

## **By Email**

22-110.01L

Sam Buswell  
Countryside Partnerships  
1 Redhall Avenue,  
Paragon Business Village  
Wakefield  
WF1 2UL

08/11/2023



Arc Environmental Ltd  
Solum House  
Unit 1 Elliott Court  
St Johns Road  
Meadowfield  
Durham  
DH7 8PN

Dear Sam,

## **Re: Validation of Hotspot Removal for a Land at Blue Hills Farm, Birkenshaw, BD11 2DU**

Further to recent visit to site, please find enclosed the following:

- Proposed Remedial Works plan
- Photographic Record Sheet
- Laboratory Testing Results

## **Introduction**

As requested by Countryside Partnerships Yorkshire, and in line with the Remediation Statement for this site prepared by Arc Environmental Ltd (ref. 22-110 - Remediation Statement & Validation Proposal Sheets dated March 2023), a site visit was conducted on 07<sup>th</sup> September 2023 to undertake some additional works / testing.

## **Background**

The development area at Blue Hills Farm has been subject to previous investigations / assessments as detailed below:

- Ian Framers Associates; Phase II Ground Investigation Report (Ref. 42251) dated September 2018.
- Arc Environmental Ltd: Remediation Statement & Validation Proposal Sheets dated January 2023.

From the Ian Framers Associates; Phase II Ground Investigation Report (Ref. 42251) dated September 2018 it is understood that elevated concentrations of PAH were recorded in the made ground beneath the western area of the site (WS01) within the existing car park. The report concluded that the elevated PAH contamination within WS01 was likely to be due anthropogenic material within made ground which included ash, and with regard to Human Health (proposed end users), it was recommended that the materials were removed and stockpiled separately either for re-use beneath areas of roadways and hardstanding or removed from site.

From the evidence of WS01 and WS04 the made ground encountered below the existing car park to the western area of the site is significantly different to other made ground identified across the remainder of the site, comprising a sandy, clayey gravel of mudstone, limestone, brick, cement, ash, clinker and asphalt, and a soft, slightly sandy, gravelly clay with fine to coarse fragments of brick, asphalt and mudstone.

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## **Re: Validation of Hotspot Removal for a Land at Blue Hills Farm, Birkenshaw, BD11 2DU (Cont'd)**

### **Background (Cont'd)**

The contamination screening results for samples of made ground recovered from WS01 returned elevated levels of Benzo(a)pyrene (up to 6.32mg/kg), Benzo(b)fluoranthene (up to 7.76mg/kg) and Dibenzo(ah)anthracene (up to 0.52mg/kg) above the corresponding threshold concentrations of 2.7mg/kg, 3.3mg/kg and 0.28mg/kg respectively. It is considered that the concentrations recorded within WS01 are likely to be attributable to the ash and asphalt content within the made ground soils (both of which frequently contain elevated PAH species), especially as there was no visual and /or olfactory evidence of fuel / oil type contamination noted during the investigation works. As similar made ground soils have been identified within both WS01 and WS04, both below the existing car park, then at this stage, and without any further testing, it should be assumed that all of the made ground soils below the existing car park represent a potential risk to future end users, where exposure pathways are available.

It is understood that at this stage, the site has been divided into 2 Phases (as detailed on the attached plan), with Phase 1 encompassing the grassed fields to the east and Phase 2 encompassing the majority of the existing car park to the west / southwest. It is also understood that, at this time, Vistry Partnership only intend to develop Phase 1 (where no contamination was identified during the IFA investigation) and not the Phase 2 area. Furthermore, it is understood that the majority of the existing car park within Phase 2 is intended to remain as a car park.

Therefore, it the above is correct, with the exception of the 2 no. small hatched areas (Area A & Area B), on the attached plan, there does not appear to any specific remedial requirements with regard to the majority of the development within Phase 1 (excluding any coal mining related activities).

When considering Area A, the proposed Phase 1 development indicates that this area is below a proposed road / hardstanding area, and if this is the case, then the source-pathway-receptor pollutant linkage will not exist and the made ground can remain in-situ with no requirement to incorporate clean cover materials. If the proposed layout changes then a re-assessment of the potential risk would need to be carried out.

