Ecologia
experts on the ground

Magrock Ltd
2 Oak Tree Business Park
The Courtyard
Willesborough
Ashford
Kent, TN24 0SY

Ecologia Ref: EES 19.251.1

Client Ref: Stonefield Close

16th June 2020

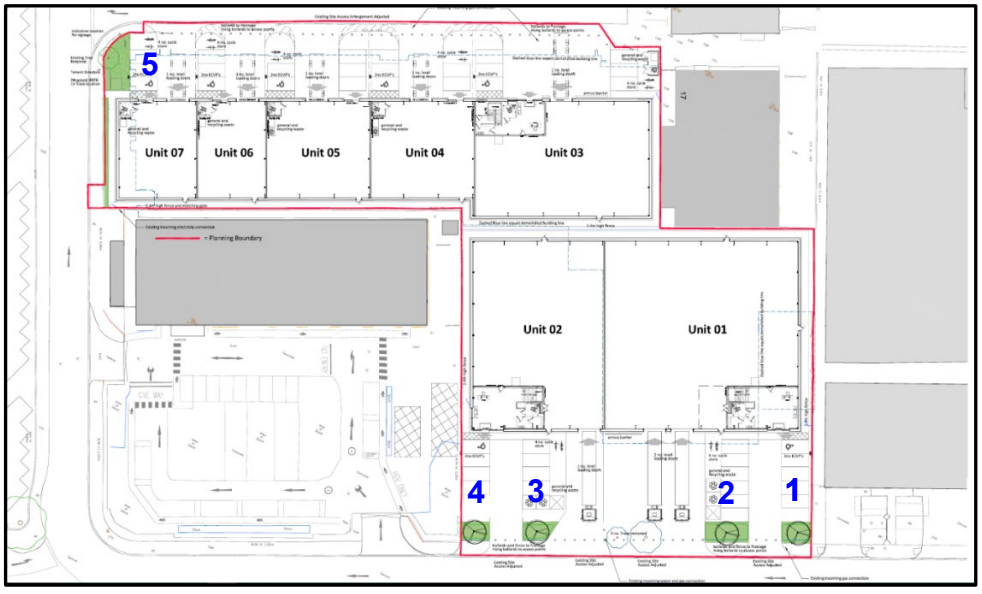
Re: Stonefield Way (Units 1-7), South Ruislip, London, HA4 0YH – Topsoil Validation Letter Report

1. Introduction

Ecologia Environmental Solutions Ltd was appointed by Magrock Ltd to compile validation data in relation to imported topsoil for the landscaping areas at the above referenced Site.

Ecologia has previously completed a Verification Report for the majority of remediation works carried out at the Site, documented in report reference EES 19.251.1, dated 1st May 2020.

This subsequent letter report intends to validate the remainder of remediation requirements, relating to imported topsoil, to support the discharge of planning consent granted by London Borough of Hillingdon Council for the development of seven (7No.) new commercial units with associated carparking and five (5No.) small soft landscaping areas (ref: 1660/APP/2019/1018). The redevelopment plan is included as Figure 1 in Appendix I and shown as Plan 1 below. Soft landscaping areas are numbered for clarity.



Plan 1. Redevelopment Plan (*Source: CMP Architects*)

Building 711 & 712
Kent Science Park
Sittingbourne
Kent ME9 8BZ UK

TEL **+44 (0)1795 471611**
FAX **+44 (0)1795 430314**
info@ecologia-environmental.com

2. Remediation Strategy Requirements – Imported Topsoil

The validation works were carried out in accordance with the remediation strategy produced by MLM Consulting Ltd, dated August 2019. The strategy was designed to manage the previously identified pollutant linkages to provide a Site that is 'suitable for use' and protective of both Human Health and Controlled Waters.

The remediation strategy required the implementation of a clean capping system in soft landscaped areas comprising:

- 450mm thick layer of imported Topsoil / subsoil materials.
- Geomembrane at the base.

Imported natural soils had to be tested for CLEA metals, speciated PAHs (USEPA16) and organic matter, with a minimum of one (1No.) test per 100m^3 or one (1No.) test per 150m^2. In order to confirm suitability, results should be screened against the S4ULs for commercial use (C4SL for lead) for human health receptors.

