

30th April 2025
20713c15

Mr A Driver
Jarvis Homes Ltd
Burgundy House
21 the Foresters
Harpenden
AL5 2FB

Dear Andy

TOPSOIL VERIFICATION REPORT: PLOTS 1 to 7 – April 2025 FORMER HENRY ISAAC FOUNDRY, ST IPPOLYTS

Overview

WDE Consulting (WDE) is pleased to present Jarvis Homes (the *client*) with the results from the recent topsoil verification completed at former Henry Isaac Foundry, St Ippolyts (Figure 1 and Figure 2) in May 2025. This work was carried out to verify the depth and suitability of imported topsoil materials for use in the soft-standing private garden areas.

All material needs to comply with the criteria set within the Verification Plan¹

The subsoil materials and thickness has previously been verified under a separate cover².

Scope of Work

The topsoil materials were previously delivered and stockpiled onsite for testing in March 2025. 1no soil sample (SP1) was taken from the topsoil stockpile and sent for UKAS accredited testing. Once this was confirmed as suitable for use, the rest of the topsoil materials were laid.

The material had been laid on the residential soft standing areas prior to WDE's site visit. Three hand auger locations were undertaken in future private soft standing garden areas (Photo 1 & 2) with a further 2no verification soil samples taken (Photo 3). Both samples were sent off for laboratory analysis to provide representative information on the conditions of the material.

The samples were screened onsite for Organic Vapour Concentrations (OVC) using a Photo Ionisation Detector (PID) and were placed in dedicated sampling containers within a cooler box prior to transportation to a laboratory for UKAS accredited testing. The laboratory testing was undertaken to determine the suitability for use in residential soft standing areas as imported topsoil. The schedule of testing included the following parameters:

- **Hydrocarbons** - Speciated aromatic/aliphatic hydrocarbons and BTEX
- **Polycyclic Aromatic Hydrocarbons** - 16 Priority PAHs
- **Heavy Metals** - As, Cd, Cr, Cu, Hg, Ni, Pb, Se, V, Zn

¹ WDE Consulting. 20713R2. Verification Plan. July 2022 (Issue A)

² WDE Consulting. 20713c14. Subsoil Verification Plots 1 to 7 IssA. September 2024

- **Inorganics** - Sulphate, sulphide, pH, asbestos screen

This work has been completed in line with current best practice and guidance at the time of issue under WDE's Terms of Business.

Photos of the surface cover verification are presented in Appendix A.

Approved Surface Cover System

The placement of clean cover soils is explained in the Verification Plan¹, a minimum of 600mm of verified surface cover is required in private gardens, summarised below in Table 1.

Table 1 - Design of Surface Cover Layer in Private Gardens

No.	Item	Depth	Details
1	Topsoil Layer	0 - 150mm	Imported materials from a BS certified source. Requires onsite verification testing
2	Subsoil Layer	150 - 600mm	Site won or imported. Requires onsite verification

Adopted Methodology

A total of 3no. samples were collected from the topsoil surface cover using hand tools on 17th April 2025. During the sampling visit a representative from WDE validated the thickness of topsoil surface cover. The depth of topsoil is summarised below in Table 2.

Table 2 - Summary of Verification

Layer	Depth From – To (mm bgl)							
	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Plot 6	Plot 7	Stockpile
Topsoil	0 – 150	0 – 150	0 – 150	0 – 150	0 - 200	0 - 200	0 - 200	-
Subsoil	150 – 600	150 – 600	150 – 600	150 – 600	200 – 600	200 – 600	200 - 600	-
Topsoil Sample Depth	-	-	-	-	100	-	150	Grab
Subsoil Sample Depth	450	-	-	400	300	500	400	-

Verification of the subsoil has been previously reported under a separate cover². The required minimum of 150 mm topsoil and 450mm subsoil for 600mm total surface cover was observed onsite in each inspected private garden location. A total of 8no samples were tested as per the testing frequency within the Verification Plan.

Soil Analytical Test Results

The results from the laboratory analyses of the soil samples are presented in full in Appendix B.

Comparison of Data with Appropriate Verification Criteria

A summary of the laboratory test results is presented in Appendix B along with a comparison with the appropriate Verification Criteria.

There have not been any exceedances of the verification criteria.

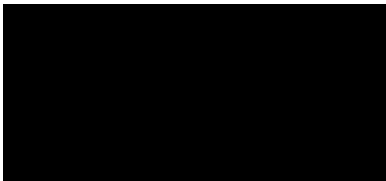
Recommendations

The thickness of topsoil surface cover has complied with the verification of a thickness of 150mm in private gardens. It is WDE's professional opinion that the surface cover materials tested in plots 1 to 7 plots are of suitable quality and that no further actions are required.

