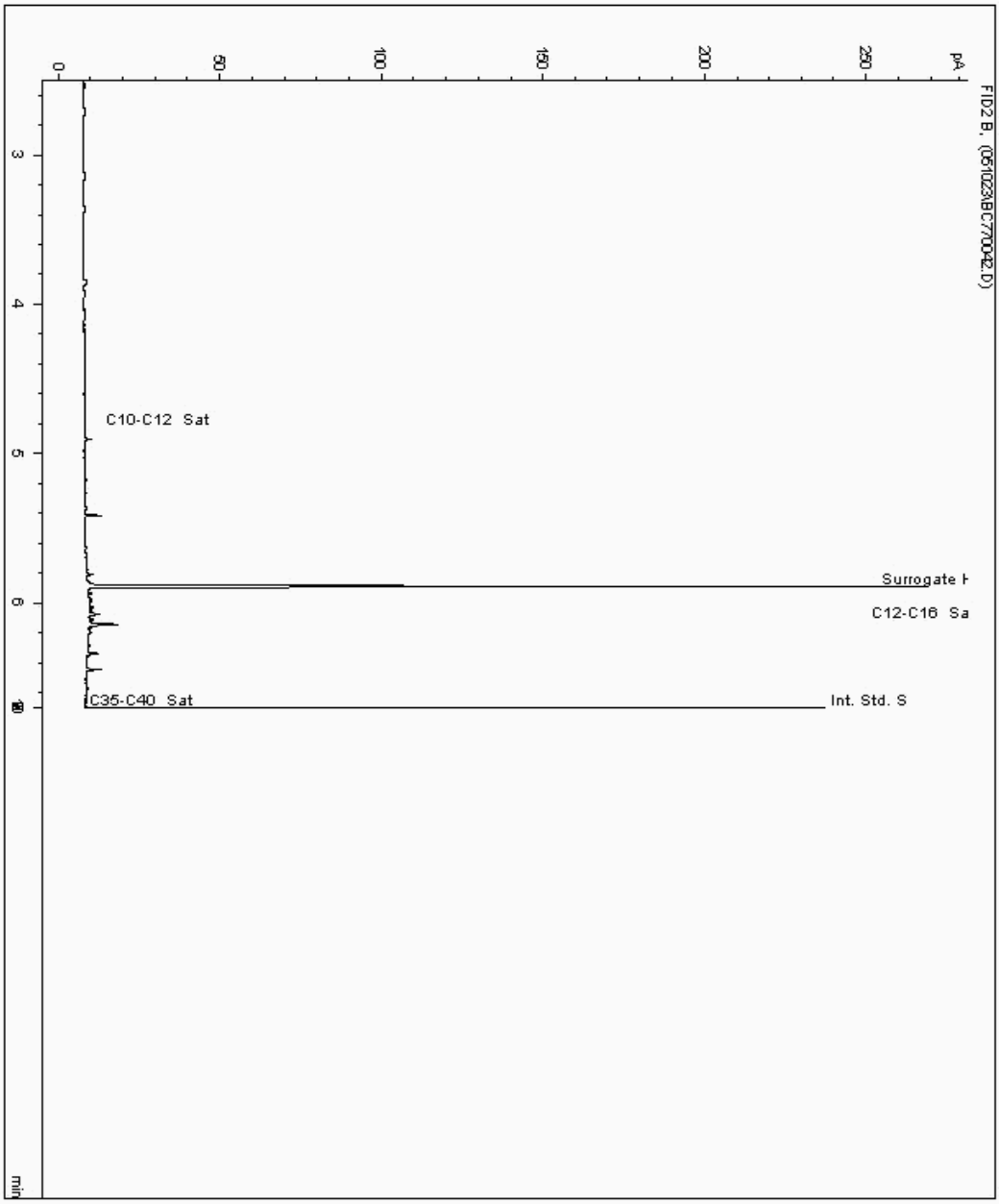
SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 27961057 **Depth :** 3.50
Sample ID : BH102

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26003154-
Date Acquired : 5/11/2023 4:51:31 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

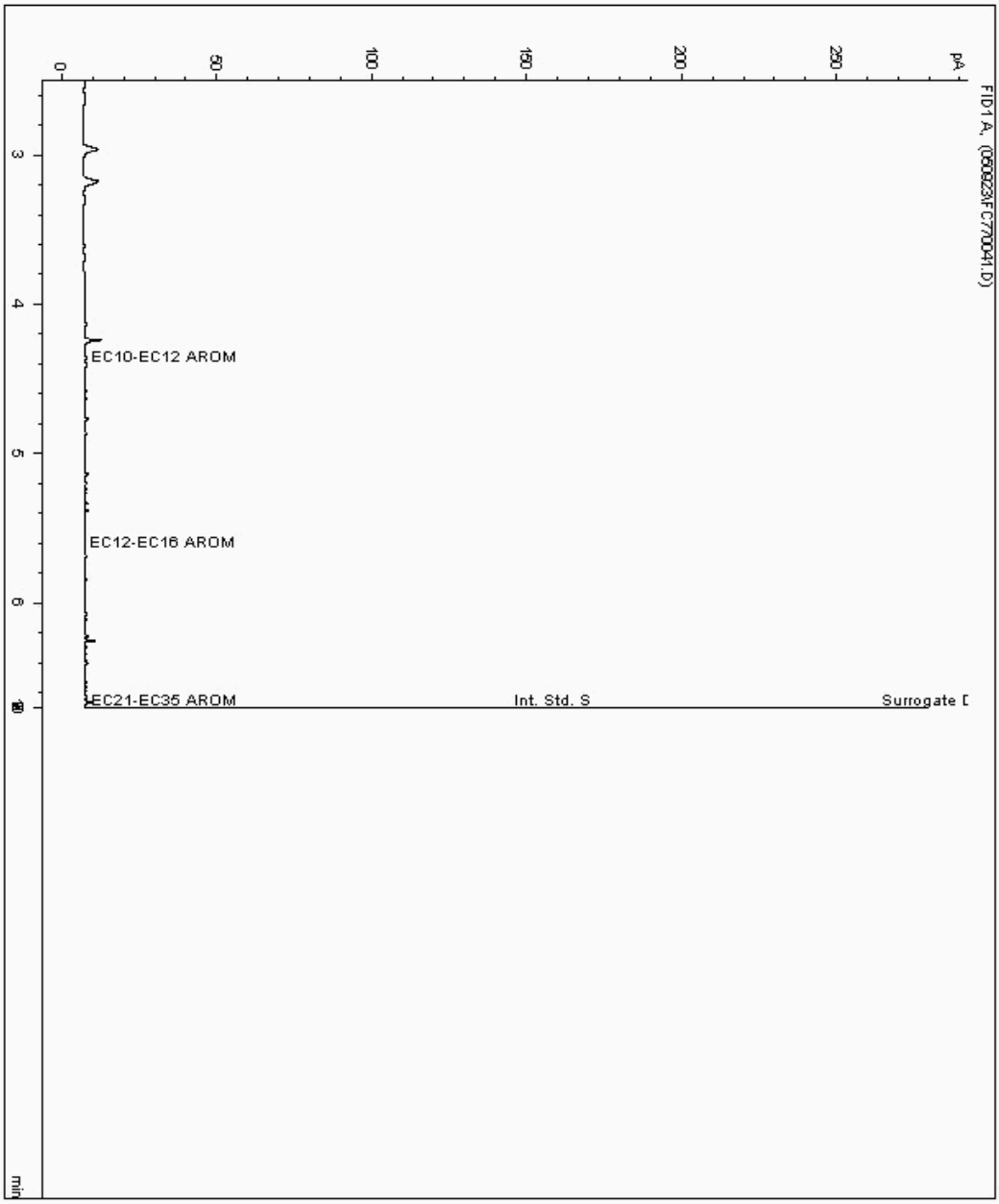
SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 27959732 **Depth :** 8.00
Sample ID : BH104

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26003310-
Date Acquired : 5/10/2023 2:20:43 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

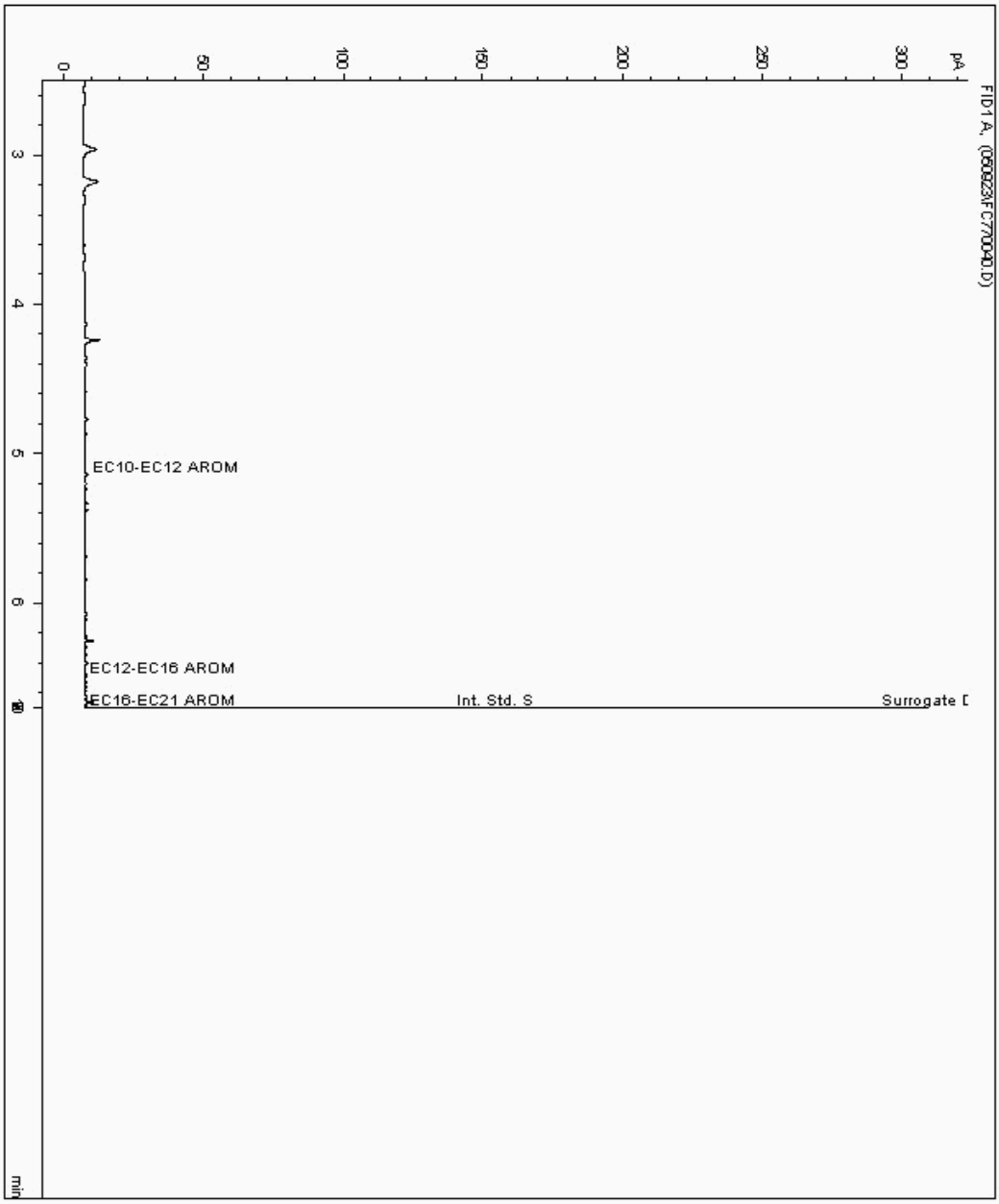
SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 27959735 **Depth :** 4.00
Sample ID : WS103

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26003293-
Date Acquired : 5/10/2023 1:57:22 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

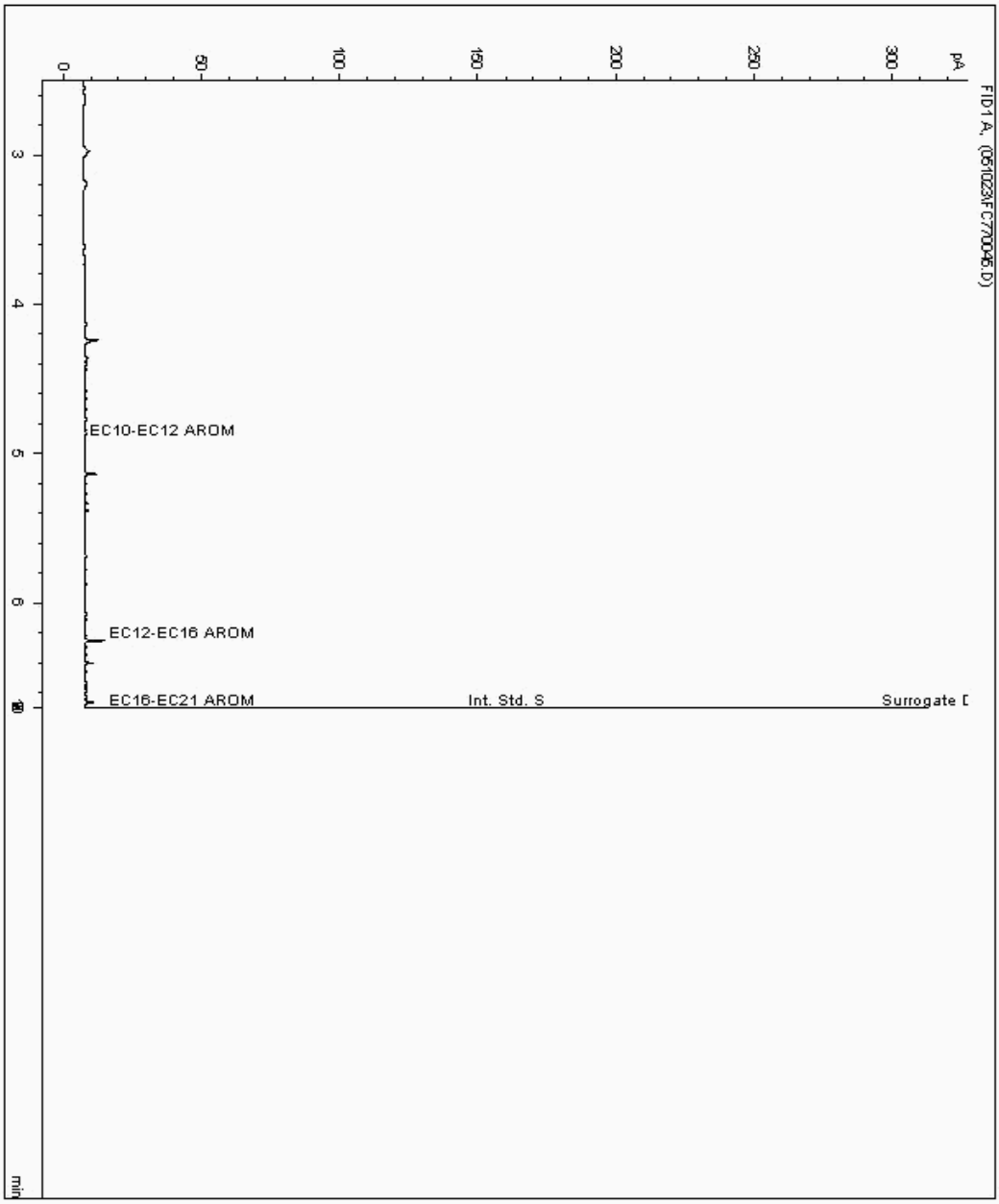
SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 27961037 **Depth :** 3.00
Sample ID : WS104

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26003172-
Date Acquired : 5/11/2023 6:02:09 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

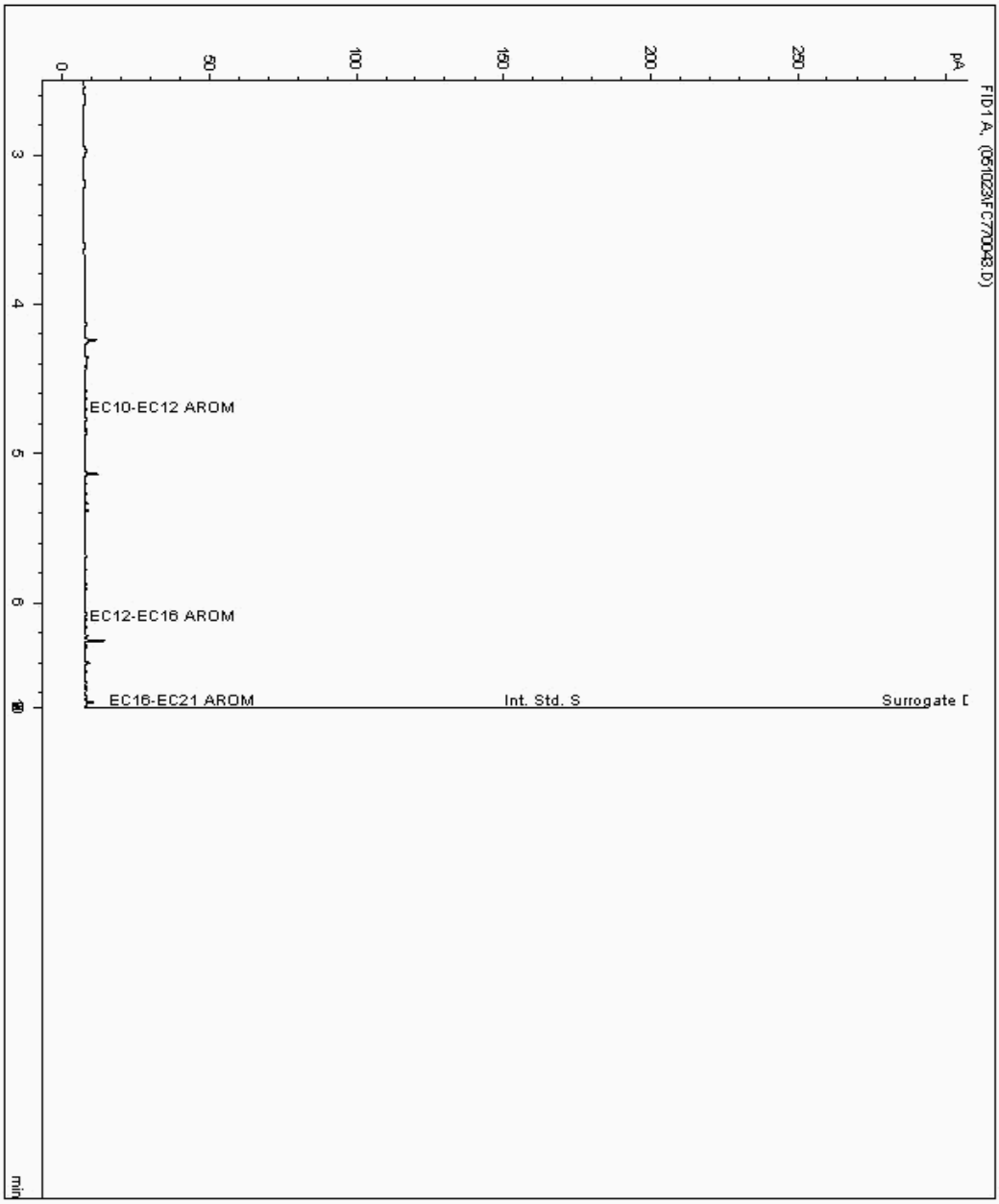
SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 27961045 **Depth :** 3.50
Sample ID : WS101

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26003113-
Date Acquired : 5/11/2023 5:14:47 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

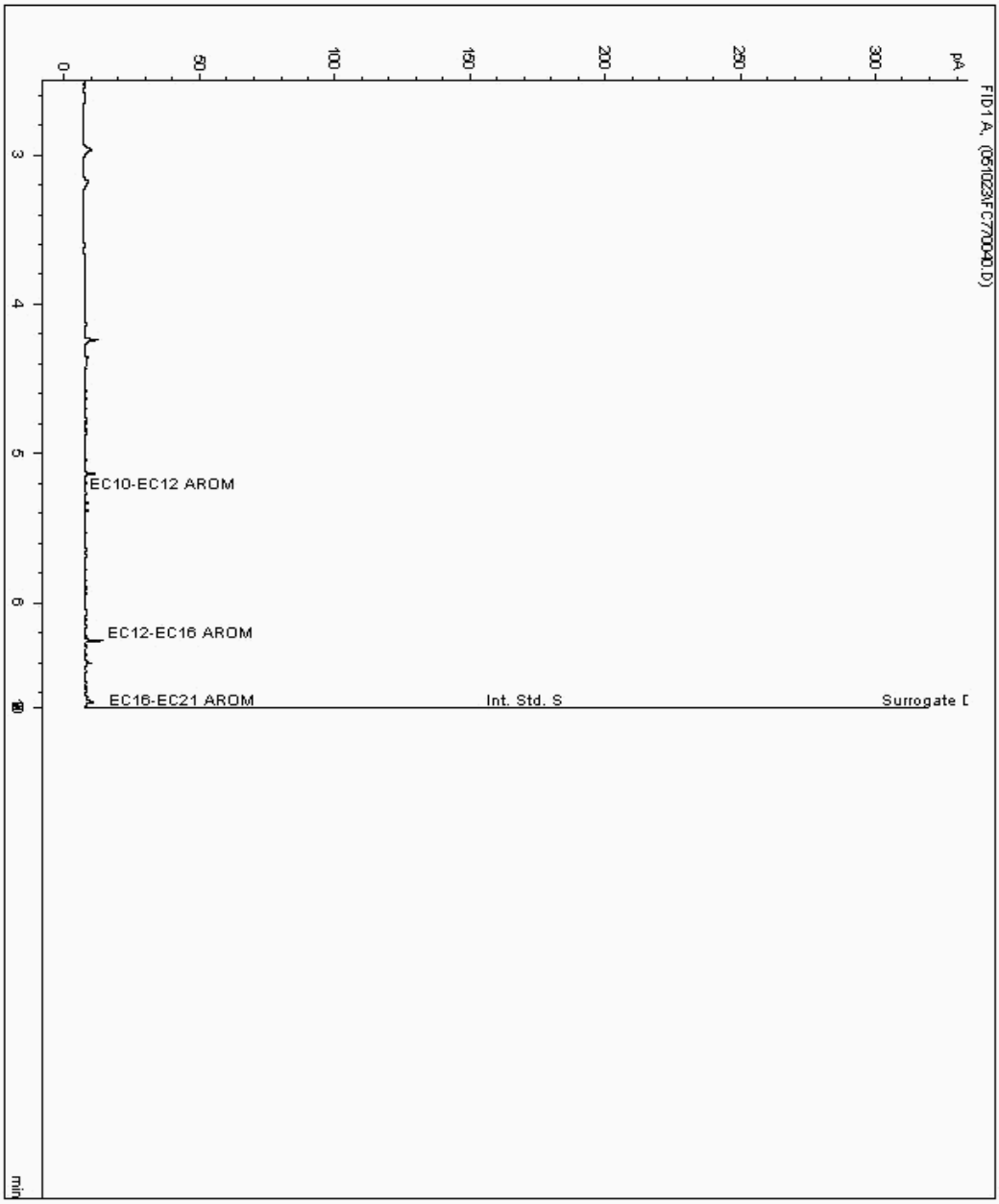


Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 27961050 **Depth :** 3.00
Sample ID : WS102

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26003130-
Date Acquired : 5/11/2023 4:04:36 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

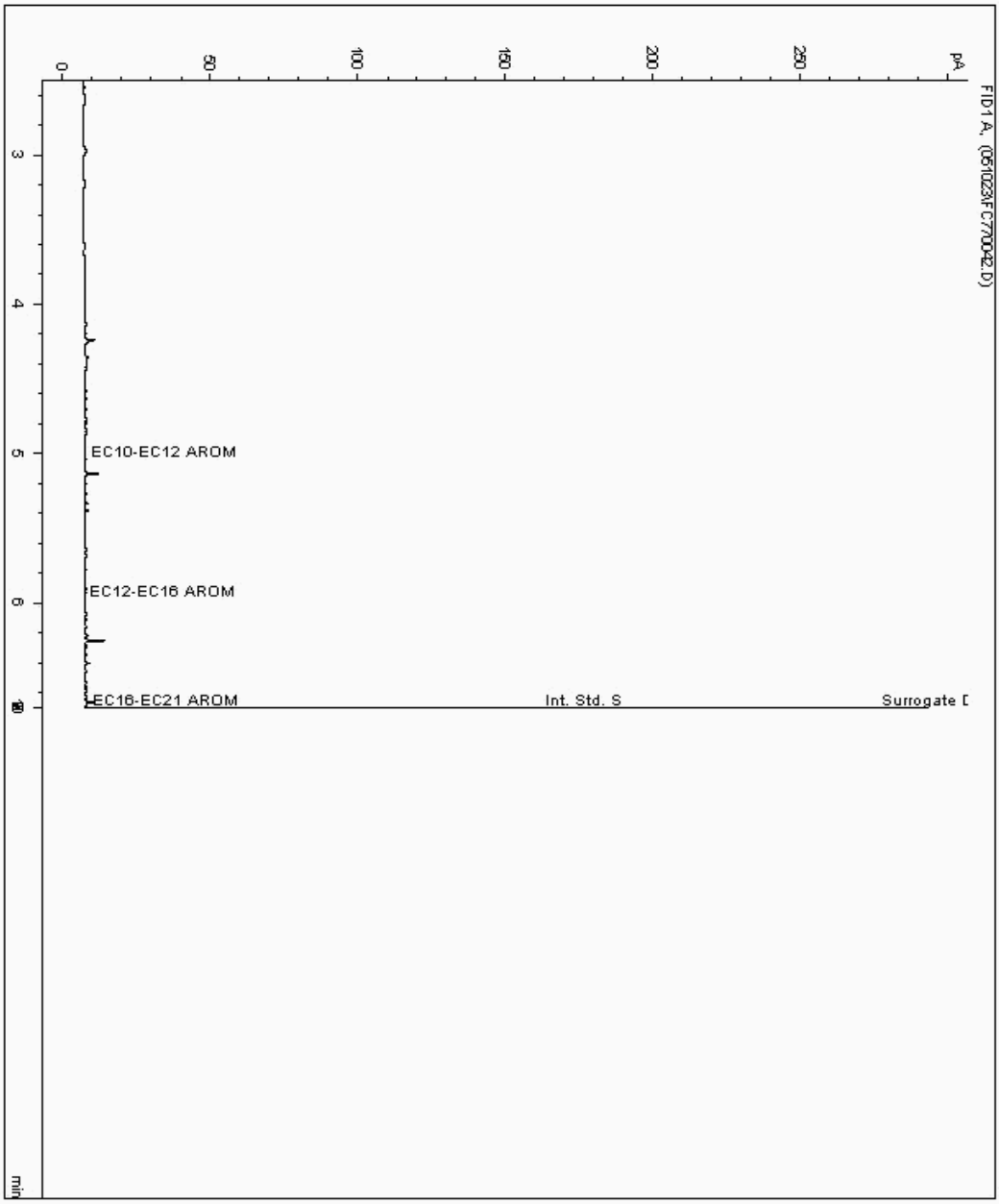
SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 27961057 **Depth :** 3.50
Sample ID : BH102

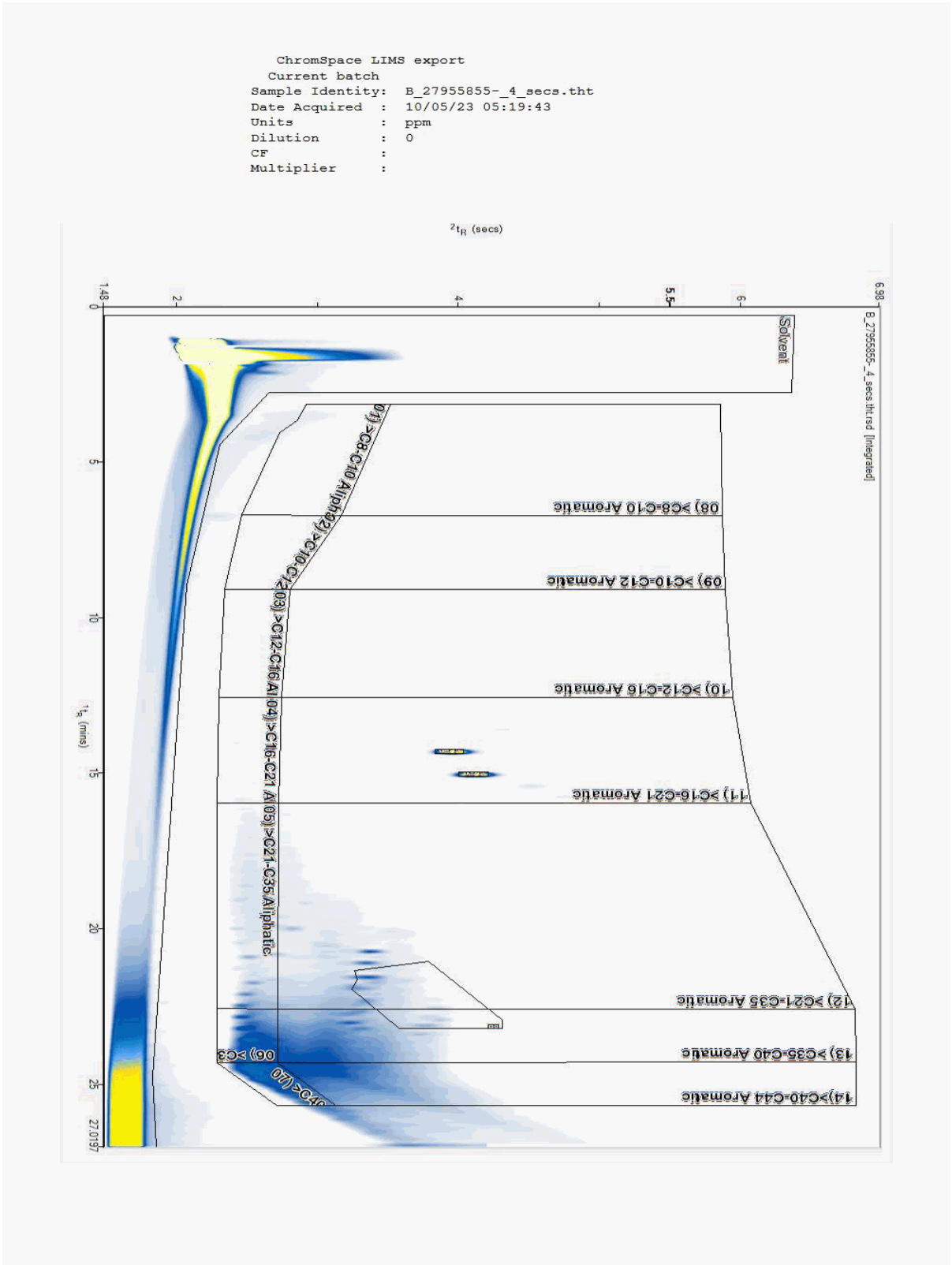
Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26003155-
Date Acquired : 5/11/2023 4:51:31 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 27955855 **Depth :**
Sample ID : SKIP

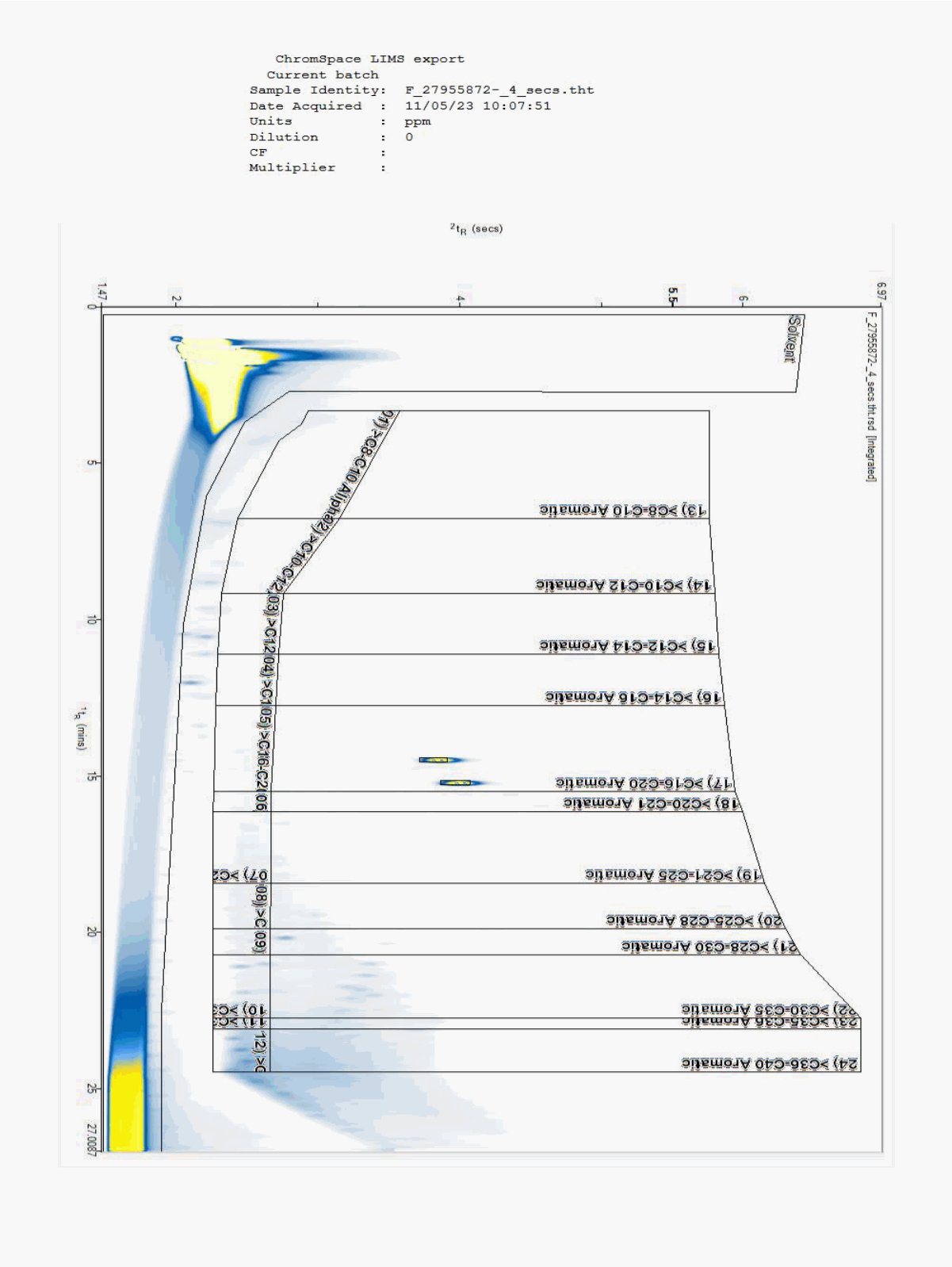


CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH by GCxGC-FID **Sample No :** 27955872 **Depth :**
Sample ID : SKIP

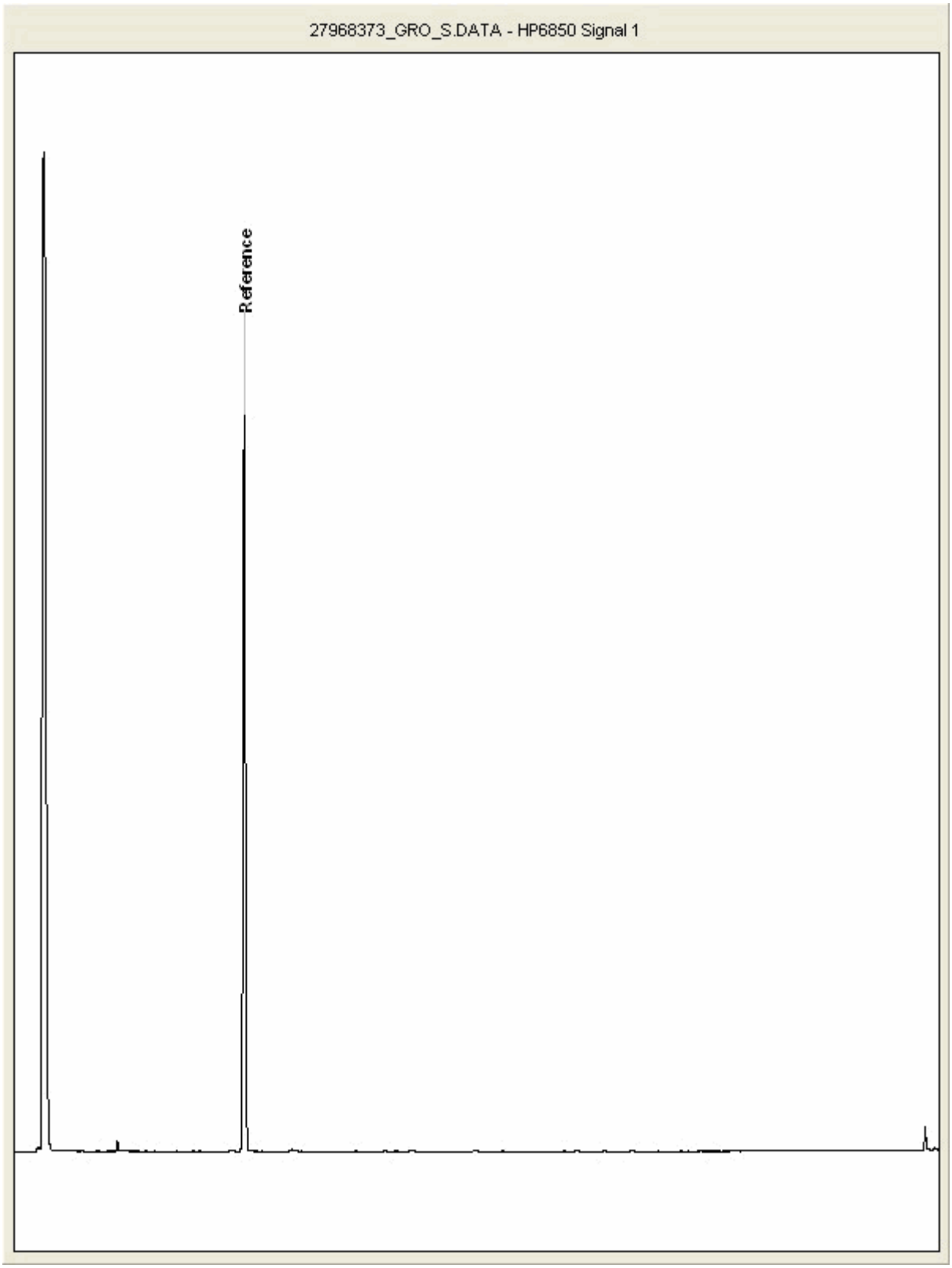


CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 27968373 **Depth :**
Sample ID : SKIP

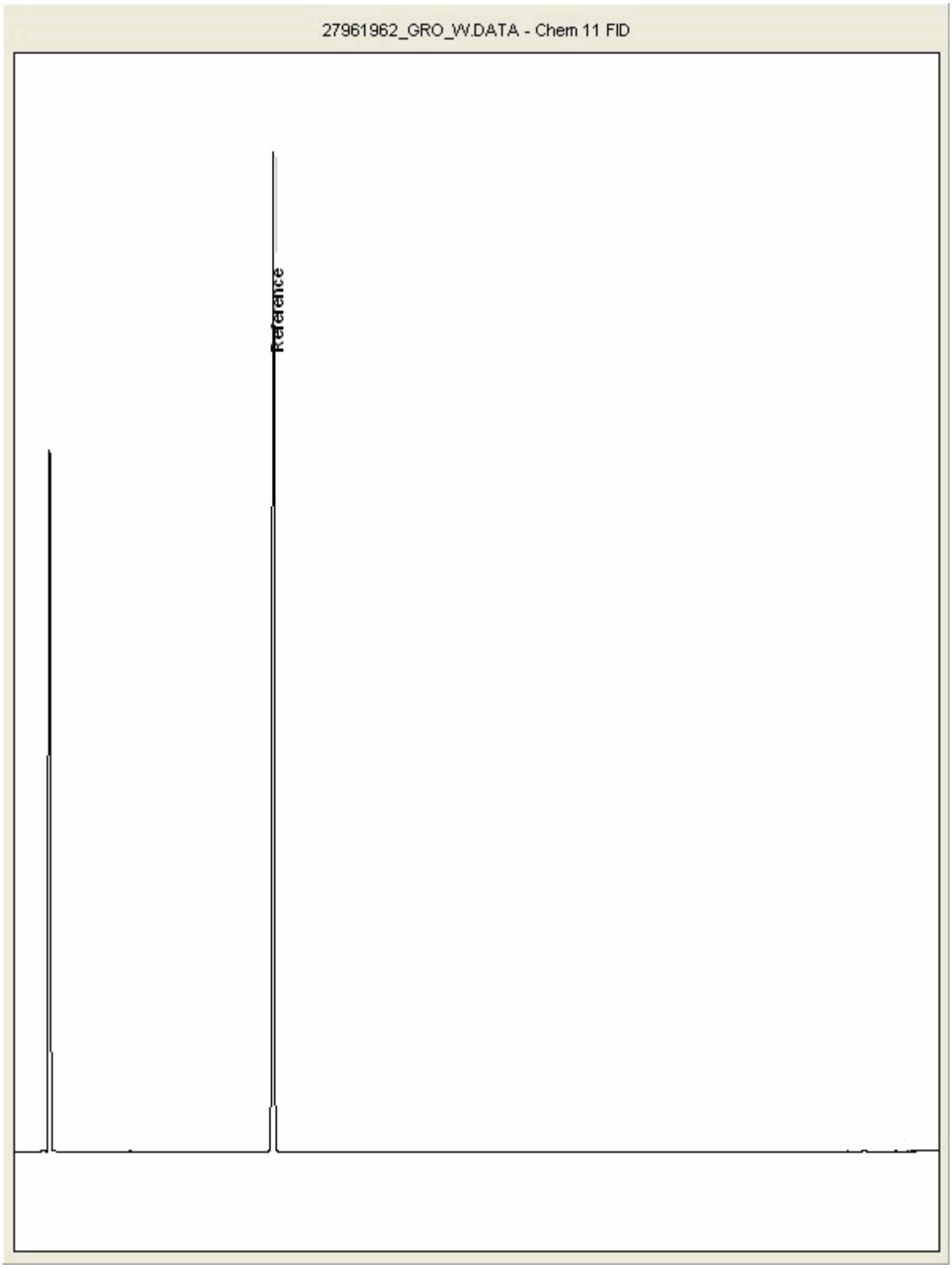


CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 27961962 **Depth :** 3.00
Sample ID : WS104

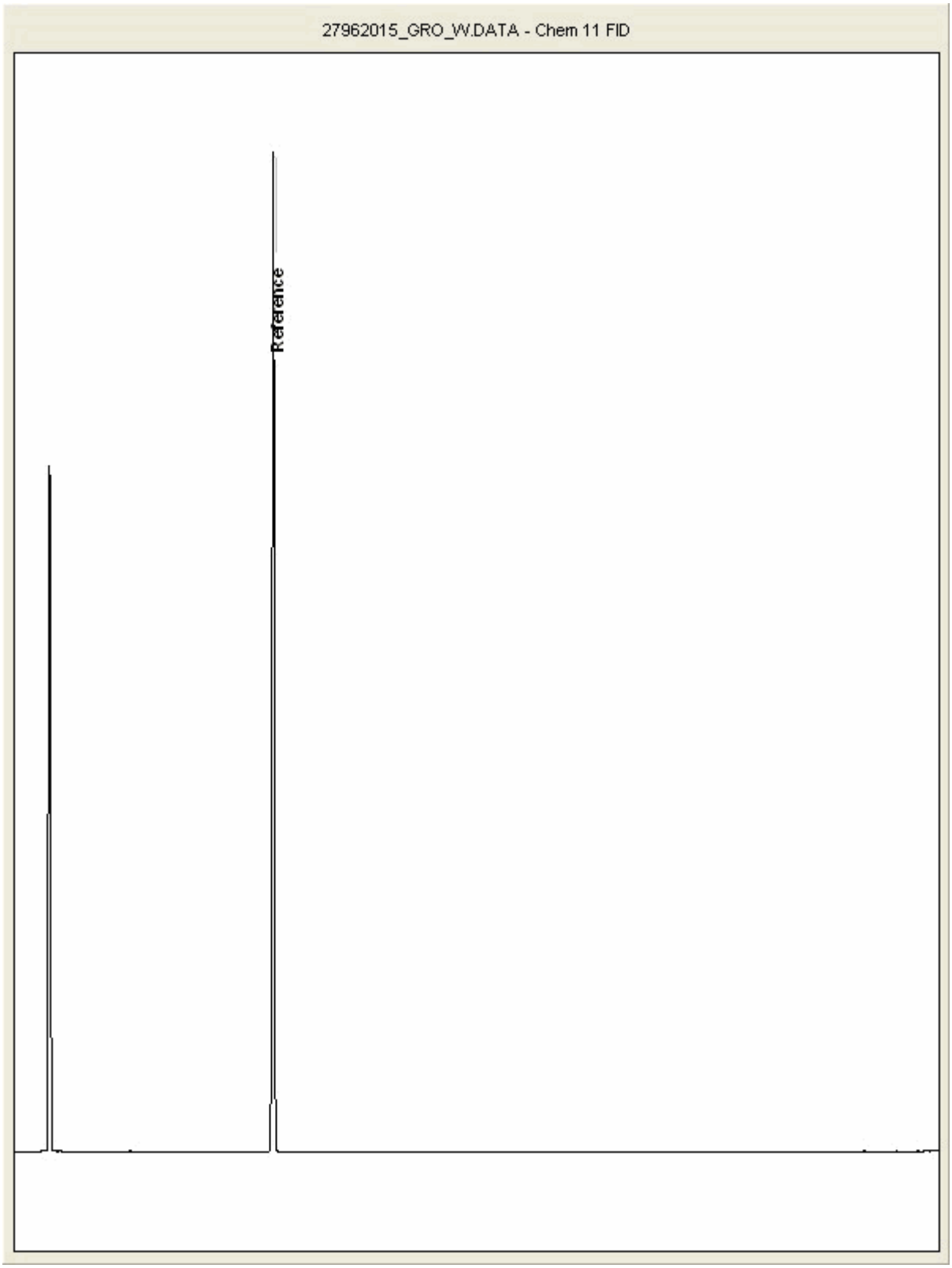


CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 27962015 **Depth :** 3.50
Sample ID : WS101