3. Topsoil Validation Sampling

Information obtained from Magrock Ltd confirmed a total of 50m^3 of topsoil was imported to Site from Ridge, Potters Bar, Hertfordshire, EN6 3NA, for use in the soft landscaping areas. All import tickets are held by Magrock Ltd and can be made available on request.

Ecologia attended Site on Friday 22nd May 2020 to obtain validation samples and confirm the thickness of topsoil placement. At the time of the visit, Ecologia was able to access the four (4No.) of the soft landscaping areas across Units 01 & 02. The thickness of the landscaping area in Unit 07 was validated by Magrock Ltd.

Trial pits were excavated to a maximum depth of 0.45m bgl to reach the geomembrane, confirm its presence and confirm the depth of the overlying soil. Photographs of each area are included in Appendix II.

In total, three (3No.) composite topsoil samples were collected from Site and submitted to a UKAS accredited laboratory for the following suite of compounds:

- Heavy Metals (As, Cd, Cr, Cu, Pb, Hg, Se, Zn, Cr, VI);
- BTEX compounds (benzene, ethyl benzene, toluene and xylenes);
- Speciated Total Petroleum Hydrocarbons (TPH) with aliphatic and aromatic split;
- Speciated Polycyclic Aromatic Hydrocarbons (PAHs) (USEPA 16 compounds);
- Inorganic compounds (Phenols, Cyanide, Boron);
- Asbestos Screening and ID; and,
- Fraction Organic Carbon (FOC).

Results were screened against the remediation criteria for a commercial use, which identified no exceedances.

A summary table of the laboratory results compared against the criteria is included in Appendix III, with the laboratory analytical certificate included in Appendix IV.

4. Conclusions

Following completion of validation sampling, Ecologia can confirm that the geomembrane is present in all soft landscaping areas across the Site as per the remediation strategy.

The analytical results from the imported topsoil confirm no exceedances against the remediation target criteria.

Therefore, all previously identified pollutant linkages are deemed to be low / broken. Consequently, Ecologia considers that the Site is suitable for the intended commercial end use and that no further remediation or verification works are required.

We hope this report meets with your requirements; however, if you do require any further information, please do not hesitate to contact the undersigned.