For Area B, it is felt that the most suitable remedial option available would be the installation of a robust clean cover system within this area, where made ground is present. At this stage, a minimum 600mm thick cover, with a suitable basal geotextile marker / separator, is recommended. When taking into account finished design levels, if no impacted made ground remains below proposed gardens / soft landscaping (i.e. has been completely removed), then no formal cover system should be required just an adequate depth of clean topsoil to act as a growing medium .

The emplacement of a clean cover system will break the pollutant linkage and remove the potential risk to future end users.

### **Additional Works / Testing**

Arc Environmental Ltd, attended site on the 07<sup>th</sup> September 2023, to undertake the additional works which included supervision of removal of made ground materials in Area B to resultant natural clay formation as mentioned above and detailed within the Remediation Statement.

Following the made ground material in Area B the resultant formation comprised a firm yellow / orange mottled brown sandy clay which was carefully inspected to confirm no obvious signs or remains of any anthropogenic debris. 4 no. representative samples of the formation were recovered and forwarded to Chemtech (UKAS & MCERTS Accredited) for subsequent testing. The results of these additional tests are summarised in Table 1 and are included in the Chemtech Environmental Analytical Test Report (ref. 121691) attached to this letter report. A Photographic Record Sheet showing the above works and formation sample locations is attached.

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## Re: Validation of Hotspot Removal for a Land at Blue Hills Farm, Birkenshaw, BD11 2DU (Cont'd)

### Additional Works / Testing (Cont'd)

Laboratory test results are summarised in Table 1 below. They can also be seen in the Chemtech Environmental Limited analytical report (Ref. 121691) attached to this report. The results have been assessed against the most up to date and appropriate guidelines ( Residential with homegrown produce).

**Table 1**

Analyte	Critical Concentration (C <sub>c</sub> )	Concentrations (C <sub>M</sub> ) recorded
Arsenic	37 <sup>(1)</sup>	23
Cadmium	11 <sup>(1)</sup>	2.5
Chromium III	910 <sup>(1)</sup>	40
Chromium VI	6 <sup>(1)</sup>	<1
Copper	2400 <sup>(1)</sup>	44
Lead	200 <sup>(2)</sup>	95
Mercury	40 <sup>(1)</sup>	3.1
Nickel	180 <sup>(1)</sup>	29
Selenium	250 <sup>(1)</sup>	<3
Zinc	3700 <sup>(1)</sup>	93
Cyanide	34 <sup>(3)</sup>	<1
Asbestos	Presence	None detected
Acenaphthene	510 <sup>(1)</sup>	<0.02
Acenaphthylene	420 <sup>(1)</sup>	<0.02
Anthracene	5400 <sup>(1)</sup>	<0.02
Benzo(a)anthracene	11 <sup>(1)</sup>	0.08
Benzo(a)pyrene	2.7 <sup>(1)</sup>	0.07
Benzo(b)fluoranthene	3.3 <sup>(1)</sup>	<0.02
Benzo(ghi)perylene	340 <sup>(1)</sup>	<0.02
Benzo(k)fluoranthene	93 <sup>(1)</sup>	<0.03
Chrysene	22 <sup>(1)</sup>	0.09
Dibenz(ah)anthracene	0.28 <sup>(1)</sup>	<0.02
Fluoranthene	560 <sup>(1)</sup>	0.15
Fluorene	400 <sup>(1)</sup>	<0.02
Indeno(123cd)pyrene	36 <sup>(1)</sup>	<0.02
Naphthalene	5.6 <sup>(1)</sup>	<0.02
Phenanthrene	220 <sup>(1)</sup>	0.05
Pyrene	1200 <sup>(1)</sup>	0.12
TPH Aliphatic (C5-C6)	78 <sup>(1)</sup>	<0.1
TPH Aliphatic (C6-C8)	230 <sup>(1)</sup>	<0.1
TPH Aliphatic (C8-C10)	65 <sup>(1)</sup>	<0.1
TPH Aliphatic (C10-C12)	330 <sup>(1)</sup>	<6
TPH Aliphatic (C12-C16)	2400 <sup>(1)</sup>	<6
TPH Aliphatic (C16-C35)	92000 <sup>(1)</sup>	<15
TPH Aliphatic (C35-C44)	92000 <sup>(1)</sup>	<10
TPH Aromatic (EC5-EC7)	140 <sup>(1)</sup>	<0.01
TPH Aromatic (EC7-EC8)	290 <sup>(1)</sup>	<0.01
TPH Aromatic (EC8-EC10)	83 <sup>(1)</sup>	<0.01
TPH Aromatic (EC10-EC12)	180 <sup>(1)</sup>	<10
TPH Aromatic (EC12-EC16)	330 <sup>(1)</sup>	<10
TPH Aromatic (EC16-EC21)	540 <sup>(1)</sup>	<1
TPH Aromatic (EC21-EC35)	1500 <sup>(1)</sup>	<1
TPH Aromatic (EC35-EC44)	1500 <sup>(1)</sup>	<1
Benzene	0.17 <sup>(1)</sup>	<0.01
Toulene	290 <sup>(1)</sup>	<0.01
Ethylbenzene	110 <sup>(1)</sup>	<0.01
m & p - Xylene	140 <sup>(1)</sup>	<0.02
o - Xylene	140 <sup>(1)</sup>	<0.01