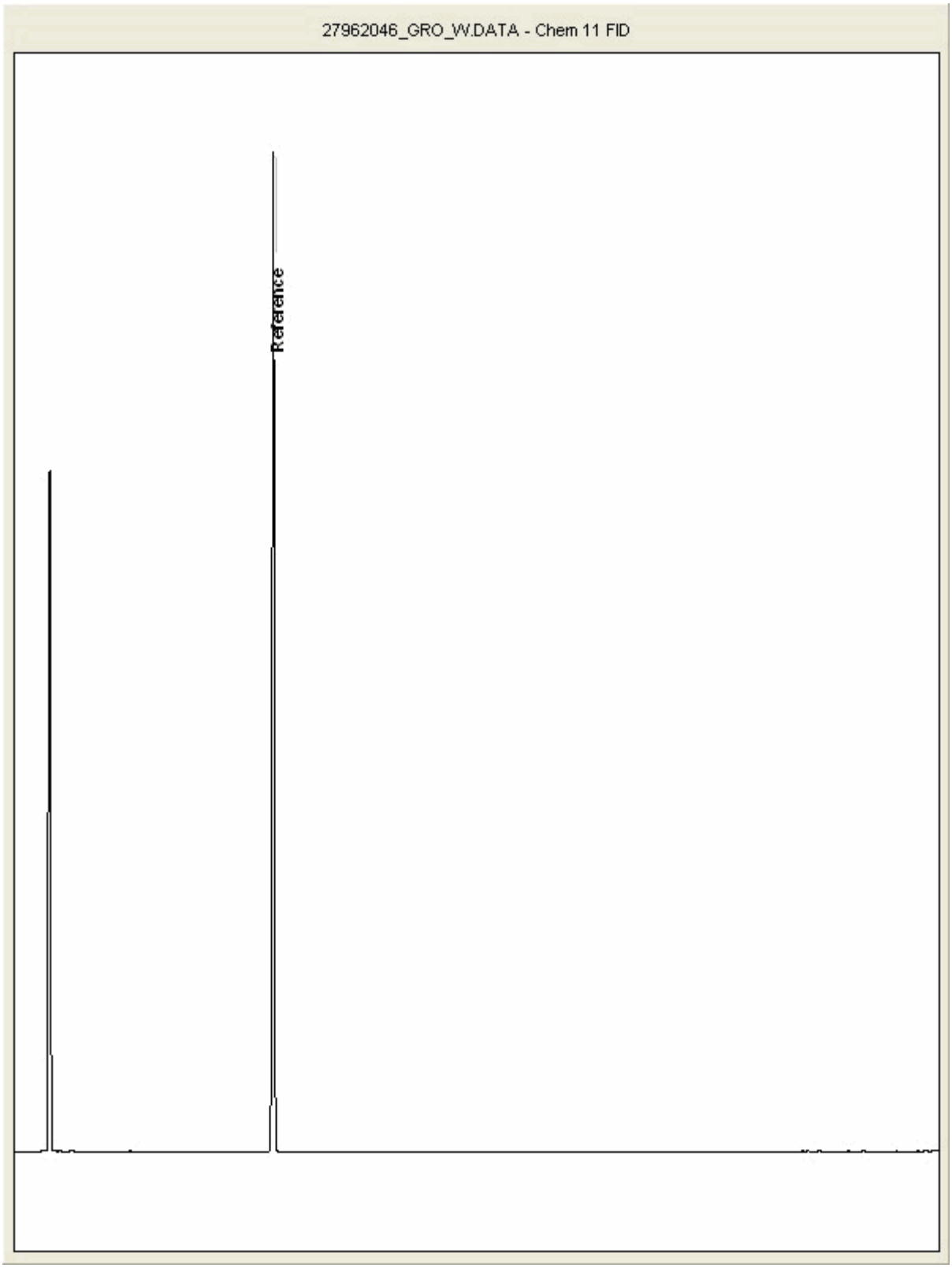


CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 27962046 **Depth :** 3.50
Sample ID : BH102

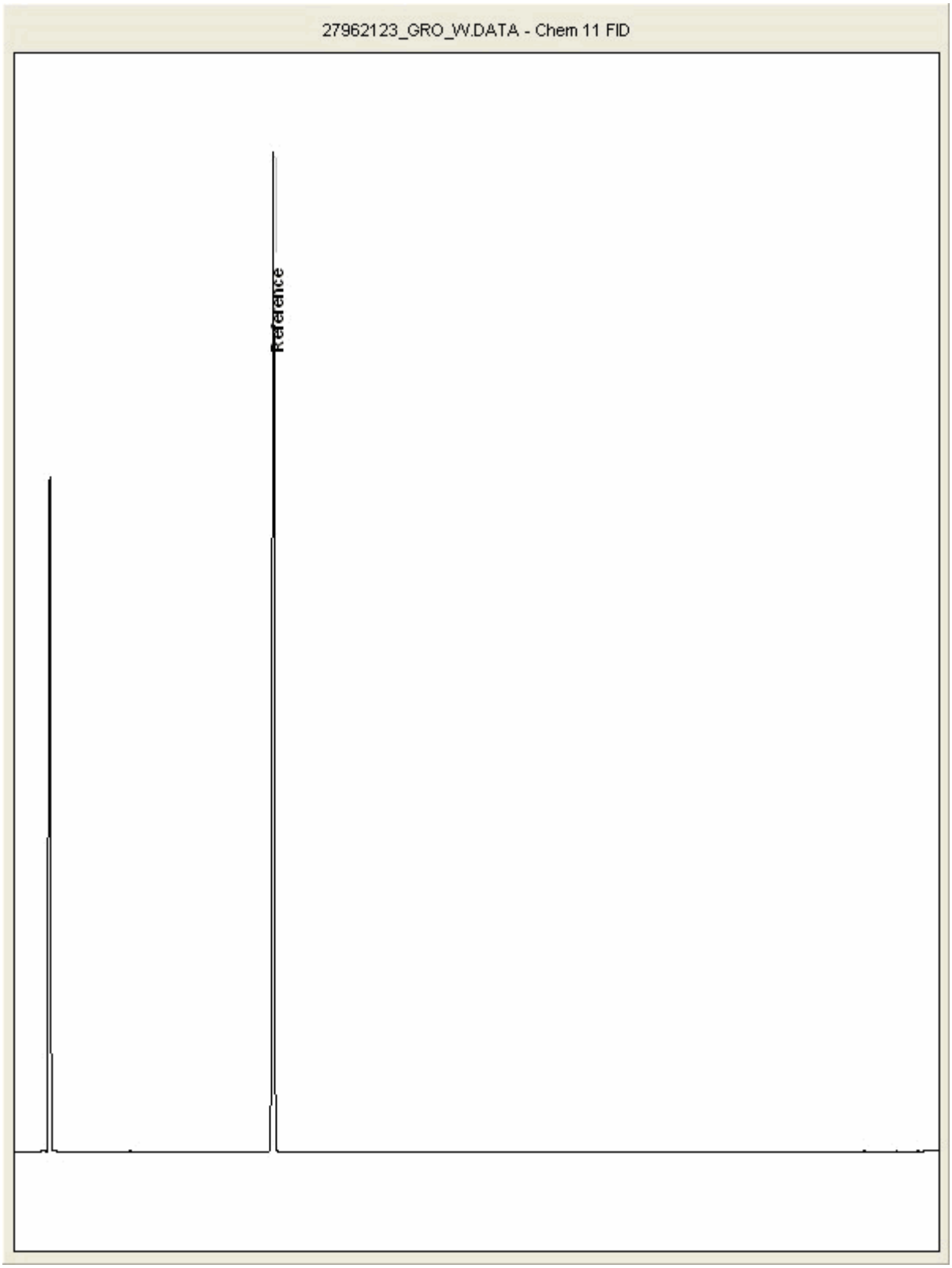


CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 27962123 **Depth :** 3.00
Sample ID : WS102

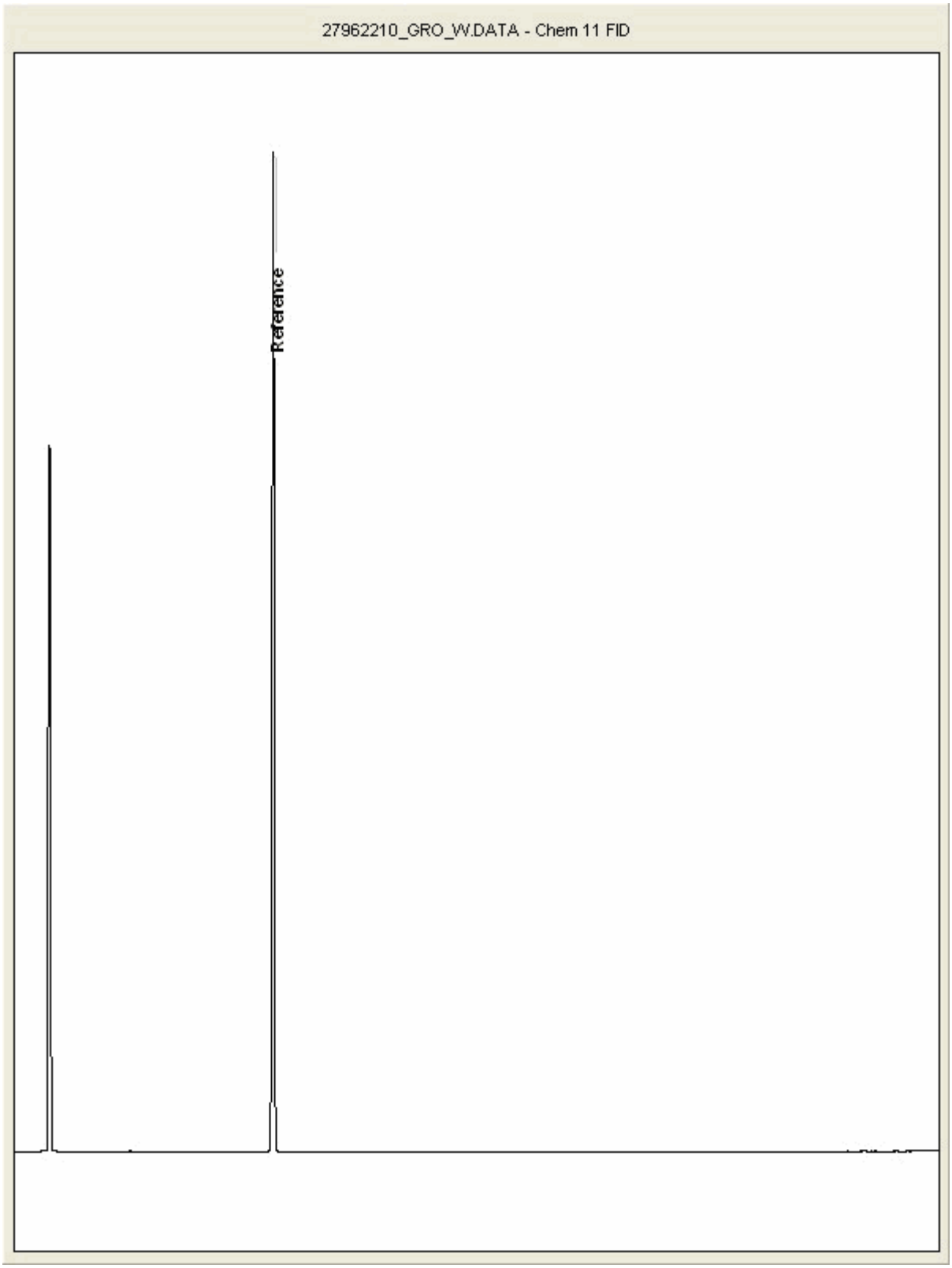


CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 27962210 **Depth :** 8.00
Sample ID : BH104

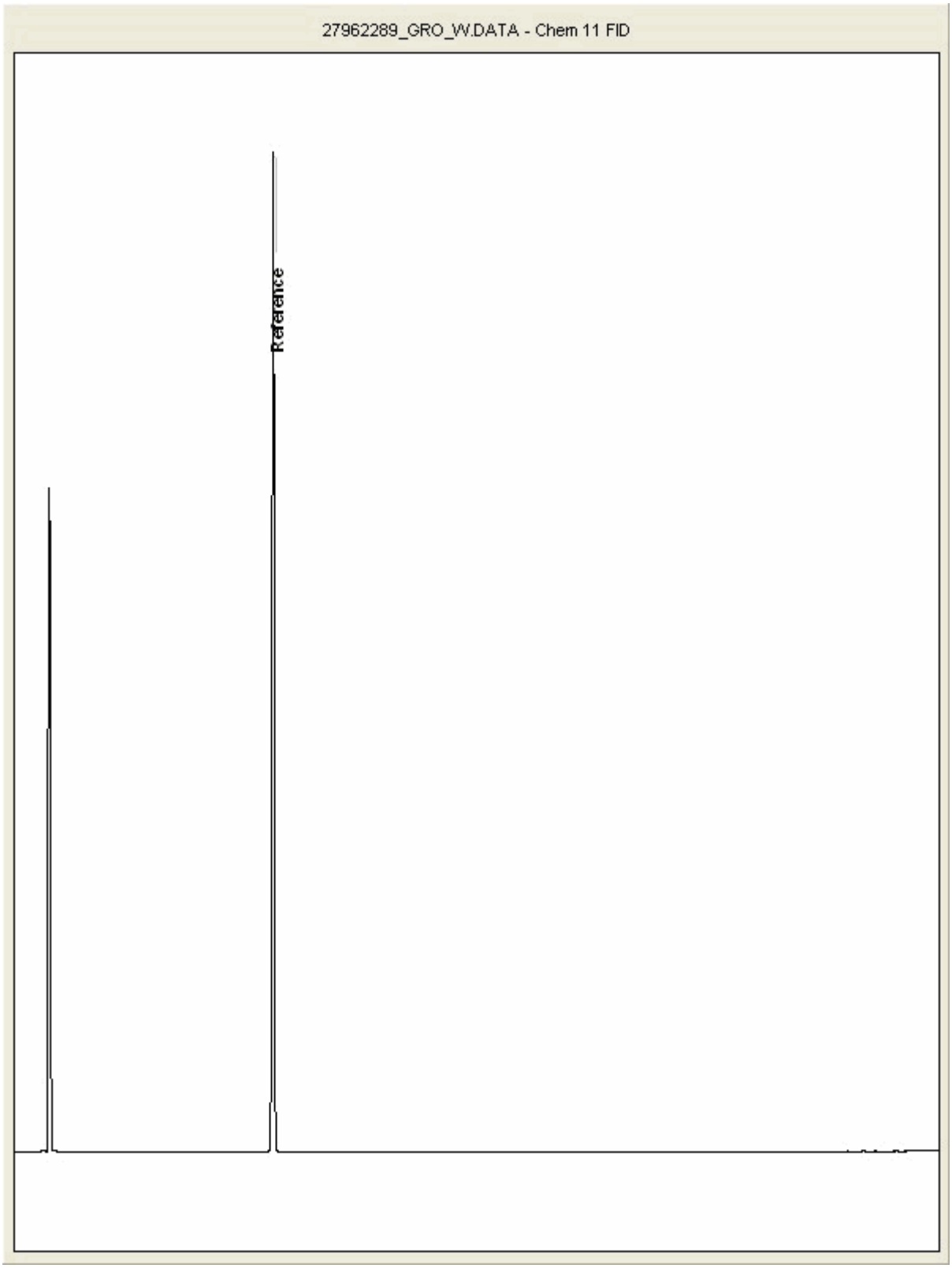


CERTIFICATE OF ANALYSIS

SDG: 230505-55 **Report Number:** 689008 **Superseded Report:** 688974
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 27962289 **Depth :** 4.00
Sample ID : WS103



ALS Environmental, Land	QF.7.5.1 Data Amendments Form (Issue No. 4)
	Date: 03/03/2020
	Issued and Authorised by Quality Manager

SDG	Sample Event	Sample ID	Date Amended	Amendment Reason	Previous Reference	New Reference	Supersedes Report
230505-55	27948377	BH103	15/05/2023	Sample ID Change	BH103	WS103	688917
230505-55	27948526	BH101	15/05/2023	Sample ID Change	BH101	WS101	688971
230505-55	27948527	BH102	15/05/2023	Sample ID Change	BH102	WS102	688971
230505-55	27948529	BH102	15/05/2023	Sample ID Change	BH102	WS102	688971
230505-55	27948530	BH104	15/05/2023	Sample ID Change	BH104	WS104	688971

ALS Environmental, Land	Issue No. 4
	Date: 03/03/2020
QF.7.5.1 Data Amendments Form	Issued and Authorised by Quality Manager

SDG	Sample Event	Sample ID	Date Amended	Amendment Reason	Analysis/Component	Authorised (Lab Manager)	Previous Value	New Value	Units	Supersedes Report
230505-55	27948529	WS102	16/05/2023	Transcription/Registration Issue	Sample ID update	Sarah Middleton	WS102	BH102	N/A	688974

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 15 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. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

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 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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.

19. **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**

20. **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 (2021), 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 and soils are obtained from supplied bulk materials andd soils 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 (2021).

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.

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.

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.

Units 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

ARCADIS UK Ltd
Charter House
62-68 Hills Road
Cambridge
CB2 1LA

Attention: Annie Harding

CERTIFICATE OF ANALYSIS

Date of report Generation:	15 May 2023
Customer:	ARCADIS UK Ltd
Sample Delivery Group (SDG):	230507-23
Your Reference:	10057335
Location:	Steyning Grammar
Report No:	688953
Order Number:	10057335

We received 3 samples on Sunday May 07, 2023 and 3 of these samples were scheduled for analysis which was completed on Monday May 15, 2023. 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 Laboratories (UK) Limited Hawarden.

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:

Sonia McWhan

Operations Manager

1291

CERTIFICATE OF ANALYSIS

SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27958772	BH103		1.65 - 5.82	05/05/2023
27958773	WS105		1.25 - 3.00	05/05/2023
27958774	WS106		1.55 - 4.10	05/05/2023

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

Validated

CERTIFICATE OF ANALYSIS

SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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)	27958772						27958773						27958774					
			Customer Sample Reference	BH103						WS105						WS106					
			AGS Reference																		
			Depth (m)	1.65 - 5.82						1.25 - 3.00						1.55 - 4.10					
			Container	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	ZnAc (ALE246)	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	Vial (ALE297)	ZnAc (ALE246)	1000ml glass bottle (ALE220)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	ZnAc (ALE246)	
			Sample Type	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 3				X						X					X				
Anions by Kone (w)	All	NDPs: 0 Tests: 3		X						X					X						
Chromium III	All	NDPs: 0 Tests: 3				X				X								X			
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 3		X						X					X						
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 3				X				X								X			
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 3	X						X					X							
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 3	X						X					X							
Fluoride	All	NDPs: 0 Tests: 3		X						X					X						
GRO by GC-FID (W)	All	NDPs: 0 Tests: 3					X						X						X		
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 3		X						X					X						
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 3	X						X					X							
pH Value	All	NDPs: 0 Tests: 3		X						X					X						
Sulphide	All	NDPs: 0 Tests: 3						X					X							X	
TPH CWG (W)	All	NDPs: 0 Tests: 3	X						X					X							
VOC MS (W)	All	NDPs: 0 Tests: 3					X						X						X		

Validated

CERTIFICATE OF ANALYSIS

SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH103	WS105	WS106			
			Depth (m)	1.65 - 5.82	1.25 - 3.00	1.55 - 4.10			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	05/05/2023	05/05/2023	05/05/2023			
			Sampled Time	.	.	.			
			Date Received	07/05/2023	07/05/2023	07/05/2023			
			SDG Ref	230507-23	230507-23	230507-23			
			Lab Sample No.(s)	27958772	27958773	27958774			
			AGS Reference						
Ammoniacal Nitrogen as N	<200 µg/l	TM099		1220 #	<200 #	<200 #			
Sulphide	<10 µg/l	TM101		32.4 #	<10 #	<10 #			
Fluoride	<500 µg/l	TM104		<500 #	<500 #	<500 #			
Chromium, Trivalent	<30 µg/l	TM152		<30	<30	<30			
Antimony (diss.filt)	<1 µg/l	TM152		<1 #	<1 2 #	<1 #			
Arsenic (diss.filt)	<0.5 µg/l	TM152		5.24 #	0.797 2 #	0.629 #			
Barium (diss.filt)	<0.2 µg/l	TM152		84.8 #	29.6 2 #	41.4 #			
Beryllium (diss.filt)	<0.1 µg/l	TM152		<0.1 #	<0.1 2 #	<0.1 #			
Boron (diss.filt)	<10 µg/l	TM152		70 #	18 2 #	38.4 #			
Chromium (diss.filt)	<1 µg/l	TM152		7.05 #	<1 2 #	20 #			
Copper (diss.filt)	<0.3 µg/l	TM152		0.421 #	1.62 2 #	1.55 #			
Lead (diss.filt)	<0.2 µg/l	TM152		1.99 #	<0.2 2 #	0.816 #			
Manganese (diss.filt)	<3 µg/l	TM152		2990 #	3.92 2 #	6.36 #			
Molybdenum (diss.filt)	<3 µg/l	TM152		17.4 #	<3 2 #	<3 #			
Nickel (diss.filt)	<0.4 µg/l	TM152		25.7 #	2.57 2 #	2.33 #			
Selenium (diss.filt)	<1 µg/l	TM152		5.23 #	13.9 2 #	1.43 #			
Vanadium (diss.filt)	<1 µg/l	TM152		1.71 #	1.71 2 #	<1 #			
Zinc (diss.filt)	<1 µg/l	TM152		6.21 #	4.61 2 #	7.68 #			
Magnesium (Dis.Filt)	<36 µg/l	TM152		6690 #	3970 2 #	2660 #			
Calcium (Dis.Filt)	<200 µg/l	TM152		257000 #	125000 2 #	144000 #			
Iron (Dis.Filt)	<19 µg/l	TM152		3860 #	<19 2 #	<19 #			
Sulphate	<2000 µg/l	TM184		451000 #	207000 #	35400 #			
Chloride	<2000 µg/l	TM184		145000 #	29500 #	16400 #			
Cyanide, Total	<50 µg/l	TM227		<50 2 #	<50 2 #	<50 2 #			
Cyanide, Free	<50 µg/l	TM227		<50 2 #	<50 2 #	<50 2 #			
Chromium, Hexavalent	<30 µg/l	TM241		<30 #	<30 #	<30 #			
pH	<1 pH Units	TM256		7.35 #	7.49 #	7.64 #			

CERTIFICATE OF ANALYSIS

SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

PAH Spec MS - Aqueous (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH103	WS105	WS106			
			Depth (m)	1.65 - 5.82	1.25 - 3.00	1.55 - 4.10			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	05/05/2023	05/05/2023	05/05/2023			
			Sampled Time	.	.	.			
			Date Received	07/05/2023	07/05/2023	07/05/2023			
			SDG Ref	230507-23	230507-23	230507-23			
			Lab Sample No.(s)	27958772	27958773	27958774			
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		0.236 #	<0.05 #	<0.01 #			
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.025 #	<0.005 #			
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.025 #	<0.005 #			
Fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	0.12 #	<0.005 #			
Anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.025 #	<0.005 #			
Phenanthrene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.025 #	<0.005 #			
Fluorene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.025 #	<0.005 #			
Chrysene (aq)	<0.005 µg/l	TM178		<0.005 #	0.138 #	<0.005 #			
Pyrene (aq)	<0.005 µg/l	TM178		<0.005 #	0.179 #	<0.005 #			
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	0.0961 #	<0.005 #			
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.025 #	<0.005 #			
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.025 #	<0.005 #			
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.002 #	0.391 #	<0.002 #			
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.005 #	0.42 #	<0.005 #			
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		<0.005 #	<0.025 #	<0.005 #			
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.005 #	0.875 #	<0.005 #			
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		0.236 #	2.22 #	<0.082 #			

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SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

TPH CWG (W)

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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH103	WS105	WS106			
			Depth (m)	1.65 - 5.82	1.25 - 3.00	1.55 - 4.10			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	05/05/2023	05/05/2023	05/05/2023			
			Sampled Time	.	.	.			
			Date Received	07/05/2023	07/05/2023	07/05/2023			
			SDG Ref	230507-23	230507-23	230507-23			
			Lab Sample No.(s)	27958772	27958773	27958774			
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		100	98	89			
GRO >C5-C12	<50 µg/l	TM245		435 #	<50 #	<50 #			
Aliphatics >C5-C6	<10 µg/l	TM245		20	<10	<10			
Aliphatics >C6-C8	<10 µg/l	TM245		128	<10	<10			
Aliphatics >C8-C10	<10 µg/l	TM245		85	<10	<10			
Aliphatics >C10-C12	<10 µg/l	TM245		52	<10	<10			
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<50	<10			
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<50	<10			
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	<50	<10			
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	<50	<10			
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10			
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10			
Aromatics >EC8-EC10	<10 µg/l	TM245		112	<10	<10			
Aromatics >EC10-EC12	<10 µg/l	TM245		35	<10	<10			
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		50	<50	<10			
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<50	<10			
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<50	<10			
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		50	<50	<10			
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		485	<10	<10			
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		<10	<50	<10			

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SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

VOC MS (W)

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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH103	WS105	WS106			
			Depth (m)	1.65 - 5.82	1.25 - 3.00	1.55 - 4.10			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	05/05/2023	05/05/2023	05/05/2023			
			Sampled Time	.	.	.			
			Date Received	07/05/2023	07/05/2023	07/05/2023			
			SDG Ref	230507-23	230507-23	230507-23			
			Lab Sample No.(s)	27958772	27958773	27958774			
			AGS Reference						
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Benzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Toluene	<1 µg/l	TM208		3.77 #	<1 #	<1 #			
Ethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
m,p-Xylene	<1 µg/l	TM208		1.77 #	<1 #	<1 #			
o-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Sum of detected Xylenes	<2 µg/l	TM208		<2	<2	<2			
Sum of BTEX	<5 µg/l	TM208		5.54	<5	<5			

CERTIFICATE OF ANALYSIS

SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Table of Results - Appendix

Method No	Description
TM099	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Determination of Sulphide in soil and water samples using the Kone Analyser
TM104	Determination of Fluoride using the Kone Analyser
TM152	Analysis of Aqueous Samples by ICP-MS
TM174	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM178	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM184	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM241	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	Determination of GRO by Headspace in waters
TM256	Determination of pH, EC, TDS and Alkalinity in Aqueous samples

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Test Completion Dates

Lab Sample No(s)	27958772	27958773	27958774
Customer Sample Ref.	BH103	WS105	WS106
AGS Ref.			
Depth	1.65 - 5.82	1.25 - 3.00	1.55 - 4.10
Type	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	13-May-2023	12-May-2023	12-May-2023
Anions by Kone (w)	11-May-2023	11-May-2023	11-May-2023
Chromium III	13-May-2023	13-May-2023	13-May-2023
Cyanide Comp/Free/Total/Thiocyanate	12-May-2023	12-May-2023	12-May-2023
Dissolved Metals by ICP-MS	12-May-2023	12-May-2023	12-May-2023
EPH CWG (Aliphatic) Aqueous GC (W)	12-May-2023	12-May-2023	12-May-2023
EPH CWG (Aromatic) Aqueous GC (W)	12-May-2023	12-May-2023	12-May-2023
Fluoride	13-May-2023	13-May-2023	13-May-2023
GRO by GC-FID (W)	11-May-2023	11-May-2023	11-May-2023
Hexavalent Chromium (w)	13-May-2023	13-May-2023	13-May-2023
PAH Spec MS - Aqueous (W)	12-May-2023	12-May-2023	12-May-2023
pH Value	14-May-2023	14-May-2023	14-May-2023
Sulphide	15-May-2023	15-May-2023	15-May-2023
TPH CWG (W)	12-May-2023	12-May-2023	12-May-2023
VOC MS (W)	11-May-2023	11-May-2023	11-May-2023

ASSOCIATED AQC DATA

Ammoniacal Nitrogen

Component	Method Code	QC 2748	QC 2799
Ammoniacal Nitrogen as N	TM099	**100.4** 91.64 : 106.04	**102.4** 93.14 : 108.60

Anions by Kone (w)

Component	Method Code	QC 2730
Chloride	TM184	**108.0** 100.33 : 113.05
Sulphate (soluble)	TM184	**102.4** 96.54 : 111.66

Cyanide Comp/Free/Total/Thiocyanate

Component	Method Code	QC 2747
Free Cyanide (W)	TM227	**110.0** 92.00 : 124.00
Thiocyanate (W)	TM227	**106.75** 91.75 : 115.75
Total Cyanide (W)	TM227	**104.25** 93.00 : 117.00

Dissolved Metals by ICP-MS

Component	Method Code	QC 2776
Aluminium	TM152	**99.33** 90.98 : 111.82
Antimony	TM152	**104.83** 93.58 : 111.68
Arsenic	TM152	**102.33** 95.48 : 109.88
Barium	TM152	**100.17** 90.20 : 111.19
Beryllium	TM152	**96.5** 87.77 : 113.97
Bismuth	TM152	**104.17** 91.90 : 112.20
Borate	TM152	**96.3** 88.00 : 112.00
Boron	TM152	**96.0** 92.27 : 112.40
Cadmium	TM152	**103.67** 93.78 : 109.68
Calcium	TM152	**102.0** 95.83 : 105.97
Chromium	TM152	**99.67** 91.84 : 108.67
Cobalt	TM152	**90.67** 90.72 : 109.61

Dissolved Metals by ICP-MS

		QC 2776
Copper	TM152	**98.83** 94.47 : 109.05
Iron	TM152	**100.0** 94.40 : 107.90
Lead	TM152	**103.0** 93.55 : 109.46
Lithium	TM152	**97.33** 91.62 : 113.12
Magnesium	TM152	**98.0** 91.64 : 107.43
Manganese	TM152	**101.67** 94.75 : 108.21
Molybdenum	TM152	**100.33** 93.94 : 106.05
Nickel	TM152	**98.67** 94.12 : 109.76
Phosphorus	TM152	**97.17** 92.51 : 109.27
Potassium	TM152	**102.67** 92.16 : 109.93
Selenium	TM152	**103.0** 91.58 : 115.98
Silver	TM152	**100.17** 96.40 : 108.40
Sodium	TM152	**98.67** 89.47 : 109.62
Strontium	TM152	**104.0** 95.29 : 108.75
Tellurium	TM152	**105.33** 93.32 : 114.66
Thallium	TM152	**96.83** 80.92 : 114.72
Tin	TM152	**105.17** 92.63 : 109.70
Titanium	TM152	**99.0** 95.08 : 109.28
Tungsten	TM152	**102.0** 94.68 : 107.68
Uranium	TM152	**105.0** 94.32 : 107.92
Vanadium	TM152	**103.83** 88.43 : 114.30
Zinc	TM152	**101.67** 95.31 : 110.74

EPH CWG (Aliphatic) Aqueous GC (W)

Component	Method Code	QC 2762
Total Aliphatics >C10-C40	TM174	**105.12** 79.07 : 139.72

EPH CWG (Aromatic) Aqueous GC (W)

Component	Method Code	QC 2711
Total Aromatics >EC10-EC40	TM174	**87.32** 57.93 : 112.52

Fluoride

Component	Method Code	QC 2794
Fluoride	TM104	**105.33** 96.67 : 108.67

GRO by GC-FID (W)

Component	Method Code	QC 2791
Benzene by GC	TM245	**100.5** 79.13 : 118.84
Ethylbenzene by GC	TM245	**105.0** 79.54 : 115.99
m & p Xylene by GC	TM245	**105.25** 78.44 : 116.32
MTBE GC-FID	TM245	**99.5** 81.43 : 120.09
o Xylene by GC	TM245	**105.5** 76.85 : 120.29
QC	TM245	**87.67** 54.85 : 103.75
Toluene by GC	TM245	**103.0** 79.00 : 121.96

Hexavalent Chromium (w)

Component	Method Code	QC 2791
Hexavalent Chromium	TM241	**99.8** 94.17 : 106.17

PAH Spec MS - Aqueous (W)

Component	Method Code	QC 2725
Acenaphthene by GCMS	TM178	**103.2** 96.33 : 119.22
Acenaphthylene by GCMS	TM178	**108.8** 95.88 : 120.28
Anthracene by GCMS	TM178	**101.6** 94.40 : 116.00
Benz(a)anthracene by GCMS	TM178	**101.6** 92.80 : 116.80

PAH Spec MS - Aqueous (W)

		QC 2725
Benzo(a)pyrene by GCMS	TM178	**101.6** 89.43 : 118.57
Benzo(b)fluoranthene by GCMS	TM178	**113.6** 87.80 : 121.80
Benzo(ghi)perylene by GCMS	TM178	**101.6** 92.00 : 116.00
Benzo(k)fluoranthene by GCMS	TM178	**104.4** 94.40 : 118.40
Chrysene by GCMS	TM178	**101.2** 96.00 : 117.60
Dibenzo(ah)anthracene by GCMS	TM178	**94.4** 86.24 : 118.56
Fluoranthene by GCMS	TM178	**97.6** 91.20 : 117.60
Fluorene by GCMS	TM178	**99.6** 90.76 : 121.24
Indeno(123cd)pyrene by GCMS	TM178	**104.4** 86.80 : 118.00
Naphthalene by GCMS	TM178	**102.4** 97.14 : 121.74
Phenanthrene by GCMS	TM178	**100.4** 96.00 : 117.60
Pyrene by GCMS	TM178	**98.4** 91.00 : 120.20

pH Value

Component	Method Code	QC 2736	QC 2739
pH	TM256	**100.8** 98.80 : 102.01	**100.8** 98.80 : 102.01

Sulphide

Component	Method Code	QC 2759
Sulphide	TM101	**100.67** 88.67 : 116.67

VOC MS (W)

Component	Method Code	QC 2744
1,1,1,2-Tetrachloroethane	TM208	**99.5** 85.64 : 109.52
1,1,1-Trichloroethane	TM208	**98.5** 87.87 : 111.93
1,1-Dichloroethane	TM208	**104.0** 82.09 : 116.41
1,2-Dichloroethane	TM208	**106.5** 80.28 : 123.63

VOC MS (W)

		QC 2744
2-Chlorotoluene	TM208	**97.0** 83.31 : 110.91
4-Chlorotoluene	TM208	**97.5** 84.01 : 111.46
Benzene	TM208	**105.5** 87.46 : 118.30
Bromomethane	TM208	**102.5** 73.35 : 126.60
Carbontetrachloride	TM208	**101.5** 89.28 : 113.46
Chlorobenzene	TM208	**100.5** 86.52 : 113.46
Chloroform	TM208	**105.5** 83.67 : 118.08
Chloromethane	TM208	**110.0** 70.42 : 127.06
Cis-1,2-Dichloroethene	TM208	**104.5** 90.00 : 116.94
Dichloromethane	TM208	**106.0** 81.65 : 120.83
Ethylbenzene	TM208	**97.5** 85.96 : 106.48
Hexachlorobutadiene	TM208	**92.0** 71.92 : 112.93
o-Xylene	TM208	**97.0** 88.07 : 108.02
p/m-Xylene	TM208	**97.0** 82.64 : 112.12
Tert-butyl methyl ether	TM208	**104.0** 68.23 : 127.69
Tetrachloroethene	TM208	**96.5** 84.37 : 107.75
Toluene	TM208	**99.5** 87.40 : 109.78
Trichloroethene	TM208	**99.5** 85.28 : 111.95
Vinyl Chloride	TM208	**105.5** 72.73 : 123.40

The above information details the reference name of the analytical quality control sample (AQC) that has been run with the samples contained in this report for the different methods of analysis.
The figure detailed is the percentage recovery result for the AQC.
The subscript numbers below are the percentage recovery lower control limit (LCL) and the upper control limit (UCL). The percentage recovery result for the AQC should be between these limits to be statistically in control.

CERTIFICATE OF ANALYSIS

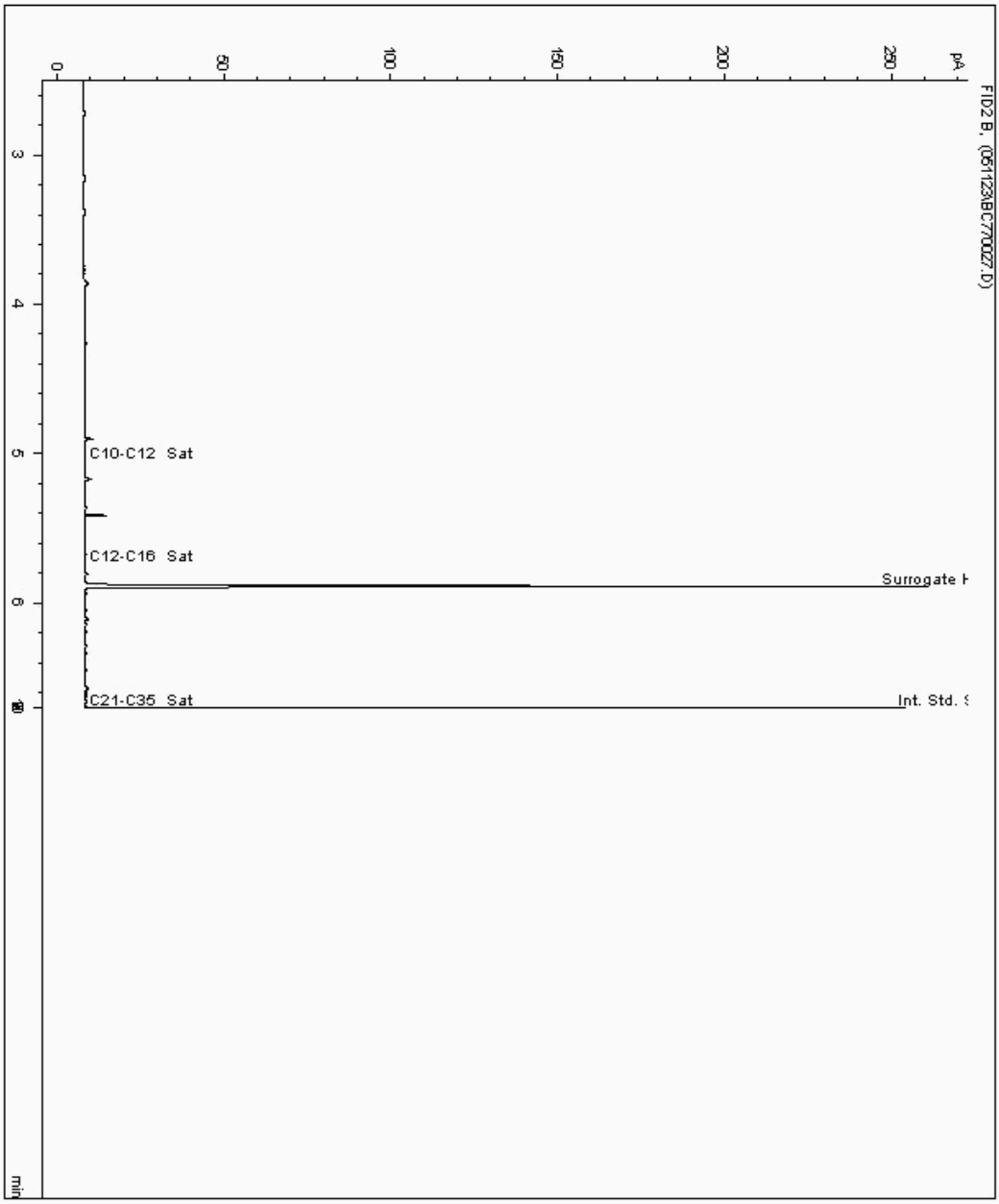
SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 27970421 **Depth :** 1.55 - 4.10
Sample ID : WS106

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26015443-
Date Acquired : 5/12/2023 2:02:52 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

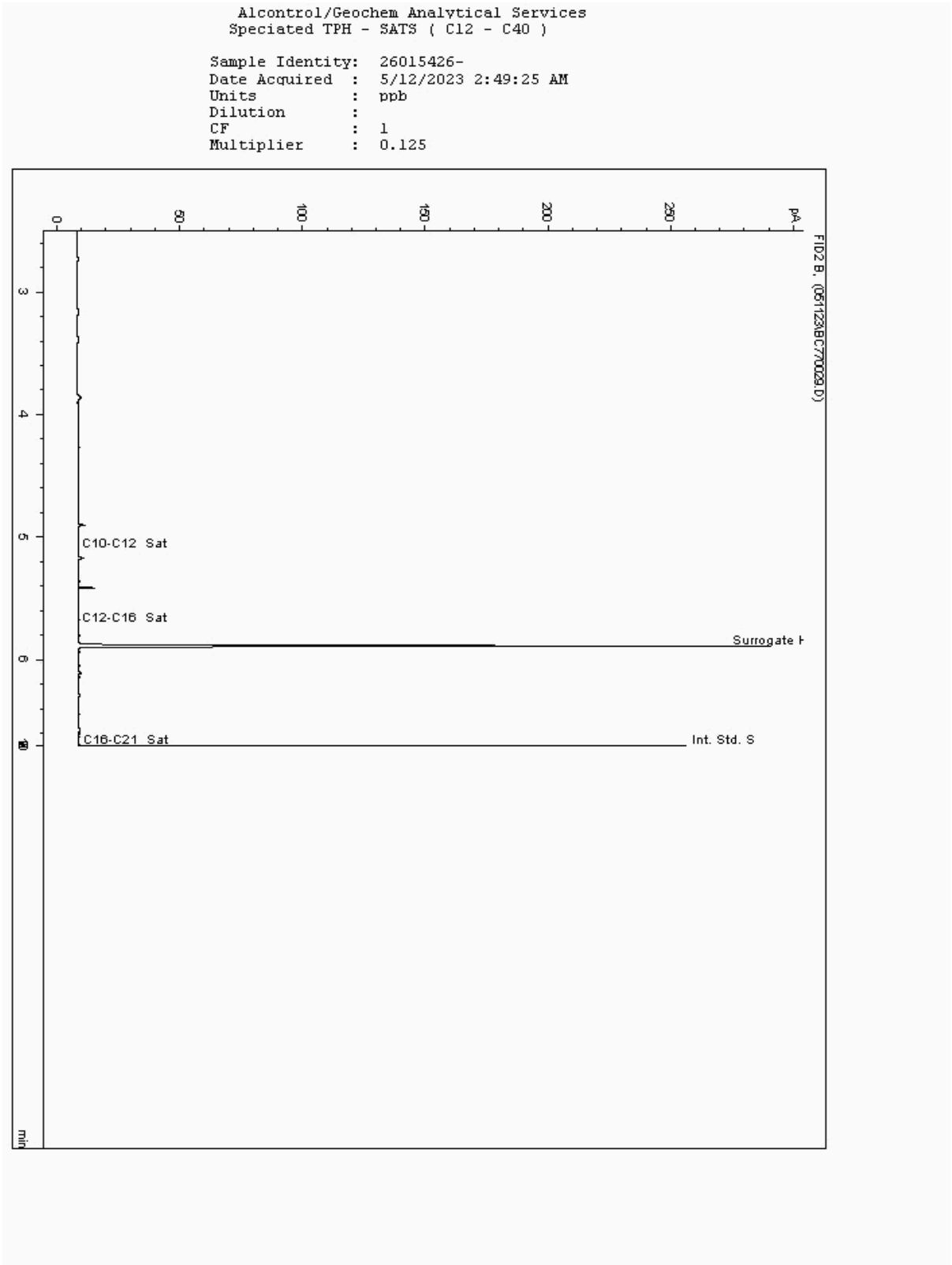


CERTIFICATE OF ANALYSIS

SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 27970423 **Depth :** 1.25 - 3.00
Sample ID : WS105