Yours Sincerely,

For and on behalf of Ecologia

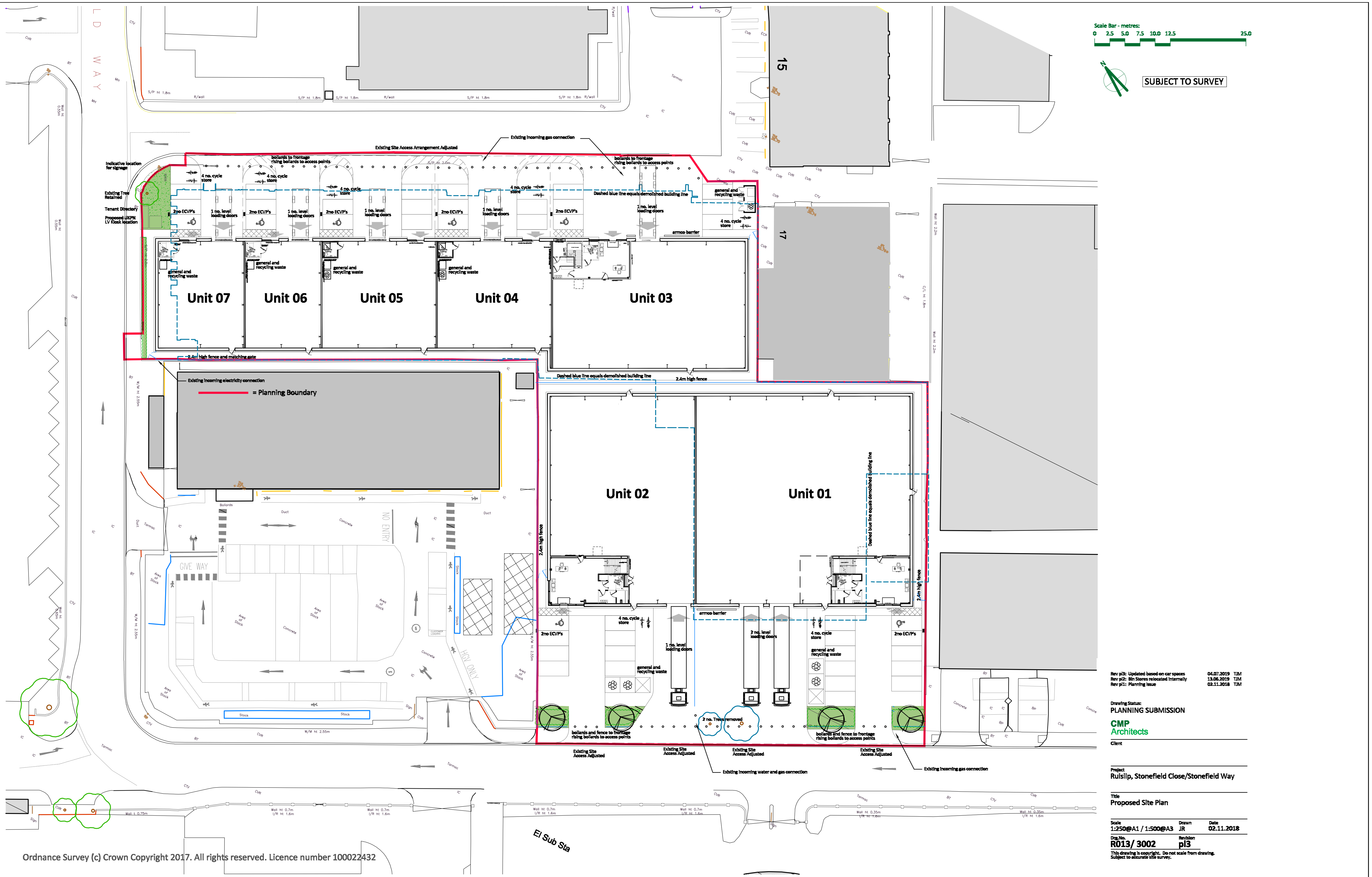
Prepared by: Lucy Allen
Project Manager

Checked & Authorised by: Leigh Anne Cammack
Director

Enc:
- Appendix I: Redevelopment Plan
- Appendix II: Photographic Report
- Appendix III: Summary Table of Soil Validation Results
- Appendix IV: Laboratory Soil Analytical Certificates

APPENDIX I

REDEVELOPMENT PLAN



Project: EES 19.251.1	Date: 01/05/2020	Ecologia™ experts on the ground	Title: Redevelopment Plan		Version: 1
Drawn by: CMP Architects	Checked by: N/A		Site: Stonefield Way, Ruislip	Client: Magrock Ltd / Scale \ Paper: N.T.S \ A3	Figure: 1

APPENDIX II

PHOTOGRAPHIC REPORT

Plate 1: Validation of soft landscaping area 1 (Unit 01).

Plate 2: Validation of soft landscaping area 2 (Unit 01).

Plate 3: Validation of soft landscaping area 3 (Unit 02).

Plate 4: Validation of soft landscaping area 4 (Unit 02).

Plate 5: Validation of soft landscaping area 5 (Unit 07).

Plate 6: Validation of soft landscaping area 5 (Unit 07).