<sup>(1)</sup> = The LQM / CIEH Suitable 4 Use Levels – Residential with home-grown produce (2.5% SOM), <sup>(2)</sup> = CLAIRE Category 4 Screening Levels – Residential with home-grown produce, <sup>(3)</sup> = ATRISK<sup>SOIL</sup> Soil Screening Values (2015).

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**Re: Validation of Hotspot Removal for a Land at Blue Hills Farm, Birkenshaw, BD11 2DU (Cont'd)**

**Additional Works / Testing (Cont'd)**

The ground contamination screening has identified that none of the Maximum Concentration ( $C_M$ ) values for the contaminants displayed in Table 1 exceed the Critical Concentration ( $C_C$ ) values associated with the current designated end-use.

During the removal of the made ground materials a dark 'circular' feature was recorded within the natural superficial deposits to the western portion of Area B, which may possibly be associated with historic coal mining activities, such as a 'bell pit' or a mine entry. Further investigation of this feature might be required prior to the construction of the proposed attenuation tank within this area of the site / air shaft.

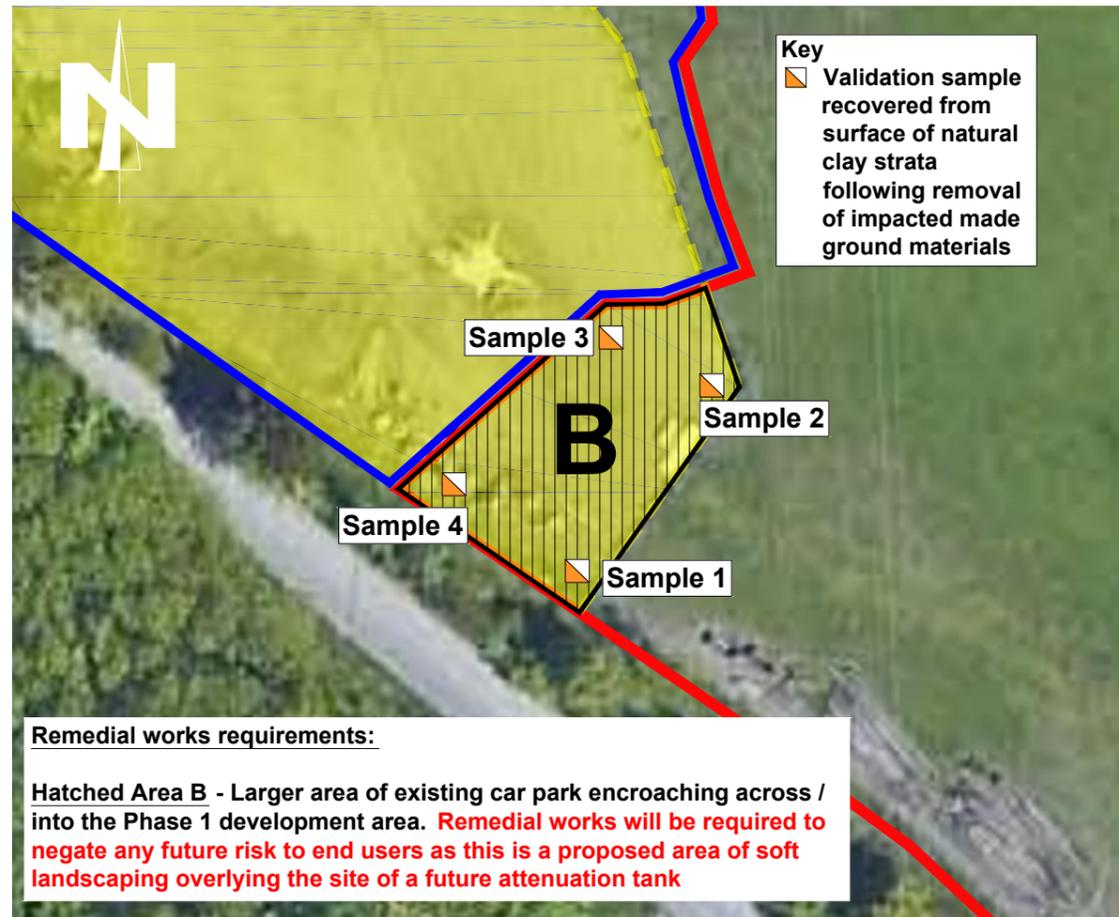
From the additional work and testing undertaken, it is the opinion of Arc Environmental Limited that as the impacted made ground has been removed to a natural clay formation no formal cover system should be required within Area B just an adequate depth of suitable clean topsoil to act as a growing medium to achieve final design levels.