CERTIFICATE OF ANALYSIS

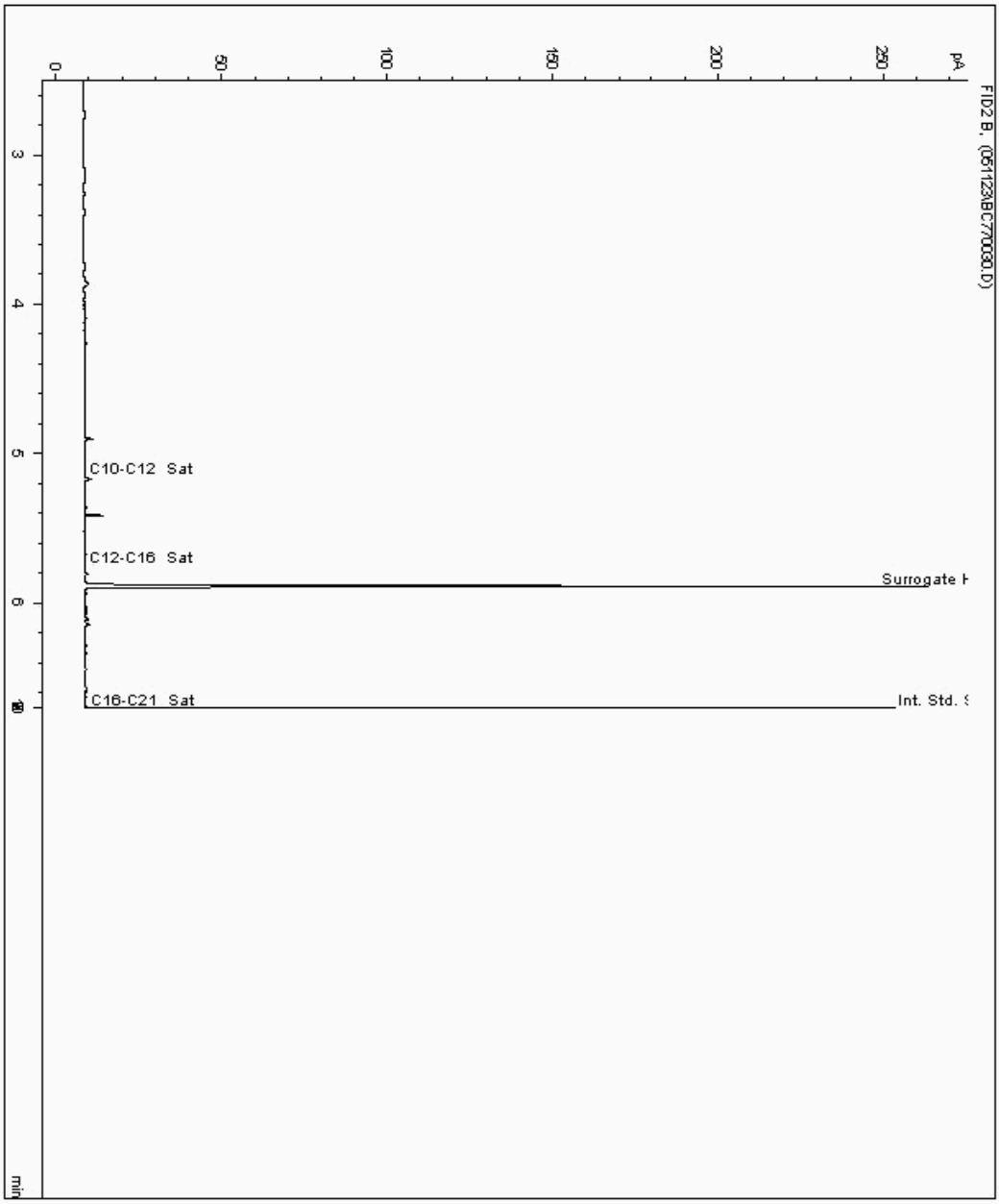
SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 27970426 **Depth :** 1.65 - 5.82
Sample ID : BH103

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26015409-
Date Acquired : 5/12/2023 3:12:48 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

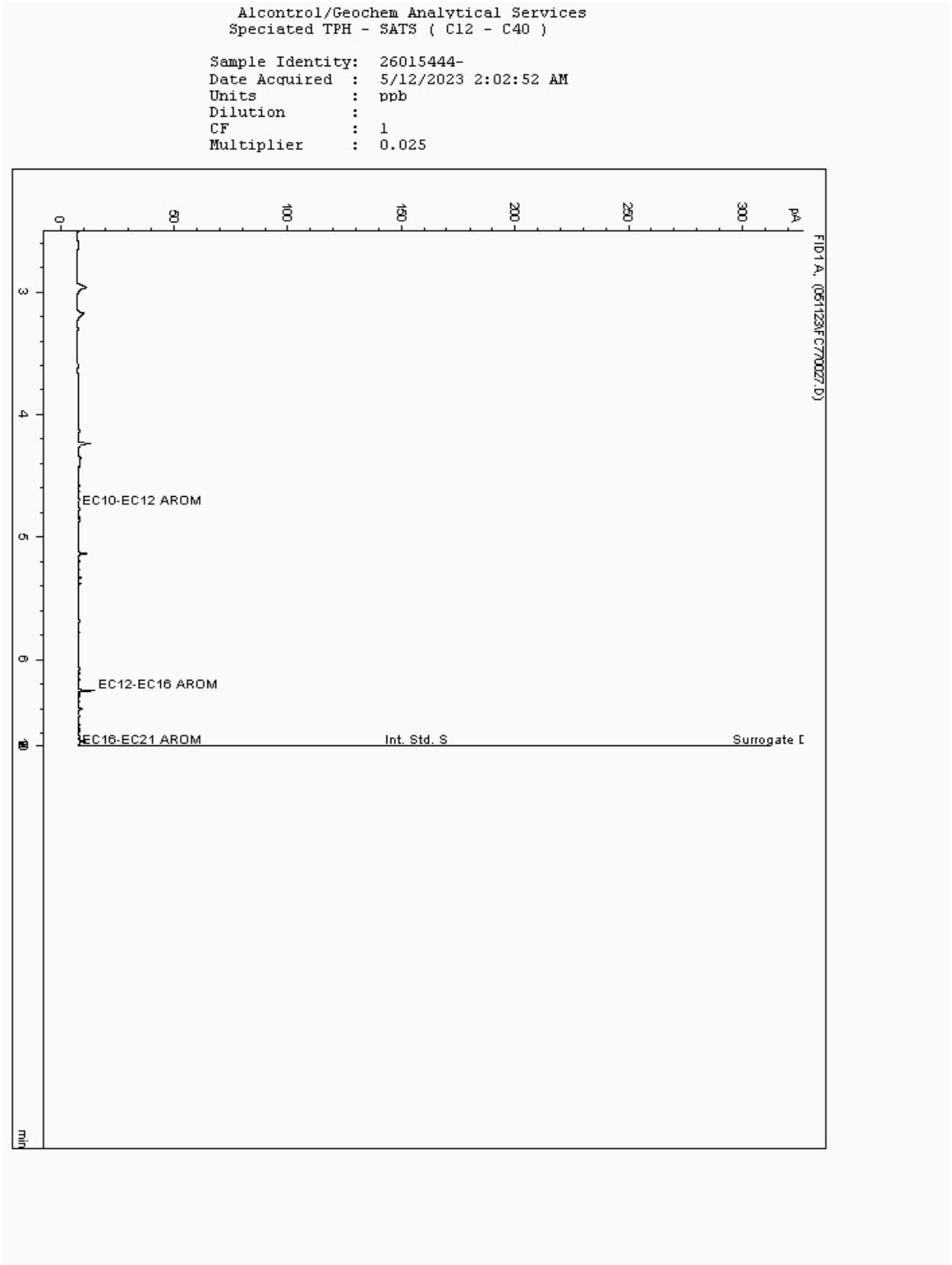


CERTIFICATE OF ANALYSIS

SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 27970421 **Depth :** 1.55 - 4.10
Sample ID : WS106

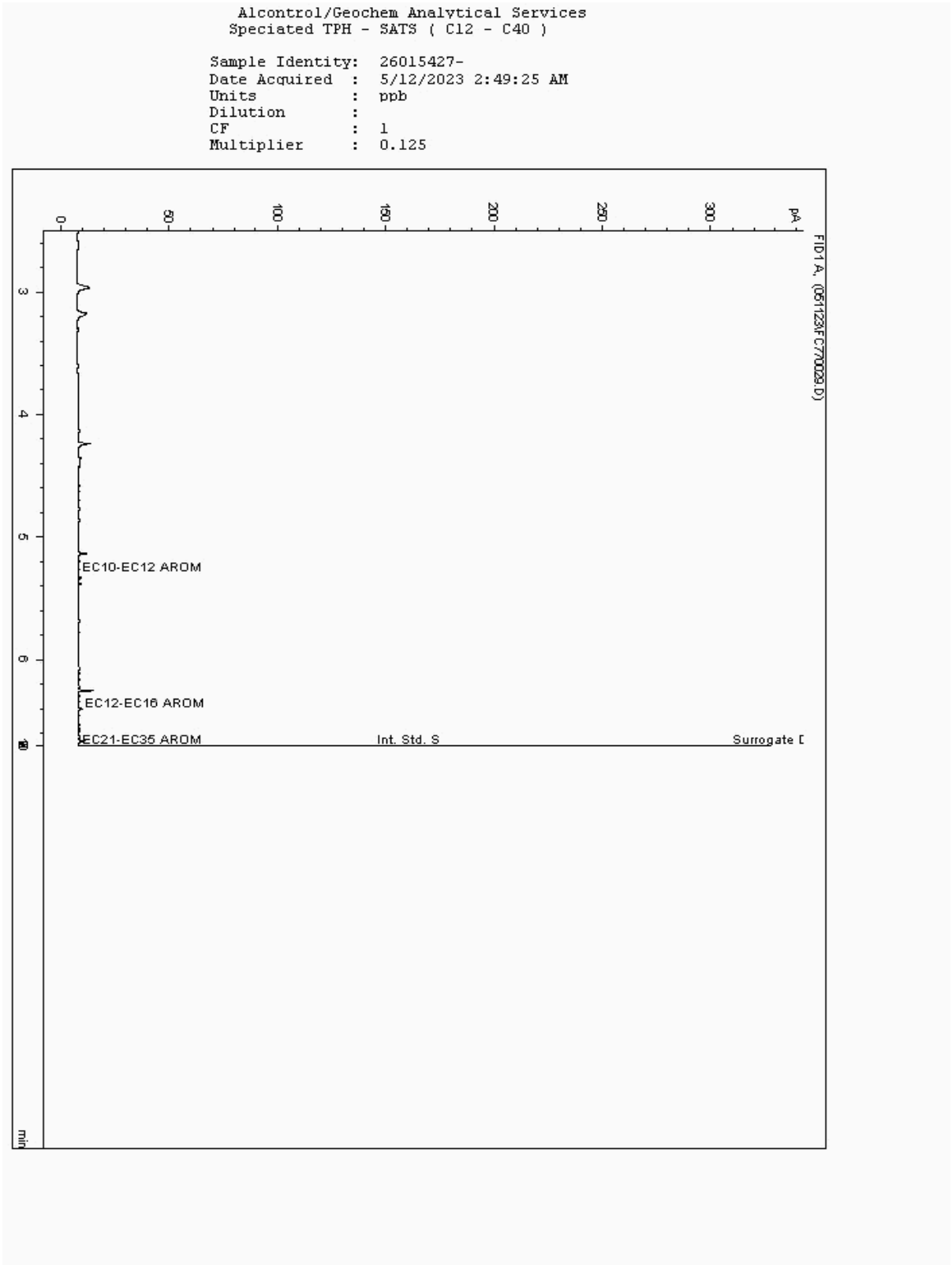


CERTIFICATE OF ANALYSIS

SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 27970423 **Depth :** 1.25 - 3.00
Sample ID : WS105



CERTIFICATE OF ANALYSIS

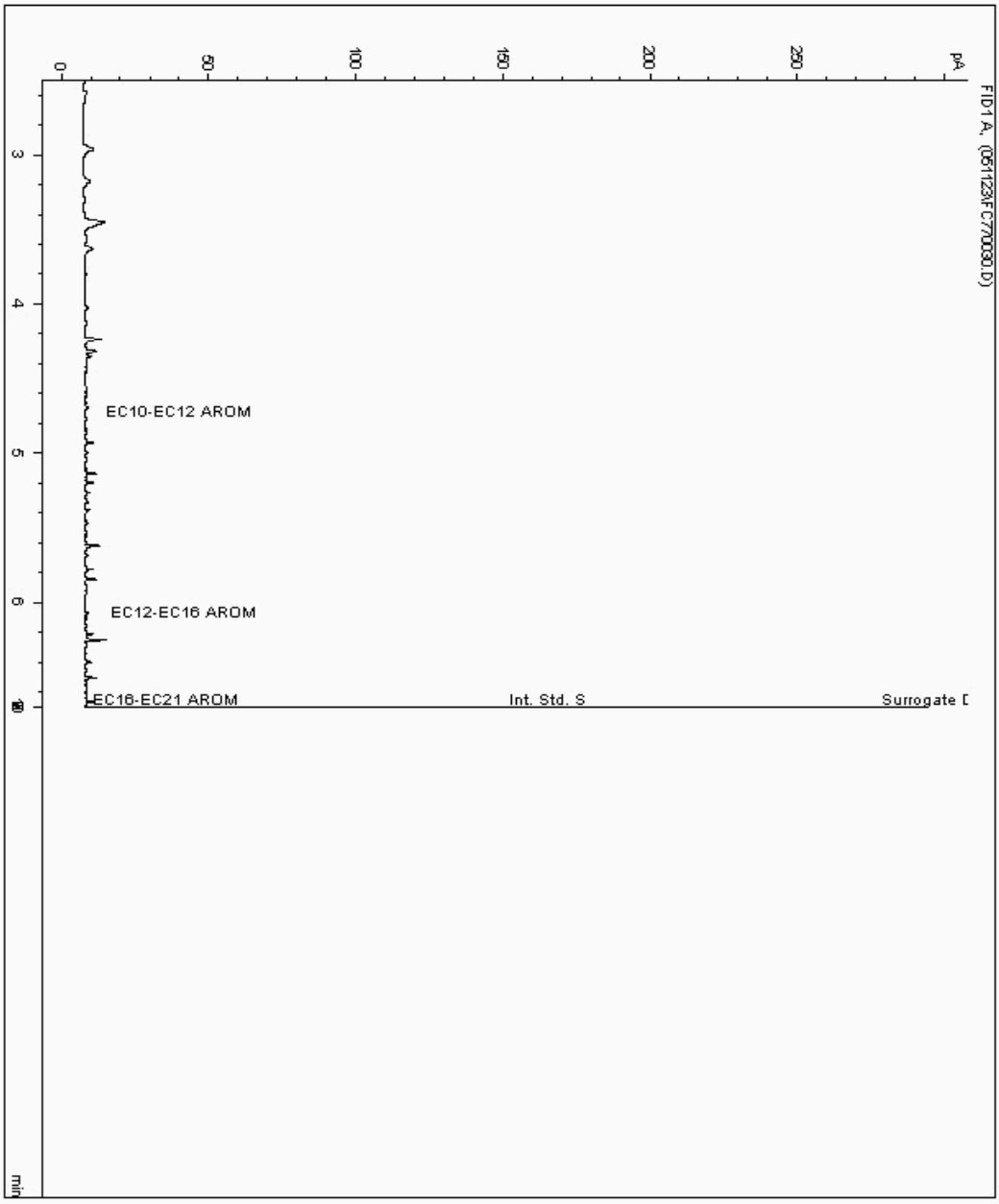
SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 27970426 **Depth :** 1.65 - 5.82
Sample ID : BH103

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 26015410-
Date Acquired : 5/12/2023 3:12:48 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

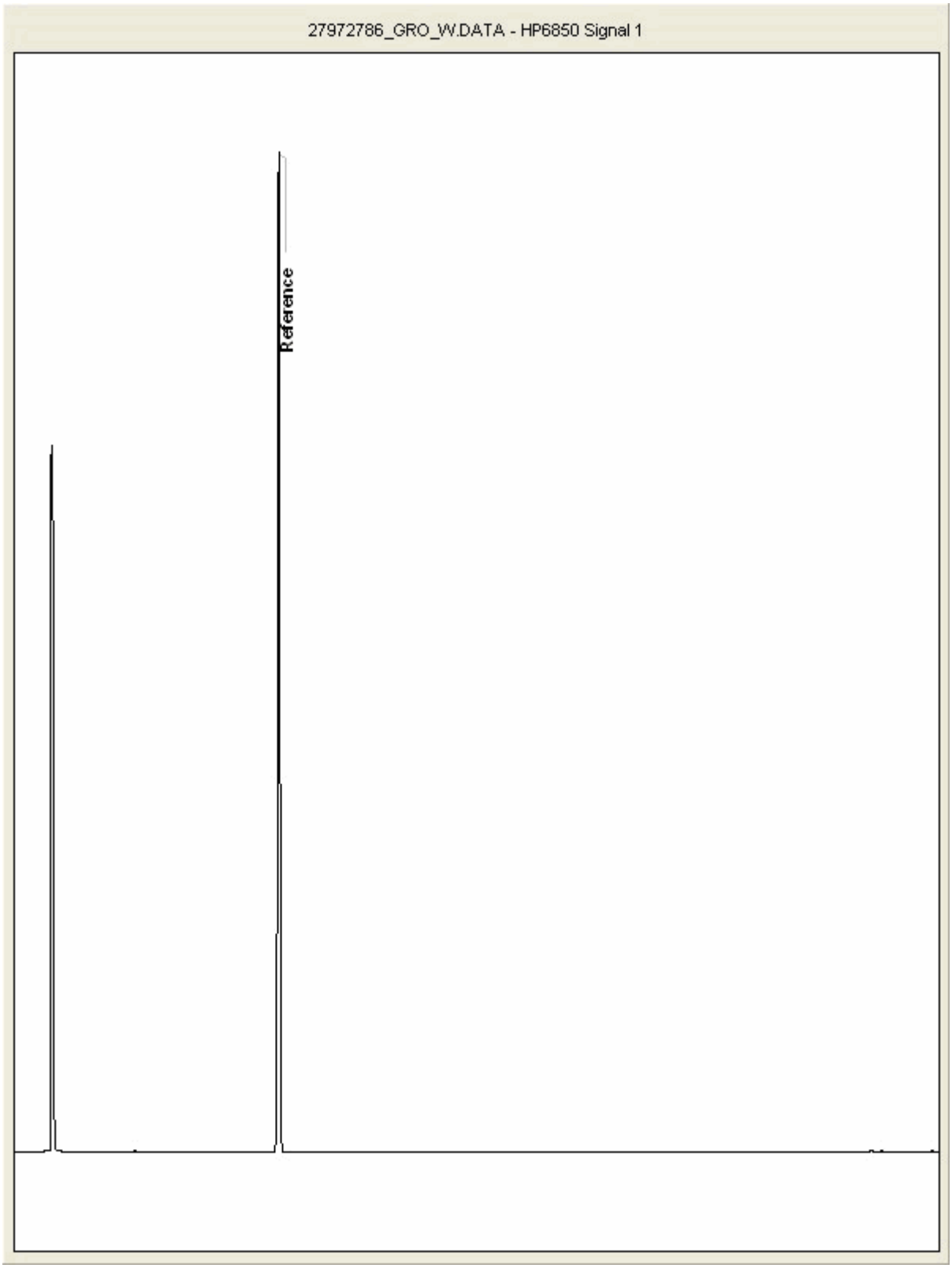


CERTIFICATE OF ANALYSIS

SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 27972786 **Depth :** 1.25 - 3.00
Sample ID : WS105

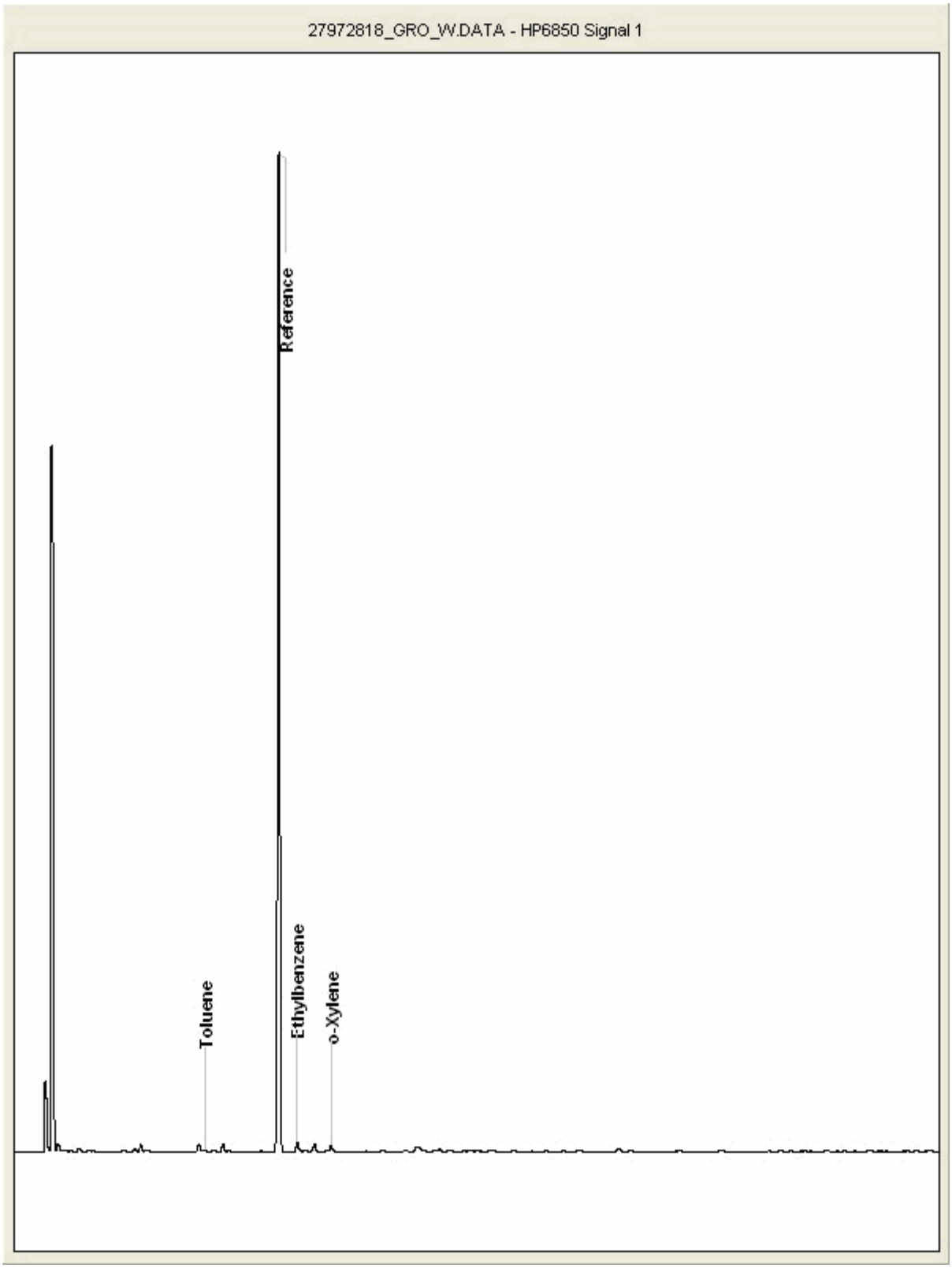


CERTIFICATE OF ANALYSIS

SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 27972818 **Depth :** 1.65 - 5.82
Sample ID : BH103

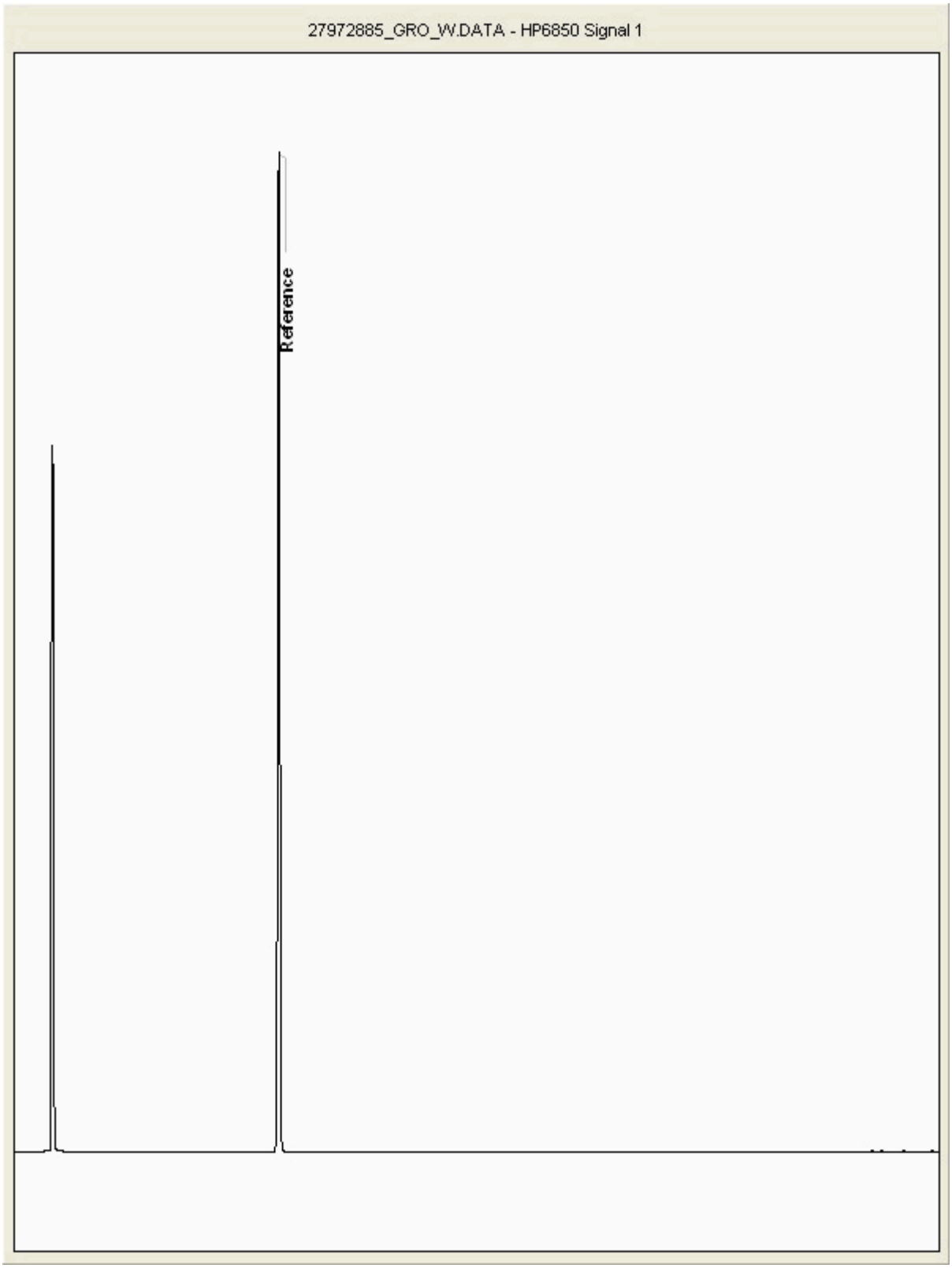


CERTIFICATE OF ANALYSIS

SDG: 230507-23 **Report Number:** 688953 **Superseded Report:**
Client Ref.: 10057335 **Location:** Steyning Grammar

Chromatogram

Analysis: GRO by GC-FID (W) **Sample No :** 27972885 **Depth :** 1.55 - 4.10
Sample ID : WS106



SDG:	230507-23	**Report Number:**	688953	**Superseded Report:**	
Client Ref:	10057335	**Location:**	Steyning Grammar		

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 15 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. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

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 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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.

19. **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**

20. **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 (2021), 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 and soils are obtained from supplied bulk materials andd soils 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 (2021).

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.

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.

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 I

LWD RESULTS

Light Weight Deflectometer Testing

Project	Start Depth (m bgl)	Position ID
Steyning Grammar School	**0.15**	**LWD WS104**
Job No.	Date	
10057335	**05-04-2023**	
Contractor	Co-ordinates	Sheet
Arcadis (UK) Ltd.	**517611.68, 111741.81**	1 of 1

Test	Reading (mm)
Test 1	5.157
Test 2	5.316
Test 3	5.296

S_m (mm)	5.256
S/V (300mm/10kg)	6.799
E_{vd} (MN/m^2)	4.28

Light Weight Deflectometer Testing

Project	Start Depth (m bgl)	Position ID
Steyning Grammar School	**0.15**	**LWD WS105**
Job No.	Date	
10057335	**05-04-2023**	
Contractor	Co-ordinates	Sheet
Arcadis (UK) Ltd.	**517441.64, 111745.91**	1 of 1

Test	Reading (mm)
Test 1	5.116
Test 2	5.257
Test 3	5.21

S_m (mm)	5.194
S/V (300mm/10kg)	6.673
E_{vd} (MN/m^2)	4.33

Light Weight Deflectometer Testing

Project	Start Depth (m bgl)	Position ID
Steyning Grammar School	**0.15**	**LWD WS106**
Job No.	Date	
10057335	**05-04-2023**	
Contractor	Co-ordinates	Sheet
Arcadis (UK) Ltd.	**517552.18, 111746.45**	1 of 1

Test	Reading (mm)
Test 1	4.909
Test 2	4.814
Test 3	4.93

S_m (mm)	4.884
S/V (300mm/10kg)	6.562
E_{vd} (MN/m^2)	4.61

Light Weight Deflectometer Testing

Project	Start Depth (m bgl)	Position ID
Steyning Grammar School	**0.15**	**LWD WS104**
Job No.	Date	
10057335	**05/04/2023**	
Contractor	Co-ordinates	Sheet
Arcadis (UK) Ltd.	**517611.68, 111741.81**	1 of 1

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Steyning Grammar School	**0.15**	**LWD WS105**
Job No.	Date	
10057335	**05/04/2023**	
Contractor	Co-ordinates	Sheet
Arcadis (UK) Ltd.	**517441.64, 111745.91**	1 of 1

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S_m (mm)	5.194
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Light Weight Deflectometer Testing

Project	Start Depth (m bgl)	Position ID
Steyning Grammar School	**0.15**	**LWD WS106**
Job No.	Date	
10057335	**05/04/2023**	
Contractor	Co-ordinates	Sheet
Arcadis (UK) Ltd.	**517552.18, 111746.45**	1 of 1

Test	Reading (mm)
Test 1	4.909
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S_m (mm)	4.884
S/V (300mm/10kg)	6.562
E_{vd} (MN/m^2)	4.61

Arcadis LLP

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Riverside
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LS1 4BN

T: +44 (0)113 284 5300

arcadis.com

APPENDIX D

Exploratory Hole Location Plan

(Drawing Ref: 10057335-AUK-XX-XX-DR-ZZ-0074-P1)

LEGEND

- BOREHOLE LOCATION
- WINDOW SAMPLE LOCATION
- SCHOOL SITE BOUNDARY

NOTES

SYMBOLS FOR BOREHOLES, TRIAL PITS AND OTHER SPECIFIC FEATURES ARE REPRESENTATIONS OF LOCATION ONLY AND UNLESS OTHERWISE SPECIFIED, DO NOT REPRESENT THE TRUE SIZE OF THE FEATURE.

N

0 5 10 20 30 40 50 Metres

TITLE:

EXPLORATORY HOLE LOCATION PLAN

SITE : **STEYNING GRAMMA SCHOOL**

CLIENT : **DEPARTMENT OF EDUCATION**

PROJECT :	**10057335**	**FIGURE 2**	
DATE :	24/04/23	DRAWN BY :	AP
DRG No. :	10057335-AUK-XX-XX-DR-ZZ-0074-P1		
SCALE :	**1:1,500**	PRINT :	**A3**

ARCADIS

APPENDIX E

Chemical Testing (EsDat Outputs)

https://arcadiso365.sharepoint.com/teams/project-10057335/ProjectDocuments/05 Project exe

			Site ID	
			Field ID	
			Location	
			Well	
			Sampled Date Time	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales
Analyte	**Units**	**MDL**		
Metals				
Antimony (Filtered)	µg/L	1		
Arsenic (Filtered)	µg/L	0.5	10	50
Barium (Filtered)	µg/L	0.2	700	700
Beryllium (Filtered)	µg/L	0.1		
Boron (Filtered)	µg/L	10	1000	2000
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4
Chromium (Filtered)	µg/L	1	50	3.4[#2]
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7
Copper (Filtered)	µg/L	0.3	2000	1
Iron (Filtered)	µg/L	19		
Lead	µg/L	0.2	10	1.2
Manganese (Filtered)	µg/L	3		
Molybdenum (Filtered)	µg/L	3	70	70
Nickel (Filtered)	µg/L	0.4	20	4
Selenium (Filtered)	µg/L	1	10	10
Vanadium (Filtered)	µg/L	1		
Zinc (Filtered)	µg/L	1	3000	12.1
Inorganics				
Calcium (Filtered)	mg/L	0.2		
Chloride (Filtered)	mg/L	2		
Cyanide (Free) (Filtered)	µg/L	50		
Cyanide Total (Filtered)	µg/L	50		
Fluoride (Filtered)	µg/L	500		
Magnesium (Filtered)	mg/L	0.036		
Nitrogen (Total)	µg/L	200		
Sulphate (Filtered)	mg/L	2		
Sulphide (Filtered)	µg/L	10		

			Site ID	
			Field ID	
			Location	
			Well	
			Sampled Date Time	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales
Analyte	**Units**	**MDL**		
PAH				
Naphthalene	µg/L	0.01	2	2
Acenaphthene	µg/L	0.005	-[#4]	-[#4]
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]
Fluoranthene	µg/L	0.005	-[#4]	-[#4]
Anthracene	µg/L	0.005	-[#4]	-[#4]
Phenanthrene	µg/L	0.005	-[#4]	-[#4]
Fluorene	µg/L	0.005	-[#4]	-[#4]
Chrysene	µg/L	0.005	-[#4]	-[#4]
Pyrene	µg/L	0.005	-[#4]	-[#4]
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]
PAH 16 Total	µg/L	0.082		
TPH CWG				
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]
Total Aliphatics >C12-C35	µg/L	10		
>EC5-EC7 Aromatics	µg/L	10	1	10

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
>EC7-EC8 Aromatics	µg/L	10	700	74	
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	
Total Aromatics >EC12-EC35	µg/L	10			
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			
BTEX and MTBE					
Benzene	µg/L	1	1	10	
Toluene	µg/L	1	700	74	
Ethylbenzene	µg/L	1	300	20	
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	
Xylene (o)	µg/L	1	250[#8]	15[#8]	
Xylene Total	µg/L	2	500	30	
MTBE	µg/L	1	15	15	
Total BTEX	µg/L	5			
Other					
pH (Lab)	pH Units	1			

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

ARCADIS

	Site ID	
	Field ID	
	Location	
	Well	
	Sampled Date Time	
Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	

Analyte	Units	MDL

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.□
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration□
#4:No water quality standard identified as suitable for deriving generic assessment criteria□
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH□
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data□
#7:na - Comprises multiple contaminants - no GAC derived□
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

https://arcadiso365.sharepoint.com/teams/project-10057335/ProjectDocuments/05 Project execution/Deliver

		Site ID	STEY
		Field ID	BH102
		Location	BH102
		Well	
		Sampled Date Time	04-05-2023

Analyte	**Units**	**MDL**	Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Metals					
Antimony (Filtered)	µg/L	1			<1
Arsenic (Filtered)	µg/L	0.5	10	50	<0.5
Barium (Filtered)	µg/L	0.2	700	700	83.3
Beryllium (Filtered)	µg/L	0.1			<0.1
Boron (Filtered)	µg/L	10	1000	2000	42.2
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	<30
Chromium (Filtered)	µg/L	1	50	3.4[#2]	20.9
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	<30
Copper (Filtered)	µg/L	0.3	2000	1	0.49
Iron (Filtered)	µg/L	19			<19
Lead	µg/L	0.2	10	1.2	3.55
Manganese (Filtered)	µg/L	3			30.7
Molybdenum (Filtered)	µg/L	3	70	70	<3
Nickel (Filtered)	µg/L	0.4	20	4	2.71
Selenium (Filtered)	µg/L	1	10	10	<1
Vanadium (Filtered)	µg/L	1			<1
Zinc (Filtered)	µg/L	1	3000	12.1	3.73
Inorganics					
Calcium (Filtered)	mg/L	0.2			124
Chloride (Filtered)	mg/L	2			33
Cyanide (Free) (Filtered)	µg/L	50			<50
Cyanide Total (Filtered)	µg/L	50			<50
Fluoride (Filtered)	µg/L	500			<500
Magnesium (Filtered)	mg/L	0.036			3.21
Nitrogen (Total)	µg/L	200			<200
Sulphate (Filtered)	mg/L	2			40.1
Sulphide (Filtered)	µg/L	10			<10

			Site ID	STEY
			Field ID	BH102
			Location	BH102
			Well	
			Sampled Date Time	04-05-2023

Analyte	Units	MDL	Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
PAH					
Naphthalene	µg/L	0.01	2	2	0.462
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluorene	µg/L	0.005	-[#4]	-[#4]	<0.005
Chrysene	µg/L	0.005	-[#4]	-[#4]	<0.005
Pyrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	<0.002
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	<0.005
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	<0.005
PAH 16 Total	µg/L	0.082			0.462
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	96
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aliphatics >C12-C35	µg/L	10			96
>EC5-EC7 Aromatics	µg/L	10	1	10	<10

			Site ID	STEY
			Field ID	BH102
			Location	BH102
			Well	
			Sampled Date Time	04-05-2023

Analyte	Units	MDL	Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
>EC7-EC8 Aromatics	µg/L	10	700	74	<10
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aromatics >EC12-EC35	µg/L	10			<10
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	96
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			<50
BTEX and MTBE					
Benzene	µg/L	1	1	10	<1
Toluene	µg/L	1	700	74	<1
Ethylbenzene	µg/L	1	300	20	<1
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	<1
Xylene (o)	µg/L	1	250[#8]	15[#8]	<1
Xylene Total	µg/L	2	500	30	<2
MTBE	µg/L	1	15	15	<1
Total BTEX	µg/L	5			<5
Other					
pH (Lab)	pH Units	1			7.91

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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	Site ID	STEY
	Field ID	BH102
	Location	BH102
	Well	
	Sampled Date Time	04-05-2023

Analyte	**Units**	**MDL**	Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.□
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining trivalent chrom
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration□
#4:No water quality standard identified as suitable for deriving generic assessment criteria□
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH□
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data□
#7:na - Comprises multiple contaminants - no GAC derived□
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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		Site ID	
		Field ID	BH103
		Location	BH103
		Well	
		Sampled Date Time	05-05-2023

Analyte	**Units**	**MDL**	Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Metals					
Antimony (Filtered)	µg/L	1			<1
Arsenic (Filtered)	µg/L	0.5	10	50	5.24
Barium (Filtered)	µg/L	0.2	700	700	84.8
Beryllium (Filtered)	µg/L	0.1			<0.1
Boron (Filtered)	µg/L	10	1000	2000	70
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	<30
Chromium (Filtered)	µg/L	1	50	3.4[#2]	7.05
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	<30
Copper (Filtered)	µg/L	0.3	2000	1	0.421
Iron (Filtered)	µg/L	19			3860
Lead	µg/L	0.2	10	1.2	1.99
Manganese (Filtered)	µg/L	3			2990
Molybdenum (Filtered)	µg/L	3	70	70	17.4
Nickel (Filtered)	µg/L	0.4	20	4	25.7
Selenium (Filtered)	µg/L	1	10	10	5.23
Vanadium (Filtered)	µg/L	1			1.71
Zinc (Filtered)	µg/L	1	3000	12.1	6.21
Inorganics					
Calcium (Filtered)	mg/L	0.2			257
Chloride (Filtered)	mg/L	2			145
Cyanide (Free) (Filtered)	µg/L	50			<50
Cyanide Total (Filtered)	µg/L	50			<50
Fluoride (Filtered)	µg/L	500			<500
Magnesium (Filtered)	mg/L	0.036			6.69
Nitrogen (Total)	µg/L	200			1220
Sulphate (Filtered)	mg/L	2			451
Sulphide (Filtered)	µg/L	10			32.4

			Site ID		
			Field ID	BH103	
			Location	BH103	
			Well		
			Sampled Date Time	05-05-2023	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
PAH					
Naphthalene	µg/L	0.01	2	2	0.236
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluorene	µg/L	0.005	-[#4]	-[#4]	<0.005
Chrysene	µg/L	0.005	-[#4]	-[#4]	<0.005
Pyrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	<0.002
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	<0.005
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	<0.005
PAH 16 Total	µg/L	0.082			0.236
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	20
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	128
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	85
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	52
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aliphatics >C12-C35	µg/L	10			<10
>EC5-EC7 Aromatics	µg/L	10	1	10	<10

ARCADIS

			Site ID		
			Field ID	BH103	
			Location	BH103	
			Well		
			Sampled Date Time	05-05-2023	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
>EC7-EC8 Aromatics	µg/L	10	700	74	<10
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	112
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	35
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	50
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aromatics >EC12-EC35	µg/L	10			50
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	485
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			435
BTEX and MTBE					
Benzene	µg/L	1	1	10	<1
Toluene	µg/L	1	700	74	3.77
Ethylbenzene	µg/L	1	300	20	<1
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	1.77
Xylene (o)	µg/L	1	250[#8]	15[#8]	<1
Xylene Total	µg/L	2	500	30	<2
MTBE	µg/L	1	15	15	<1
Total BTEX	µg/L	5			5.54
Other					
pH (Lab)	pH Units	1			7.35

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

ARCADIS

		Site ID
		Field ID BH103
		Location BH103
		Well
		Sampled Date Time 05-05-2023
	Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales
Analyte	**Units**	**MDL**

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining trium (CrIII).
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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				Site ID	
				Field ID	BH104
				Location	BH104
				Well	
				Sampled Date Time	04-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
Metals					
Antimony (Filtered)	µg/L	1			<1
Arsenic (Filtered)	µg/L	0.5	10	50	1.54
Barium (Filtered)	µg/L	0.2	700	700	216
Beryllium (Filtered)	µg/L	0.1			<0.1
Boron (Filtered)	µg/L	10	1000	2000	46.2
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	<30
Chromium (Filtered)	µg/L	1	50	3.4[#2]	<1
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	<30
Copper (Filtered)	µg/L	0.3	2000	1	<0.3
Iron (Filtered)	µg/L	19			822
Lead	µg/L	0.2	10	1.2	6.2
Manganese (Filtered)	µg/L	3			173
Molybdenum (Filtered)	µg/L	3	70	70	<3
Nickel (Filtered)	µg/L	0.4	20	4	2.4
Selenium (Filtered)	µg/L	1	10	10	<1
Vanadium (Filtered)	µg/L	1			<1
Zinc (Filtered)	µg/L	1	3000	12.1	8.47
Inorganics					
Calcium (Filtered)	mg/L	0.2			143
Chloride (Filtered)	mg/L	2			61
Cyanide (Free) (Filtered)	µg/L	50			<50
Cyanide Total (Filtered)	µg/L	50			<50
Fluoride (Filtered)	µg/L	500			<500
Magnesium (Filtered)	mg/L	0.036			6.58
Nitrogen (Total)	µg/L	200			<200
Sulphate (Filtered)	mg/L	2			56.8
Sulphide (Filtered)	µg/L	10			<10

				Site ID	
				Field ID	BH104
				Location	BH104
				Well	
				Sampled Date Time	04-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
PAH					
Naphthalene	µg/L	0.01	2	2	0.191
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	0.0307
Anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluorene	µg/L	0.005	-[#4]	-[#4]	<0.005
Chrysene	µg/L	0.005	-[#4]	-[#4]	<0.005
Pyrene	µg/L	0.005	-[#4]	-[#4]	0.0395
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	0.0184
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	0.0576
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	<0.002
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	<0.005
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	<0.005
PAH 16 Total	µg/L	0.082			0.337
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aliphatics >C12-C35	µg/L	10			<10
>EC5-EC7 Aromatics	µg/L	10	1	10	<10

ARCADIS

				Site ID	
				Field ID	BH104
				Location	BH104
				Well	
				Sampled Date Time	04-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
>EC7-EC8 Aromatics	µg/L	10	700	74	<10
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aromatics >EC12-EC35	µg/L	10			<10
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	<10
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			<50
BTEX and MTBE					
Benzene	µg/L	1	1	10	<1
Toluene	µg/L	1	700	74	<1
Ethylbenzene	µg/L	1	300	20	<1
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	<1
Xylene (o)	µg/L	1	250[#8]	15[#8]	<1
Xylene Total	µg/L	2	500	30	<2
MTBE	µg/L	1	15	15	<1
Total BTEX	µg/L	5			<5
Other					
pH (Lab)	pH Units	1			7.57

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

ARCADIS

Site ID	
Field ID	BH104
Location	BH104
Well	
Sampled Date Time	04-05-2023

Analyte	Units	MDL	Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

https://arcadiso365.sharepoint.com/teams/project-10057335/ProjectDocuments/05 Project exec\hool/Phase 2

