21LPL083/SV/GC/10

13th January 2023

FAO Richard Sedden @ Lovell
(Via Email: richard.sedden@Lovell.co.uk)

BETTS GEO
CONSULTING ENGINEERS

Dear Richard,

Edge Lane, Openshaw – Soil Cover System Assessment – Plots 190-193

Please find below our clean-cover system validation data at the above-mentioned site / plots.

Overview

Betts Geo Ltd were instructed to validate the clean cover system applied within residential gardens at the above site as per the recommendations within the Remediation Statement undertaken by Betts Geo Ltd in May 2020 (Ref; 19YHG001/RS/REVD) and the Verification Report undertaken by Betts Geo Ltd in April 2021 (19YHG001/VR).

The report recommends;

- A 600mm cover system with no dig layer is required. This will comprise of:

150mm Topsoil (anticipated to be imported)
450mm Subsoil (anticipated to be imported)
Geotextile membrane

The cover system is likely to be made up using imported topsoil and subsoil.

Physical Suitability of the Topsoil and Subsoil

The composition of the topsoil and subsoil materials on site were visually inspected in-situ during sampling on 5th January 2023. Inspection confirms that the topsoil is debris free dark brown slightly sandy CLAY and subsoil material is brown sandy CLAY, both topsoil and subsoil are physically suitable for their proposed end use.

Topsoil Source – Handley Hill, Winsford CW7 1EW.

Subsoil Source – Goldfinch Close, Congleton CW12 3FB.

Cover System Depth Validation

Trial holes undertaken in the rear gardens of plots 190-193 on 5th January 2023 confirmed that the topsoil thickness was greater than 150mm; the subsoil was a typical thickness greater than 450mm and a geotextile membrane was in place at the base completing the required 600mm clean cover system.

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Chemical Validation of Topsoil and Subsoil

The topsoil and subsoil were chemically tested in-situ (0.10mbgl topsoil and 0.40mbgl subsoil) in the rear garden areas of plots 191 and 194 on 5th January 2023 on a sample ratio of 1:3 garden basis in accordance with NHBC guidance.

Samples were taken in-situ at a sample rate of 1:3 garden areas per strata i.e. 4 samples were taken.

Analysis has been scheduled for the standard 'CLEA' Metals (including Chromium VI), speciated TPH to CWG and Speciated PAH's.

No visual or olfactory evidence of contamination was noted within any of the samples.

These results were screened against the same criteria i.e. EA/CIEH/LQM residential guidance for suitability.

All results fall below relevant standard guidance levels.

Summary

Betts Geo Environmental confirms that the soil is acceptable for use within gardens as such the capping requirements for plots 190-193 are complete.

We trust that this information is satisfactory for your further assessment to release the conditions.

Should you require any further clarification please do not hesitate in giving us a call.

Yours Sincerely,

Graham Clark
BETTS GEO ENVIRONMENTAL LIMITED

Encl –
Evidentiary Photographs
Topsoil & Subsoil testing data

QMS OHSAS 18001 REGISTERED
QMS ISO 14001 REGISTERED
QMS ISO 9001 REGISTERED
smas worksafe contractor www.smasltd.com as recognised by SSIP SAFETY SCHEMES IN PROCUREMENT
CHAS Accredited Contractor CHAS.co.uk
Constructionline

Plot 190

QMS OHSAS 18001 REGISTERED
QMS ISO 14001 REGISTERED
QMS ISO 9001 REGISTERED
smas worksafe contractor www.smasltd.com as recognised by SSIP SAFETY SCHEMES IN PROCUREMENT
CHAS Accredited Contractor CHAS.co.uk
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Plot 191