We trust the information we have provided to you is to your satisfaction and if you require any further information or clarification, please do not hesitate to contact us.

REDACTED

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For and on behalf of ARC Environmental Limited  
Sai Turlapati  
Geoenvironmental Engineer

# Photographic Record Sheet With Sampling Locations



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The contractor shall check all dimensions on site before commencement of any works. No dimensions to be scaled off this drawing.  
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LEGEND	
	APPROXIMATE PHASE 1 SITE BOUNDARY
	APPROXIMATE PHASE 2 SITE BOUNDARY
	YELLOW SHADING DENOTES APPROXIMATE EXTENTS OF EXISTING ASPHALT CAR PARK
<b>A</b>	EXTENTS OF EXISTING CAR PARKING WITHIN PROPOSED SITE 1 BOUNDARY
<b>B</b>	EXTENTS OF EXISTING CAR PARKING WITHIN PROPOSED SITE 1 BOUNDARY

rev.	date	amendments	drawn	chckd
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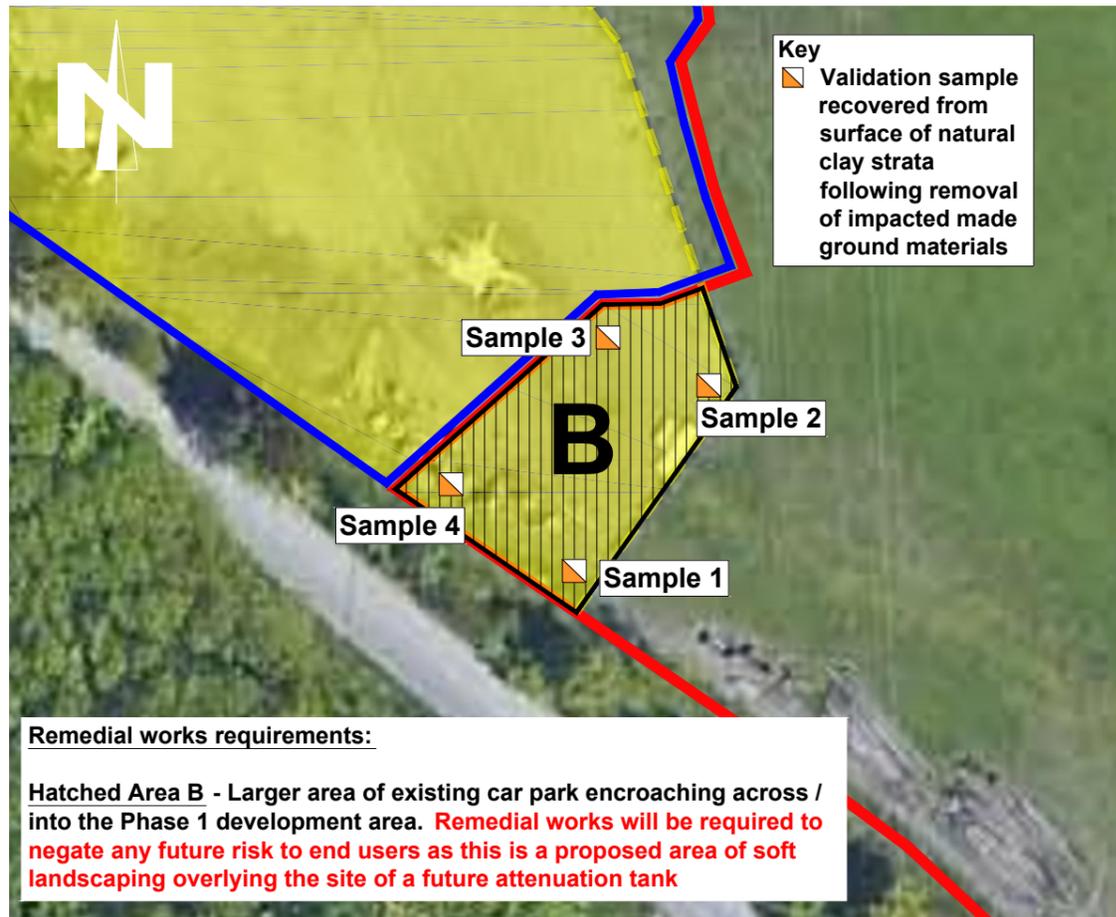
Client:  
**VISTRY PARTNERSHIPS**