				Site ID	
				Field ID	WS101
				Location	WS101
				Well	
				Sampled Date Time	04-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
Metals					
Antimony (Filtered)	µg/L	1			<1
Arsenic (Filtered)	µg/L	0.5	10	50	0.71
Barium (Filtered)	µg/L	0.2	700	700	56.1
Beryllium (Filtered)	µg/L	0.1			<0.1
Boron (Filtered)	µg/L	10	1000	2000	40.7
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	<30
Chromium (Filtered)	µg/L	1	50	3.4[#2]	20.9
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	<30
Copper (Filtered)	µg/L	0.3	2000	1	1.89
Iron (Filtered)	µg/L	19			<19
Lead	µg/L	0.2	10	1.2	<0.2
Manganese (Filtered)	µg/L	3			5.14
Molybdenum (Filtered)	µg/L	3	70	70	<3
Nickel (Filtered)	µg/L	0.4	20	4	2.77
Selenium (Filtered)	µg/L	1	10	10	3.56
Vanadium (Filtered)	µg/L	1			<1
Zinc (Filtered)	µg/L	1	3000	12.1	4.18
Inorganics					
Calcium (Filtered)	mg/L	0.2			127
Chloride (Filtered)	mg/L	2			19
Cyanide (Free) (Filtered)	µg/L	50			<50
Cyanide Total (Filtered)	µg/L	50			<50
Fluoride (Filtered)	µg/L	500			<500
Magnesium (Filtered)	mg/L	0.036			2.5
Nitrogen (Total)	µg/L	200			<200
Sulphate (Filtered)	mg/L	2			81.7
Sulphide (Filtered)	µg/L	10			<10

			Site ID		
			Field ID	WS101	
			Location	WS101	
			Well		
			Sampled Date Time	04-05-2023	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
PAH					
Naphthalene	µg/L	0.01	2	2	<0.01
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluorene	µg/L	0.005	-[#4]	-[#4]	<0.005
Chrysene	µg/L	0.005	-[#4]	-[#4]	<0.005
Pyrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	<0.002
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	<0.005
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	<0.005
PAH 16 Total	µg/L	0.082			<0.082
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aliphatics >C12-C35	µg/L	10			<10
>EC5-EC7 Aromatics	µg/L	10	1	10	<10

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			Site ID		
			Field ID		WS101
			Location		WS101
			Well		
			Sampled Date Time		04-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
>EC7-EC8 Aromatics	µg/L	10	700	74	<10
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aromatics >EC12-EC35	µg/L	10			<10
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	<10
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			<50
BTEX and MTBE					
Benzene	µg/L	1	1	10	<1
Toluene	µg/L	1	700	74	<1
Ethylbenzene	µg/L	1	300	20	<1
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	<1
Xylene (o)	µg/L	1	250[#8]	15[#8]	<1
Xylene Total	µg/L	2	500	30	<2
MTBE	µg/L	1	15	15	<1
Total BTEX	µg/L	5			<5
Other					
pH (Lab)	pH Units	1			7.73

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

ARCADIS

	Site ID	
	Field ID	WS101
	Location	WS101
	Well	
	Sampled Date Time	04-05-2023
Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	

Analyte	Units	MDL

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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				Site ID	
				Field ID	WS102
				Location	WS102
				Well	
				Sampled Date Time	04-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
Metals					
Antimony (Filtered)	µg/L	1			<1
Arsenic (Filtered)	µg/L	0.5	10	50	<0.5
Barium (Filtered)	µg/L	0.2	700	700	29
Beryllium (Filtered)	µg/L	0.1			<0.1
Boron (Filtered)	µg/L	10	1000	2000	17.3
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	<30
Chromium (Filtered)	µg/L	1	50	3.4[#2]	36
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	36
Copper (Filtered)	µg/L	0.3	2000	1	0.927
Iron (Filtered)	µg/L	19			<19
Lead	µg/L	0.2	10	1.2	0.328
Manganese (Filtered)	µg/L	3			6.54
Molybdenum (Filtered)	µg/L	3	70	70	<3
Nickel (Filtered)	µg/L	0.4	20	4	1.55
Selenium (Filtered)	µg/L	1	10	10	9.51
Vanadium (Filtered)	µg/L	1			<1
Zinc (Filtered)	µg/L	1	3000	12.1	3.25
Inorganics					
Calcium (Filtered)	mg/L	0.2			89.9
Chloride (Filtered)	mg/L	2			25.1
Cyanide (Free) (Filtered)	µg/L	50			<50
Cyanide Total (Filtered)	µg/L	50			<50
Fluoride (Filtered)	µg/L	500			<500
Magnesium (Filtered)	mg/L	0.036			1.88
Nitrogen (Total)	µg/L	200			<200
Sulphate (Filtered)	mg/L	2			113
Sulphide (Filtered)	µg/L	10			11.5

			Site ID		
			Field ID	WS102	
			Location	WS102	
			Well		
			Sampled Date Time	04-05-2023	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
PAH					
Naphthalene	µg/L	0.01	2	2	<0.01
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluorene	µg/L	0.005	-[#4]	-[#4]	<0.005
Chrysene	µg/L	0.005	-[#4]	-[#4]	<0.005
Pyrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	<0.002
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	<0.005
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	<0.005
PAH 16 Total	µg/L	0.082			<0.082
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aliphatics >C12-C35	µg/L	10			<10
>EC5-EC7 Aromatics	µg/L	10	1	10	<10

			Site ID		
			Field ID		WS102
			Location		WS102
			Well		
			Sampled Date Time		04-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
>EC7-EC8 Aromatics	µg/L	10	700	74	<10
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aromatics >EC12-EC35	µg/L	10			<10
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	<10
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			<50
BTEX and MTBE					
Benzene	µg/L	1	1	10	<1
Toluene	µg/L	1	700	74	<1
Ethylbenzene	µg/L	1	300	20	<1
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	<1
Xylene (o)	µg/L	1	250[#8]	15[#8]	<1
Xylene Total	µg/L	2	500	30	<2
MTBE	µg/L	1	15	15	<1
Total BTEX	µg/L	5			<5
Other					
pH (Lab)	pH Units	1			7.92

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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		Site ID
		Field ID WS102
		Location WS102
		Well
		Sampled Date Time 04-05-2023
	Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales

Analyte	Units	MDL		

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.□
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration□
#4:No water quality standard identified as suitable for deriving generic assessment criteria□
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH□
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data□
#7:na - Comprises multiple contaminants - no GAC derived□
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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		Site ID	
		Field ID	WS103
		Location	WS103
		Well	
		Sampled Date Time	04-05-2023

Analyte	**Units**	**MDL**	Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Metals					
Antimony (Filtered)	µg/L	1			<1
Arsenic (Filtered)	µg/L	0.5	10	50	0.671
Barium (Filtered)	µg/L	0.2	700	700	35.2
Beryllium (Filtered)	µg/L	0.1			<0.1
Boron (Filtered)	µg/L	10	1000	2000	29.6
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	<30
Chromium (Filtered)	µg/L	1	50	3.4[#2]	<1
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	<30
Copper (Filtered)	µg/L	0.3	2000	1	1.91
Iron (Filtered)	µg/L	19			<19
Lead	µg/L	0.2	10	1.2	50.7
Manganese (Filtered)	µg/L	3			5.46
Molybdenum (Filtered)	µg/L	3	70	70	<3
Nickel (Filtered)	µg/L	0.4	20	4	2.68
Selenium (Filtered)	µg/L	1	10	10	1.08
Vanadium (Filtered)	µg/L	1			<1
Zinc (Filtered)	µg/L	1	3000	12.1	26.6
Inorganics					
Calcium (Filtered)	mg/L	0.2			116
Chloride (Filtered)	mg/L	2			14.8
Cyanide (Free) (Filtered)	µg/L	50			<50
Cyanide Total (Filtered)	µg/L	50			<50
Fluoride (Filtered)	µg/L	500			<500
Magnesium (Filtered)	mg/L	0.036			2.2
Nitrogen (Total)	µg/L	200			<200
Sulphate (Filtered)	mg/L	2			44.6
Sulphide (Filtered)	µg/L	10			<10

			Site ID		
			Field ID	WS103	
			Location	WS103	
			Well		
			Sampled Date Time	04-05-2023	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
PAH					
Naphthalene	µg/L	0.01	2	2	<0.01
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluorene	µg/L	0.005	-[#4]	-[#4]	<0.005
Chrysene	µg/L	0.005	-[#4]	-[#4]	<0.005
Pyrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	<0.002
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	<0.005
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	<0.005
PAH 16 Total	µg/L	0.082			<0.082
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aliphatics >C12-C35	µg/L	10			<10
>EC5-EC7 Aromatics	µg/L	10	1	10	<10

ARCADIS

				Site ID	
				Field ID	WS103
				Location	WS103
				Well	
				Sampled Date Time	04-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
>EC7-EC8 Aromatics	µg/L	10	700	74	<10
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aromatics >EC12-EC35	µg/L	10			<10
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	<10
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			<50
BTEX and MTBE					
Benzene	µg/L	1	1	10	<1
Toluene	µg/L	1	700	74	<1
Ethylbenzene	µg/L	1	300	20	<1
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	<1
Xylene (o)	µg/L	1	250[#8]	15[#8]	<1
Xylene Total	µg/L	2	500	30	<2
MTBE	µg/L	1	15	15	<1
Total BTEX	µg/L	5			<5
Other					
pH (Lab)	pH Units	1			7.83

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

ARCADIS

	Site ID	
	Field ID	WS103
	Location	WS103
	Well	
	Sampled Date Time	04-05-2023

Analyte	Units	MDL	Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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				Site ID	
				Field ID	WS104A
				Location	WS104A
				Well	
				Sampled Date Time	04-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
Metals					
Antimony (Filtered)	µg/L	1			<1
Arsenic (Filtered)	µg/L	0.5	10	50	0.886
Barium (Filtered)	µg/L	0.2	700	700	36.4
Beryllium (Filtered)	µg/L	0.1			<0.1
Boron (Filtered)	µg/L	10	1000	2000	27.6
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	<30
Chromium (Filtered)	µg/L	1	50	3.4[#2]	12.5
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	<30
Copper (Filtered)	µg/L	0.3	2000	1	1.64
Iron (Filtered)	µg/L	19			<19
Lead	µg/L	0.2	10	1.2	0.514
Manganese (Filtered)	µg/L	3			21.7
Molybdenum (Filtered)	µg/L	3	70	70	<3
Nickel (Filtered)	µg/L	0.4	20	4	3.69
Selenium (Filtered)	µg/L	1	10	10	<1
Vanadium (Filtered)	µg/L	1			<1
Zinc (Filtered)	µg/L	1	3000	12.1	5.85
Inorganics					
Calcium (Filtered)	mg/L	0.2			149
Chloride (Filtered)	mg/L	2			10.3
Cyanide (Free) (Filtered)	µg/L	50			<50
Cyanide Total (Filtered)	µg/L	50			<50
Fluoride (Filtered)	µg/L	500			<500
Magnesium (Filtered)	mg/L	0.036			3.48
Nitrogen (Total)	µg/L	200			<200
Sulphate (Filtered)	mg/L	2			37.9
Sulphide (Filtered)	µg/L	10			<10

			Site ID		
			Field ID	WS104A	
			Location	WS104A	
			Well		
			Sampled Date Time	04-05-2023	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
PAH					
Naphthalene	µg/L	0.01	2	2	<0.01
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluorene	µg/L	0.005	-[#4]	-[#4]	<0.005
Chrysene	µg/L	0.005	-[#4]	-[#4]	<0.005
Pyrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	<0.002
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	<0.005
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	<0.005
PAH 16 Total	µg/L	0.082			<0.082
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aliphatics >C12-C35	µg/L	10			<10
>EC5-EC7 Aromatics	µg/L	10	1	10	<10

ARCADIS

				Site ID	
				Field ID	WS104A
				Location	WS104A
				Well	
				Sampled Date Time	04-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
>EC7-EC8 Aromatics	µg/L	10	700	74	<10
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aromatics >EC12-EC35	µg/L	10			<10
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	<10
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			<50
BTEX and MTBE					
Benzene	µg/L	1	1	10	<1
Toluene	µg/L	1	700	74	<1
Ethylbenzene	µg/L	1	300	20	<1
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	<1
Xylene (o)	µg/L	1	250[#8]	15[#8]	<1
Xylene Total	µg/L	2	500	30	<2
MTBE	µg/L	1	15	15	<1
Total BTEX	µg/L	5			<5
Other					
pH (Lab)	pH Units	1			7.64

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

ARCADIS

Site ID	
Field ID	WS104A
Location	WS104A
Well	
Sampled Date Time	04-05-2023

Analyte	Units	MDL	Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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				Site ID	
				Field ID	WS105
				Location	WS105
				Well	
				Sampled Date Time	05-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
Metals					
Antimony (Filtered)	µg/L	1			<1
Arsenic (Filtered)	µg/L	0.5	10	50	0.797
Barium (Filtered)	µg/L	0.2	700	700	29.6
Beryllium (Filtered)	µg/L	0.1			<0.1
Boron (Filtered)	µg/L	10	1000	2000	18
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	<30
Chromium (Filtered)	µg/L	1	50	3.4[#2]	<1
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	<30
Copper (Filtered)	µg/L	0.3	2000	1	1.62
Iron (Filtered)	µg/L	19			<19
Lead	µg/L	0.2	10	1.2	<0.2
Manganese (Filtered)	µg/L	3			3.92
Molybdenum (Filtered)	µg/L	3	70	70	<3
Nickel (Filtered)	µg/L	0.4	20	4	2.57
Selenium (Filtered)	µg/L	1	10	10	13.9
Vanadium (Filtered)	µg/L	1			1.71
Zinc (Filtered)	µg/L	1	3000	12.1	4.61
Inorganics					
Calcium (Filtered)	mg/L	0.2			125
Chloride (Filtered)	mg/L	2			29.5
Cyanide (Free) (Filtered)	µg/L	50			<50
Cyanide Total (Filtered)	µg/L	50			<50
Fluoride (Filtered)	µg/L	500			<500
Magnesium (Filtered)	mg/L	0.036			3.97
Nitrogen (Total)	µg/L	200			<200
Sulphate (Filtered)	mg/L	2			207
Sulphide (Filtered)	µg/L	10			<10

ARCADIS

			Site ID		
			Field ID	WS105	
			Location	WS105	
			Well		
			Sampled Date Time	05-05-2023	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
PAH					
Naphthalene	µg/L	0.01	2	2	<0.05
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	<0.025
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	<0.025
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	0.12
Anthracene	µg/L	0.005	-[#4]	-[#4]	<0.025
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	<0.025
Fluorene	µg/L	0.005	-[#4]	-[#4]	<0.025
Chrysene	µg/L	0.005	-[#4]	-[#4]	0.138
Pyrene	µg/L	0.005	-[#4]	-[#4]	0.179
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	0.0961
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.025
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.025
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	0.391
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	0.42
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	<0.025
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	0.875
PAH 16 Total	µg/L	0.082			2.22
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<50
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<50
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<50
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<50
Total Aliphatics >C12-C35	µg/L	10			<50
>EC5-EC7 Aromatics	µg/L	10	1	10	<10

				Site ID	
				Field ID	WS105
				Location	WS105
				Well	
				Sampled Date Time	05-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
>EC7-EC8 Aromatics	µg/L	10	700	74	<10
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<50
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<50
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<50
Total Aromatics >EC12-EC35	µg/L	10			<50
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	<10
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			<50
BTEX and MTBE					
Benzene	µg/L	1	1	10	<1
Toluene	µg/L	1	700	74	<1
Ethylbenzene	µg/L	1	300	20	<1
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	<1
Xylene (o)	µg/L	1	250[#8]	15[#8]	<1
Xylene Total	µg/L	2	500	30	<2
MTBE	µg/L	1	15	15	<1
Total BTEX	µg/L	5			<5
Other					
pH (Lab)	pH Units	1			7.49

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

	Site ID	
	Field ID	WS105
	Location	WS105
	Well	
	Sampled Date Time	05-05-2023

		Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales
Analyte	**Units**	**MDL**	

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

https://arcadiso365.sharepoint.com/teams/project-10057335/ProjectDocuments/05 Project exec/[Chemistry

				Site ID	
				Field ID	WS106
				Location	WS106
				Well	
				Sampled Date Time	05-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
Metals					
Antimony (Filtered)	µg/L	1			<1
Arsenic (Filtered)	µg/L	0.5	10	50	0.629
Barium (Filtered)	µg/L	0.2	700	700	41.4
Beryllium (Filtered)	µg/L	0.1			<0.1
Boron (Filtered)	µg/L	10	1000	2000	38.4
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	<30
Chromium (Filtered)	µg/L	1	50	3.4[#2]	20
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	<30
Copper (Filtered)	µg/L	0.3	2000	1	1.55
Iron (Filtered)	µg/L	19			<19
Lead	µg/L	0.2	10	1.2	0.816
Manganese (Filtered)	µg/L	3			6.36
Molybdenum (Filtered)	µg/L	3	70	70	<3
Nickel (Filtered)	µg/L	0.4	20	4	2.33
Selenium (Filtered)	µg/L	1	10	10	1.43
Vanadium (Filtered)	µg/L	1			<1
Zinc (Filtered)	µg/L	1	3000	12.1	7.68
Inorganics					
Calcium (Filtered)	mg/L	0.2			144
Chloride (Filtered)	mg/L	2			16.4
Cyanide (Free) (Filtered)	µg/L	50			<50
Cyanide Total (Filtered)	µg/L	50			<50
Fluoride (Filtered)	µg/L	500			<500
Magnesium (Filtered)	mg/L	0.036			2.66
Nitrogen (Total)	µg/L	200			<200
Sulphate (Filtered)	mg/L	2			35.4
Sulphide (Filtered)	µg/L	10			<10

			Site ID		
			Field ID	WS106	
			Location	WS106	
			Well		
			Sampled Date Time	05-05-2023	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
PAH					
Naphthalene	µg/L	0.01	2	2	<0.01
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluorene	µg/L	0.005	-[#4]	-[#4]	<0.005
Chrysene	µg/L	0.005	-[#4]	-[#4]	<0.005
Pyrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	<0.002
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	<0.005
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	<0.005
PAH 16 Total	µg/L	0.082			<0.082
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aliphatics >C12-C35	µg/L	10			<10
>EC5-EC7 Aromatics	µg/L	10	1	10	<10

				Site ID	
				Field ID	WS106
				Location	WS106
				Well	
				Sampled Date Time	05-05-2023
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			
>EC7-EC8 Aromatics	µg/L	10	700	74	<10
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aromatics >EC12-EC35	µg/L	10			<10
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	<10
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			<50
BTEX and MTBE					
Benzene	µg/L	1	1	10	<1
Toluene	µg/L	1	700	74	<1
Ethylbenzene	µg/L	1	300	20	<1
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	<1
Xylene (o)	µg/L	1	250[#8]	15[#8]	<1
Xylene Total	µg/L	2	500	30	<2
MTBE	µg/L	1	15	15	<1
Total BTEX	µg/L	5			<5
Other					
pH (Lab)	pH Units	1			7.64

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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		Site ID
		Field ID WS106
		Location WS106
		Well
		Sampled Date Time 05-05-2023
	Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales

Analyte	Units	MDL

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.□
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration□
#4:No water quality standard identified as suitable for deriving generic assessment criteria□
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH□
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data□
#7:na - Comprises multiple contaminants - no GAC derived□
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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				Site ID	
				Field ID	
				Location	
				Well	
				Sampled Date Time	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	Statistical Sum
Analyte	**Units**	**MDL**			Number of
Metals					
Antimony (Filtered)	µg/L	1			9
Arsenic (Filtered)	µg/L	0.5	10	50	9
Barium (Filtered)	µg/L	0.2	700	700	9
Beryllium (Filtered)	µg/L	0.1			9
Boron (Filtered)	µg/L	10	1000	2000	9
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	9
Chromium (Filtered)	µg/L	1	50	3.4[#2]	9
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	9
Copper (Filtered)	µg/L	0.3	2000	1	9
Iron (Filtered)	µg/L	19			9
Lead	µg/L	0.2	10	1.2	9
Manganese (Filtered)	µg/L	3			9
Molybdenum (Filtered)	µg/L	3	70	70	9
Nickel (Filtered)	µg/L	0.4	20	4	9
Selenium (Filtered)	µg/L	1	10	10	9
Vanadium (Filtered)	µg/L	1			9
Zinc (Filtered)	µg/L	1	3000	12.1	9
Inorganics					
Calcium (Filtered)	mg/L	0.2			9
Chloride (Filtered)	mg/L	2			9
Cyanide (Free) (Filtered)	µg/L	50			9
Cyanide Total (Filtered)	µg/L	50			9
Fluoride (Filtered)	µg/L	500			9
Magnesium (Filtered)	mg/L	0.036			9
Nitrogen (Total)	µg/L	200			9
Sulphate (Filtered)	mg/L	2			9
Sulphide (Filtered)	µg/L	10			9

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	Statistical Sum
Analyte	**Units**	**MDL**			Number of
PAH					
Naphthalene	µg/L	0.01	2	2	9
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	9
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	9
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	9
Anthracene	µg/L	0.005	-[#4]	-[#4]	9
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	9
Fluorene	µg/L	0.005	-[#4]	-[#4]	9
Chrysene	µg/L	0.005	-[#4]	-[#4]	9
Pyrene	µg/L	0.005	-[#4]	-[#4]	9
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	9
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	9
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	9
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	9
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	9
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	9
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	9
PAH 16 Total	µg/L	0.082			9
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
Total Aliphatics >C12-C35	µg/L	10			9
>EC5-EC7 Aromatics	µg/L	10	1	10	9

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	Statistical Sum
Analyte	**Units**	**MDL**			Number of
>EC7-EC8 Aromatics	µg/L	10	700	74	9
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
Total Aromatics >EC12-EC35	µg/L	10			9
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	9
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			9
BTEX and MTBE					
Benzene	µg/L	1	1	10	9
Toluene	µg/L	1	700	74	9
Ethylbenzene	µg/L	1	300	20	9
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	9
Xylene (o)	µg/L	1	250[#8]	15[#8]	9
Xylene Total	µg/L	2	500	30	9
MTBE	µg/L	1	15	15	9
Total BTEX	µg/L	5			9
Other					
pH (Lab)	pH Units	1			9

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	Statistical Sum
Analyte	Units	MDL			Number of

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining t
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

https://arcadiso365.sharepoint.com/teams/project-10057335/ProjectDocuments/05 Project exe/Chemistr

				Site ID	
				Field ID	
				Location	
				Well	
				Sampled Date Time	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Number
Metals					
Antimony (Filtered)	µg/L	1			0
Arsenic (Filtered)	µg/L	0.5	10	50	7
Barium (Filtered)	µg/L	0.2	700	700	9
Beryllium (Filtered)	µg/L	0.1			0
Boron (Filtered)	µg/L	10	1000	2000	9
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	0
Chromium (Filtered)	µg/L	1	50	3.4[#2]	6
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	1
Copper (Filtered)	µg/L	0.3	2000	1	8
Iron (Filtered)	µg/L	19			2
Lead	µg/L	0.2	10	1.2	7
Manganese (Filtered)	µg/L	3			9
Molybdenum (Filtered)	µg/L	3	70	70	1
Nickel (Filtered)	µg/L	0.4	20	4	9
Selenium (Filtered)	µg/L	1	10	10	6
Vanadium (Filtered)	µg/L	1			2
Zinc (Filtered)	µg/L	1	3000	12.1	9
Inorganics					
Calcium (Filtered)	mg/L	0.2			9
Chloride (Filtered)	mg/L	2			9
Cyanide (Free) (Filtered)	µg/L	50			0
Cyanide Total (Filtered)	µg/L	50			0
Fluoride (Filtered)	µg/L	500			0
Magnesium (Filtered)	mg/L	0.036			9
Nitrogen (Total)	µg/L	200			1
Sulphate (Filtered)	mg/L	2			9
Sulphide (Filtered)	µg/L	10			2

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Number
PAH					
Naphthalene	µg/L	0.01	2	2	3
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	0
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	0
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	2
Anthracene	µg/L	0.005	-[#4]	-[#4]	0
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	0
Fluorene	µg/L	0.005	-[#4]	-[#4]	0
Chrysene	µg/L	0.005	-[#4]	-[#4]	1
Pyrene	µg/L	0.005	-[#4]	-[#4]	2
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	2
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	1
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	0
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	1
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	1
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	0
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	1
PAH 16 Total	µg/L	0.082			4
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	1
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	1
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	1
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	1
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	1
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	0
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	0
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	0
Total Aliphatics >C12-C35	µg/L	10			1
>EC5-EC7 Aromatics	µg/L	10	1	10	0

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Number
>EC7-EC8 Aromatics	µg/L	10	700	74	0
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	1
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	1
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	1
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	0
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	0
Total Aromatics >EC12-EC35	µg/L	10			1
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	2
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			1
BTEX and MTBE					
Benzene	µg/L	1	1	10	0
Toluene	µg/L	1	700	74	1
Ethylbenzene	µg/L	1	300	20	0
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	1
Xylene (o)	µg/L	1	250[#8]	15[#8]	0
Xylene Total	µg/L	2	500	30	0
MTBE	µg/L	1	15	15	0
Total BTEX	µg/L	5			1
Other					
pH (Lab)	pH Units	1			9

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site ID	
			Field ID	
			Location	
			Well	
			Sampled Date Time	
		Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**		Number

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

https://arcadiso365.sharepoint.com/teams/project-10057335/ProjectDocuments/05 Project exely Output Table

				Site ID	
				Field ID	
				Location	
				Well	
				Sampled Date Time	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Minimum
Metals					
Antimony (Filtered)	µg/L	1			<1
Arsenic (Filtered)	µg/L	0.5	10	50	<0.5
Barium (Filtered)	µg/L	0.2	700	700	29
Beryllium (Filtered)	µg/L	0.1			<0.1
Boron (Filtered)	µg/L	10	1000	2000	17.3
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	<30
Chromium (Filtered)	µg/L	1	50	3.4[#2]	<1
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	<30
Copper (Filtered)	µg/L	0.3	2000	1	<0.3
Iron (Filtered)	µg/L	19			<19
Lead	µg/L	0.2	10	1.2	<0.2
Manganese (Filtered)	µg/L	3			3.92
Molybdenum (Filtered)	µg/L	3	70	70	<3
Nickel (Filtered)	µg/L	0.4	20	4	1.55
Selenium (Filtered)	µg/L	1	10	10	<1
Vanadium (Filtered)	µg/L	1			<1
Zinc (Filtered)	µg/L	1	3000	12.1	3.25
Inorganics					
Calcium (Filtered)	mg/L	0.2			89.9
Chloride (Filtered)	mg/L	2			10.3
Cyanide (Free) (Filtered)	µg/L	50			<50
Cyanide Total (Filtered)	µg/L	50			<50
Fluoride (Filtered)	µg/L	500			<500
Magnesium (Filtered)	mg/L	0.036			1.88
Nitrogen (Total)	µg/L	200			<200
Sulphate (Filtered)	mg/L	2			35.4
Sulphide (Filtered)	µg/L	10			<10

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Minimum
PAH					
Naphthalene	µg/L	0.01	2	2	<0.01
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	<0.005
Anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Fluorene	µg/L	0.005	-[#4]	-[#4]	<0.005
Chrysene	µg/L	0.005	-[#4]	-[#4]	<0.005
Pyrene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.005
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	<0.002
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	<0.005
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	<0.005
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	<0.005
PAH 16 Total	µg/L	0.082			<0.082
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aliphatics >C12-C35	µg/L	10			<10
>EC5-EC7 Aromatics	µg/L	10	1	10	<10

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Minimum
>EC7-EC8 Aromatics	µg/L	10	700	74	<10
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<10
Total Aromatics >EC12-EC35	µg/L	10			<10
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	<10
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			<50
BTEX and MTBE					
Benzene	µg/L	1	1	10	<1
Toluene	µg/L	1	700	74	<1
Ethylbenzene	µg/L	1	300	20	<1
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	<1
Xylene (o)	µg/L	1	250[#8]	15[#8]	<1
Xylene Total	µg/L	2	500	30	<2
MTBE	µg/L	1	15	15	<1
Total BTEX	µg/L	5			<5
Other					
pH (Lab)	pH Units	1			7.35

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Minimum

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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				Site ID	
				Field ID	
				Location	
				Well	
				Sampled Date Time	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Minimum
Metals					
Antimony (Filtered)	µg/L	1			ND
Arsenic (Filtered)	µg/L	0.5	10	50	0.629
Barium (Filtered)	µg/L	0.2	700	700	29
Beryllium (Filtered)	µg/L	0.1			ND
Boron (Filtered)	µg/L	10	1000	2000	17.3
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	ND
Chromium (Filtered)	µg/L	1	50	3.4[#2]	7.05
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	36
Copper (Filtered)	µg/L	0.3	2000	1	0.421
Iron (Filtered)	µg/L	19			822
Lead	µg/L	0.2	10	1.2	0.328
Manganese (Filtered)	µg/L	3			3.92
Molybdenum (Filtered)	µg/L	3	70	70	17.4
Nickel (Filtered)	µg/L	0.4	20	4	1.55
Selenium (Filtered)	µg/L	1	10	10	1.08
Vanadium (Filtered)	µg/L	1			1.71
Zinc (Filtered)	µg/L	1	3000	12.1	3.25
Inorganics					
Calcium (Filtered)	mg/L	0.2			89.9
Chloride (Filtered)	mg/L	2			10.3
Cyanide (Free) (Filtered)	µg/L	50			ND
Cyanide Total (Filtered)	µg/L	50			ND
Fluoride (Filtered)	µg/L	500			ND
Magnesium (Filtered)	mg/L	0.036			1.88
Nitrogen (Total)	µg/L	200			1220
Sulphate (Filtered)	mg/L	2			35.4
Sulphide (Filtered)	µg/L	10			11.5

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Minimum
PAH					
Naphthalene	µg/L	0.01	2	2	0.191
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	ND
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	ND
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	0.0307
Anthracene	µg/L	0.005	-[#4]	-[#4]	ND
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	ND
Fluorene	µg/L	0.005	-[#4]	-[#4]	ND
Chrysene	µg/L	0.005	-[#4]	-[#4]	0.138
Pyrene	µg/L	0.005	-[#4]	-[#4]	0.0395
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	0.0184
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	0.0576
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	ND
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	0.391
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	0.42
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	ND
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	0.875
PAH 16 Total	µg/L	0.082			0.236
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	20
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	128
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	85
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	52
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	96
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	ND
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	ND
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	ND
Total Aliphatics >C12-C35	µg/L	10			96
>EC5-EC7 Aromatics	µg/L	10	1	10	ND

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Minimum
>EC7-EC8 Aromatics	µg/L	10	700	74	ND
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	112
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	35
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	50
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	ND
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	ND
Total Aromatics >EC12-EC35	µg/L	10			50
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	96
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			435
BTEX and MTBE					
Benzene	µg/L	1	1	10	ND
Toluene	µg/L	1	700	74	3.77
Ethylbenzene	µg/L	1	300	20	ND
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	1.77
Xylene (o)	µg/L	1	250[#8]	15[#8]	ND
Xylene Total	µg/L	2	500	30	ND
MTBE	µg/L	1	15	15	ND
Total BTEX	µg/L	5			5.54
Other					
pH (Lab)	pH Units	1			7.35

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Minimum

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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				Site ID	
				Field ID	
				Location	
				Well	
				Sampled Date Time	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Maximum
Metals					
Antimony (Filtered)	µg/L	1			<1
Arsenic (Filtered)	µg/L	0.5	10	50	5.24
Barium (Filtered)	µg/L	0.2	700	700	216
Beryllium (Filtered)	µg/L	0.1			<0.1
Boron (Filtered)	µg/L	10	1000	2000	70
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	<30
Chromium (Filtered)	µg/L	1	50	3.4[#2]	36
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	36
Copper (Filtered)	µg/L	0.3	2000	1	1.91
Iron (Filtered)	µg/L	19			3860
Lead	µg/L	0.2	10	1.2	50.7
Manganese (Filtered)	µg/L	3			2990
Molybdenum (Filtered)	µg/L	3	70	70	17.4
Nickel (Filtered)	µg/L	0.4	20	4	25.7
Selenium (Filtered)	µg/L	1	10	10	13.9
Vanadium (Filtered)	µg/L	1			1.71
Zinc (Filtered)	µg/L	1	3000	12.1	26.6
Inorganics					
Calcium (Filtered)	mg/L	0.2			257
Chloride (Filtered)	mg/L	2			145
Cyanide (Free) (Filtered)	µg/L	50			<50
Cyanide Total (Filtered)	µg/L	50			<50
Fluoride (Filtered)	µg/L	500			<500
Magnesium (Filtered)	mg/L	0.036			6.69
Nitrogen (Total)	µg/L	200			1220
Sulphate (Filtered)	mg/L	2			451
Sulphide (Filtered)	µg/L	10			32.4

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Maximum
PAH					
Naphthalene	µg/L	0.01	2	2	0.462
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	<0.025
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	<0.025
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	0.12
Anthracene	µg/L	0.005	-[#4]	-[#4]	<0.025
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	<0.025
Fluorene	µg/L	0.005	-[#4]	-[#4]	<0.025
Chrysene	µg/L	0.005	-[#4]	-[#4]	0.138
Pyrene	µg/L	0.005	-[#4]	-[#4]	0.179
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	0.0961
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	0.0576
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	<0.025
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	0.391
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	0.42
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	<0.025
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	0.875
PAH 16 Total	µg/L	0.082			2.22
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	20
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	128
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	85
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	52
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	96
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<50
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<50
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	<50
Total Aliphatics >C12-C35	µg/L	10			96
>EC5-EC7 Aromatics	µg/L	10	1	10	<10

ARCADIS

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Maximum
>EC7-EC8 Aromatics	µg/L	10	700	74	<10
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	112
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	35
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	50
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<50
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	<50
Total Aromatics >EC12-EC35	µg/L	10			50
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	485
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			435
BTEX and MTBE					
Benzene	µg/L	1	1	10	<1
Toluene	µg/L	1	700	74	3.77
Ethylbenzene	µg/L	1	300	20	<1
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	1.77
Xylene (o)	µg/L	1	250[#8]	15[#8]	<1
Xylene Total	µg/L	2	500	30	<2
MTBE	µg/L	1	15	15	<1
Total BTEX	µg/L	5			5.54
Other					
pH (Lab)	pH Units	1			7.92

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Maximum

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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				Site ID	
				Field ID	
				Location	
				Well	
				Sampled Date Time	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Maximum
Metals					
Antimony (Filtered)	µg/L	1			ND
Arsenic (Filtered)	µg/L	0.5	10	50	5.24
Barium (Filtered)	µg/L	0.2	700	700	216
Beryllium (Filtered)	µg/L	0.1			ND
Boron (Filtered)	µg/L	10	1000	2000	70
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	ND
Chromium (Filtered)	µg/L	1	50	3.4[#2]	36
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	36
Copper (Filtered)	µg/L	0.3	2000	1	1.91
Iron (Filtered)	µg/L	19			3860
Lead	µg/L	0.2	10	1.2	50.7
Manganese (Filtered)	µg/L	3			2990
Molybdenum (Filtered)	µg/L	3	70	70	17.4
Nickel (Filtered)	µg/L	0.4	20	4	25.7
Selenium (Filtered)	µg/L	1	10	10	13.9
Vanadium (Filtered)	µg/L	1			1.71
Zinc (Filtered)	µg/L	1	3000	12.1	26.6
Inorganics					
Calcium (Filtered)	mg/L	0.2			257
Chloride (Filtered)	mg/L	2			145
Cyanide (Free) (Filtered)	µg/L	50			ND
Cyanide Total (Filtered)	µg/L	50			ND
Fluoride (Filtered)	µg/L	500			ND
Magnesium (Filtered)	mg/L	0.036			6.69
Nitrogen (Total)	µg/L	200			1220
Sulphate (Filtered)	mg/L	2			451
Sulphide (Filtered)	µg/L	10			32.4

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Maximum
PAH					
Naphthalene	µg/L	0.01	2	2	0.462
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	ND
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	ND
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	0.12
Anthracene	µg/L	0.005	-[#4]	-[#4]	ND
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	ND
Fluorene	µg/L	0.005	-[#4]	-[#4]	ND
Chrysene	µg/L	0.005	-[#4]	-[#4]	0.138
Pyrene	µg/L	0.005	-[#4]	-[#4]	0.179
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	0.0961
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	0.0576
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	ND
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	0.391
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	0.42
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	ND
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	0.875
PAH 16 Total	µg/L	0.082			2.22
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	20
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	128
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	85
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	52
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	96
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	ND
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	ND
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	ND
Total Aliphatics >C12-C35	µg/L	10			96
>EC5-EC7 Aromatics	µg/L	10	1	10	ND

ARCADIS

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Maximum
>EC7-EC8 Aromatics	µg/L	10	700	74	ND
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	112
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	35
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	50
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	ND
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	ND
Total Aromatics >EC12-EC35	µg/L	10			50
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	485
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			435
BTEX and MTBE					
Benzene	µg/L	1	1	10	ND
Toluene	µg/L	1	700	74	3.77
Ethylbenzene	µg/L	1	300	20	ND
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	1.77
Xylene (o)	µg/L	1	250[#8]	15[#8]	ND
Xylene Total	µg/L	2	500	30	ND
MTBE	µg/L	1	15	15	ND
Total BTEX	µg/L	5			5.54
Other					
pH (Lab)	pH Units	1			7.92

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Maximum

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Average
Metals					
Antimony (Filtered)	µg/L	1			0.5
Arsenic (Filtered)	µg/L	0.5	10	50	1.2
Barium (Filtered)	µg/L	0.2	700	700	68
Beryllium (Filtered)	µg/L	0.1			0.05
Boron (Filtered)	µg/L	10	1000	2000	37
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	15
Chromium (Filtered)	µg/L	1	50	3.4[#2]	13
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	17
Copper (Filtered)	µg/L	0.3	2000	1	1.2
Iron (Filtered)	µg/L	19			528
Lead	µg/L	0.2	10	1.2	7.1
Manganese (Filtered)	µg/L	3			360
Molybdenum (Filtered)	µg/L	3	70	70	3.3
Nickel (Filtered)	µg/L	0.4	20	4	5.2
Selenium (Filtered)	µg/L	1	10	10	4
Vanadium (Filtered)	µg/L	1			0.77
Zinc (Filtered)	µg/L	1	3000	12.1	7.8
Inorganics					
Calcium (Filtered)	mg/L	0.2			142
Chloride (Filtered)	mg/L	2			39
Cyanide (Free) (Filtered)	µg/L	50			25
Cyanide Total (Filtered)	µg/L	50			25
Fluoride (Filtered)	µg/L	500			250
Magnesium (Filtered)	mg/L	0.036			3.7
Nitrogen (Total)	µg/L	200			224
Sulphate (Filtered)	mg/L	2			119
Sulphide (Filtered)	µg/L	10			8.8

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Average
PAH					
Naphthalene	µg/L	0.01	2	2	0.1
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	0.0036
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	0.0036
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	0.019
Anthracene	µg/L	0.005	-[#4]	-[#4]	0.0036
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	0.0036
Fluorene	µg/L	0.005	-[#4]	-[#4]	0.0036
Chrysene	µg/L	0.005	-[#4]	-[#4]	0.018
Pyrene	µg/L	0.005	-[#4]	-[#4]	0.026
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	0.015
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	0.0097
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	0.0036
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	0.044
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	0.049
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	0.0036
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	0.099
PAH 16 Total	µg/L	0.082			0.38
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	6.7
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	19
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	14
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	10
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	17
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	7.2
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	7.2
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	7.2
Total Aliphatics >C12-C35	µg/L	10			17
>EC5-EC7 Aromatics	µg/L	10	1	10	5

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Average
>EC7-EC8 Aromatics	µg/L	10	700	74	5
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	17
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	8.3
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	12
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	7.2
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	7.2
Total Aromatics >EC12-EC35	µg/L	10			12
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	68
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			71
BTEX and MTBE					
Benzene	µg/L	1	1	10	0.5
Toluene	µg/L	1	700	74	0.86
Ethylbenzene	µg/L	1	300	20	0.5
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	0.64
Xylene (o)	µg/L	1	250[#8]	15[#8]	0.5
Xylene Total	µg/L	2	500	30	1
MTBE	µg/L	1	15	15	0.5
Total BTEX	µg/L	5			2.8
Other					
pH (Lab)	pH Units	1			7.7

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Average

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Median
Metals					
Antimony (Filtered)	µg/L	1			0.5
Arsenic (Filtered)	µg/L	0.5	10	50	0.71
Barium (Filtered)	µg/L	0.2	700	700	41.4
Beryllium (Filtered)	µg/L	0.1			0.05
Boron (Filtered)	µg/L	10	1000	2000	38.4
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	15
Chromium (Filtered)	µg/L	1	50	3.4[#2]	12.5
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	15
Copper (Filtered)	µg/L	0.3	2000	1	1.55
Iron (Filtered)	µg/L	19			9.5
Lead	µg/L	0.2	10	1.2	0.816
Manganese (Filtered)	µg/L	3			6.54
Molybdenum (Filtered)	µg/L	3	70	70	1.5
Nickel (Filtered)	µg/L	0.4	20	4	2.68
Selenium (Filtered)	µg/L	1	10	10	1.43
Vanadium (Filtered)	µg/L	1			0.5
Zinc (Filtered)	µg/L	1	3000	12.1	5.85
Inorganics					
Calcium (Filtered)	mg/L	0.2			127
Chloride (Filtered)	mg/L	2			25.1
Cyanide (Free) (Filtered)	µg/L	50			25
Cyanide Total (Filtered)	µg/L	50			25
Fluoride (Filtered)	µg/L	500			250
Magnesium (Filtered)	mg/L	0.036			3.21
Nitrogen (Total)	µg/L	200			100
Sulphate (Filtered)	mg/L	2			56.8
Sulphide (Filtered)	µg/L	10			5

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Median
PAH					
Naphthalene	µg/L	0.01	2	2	0.005
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	0.0025
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	0.0025
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	0.0025
Anthracene	µg/L	0.005	-[#4]	-[#4]	0.0025
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	0.0025
Fluorene	µg/L	0.005	-[#4]	-[#4]	0.0025
Chrysene	µg/L	0.005	-[#4]	-[#4]	0.0025
Pyrene	µg/L	0.005	-[#4]	-[#4]	0.0025
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	0.0025
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	0.0025
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	0.0025
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	0.001
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	0.0025
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	0.0025
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	0.0025
PAH 16 Total	µg/L	0.082			0.041
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
Total Aliphatics >C12-C35	µg/L	10			5
>EC5-EC7 Aromatics	µg/L	10	1	10	5

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Median
>EC7-EC8 Aromatics	µg/L	10	700	74	5
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
Total Aromatics >EC12-EC35	µg/L	10			5
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	5
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			25
BTEX and MTBE					
Benzene	µg/L	1	1	10	0.5
Toluene	µg/L	1	700	74	0.5
Ethylbenzene	µg/L	1	300	20	0.5
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	0.5
Xylene (o)	µg/L	1	250[#8]	15[#8]	0.5
Xylene Total	µg/L	2	500	30	1
MTBE	µg/L	1	15	15	0.5
Total BTEX	µg/L	5			2.5
Other					
pH (Lab)	pH Units	1			7.64

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site ID	
			Field ID	
			Location	
			Well	
			Sampled Date Time	
		Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**		Median

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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				Site ID	
				Field ID	
				Location	
				Well	
				Sampled Date Time	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Standard
Metals					
Antimony (Filtered)	µg/L	1			0
Arsenic (Filtered)	µg/L	0.5	10	50	1.6
Barium (Filtered)	µg/L	0.2	700	700	60
Beryllium (Filtered)	µg/L	0.1			0
Boron (Filtered)	µg/L	10	1000	2000	16
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	0
Chromium (Filtered)	µg/L	1	50	3.4[#2]	12
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	7
Copper (Filtered)	µg/L	0.3	2000	1	0.69
Iron (Filtered)	µg/L	19			1278
Lead	µg/L	0.2	10	1.2	16
Manganese (Filtered)	µg/L	3			988
Molybdenum (Filtered)	µg/L	3	70	70	5.3
Nickel (Filtered)	µg/L	0.4	20	4	7.7
Selenium (Filtered)	µg/L	1	10	10	4.8
Vanadium (Filtered)	µg/L	1			0.53
Zinc (Filtered)	µg/L	1	3000	12.1	7.3
Inorganics					
Calcium (Filtered)	mg/L	0.2			47
Chloride (Filtered)	mg/L	2			42
Cyanide (Free) (Filtered)	µg/L	50			0
Cyanide Total (Filtered)	µg/L	50			0
Fluoride (Filtered)	µg/L	500			0
Magnesium (Filtered)	mg/L	0.036			1.8
Nitrogen (Total)	µg/L	200			373
Sulphate (Filtered)	mg/L	2			136
Sulphide (Filtered)	µg/L	10			9.1

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Standard
PAH					
Naphthalene	µg/L	0.01	2	2	0.16
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	0.0033
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	0.0033
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	0.039
Anthracene	µg/L	0.005	-[#4]	-[#4]	0.0033
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	0.0033
Fluorene	µg/L	0.005	-[#4]	-[#4]	0.0033
Chrysene	µg/L	0.005	-[#4]	-[#4]	0.045
Pyrene	µg/L	0.005	-[#4]	-[#4]	0.059
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	0.031
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	0.018
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	0.0033
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	0.13
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	0.14
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	0.0033
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	0.29
PAH 16 Total	µg/L	0.082			0.71
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	5
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	41
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	27
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	16
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	30
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	6.7
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	6.7
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	6.7
Total Aliphatics >C12-C35	µg/L	10			30
>EC5-EC7 Aromatics	µg/L	10	1	10	0

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Standard
>EC7-EC8 Aromatics	µg/L	10	700	74	0
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	36
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	10
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	16
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	6.7
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	6.7
Total Aromatics >EC12-EC35	µg/L	10			16
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	159
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			137
BTEX and MTBE					
Benzene	µg/L	1	1	10	0
Toluene	µg/L	1	700	74	1.1
Ethylbenzene	µg/L	1	300	20	0
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	0.42
Xylene (o)	µg/L	1	250[#8]	15[#8]	0
Xylene Total	µg/L	2	500	30	0
MTBE	µg/L	1	15	15	0
Total BTEX	µg/L	5			1
Other					
pH (Lab)	pH Units	1			0.19

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site ID	
			Field ID	
			Location	
			Well	
			Sampled Date Time	
		Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**		Standard

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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			Site ID	
			Field ID	
			Location	
			Well	
			Sampled Date Time	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales
Analyte	**Units**	**MDL**		Number of
Metals				
Antimony (Filtered)	µg/L	1		0
Arsenic (Filtered)	µg/L	0.5	10	50 0
Barium (Filtered)	µg/L	0.2	700	700 0
Beryllium (Filtered)	µg/L	0.1		0
Boron (Filtered)	µg/L	10	1000	2000 0
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4 9
Chromium (Filtered)	µg/L	1	50	3.4[#2] 6
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7 9
Copper (Filtered)	µg/L	0.3	2000	1 5
Iron (Filtered)	µg/L	19		0
Lead	µg/L	0.2	10	1.2 4
Manganese (Filtered)	µg/L	3		0
Molybdenum (Filtered)	µg/L	3	70	70 0
Nickel (Filtered)	µg/L	0.4	20	4 1
Selenium (Filtered)	µg/L	1	10	10 1
Vanadium (Filtered)	µg/L	1		0
Zinc (Filtered)	µg/L	1	3000	12.1 1
Inorganics				
Calcium (Filtered)	mg/L	0.2		0
Chloride (Filtered)	mg/L	2		0
Cyanide (Free) (Filtered)	µg/L	50		0
Cyanide Total (Filtered)	µg/L	50		0
Fluoride (Filtered)	µg/L	500		0
Magnesium (Filtered)	mg/L	0.036		0
Nitrogen (Total)	µg/L	200		0
Sulphate (Filtered)	mg/L	2		0
Sulphide (Filtered)	µg/L	10		0

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Number of
PAH					
Naphthalene	µg/L	0.01	2	2	0
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	9
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	9
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	9
Anthracene	µg/L	0.005	-[#4]	-[#4]	9
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	9
Fluorene	µg/L	0.005	-[#4]	-[#4]	9
Chrysene	µg/L	0.005	-[#4]	-[#4]	9
Pyrene	µg/L	0.005	-[#4]	-[#4]	9
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	9
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	1
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	0
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	9
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	9
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	0
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	1
PAH 16 Total	µg/L	0.082			0
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
Total Aliphatics >C12-C35	µg/L	10			0
>EC5-EC7 Aromatics	µg/L	10	1	10	9

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Number of
>EC7-EC8 Aromatics	µg/L	10	700	74	0
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	0
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	0
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
Total Aromatics >EC12-EC35	µg/L	10			0
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	2
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			0
BTEX and MTBE					
Benzene	µg/L	1	1	10	0
Toluene	µg/L	1	700	74	0
Ethylbenzene	µg/L	1	300	20	0
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	0
Xylene (o)	µg/L	1	250[#8]	15[#8]	0
Xylene Total	µg/L	2	500	30	0
MTBE	µg/L	1	15	15	0
Total BTEX	µg/L	5			0
Other					
pH (Lab)	pH Units	1			0

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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				Site ID
				Field ID
				Location
				Well
				Sampled Date Time
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales
Analyte	**Units**	**MDL**		Number of

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.