Plot 192

Plot 193

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SUMMARY OF CONTAMINATION ANALYSIS: METALS

Project Name Edge Lane
Project No 21LPL083
Date 05/01/2023

SOIL TYPE	TS	SS	TS	SS
SAMPLE LOCATION	Plot 191	Plot 191	Plot 194	Plot 194
DEPTH (m)	0.1	0.4	0.1	0.4
pH	7.45	8.25	7.25	7.99
Sulphate (water sol 2:1)	0.06	<0.01	0.02	0.26
Organic matter	12.9	1.3	9.1	2.6
Arsenic	11	2	12	4
Cadmium	0.9	0.6	0.8	0.6
Copper	57	22	55	28
Chromium (hexavalent)	<1	<1	<1	<1
Lead	77	18	72	27
Mercury	<0.17	<0.17	<0.17	<0.17
Nickel	17	26	17	26
Selenium	<1	<1	<1	<1
Zinc	96	49	71	51
Asbestos in Soil	NAD	NAD	NAD	NAD
Asbestos Matrix	-	-	-	-
Quantification	-	-	-	-
Organic matter	12.9	1.3	9.1	2.6

Metals	Mean Value Test *	Range		AtRisk 2017 (mg/kg)	AtRisk 2017 (mg/kg)	DEFRA C4SL 2017
	US_{95}	Largest Value (mg/kg)	Smallest Value (mg/kg)	With Homegrown Produce (1% SOM)	With Homegrown Produce (6% SOM)	
pH	-	8.25	7.25			-
Sulphate (water sol 2:1)	-	0.26	<0.01			-
Organic matter	-	12.90	1.30			
Arsenic	-	12.00	2.00	32	32	37
Cadmium	-	0.90	0.60	10	10	22.1
Copper	-	57.00	22.00	4730	4790	-
Chromium (hexavalent)	-	<1	<1	3.62	3.63	20.5
Lead	-	77.00	18.00			200
Mercury	-	<0.17	<0.17	8.81	15.8	-
Nickel	-	26.00	17.00	EA/ATRisk withdrawn Aug 2015		
Selenium	-	<1	<1	375	375	-
Zinc	-	96.00	49.00	20000	20300	-

NOTE:
Any individual results and mean value tests above SGVs are shown RED highlighted.
Any outlier values which exceed relevant SGVs are shown in red

* - The calculations for the mean value test include outliers
**- Results for this determinand are assessed with no background levels taken into account
Results are expressed as mg/kg unless otherwise stated
Asbestos Quantification is expressed in %w/w.

ALL RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING **NO** FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

SGVs are derived from the EA 2009 SGV's which are taken from AtRisk 2015. Category 4 screening levels have been adopted by the EA and have been included as new guidance.
Note: The SGV for elemental mercury has been used to assess total mercury concentrations at the site. The Environment Agency's Science Report SC050021 /Mercury SGV states that 'for general surface contamination and to simplify the assessment the SGV's for inorganic mercury can normally be compared with chemical analysis for total mercury content….'. Based on the latter, SGV for elemental mercury (170mg/kg) in the soil assessment is used
NAD - NO ASBESTOS DETECTED

TS - Topsoil, MG - Made Ground and N - Natural Ground

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CONSULTING ENGINEERS

SUMMARY OF CONTAMINATION ANALYSIS: TPH

Project Name Edge Lane
Project No 21LPL083
Date 05/01/2023

SOIL TYPE	TS	SS	TS	SS
SAMPLE LOCATION	Plot 191	Plot 191	Plot 194	Plot 194
DEPTH (m)	0.1	0.4	0.1	0.4
Ali >C5-C6	<0.01	<0.01	<0.01	<0.01
Ali >C6-C8	<0.01	<0.01	<0.01	<0.01
Ali >C8-C10	<1	<1	<1	<1
Ali >C10-C12	<1	<1	<1	<1
Ali >C12-C16	<1	<1	<1	<1
Ali >C16-C21	1	<1	1	<1
Ali >C21-C35	26	<1	25	<1
Total Aliphatics	27	<1	26	<1
Aro >C5-C7	<0.01	<0.01	<0.01	<0.01
Aro >C7-C8	<0.01	<0.01	<0.01	<0.01
Aro >C8-C10	<1	<1	<1	<1
Aro >C10-C12	<1	<1	<1	<1
Aro >C12-C16	3	<1	3	<1
Aro >C16-C21	11	<1	8	<1
Aro >C21-C35	24	<1	19	<1
Total Aromatics	39	<1	30	<1
TPH (Ali & Aro)	66	<1	56	<1
BTEX - Benzene	<0.01	<0.01	<0.01	<0.01
BTEX - Toluene	<0.01	<0.01	<0.01	<0.01
BTEX - Ethyl Benzene	<0.01	<0.01	<0.01	<0.01
BTEX - m & p Xylene	<0.01	<0.01	<0.01	<0.01
BTEX - o Xylene	<0.01	<0.01	<0.01	<0.01
MTBE	<0.01	<0.01	<0.01	<0.01
Organic Matter	12.9	1.3	9.1	2.6