Project Title:  
 Proposed Residential Development  
 Blue Hills Estate Farm  
 Birkenshaw

Drawing Title:  
 Validation Sampling Record Sheet 1

Scale at A3: NTS @ A3	Date: 26.10.23	Drawn by: P.D	Approved by: S.T
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Job Ref: 22-110	Drg no: -	Rev: -
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The contractor shall check all dimensions on site before commencement of any works. No dimensions to be scaled off this drawing.  
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LEGEND	
	APPROXIMATE PHASE 1 SITE BOUNDARY
	APPROXIMATE PHASE 2 SITE BOUNDARY
	YELLOW SHADING DENOTES APPROXIMATE EXTENTS OF EXISTING ASPHALT CAR PARK
<b>A</b>	EXTENTS OF EXISTING CAR PARKING WITHIN PROPOSED SITE 1 BOUNDARY
<b>B</b>	EXTENTS OF EXISTING CAR PARKING WITHIN PROPOSED SITE 1 BOUNDARY

rev.	date	amendments	drawn	chckd
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Client:  
**VISTRY PARTNERSHIPS**

Project Title:  
 Proposed Residential Development  
 Blue Hills Estate Farm  
 Birkenshaw

Drawing Title:  
 Validation Sampling Record Sheet 2

Scale at A3: NTS @ A3	Date: 26.10.23	Drawn by: P.D	Approved by: S.T
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Job Ref: 22-110	Drg no: -	Rev: -
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# Laboratory Testing Results



## ANALYTICAL TEST REPORT

**Contract no:** 126691

**Contract name:** Blue Hills Farm

**Client reference:** 22-110

**Clients name:** ARC Environmental

**Clients address:** Solum House, Unit 1 Elliott Court  
St Johns Road  
Meadowfield  
DH7 8PN

**Samples received:** 15 September 2023

**Analysis started:** 15 September 2023

**Analysis completed:** 22 September 2023

**Report issued:** 22 September 2023

**Key**

- U UKAS accredited test
- M MCERTS & UKAS accredited test
- \$ Test carried out by an approved subcontractor
- I/S Insufficient sample to carry out test
- N/S Sample not suitable for testing
- NAD No Asbestos Detected

REDACTED

**Approved by:** \_\_\_\_\_  
Ellis McCulloch  
Senior Reporting Administrator

# Chemtech Environmental Limited

## SAMPLE INFORMATION

### MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
126691-1	TP01	0.60	Sandy Clay	-	-	16.7
126691-2	TP02	0.60-0.70	Sandy Clay	-	-	16.6
126691-3	TP03	0.60	Sandy Clay	-	-	18.4
126691-4	TP04	0.60	Sandy Clay	-	-	16.6