#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr

#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration

#4:No water quality standard identified as suitable for deriving generic assessment criteria

#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH

#6:NR - No appropriate inhalation reference dose identified during review of toxicological data

#7:na - Comprises multiple contaminants - no GAC derived

#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Number of
Metals					
Antimony (Filtered)	µg/L	1			0
Arsenic (Filtered)	µg/L	0.5	10	50	0
Barium (Filtered)	µg/L	0.2	700	700	0
Beryllium (Filtered)	µg/L	0.1			0
Boron (Filtered)	µg/L	10	1000	2000	0
Chromium (hexavalent) (Filtered)	µg/L	30	50	3.4	0
Chromium (Filtered)	µg/L	1	50	3.4[#2]	6
Chromium (Trivalent) (Filtered)	µg/L	30	50	4.7	1
Copper (Filtered)	µg/L	0.3	2000	1	5
Iron (Filtered)	µg/L	19			0
Lead	µg/L	0.2	10	1.2	4
Manganese (Filtered)	µg/L	3			0
Molybdenum (Filtered)	µg/L	3	70	70	0
Nickel (Filtered)	µg/L	0.4	20	4	1
Selenium (Filtered)	µg/L	1	10	10	1
Vanadium (Filtered)	µg/L	1			0
Zinc (Filtered)	µg/L	1	3000	12.1	1
Inorganics					
Calcium (Filtered)	mg/L	0.2			0
Chloride (Filtered)	mg/L	2			0
Cyanide (Free) (Filtered)	µg/L	50			0
Cyanide Total (Filtered)	µg/L	50			0
Fluoride (Filtered)	µg/L	500			0
Magnesium (Filtered)	mg/L	0.036			0
Nitrogen (Total)	µg/L	200			0
Sulphate (Filtered)	mg/L	2			0
Sulphide (Filtered)	µg/L	10			0

			Site ID		
			Field ID		
			Location		
			Well		
			Sampled Date Time		
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**			Number of
PAH					
Naphthalene	µg/L	0.01	2	2	0
Acenaphthene	µg/L	0.005	-[#4]	-[#4]	9
Acenaphthylene	µg/L	0.005	-[#4]	-[#4]	9
Fluoranthene	µg/L	0.005	-[#4]	-[#4]	9
Anthracene	µg/L	0.005	-[#4]	-[#4]	9
Phenanthrene	µg/L	0.005	-[#4]	-[#4]	9
Fluorene	µg/L	0.005	-[#4]	-[#4]	9
Chrysene	µg/L	0.005	-[#4]	-[#4]	9
Pyrene	µg/L	0.005	-[#4]	-[#4]	9
Benzo(a)anthracene	µg/L	0.005	-[#4]	-[#4]	9
Benzo(b)fluoranthene	µg/L	0.005	0.025	-[#4]	1
Benzo(k)fluoranthene	µg/L	0.005	0.025	-[#4]	0
Benzo(a)pyrene	µg/L	0.002	0.01	0.00017	1
Dibenz(a,h)anthracene	µg/L	0.005	-[#4]	-[#4]	9
Benzo(g,h,i)perylene	µg/L	0.005	0.025	-[#4]	0
Indeno(1,2,3-c,d)pyrene	µg/L	0.005	0.025	-[#4]	1
PAH 16 Total	µg/L	0.082			0
TPH CWG					
>C5-C6 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C6-C8 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C8-C10 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C10-C12 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C12-C16 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C16-C21 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C21-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>C16-C35 Aliphatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
Total Aliphatics >C12-C35	µg/L	10			0
>EC5-EC7 Aromatics	µg/L	10	1	10	0

			Site ID	
			Field ID	
			Location	
			Well	
			Sampled Date Time	
			Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales
Analyte	**Units**	**MDL**			Number of
>EC7-EC8 Aromatics	µg/L	10	700	74	0
>EC8-EC10 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	0
>EC10-EC12 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	0
>EC12-EC16 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>EC16-EC21 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
>EC21-EC35 Aromatics	µg/L	10	See TPH[#5]	See TPH[#5]	9
Total Aromatics >EC12-EC35	µg/L	10			0
TPH >C5-C35 Aliphatics/Aromatics	µg/L	10	10	10	2
TPH					
GRO TOT (C5-C12) Moisture Corrected	µg/L	50			0
BTEX and MTBE					
Benzene	µg/L	1	1	10	0
Toluene	µg/L	1	700	74	0
Ethylbenzene	µg/L	1	300	20	0
Xylene (m & p)	µg/L	1	250[#8]	15[#8]	0
Xylene (o)	µg/L	1	250[#8]	15[#8]	0
Xylene Total	µg/L	2	500	30	0
MTBE	µg/L	1	15	15	0
Total BTEX	µg/L	5			0
Other					
pH (Lab)	pH Units	1			0

Criteria Details

Arcadis GAC - Human Health - Residential:Arcadis, March 2019. Human health GAC protective of a residential end-use.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site ID	
			Field ID	
			Location	
			Well	
			Sampled Date Time	
		Arcadis GAC - Water Resources - Aquifers - England & Wales	Arcadis GAC - Water Resources - Surface Water - England & Wales	
Analyte	**Units**	**MDL**		Number of

#1:NVP - No vapour pathway. Contaminant has only a low vapour pressure in groundwater.
#2:GAC presented is for hexavalent. If hexavalent chromium (CrVI) data is available, a value of 4.7µg/l may be appropriate for the remaining tr
#3:>SOL - Target acceptable risk not exceeded at theoretical solubility concentration
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:NR - No appropriate inhalation reference dose identified during review of toxicological data
#7:na - Comprises multiple contaminants - no GAC derived
#8:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes criteria.

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			Site_ID
			Field_ID
			Location
			Sample_Depth_Range
			Sampled_Date_Time
			Matrix_Description
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)
Metals			
Antimony	mg/kg	0.6	
Arsenic	mg/kg	0.6	37[#1]
Barium	mg/kg	0.6	938
Beryllium	mg/kg	0.01	
Boron	mg/kg	0.7	770
Chromium (hexavalent)	mg/kg	0.6	21[#1]
Chromium	mg/kg	0.9	21[#2]
Chromium (Trivalent)	mg/kg	0.9	907
Copper	mg/kg	1.4	4710
Iron	mg/kg	1000	
Lead	mg/kg	0.7	200[#1]
Molybdenum	mg/kg	0.1	156
Nickel	mg/kg	0.2	149
Selenium	mg/kg	1	350
Vanadium	mg/kg	0.2	
Zinc	mg/kg	1.9	2710
Asbestos			
Anthophyllite	Detect		
Asbestos: Actinolite	Detect		
Crocidolite Asbestos	Detect		
Chrysotile Asbestos	Detect		
Amosite Asbestos	Detect		
Non-Asbestos Fibre	Detect		
Tremolite	Detect		
Inorganics			
Cyanide (Free)	mg/kg	1	
Sulphur as S	%	0.02	
PAH			
Naphthalene	mg/kg	0.009	3.15
Acenaphthene	mg/kg	0.008	717(SAT)[#3]
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]
Anthracene	mg/kg	0.016	12800(SAT)[#3]
Phenanthrene	mg/kg	0.015	232(SAT)[#3]
Fluorene	mg/kg	0.01	952(SAT)[#3]
Chrysene	mg/kg	0.01	22.5(SAT)[#3]
Pyrene	mg/kg	0.015	2390(SAT)[#3]
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	
Benzo(a)pyrene	mg/kg	0.015	5[#1]	
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	
PAH 16 Total	mg/kg	0.118		
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	
>C6-C8 Aliphatics	mg/kg	0.01	17.7	
>C10-C44 Aliphatics	mg/kg	5		
>C10-C44 Aliphatics/Aromatics	mg/kg	10		
>C8-C10 Aliphatics	mg/kg	0.01	2.29	
>C10-C12 Aliphatics	mg/kg	1	8.97	
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	
>C35-C44 Aliphatics	mg/kg	1		
>C5-C10 Aliphatics	mg/kg	0.05		
>EC5-EC10 Aromatics	mg/kg	0.05		
>EC6-EC7 Aromatics	mg/kg	0.01		
>EC7-EC8 Aromatics	mg/kg	0.01	131	
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	
>EC10-EC12 Aromatics	mg/kg	1	16.3	
>EC10-EC44 Aromatics	mg/kg	5		
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	
>EC35-EC44 Aromatics	mg/kg	1		
>EC40-EC44 Aromatics	mg/kg	1		
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	
Toluene	mg/kg	0.007	131	
Ethylbenzene	mg/kg	0.004	11.6	
Xylene (m & p)	mg/kg	0.01	5.75[#7]	
Xylene (o)	mg/kg	0.01	5.75[#7]	
Xylene Total	mg/kg	0.02	11.5	
MTBE	mg/kg	0.01	18.7	
Total BTEX	mg/kg	0.04		

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		
cis-1,3-dichloropropene	mg/kg	0.01		
trans-1,3-dichloropropene	mg/kg	0.01		
1,1,1,2-tetrachloroethane	mg/kg	0.01		
1,1,1-trichloroethane	mg/kg	0.007	1.68	
1,1,2,2-tetrachloroethane	mg/kg	0.01		
1,1,2-trichloroethane	mg/kg	0.01		
1,1-dichloroethane	mg/kg	0.008	0.477	
1,1-dichloroethene	mg/kg	0.01	0.0599	
1,1-dichloropropene	mg/kg	0.01		
1,2,3-trichloropropane	mg/kg	0.016		
1,2,4-trimethylbenzene	mg/kg	0.009		
1,2-dibromo-3-chloropropane	mg/kg	0.014		
1,2-dibromoethane	mg/kg	0.01		
1,2-dichloroethane	mg/kg	0.005	0.00219	
1,2-dichloropropane	mg/kg	0.01		
1,3,5-trimethylbenzene	mg/kg	0.008		
1,3-dichloropropane	mg/kg	0.007		
2,2-dichloropropane	mg/kg	0.01		
2-chlorotoluene	mg/kg	0.009		
4-chlorotoluene	mg/kg	0.01		
Bromobenzene	mg/kg	0.01		
Bromochloromethane	mg/kg	0.01		
Bromodichloromethane	mg/kg	0.007		
Bromoform	mg/kg	0.01		
Bromomethane	mg/kg	0.01		
Carbon disulfide	mg/kg	0.007		
Carbon tetrachloride	mg/kg	0.01		
Chlorodibromomethane	mg/kg	0.01		
Chloroethane	mg/kg	0.01		
Chloroform	mg/kg	0.008	0.25	
Chloromethane	mg/kg	0.007		
cis-1,2-dichloroethene	mg/kg	0.006	0.035	
Dibromomethane	mg/kg	0.009		
Dichlorodifluoromethane	mg/kg	0.006		
Dichloromethane	mg/kg	0.01		
Isopropylbenzene	mg/kg	0.005		
n-butylbenzene	mg/kg	0.011		
n-propylbenzene	mg/kg	0.01		
p-isopropyltoluene	mg/kg	0.01		

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		
Trichloroethene	mg/kg	0.009	0.00299	
tert-butylbenzene	mg/kg	0.014		
Tetrachloroethene	mg/kg	0.005	0.028	
trans-1,2-dichloroethene	mg/kg	0.01	0.526	
Trichlorofluoromethane	mg/kg	0.006		
Vinyl chloride	mg/kg	0.006	0.000263	
tert-Amyl methyl ether	mg/kg	0.01		
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		
1,2,4-trichlorobenzene	mg/kg	0.02		
1,2-dichlorobenzene	mg/kg	0.01		
1,3,5-Trichlorobenzene	mg/kg	0.02		
1,3-dichlorobenzene	mg/kg	0.008		
1,4-dichlorobenzene	mg/kg	0.005		
Chlorobenzene	mg/kg	0.005	0.0704	
Hexachlorobutadiene	mg/kg	0.02		
PCB				
PCB 101	mg/kg	0.003		
PCB 118	mg/kg	0.003		
PCB 138	mg/kg	0.003		
PCB 153	mg/kg	0.003		
PCB 180	mg/kg	0.003		
PCB 28	mg/kg	0.003		
PCB 52	mg/kg	0.003		
Total PCB 7 Congeners	mg/kg	0.021		
Other				
Moisture	%			
pH (Lab)	pH Units	1		
Total Organic Carbon	%	0.2		

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID
			Field_ID
			Location
			Sample_Depth_Range
			Sampled_Date_Time
			Matrix_Description
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)

#1:Category 4 Screening Level□
#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria□
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH□
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	STEY
			Field_ID	BH101
			Location	BH101
			Sample_Depth_Range	1-1.2
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	3.94
Barium	mg/kg	0.6	938	22.5
Beryllium	mg/kg	0.01		0.253
Boron	mg/kg	0.7	770	6.76
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	2.54
Chromium (Trivalent)	mg/kg	0.9	907	2.34
Copper	mg/kg	1.4	4710	5.59
Iron	mg/kg	1000		11,200
Lead	mg/kg	0.7	200[#1]	4.61
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	10.8
Selenium	mg/kg	1	350	1.17
Vanadium	mg/kg	0.2		7.96
Zinc	mg/kg	1.9	2710	22.9
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		0.0214
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	<0.017
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.016
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	<0.015
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	<0.01
Pyrene	mg/kg	0.015	2390(SAT)[#3]	<0.015
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	<0.014
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	<0.015

			Site_ID	STEY
			Field_ID	BH101
			Location	BH101
			Sample_Depth_Range	1-1.2
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	<0.014
Benzo(a)pyrene	mg/kg	0.015	5[#1]	<0.015
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	<0.024
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	<0.018
PAH 16 Total	mg/kg	0.118		<0.118
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	1.75
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	STEY
			Field_ID	BH101
			Location	BH101
			Sample_Depth_Range	1-1.2
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	STEY
			Field_ID	BH101
			Location	BH101
			Sample_Depth_Range	1-1.2
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			16
pH (Lab)	pH Units	1		8.89
Total Organic Carbon	%	0.2		<0.2

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and Inhalation
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site_ID	STEY
			Field_ID	BH101
			Location	BH101
			Sample_Depth_Range	1-1.2
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	

#1:Category 4 Screening Level□
#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a value of 907
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate the presence
#4:No water quality standard identified as suitable for deriving generic assessment criteria□
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH□
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to use Ali>C
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum xylenes cr

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.5-2.75
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	5.6
Barium	mg/kg	0.6	938	36
Beryllium	mg/kg	0.01		0.696
Boron	mg/kg	0.7	770	14.8
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	8.96
Chromium (Trivalent)	mg/kg	0.9	907	8.96
Copper	mg/kg	1.4	4710	13.5
Iron	mg/kg	1000		14,000
Lead	mg/kg	0.7	200[#1]	8.92
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	25.9
Selenium	mg/kg	1	350	<1
Vanadium	mg/kg	0.2		16.8
Zinc	mg/kg	1.9	2710	30.4
Asbestos				
Anthophyllite	Detect			-
Asbestos: Actinolite	Detect			-
Crocidolite Asbestos	Detect			-
Chrysotile Asbestos	Detect			-
Amosite Asbestos	Detect			-
Non-Asbestos Fibre	Detect			-
Tremolite	Detect			-
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		<0.02
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	<0.017
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.016
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	<0.015
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	<0.01
Pyrene	mg/kg	0.015	2390(SAT)[#3]	<0.015
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	<0.014
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	<0.015

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.5-2.75
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	<0.014
Benzo(a)pyrene	mg/kg	0.015	5[#1]	<0.015
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	<0.024
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	<0.018
PAH 16 Total	mg/kg	0.118		<0.118
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		10.6
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		10.4
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	8.98
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		10.4
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.5-2.75
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.5-2.75
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			18
pH (Lab)	pH Units	1		8.97
Total Organic Carbon	%	0.2		-

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral andteria also t
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.5-2.75
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a vg/kg may b
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate thf separate
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions toC35 criter
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sumria.

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			Site_ID	
			Field_ID	BH102
			Location	BH102
			Sample_Depth_Range	0.2-0.3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	7.66
Barium	mg/kg	0.6	938	111
Beryllium	mg/kg	0.01		1.04
Boron	mg/kg	0.7	770	6.79
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	7.61
Chromium (Trivalent)	mg/kg	0.9	907	7.2
Copper	mg/kg	1.4	4710	9.53
Iron	mg/kg	1000		14,500
Lead	mg/kg	0.7	200[#1]	9.97
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	18.2
Selenium	mg/kg	1	350	1.49
Vanadium	mg/kg	0.2		26.4
Zinc	mg/kg	1.9	2710	59.4
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		0.0377
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.09
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.08
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.12
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	<0.17
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.16
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	<0.15
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.1
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	<0.1
Pyrene	mg/kg	0.015	2390(SAT)[#3]	<0.15
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	<0.14
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	<0.15

			Site_ID	
			Field_ID	BH102
			Location	BH102
			Sample_Depth_Range	0.2-0.3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	<0.14
Benzo(a)pyrene	mg/kg	0.015	5[#1]	<0.15
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.23
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	<0.24
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	<0.18
PAH 16 Total	mg/kg	0.118		<1.18
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		74.5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		93.9
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	2.51
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	3.34
>C35-C44 Aliphatics	mg/kg	1		68.7
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		19.4
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	1.84
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	15.4
>EC35-EC44 Aromatics	mg/kg	1		2.17
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		93.9
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	BH102
			Location	BH102
			Sample_Depth_Range	0.2-0.3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	BH102
			Location	BH102
			Sample_Depth_Range	0.2-0.3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			9.6
pH (Lab)	pH Units	1		8.8
Total Organic Carbon	%	0.2		0.468

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral andssess soil.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site_ID	
			Field_ID	BH102
			Location	BH102
			Sample_Depth_Range	0.2-0.3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v ppropriate
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th se in soil,
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

https://arcadiso365.sharepoint.com/teams/project-10057335/Pr liverables/

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.85-3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	5.47
Barium	mg/kg	0.6	938	37.5
Beryllium	mg/kg	0.01		0.625
Boron	mg/kg	0.7	770	13.6
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	9.67
Chromium (Trivalent)	mg/kg	0.9	907	9.67
Copper	mg/kg	1.4	4710	13.8
Iron	mg/kg	1000		11,400
Lead	mg/kg	0.7	200[#1]	7.76
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	25.1
Selenium	mg/kg	1	350	<1
Vanadium	mg/kg	0.2		13.7
Zinc	mg/kg	1.9	2710	28.2
Asbestos				
Anthophyllite	Detect			-
Asbestos: Actinolite	Detect			-
Crocidolite Asbestos	Detect			-
Chrysotile Asbestos	Detect			-
Amosite Asbestos	Detect			-
Non-Asbestos Fibre	Detect			-
Tremolite	Detect			-
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		<0.02
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	<0.017
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.016
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	<0.015
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	<0.01
Pyrene	mg/kg	0.015	2390(SAT)[#3]	<0.015
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	<0.014
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	<0.015

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.85-3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	<0.014
Benzo(a)pyrene	mg/kg	0.015	5[#1]	<0.015
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	<0.024
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	<0.018
PAH 16 Total	mg/kg	0.118		<0.118
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	<1
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.85-3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.85-3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			21
pH (Lab)	pH Units	1		9
Total Organic Carbon	%	0.2		<0.2

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and adis, Marc
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

ARCADIS

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.85-3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v the remain
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th does not
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

https://arcadiso365.sharepoint.com/teams/project-10057335/Pryning Gran

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	3.85-4
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	6.9
Barium	mg/kg	0.6	938	35.9
Beryllium	mg/kg	0.01		0.515
Boron	mg/kg	0.7	770	9.61
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	4.52
Chromium (Trivalent)	mg/kg	0.9	907	4.52
Copper	mg/kg	1.4	4710	10.3
Iron	mg/kg	1000		9590
Lead	mg/kg	0.7	200[#1]	8.26
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	20.9
Selenium	mg/kg	1	350	<1
Vanadium	mg/kg	0.2		9.71
Zinc	mg/kg	1.9	2710	22.7
Asbestos				
Anthophyllite	Detect			-
Asbestos: Actinolite	Detect			-
Crocidolite Asbestos	Detect			-
Chrysotile Asbestos	Detect			-
Amosite Asbestos	Detect			-
Non-Asbestos Fibre	Detect			-
Tremolite	Detect			-
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		<0.02
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	<0.017
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.016
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	<0.015
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	<0.01
Pyrene	mg/kg	0.015	2390(SAT)[#3]	<0.015
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	<0.014
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	<0.015

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	3.85-4
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	<0.014
Benzo(a)pyrene	mg/kg	0.015	5[#1]	<0.015
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	<0.024
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	<0.018
PAH 16 Total	mg/kg	0.118		<0.118
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	<1
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	3.85-4
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	3.85-4
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			18
pH (Lab)	pH Units	1		8.96
Total Organic Carbon	%	0.2		<0.2

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and2019. Hum
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	3.85-4
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a vg trivalent c
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate thessarily pr
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	BH103
			Location	BH103
			Sample_Depth_Range	0.7-0.8
			Sampled_Date_Time	12-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	8.65
Barium	mg/kg	0.6	938	82.6
Beryllium	mg/kg	0.01		0.653
Boron	mg/kg	0.7	770	7.81
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	13.2
Chromium (Trivalent)	mg/kg	0.9	907	13.2
Copper	mg/kg	1.4	4710	11.3
Iron	mg/kg	1000		22,000
Lead	mg/kg	0.7	200[#1]	15.7
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	17.9
Selenium	mg/kg	1	350	1.17
Vanadium	mg/kg	0.2		30.5
Zinc	mg/kg	1.9	2710	53.6
Asbestos				
Anthophyllite	Detect			-
Asbestos: Actinolite	Detect			-
Crocidolite Asbestos	Detect			-
Chrysotile Asbestos	Detect			-
Amosite Asbestos	Detect			-
Non-Asbestos Fibre	Detect			-
Tremolite	Detect			-
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		<0.02
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	<0.017
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.016
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	<0.015
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	<0.01
Pyrene	mg/kg	0.015	2390(SAT)[#3]	<0.015
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	<0.014
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	<0.015

			Site_ID	
			Field_ID	BH103
			Location	BH103
			Sample_Depth_Range	0.7-0.8
			Sampled_Date_Time	12-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	<0.014
Benzo(a)pyrene	mg/kg	0.015	5[#1]	<0.015
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	<0.024
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	<0.018
PAH 16 Total	mg/kg	0.118		<0.118
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	1.01
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	1.32
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	BH103
			Location	BH103
			Sample_Depth_Range	0.7-0.8
			Sampled_Date_Time	12-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	BH103
			Location	BH103
			Sample_Depth_Range	0.7-0.8
			Sampled_Date_Time	12-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			18
pH (Lab)	pH Units	1		7.22
Total Organic Carbon	%	0.2		0.302

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and health GA
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site_ID	
			Field_ID	BH103
			Location	BH103
			Sample_Depth_Range	0.7-0.8
			Sampled_Date_Time	12-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a value for chromium (CrI
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate the presence of a signif
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

			https://arcadiso365.sharepoint.com/teams/project-10057335/Pr
			Site_ID
			Field_ID
			Location
			Sample_Depth_Range
			Sampled_Date_Time
			Matrix_Description
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)
Metals			
Antimony	mg/kg	0.6	
Arsenic	mg/kg	0.6	37[#1]
Barium	mg/kg	0.6	938
Beryllium	mg/kg	0.01	
Boron	mg/kg	0.7	770
Chromium (hexavalent)	mg/kg	0.6	21[#1]
Chromium	mg/kg	0.9	21[#2]
Chromium (Trivalent)	mg/kg	0.9	907
Copper	mg/kg	1.4	4710
Iron	mg/kg	1000	
Lead	mg/kg	0.7	200[#1]
Molybdenum	mg/kg	0.1	156
Nickel	mg/kg	0.2	149
Selenium	mg/kg	1	350
Vanadium	mg/kg	0.2	
Zinc	mg/kg	1.9	2710
Asbestos			
Anthophyllite	Detect		
Asbestos: Actinolite	Detect		
Crocidolite Asbestos	Detect		
Chrysotile Asbestos	Detect		
Amosite Asbestos	Detect		
Non-Asbestos Fibre	Detect		
Tremolite	Detect		
Inorganics			
Cyanide (Free)	mg/kg	1	
Sulphur as S	%	0.02	
PAH			
Naphthalene	mg/kg	0.009	3.15
Acenaphthene	mg/kg	0.008	717(SAT)[#3]
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]
Anthracene	mg/kg	0.016	12800(SAT)[#3]
Phenanthrene	mg/kg	0.015	232(SAT)[#3]
Fluorene	mg/kg	0.01	952(SAT)[#3]
Chrysene	mg/kg	0.01	22.5(SAT)[#3]
Pyrene	mg/kg	0.015	2390(SAT)[#3]
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	
Benzo(a)pyrene	mg/kg	0.015	5[#1]	
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	
PAH 16 Total	mg/kg	0.118		
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	
>C6-C8 Aliphatics	mg/kg	0.01	17.7	
>C10-C44 Aliphatics	mg/kg	5		
>C10-C44 Aliphatics/Aromatics	mg/kg	10		
>C8-C10 Aliphatics	mg/kg	0.01	2.29	
>C10-C12 Aliphatics	mg/kg	1	8.97	
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	
>C35-C44 Aliphatics	mg/kg	1		
>C5-C10 Aliphatics	mg/kg	0.05		
>EC5-EC10 Aromatics	mg/kg	0.05		
>EC6-EC7 Aromatics	mg/kg	0.01		
>EC7-EC8 Aromatics	mg/kg	0.01	131	
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	
>EC10-EC12 Aromatics	mg/kg	1	16.3	
>EC10-EC44 Aromatics	mg/kg	5		
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	
>EC35-EC44 Aromatics	mg/kg	1		
>EC40-EC44 Aromatics	mg/kg	1		
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	
Toluene	mg/kg	0.007	131	
Ethylbenzene	mg/kg	0.004	11.6	
Xylene (m & p)	mg/kg	0.01	5.75[#7]	
Xylene (o)	mg/kg	0.01	5.75[#7]	
Xylene Total	mg/kg	0.02	11.5	
MTBE	mg/kg	0.01	18.7	
Total BTEX	mg/kg	0.04		

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		
cis-1,3-dichloropropene	mg/kg	0.01		
trans-1,3-dichloropropene	mg/kg	0.01		
1,1,1,2-tetrachloroethane	mg/kg	0.01		
1,1,1-trichloroethane	mg/kg	0.007	1.68	
1,1,2,2-tetrachloroethane	mg/kg	0.01		
1,1,2-trichloroethane	mg/kg	0.01		
1,1-dichloroethane	mg/kg	0.008	0.477	
1,1-dichloroethene	mg/kg	0.01	0.0599	
1,1-dichloropropene	mg/kg	0.01		
1,2,3-trichloropropane	mg/kg	0.016		
1,2,4-trimethylbenzene	mg/kg	0.009		
1,2-dibromo-3-chloropropane	mg/kg	0.014		
1,2-dibromoethane	mg/kg	0.01		
1,2-dichloroethane	mg/kg	0.005	0.00219	
1,2-dichloropropane	mg/kg	0.01		
1,3,5-trimethylbenzene	mg/kg	0.008		
1,3-dichloropropane	mg/kg	0.007		
2,2-dichloropropane	mg/kg	0.01		
2-chlorotoluene	mg/kg	0.009		
4-chlorotoluene	mg/kg	0.01		
Bromobenzene	mg/kg	0.01		
Bromochloromethane	mg/kg	0.01		
Bromodichloromethane	mg/kg	0.007		
Bromoform	mg/kg	0.01		
Bromomethane	mg/kg	0.01		
Carbon disulfide	mg/kg	0.007		
Carbon tetrachloride	mg/kg	0.01		
Chlorodibromomethane	mg/kg	0.01		
Chloroethane	mg/kg	0.01		
Chloroform	mg/kg	0.008	0.25	
Chloromethane	mg/kg	0.007		
cis-1,2-dichloroethene	mg/kg	0.006	0.035	
Dibromomethane	mg/kg	0.009		
Dichlorodifluoromethane	mg/kg	0.006		
Dichloromethane	mg/kg	0.01		
Isopropylbenzene	mg/kg	0.005		
n-butylbenzene	mg/kg	0.011		
n-propylbenzene	mg/kg	0.01		
p-isopropyltoluene	mg/kg	0.01		

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		
Trichloroethene	mg/kg	0.009	0.00299	
tert-butylbenzene	mg/kg	0.014		
Tetrachloroethene	mg/kg	0.005	0.028	
trans-1,2-dichloroethene	mg/kg	0.01	0.526	
Trichlorofluoromethane	mg/kg	0.006		
Vinyl chloride	mg/kg	0.006	0.000263	
tert-Amyl methyl ether	mg/kg	0.01		
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		
1,2,4-trichlorobenzene	mg/kg	0.02		
1,2-dichlorobenzene	mg/kg	0.01		
1,3,5-Trichlorobenzene	mg/kg	0.02		
1,3-dichlorobenzene	mg/kg	0.008		
1,4-dichlorobenzene	mg/kg	0.005		
Chlorobenzene	mg/kg	0.005	0.0704	
Hexachlorobutadiene	mg/kg	0.02		
PCB				
PCB 101	mg/kg	0.003		
PCB 118	mg/kg	0.003		
PCB 138	mg/kg	0.003		
PCB 153	mg/kg	0.003		
PCB 180	mg/kg	0.003		
PCB 28	mg/kg	0.003		
PCB 52	mg/kg	0.003		
Total PCB 7 Congeners	mg/kg	0.021		
Other				
Moisture	%			
pH (Lab)	pH Units	1		
Total Organic Carbon	%	0.2		

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID
			Field_ID
			Location
			Sample_Depth_Range
			Sampled_Date_Time
			Matrix_Description
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)
#1:Category 4 Screening Level			

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	BH104
			Location	BH104
			Sample_Depth_Range	1.2-1.4
			Sampled_Date_Time	03-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	15
Barium	mg/kg	0.6	938	77.4
Beryllium	mg/kg	0.01		0.869
Boron	mg/kg	0.7	770	9.24
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	13.8
Chromium (Trivalent)	mg/kg	0.9	907	13.8
Copper	mg/kg	1.4	4710	14.8
Iron	mg/kg	1000		25,000
Lead	mg/kg	0.7	200[#1]	14.2
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	32.4
Selenium	mg/kg	1	350	<1
Vanadium	mg/kg	0.2		36.9
Zinc	mg/kg	1.9	2710	43.6
Asbestos				
Anthophyllite	Detect			-
Asbestos: Actinolite	Detect			-
Crocidolite Asbestos	Detect			-
Chrysotile Asbestos	Detect			-
Amosite Asbestos	Detect			-
Non-Asbestos Fibre	Detect			-
Tremolite	Detect			-
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		<0.02
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	0.723
Anthracene	mg/kg	0.016	12800(SAT)[#3]	0.0566
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0.191
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.241
Pyrene	mg/kg	0.015	2390(SAT)[#3]	0.75
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.245
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.289

			Site_ID	
			Field_ID	BH104
			Location	BH104
			Sample_Depth_Range	1.2-1.4
			Sampled_Date_Time	03-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0.114
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.292
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	0.0289
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0.242
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0.218
PAH 16 Total	mg/kg	0.118		3.39
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	1.36
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	BH104
			Location	BH104
			Sample_Depth_Range	1.2-1.4
			Sampled_Date_Time	03-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	BH104
			Location	BH104
			Sample_Depth_Range	1.2-1.4
			Sampled_Date_Time	03-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			18
pH (Lab)	pH Units	1		8.03
Total Organic Carbon	%	0.2		0.214

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and rotective o
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	BH104
			Location	BH104
			Sample_Depth_Range	1.2-1.4
			Sampled_Date_Time	03-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level□				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v□
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate tht risk□
#4:No water quality standard identified as suitable for deriving generic assessment criteria□
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH□
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

			https://arcadiso365.sharepoint.com/teams/project-10057335/Pr
			Site_ID
			Field_ID
			Location
			Sample_Depth_Range
			Sampled_Date_Time
			Matrix_Description
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)
Metals			
Antimony	mg/kg	0.6	
Arsenic	mg/kg	0.6	37[#1]
Barium	mg/kg	0.6	938
Beryllium	mg/kg	0.01	
Boron	mg/kg	0.7	770
Chromium (hexavalent)	mg/kg	0.6	21[#1]
Chromium	mg/kg	0.9	21[#2]
Chromium (Trivalent)	mg/kg	0.9	907
Copper	mg/kg	1.4	4710
Iron	mg/kg	1000	
Lead	mg/kg	0.7	200[#1]
Molybdenum	mg/kg	0.1	156
Nickel	mg/kg	0.2	149
Selenium	mg/kg	1	350
Vanadium	mg/kg	0.2	
Zinc	mg/kg	1.9	2710
Asbestos			
Anthophyllite	Detect		
Asbestos: Actinolite	Detect		
Crocidolite Asbestos	Detect		
Chrysotile Asbestos	Detect		
Amosite Asbestos	Detect		
Non-Asbestos Fibre	Detect		
Tremolite	Detect		
Inorganics			
Cyanide (Free)	mg/kg	1	
Sulphur as S	%	0.02	
PAH			
Naphthalene	mg/kg	0.009	3.15
Acenaphthene	mg/kg	0.008	717(SAT)[#3]
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]
Anthracene	mg/kg	0.016	12800(SAT)[#3]
Phenanthrene	mg/kg	0.015	232(SAT)[#3]
Fluorene	mg/kg	0.01	952(SAT)[#3]
Chrysene	mg/kg	0.01	22.5(SAT)[#3]
Pyrene	mg/kg	0.015	2390(SAT)[#3]
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	
Benzo(a)pyrene	mg/kg	0.015	5[#1]	
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	
PAH 16 Total	mg/kg	0.118		
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	
>C6-C8 Aliphatics	mg/kg	0.01	17.7	
>C10-C44 Aliphatics	mg/kg	5		
>C10-C44 Aliphatics/Aromatics	mg/kg	10		
>C8-C10 Aliphatics	mg/kg	0.01	2.29	
>C10-C12 Aliphatics	mg/kg	1	8.97	
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	
>C35-C44 Aliphatics	mg/kg	1		
>C5-C10 Aliphatics	mg/kg	0.05		
>EC5-EC10 Aromatics	mg/kg	0.05		
>EC6-EC7 Aromatics	mg/kg	0.01		
>EC7-EC8 Aromatics	mg/kg	0.01	131	
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	
>EC10-EC12 Aromatics	mg/kg	1	16.3	
>EC10-EC44 Aromatics	mg/kg	5		
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	
>EC35-EC44 Aromatics	mg/kg	1		
>EC40-EC44 Aromatics	mg/kg	1		
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	
Toluene	mg/kg	0.007	131	
Ethylbenzene	mg/kg	0.004	11.6	
Xylene (m & p)	mg/kg	0.01	5.75[#7]	
Xylene (o)	mg/kg	0.01	5.75[#7]	
Xylene Total	mg/kg	0.02	11.5	
MTBE	mg/kg	0.01	18.7	
Total BTEX	mg/kg	0.04		

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		
cis-1,3-dichloropropene	mg/kg	0.01		
trans-1,3-dichloropropene	mg/kg	0.01		
1,1,1,2-tetrachloroethane	mg/kg	0.01		
1,1,1-trichloroethane	mg/kg	0.007	1.68	
1,1,2,2-tetrachloroethane	mg/kg	0.01		
1,1,2-trichloroethane	mg/kg	0.01		
1,1-dichloroethane	mg/kg	0.008	0.477	
1,1-dichloroethene	mg/kg	0.01	0.0599	
1,1-dichloropropene	mg/kg	0.01		
1,2,3-trichloropropane	mg/kg	0.016		
1,2,4-trimethylbenzene	mg/kg	0.009		
1,2-dibromo-3-chloropropane	mg/kg	0.014		
1,2-dibromoethane	mg/kg	0.01		
1,2-dichloroethane	mg/kg	0.005	0.00219	
1,2-dichloropropane	mg/kg	0.01		
1,3,5-trimethylbenzene	mg/kg	0.008		
1,3-dichloropropane	mg/kg	0.007		
2,2-dichloropropane	mg/kg	0.01		
2-chlorotoluene	mg/kg	0.009		
4-chlorotoluene	mg/kg	0.01		
Bromobenzene	mg/kg	0.01		
Bromochloromethane	mg/kg	0.01		
Bromodichloromethane	mg/kg	0.007		
Bromoform	mg/kg	0.01		
Bromomethane	mg/kg	0.01		
Carbon disulfide	mg/kg	0.007		
Carbon tetrachloride	mg/kg	0.01		
Chlorodibromomethane	mg/kg	0.01		
Chloroethane	mg/kg	0.01		
Chloroform	mg/kg	0.008	0.25	
Chloromethane	mg/kg	0.007		
cis-1,2-dichloroethene	mg/kg	0.006	0.035	
Dibromomethane	mg/kg	0.009		
Dichlorodifluoromethane	mg/kg	0.006		
Dichloromethane	mg/kg	0.01		
Isopropylbenzene	mg/kg	0.005		
n-butylbenzene	mg/kg	0.011		
n-propylbenzene	mg/kg	0.01		
p-isopropyltoluene	mg/kg	0.01		

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		
Trichloroethene	mg/kg	0.009	0.00299	
tert-butylbenzene	mg/kg	0.014		
Tetrachloroethene	mg/kg	0.005	0.028	
trans-1,2-dichloroethene	mg/kg	0.01	0.526	
Trichlorofluoromethane	mg/kg	0.006		
Vinyl chloride	mg/kg	0.006	0.000263	
tert-Amyl methyl ether	mg/kg	0.01		
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		
1,2,4-trichlorobenzene	mg/kg	0.02		
1,2-dichlorobenzene	mg/kg	0.01		
1,3,5-Trichlorobenzene	mg/kg	0.02		
1,3-dichlorobenzene	mg/kg	0.008		
1,4-dichlorobenzene	mg/kg	0.005		
Chlorobenzene	mg/kg	0.005	0.0704	
Hexachlorobutadiene	mg/kg	0.02		
PCB				
PCB 101	mg/kg	0.003		
PCB 118	mg/kg	0.003		
PCB 138	mg/kg	0.003		
PCB 153	mg/kg	0.003		
PCB 180	mg/kg	0.003		
PCB 28	mg/kg	0.003		
PCB 52	mg/kg	0.003		
Total PCB 7 Congeners	mg/kg	0.021		
Other				
Moisture	%			
pH (Lab)	pH Units	1		
Total Organic Carbon	%	0.2		

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID
			Field_ID
			Location
			Sample_Depth_Range
			Sampled_Date_Time
			Matrix_Description
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)
#1:Category 4 Screening Level			

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

https://arcadiso365.sharepoint.com/teams/project-10057335/Pr/Interpreta

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	7-7.2
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	3.4
Barium	mg/kg	0.6	938	45.1
Beryllium	mg/kg	0.01		0.399
Boron	mg/kg	0.7	770	8.72
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	3.4
Chromium (Trivalent)	mg/kg	0.9	907	3.4
Copper	mg/kg	1.4	4710	9.78
Iron	mg/kg	1000		7030
Lead	mg/kg	0.7	200[#1]	6.64
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	20.9
Selenium	mg/kg	1	350	1.09
Vanadium	mg/kg	0.2		6.5
Zinc	mg/kg	1.9	2710	21.7
Asbestos				
Anthophyllite	Detect			-
Asbestos: Actinolite	Detect			-
Crocidolite Asbestos	Detect			-
Chrysotile Asbestos	Detect			-
Amosite Asbestos	Detect			-
Non-Asbestos Fibre	Detect			-
Tremolite	Detect			-
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		0.163
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	<0.017
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.016
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	<0.015
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	<0.01
Pyrene	mg/kg	0.015	2390(SAT)[#3]	<0.015
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	<0.014
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	<0.015

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	7-7.2
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	<0.014
Benzo(a)pyrene	mg/kg	0.015	5[#1]	<0.015
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	<0.024
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	<0.018
PAH 16 Total	mg/kg	0.118		<0.118
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	3.39
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	1.65
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	7-7.2
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	7-7.2
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			13
pH (Lab)	pH Units	1		8.46
Total Organic Carbon	%	0.2		0.276

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and low density
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	7-7.2
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	WS101
			Location	WS101
			Sample_Depth_Range	0.2-0.4
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	12.1
Barium	mg/kg	0.6	938	93.5
Beryllium	mg/kg	0.01		0.848
Boron	mg/kg	0.7	770	9.01
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	14.6
Chromium (Trivalent)	mg/kg	0.9	907	14.6
Copper	mg/kg	1.4	4710	15.7
Iron	mg/kg	1000		23,300
Lead	mg/kg	0.7	200[#1]	19.8
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	24.7
Selenium	mg/kg	1	350	1.14
Vanadium	mg/kg	0.2		34.1
Zinc	mg/kg	1.9	2710	45.9
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		0.0219
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	0.196
Anthracene	mg/kg	0.016	12800(SAT)[#3]	0.0269
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0.116
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.0892
Pyrene	mg/kg	0.015	2390(SAT)[#3]	0.132
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.0782
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.0949