TPH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA C4SL 2017
	US_{95}	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Ali >C5-C6	-	<0.01	<0.01	42.7	369	-
Ali >C6-C8	-	<0.01	<0.01	99.3	1240	-
Ali >C8-C10	-	<1	<1	13.9	204	-
Ali >C10-C12	-	<1	<1	81.7	1180	-
Ali >C12-C16	-	<1	<1	385	4130	-
Ali >C16-C21	-	1.00	<1	210000	210100	-
Ali >C21-C35	-	26.00	<1			
Total Aliphatics	-	27.00	<1			
Aro >C5-C7	-	<0.01	<0.01	0.137	0.871	-
Aro >C7-C8	-	<0.01	<0.01	113	780	-
Aro >C8-C10	-	<1	<1	20.5	232	-
Aro >C10-C12	-	<1	<1	70	468	-
Aro >C12-C16	-	3.00	<1	165	830	-
Aro >C16-C21	-	11.00	<1	319	1040	-
Aro >C21-C35	-	24.00	<1	1120	1710	-
Total Aromatics	-	39.00	<1			
TPH (Ali & Aro)	-	66.00	<1			
BTEX - Benzene	-	<0.01	<0.01	0.0493	0.33	0.871
BTEX - Toluene	-	<0.01	<0.01	113	780	-
BTEX - Ethyl Benzene	-	<0.01	<0.01	50.7	453	-
BTEX - m & p Xylene	-	<0.01	<0.01	24	312	-
BTEX - o Xylene	-	<0.01	<0.01	26.4	336	-
MTBE	-	<0.01	<0.01	27.6	220	

	UU Drinking Water Guidelines
	PE Threshold
Total BTEX & MTBE	0.1
EC5-EC10 Ali-Aro	2
EC10-EC16 Ali-Aro	10
EC16-EC40 Ali-Aro	500

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING **NO** FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed agains **RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.**

BETTS GEO
CONSULTING ENGINEERS

SUMMARY OF CONTAMINATION ANALYSIS: PAH

Project Name Edge Lane
Project No 21LPL083
Date 05/01/23

SOIL TYPE	TS	SS	TS	SS
SAMPLE LOCATION	Plot 191	Plot 191	Plot 194	Plot 194
DEPTH (m)	0.1	0.4	0.1	0.4
Acenaphthene	0.1	<0.01	0.15	1.18
Acenaphthylene	<0.01	<0.01	<0.01	<0.01
Anthracene	0.19	<0.02	0.7	2.26
Benzo(a)anthracene	0.57	<0.04	0.83	1.96
Benzo(a)pyrene	0.6	<0.04	0.74	1.23
Benzo(b)fluoranthene	0.67	<0.05	0.83	1.31
Benzo(ghi)perylene	0.37	<0.05	0.4	0.4
Benzo(k)fluoranthene	0.17	<0.07	0.23	0.4
Chrysene	0.66	<0.06	0.83	1.78
Dibenzo(ah)anthracene	0.07	<0.04	0.1	0.1
Fluoranthene	1.22	<0.08	2.21	7.03
Fluorene	0.07	<0.01	0.22	1.04
Indeno(123-cd)pyrene	0.42	<0.03	0.45	0.53
Naphthalene	<0.03	<0.03	<0.03	0.2
Phenanthrene	0.6	0.04	1.84	8.95
Pyrene	1.08	<0.07	1.75	5.35
Organic Matter	12.9	1.3	9.1	2.6