# Chemtech Environmental Limited

## SOILS

Lab number			126691-1	126691-2	126691-3	126691-4
Sample id			TP01	TP02	TP03	TP04
Depth (m)			0.60	0.60-0.70	0.60	0.60
Date sampled			07/09/2023	07/09/2023	07/09/2023	07/09/2023
Test	Method	Units				
Moisture Content	CE001	% w/w	16.7	16.6	18.4	16.6
Arsenic (total)	CE127 <sup>M</sup>	mg/kg As	13	12	11	23
Cadmium (total)	CE127 <sup>M</sup>	mg/kg Cd	<2	<2	2.5	<2
Chromium (total)	CE127 <sup>M</sup>	mg/kg Cr	31	30	40	28
Chromium (III)	CE208	mg/kg CrIII	31	30	40	28
Chromium (VI)	CE146	mg/kg CrVI	<1	<1	<1	<1
Copper (total)	CE127 <sup>M</sup>	mg/kg Cu	24	17	44	17
Lead (total)	CE127 <sup>M</sup>	mg/kg Pb	95	76	86	26
Mercury (total)	CE127 <sup>M</sup>	mg/kg Hg	<2	<2	3.1	<2
Nickel (total)	CE127 <sup>M</sup>	mg/kg Ni	21	22	29	23
Selenium (total)	CE127 <sup>M</sup>	mg/kg Se	<3	<3	<3	<3
Zinc (total)	CE127 <sup>M</sup>	mg/kg Zn	71	66	93	78
pH	CE004 <sup>M</sup>	units	7.9	7.7	7.9	7.9
Sulphate (2:1 water soluble)	CE061 <sup>U</sup>	mg/l SO <sub>4</sub>	82	36	32	20
Cyanide (free)	CE077	mg/kg CN	<1	<1	<1	<1
Total Organic Carbon (TOC)	CE197	% w/w C	1.5	1.3	1.4	1.0
<b>PAH</b>						
Acenaphthene	CE087 <sup>M</sup>	mg/kg	<0.02	<0.02	<0.02	<0.02
Acenaphthylene	CE087 <sup>M</sup>	mg/kg	<0.02	<0.02	<0.02	<0.02
Anthracene	CE087 <sup>U</sup>	mg/kg	<0.02	<0.02	<0.02	<0.02
Benzo(a)anthracene	CE087 <sup>U</sup>	mg/kg	<0.02	<0.02	<0.02	0.08
Benzo(a)pyrene	CE087 <sup>U</sup>	mg/kg	<0.02	<0.02	<0.02	0.07
Benzo(b)fluoranthene	CE087 <sup>M</sup>	mg/kg	<0.02	<0.02	<0.02	<0.02
Benzo(ghi)perylene	CE087 <sup>M</sup>	mg/kg	<0.02	<0.02	<0.02	<0.02
Benzo(k)fluoranthene	CE087 <sup>M</sup>	mg/kg	<0.03	<0.03	<0.03	<0.03
Chrysene	CE087 <sup>M</sup>	mg/kg	<0.03	<0.03	<0.03	0.09
Dibenz(ah)anthracene	CE087 <sup>M</sup>	mg/kg	<0.02	<0.02	<0.02	<0.02
Fluoranthene	CE087 <sup>M</sup>	mg/kg	<0.02	<0.02	<0.02	0.15
Fluorene	CE087 <sup>U</sup>	mg/kg	<0.02	<0.02	<0.02	<0.02
Indeno(123cd)pyrene	CE087 <sup>M</sup>	mg/kg	<0.02	<0.02	<0.02	<0.02
Naphthalene	CE087 <sup>M</sup>	mg/kg	<0.02	<0.02	<0.02	<0.02
Phenanthrene	CE087 <sup>M</sup>	mg/kg	<0.02	<0.02	<0.02	0.05
Pyrene	CE087 <sup>M</sup>	mg/kg	<0.02	<0.02	<0.02	0.12
PAH (total of USEPA 16)	CE087	mg/kg	<0.34	<0.34	<0.34	0.56
<b>BTEX &amp; TPH</b>						
Benzene	CE192 <sup>U</sup>	mg/kg	<0.01	<0.01	<0.01	<0.01
Toluene	CE192 <sup>U</sup>	mg/kg	<0.01	<0.01	<0.01	<0.01
Ethylbenzene	CE192 <sup>U</sup>	mg/kg	<0.01	<0.01	<0.01	<0.01
m & p-Xylene	CE192 <sup>U</sup>	mg/kg	<0.02	<0.02	<0.02	<0.02
o-Xylene	CE192 <sup>U</sup>	mg/kg	<0.01	<0.01	<0.01	<0.01
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1	<0.1	<0.1	<0.1