APPENDIX III

SUMMARY TABLE OF SOIL VALIDATION RESULTS

Analytical Report Number: 20-11159

Project / Site name: Stonefield Way, Ruislip

Lab Sample Number					1518317	1518318	1518319
Sample Reference					Topsoil	Topsoil 2	Topsoil 3
Date Sampled					22/05/2020	22/05/2020	22/05/2020
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	**Remediation Criteria (Commercial)**			
Stone Content	%	0.1	NONE	N/A	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	N/A	15	12	15
Total mass of sample received	kg	0.001	NONE	N/A	0.41	0.45	0.43
Asbestos in Soil Screen	Type	N/A	ISO 17025	Detect	Not-detected	Not-detected	Not-detected
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	N/A	8.5	8.3	8.5
Total Cyanide	mg/kg	1	MCERTS	N/A	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	51	< 1	< 1	< 1
Total Sulphate as SO_4	mg/kg	50	MCERTS	N/A	420	410	510
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	N/A	0.16	0.14	0.18
Sulphide	mg/kg	1	MCERTS	N/A	2.4	< 1.0	2.8
Elemental Sulphur	mg/kg	5	MCERTS	N/A	< 5.0	< 5.0	< 5.0
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	N/A	0.02	0.017	0.028
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	760	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	190	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	83000	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	84000	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	63000	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	22000	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	520000	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	23000	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	54000	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	170	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	350	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	44	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1200	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	35	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	500	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	3.5	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	3900	< 0.05	< 0.05	< 0.05
Total PAH							
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	N/A	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	640	13	15	14
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	12	0.43	0.62	0.52
Boron (water soluble)	mg/kg	0.2	MCERTS	240000	2.2	1.6	2.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	230	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	33	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	8600	17	24	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	68000	14	7.5	11
Lead (aqua regia extractable)	mg/kg	1	MCERTS	2300	18	24	20
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	26	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	980	17	21	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	13000	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	9000	32	42	39
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	730000	77	82	85
Monoaromatics & Oxygenates							
Benzene	µg/kg	1	MCERTS	28	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	860	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	520	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	480	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS		< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS		< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	3200	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	7800	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	2000	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	9700	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	59000	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	1600000	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS		< 8.0	< 8.0	43
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS		< 10	< 10	43
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	26000	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	56000	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	3500	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	16000	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	36000	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	28000	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	28000	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS		< 10	< 10	< 10
TPH Total C5 - C35	mg/kg	10	NONE		< 10	< 10	43

APPENDIX IV

LABORATORY ANALYTICAL CERTIFICATES

Lucy Allen
Ecologia Environmental Solutions Ltd
Building 711/712
Kent Science Park
Sittingbourne
Kent
ME9 8BZ

t: 01795 471611
f: 01795 430314
e: l.allen@ecologia-environmental.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-11159

Project / Site name:	Stonefield Way, Ruislip	**Samples received on:**	26/05/2020
Your job number:	19 251 1	**Sample instructed/ Analysis started on:**	26/05/2020
Your order number:	73038	**Analysis completed by:**	02/06/2020
Report Issue Number:	1	**Report issued on:**	02/06/2020
Samples Analysed:	3 soil samples		

Signed: Karolina Marek

Karolina Marek
PL Head of Reporting Team

For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

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

Analytical Report Number: 20-11159

Project / Site name: Stonefield Way, Ruislip
Your Order No: 73038

Lab Sample Number				1518317	1518318	1518319		
Sample Reference				Topsoil	Topsoil 2	Topsoil 3		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				22/05/2020	22/05/2020	22/05/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	15	12	15		
Total mass of sample received	kg	0.001	NONE	0.41	0.45	0.43		
Asbestos in Soil Screen	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected		
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.5	8.3	8.5		
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Total Sulphate as SO_4	mg/kg	50	MCERTS	420	410	510		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.16	0.14	0.18		
Sulphide	mg/kg	1	MCERTS	2.4	< 1.0	2.8		
Elemental Sulphur	mg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0		
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.020	0.017	0.028		
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	15	14		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.43	0.62	0.52		
Boron (water soluble)	mg/kg	0.2	MCERTS	2.2	1.6	2.6		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	24	22		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14	7.5	11		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	18	24	20		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	21	20		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	32	42	39		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	77	82	85		

Analytical Report Number: 20-11159

Project / Site name: Stonefield Way, Ruislip
Your Order No: 73038

Lab Sample Number				1518317	1518318	1518319		
Sample Reference				Topsoil	Topsoil 2	Topsoil 3		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				22/05/2020	22/05/2020	22/05/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	43		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	43		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	< 10		
TPH Total C5 - C35	mg/kg	10	NONE	< 10	< 10	43		

Analytical Report Number : 20-11159

Project / Site name: Stonefield Way, Ruislip

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1518317	Topsoil	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation.
1518318	Topsoil 2	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation.
1518319	Topsoil 3	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation.

Analytical Report Number : 20-11159

Project / Site name: Stonefield Way, Ruislip

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Elemental sulphur in soil	Determination of elemental sulphur in soil by extraction in acetonitrile followed by HPLC.	In-house method based on Secondsite Property Holdings Guidance for Assessing and Managing Potential	L021-PL	D	MCERTS
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS

Analytical Report Number : 20-11159

Project / Site name: Stonefield Way, Ruislip

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
TPH Chromatogram in Soil	TPH Chromatogram in Soil.	In-house method	L064-PL	D	NONE
TPH7 Ali Aro Sum	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS, speciation by interpretation.	In-house method	L064-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.