PAH	Mean Value Test *	Range		AtRisk 2017 (mg/kg) Residential with Home Grown Produce	AtRisk 2017 (mg/kg) Residential with Home Grown Produce	DEFRA's C4SL 2017
	US_{95}	Largest Value (mg/kg)	Smallest Value (mg/kg)	1% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***	6% SOM WITHOUT Free Product***
Acenaphthene	-	1.18	<0.01	608	2760	-
Acenaphthylene	-	<0.01	<0.01			-
Anthracene	-	2.26	<0.02	10200	26200	-
Benzo(a)anthracene	-	1.96	<0.04	4.52	8.54	-
Benzo(a)pyrene	-	1.23	<0.04	1.51	2.05	4.95
Benzo(b)fluoranthene	-	1.31	<0.05	7.72	9.86	-
Benzo(ghi)perylene	-	0.40	<0.05	96.2	103	-
Benzo(k)fluoranthene	-	0.40	<0.07	84.4	100	-
Chrysene	-	1.78	<0.06	585	927	-
Dibenzo(ah)anthracene	-	0.10	<0.04	0.838	1	-
Fluoranthene	-	7.03	<0.08	983	2980	-
Fluorene	-	1.04	<0.01	735	2610	-
Indeno(123-cd)pyrene	-	0.53	<0.03	7.31	9.75	-
Naphthalene	-	0.20	<0.03	0.829	12.2	-
Phenanthrene	-	8.95	0.04			-
Pyrene	-	5.35	<0.07	668	2120	-

Results expressed as mg/kg air dried unless otherwise stated.

* - The calculations for the mean value test include outliers

*** THESE RESULTS PRESENTED ARE ASSESSED UNDER THE COMBINED CLEA ASSESSMENT CRITERION AS OUTLINED WITHIN SR4 ASSUMING NO FREE PRODUCT WAS OBSERVED DURING FIELDWORK- SEE 'GUIDANCE NOTES ON CONTAMINATION'.

NOTES:

For the Purpose of this investigation- results will be assessed agains **RESIDENTIAL GUIDELINES WITH HOMEGROWN PRODUCE WITH NO FREE PRODUCT.**

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/00055
Issue Number: 1 **Date:** 11 January, 2023

Client: Betts Geo Environmental
Old Marsh Farm Barns
Welsh Road
Sealand
Flintshire
UK
CH5 2LY

Project Manager: Betts Geolab/Graham Clark
Project Name: Edge Lane
Project Ref: 21LPL083
Order No: BG4837
Date Samples Received: 05/01/23
Date Instructions Received: 05/01/23
Date Analysis Completed: 11/01/23

Approved by:

Gemma Berrisford
Client Manager

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

UKAS TESTING
1247

Envirolab Job Number: 23/00055

Client Project Name: Edge Lane

Client Project Ref: 21LPL083

Lab Sample ID	23/00055/1	23/00055/2	23/00055/3	23/00055/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	Plot 191	Plot 191	Plot 194	Plot 194						
Depth to Top	0.1	0.4	0.1	0.4						
Depth To Bottom										
Date Sampled	05-Jan-23	05-Jan-23	05-Jan-23	05-Jan-23						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4AE	5A	4AE	5A						
% Stones >10mm$_{A}$	<0.1	2.0	<0.1	<0.1				% w/w	0.1	A-T-044
pH$_{D}^{M\#}$	7.45	8.25	7.25	7.99				pH	0.01	A-T-031s
Sulphate (water sol 2:1)$_{D}^{M\#}$	0.06	<0.01	0.02	0.26				g/l	0.01	A-T-026s
Organic Matter$_{D}^{M\#}$	12.9	1.3	9.1	2.6				% w/w	0.1	A-T-032s
Arsenic$_{D}^{M\#}$	11	2	12	4				mg/kg	1	A-T-024s
Cadmium$_{D}^{M\#}$	0.9	0.6	0.8	0.6				mg/kg	0.5	A-T-024s
Copper$_{D}^{M\#}$	57	22	55	28				mg/kg	1	A-T-024s
Chromium (hexavalent)$_{D}$	<1	<1	<1	<1				mg/kg	1	A-T-040s
Lead$_{D}^{M\#}$	77	18	72	27				mg/kg	1	A-T-024s
Mercury$_{D}$	<0.17	<0.17	<0.17	<0.17				mg/kg	0.17	A-T-024s
Nickel$_{D}^{M\#}$	17	26	17	26				mg/kg	1	A-T-024s
Selenium$_{D}^{M\#}$	<1	<1	<1	<1				mg/kg	1	A-T-024s
Zinc$_{D}^{M\#}$	96	49	71	51				mg/kg	5	A-T-024s
VPH total (>C5-C10)	<1.00	<1.00	<1.00	<1.00				mg/kg	1	Calc-stone+mois

Envirolab Job Number: 23/00055

Client Project Name: Edge Lane

Client Project Ref: 21LPL083

Lab Sample ID	23/00055/1	23/00055/2	23/00055/3	23/00055/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	Plot 191	Plot 191	Plot 194	Plot 194						
Depth to Top	0.1	0.4	0.1	0.4						
Depth To Bottom										
Date Sampled	05-Jan-23	05-Jan-23	05-Jan-23	05-Jan-23						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4AE	5A	4AE	5A						
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	NAD	NAD						A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-						A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-						A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A						A-T-045

Envirolab Job Number: 23/00055

Client Project Name: Edge Lane

Client Project Ref: 21LPL083

Lab Sample ID	23/00055/1	23/00055/2	23/00055/3	23/00055/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	Plot 191	Plot 191	Plot 194	Plot 194						
Depth to Top	0.1	0.4	0.1	0.4						
Depth To Bottom										
Date Sampled	05-Jan-23	05-Jan-23	05-Jan-23	05-Jan-23						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4AE	5A	4AE	5A						
PAH-16MS										
Acenaphthene$_{A}^{M\#}$	0.10	<0.01	0.15	1.18				mg/kg	0.01	A-T-019s
Acenaphthylene$_{A}^{M\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-019s
Anthracene$_{A}^{M\#}$	0.19	<0.02	0.70	2.26				mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_{A}^{M\#}$	0.57	<0.04	0.83	1.96				mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_{A}^{M\#}$	0.60	<0.04	0.74	1.23				mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_{A}^{M\#}$	0.67	<0.05	0.83	1.31				mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_{A}^{M\#}$	0.37	<0.05	0.40	0.40				mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_{A}^{M\#}$	0.17	<0.07	0.23	0.40				mg/kg	0.07	A-T-019s
Chrysene$_{A}^{M\#}$	0.66	<0.06	0.83	1.78				mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_{A}^{M\#}$	0.07	<0.04	0.10	0.10				mg/kg	0.04	A-T-019s
Fluoranthene$_{A}^{M\#}$	1.22	<0.08	2.21	7.03				mg/kg	0.08	A-T-019s
Fluorene$_{A}^{M\#}$	0.07	<0.01	0.22	1.04				mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_{A}^{M\#}$	0.42	<0.03	0.45	0.53				mg/kg	0.03	A-T-019s
Naphthalene $_{A}^{M\#}$	<0.03	<0.03	<0.03	0.20				mg/kg	0.03	A-T-019s
Phenanthrene$_{A}^{M\#}$	0.60	0.04	1.84	8.95				mg/kg	0.03	A-T-019s
Pyrene$_{A}^{M\#}$	1.08	<0.07	1.75	5.35				mg/kg	0.07	A-T-019s
Total PAH-16MS$_{A}^{M\#}$	6.79	<0.08	11.3	33.7				mg/kg	0.01	A-T-019s