# Chemtech Environmental Limited

## SOILS

Lab number			126691-1	126691-2	126691-3	126691-4
Sample id			TP01	TP02	TP03	TP04
Depth (m)			0.60	0.60-0.70	0.60	0.60
Date sampled			07/09/2023	07/09/2023	07/09/2023	07/09/2023
Test	Method	Units				
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1	<0.1	<0.1	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1	<0.1	<0.1	<0.1
EPH Aliphatic (>C10-C12)	CE250	mg/kg	<6	<6	<6	<6
EPH Aliphatic (>C12-C16)	CE250	mg/kg	<6	<6	<6	<6
EPH Aliphatic (>C16-C35)	CE250	mg/kg	<15	<15	<15	<15
EPH Aliphatic (>C35-C44)	CE250	mg/kg	<10	<10	<10	<10
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01
EPH Aromatic (>EC10-EC12)	CE250	mg/kg	<10	<10	<10	<10
EPH Aromatic (>EC12-EC16)	CE250	mg/kg	<10	<10	<10	<10
EPH Aromatic (>EC16-EC21)	CE250	mg/kg	<1	<1	<1	<1
EPH Aromatic (>EC21-EC35)	CE250	mg/kg	<1	<1	<1	<1
EPH Aromatic (>EC35-EC44)	CE250	mg/kg	<1	<1	<1	<1
Subcontracted analysis						
Asbestos (qualitative)	\$	-	NAD	NAD	NAD	NAD

# Chemtech Environmental Limited

## METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE001	Moisture Content	Gravimetry	As received		0.1	% w/w
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE208	Chromium (III)	Calculation: Cr (total) - Cr (VI)	Dry		1	mg/kg CrIII
CE146	Chromium (VI)	Acid extraction, Colorimetry	Dry		1	mg/kg CrVI
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	As received	M	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO <sub>4</sub>
CE077	Cyanide (free)	Extraction, Continuous Flow Colorimetry	As received		1	mg/kg CN
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE087	Acenaphthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Naphthalene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	As received		0.34	mg/kg
CE192	Benzene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Toluene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Ethylbenzene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	m & p-Xylene	Headspace GC-FID	As received	U	0.02	mg/kg
CE192	o-Xylene	Headspace GC-FID	As received	U	0.01	mg/kg
CE067	VPH Aliphatic (>C5-C6)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C6-C8)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C8-C10)	Headspace GC-FID	As received		0.1	mg/kg
CE250	EPH Aliphatic (>C10-C12)	Solvent extraction, GCxGC-FID	As received		6	mg/kg
CE250	EPH Aliphatic (>C12-C16)	Solvent extraction, GCxGC-FID	As received		6	mg/kg
CE250	EPH Aliphatic (>C16-C35)	Solvent extraction, GCxGC-FID	As received		15	mg/kg

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## METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE250	EPH Aliphatic (>C35-C44)	Solvent extraction, GCxGC-FID	As received		10	mg/kg
CE067	VPH Aromatic (>EC5-EC7)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC7-EC8)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC8-EC10)	Headspace GC-FID	As received		0.01	mg/kg
CE250	EPH Aromatic (>EC10-EC12)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC12-EC16)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC16-EC21)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC21-EC35)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC35-EC44)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-

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## DEVIATING SAMPLE INFORMATION

### Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

### Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
126691-1	TP01	0.60	N	
126691-2	TP02	0.60-0.70	N	
126691-3	TP03	0.60	N	
126691-4	TP04	0.60	N	

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## ADDITIONAL INFORMATION

### Notes

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

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 4 weeks from initial receipt unless otherwise instructed.

BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones, where applicable.