			Site_ID	
			Field_ID	WS101
			Location	WS101
			Sample_Depth_Range	0.2-0.4
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0.148
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.0681
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0.0638
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0.0602
PAH 16 Total	mg/kg	0.118		1.07
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	1.73
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	1.32
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	WS101
			Location	WS101
			Sample_Depth_Range	0.2-0.4
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		<0.01
cis-1,3-dichloropropene	mg/kg	0.01		<0.01
trans-1,3-dichloropropene	mg/kg	0.01		<0.01
1,1,1,2-tetrachloroethane	mg/kg	0.01		<0.01
1,1,1-trichloroethane	mg/kg	0.007	1.68	<0.007
1,1,2,2-tetrachloroethane	mg/kg	0.01		<0.01
1,1,2-trichloroethane	mg/kg	0.01		<0.01
1,1-dichloroethane	mg/kg	0.008	0.477	<0.008
1,1-dichloroethene	mg/kg	0.01	0.0599	<0.01
1,1-dichloropropene	mg/kg	0.01		<0.01
1,2,3-trichloropropane	mg/kg	0.016		<0.016
1,2,4-trimethylbenzene	mg/kg	0.009		<0.009
1,2-dibromo-3-chloropropane	mg/kg	0.014		<0.014
1,2-dibromoethane	mg/kg	0.01		<0.01
1,2-dichloroethane	mg/kg	0.005	0.00219	<0.005
1,2-dichloropropane	mg/kg	0.01		<0.01
1,3,5-trimethylbenzene	mg/kg	0.008		<0.008
1,3-dichloropropane	mg/kg	0.007		<0.007
2,2-dichloropropane	mg/kg	0.01		<0.01
2-chlorotoluene	mg/kg	0.009		<0.009
4-chlorotoluene	mg/kg	0.01		<0.01
Bromobenzene	mg/kg	0.01		<0.01
Bromochloromethane	mg/kg	0.01		<0.01
Bromodichloromethane	mg/kg	0.007		<0.007
Bromoform	mg/kg	0.01		<0.01
Bromomethane	mg/kg	0.01		<0.01
Carbon disulfide	mg/kg	0.007		<0.007
Carbon tetrachloride	mg/kg	0.01		<0.01
Chlorodibromomethane	mg/kg	0.01		<0.01
Chloroethane	mg/kg	0.01		<0.01
Chloroform	mg/kg	0.008	0.25	<0.008
Chloromethane	mg/kg	0.007		<0.007
cis-1,2-dichloroethene	mg/kg	0.006	0.035	<0.006
Dibromomethane	mg/kg	0.009		<0.009
Dichlorodifluoromethane	mg/kg	0.006		<0.006
Dichloromethane	mg/kg	0.01		<0.01
Isopropylbenzene	mg/kg	0.005		<0.005
n-butylbenzene	mg/kg	0.011		<0.011
n-propylbenzene	mg/kg	0.01		<0.01
p-isopropyltoluene	mg/kg	0.01		<0.01

			Site_ID	
			Field_ID	WS101
			Location	WS101
			Sample_Depth_Range	0.2-0.4
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		<0.01
Trichloroethene	mg/kg	0.009	0.00299	<0.009
tert-butylbenzene	mg/kg	0.014		<0.014
Tetrachloroethene	mg/kg	0.005	0.028	<0.005
trans-1,2-dichloroethene	mg/kg	0.01	0.526	<0.01
Trichlorofluoromethane	mg/kg	0.006		<0.006
Vinyl chloride	mg/kg	0.006	0.000263	<0.006
tert-Amyl methyl ether	mg/kg	0.01		<0.01
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		<0.02
1,2,4-trichlorobenzene	mg/kg	0.02		<0.02
1,2-dichlorobenzene	mg/kg	0.01		<0.01
1,3,5-Trichlorobenzene	mg/kg	0.02		<0.02
1,3-dichlorobenzene	mg/kg	0.008		<0.008
1,4-dichlorobenzene	mg/kg	0.005		<0.005
Chlorobenzene	mg/kg	0.005	0.0704	<0.005
Hexachlorobutadiene	mg/kg	0.02		<0.02
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			17
pH (Lab)	pH Units	1		8.35
Total Organic Carbon	%	0.2		0.544

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and sidential (L
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site_ID	
			Field_ID	WS101
			Location	WS101
			Sample_Depth_Range	0.2-0.4
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	WS102
			Location	WS102
			Sample_Depth_Range	0.4-0.55
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	7.65
Barium	mg/kg	0.6	938	63.5
Beryllium	mg/kg	0.01		0.547
Boron	mg/kg	0.7	770	4.52
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	11.6
Chromium (Trivalent)	mg/kg	0.9	907	11.6
Copper	mg/kg	1.4	4710	13.3
Iron	mg/kg	1000		14,400
Lead	mg/kg	0.7	200[#1]	12.2
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	20.7
Selenium	mg/kg	1	350	1.23
Vanadium	mg/kg	0.2		21.5
Zinc	mg/kg	1.9	2710	49
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		<0.02
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	0.0468
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.016
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	<0.015
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.0298
Pyrene	mg/kg	0.015	2390(SAT)[#3]	0.0491
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.0279
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.0369

			Site_ID	
			Field_ID	WS102
			Location	WS102
			Sample_Depth_Range	0.4-0.55
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	<0.014
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.0349
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0.0351
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0.0242
PAH 16 Total	mg/kg	0.118		0.285
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		8.95
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	7.08
>EC35-EC44 Aromatics	mg/kg	1		1.05
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	WS102
			Location	WS102
			Sample_Depth_Range	0.4-0.55
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	WS102
			Location	WS102
			Sample_Depth_Range	0.4-0.55
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			7
pH (Lab)	pH Units	1		8.94
Total Organic Carbon	%	0.2		0.2

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and R) end-use
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site_ID	
			Field_ID	WS102
			Location	WS102
			Sample_Depth_Range	0.4-0.55
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	WS103
			Location	WS103
			Sample_Depth_Range	0.4-0.5
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	9.75
Barium	mg/kg	0.6	938	64.1
Beryllium	mg/kg	0.01		0.615
Boron	mg/kg	0.7	770	8.37
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	9.91
Chromium (Trivalent)	mg/kg	0.9	907	9.91
Copper	mg/kg	1.4	4710	12.8
Iron	mg/kg	1000		18,900
Lead	mg/kg	0.7	200[#1]	47
Molybdenum	mg/kg	0.1	156	0.297
Nickel	mg/kg	0.2	149	15.1
Selenium	mg/kg	1	350	<1
Vanadium	mg/kg	0.2		28.4
Zinc	mg/kg	1.9	2710	55.7
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		0.0312
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	0.0263
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	0.362
Anthracene	mg/kg	0.016	12800(SAT)[#3]	0.0313
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0.0918
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.235
Pyrene	mg/kg	0.015	2390(SAT)[#3]	0.35
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.229
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.299

			Site_ID	
			Field_ID	WS103
			Location	WS103
			Sample_Depth_Range	0.4-0.5
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0.128
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.254
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	0.0332
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0.216
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0.198
PAH 16 Total	mg/kg	0.118		2.45
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		6.06
>C10-C44 Aliphatics/Aromatics	mg/kg	10		24.2
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	5.69
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		18.2
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	1.15
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	15.1
>EC35-EC44 Aromatics	mg/kg	1		1.88
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		24.2
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	WS103
			Location	WS103
			Sample_Depth_Range	0.4-0.5
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	WS103
			Location	WS103
			Sample_Depth_Range	0.4-0.5
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			17
pH (Lab)	pH Units	1		8.51
Total Organic Carbon	%	0.2		1.41

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and cludes du
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	WS103
			Location	WS103
			Sample_Depth_Range	0.4-0.5
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

https://arcadiso365.sharepoint.com/teams/project-10057335/Prstry_Outpu

			Site_ID	
			Field_ID	WS103A
			Location	WS103A
			Sample_Depth_Range	0.9-1.1
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	4.14
Barium	mg/kg	0.6	938	21.1
Beryllium	mg/kg	0.01		0.212
Boron	mg/kg	0.7	770	5.32
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	2.98
Chromium (Trivalent)	mg/kg	0.9	907	2.86
Copper	mg/kg	1.4	4710	4.58
Iron	mg/kg	1000		6600
Lead	mg/kg	0.7	200[#1]	5.92
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	10.1
Selenium	mg/kg	1	350	1.03
Vanadium	mg/kg	0.2		7.19
Zinc	mg/kg	1.9	2710	19.6
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		<0.02
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	<0.017
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.016
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	<0.015
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	<0.01
Pyrene	mg/kg	0.015	2390(SAT)[#3]	<0.015
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	<0.014
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	<0.015

			Site_ID	
			Field_ID	WS103A
			Location	WS103A
			Sample_Depth_Range	0.9-1.1
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	<0.014
Benzo(a)pyrene	mg/kg	0.015	5[#1]	<0.015
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	<0.024
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	<0.018
PAH 16 Total	mg/kg	0.118		<0.118
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	1.03
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	<1
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	WS103A
			Location	WS103A
			Sample_Depth_Range	0.9-1.1
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	WS103A
			Location	WS103A
			Sample_Depth_Range	0.9-1.1
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			9.8
pH (Lab)	pH Units	1		8.91
Total Organic Carbon	%	0.2		0.231

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral anddirect cont
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site_ID	
			Field_ID	WS103A
			Location	WS103A
			Sample_Depth_Range	0.9-1.1
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

https://arcadiso365.sharepoint.com/teams/project-10057335/Pr˜able1_STI

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.7-2.85
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	4.55
Barium	mg/kg	0.6	938	28.8
Beryllium	mg/kg	0.01		0.51
Boron	mg/kg	0.7	770	10.4
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	4.58
Chromium (Trivalent)	mg/kg	0.9	907	4.58
Copper	mg/kg	1.4	4710	11.3
Iron	mg/kg	1000		9360
Lead	mg/kg	0.7	200[#1]	8.34
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	18.2
Selenium	mg/kg	1	350	<1
Vanadium	mg/kg	0.2		9.85
Zinc	mg/kg	1.9	2710	23.9
Asbestos				
Anthophyllite	Detect			-
Asbestos: Actinolite	Detect			-
Crocidolite Asbestos	Detect			-
Chrysotile Asbestos	Detect			-
Amosite Asbestos	Detect			-
Non-Asbestos Fibre	Detect			-
Tremolite	Detect			-
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		<0.02
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	<0.017
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.016
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	<0.015
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	<0.01
Pyrene	mg/kg	0.015	2390(SAT)[#3]	<0.015
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	<0.014
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	<0.015

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.7-2.85
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	<0.014
Benzo(a)pyrene	mg/kg	0.015	5[#1]	<0.015
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	<0.024
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	<0.018
PAH 16 Total	mg/kg	0.118		<0.118
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	<1
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.7-2.85
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.7-2.85
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			19
pH (Lab)	pH Units	1		8.97
Total Organic Carbon	%	0.2		-

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and and home
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	2.7-2.85
			Sampled_Date_Time	04-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

https://arcadiso365.sharepoint.com/teams/project-10057335/Pr soils.xlsm

			Site_ID	
			Field_ID	WS104A
			Location	WS104A
			Sample_Depth_Range	0.2-0.3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	9.75
Barium	mg/kg	0.6	938	85.1
Beryllium	mg/kg	0.01		0.71
Boron	mg/kg	0.7	770	9.94
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	11.7
Chromium (Trivalent)	mg/kg	0.9	907	11.7
Copper	mg/kg	1.4	4710	15.9
Iron	mg/kg	1000		19,90
Lead	mg/kg	0.7	200[#1]	33.4
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	20.8
Selenium	mg/kg	1	350	<1
Vanadium	mg/kg	0.2		26.1
Zinc	mg/kg	1.9	2710	53.6
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		<0.0
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.013 - 0
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	0.027
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.01
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	0.071
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.01
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0.032
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.0
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.043
Pyrene	mg/kg	0.015	2390(SAT)[#3]	0.063
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.035
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.049

			Site_ID	
			Field_ID	WS104A
			Location	WS104A
			Sample_Depth_Range	0.2-0.3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0.019
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.042
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.02
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0.034
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0.028
PAH 16 Total	mg/kg	0.118		0.47
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.0
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.0
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.0
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	1.76
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.0
>EC5-EC10 Aromatics	mg/kg	0.05		<0.0
>EC6-EC7 Aromatics	mg/kg	0.01		<0.0
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.0
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.0
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	2.47
>EC35-EC44 Aromatics	mg/kg	1		1.08
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.0
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.00
Toluene	mg/kg	0.007	131	<0.00
Ethylbenzene	mg/kg	0.004	11.6	<0.00
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.0
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.0
Xylene Total	mg/kg	0.02	11.5	<0.0
MTBE	mg/kg	0.01	18.7	<0.0
Total BTEX	mg/kg	0.04		<0.0

			Site_ID	
			Field_ID	WS104A
			Location	WS104A
			Sample_Depth_Range	0.2-0.3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		<0.0
cis-1,3-dichloropropene	mg/kg	0.01		<0.0
trans-1,3-dichloropropene	mg/kg	0.01		<0.0
1,1,1,2-tetrachloroethane	mg/kg	0.01		<0.0
1,1,1-trichloroethane	mg/kg	0.007	1.68	<0.00
1,1,2,2-tetrachloroethane	mg/kg	0.01		<0.0
1,1,2-trichloroethane	mg/kg	0.01		<0.0
1,1-dichloroethane	mg/kg	0.008	0.477	<0.00
1,1-dichloroethene	mg/kg	0.01	0.0599	<0.0
1,1-dichloropropene	mg/kg	0.01		<0.0
1,2,3-trichloropropane	mg/kg	0.016		<0.01
1,2,4-trimethylbenzene	mg/kg	0.009		<0.00
1,2-dibromo-3-chloropropane	mg/kg	0.014		<0.01
1,2-dibromoethane	mg/kg	0.01		<0.0
1,2-dichloroethane	mg/kg	0.005	0.00219	<0.00
1,2-dichloropropane	mg/kg	0.01		<0.0
1,3,5-trimethylbenzene	mg/kg	0.008		<0.00
1,3-dichloropropane	mg/kg	0.007		<0.00
2,2-dichloropropane	mg/kg	0.01		<0.0
2-chlorotoluene	mg/kg	0.009		<0.00
4-chlorotoluene	mg/kg	0.01		<0.0
Bromobenzene	mg/kg	0.01		<0.0
Bromochloromethane	mg/kg	0.01		<0.0
Bromodichloromethane	mg/kg	0.007		<0.00
Bromoform	mg/kg	0.01		<0.0
Bromomethane	mg/kg	0.01		<0.0
Carbon disulfide	mg/kg	0.007		<0.00
Carbon tetrachloride	mg/kg	0.01		<0.0
Chlorodibromomethane	mg/kg	0.01		<0.0
Chloroethane	mg/kg	0.01		<0.0
Chloroform	mg/kg	0.008	0.25	<0.00
Chloromethane	mg/kg	0.007		<0.00
cis-1,2-dichloroethene	mg/kg	0.006	0.035	<0.00
Dibromomethane	mg/kg	0.009		<0.00
Dichlorodifluoromethane	mg/kg	0.006		<0.00
Dichloromethane	mg/kg	0.01		<0.0
Isopropylbenzene	mg/kg	0.005		<0.00
n-butylbenzene	mg/kg	0.011		<0.01
n-propylbenzene	mg/kg	0.01		<0.0
p-isopropyltoluene	mg/kg	0.01		<0.0

			Site_ID	
			Field_ID	WS104A
			Location	WS104A
			Sample_Depth_Range	0.2-0.3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		<0.0
Trichloroethene	mg/kg	0.009	0.00299	<0.00
tert-butylbenzene	mg/kg	0.014		<0.01
Tetrachloroethene	mg/kg	0.005	0.028	<0.00
trans-1,2-dichloroethene	mg/kg	0.01	0.526	<0.0
Trichlorofluoromethane	mg/kg	0.006		<0.00
Vinyl chloride	mg/kg	0.006	0.000263	<0.00
tert-Amyl methyl ether	mg/kg	0.01		<0.0
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		<0.0
1,2,4-trichlorobenzene	mg/kg	0.02		<0.0
1,2-dichlorobenzene	mg/kg	0.01		<0.0
1,3,5-Trichlorobenzene	mg/kg	0.02		<0.0
1,3-dichlorobenzene	mg/kg	0.008		<0.00
1,4-dichlorobenzene	mg/kg	0.005		<0.00
Chlorobenzene	mg/kg	0.005	0.0704	<0.00
Hexachlorobutadiene	mg/kg	0.02		<0.0
PCB				
PCB 101	mg/kg	0.003		<0.00
PCB 118	mg/kg	0.003		<0.00
PCB 138	mg/kg	0.003		<0.00
PCB 153	mg/kg	0.003		<0.00
PCB 180	mg/kg	0.003		<0.00
PCB 28	mg/kg	0.003		<0.00
PCB 52	mg/kg	0.003		<0.00
Total PCB 7 Congeners	mg/kg	0.021		<0.02
Other				
Moisture	%			20
pH (Lab)	pH Units	1		8.47
Total Organic Carbon	%	0.2		0.97

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and wn produc
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site_ID	
			Field_ID	WS104A
			Location	WS104A
			Sample_Depth_Range	0.2-0.3
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

https://arcadiso365.sharepoint.com/teams/project-10057335/Prtry Output

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	0.6-0.8
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	11.5
Barium	mg/kg	0.6	938	68.7
Beryllium	mg/kg	0.01		0.779
Boron	mg/kg	0.7	770	11.3
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	19.9
Chromium (Trivalent)	mg/kg	0.9	907	19.9
Copper	mg/kg	1.4	4710	13.4
Iron	mg/kg	1000		20,300
Lead	mg/kg	0.7	200[#1]	15.4
Molybdenum	mg/kg	0.1	156	0.196
Nickel	mg/kg	0.2	149	21.5
Selenium	mg/kg	1	350	<1
Vanadium	mg/kg	0.2		33.4
Zinc	mg/kg	1.9	2710	45.4
Asbestos				
Anthophyllite	Detect			-
Asbestos: Actinolite	Detect			-
Crocidolite Asbestos	Detect			-
Chrysotile Asbestos	Detect			-
Amosite Asbestos	Detect			-
Non-Asbestos Fibre	Detect			-
Tremolite	Detect			-
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		-
PAH				
Naphthalene	mg/kg	0.009	3.15	0.324
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	0.236
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	0.127
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.016
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0.0201
Fluorene	mg/kg	0.01	952(SAT)[#3]	0.0804
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.0705
Pyrene	mg/kg	0.015	2390(SAT)[#3]	0.122
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.0586
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.0369

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	0.6-0.8
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	<0.014
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.0237
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	<0.024
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	<0.018
PAH 16 Total	mg/kg	0.118		1.1
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	<1
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	0.6-0.8
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	0.6-0.8
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		<0.003
PCB 118	mg/kg	0.003		<0.003
PCB 138	mg/kg	0.003		<0.003
PCB 153	mg/kg	0.003		<0.003
PCB 180	mg/kg	0.003		<0.003
PCB 28	mg/kg	0.003		<0.003
PCB 52	mg/kg	0.003		<0.003
Total PCB 7 Congeners	mg/kg	0.021		<0.021
Other				
Moisture	%			18
pH (Lab)	pH Units	1		-
Total Organic Carbon	%	0.2		-

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and ays.
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	0.6-0.8
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	WS105
			Location	WS105
			Sample_Depth_Range	0.5-0.6
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	8.52
Barium	mg/kg	0.6	938	65.2
Beryllium	mg/kg	0.01		0.58
Boron	mg/kg	0.7	770	8.41
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	11.4
Chromium (Trivalent)	mg/kg	0.9	907	11.4
Copper	mg/kg	1.4	4710	14.8
Iron	mg/kg	1000		17,60
Lead	mg/kg	0.7	200[#1]	30.3
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	15.7
Selenium	mg/kg	1	350	<1
Vanadium	mg/kg	0.2		25.3
Zinc	mg/kg	1.9	2710	97
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		0.021
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.013 - 0
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	0.014
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	0.064
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	1.74
Anthracene	mg/kg	0.016	12800(SAT)[#3]	0.12
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0.48
Fluorene	mg/kg	0.01	952(SAT)[#3]	0.019
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.77
Pyrene	mg/kg	0.015	2390(SAT)[#3]	1.53
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.76
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.83

			Site_ID	
			Field_ID	WS105
			Location	WS105
			Sample_Depth_Range	0.5-0.6
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0.34
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.78
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	0.062
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0.48
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0.45
PAH 16 Total	mg/kg	0.118		8.49
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.0
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.0
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		12.1
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.0
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	1.04
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.0
>EC5-EC10 Aromatics	mg/kg	0.05		<0.0
>EC6-EC7 Aromatics	mg/kg	0.01		<0.0
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.0
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.0
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		11.1
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	1.8
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	8.27
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		11.1
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.0
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.00
Toluene	mg/kg	0.007	131	<0.00
Ethylbenzene	mg/kg	0.004	11.6	<0.00
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.0
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.0
Xylene Total	mg/kg	0.02	11.5	<0.0
MTBE	mg/kg	0.01	18.7	<0.0
Total BTEX	mg/kg	0.04		<0.0

			Site_ID	
			Field_ID	WS105
			Location	WS105
			Sample_Depth_Range	0.5-0.6
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		<0.0
cis-1,3-dichloropropene	mg/kg	0.01		<0.0
trans-1,3-dichloropropene	mg/kg	0.01		<0.0
1,1,1,2-tetrachloroethane	mg/kg	0.01		<0.0
1,1,1-trichloroethane	mg/kg	0.007	1.68	<0.00
1,1,2,2-tetrachloroethane	mg/kg	0.01		<0.0
1,1,2-trichloroethane	mg/kg	0.01		<0.0
1,1-dichloroethane	mg/kg	0.008	0.477	<0.00
1,1-dichloroethene	mg/kg	0.01	0.0599	<0.0
1,1-dichloropropene	mg/kg	0.01		<0.0
1,2,3-trichloropropane	mg/kg	0.016		<0.01
1,2,4-trimethylbenzene	mg/kg	0.009		<0.00
1,2-dibromo-3-chloropropane	mg/kg	0.014		<0.01
1,2-dibromoethane	mg/kg	0.01		<0.0
1,2-dichloroethane	mg/kg	0.005	0.00219	<0.00
1,2-dichloropropane	mg/kg	0.01		<0.0
1,3,5-trimethylbenzene	mg/kg	0.008		<0.00
1,3-dichloropropane	mg/kg	0.007		<0.00
2,2-dichloropropane	mg/kg	0.01		<0.0
2-chlorotoluene	mg/kg	0.009		<0.00
4-chlorotoluene	mg/kg	0.01		<0.0
Bromobenzene	mg/kg	0.01		<0.0
Bromochloromethane	mg/kg	0.01		<0.0
Bromodichloromethane	mg/kg	0.007		<0.00
Bromoform	mg/kg	0.01		<0.0
Bromomethane	mg/kg	0.01		<0.0
Carbon disulfide	mg/kg	0.007		<0.00
Carbon tetrachloride	mg/kg	0.01		<0.0
Chlorodibromomethane	mg/kg	0.01		<0.0
Chloroethane	mg/kg	0.01		<0.0
Chloroform	mg/kg	0.008	0.25	<0.00
Chloromethane	mg/kg	0.007		<0.00
cis-1,2-dichloroethene	mg/kg	0.006	0.035	<0.00
Dibromomethane	mg/kg	0.009		<0.00
Dichlorodifluoromethane	mg/kg	0.006		<0.00
Dichloromethane	mg/kg	0.01		<0.0
Isopropylbenzene	mg/kg	0.005		<0.00
n-butylbenzene	mg/kg	0.011		<0.01
n-propylbenzene	mg/kg	0.01		<0.0
p-isopropyltoluene	mg/kg	0.01		<0.0

			Site_ID	
			Field_ID	WS105
			Location	WS105
			Sample_Depth_Range	0.5-0.6
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		<0.0
Trichloroethene	mg/kg	0.009	0.00299	<0.00
tert-butylbenzene	mg/kg	0.014		<0.01
Tetrachloroethene	mg/kg	0.005	0.028	<0.00
trans-1,2-dichloroethene	mg/kg	0.01	0.526	<0.0
Trichlorofluoromethane	mg/kg	0.006		<0.00
Vinyl chloride	mg/kg	0.006	0.000263	<0.00
tert-Amyl methyl ether	mg/kg	0.01		<0.0
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		<0.0
1,2,4-trichlorobenzene	mg/kg	0.02		<0.0
1,2-dichlorobenzene	mg/kg	0.01		<0.0
1,3,5-Trichlorobenzene	mg/kg	0.02		<0.0
1,3-dichlorobenzene	mg/kg	0.008		<0.00
1,4-dichlorobenzene	mg/kg	0.005		<0.00
Chlorobenzene	mg/kg	0.005	0.0704	<0.00
Hexachlorobutadiene	mg/kg	0.02		<0.0
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			19
pH (Lab)	pH Units	1		8.46
Total Organic Carbon	%	0.2		0.70

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	WS105
			Location	WS105
			Sample_Depth_Range	0.5-0.6
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	0.8-0.9
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	12.6
Barium	mg/kg	0.6	938	65.3
Beryllium	mg/kg	0.01		0.888
Boron	mg/kg	0.7	770	12.2
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	18.8
Chromium (Trivalent)	mg/kg	0.9	907	18.8
Copper	mg/kg	1.4	4710	15.8
Iron	mg/kg	1000		25,300
Lead	mg/kg	0.7	200[#1]	16.3
Molybdenum	mg/kg	0.1	156	0.145
Nickel	mg/kg	0.2	149	26.8
Selenium	mg/kg	1	350	<1
Vanadium	mg/kg	0.2		42.1
Zinc	mg/kg	1.9	2710	60.8
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		0.03
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	<0.017
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.016
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	<0.015
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	<0.01
Pyrene	mg/kg	0.015	2390(SAT)[#3]	<0.015
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	<0.014
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	<0.015

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	0.8-0.9
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	<0.014
Benzo(a)pyrene	mg/kg	0.015	5[#1]	<0.015
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	<0.024
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	<0.018
PAH 16 Total	mg/kg	0.118		<0.118
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	2.99
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	0.8-0.9
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	0.8-0.9
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			19
pH (Lab)	pH Units	1		7.97
Total Organic Carbon	%	0.2		0.304

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	0.8-0.9
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	WS106
			Location	WS106
			Sample_Depth_Range	0.4-0.5
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	8.77
Barium	mg/kg	0.6	938	66.6
Beryllium	mg/kg	0.01		0.585
Boron	mg/kg	0.7	770	7.37
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	11.6
Chromium (Trivalent)	mg/kg	0.9	907	11.6
Copper	mg/kg	1.4	4710	14.5
Iron	mg/kg	1000		14,400
Lead	mg/kg	0.7	200[#1]	40.8
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	14.8
Selenium	mg/kg	1	350	<1
Vanadium	mg/kg	0.2		28.3
Zinc	mg/kg	1.9	2710	49.1
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		0.021
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	0.0802
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.016
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0.0258
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.0493
Pyrene	mg/kg	0.015	2390(SAT)[#3]	0.0727
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.0423
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.0565

			Site_ID	
			Field_ID	WS106
			Location	WS106
			Sample_Depth_Range	0.4-0.5
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0.0268
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.0465
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0.0402
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0.0363
PAH 16 Total	mg/kg	0.118		0.477
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	3.04
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	2.73
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	WS106
			Location	WS106
			Sample_Depth_Range	0.4-0.5
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
VOC				
Styrene	mg/kg	0.01		-
cis-1,3-dichloropropene	mg/kg	0.01		-
trans-1,3-dichloropropene	mg/kg	0.01		-
1,1,1,2-tetrachloroethane	mg/kg	0.01		-
1,1,1-trichloroethane	mg/kg	0.007	1.68	-
1,1,2,2-tetrachloroethane	mg/kg	0.01		-
1,1,2-trichloroethane	mg/kg	0.01		-
1,1-dichloroethane	mg/kg	0.008	0.477	-
1,1-dichloroethene	mg/kg	0.01	0.0599	-
1,1-dichloropropene	mg/kg	0.01		-
1,2,3-trichloropropane	mg/kg	0.016		-
1,2,4-trimethylbenzene	mg/kg	0.009		-
1,2-dibromo-3-chloropropane	mg/kg	0.014		-
1,2-dibromoethane	mg/kg	0.01		-
1,2-dichloroethane	mg/kg	0.005	0.00219	-
1,2-dichloropropane	mg/kg	0.01		-
1,3,5-trimethylbenzene	mg/kg	0.008		-
1,3-dichloropropane	mg/kg	0.007		-
2,2-dichloropropane	mg/kg	0.01		-
2-chlorotoluene	mg/kg	0.009		-
4-chlorotoluene	mg/kg	0.01		-
Bromobenzene	mg/kg	0.01		-
Bromochloromethane	mg/kg	0.01		-
Bromodichloromethane	mg/kg	0.007		-
Bromoform	mg/kg	0.01		-
Bromomethane	mg/kg	0.01		-
Carbon disulfide	mg/kg	0.007		-
Carbon tetrachloride	mg/kg	0.01		-
Chlorodibromomethane	mg/kg	0.01		-
Chloroethane	mg/kg	0.01		-
Chloroform	mg/kg	0.008	0.25	-
Chloromethane	mg/kg	0.007		-
cis-1,2-dichloroethene	mg/kg	0.006	0.035	-
Dibromomethane	mg/kg	0.009		-
Dichlorodifluoromethane	mg/kg	0.006		-
Dichloromethane	mg/kg	0.01		-
Isopropylbenzene	mg/kg	0.005		-
n-butylbenzene	mg/kg	0.011		-
n-propylbenzene	mg/kg	0.01		-
p-isopropyltoluene	mg/kg	0.01		-

			Site_ID	
			Field_ID	WS106
			Location	WS106
			Sample_Depth_Range	0.4-0.5
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
sec-butylbenzene	mg/kg	0.01		-
Trichloroethene	mg/kg	0.009	0.00299	-
tert-butylbenzene	mg/kg	0.014		-
Tetrachloroethene	mg/kg	0.005	0.028	-
trans-1,2-dichloroethene	mg/kg	0.01	0.526	-
Trichlorofluoromethane	mg/kg	0.006		-
Vinyl chloride	mg/kg	0.006	0.000263	-
tert-Amyl methyl ether	mg/kg	0.01		-
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		-
1,2,4-trichlorobenzene	mg/kg	0.02		-
1,2-dichlorobenzene	mg/kg	0.01		-
1,3,5-Trichlorobenzene	mg/kg	0.02		-
1,3-dichlorobenzene	mg/kg	0.008		-
1,4-dichlorobenzene	mg/kg	0.005		-
Chlorobenzene	mg/kg	0.005	0.0704	-
Hexachlorobutadiene	mg/kg	0.02		-
PCB				
PCB 101	mg/kg	0.003		-
PCB 118	mg/kg	0.003		-
PCB 138	mg/kg	0.003		-
PCB 153	mg/kg	0.003		-
PCB 180	mg/kg	0.003		-
PCB 28	mg/kg	0.003		-
PCB 52	mg/kg	0.003		-
Total PCB 7 Congeners	mg/kg	0.021		-
Other				
Moisture	%			17
pH (Lab)	pH Units	1		8.67
Total Organic Carbon	%	0.2		1.18

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site_ID	
			Field_ID	WS106
			Location	WS106
			Sample_Depth_Range	0.4-0.5
			Sampled_Date_Time	05-04-202
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	Statistical
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Results
Metals				
Antimony	mg/kg	0.6		18
Arsenic	mg/kg	0.6	37[#1]	18
Barium	mg/kg	0.6	938	18
Beryllium	mg/kg	0.01		18
Boron	mg/kg	0.7	770	18
Chromium (hexavalent)	mg/kg	0.6	21[#1]	18
Chromium	mg/kg	0.9	21[#2]	18
Chromium (Trivalent)	mg/kg	0.9	907	18
Copper	mg/kg	1.4	4710	18
Iron	mg/kg	1000		18
Lead	mg/kg	0.7	200[#1]	18
Molybdenum	mg/kg	0.1	156	18
Nickel	mg/kg	0.2	149	18
Selenium	mg/kg	1	350	18
Vanadium	mg/kg	0.2		18
Zinc	mg/kg	1.9	2710	18
Asbestos				
Anthophyllite	Detect			10
Asbestos: Actinolite	Detect			10
Crocidolite Asbestos	Detect			10
Chrysotile Asbestos	Detect			10
Amosite Asbestos	Detect			10
Non-Asbestos Fibre	Detect			10
Tremolite	Detect			10
Inorganics				
Cyanide (Free)	mg/kg	1		18
Sulphur as S	%	0.02		19
PAH				
Naphthalene	mg/kg	0.009	3.15	18
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	18
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	18
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	18
Anthracene	mg/kg	0.016	12800(SAT)[#3]	18
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	18
Fluorene	mg/kg	0.01	952(SAT)[#3]	18
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	18
Pyrene	mg/kg	0.015	2390(SAT)[#3]	18
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	18
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	18

Analyte	Units	MDL	Site_ID Field_ID Location Sample_Depth_Range Sampled_Date_Time Matrix_Description Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Statistical Number of Results
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	18
Benzo(a)pyrene	mg/kg	0.015	5[#1]	18
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	18
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	18
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	18
PAH 16 Total	mg/kg	0.118		18
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	18
>C6-C8 Aliphatics	mg/kg	0.01	17.7	18
>C10-C44 Aliphatics	mg/kg	5		18
>C10-C44 Aliphatics/Aromatics	mg/kg	10		18
>C8-C10 Aliphatics	mg/kg	0.01	2.29	18
>C10-C12 Aliphatics	mg/kg	1	8.97	18
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	18
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	18
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	18
>C35-C44 Aliphatics	mg/kg	1		18
>C5-C10 Aliphatics	mg/kg	0.05		18
>EC5-EC10 Aromatics	mg/kg	0.05		18
>EC6-EC7 Aromatics	mg/kg	0.01		18
>EC7-EC8 Aromatics	mg/kg	0.01	131	18
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	18
>EC10-EC12 Aromatics	mg/kg	1	16.3	18
>EC10-EC44 Aromatics	mg/kg	5		18
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	18
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	18
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	18
>EC35-EC44 Aromatics	mg/kg	1		18
>EC40-EC44 Aromatics	mg/kg	1		18
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		18
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		18
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	18
Toluene	mg/kg	0.007	131	18
Ethylbenzene	mg/kg	0.004	11.6	18
Xylene (m & p)	mg/kg	0.01	5.75[#7]	18
Xylene (o)	mg/kg	0.01	5.75[#7]	18
Xylene Total	mg/kg	0.02	11.5	18
MTBE	mg/kg	0.01	18.7	18
Total BTEX	mg/kg	0.04		18

Analyte	Units	MDL	Site_ID Field_ID Location Sample_Depth_Range Sampled_Date_Time Matrix_Description Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Statistical Number of Results
VOC				
Styrene	mg/kg	0.01		3
cis-1,3-dichloropropene	mg/kg	0.01		3
trans-1,3-dichloropropene	mg/kg	0.01		3
1,1,1,2-tetrachloroethane	mg/kg	0.01		3
1,1,1-trichloroethane	mg/kg	0.007	1.68	3
1,1,2,2-tetrachloroethane	mg/kg	0.01		3
1,1,2-trichloroethane	mg/kg	0.01		3
1,1-dichloroethane	mg/kg	0.008	0.477	3
1,1-dichloroethene	mg/kg	0.01	0.0599	3
1,1-dichloropropene	mg/kg	0.01		3
1,2,3-trichloropropane	mg/kg	0.016		3
1,2,4-trimethylbenzene	mg/kg	0.009		3
1,2-dibromo-3-chloropropane	mg/kg	0.014		3
1,2-dibromoethane	mg/kg	0.01		3
1,2-dichloroethane	mg/kg	0.005	0.00219	3
1,2-dichloropropane	mg/kg	0.01		3
1,3,5-trimethylbenzene	mg/kg	0.008		3
1,3-dichloropropane	mg/kg	0.007		3
2,2-dichloropropane	mg/kg	0.01		3
2-chlorotoluene	mg/kg	0.009		3
4-chlorotoluene	mg/kg	0.01		3
Bromobenzene	mg/kg	0.01		3
Bromochloromethane	mg/kg	0.01		3
Bromodichloromethane	mg/kg	0.007		3
Bromoform	mg/kg	0.01		3
Bromomethane	mg/kg	0.01		3
Carbon disulfide	mg/kg	0.007		3
Carbon tetrachloride	mg/kg	0.01		3
Chlorodibromomethane	mg/kg	0.01		3
Chloroethane	mg/kg	0.01		3
Chloroform	mg/kg	0.008	0.25	3
Chloromethane	mg/kg	0.007		3
cis-1,2-dichloroethene	mg/kg	0.006	0.035	3
Dibromomethane	mg/kg	0.009		3
Dichlorodifluoromethane	mg/kg	0.006		3
Dichloromethane	mg/kg	0.01		3
Isopropylbenzene	mg/kg	0.005		3
n-butylbenzene	mg/kg	0.011		3
n-propylbenzene	mg/kg	0.01		3
p-isopropyltoluene	mg/kg	0.01		3

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	Statistical
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Results
sec-butylbenzene	mg/kg	0.01		3
Trichloroethene	mg/kg	0.009	0.00299	3
tert-butylbenzene	mg/kg	0.014		3
Tetrachloroethene	mg/kg	0.005	0.028	3
trans-1,2-dichloroethene	mg/kg	0.01	0.526	3
Trichlorofluoromethane	mg/kg	0.006		3
Vinyl chloride	mg/kg	0.006	0.000263	3
tert-Amyl methyl ether	mg/kg	0.01		3
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		3
1,2,4-trichlorobenzene	mg/kg	0.02		3
1,2-dichlorobenzene	mg/kg	0.01		3
1,3,5-Trichlorobenzene	mg/kg	0.02		3
1,3-dichlorobenzene	mg/kg	0.008		3
1,4-dichlorobenzene	mg/kg	0.005		3
Chlorobenzene	mg/kg	0.005	0.0704	3
Hexachlorobutadiene	mg/kg	0.02		3
PCB				
PCB 101	mg/kg	0.003		2
PCB 118	mg/kg	0.003		2
PCB 138	mg/kg	0.003		2
PCB 153	mg/kg	0.003		2
PCB 180	mg/kg	0.003		2
PCB 28	mg/kg	0.003		2
PCB 52	mg/kg	0.003		2
Total PCB 7 Congeners	mg/kg	0.021		2
Other				
Moisture	%			20
pH (Lab)	pH Units	1		19
Total Organic Carbon	%	0.2		17

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	Statistical
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Results
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Detects
Metals				
Antimony	mg/kg	0.6		0
Arsenic	mg/kg	0.6	37[#1]	18
Barium	mg/kg	0.6	938	18
Beryllium	mg/kg	0.01		18
Boron	mg/kg	0.7	770	18
Chromium (hexavalent)	mg/kg	0.6	21[#1]	0
Chromium	mg/kg	0.9	21[#2]	18
Chromium (Trivalent)	mg/kg	0.9	907	18
Copper	mg/kg	1.4	4710	18
Iron	mg/kg	1000		18
Lead	mg/kg	0.7	200[#1]	18
Molybdenum	mg/kg	0.1	156	3
Nickel	mg/kg	0.2	149	18
Selenium	mg/kg	1	350	7
Vanadium	mg/kg	0.2		18
Zinc	mg/kg	1.9	2710	18
Asbestos				
Anthophyllite	Detect			10
Asbestos: Actinolite	Detect			10
Crocidolite Asbestos	Detect			10
Chrysotile Asbestos	Detect			10
Amosite Asbestos	Detect			10
Non-Asbestos Fibre	Detect			10
Tremolite	Detect			10
Inorganics				
Cyanide (Free)	mg/kg	1		0
Sulphur as S	%	0.02		8
PAH				
Naphthalene	mg/kg	0.009	3.15	3
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	3
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	2
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	8
Anthracene	mg/kg	0.016	12800(SAT)[#3]	4
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	7
Fluorene	mg/kg	0.01	952(SAT)[#3]	2
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	8
Pyrene	mg/kg	0.015	2390(SAT)[#3]	8
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	8
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	8

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Detects
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	6
Benzo(a)pyrene	mg/kg	0.015	5[#1]	8
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	3
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	7
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	7
PAH 16 Total	mg/kg	0.118		8
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	0
>C6-C8 Aliphatics	mg/kg	0.01	17.7	0
>C10-C44 Aliphatics	mg/kg	5		2
>C10-C44 Aliphatics/Aromatics	mg/kg	10		4
>C8-C10 Aliphatics	mg/kg	0.01	2.29	0
>C10-C12 Aliphatics	mg/kg	1	8.97	0
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	0
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	9
>C35-C44 Aliphatics	mg/kg	1		1
>C5-C10 Aliphatics	mg/kg	0.05		0
>EC5-EC10 Aromatics	mg/kg	0.05		0
>EC6-EC7 Aromatics	mg/kg	0.01		0
>EC7-EC8 Aromatics	mg/kg	0.01	131	0
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	0
>EC10-EC12 Aromatics	mg/kg	1	16.3	0
>EC10-EC44 Aromatics	mg/kg	5		5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	0
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	3
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	13
>EC35-EC44 Aromatics	mg/kg	1		4
>EC40-EC44 Aromatics	mg/kg	1		0
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		4
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		0
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	0
Toluene	mg/kg	0.007	131	0
Ethylbenzene	mg/kg	0.004	11.6	0
Xylene (m & p)	mg/kg	0.01	5.75[#7]	0
Xylene (o)	mg/kg	0.01	5.75[#7]	0
Xylene Total	mg/kg	0.02	11.5	0
MTBE	mg/kg	0.01	18.7	0
Total BTEX	mg/kg	0.04		0

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Detects
VOC				
Styrene	mg/kg	0.01		0
cis-1,3-dichloropropene	mg/kg	0.01		0
trans-1,3-dichloropropene	mg/kg	0.01		0
1,1,1,2-tetrachloroethane	mg/kg	0.01		0
1,1,1-trichloroethane	mg/kg	0.007	1.68	0
1,1,2,2-tetrachloroethane	mg/kg	0.01		0
1,1,2-trichloroethane	mg/kg	0.01		0
1,1-dichloroethane	mg/kg	0.008	0.477	0
1,1-dichloroethene	mg/kg	0.01	0.0599	0
1,1-dichloropropene	mg/kg	0.01		0
1,2,3-trichloropropane	mg/kg	0.016		0
1,2,4-trimethylbenzene	mg/kg	0.009		0
1,2-dibromo-3-chloropropane	mg/kg	0.014		0
1,2-dibromoethane	mg/kg	0.01		0
1,2-dichloroethane	mg/kg	0.005	0.00219	0
1,2-dichloropropane	mg/kg	0.01		0
1,3,5-trimethylbenzene	mg/kg	0.008		0
1,3-dichloropropane	mg/kg	0.007		0
2,2-dichloropropane	mg/kg	0.01		0
2-chlorotoluene	mg/kg	0.009		0
4-chlorotoluene	mg/kg	0.01		0
Bromobenzene	mg/kg	0.01		0
Bromochloromethane	mg/kg	0.01		0
Bromodichloromethane	mg/kg	0.007		0
Bromoform	mg/kg	0.01		0
Bromomethane	mg/kg	0.01		0
Carbon disulfide	mg/kg	0.007		0
Carbon tetrachloride	mg/kg	0.01		0
Chlorodibromomethane	mg/kg	0.01		0
Chloroethane	mg/kg	0.01		0
Chloroform	mg/kg	0.008	0.25	0
Chloromethane	mg/kg	0.007		0
cis-1,2-dichloroethene	mg/kg	0.006	0.035	0
Dibromomethane	mg/kg	0.009		0
Dichlorodifluoromethane	mg/kg	0.006		0
Dichloromethane	mg/kg	0.01		0
Isopropylbenzene	mg/kg	0.005		0
n-butylbenzene	mg/kg	0.011		0
n-propylbenzene	mg/kg	0.01		0
p-isopropyltoluene	mg/kg	0.01		0

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Detects
sec-butylbenzene	mg/kg	0.01		0
Trichloroethene	mg/kg	0.009	0.00299	0
tert-butylbenzene	mg/kg	0.014		0
Tetrachloroethene	mg/kg	0.005	0.028	0
trans-1,2-dichloroethene	mg/kg	0.01	0.526	0
Trichlorofluoromethane	mg/kg	0.006		0
Vinyl chloride	mg/kg	0.006	0.000263	0
tert-Amyl methyl ether	mg/kg	0.01		0
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		0
1,2,4-trichlorobenzene	mg/kg	0.02		0
1,2-dichlorobenzene	mg/kg	0.01		0
1,3,5-Trichlorobenzene	mg/kg	0.02		0
1,3-dichlorobenzene	mg/kg	0.008		0
1,4-dichlorobenzene	mg/kg	0.005		0
Chlorobenzene	mg/kg	0.005	0.0704	0
Hexachlorobutadiene	mg/kg	0.02		0
PCB				
PCB 101	mg/kg	0.003		0
PCB 118	mg/kg	0.003		0
PCB 138	mg/kg	0.003		0
PCB 153	mg/kg	0.003		0
PCB 180	mg/kg	0.003		0
PCB 28	mg/kg	0.003		0
PCB 52	mg/kg	0.003		0
Total PCB 7 Congeners	mg/kg	0.021		0
Other				
Moisture	%			20
pH (Lab)	pH Units	1		19
Total Organic Carbon	%	0.2		12