Envirolab Job Number: 23/00055

Client Project Name: Edge Lane

Client Project Ref: 21LPL083

Lab Sample ID	23/00055/1	23/00055/2	23/00055/3	23/00055/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	Plot 191	Plot 191	Plot 194	Plot 194						
Depth to Top	0.1	0.4	0.1	0.4						
Depth To Bottom										
Date Sampled	05-Jan-23	05-Jan-23	05-Jan-23	05-Jan-23						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	4AE	5A	4AE	5A						
TPH CWG with Clean Up										
Ali >C5-C6$_{A}^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Ali >C6-C8$_{A}^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Ali >C8-C10$_{A}$	<1	<1	<1	<1				mg/kg	1	A-T-055s
Ali >C10-C12$_{A}^{M\#}$	<1	<1	<1	<1				mg/kg	1	A-T-055s
Ali >C12-C16$_{A}^{M\#}$	<1	<1	<1	<1				mg/kg	1	A-T-055s
Ali >C16-C21$_{A}^{M\#}$	1	<1	1	<1				mg/kg	1	A-T-055s
Ali >C21-C35$_{A}^{M\#}$	26	<1	25	<1				mg/kg	1	A-T-055s
Total Aliphatics$_{A}$	27	<1	26	<1				mg/kg	1	Calc-As Recd
Aro >C5-C7$_{A}^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Aro >C7-C8$_{A}^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Aro >C8-C10$_{A}$	<1	<1	<1	<1				mg/kg	1	A-T-055s
Aro >C10-C12$_{A}$	<1	<1	<1	<1				mg/kg	1	A-T-055s
Aro >C12-C16$_{A}$	3	<1	3	<1				mg/kg	1	A-T-055s
Aro >C16-C21$_{A}^{M\#}$	11	<1	8	<1				mg/kg	1	A-T-055s
Aro >C21-C35$_{A}^{M\#}$	24	<1	19	<1				mg/kg	1	A-T-055s
Total Aromatics$_{A}$	39	<1	30	<1				mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35)$_{A}$	66	<1	56	<1				mg/kg	1	Calc-As Recd
BTEX - Benzene$_{A}^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - Toluene$_{A}^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_{A}^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_{A}^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - o Xylene$_{A}^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
MTBE$_{A}^{\#}$	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,
E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve
Subscript "^" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.
EPH CWG results have humics mathematically subtracted through instrument calculation
TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

v2

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Betts Geo Environmental, Old Marsh Farm Barns, Welsh Road, Sealand, Flintshire, UK, CH5 2LY

Project: Edge Lane

Clients Project No: 21LPL083

Project No: 23/00055

Date Received: 05/01/2023 (pm)

Cool Box Temperatures (°C): 12.4

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/00055/1	23/00055/2	23/00055/3	23/00055/4
Client Sample No				
Client Sample ID/Depth	Plot 191 0.1m	Plot 191 0.4m	Plot 194 0.1m	Plot 194 0.4m
Date Sampled	05/01/23	05/01/23	05/01/23	05/01/23
A-T-019s	10/01/2023	10/01/2023	10/01/2023	10/01/2023
A-T-022s	09/01/2023	09/01/2023	09/01/2023	09/01/2023
A-T-024s	11/01/2023	11/01/2023	11/01/2023	11/01/2023
A-T-026s	10/01/2023	10/01/2023	10/01/2023	10/01/2023
A-T-031s	10/01/2023	10/01/2023	10/01/2023	10/01/2023
A-T-032s	10/01/2023	10/01/2023	10/01/2023	10/01/2023
A-T-040s	10/01/2023	10/01/2023	10/01/2023	10/01/2023
A-T-044	09/01/2023	09/01/2023	09/01/2023	09/01/2023
A-T-045	06/01/2023	06/01/2023	06/01/2023	06/01/2023
A-T-055s	10/01/2023	10/01/2023	10/01/2023	10/01/2023
Calc-As Recd	10/01/2023	10/01/2023	10/01/2023	10/01/2023
Calc-stone+mois	10/01/2023	10/01/2023	10/01/2023	10/01/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report