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Detects
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Minimum Concentration
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	3.4
Barium	mg/kg	0.6	938	21.1
Beryllium	mg/kg	0.01		0.212
Boron	mg/kg	0.7	770	4.52
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	2.54
Chromium (Trivalent)	mg/kg	0.9	907	2.34
Copper	mg/kg	1.4	4710	4.58
Iron	mg/kg	1000		6600
Lead	mg/kg	0.7	200[#1]	4.61
Molybdenum	mg/kg	0.1	156	<0.1
Nickel	mg/kg	0.2	149	10.1
Selenium	mg/kg	1	350	<1
Vanadium	mg/kg	0.2		6.5
Zinc	mg/kg	1.9	2710	19.6
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		<0.02
PAH				
Naphthalene	mg/kg	0.009	3.15	<0.009
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	<0.008
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.012
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	<0.017
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.016
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	<0.015
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.01
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	<0.01
Pyrene	mg/kg	0.015	2390(SAT)[#3]	<0.015
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	<0.014
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	<0.015

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Minimum Concentration
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	<0.014
Benzo(a)pyrene	mg/kg	0.015	5[#1]	<0.015
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.023
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	<0.024
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	<0.018
PAH 16 Total	mg/kg	0.118		<0.118
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		<5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		<10
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	<1
>C35-C44 Aliphatics	mg/kg	1		<1
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		<5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	<1
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	<1
>EC35-EC44 Aromatics	mg/kg	1		<1
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		<10
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Minimum Concentration
VOC				
Styrene	mg/kg	0.01		<0.01
cis-1,3-dichloropropene	mg/kg	0.01		<0.01
trans-1,3-dichloropropene	mg/kg	0.01		<0.01
1,1,1,2-tetrachloroethane	mg/kg	0.01		<0.01
1,1,1-trichloroethane	mg/kg	0.007	1.68	<0.007
1,1,2,2-tetrachloroethane	mg/kg	0.01		<0.01
1,1,2-trichloroethane	mg/kg	0.01		<0.01
1,1-dichloroethane	mg/kg	0.008	0.477	<0.008
1,1-dichloroethene	mg/kg	0.01	0.0599	<0.01
1,1-dichloropropene	mg/kg	0.01		<0.01
1,2,3-trichloropropane	mg/kg	0.016		<0.016
1,2,4-trimethylbenzene	mg/kg	0.009		<0.009
1,2-dibromo-3-chloropropane	mg/kg	0.014		<0.014
1,2-dibromoethane	mg/kg	0.01		<0.01
1,2-dichloroethane	mg/kg	0.005	0.00219	<0.005
1,2-dichloropropane	mg/kg	0.01		<0.01
1,3,5-trimethylbenzene	mg/kg	0.008		<0.008
1,3-dichloropropane	mg/kg	0.007		<0.007
2,2-dichloropropane	mg/kg	0.01		<0.01
2-chlorotoluene	mg/kg	0.009		<0.009
4-chlorotoluene	mg/kg	0.01		<0.01
Bromobenzene	mg/kg	0.01		<0.01
Bromochloromethane	mg/kg	0.01		<0.01
Bromodichloromethane	mg/kg	0.007		<0.007
Bromoform	mg/kg	0.01		<0.01
Bromomethane	mg/kg	0.01		<0.01
Carbon disulfide	mg/kg	0.007		<0.007
Carbon tetrachloride	mg/kg	0.01		<0.01
Chlorodibromomethane	mg/kg	0.01		<0.01
Chloroethane	mg/kg	0.01		<0.01
Chloroform	mg/kg	0.008	0.25	<0.008
Chloromethane	mg/kg	0.007		<0.007
cis-1,2-dichloroethene	mg/kg	0.006	0.035	<0.006
Dibromomethane	mg/kg	0.009		<0.009
Dichlorodifluoromethane	mg/kg	0.006		<0.006
Dichloromethane	mg/kg	0.01		<0.01
Isopropylbenzene	mg/kg	0.005		<0.005
n-butylbenzene	mg/kg	0.011		<0.011
n-propylbenzene	mg/kg	0.01		<0.01
p-isopropyltoluene	mg/kg	0.01		<0.01

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Minimum Concentration
sec-butylbenzene	mg/kg	0.01		<0.01
Trichloroethene	mg/kg	0.009	0.00299	<0.009
tert-butylbenzene	mg/kg	0.014		<0.014
Tetrachloroethene	mg/kg	0.005	0.028	<0.005
trans-1,2-dichloroethene	mg/kg	0.01	0.526	<0.01
Trichlorofluoromethane	mg/kg	0.006		<0.006
Vinyl chloride	mg/kg	0.006	0.000263	<0.006
tert-Amyl methyl ether	mg/kg	0.01		<0.01
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		<0.02
1,2,4-trichlorobenzene	mg/kg	0.02		<0.02
1,2-dichlorobenzene	mg/kg	0.01		<0.01
1,3,5-Trichlorobenzene	mg/kg	0.02		<0.02
1,3-dichlorobenzene	mg/kg	0.008		<0.008
1,4-dichlorobenzene	mg/kg	0.005		<0.005
Chlorobenzene	mg/kg	0.005	0.0704	<0.005
Hexachlorobutadiene	mg/kg	0.02		<0.02
PCB				
PCB 101	mg/kg	0.003		<0.003
PCB 118	mg/kg	0.003		<0.003
PCB 138	mg/kg	0.003		<0.003
PCB 153	mg/kg	0.003		<0.003
PCB 180	mg/kg	0.003		<0.003
PCB 28	mg/kg	0.003		<0.003
PCB 52	mg/kg	0.003		<0.003
Total PCB 7 Congeners	mg/kg	0.021		<0.021
Other				
Moisture	%			7
pH (Lab)	pH Units	1		7.22
Total Organic Carbon	%	0.2		<0.2

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Minimum Concentra n
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Minimum Detect
Metals				
Antimony	mg/kg	0.6		ND
Arsenic	mg/kg	0.6	37[#1]	3.4
Barium	mg/kg	0.6	938	21.1
Beryllium	mg/kg	0.01		0.212
Boron	mg/kg	0.7	770	4.52
Chromium (hexavalent)	mg/kg	0.6	21[#1]	ND
Chromium	mg/kg	0.9	21[#2]	2.54
Chromium (Trivalent)	mg/kg	0.9	907	2.34
Copper	mg/kg	1.4	4710	4.58
Iron	mg/kg	1000		6600
Lead	mg/kg	0.7	200[#1]	4.61
Molybdenum	mg/kg	0.1	156	0.145
Nickel	mg/kg	0.2	149	10.1
Selenium	mg/kg	1	350	1.03
Vanadium	mg/kg	0.2		6.5
Zinc	mg/kg	1.9	2710	19.6
Asbestos				
Anthophyllite	Detect			ND
Asbestos: Actinolite	Detect			ND
Crocidolite Asbestos	Detect			ND
Chrysotile Asbestos	Detect			ND
Amosite Asbestos	Detect			ND
Non-Asbestos Fibre	Detect			ND
Tremolite	Detect			ND
Inorganics				
Cyanide (Free)	mg/kg	1		ND
Sulphur as S	%	0.02		0.021
PAH				
Naphthalene	mg/kg	0.009	3.15	0.324
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	0.0141
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	0.0263
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	0.0468
Anthracene	mg/kg	0.016	12800(SAT)[#3]	0.0269
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0.0201
Fluorene	mg/kg	0.01	952(SAT)[#3]	0.0193
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.0298
Pyrene	mg/kg	0.015	2390(SAT)[#3]	0.0491
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.0279
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.0369

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Minimum Detect
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0.0198
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.0237
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	0.0289
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0.0341
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0.0242
PAH 16 Total	mg/kg	0.118		0.285
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	ND
>C6-C8 Aliphatics	mg/kg	0.01	17.7	ND
>C10-C44 Aliphatics	mg/kg	5		6.06
>C10-C44 Aliphatics/Aromatics	mg/kg	10		10.6
>C8-C10 Aliphatics	mg/kg	0.01	2.29	ND
>C10-C12 Aliphatics	mg/kg	1	8.97	ND
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	ND
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	2.51
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	1.01
>C35-C44 Aliphatics	mg/kg	1		68.7
>C5-C10 Aliphatics	mg/kg	0.05		ND
>EC5-EC10 Aromatics	mg/kg	0.05		ND
>EC6-EC7 Aromatics	mg/kg	0.01		ND
>EC7-EC8 Aromatics	mg/kg	0.01	131	ND
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	ND
>EC10-EC12 Aromatics	mg/kg	1	16.3	ND
>EC10-EC44 Aromatics	mg/kg	5		8.95
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	ND
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	1.15
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	1.32
>EC35-EC44 Aromatics	mg/kg	1		1.05
>EC40-EC44 Aromatics	mg/kg	1		ND
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		10.4
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		ND
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	ND
Toluene	mg/kg	0.007	131	ND
Ethylbenzene	mg/kg	0.004	11.6	ND
Xylene (m & p)	mg/kg	0.01	5.75[#7]	ND
Xylene (o)	mg/kg	0.01	5.75[#7]	ND
Xylene Total	mg/kg	0.02	11.5	ND
MTBE	mg/kg	0.01	18.7	ND
Total BTEX	mg/kg	0.04		ND

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Minimum Detect
VOC				
Styrene	mg/kg	0.01		ND
cis-1,3-dichloropropene	mg/kg	0.01		ND
trans-1,3-dichloropropene	mg/kg	0.01		ND
1,1,1,2-tetrachloroethane	mg/kg	0.01		ND
1,1,1-trichloroethane	mg/kg	0.007	1.68	ND
1,1,2,2-tetrachloroethane	mg/kg	0.01		ND
1,1,2-trichloroethane	mg/kg	0.01		ND
1,1-dichloroethane	mg/kg	0.008	0.477	ND
1,1-dichloroethene	mg/kg	0.01	0.0599	ND
1,1-dichloropropene	mg/kg	0.01		ND
1,2,3-trichloropropane	mg/kg	0.016		ND
1,2,4-trimethylbenzene	mg/kg	0.009		ND
1,2-dibromo-3-chloropropane	mg/kg	0.014		ND
1,2-dibromoethane	mg/kg	0.01		ND
1,2-dichloroethane	mg/kg	0.005	0.00219	ND
1,2-dichloropropane	mg/kg	0.01		ND
1,3,5-trimethylbenzene	mg/kg	0.008		ND
1,3-dichloropropane	mg/kg	0.007		ND
2,2-dichloropropane	mg/kg	0.01		ND
2-chlorotoluene	mg/kg	0.009		ND
4-chlorotoluene	mg/kg	0.01		ND
Bromobenzene	mg/kg	0.01		ND
Bromochloromethane	mg/kg	0.01		ND
Bromodichloromethane	mg/kg	0.007		ND
Bromoform	mg/kg	0.01		ND
Bromomethane	mg/kg	0.01		ND
Carbon disulfide	mg/kg	0.007		ND
Carbon tetrachloride	mg/kg	0.01		ND
Chlorodibromomethane	mg/kg	0.01		ND
Chloroethane	mg/kg	0.01		ND
Chloroform	mg/kg	0.008	0.25	ND
Chloromethane	mg/kg	0.007		ND
cis-1,2-dichloroethene	mg/kg	0.006	0.035	ND
Dibromomethane	mg/kg	0.009		ND
Dichlorodifluoromethane	mg/kg	0.006		ND
Dichloromethane	mg/kg	0.01		ND
Isopropylbenzene	mg/kg	0.005		ND
n-butylbenzene	mg/kg	0.011		ND
n-propylbenzene	mg/kg	0.01		ND
p-isopropyltoluene	mg/kg	0.01		ND

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Minimum Detect
sec-butylbenzene	mg/kg	0.01		ND
Trichloroethene	mg/kg	0.009	0.00299	ND
tert-butylbenzene	mg/kg	0.014		ND
Tetrachloroethene	mg/kg	0.005	0.028	ND
trans-1,2-dichloroethene	mg/kg	0.01	0.526	ND
Trichlorofluoromethane	mg/kg	0.006		ND
Vinyl chloride	mg/kg	0.006	0.000263	ND
tert-Amyl methyl ether	mg/kg	0.01		ND
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		ND
1,2,4-trichlorobenzene	mg/kg	0.02		ND
1,2-dichlorobenzene	mg/kg	0.01		ND
1,3,5-Trichlorobenzene	mg/kg	0.02		ND
1,3-dichlorobenzene	mg/kg	0.008		ND
1,4-dichlorobenzene	mg/kg	0.005		ND
Chlorobenzene	mg/kg	0.005	0.0704	ND
Hexachlorobutadiene	mg/kg	0.02		ND
PCB				
PCB 101	mg/kg	0.003		ND
PCB 118	mg/kg	0.003		ND
PCB 138	mg/kg	0.003		ND
PCB 153	mg/kg	0.003		ND
PCB 180	mg/kg	0.003		ND
PCB 28	mg/kg	0.003		ND
PCB 52	mg/kg	0.003		ND
Total PCB 7 Congeners	mg/kg	0.021		ND
Other				
Moisture	%			7
pH (Lab)	pH Units	1		7.22
Total Organic Carbon	%	0.2		0.2

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Minimum Detect
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Maximum Concentration
Metals				
Antimony	mg/kg	0.6		<0.6
Arsenic	mg/kg	0.6	37[#1]	15
Barium	mg/kg	0.6	938	111
Beryllium	mg/kg	0.01		1.04
Boron	mg/kg	0.7	770	14.8
Chromium (hexavalent)	mg/kg	0.6	21[#1]	<0.6
Chromium	mg/kg	0.9	21[#2]	19.9
Chromium (Trivalent)	mg/kg	0.9	907	19.9
Copper	mg/kg	1.4	4710	15.9
Iron	mg/kg	1000		25300
Lead	mg/kg	0.7	200[#1]	47
Molybdenum	mg/kg	0.1	156	0.297
Nickel	mg/kg	0.2	149	32.4
Selenium	mg/kg	1	350	1.49
Vanadium	mg/kg	0.2		42.1
Zinc	mg/kg	1.9	2710	97
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		<1
Sulphur as S	%	0.02		0.163
PAH				
Naphthalene	mg/kg	0.009	3.15	0.324
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	0.236
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	<0.12
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	1.74
Anthracene	mg/kg	0.016	12800(SAT)[#3]	<0.16
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0.482
Fluorene	mg/kg	0.01	952(SAT)[#3]	<0.1
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.774
Pyrene	mg/kg	0.015	2390(SAT)[#3]	1.53
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.766
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.835

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Maximum Concentration
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0.341
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.789
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	<0.23
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0.483
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0.452
PAH 16 Total	mg/kg	0.118		8.49
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	<0.01
>C6-C8 Aliphatics	mg/kg	0.01	17.7	<0.01
>C10-C44 Aliphatics	mg/kg	5		74.5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		93.9
>C8-C10 Aliphatics	mg/kg	0.01	2.29	<0.01
>C10-C12 Aliphatics	mg/kg	1	8.97	<1
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	<1
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	2.51
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	5.69
>C35-C44 Aliphatics	mg/kg	1		68.7
>C5-C10 Aliphatics	mg/kg	0.05		<0.05
>EC5-EC10 Aromatics	mg/kg	0.05		<0.05
>EC6-EC7 Aromatics	mg/kg	0.01		<0.01
>EC7-EC8 Aromatics	mg/kg	0.01	131	<0.01
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	<0.01
>EC10-EC12 Aromatics	mg/kg	1	16.3	<1
>EC10-EC44 Aromatics	mg/kg	5		19.4
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	<1
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	1.84
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	15.4
>EC35-EC44 Aromatics	mg/kg	1		2.17
>EC40-EC44 Aromatics	mg/kg	1		<1
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		93.9
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		<0.02
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	<0.009
Toluene	mg/kg	0.007	131	<0.007
Ethylbenzene	mg/kg	0.004	11.6	<0.004
Xylene (m & p)	mg/kg	0.01	5.75[#7]	<0.01
Xylene (o)	mg/kg	0.01	5.75[#7]	<0.01
Xylene Total	mg/kg	0.02	11.5	<0.02
MTBE	mg/kg	0.01	18.7	<0.01
Total BTEX	mg/kg	0.04		<0.04

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Maximum Concentration
VOC				
Styrene	mg/kg	0.01		<0.01
cis-1,3-dichloropropene	mg/kg	0.01		<0.01
trans-1,3-dichloropropene	mg/kg	0.01		<0.01
1,1,1,2-tetrachloroethane	mg/kg	0.01		<0.01
1,1,1-trichloroethane	mg/kg	0.007	1.68	<0.007
1,1,2,2-tetrachloroethane	mg/kg	0.01		<0.01
1,1,2-trichloroethane	mg/kg	0.01		<0.01
1,1-dichloroethane	mg/kg	0.008	0.477	<0.008
1,1-dichloroethene	mg/kg	0.01	0.0599	<0.01
1,1-dichloropropene	mg/kg	0.01		<0.01
1,2,3-trichloropropane	mg/kg	0.016		<0.016
1,2,4-trimethylbenzene	mg/kg	0.009		<0.009
1,2-dibromo-3-chloropropane	mg/kg	0.014		<0.014
1,2-dibromoethane	mg/kg	0.01		<0.01
1,2-dichloroethane	mg/kg	0.005	0.00219	<0.005
1,2-dichloropropane	mg/kg	0.01		<0.01
1,3,5-trimethylbenzene	mg/kg	0.008		<0.008
1,3-dichloropropane	mg/kg	0.007		<0.007
2,2-dichloropropane	mg/kg	0.01		<0.01
2-chlorotoluene	mg/kg	0.009		<0.009
4-chlorotoluene	mg/kg	0.01		<0.01
Bromobenzene	mg/kg	0.01		<0.01
Bromochloromethane	mg/kg	0.01		<0.01
Bromodichloromethane	mg/kg	0.007		<0.007
Bromoform	mg/kg	0.01		<0.01
Bromomethane	mg/kg	0.01		<0.01
Carbon disulfide	mg/kg	0.007		<0.007
Carbon tetrachloride	mg/kg	0.01		<0.01
Chlorodibromomethane	mg/kg	0.01		<0.01
Chloroethane	mg/kg	0.01		<0.01
Chloroform	mg/kg	0.008	0.25	<0.008
Chloromethane	mg/kg	0.007		<0.007
cis-1,2-dichloroethene	mg/kg	0.006	0.035	<0.006
Dibromomethane	mg/kg	0.009		<0.009
Dichlorodifluoromethane	mg/kg	0.006		<0.006
Dichloromethane	mg/kg	0.01		<0.01
Isopropylbenzene	mg/kg	0.005		<0.005
n-butylbenzene	mg/kg	0.011		<0.011
n-propylbenzene	mg/kg	0.01		<0.01
p-isopropyltoluene	mg/kg	0.01		<0.01

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Maximum Concentration
sec-butylbenzene	mg/kg	0.01		<0.01
Trichloroethene	mg/kg	0.009	0.00299	<0.009
tert-butylbenzene	mg/kg	0.014		<0.014
Tetrachloroethene	mg/kg	0.005	0.028	<0.005
trans-1,2-dichloroethene	mg/kg	0.01	0.526	<0.01
Trichlorofluoromethane	mg/kg	0.006		<0.006
Vinyl chloride	mg/kg	0.006	0.000263	<0.006
tert-Amyl methyl ether	mg/kg	0.01		<0.01
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		<0.02
1,2,4-trichlorobenzene	mg/kg	0.02		<0.02
1,2-dichlorobenzene	mg/kg	0.01		<0.01
1,3,5-Trichlorobenzene	mg/kg	0.02		<0.02
1,3-dichlorobenzene	mg/kg	0.008		<0.008
1,4-dichlorobenzene	mg/kg	0.005		<0.005
Chlorobenzene	mg/kg	0.005	0.0704	<0.005
Hexachlorobutadiene	mg/kg	0.02		<0.02
PCB				
PCB 101	mg/kg	0.003		<0.003
PCB 118	mg/kg	0.003		<0.003
PCB 138	mg/kg	0.003		<0.003
PCB 153	mg/kg	0.003		<0.003
PCB 180	mg/kg	0.003		<0.003
PCB 28	mg/kg	0.003		<0.003
PCB 52	mg/kg	0.003		<0.003
Total PCB 7 Congeners	mg/kg	0.021		<0.021
Other				
Moisture	%			22
pH (Lab)	pH Units	1		9.2
Total Organic Carbon	%	0.2		1.41

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Maximum Concentra n
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Maximum Detect
Metals				
Antimony	mg/kg	0.6		ND
Arsenic	mg/kg	0.6	37[#1]	15
Barium	mg/kg	0.6	938	111
Beryllium	mg/kg	0.01		1.04
Boron	mg/kg	0.7	770	14.8
Chromium (hexavalent)	mg/kg	0.6	21[#1]	ND
Chromium	mg/kg	0.9	21[#2]	19.9
Chromium (Trivalent)	mg/kg	0.9	907	19.9
Copper	mg/kg	1.4	4710	15.9
Iron	mg/kg	1000		25300
Lead	mg/kg	0.7	200[#1]	47
Molybdenum	mg/kg	0.1	156	0.297
Nickel	mg/kg	0.2	149	32.4
Selenium	mg/kg	1	350	1.49
Vanadium	mg/kg	0.2		42.1
Zinc	mg/kg	1.9	2710	97
Asbestos				
Anthophyllite	Detect			ND
Asbestos: Actinolite	Detect			ND
Crocidolite Asbestos	Detect			ND
Chrysotile Asbestos	Detect			ND
Amosite Asbestos	Detect			ND
Non-Asbestos Fibre	Detect			ND
Tremolite	Detect			ND
Inorganics				
Cyanide (Free)	mg/kg	1		ND
Sulphur as S	%	0.02		0.163
PAH				
Naphthalene	mg/kg	0.009	3.15	0.324
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	0.236
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	0.0646
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	1.74
Anthracene	mg/kg	0.016	12800(SAT)[#3]	0.12
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0.482
Fluorene	mg/kg	0.01	952(SAT)[#3]	0.0804
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.774
Pyrene	mg/kg	0.015	2390(SAT)[#3]	1.53
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.766
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.835

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Maximum Detect
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0.341
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.789
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	0.0628
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0.483
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0.452
PAH 16 Total	mg/kg	0.118		8.49
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	ND
>C6-C8 Aliphatics	mg/kg	0.01	17.7	ND
>C10-C44 Aliphatics	mg/kg	5		74.5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		93.9
>C8-C10 Aliphatics	mg/kg	0.01	2.29	ND
>C10-C12 Aliphatics	mg/kg	1	8.97	ND
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	ND
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	2.51
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	5.69
>C35-C44 Aliphatics	mg/kg	1		68.7
>C5-C10 Aliphatics	mg/kg	0.05		ND
>EC5-EC10 Aromatics	mg/kg	0.05		ND
>EC6-EC7 Aromatics	mg/kg	0.01		ND
>EC7-EC8 Aromatics	mg/kg	0.01	131	ND
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	ND
>EC10-EC12 Aromatics	mg/kg	1	16.3	ND
>EC10-EC44 Aromatics	mg/kg	5		19.4
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	ND
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	1.84
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	15.4
>EC35-EC44 Aromatics	mg/kg	1		2.17
>EC40-EC44 Aromatics	mg/kg	1		ND
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		93.9
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		ND
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	ND
Toluene	mg/kg	0.007	131	ND
Ethylbenzene	mg/kg	0.004	11.6	ND
Xylene (m & p)	mg/kg	0.01	5.75[#7]	ND
Xylene (o)	mg/kg	0.01	5.75[#7]	ND
Xylene Total	mg/kg	0.02	11.5	ND
MTBE	mg/kg	0.01	18.7	ND
Total BTEX	mg/kg	0.04		ND

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Maximum Detect
VOC				
Styrene	mg/kg	0.01		ND
cis-1,3-dichloropropene	mg/kg	0.01		ND
trans-1,3-dichloropropene	mg/kg	0.01		ND
1,1,1,2-tetrachloroethane	mg/kg	0.01		ND
1,1,1-trichloroethane	mg/kg	0.007	1.68	ND
1,1,2,2-tetrachloroethane	mg/kg	0.01		ND
1,1,2-trichloroethane	mg/kg	0.01		ND
1,1-dichloroethane	mg/kg	0.008	0.477	ND
1,1-dichloroethene	mg/kg	0.01	0.0599	ND
1,1-dichloropropene	mg/kg	0.01		ND
1,2,3-trichloropropane	mg/kg	0.016		ND
1,2,4-trimethylbenzene	mg/kg	0.009		ND
1,2-dibromo-3-chloropropane	mg/kg	0.014		ND
1,2-dibromoethane	mg/kg	0.01		ND
1,2-dichloroethane	mg/kg	0.005	0.00219	ND
1,2-dichloropropane	mg/kg	0.01		ND
1,3,5-trimethylbenzene	mg/kg	0.008		ND
1,3-dichloropropane	mg/kg	0.007		ND
2,2-dichloropropane	mg/kg	0.01		ND
2-chlorotoluene	mg/kg	0.009		ND
4-chlorotoluene	mg/kg	0.01		ND
Bromobenzene	mg/kg	0.01		ND
Bromochloromethane	mg/kg	0.01		ND
Bromodichloromethane	mg/kg	0.007		ND
Bromoform	mg/kg	0.01		ND
Bromomethane	mg/kg	0.01		ND
Carbon disulfide	mg/kg	0.007		ND
Carbon tetrachloride	mg/kg	0.01		ND
Chlorodibromomethane	mg/kg	0.01		ND
Chloroethane	mg/kg	0.01		ND
Chloroform	mg/kg	0.008	0.25	ND
Chloromethane	mg/kg	0.007		ND
cis-1,2-dichloroethene	mg/kg	0.006	0.035	ND
Dibromomethane	mg/kg	0.009		ND
Dichlorodifluoromethane	mg/kg	0.006		ND
Dichloromethane	mg/kg	0.01		ND
Isopropylbenzene	mg/kg	0.005		ND
n-butylbenzene	mg/kg	0.011		ND
n-propylbenzene	mg/kg	0.01		ND
p-isopropyltoluene	mg/kg	0.01		ND

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Maximum Detect
sec-butylbenzene	mg/kg	0.01		ND
Trichloroethene	mg/kg	0.009	0.00299	ND
tert-butylbenzene	mg/kg	0.014		ND
Tetrachloroethene	mg/kg	0.005	0.028	ND
trans-1,2-dichloroethene	mg/kg	0.01	0.526	ND
Trichlorofluoromethane	mg/kg	0.006		ND
Vinyl chloride	mg/kg	0.006	0.000263	ND
tert-Amyl methyl ether	mg/kg	0.01		ND
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		ND
1,2,4-trichlorobenzene	mg/kg	0.02		ND
1,2-dichlorobenzene	mg/kg	0.01		ND
1,3,5-Trichlorobenzene	mg/kg	0.02		ND
1,3-dichlorobenzene	mg/kg	0.008		ND
1,4-dichlorobenzene	mg/kg	0.005		ND
Chlorobenzene	mg/kg	0.005	0.0704	ND
Hexachlorobutadiene	mg/kg	0.02		ND
PCB				
PCB 101	mg/kg	0.003		ND
PCB 118	mg/kg	0.003		ND
PCB 138	mg/kg	0.003		ND
PCB 153	mg/kg	0.003		ND
PCB 180	mg/kg	0.003		ND
PCB 28	mg/kg	0.003		ND
PCB 52	mg/kg	0.003		ND
Total PCB 7 Congeners	mg/kg	0.021		ND
Other				
Moisture	%			22
pH (Lab)	pH Units	1		9.2
Total Organic Carbon	%	0.2		1.41

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Maximum Detect
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Average Concentration
Metals				
Antimony	mg/kg	0.6		0.3
Arsenic	mg/kg	0.6	37[#1]	8.1
Barium	mg/kg	0.6	938	59
Beryllium	mg/kg	0.01		0.63
Boron	mg/kg	0.7	770	9.1
Chromium (hexavalent)	mg/kg	0.6	21[#1]	0.3
Chromium	mg/kg	0.9	21[#2]	10
Chromium (Trivalent)	mg/kg	0.9	907	10
Copper	mg/kg	1.4	4710	12
Iron	mg/kg	1000		15821
Lead	mg/kg	0.7	200[#1]	17
Molybdenum	mg/kg	0.1	156	0.077
Nickel	mg/kg	0.2	149	20
Selenium	mg/kg	1	350	0.77
Vanadium	mg/kg	0.2		22
Zinc	mg/kg	1.9	2710	43
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		0.5
Sulphur as S	%	0.02		0.024
PAH				
Naphthalene	mg/kg	0.009	3.15	0.025
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	0.021
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	0.013
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	0.19
Anthracene	mg/kg	0.016	12800(SAT)[#3]	0.023
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0.062
Fluorene	mg/kg	0.01	952(SAT)[#3]	0.012
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.09
Pyrene	mg/kg	0.015	2390(SAT)[#3]	0.18
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.09
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.1

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Average Concentration
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0.051
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.094
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	0.022
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0.075
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0.067
PAH 16 Total	mg/kg	0.118		1
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	0.005
>C6-C8 Aliphatics	mg/kg	0.01	17.7	0.005
>C10-C44 Aliphatics	mg/kg	5		6.7
>C10-C44 Aliphatics/Aromatics	mg/kg	10		12
>C8-C10 Aliphatics	mg/kg	0.01	2.29	0.005
>C10-C12 Aliphatics	mg/kg	1	8.97	0.5
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	0.5
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	0.61
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	1.5
>C35-C44 Aliphatics	mg/kg	1		4.3
>C5-C10 Aliphatics	mg/kg	0.05		0.025
>EC5-EC10 Aromatics	mg/kg	0.05		0.025
>EC6-EC7 Aromatics	mg/kg	0.01		0.005
>EC7-EC8 Aromatics	mg/kg	0.01	131	0.005
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	0.005
>EC10-EC12 Aromatics	mg/kg	1	16.3	0.5
>EC10-EC44 Aromatics	mg/kg	5		5.6
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	0.5
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	0.68
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	4.1
>EC35-EC44 Aromatics	mg/kg	1		0.73
>EC40-EC44 Aromatics	mg/kg	1		0.5
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		12
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		0.01
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	0.0045
Toluene	mg/kg	0.007	131	0.0035
Ethylbenzene	mg/kg	0.004	11.6	0.002
Xylene (m & p)	mg/kg	0.01	5.75[#7]	0.005
Xylene (o)	mg/kg	0.01	5.75[#7]	0.005
Xylene Total	mg/kg	0.02	11.5	0.01
MTBE	mg/kg	0.01	18.7	0.005
Total BTEX	mg/kg	0.04		0.02

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Average Concentration
VOC				
Styrene	mg/kg	0.01		0.005
cis-1,3-dichloropropene	mg/kg	0.01		0.005
trans-1,3-dichloropropene	mg/kg	0.01		0.005
1,1,1,2-tetrachloroethane	mg/kg	0.01		0.005
1,1,1-trichloroethane	mg/kg	0.007	1.68	0.0035
1,1,2,2-tetrachloroethane	mg/kg	0.01		0.005
1,1,2-trichloroethane	mg/kg	0.01		0.005
1,1-dichloroethane	mg/kg	0.008	0.477	0.004
1,1-dichloroethene	mg/kg	0.01	0.0599	0.005
1,1-dichloropropene	mg/kg	0.01		0.005
1,2,3-trichloropropane	mg/kg	0.016		0.008
1,2,4-trimethylbenzene	mg/kg	0.009		0.0045
1,2-dibromo-3-chloropropane	mg/kg	0.014		0.007
1,2-dibromoethane	mg/kg	0.01		0.005
1,2-dichloroethane	mg/kg	0.005	0.00219	0.0025
1,2-dichloropropane	mg/kg	0.01		0.005
1,3,5-trimethylbenzene	mg/kg	0.008		0.004
1,3-dichloropropane	mg/kg	0.007		0.0035
2,2-dichloropropane	mg/kg	0.01		0.005
2-chlorotoluene	mg/kg	0.009		0.0045
4-chlorotoluene	mg/kg	0.01		0.005
Bromobenzene	mg/kg	0.01		0.005
Bromochloromethane	mg/kg	0.01		0.005
Bromodichloromethane	mg/kg	0.007		0.0035
Bromoform	mg/kg	0.01		0.005
Bromomethane	mg/kg	0.01		0.005
Carbon disulfide	mg/kg	0.007		0.0035
Carbon tetrachloride	mg/kg	0.01		0.005
Chlorodibromomethane	mg/kg	0.01		0.005
Chloroethane	mg/kg	0.01		0.005
Chloroform	mg/kg	0.008	0.25	0.004
Chloromethane	mg/kg	0.007		0.0035
cis-1,2-dichloroethene	mg/kg	0.006	0.035	0.003
Dibromomethane	mg/kg	0.009		0.0045
Dichlorodifluoromethane	mg/kg	0.006		0.003
Dichloromethane	mg/kg	0.01		0.005
Isopropylbenzene	mg/kg	0.005		0.0025
n-butylbenzene	mg/kg	0.011		0.0055
n-propylbenzene	mg/kg	0.01		0.005
p-isopropyltoluene	mg/kg	0.01		0.005

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Average Concentration
sec-butylbenzene	mg/kg	0.01		0.005
Trichloroethene	mg/kg	0.009	0.00299	0.0045
tert-butylbenzene	mg/kg	0.014		0.007
Tetrachloroethene	mg/kg	0.005	0.028	0.0025
trans-1,2-dichloroethene	mg/kg	0.01	0.526	0.005
Trichlorofluoromethane	mg/kg	0.006		0.003
Vinyl chloride	mg/kg	0.006	0.000263	0.003
tert-Amyl methyl ether	mg/kg	0.01		0.005
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		0.01
1,2,4-trichlorobenzene	mg/kg	0.02		0.01
1,2-dichlorobenzene	mg/kg	0.01		0.005
1,3,5-Trichlorobenzene	mg/kg	0.02		0.01
1,3-dichlorobenzene	mg/kg	0.008		0.004
1,4-dichlorobenzene	mg/kg	0.005		0.0025
Chlorobenzene	mg/kg	0.005	0.0704	0.0025
Hexachlorobutadiene	mg/kg	0.02		0.01
PCB				
PCB 101	mg/kg	0.003		
PCB 118	mg/kg	0.003		
PCB 138	mg/kg	0.003		
PCB 153	mg/kg	0.003		
PCB 180	mg/kg	0.003		
PCB 28	mg/kg	0.003		
PCB 52	mg/kg	0.003		
Total PCB 7 Congeners	mg/kg	0.021		
Other				
Moisture	%			17
pH (Lab)	pH Units	1		8.6
Total Organic Carbon	%	0.2		0.43

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Average Concentra n
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Median Concentration
Metals				
Antimony	mg/kg	0.6		0.3
Arsenic	mg/kg	0.6	37[#1]	8.09
Barium	mg/kg	0.6	938	64.65
Beryllium	mg/kg	0.01		0.62
Boron	mg/kg	0.7	770	8.865
Chromium (hexavalent)	mg/kg	0.6	21[#1]	0.3
Chromium	mg/kg	0.9	21[#2]	10.655
Chromium (Trivalent)	mg/kg	0.9	907	10.655
Copper	mg/kg	1.4	4710	13.35
Iron	mg/kg	1000		14450
Lead	mg/kg	0.7	200[#1]	13.2
Molybdenum	mg/kg	0.1	156	0.05
Nickel	mg/kg	0.2	149	20.75
Selenium	mg/kg	1	350	0.5
Vanadium	mg/kg	0.2		25.7
Zinc	mg/kg	1.9	2710	45.65
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		0.5
Sulphur as S	%	0.02		0.01
PAH				
Naphthalene	mg/kg	0.009	3.15	0.0045
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	0.004
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	0.006
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	0.02765
Anthracene	mg/kg	0.016	12800(SAT)[#3]	0.008
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0.0075
Fluorene	mg/kg	0.01	952(SAT)[#3]	0.005
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.0174
Pyrene	mg/kg	0.015	2390(SAT)[#3]	0.0283
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.01745
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.0222

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Median Concentration
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0.007
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.0156
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	0.0115
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0.012
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0.009
PAH 16 Total	mg/kg	0.118		0.172
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	0.005
>C6-C8 Aliphatics	mg/kg	0.01	17.7	0.005
>C10-C44 Aliphatics	mg/kg	5		2.5
>C10-C44 Aliphatics/Aromatics	mg/kg	10		5
>C8-C10 Aliphatics	mg/kg	0.01	2.29	0.005
>C10-C12 Aliphatics	mg/kg	1	8.97	0.5
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	0.5
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	0.5
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	0.755
>C35-C44 Aliphatics	mg/kg	1		0.5
>C5-C10 Aliphatics	mg/kg	0.05		0.025
>EC5-EC10 Aromatics	mg/kg	0.05		0.025
>EC6-EC7 Aromatics	mg/kg	0.01		0.005
>EC7-EC8 Aromatics	mg/kg	0.01	131	0.005
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	0.005
>EC10-EC12 Aromatics	mg/kg	1	16.3	0.5
>EC10-EC44 Aromatics	mg/kg	5		2.5
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	0.5
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	0.5
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	1.7
>EC35-EC44 Aromatics	mg/kg	1		0.5
>EC40-EC44 Aromatics	mg/kg	1		0.5
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		5
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		0.01
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	0.0045
Toluene	mg/kg	0.007	131	0.0035
Ethylbenzene	mg/kg	0.004	11.6	0.002
Xylene (m & p)	mg/kg	0.01	5.75[#7]	0.005
Xylene (o)	mg/kg	0.01	5.75[#7]	0.005
Xylene Total	mg/kg	0.02	11.5	0.01
MTBE	mg/kg	0.01	18.7	0.005
Total BTEX	mg/kg	0.04		0.02

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Median Concentration
VOC				
Styrene	mg/kg	0.01		0.005
cis-1,3-dichloropropene	mg/kg	0.01		0.005
trans-1,3-dichloropropene	mg/kg	0.01		0.005
1,1,1,2-tetrachloroethane	mg/kg	0.01		0.005
1,1,1-trichloroethane	mg/kg	0.007	1.68	0.0035
1,1,2,2-tetrachloroethane	mg/kg	0.01		0.005
1,1,2-trichloroethane	mg/kg	0.01		0.005
1,1-dichloroethane	mg/kg	0.008	0.477	0.004
1,1-dichloroethene	mg/kg	0.01	0.0599	0.005
1,1-dichloropropene	mg/kg	0.01		0.005
1,2,3-trichloropropane	mg/kg	0.016		0.008
1,2,4-trimethylbenzene	mg/kg	0.009		0.0045
1,2-dibromo-3-chloropropane	mg/kg	0.014		0.007
1,2-dibromoethane	mg/kg	0.01		0.005
1,2-dichloroethane	mg/kg	0.005	0.00219	0.0025
1,2-dichloropropane	mg/kg	0.01		0.005
1,3,5-trimethylbenzene	mg/kg	0.008		0.004
1,3-dichloropropane	mg/kg	0.007		0.0035
2,2-dichloropropane	mg/kg	0.01		0.005
2-chlorotoluene	mg/kg	0.009		0.0045
4-chlorotoluene	mg/kg	0.01		0.005
Bromobenzene	mg/kg	0.01		0.005
Bromochloromethane	mg/kg	0.01		0.005
Bromodichloromethane	mg/kg	0.007		0.0035
Bromoform	mg/kg	0.01		0.005
Bromomethane	mg/kg	0.01		0.005
Carbon disulfide	mg/kg	0.007		0.0035
Carbon tetrachloride	mg/kg	0.01		0.005
Chlorodibromomethane	mg/kg	0.01		0.005
Chloroethane	mg/kg	0.01		0.005
Chloroform	mg/kg	0.008	0.25	0.004
Chloromethane	mg/kg	0.007		0.0035
cis-1,2-dichloroethene	mg/kg	0.006	0.035	0.003
Dibromomethane	mg/kg	0.009		0.0045
Dichlorodifluoromethane	mg/kg	0.006		0.003
Dichloromethane	mg/kg	0.01		0.005
Isopropylbenzene	mg/kg	0.005		0.0025
n-butylbenzene	mg/kg	0.011		0.0055
n-propylbenzene	mg/kg	0.01		0.005
p-isopropyltoluene	mg/kg	0.01		0.005

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Median Concentration
sec-butylbenzene	mg/kg	0.01		0.005
Trichloroethene	mg/kg	0.009	0.00299	0.0045
tert-butylbenzene	mg/kg	0.014		0.007
Tetrachloroethene	mg/kg	0.005	0.028	0.0025
trans-1,2-dichloroethene	mg/kg	0.01	0.526	0.005
Trichlorofluoromethane	mg/kg	0.006		0.003
Vinyl chloride	mg/kg	0.006	0.000263	0.003
tert-Amyl methyl ether	mg/kg	0.01		0.005
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		0.01
1,2,4-trichlorobenzene	mg/kg	0.02		0.01
1,2-dichlorobenzene	mg/kg	0.01		0.005
1,3,5-Trichlorobenzene	mg/kg	0.02		0.01
1,3-dichlorobenzene	mg/kg	0.008		0.004
1,4-dichlorobenzene	mg/kg	0.005		0.0025
Chlorobenzene	mg/kg	0.005	0.0704	0.0025
Hexachlorobutadiene	mg/kg	0.02		0.01
PCB				
PCB 101	mg/kg	0.003		0.0015
PCB 118	mg/kg	0.003		0.0015
PCB 138	mg/kg	0.003		0.0015
PCB 153	mg/kg	0.003		0.0015
PCB 180	mg/kg	0.003		0.0015
PCB 28	mg/kg	0.003		0.0015
PCB 52	mg/kg	0.003		0.0015
Total PCB 7 Congeners	mg/kg	0.021		0.0105
Other				
Moisture	%			18
pH (Lab)	pH Units	1		8.73
Total Organic Carbon	%	0.2		0.276

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Median Concentra n
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Standard Deviation
Metals				
Antimony	mg/kg	0.6		0
Arsenic	mg/kg	0.6	37[#1]	3.3
Barium	mg/kg	0.6	938	26
Beryllium	mg/kg	0.01		0.21
Boron	mg/kg	0.7	770	2.7
Chromium (hexavalent)	mg/kg	0.6	21[#1]	0
Chromium	mg/kg	0.9	21[#2]	5.1
Chromium (Trivalent)	mg/kg	0.9	907	5.2
Copper	mg/kg	1.4	4710	3.3
Iron	mg/kg	1000		5992
Lead	mg/kg	0.7	200[#1]	13
Molybdenum	mg/kg	0.1	156	0.068
Nickel	mg/kg	0.2	149	5.7
Selenium	mg/kg	1	350	0.36
Vanadium	mg/kg	0.2		11
Zinc	mg/kg	1.9	2710	20
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		0
Sulphur as S	%	0.02		0.035
PAH				
Naphthalene	mg/kg	0.009	3.15	0.075
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	0.055
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	0.018
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	0.43
Anthracene	mg/kg	0.016	12800(SAT)[#3]	0.031
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0.12
Fluorene	mg/kg	0.01	952(SAT)[#3]	0.02
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0.19
Pyrene	mg/kg	0.015	2390(SAT)[#3]	0.38
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0.18
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0.2

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Standard Deviation
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0.086
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0.19
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	0.027
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0.12
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0.12
PAH 16 Total	mg/kg	0.118		2.1
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	0
>C6-C8 Aliphatics	mg/kg	0.01	17.7	0
>C10-C44 Aliphatics	mg/kg	5		17
>C10-C44 Aliphatics/Aromatics	mg/kg	10		21
>C8-C10 Aliphatics	mg/kg	0.01	2.29	0
>C10-C12 Aliphatics	mg/kg	1	8.97	0
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	0
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	0.47
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	1.5
>C35-C44 Aliphatics	mg/kg	1		16
>C5-C10 Aliphatics	mg/kg	0.05		0
>EC5-EC10 Aromatics	mg/kg	0.05		0
>EC6-EC7 Aromatics	mg/kg	0.01		0
>EC7-EC8 Aromatics	mg/kg	0.01	131	0
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	0
>EC10-EC12 Aromatics	mg/kg	1	16.3	0
>EC10-EC44 Aromatics	mg/kg	5		5.6
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	0
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	0.44
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	4.9
>EC35-EC44 Aromatics	mg/kg	1		0.51
>EC40-EC44 Aromatics	mg/kg	1		0
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		21
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		0
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	0
Toluene	mg/kg	0.007	131	0
Ethylbenzene	mg/kg	0.004	11.6	0
Xylene (m & p)	mg/kg	0.01	5.75[#7]	0
Xylene (o)	mg/kg	0.01	5.75[#7]	0
Xylene Total	mg/kg	0.02	11.5	0
MTBE	mg/kg	0.01	18.7	0
Total BTEX	mg/kg	0.04		0

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Standard Deviation
VOC				
Styrene	mg/kg	0.01		0
cis-1,3-dichloropropene	mg/kg	0.01		0
trans-1,3-dichloropropene	mg/kg	0.01		0
1,1,1,2-tetrachloroethane	mg/kg	0.01		0
1,1,1-trichloroethane	mg/kg	0.007	1.68	0
1,1,2,2-tetrachloroethane	mg/kg	0.01		0
1,1,2-trichloroethane	mg/kg	0.01		0
1,1-dichloroethane	mg/kg	0.008	0.477	0
1,1-dichloroethene	mg/kg	0.01	0.0599	0
1,1-dichloropropene	mg/kg	0.01		0
1,2,3-trichloropropane	mg/kg	0.016		0
1,2,4-trimethylbenzene	mg/kg	0.009		0
1,2-dibromo-3-chloropropane	mg/kg	0.014		0
1,2-dibromoethane	mg/kg	0.01		0
1,2-dichloroethane	mg/kg	0.005	0.00219	0
1,2-dichloropropane	mg/kg	0.01		0
1,3,5-trimethylbenzene	mg/kg	0.008		0
1,3-dichloropropane	mg/kg	0.007		0
2,2-dichloropropane	mg/kg	0.01		0
2-chlorotoluene	mg/kg	0.009		0
4-chlorotoluene	mg/kg	0.01		0
Bromobenzene	mg/kg	0.01		0
Bromochloromethane	mg/kg	0.01		0
Bromodichloromethane	mg/kg	0.007		0
Bromoform	mg/kg	0.01		0
Bromomethane	mg/kg	0.01		0
Carbon disulfide	mg/kg	0.007		0
Carbon tetrachloride	mg/kg	0.01		0
Chlorodibromomethane	mg/kg	0.01		0
Chloroethane	mg/kg	0.01		0
Chloroform	mg/kg	0.008	0.25	0
Chloromethane	mg/kg	0.007		0
cis-1,2-dichloroethene	mg/kg	0.006	0.035	0
Dibromomethane	mg/kg	0.009		0
Dichlorodifluoromethane	mg/kg	0.006		0
Dichloromethane	mg/kg	0.01		0
Isopropylbenzene	mg/kg	0.005		0
n-butylbenzene	mg/kg	0.011		0
n-propylbenzene	mg/kg	0.01		0
p-isopropyltoluene	mg/kg	0.01		0

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Standard Deviation
sec-butylbenzene	mg/kg	0.01		0
Trichloroethene	mg/kg	0.009	0.00299	0
tert-butylbenzene	mg/kg	0.014		0
Tetrachloroethene	mg/kg	0.005	0.028	0
trans-1,2-dichloroethene	mg/kg	0.01	0.526	0
Trichlorofluoromethane	mg/kg	0.006		0
Vinyl chloride	mg/kg	0.006	0.000263	0
tert-Amyl methyl ether	mg/kg	0.01		0
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		0
1,2,4-trichlorobenzene	mg/kg	0.02		0
1,2-dichlorobenzene	mg/kg	0.01		0
1,3,5-Trichlorobenzene	mg/kg	0.02		0
1,3-dichlorobenzene	mg/kg	0.008		0
1,4-dichlorobenzene	mg/kg	0.005		0
Chlorobenzene	mg/kg	0.005	0.0704	0
Hexachlorobutadiene	mg/kg	0.02		0
PCB				
PCB 101	mg/kg	0.003		
PCB 118	mg/kg	0.003		
PCB 138	mg/kg	0.003		
PCB 153	mg/kg	0.003		
PCB 180	mg/kg	0.003		
PCB 28	mg/kg	0.003		
PCB 52	mg/kg	0.003		
Total PCB 7 Congeners	mg/kg	0.021		
Other				
Moisture	%			4
pH (Lab)	pH Units	1		0.47
Total Organic Carbon	%	0.2		0.41

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Standard Deviation
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a v
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

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			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Guideline Exceedances
Metals				
Antimony	mg/kg	0.6		0
Arsenic	mg/kg	0.6	37[#1]	0
Barium	mg/kg	0.6	938	0
Beryllium	mg/kg	0.01		0
Boron	mg/kg	0.7	770	0
Chromium (hexavalent)	mg/kg	0.6	21[#1]	0
Chromium	mg/kg	0.9	21[#2]	0
Chromium (Trivalent)	mg/kg	0.9	907	0
Copper	mg/kg	1.4	4710	0
Iron	mg/kg	1000		0
Lead	mg/kg	0.7	200[#1]	0
Molybdenum	mg/kg	0.1	156	0
Nickel	mg/kg	0.2	149	0
Selenium	mg/kg	1	350	0
Vanadium	mg/kg	0.2		0
Zinc	mg/kg	1.9	2710	0
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		0
Sulphur as S	%	0.02		0
PAH				
Naphthalene	mg/kg	0.009	3.15	0
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	0
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	0
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	0
Anthracene	mg/kg	0.016	12800(SAT)[#3]	0
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0
Fluorene	mg/kg	0.01	952(SAT)[#3]	0
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0
Pyrene	mg/kg	0.015	2390(SAT)[#3]	0
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Guideline Exceedances
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	0
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0
PAH 16 Total	mg/kg	0.118		0
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	0
>C6-C8 Aliphatics	mg/kg	0.01	17.7	0
>C10-C44 Aliphatics	mg/kg	5		0
>C10-C44 Aliphatics/Aromatics	mg/kg	10		0
>C8-C10 Aliphatics	mg/kg	0.01	2.29	0
>C10-C12 Aliphatics	mg/kg	1	8.97	0
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	0
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	0
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	0
>C35-C44 Aliphatics	mg/kg	1		0
>C5-C10 Aliphatics	mg/kg	0.05		0
>EC5-EC10 Aromatics	mg/kg	0.05		0
>EC6-EC7 Aromatics	mg/kg	0.01		0
>EC7-EC8 Aromatics	mg/kg	0.01	131	0
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	0
>EC10-EC12 Aromatics	mg/kg	1	16.3	0
>EC10-EC44 Aromatics	mg/kg	5		0
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	0
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	0
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	0
>EC35-EC44 Aromatics	mg/kg	1		0
>EC40-EC44 Aromatics	mg/kg	1		0
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		0
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		0
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	18
Toluene	mg/kg	0.007	131	0
Ethylbenzene	mg/kg	0.004	11.6	0
Xylene (m & p)	mg/kg	0.01	5.75[#7]	0
Xylene (o)	mg/kg	0.01	5.75[#7]	0
Xylene Total	mg/kg	0.02	11.5	0
MTBE	mg/kg	0.01	18.7	0
Total BTEX	mg/kg	0.04		0

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Guideline Exceedances
VOC				
Styrene	mg/kg	0.01		0
cis-1,3-dichloropropene	mg/kg	0.01		0
trans-1,3-dichloropropene	mg/kg	0.01		0
1,1,1,2-tetrachloroethane	mg/kg	0.01		0
1,1,1-trichloroethane	mg/kg	0.007	1.68	0
1,1,2,2-tetrachloroethane	mg/kg	0.01		0
1,1,2-trichloroethane	mg/kg	0.01		0
1,1-dichloroethane	mg/kg	0.008	0.477	0
1,1-dichloroethene	mg/kg	0.01	0.0599	0
1,1-dichloropropene	mg/kg	0.01		0
1,2,3-trichloropropane	mg/kg	0.016		0
1,2,4-trimethylbenzene	mg/kg	0.009		0
1,2-dibromo-3-chloropropane	mg/kg	0.014		0
1,2-dibromoethane	mg/kg	0.01		0
1,2-dichloroethane	mg/kg	0.005	0.00219	0
1,2-dichloropropane	mg/kg	0.01		0
1,3,5-trimethylbenzene	mg/kg	0.008		0
1,3-dichloropropane	mg/kg	0.007		0
2,2-dichloropropane	mg/kg	0.01		0
2-chlorotoluene	mg/kg	0.009		0
4-chlorotoluene	mg/kg	0.01		0
Bromobenzene	mg/kg	0.01		0
Bromochloromethane	mg/kg	0.01		0
Bromodichloromethane	mg/kg	0.007		0
Bromoform	mg/kg	0.01		0
Bromomethane	mg/kg	0.01		0
Carbon disulfide	mg/kg	0.007		0
Carbon tetrachloride	mg/kg	0.01		0
Chlorodibromomethane	mg/kg	0.01		0
Chloroethane	mg/kg	0.01		0
Chloroform	mg/kg	0.008	0.25	0
Chloromethane	mg/kg	0.007		0
cis-1,2-dichloroethene	mg/kg	0.006	0.035	0
Dibromomethane	mg/kg	0.009		0
Dichlorodifluoromethane	mg/kg	0.006		0
Dichloromethane	mg/kg	0.01		0
Isopropylbenzene	mg/kg	0.005		0
n-butylbenzene	mg/kg	0.011		0
n-propylbenzene	mg/kg	0.01		0
p-isopropyltoluene	mg/kg	0.01		0

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Guideline Exceedances
sec-butylbenzene	mg/kg	0.01		0
Trichloroethene	mg/kg	0.009	0.00299	0
tert-butylbenzene	mg/kg	0.014		0
Tetrachloroethene	mg/kg	0.005	0.028	0
trans-1,2-dichloroethene	mg/kg	0.01	0.526	0
Trichlorofluoromethane	mg/kg	0.006		0
Vinyl chloride	mg/kg	0.006	0.000263	0
tert-Amyl methyl ether	mg/kg	0.01		0
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		0
1,2,4-trichlorobenzene	mg/kg	0.02		0
1,2-dichlorobenzene	mg/kg	0.01		0
1,3,5-Trichlorobenzene	mg/kg	0.02		0
1,3-dichlorobenzene	mg/kg	0.008		0
1,4-dichlorobenzene	mg/kg	0.005		0
Chlorobenzene	mg/kg	0.005	0.0704	0
Hexachlorobutadiene	mg/kg	0.02		0
PCB				
PCB 101	mg/kg	0.003		0
PCB 118	mg/kg	0.003		0
PCB 138	mg/kg	0.003		0
PCB 153	mg/kg	0.003		0
PCB 180	mg/kg	0.003		0
PCB 28	mg/kg	0.003		0
PCB 52	mg/kg	0.003		0
Total PCB 7 Congeners	mg/kg	0.021		0
Other				
Moisture	%			0
pH (Lab)	pH Units	1		0
Total Organic Carbon	%	0.2		0

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Guideline Exceedances
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a va
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

https://arcadiso365.sharepoint.com/teams/project-10057335/Pr

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Guideline Exceedances (Detects Only)
Metals				
Antimony	mg/kg	0.6		0
Arsenic	mg/kg	0.6	37[#1]	0
Barium	mg/kg	0.6	938	0
Beryllium	mg/kg	0.01		0
Boron	mg/kg	0.7	770	0
Chromium (hexavalent)	mg/kg	0.6	21[#1]	0
Chromium	mg/kg	0.9	21[#2]	0
Chromium (Trivalent)	mg/kg	0.9	907	0
Copper	mg/kg	1.4	4710	0
Iron	mg/kg	1000		0
Lead	mg/kg	0.7	200[#1]	0
Molybdenum	mg/kg	0.1	156	0
Nickel	mg/kg	0.2	149	0
Selenium	mg/kg	1	350	0
Vanadium	mg/kg	0.2		0
Zinc	mg/kg	1.9	2710	0
Asbestos				
Anthophyllite	Detect			0
Asbestos: Actinolite	Detect			0
Crocidolite Asbestos	Detect			0
Chrysotile Asbestos	Detect			0
Amosite Asbestos	Detect			0
Non-Asbestos Fibre	Detect			0
Tremolite	Detect			0
Inorganics				
Cyanide (Free)	mg/kg	1		0
Sulphur as S	%	0.02		0
PAH				
Naphthalene	mg/kg	0.009	3.15	0
Acenaphthene	mg/kg	0.008	717(SAT)[#3]	0
Acenaphthylene	mg/kg	0.012	950(SAT)[#3]	0
Fluoranthene	mg/kg	0.017	1030(SAT)[#3]	0
Anthracene	mg/kg	0.016	12800(SAT)[#3]	0
Phenanthrene	mg/kg	0.015	232(SAT)[#3]	0
Fluorene	mg/kg	0.01	952(SAT)[#3]	0
Chrysene	mg/kg	0.01	22.5(SAT)[#3]	0
Pyrene	mg/kg	0.015	2390(SAT)[#3]	0
Benzo(a)anthracene	mg/kg	0.014	6.59(SAT)[#3]	0
Benzo(b)fluoranthene	mg/kg	0.015	3.48(SAT)[#3]	0

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Guideline Exceedances (Detects Only)
Benzo(k)fluoranthene	mg/kg	0.014	96.9(SAT)[#3]	0
Benzo(a)pyrene	mg/kg	0.015	5[#1]	0
Dibenz(a,h)anthracene	mg/kg	0.023	0.274(SAT)[#3]	0
Benzo(g,h,i)perylene	mg/kg	0.024	340(SAT)[#3]	0
Indeno(1,2,3-c,d)pyrene	mg/kg	0.018	38.4(SAT)[#3]	0
PAH 16 Total	mg/kg	0.118		0
TPH CWG				
>C5-C6 Aliphatics	mg/kg	0.01	13.2	0
>C6-C8 Aliphatics	mg/kg	0.01	17.7	0
>C10-C44 Aliphatics	mg/kg	5		0
>C10-C44 Aliphatics/Aromatics	mg/kg	10		0
>C8-C10 Aliphatics	mg/kg	0.01	2.29	0
>C10-C12 Aliphatics	mg/kg	1	8.97	0
>C12-C16 Aliphatics	mg/kg	1	40.7(SAT)[#3]	0
>C16-C21 Aliphatics	mg/kg	1	64000(SAT)[#6]	0
>C21-C35 Aliphatics	mg/kg	1	64000(SAT)[#6]	0
>C35-C44 Aliphatics	mg/kg	1		0
>C5-C10 Aliphatics	mg/kg	0.05		0
>EC5-EC10 Aromatics	mg/kg	0.05		0
>EC6-EC7 Aromatics	mg/kg	0.01		0
>EC7-EC8 Aromatics	mg/kg	0.01	131	0
>EC8-EC10 Aromatics	mg/kg	0.01	3.16	0
>EC10-EC12 Aromatics	mg/kg	1	16.3	0
>EC10-EC44 Aromatics	mg/kg	5		0
>EC12-EC16 Aromatics	mg/kg	1	78(SAT)[#3]	0
>EC16-EC21 Aromatics	mg/kg	1	994(SAT)[#3]	0
>EC21-EC35 Aromatics	mg/kg	1	1720(SAT)[#3]	0
>EC35-EC44 Aromatics	mg/kg	1		0
>EC40-EC44 Aromatics	mg/kg	1		0
TPH >C5-C44 Aliphatics/Aromatics	mg/kg	10		0
TPH				
GRO TOT (C5-C10) Moisture Corrected	mg/kg	0.02		0
BTEX and MTBE				
Benzene	mg/kg	0.009	0.0713	0
Toluene	mg/kg	0.007	131	0
Ethylbenzene	mg/kg	0.004	11.6	0
Xylene (m & p)	mg/kg	0.01	5.75[#7]	0
Xylene (o)	mg/kg	0.01	5.75[#7]	0
Xylene Total	mg/kg	0.02	11.5	0
MTBE	mg/kg	0.01	18.7	0
Total BTEX	mg/kg	0.04		0

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Guideline Exceedances (Detects Only)
VOC				
Styrene	mg/kg	0.01		0
cis-1,3-dichloropropene	mg/kg	0.01		0
trans-1,3-dichloropropene	mg/kg	0.01		0
1,1,1,2-tetrachloroethane	mg/kg	0.01		0
1,1,1-trichloroethane	mg/kg	0.007	1.68	0
1,1,2,2-tetrachloroethane	mg/kg	0.01		0
1,1,2-trichloroethane	mg/kg	0.01		0
1,1-dichloroethane	mg/kg	0.008	0.477	0
1,1-dichloroethene	mg/kg	0.01	0.0599	0
1,1-dichloropropene	mg/kg	0.01		0
1,2,3-trichloropropane	mg/kg	0.016		0
1,2,4-trimethylbenzene	mg/kg	0.009		0
1,2-dibromo-3-chloropropane	mg/kg	0.014		0
1,2-dibromoethane	mg/kg	0.01		0
1,2-dichloroethane	mg/kg	0.005	0.00219	0
1,2-dichloropropane	mg/kg	0.01		0
1,3,5-trimethylbenzene	mg/kg	0.008		0
1,3-dichloropropane	mg/kg	0.007		0
2,2-dichloropropane	mg/kg	0.01		0
2-chlorotoluene	mg/kg	0.009		0
4-chlorotoluene	mg/kg	0.01		0
Bromobenzene	mg/kg	0.01		0
Bromochloromethane	mg/kg	0.01		0
Bromodichloromethane	mg/kg	0.007		0
Bromoform	mg/kg	0.01		0
Bromomethane	mg/kg	0.01		0
Carbon disulfide	mg/kg	0.007		0
Carbon tetrachloride	mg/kg	0.01		0
Chlorodibromomethane	mg/kg	0.01		0
Chloroethane	mg/kg	0.01		0
Chloroform	mg/kg	0.008	0.25	0
Chloromethane	mg/kg	0.007		0
cis-1,2-dichloroethene	mg/kg	0.006	0.035	0
Dibromomethane	mg/kg	0.009		0
Dichlorodifluoromethane	mg/kg	0.006		0
Dichloromethane	mg/kg	0.01		0
Isopropylbenzene	mg/kg	0.005		0
n-butylbenzene	mg/kg	0.011		0
n-propylbenzene	mg/kg	0.01		0
p-isopropyltoluene	mg/kg	0.01		0

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Guideline Exceedances (Detects Only)
sec-butylbenzene	mg/kg	0.01		0
Trichloroethene	mg/kg	0.009	0.00299	0
tert-butylbenzene	mg/kg	0.014		0
Tetrachloroethene	mg/kg	0.005	0.028	0
trans-1,2-dichloroethene	mg/kg	0.01	0.526	0
Trichlorofluoromethane	mg/kg	0.006		0
Vinyl chloride	mg/kg	0.006	0.000263	0
tert-Amyl methyl ether	mg/kg	0.01		0
VOC/SVOC				
1,2,3-trichlorobenzene	mg/kg	0.02		0
1,2,4-trichlorobenzene	mg/kg	0.02		0
1,2-dichlorobenzene	mg/kg	0.01		0
1,3,5-Trichlorobenzene	mg/kg	0.02		0
1,3-dichlorobenzene	mg/kg	0.008		0
1,4-dichlorobenzene	mg/kg	0.005		0
Chlorobenzene	mg/kg	0.005	0.0704	0
Hexachlorobutadiene	mg/kg	0.02		0
PCB				
PCB 101	mg/kg	0.003		0
PCB 118	mg/kg	0.003		0
PCB 138	mg/kg	0.003		0
PCB 153	mg/kg	0.003		0
PCB 180	mg/kg	0.003		0
PCB 28	mg/kg	0.003		0
PCB 52	mg/kg	0.003		0
Total PCB 7 Congeners	mg/kg	0.021		0
Other				
Moisture	%			0
pH (Lab)	pH Units	1		0
Total Organic Carbon	%	0.2		0

Criteria Details

Arcadis GAC - Human Health - Low Density Residential (combined pathways):Combined criteria. See Oral and
Arcadis GAC - Water Resources - Aquifers - England & Wales:Arcadis Aquifer GAC
Arcadis GAC - Water Resources - Surface Water - England & Wales:Arcadis Surface Water GAC

Notes

			Site_ID	
			Field_ID	
			Location	
			Sample_Depth_Range	
			Sampled_Date_Time	
			Matrix_Description	
Analyte	**Units**	**MDL**	Arcadis GAC - Human Health - Low Density Residential (combined pathways)	Number of Guideline Exceedances (Detects Only)
#1:Category 4 Screening Level				

#2:GAC presented is Category 4 Screening Level for hexavalent chromium (CrVI). If CrVI data is available, a va
#3:Target exceeds theoretical soil saturation limit. Concentrations above the soil saturation limit may indicate th
#4:No water quality standard identified as suitable for deriving generic assessment criteria
#5:No GAC for individual TPH fractions given that the compliance criteria is for sum TPH
#6:Criteria derived for Ali>C16-C35 split between Ali>C16-21 & Ali>C21-35. Requires summation of fractions to
#7:Criteria derived for sum xylenes split between isomers. Requires summation of m,p & o isomers to use sum

APPENDIX F

Arcadis' Generic Assessment Criteria

SUMMARY

The purpose of this document is to describe the general principles adopted in the derivation of the Arcadis' Generic Assessment Criteria (GAC). The document and associated GAC underpins the generic quantitative risk assessments Arcadis undertakes for its clients and is not intended for any other use or use by others. Guidance has been provided by the EA to aid development of GAC which are appropriate for a typical England or Wales site, incorporating conservatism where warranted. Arcadis has used the EA guidance to develop in-house GAC to aid assessment of land contamination sites, and in particular to assess risks to human health receptors from chronic health effects and risks to water resource receptors. The GAC do not consider potential risks to ecological receptors, which may need to be assessed on specific sites. The following non-statutory technical guidance has been referred to in deriving the GAC.

- EA Science Reports SC050021/SR2, SC050021/SR3 and SC050021/SR7.
- Related Toxicity and Soil Guideline Value reports
- EA Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination
- EA. Groundwater Protection and Water Quality, March 2017 (accessible online https://www.gov.uk/government/collections/groundwater-protection)
- SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination

The GAC used within this report have been derived for "low density residential end use". Low density residential end use assumes small terraced houses without basements, which may include gardens and/or other open areas.

Arcadis has undertaken environmental works on hundreds of potentially contaminated sites across the UK. The typical shallow geology encountered comprises granular soils or made ground, with a low organic matter content. As such, Arcadis has taken the decision to derive in-house GAC for a *sand* rather than sandy loam soil-type used by the EA to derive Soil Guideline Values, with an organic matter content of 0.34% (fraction of organic carbon content 0.002, typical of many sites).

To derive Human Health GAC (HH-GAC), the following exposure pathways are considered active for potential soil, groundwater or soil gas exposures:

Site End-Use	On-Site Pathways
Low Density Residential (0–6-year-old female child)	• Incidental ingestion of soil or dust • Ingestion of vegetables grown in contaminated soil • Incidental dermal contact with soil or dust • Inhalation of dusts inside or outside • Inhalation of vapours outside from a soil or groundwater source • Inhalation of vapours inside from a soil, groundwater or soil gas source

Two levels of water quality standard have been considered to enable Water Resource GAC (WR-GAC) to be developed depending on the environmental setting of a site. The WR-GAC have been derived based on adopted Environmental Quality Standards and Drinking Water Standards. No attenuation with transport off-site is assumed.

The following modelling tools have been utilised in the derivation of the GAC:

HH-GAC (on-site): CLEA 1.07 and RBCA Toolkit v2.6
HH-GAC (off-site): CLEA 1.07 RBCA Toolkit v2.6 and Remedial Targets Worksheet v3.2
WR-GAC: Remedial Targets Worksheet v3.2

Example model inputs are presented in the following tables, alongside the CLEA modelling outputs.

ARCADIS

	Air-water partition co-efficient		Diffusion co-efficient in air		Diffusion co-efficient in water		Relative molecular mass		Vapour pressure		Water solubility		Koc	
	cm3 cm3	Notes	m2 s-1	Notes	m2 s-1	Notes	g mol-1	Notes	Pa	Notes	mg L-1	Notes	Log (dimensior	Notes
Benzene	1.16E-01	Science Report – SC050021/SR7	8.77E-06	Science Report – SC050021/SR7	6.64E-10	Science Report – SC050021/SR7	78.11	Science Report – SC050021/SR7	6.24E+03	Science Report – SC050021/SR7	1.78E+03	Science Report – SC050021/SR7	1.83E+00	Science Report – SC050021/SR7
Toluene	1.15E-01	Science Report – SC050021/SR7	7.78E-06	Science Report – SC050021/SR7	5.88E-10	Science Report – SC050021/SR7	92.14	Science Report – SC050021/SR7	1.73E+03	Science Report – SC050021/SR7	5.90E+02	Science Report – SC050021/SR7	2.31E+00	Science Report – SC050021/SR7
Ethylbenzene	1.39E-01	Science Report – SC050021/SR7	7.04E-06	Science Report – SC050021/SR7	5.31E-10	Science Report – SC050021/SR7	106.17	Science Report – SC050021/SR7	5.53E+02	Science Report – SC050021/SR7	1.80E+02	Science Report – SC050021/SR7	2.65E+00	Science Report – SC050021/SR7
Sum xylenes	1.04E-01	Average for three xylenes	7.03E-06	Average for three xylenes	5.3E-10	Average for three xylenes	106.17	Average for three xylenes	4.52E+02	Average for three xylenes	1.91E+02	Average for three xylenes	2.66E+00	Average for three xylenes
MTBE	2.04E-02	Literature review	7.10E-06	Literature review	9.00E-10	Literature review	88.17	Literature review	3.45E+04	Literature review	4.80E+04	Literature review	1.08E+00	Literature review
Aliphatic >C5-6	3.40E+01	TPHCWG	1.00E-05	Literature review	0.000000001	Literature review	81	Literature review	3.60E+04	Literature review	3.60E+01	Literature review	2.90E+00	Literature review
Aliphatic>C6-8	5.10E+01	TPHCWG	1.00E-05	Literature review	0.000000001	Literature review	100	Literature review	6.40E+03	Literature review	5.40E+00	Literature review	3.60E+00	Literature review
Aliphatic>C8-10	8.20E+01	TPHCWG	1.00E-05	Literature review	0.000000001	Literature review	130	Literature review	6.40E+02	Literature review	4.30E-01	Literature review	4.51E+00	Literature review
Aliphatic>C10-12	1.30E+02	TPHCWG	1.00E-05	Literature review	0.000000001	Literature review	160	Literature review	6.50E+01	Literature review	3.40E-02	Literature review	5.40E+00	Literature review
Aliphatic>C12-16	5.40E+02	TPHCWG	1.00E-05	Literature review	0.000000001	Literature review	200	Literature review	4.80E+00	Literature review	7.60E-04	Literature review	6.70E+00	Literature review
Aliphatic>C16-35	6.40E+03	TPHCWG	1.00E-05	Literature review	0.000000001	Literature review	270	Literature review	7.70E-01	Literature review	1.30E-06	Literature review	9.00E+00	Literature review
Aromatic >C8-10	4.90E-01	TPHCWG	1.00E-05	Literature review	0.000000001	Literature review	120	Literature review	6.40E+02	Literature review	6.50E+01	Literature review	3.20E+00	Literature review
Aromatic >C10-12	1.40E-01	TPHCWG	1.00E-05	Literature review	0.000000001	Literature review	130	Literature review	6.40E+01	Literature review	2.50E+01	Literature review	3.40E+00	Literature review
Aromatic >C12-16	5.40E-02	TPHCWG	1.00E-05	Literature review	0.000000001	Literature review	150	Literature review	4.80E+00	Literature review	5.80E+00	Literature review	3.70E+00	Literature review
Aromatic >C16-21	1.30E-02	TPHCWG	1.00E-05	Literature review	0.000000001	Literature review	190	Literature review	7.70E-01	Literature review	5.10E-01	Literature review	4.20E+00	Literature review
Aromatic >C21-35	6.80E-04	TPHCWG	1.00E-05	Literature review	0.000000001	Literature review	240	Literature review	4.40E-04	Literature review	6.60E-03	Literature review	5.11E+00	Literature review

Chemical Name	Chemical Type	Oral HCV						Inhalation HCV						Combine oral and inhalation AC	Oral MDI for adults		Inhalation MDI for adults	
		Type	µg kg-1 BW day-1	Notes	Oral exposure	Dermal exposure	Inhalation exposure	Type	µg kg-1 BW day-1	Notes	Oral exposure	Dermal exposure	Inhalation exposure		µg kg-1 BW day-1	Notes	µg kg-1 BW day-1	Notes
Benzene	organic	ID	2.90E-01	UK TOX (March 2009)	Yes	Yes	No	ID	1.40E+00	UK TOX (March 2009)	No	No	Yes	Yes	NR	NA	NR	NA
Toluene	organic	TDI	2.23E+02	UK TOX (March 2009)	Yes	Yes	No	TDI	1.40E+03	UK TOX (March 2009)	No	No	Yes	Yes	1.00E+01	UK TOX (March 2009)	5.20E+02	UK TOX (March 2009)
Ethylbenzene	organic	TDI	1.00E+02	UK TOX (March 2009)	Yes	Yes	No	TDI	7.43E+01	Literature review	No	No	Yes	Yes	5.00E+00	UK TOX (March 2009)	1.30E+02	UK TOX (March 2009)
Sum xylenes	organic	TDI	1.80E+02	UK TOX (March 2009)	Yes	Yes	No	TDI	6.00E+01	UK TOX (March 2009)	No	No	Yes	Yes	1.10E+01	UK TOX (March 2009)	1.40E+02	UK TOX (March 2009)
MTBE	organic	TDI	8.60E+02	Literature review	Yes	Yes	No	TDI	8.60E+02	Literature review	No	No	Yes	Yes	3.00E+01	EU Risk Assessment Report	1.89E+02	EU Risk Assessment Report
Aliphatic >C5-6	organic	TDI	5.00E+03	TPHCWG	Yes	Yes	No	TDI	5.26E+03	TPHCWG	No	No	Yes	Yes	3.50E+05	TDI x 70kg (MDI unknown)	3.68E+05	TDI x 70kg (MDI unknown)
Aliphatic>C6-8	organic	TDI	5.00E+03	TPHCWG	Yes	Yes	No	TDI	5.26E+03	TPHCWG	No	No	Yes	Yes	3.50E+05	TDI x 70kg (MDI unknown)	3.68E+05	TDI x 70kg (MDI unknown)
Aliphatic>C8-10	organic	TDI	1.00E+02	TPHCWG	Yes	Yes	No	TDI	2.70E+02	TPHCWG	No	No	Yes	Yes	7.00E+03	TDI x 70kg (MDI unknown)	1.89E+04	TDI x 70kg (MDI unknown)
Aliphatic>C10-12	organic	TDI	1.00E+02	TPHCWG	Yes	Yes	No	TDI	2.70E+02	TPHCWG	No	No	Yes	Yes	7.00E+03	TDI x 70kg (MDI unknown)	1.89E+04	TDI x 70kg (MDI unknown)
Aliphatic>C12-16	organic	TDI	1.00E+02	TPHCWG	Yes	Yes	No	TDI	2.70E+02	TPHCWG	No	No	Yes	Yes	7.00E+03	TDI x 70kg (MDI unknown)	1.89E+04	TDI x 70kg (MDI unknown)
Aliphatic>C16-35	organic	TDI	2.00E+03	TPHCWG	Yes	Yes	No	NR			NR	NR	NR	NR	1.40E+05	TDI x 70kg (MDI unknown)		
Aromatic >C8-10	organic	TDI	4.00E+01	TPHCWG	Yes	Yes	No	TDI	5.50E+01	TPHCWG	No	No	Yes	Yes	2.80E+03	TDI x 70kg (MDI unknown)	3.85E+03	TDI x 70kg (MDI unknown)
Aromatic >C10-12	organic	TDI	4.00E+01	TPHCWG	Yes	Yes	No	TDI	5.50E+01	TPHCWG	No	No	Yes	Yes	2.80E+03	TDI x 70kg (MDI unknown)	3.85E+03	TDI x 70kg (MDI unknown)
Aromatic >C12-16	organic	TDI	4.00E+01	TPHCWG	Yes	Yes	No	TDI	5.50E+01	TPHCWG	No	No	Yes	Yes	2.80E+03	TDI x 70kg (MDI unknown)	3.85E+03	TDI x 70kg (MDI unknown)
Aromatic >C16-21	organic	TDI	3.00E+01	TPHCWG	Yes	Yes	No	NR			NR	NR	NR	NR	2.10E+03	TDI x 70kg (MDI unknown)		
Aromatic >C21-35	organic	TDI	3.00E+01	TPHCWG	Yes	Yes	No	NR			NR	NR	NR	NR	2.10E+03	TDI x 70kg (MDI unknown)		

ARCADIS

PHYSICAL PROPERTIES

		Commercial Land Use	Source
Soil type	na	Sand	Professional experience
Porosity (total)	cm3 cm-3	0.54	SC050021/SR3
Porosity (air-filled)*	cm3 cm-3	0.30	SC050021/SR3
Porosity (water-filled)*	cm3 cm-3	0.24	SC050021/SR3
Capillary fringe porosity (air-filled)	cm3 cm-3	0.01	Literature value
Capillary fringe porosity (water-filled)	cm3 cm-3	0.53	Literature value
Thickness of capillary fringe	m	0.1	Literature value
Residual soil water content	cm3 cm-3	0.07	SC050021/SR3
Saturated hydraulic conductivity	cm s-1	7.36E-03	SC050021/SR3
van Genuchten shape parameter	dimensionless	3.51E-01	SC050021/SR3
Bulk density	g cm-3	1.18	SC050021/SR3
Soil organic matter content	%	0.34	Professional experience
Threshold value of wind speed at 10m	m s-1	7.20	SC050021/SR3
Empirical function for dust model	dimensionless	1.22	SC050021/SR3
Ambient soil temperature	K	283	SC050021/SR3
Mean annual windspeed (10m)	m s-1	5.00	SC050021/SR3
Air dispersion factor at 0.8m	g m-2 s-1 per kg m-3	68.0	SC050021/SR3
Air dispersion factor at 1.6m	g m-2 s-1 per kg m-3	120.0	SC050021/SR3
Fraction of site with hard or vegetative cover	m2 m-2	0.80	SC050021/SR3
Depth to groundwater (RBCA)	m	1	Assumption
Infiltration rate in vadose zone	m day-1	6.80E-04	Likely worst-case

Aquifer type**	na	Sand	Assumption
Source width	m	40	Likely worst-case
Source length	m	40	Likely worst-case
Saturated aquifer thickness	m	10	Assumption
Mixing zone depth	m	5.5	Calculated in RTW
Hydraulic conductivity	m day-1	20	Literature value
Hydraulic gradient	m m-1	0.001	Typical value for sand
Aquifer soil organic matter content	%	0.34	Professional experience
Effective Porosity (total)**	cm3 cm-3	0.3	Literature value
Aquifer bulk density**	g cm-3	1.18	SC050021/SR3
Distance to neighbouring resident**	m	5	Likely worst-case

Notes:

* Assumed to be present in foundation cracks when modelling in RBCA Toolkit

** Only used to generate GAC for neighbouring residents through off-site migration of impact in groundwater

For the purpose of assessing the risk to on-Site residents from impacts in soil it is assumed that the soil source is present 65cm below the grounds surface. For soil gas it is assumed that the source is present 20cm beneath the grounds surface.

ARCADIS

BUILDING PROPERTIES

		Residential (neighbouring resident)	Commercial (on-site)	Source
Building footprint	m2	2.80E+01	4.24E+02	SC050021/SR3
Living space air exchange rate	hr-1	0.50	1.00	SC050021/SR3
Living space height (above ground)	m	4.8	9.6	SC050021/SR3
Living space height (below ground)	m	0.0	0.0	SC050021/SR3
Pressure difference	Pa	3.1	4.4	SC050021/SR3
Foundation thickness	m	1.50E-01	1.50E-01	SC050021/SR3
Floor crack area	cm2	4.23E+02	1.65E+03	SC050021/SR3
Dust loading factor	µg m-3	5.00E+01	1.00E+02	SC050021/SR3

CLEA 1.07 EXPOSURE DATA

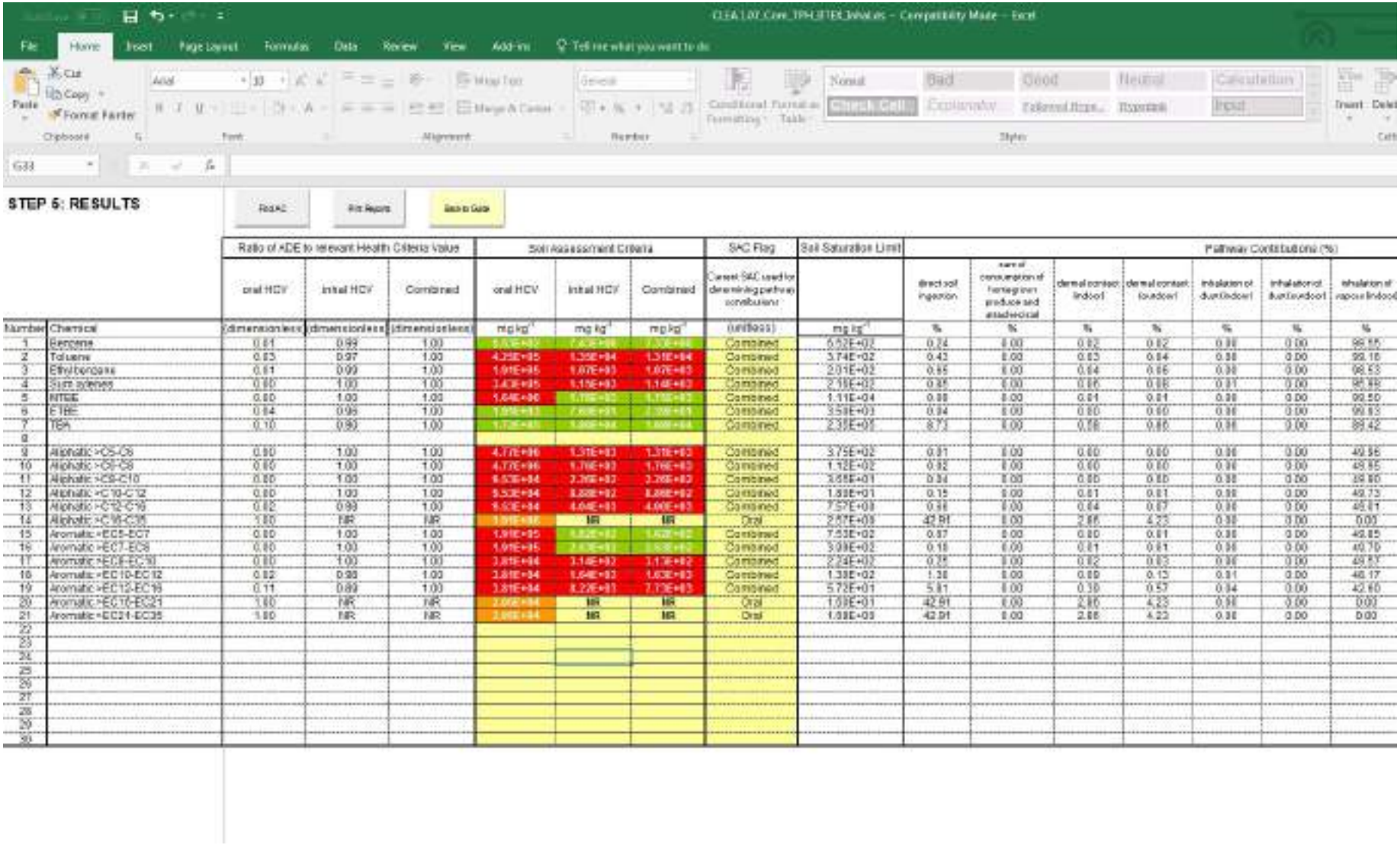
		Age Class						
		Residents						Commercial Worker
Age class	-	1	2	3	4	5	6	17
Frequency of inhalation (dust and vapour indoors)	days yr-1	365	365	365	365	365	365	230
Frequency of inhalation (dust and vapour outdoors)	days yr-1	365	365	365	365	365	365	170
Occupancy period (indoors)	hr day-1	23	23	23	23	19	19	8.3
Occupancy period (outdoors)	hr day-1	1	1	1	1	1	1	0.7
Body weight	kg	5.6	9.8	12.7	15.1	16.9	19.7	70
Body height	m	0.7	0.8	0.9	0.9	1	1.1	1.6
Inhalation rate*	m3 day-1	5.4	8	8.9	10.1	10.1	10.1	15.7

* Inhalation rate adopted from Category 4 Screening Levels

RBCA Toolkit EXPOSURE DATA		Age Class	
		0-6	17
Averaging time	yrs	6	49
Body weight	kg	13.3	70
Exposure duration	yrs	6	49
Averaging time (vapour flux)	yrs	6	49
Exposure frequency (indoors)*	days yr-1	365	29.9
Exposure frequency (outdoors)*	days yr-1	16.8	1.87

Notes:
Time-weighted average used for 0-6 year old female child

* RBCA Toolkit compares an acceptable air concentration to a predicted air concentration. Only the exposure frequency can be modified (i.e. inhalation rate, time exposed cannot). As such, the TDSI (or ID) was converted to an acceptable indoor air concentration using the time-weighted properties for a 0-6 year old female child as defined within the Category 4 Screening Levels. The exposure frequency for other scenarios was modified to account for the differing exposure scenarios for the remaining pathways, to be equivalent to modifying the inhalation rate and time exposed.



STEP 5: RESULTS

		Ratio of ADE to relevant Health Criteria Value			Soil Assessment Criteria			SAC Flag	Soil Saturation Limit	Pathway Contributions (%)						
		oral HCV	Initial HCV	Combined	oral HCV	Initial HCV	Combined	Current SAC used for determining pathway contributions		direct soil ingestion	use of consumption of homegrown produce and shadehouse	dermal contact: indoor	dermal contact: outdoor	inhalation of dust:indoor	inhalation of dust:outdoor	inhalation of vapour:indoor
Number	Chemical	(dimensionless)	(dimensionless)	(dimensionless)	mg/kg	mg/kg	mg/kg	(unitless)	mg/kg	%	%	%	%	%	%	%
1	Benzene	0.61	0.99	1.00	[illegible]	[illegible]	[illegible]	Combined	5.52E+02	0.24	0.00	0.02	0.02	0.00	0.00	99.55
2	Toluene	0.03	0.97	1.00	4.28E+05	1.35E+04	1.31E+04	Combined	3.74E+02	0.42	0.00	0.03	0.04	0.00	0.00	99.16
3	Ethylbenzene	0.01	0.99	1.00	1.91E+05	1.87E+03	1.87E+03	Combined	2.01E+02	0.85	0.00	0.04	0.06	0.00	0.00	99.03
4	Xylene (s)	0.00	1.00	1.00	3.43E+05	3.15E+03	3.14E+03	Combined	2.15E+02	0.85	0.00	0.00	0.00	0.01	0.00	99.13
5	MTBE	0.00	1.00	1.00	1.64E+06	[illegible]	[illegible]	Combined	1.11E+04	0.08	0.00	0.01	0.01	0.00	0.00	99.50
6	ETBE	0.04	0.96	1.00	[illegible]	[illegible]	[illegible]	Combined	3.59E+03	0.04	0.00	0.00	0.00	0.00	0.00	99.83
7	TBA	0.10	0.90	1.00	[illegible]	[illegible]	[illegible]	Combined	2.35E+01	8.73	0.00	0.08	0.80	0.00	0.00	89.42
8																
9	Aliphatic >C5-C6	0.00	1.00	1.00	4.77E+06	1.31E+03	1.31E+03	Combined	3.75E+02	0.01	0.00	0.00	0.00	0.00	0.00	40.56
10	Aliphatic >C6-C8	0.00	1.00	1.00	4.77E+06	1.76E+03	1.76E+03	Combined	1.12E+02	0.02	0.00	0.00	0.00	0.00	0.00	48.85
11	Aliphatic >C8-C10	0.00	1.00	1.00	9.53E+04	2.26E+02	2.26E+02	Combined	3.61E+01	0.04	0.00	0.00	0.00	0.00	0.00	38.80
12	Aliphatic >C10-C12	0.00	1.00	1.00	9.53E+04	8.88E+02	8.88E+02	Combined	1.83E+01	0.15	0.00	0.01	0.01	0.00	0.00	49.73
13	Aliphatic >C12-C16	0.02	0.99	1.00	5.03E+04	4.04E+01	4.00E+01	Combined	7.57E+00	0.38	0.00	0.04	0.07	0.00	0.00	49.81
14	Aliphatic >C16-C35	1.00	NR	NR	1.91E+05	NR	NR	Oral	2.47E+00	42.91	0.00	2.86	4.23	0.00	0.00	0.00
15	Aromatic >EC5-EC7	0.00	1.00	1.00	1.91E+05	[illegible]	[illegible]	Combined	7.53E+02	0.07	0.00	0.00	0.01	0.00	0.00	49.85
16	Aromatic >EC7-EC8	0.00	1.00	1.00	1.91E+05	[illegible]	[illegible]	Combined	3.09E+02	0.18	0.00	0.01	0.01	0.00	0.00	49.70
17	Aromatic >EC8-EC10	0.00	1.00	1.00	3.81E+04	3.14E+02	3.13E+02	Combined	2.24E+02	0.25	0.00	0.02	0.03	0.00	0.00	49.57
18	Aromatic >EC10-EC12	0.02	0.98	1.00	3.81E+04	1.64E+02	1.63E+02	Combined	1.38E+02	1.38	0.00	0.09	0.12	0.01	0.00	48.17
19	Aromatic >EC12-EC16	0.11	0.89	1.00	3.81E+04	8.22E+01	7.13E+01	Combined	5.72E+01	5.81	0.00	0.38	0.57	0.04	0.00	42.60
20	Aromatic >EC16-EC21	1.00	NR	NR	2.00E+04	NR	NR	Oral	1.03E+01	42.91	0.00	2.86	4.23	0.00	0.00	0.00
21	Aromatic >EC21-EC35	1.00	NR	NR	2.00E+04	NR	NR	Oral	1.03E+03	42.91	0.00	2.86	4.23	0.00	0.00	0.00
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