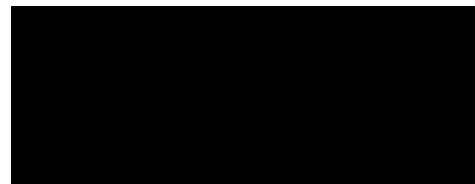
Please do not hesitate to contact us should you require any additional information.

Yours sincerely

WDE CONSULTING LIMITED



Cameron Burchell
Consultant



Jason Fitzgerald
Principal Consultant

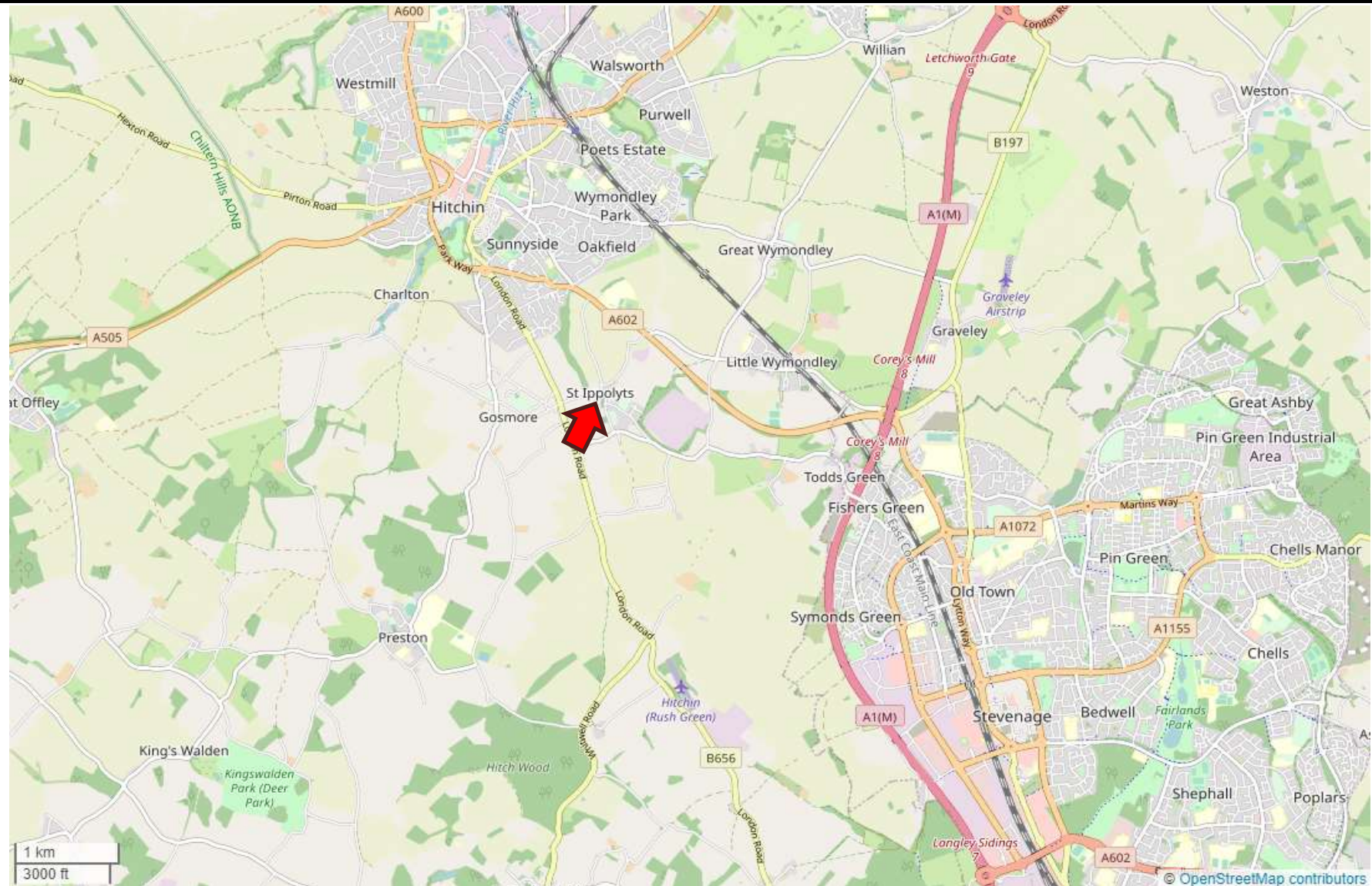
Attached:

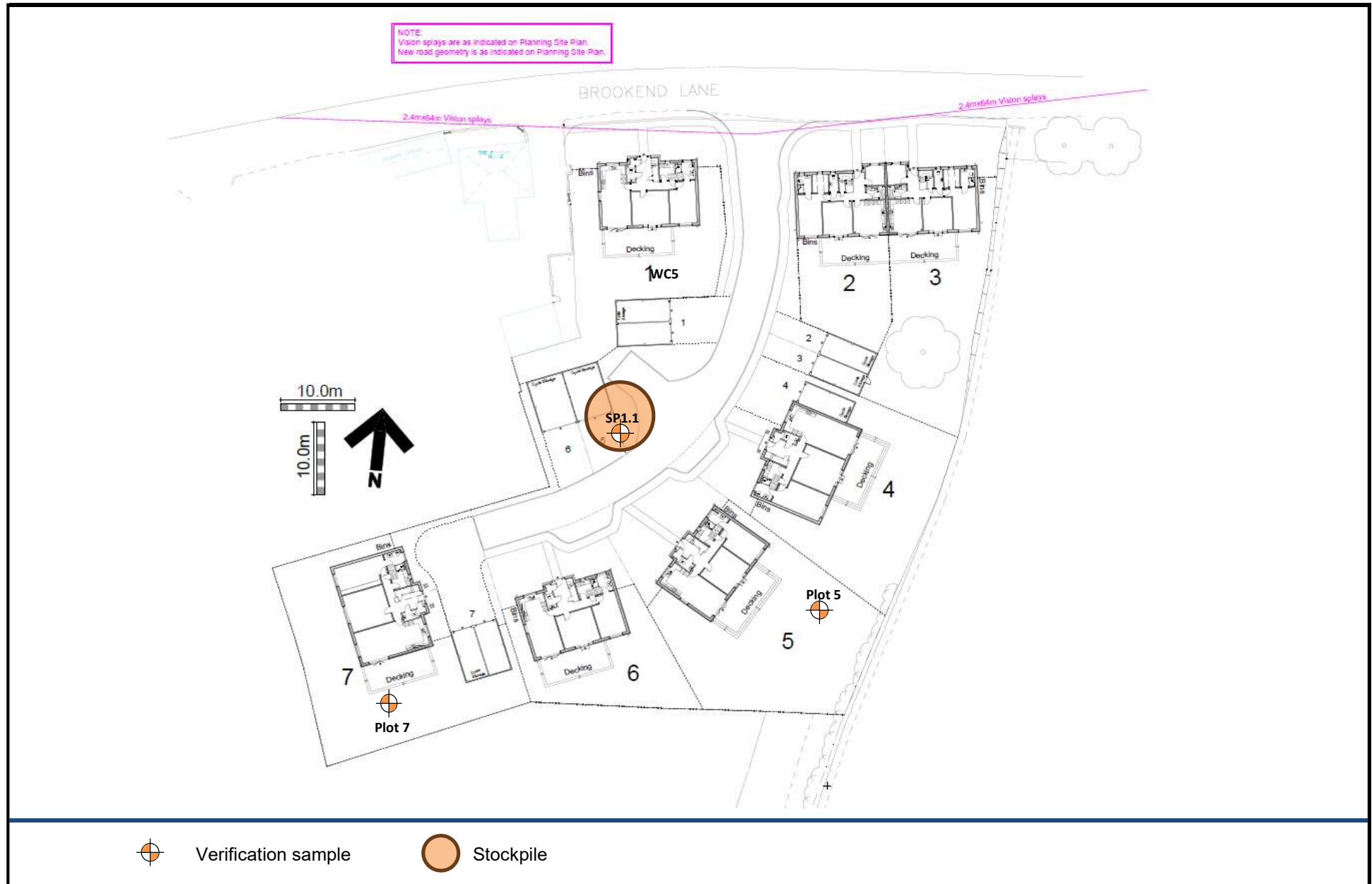
Figures

Appendix A: Photographs

Appendix B: Chemical Test Results

FIGURES





APPENDIX A: SITE PHOTOS

Photo 1: Depth verification of Plot 5



Photo 2: Depth verification of Plot 6



Photo 3: Sample location of Plot 7-TS



APPENDIX B: CHEMICAL TEST RESULTS

Chemtest WDE Standard QRA Suite

	No. of Samples	Unit	Target Concentration	Source	Min	Max	No. That Exceed	Sample Ref	Plot 5 - TS	Plot 7 - TS	SPI
								Type	SOIL	SOIL	SOIL
								Depth	0.1	0.15	
								Date	17/04/2025	17/04/2025	17/03/2025
								ACM Lab	18	15	7.6
Moisture Content	0	%									
Asbestos	3	N/A	DL	WDE					BDL	BDL	BDL
Asbestos Quantification	3	%	0.001	HSE	BDL	BDL	0		BDL	BDL	BDL
pH	3	pH Units	-	-	7.2	8.2	0		7.2	7.7	8.2
Total Cyanide	3	mg/kg	50	DIV	0	BDL	0		< 1.0	< 1.0	< 1.0
Sulphate Total	3	%	-	-	0.047	0.056	-		0.047	0.056	0.048
Sulphate as SO ₄	3	g/l	-	-	0.106	0.13	-		0.127	0.13	0.106
Sulphide	3	mg/kg	-	-	3.4	3.4	-		< 1.0	< 1.0	3.4
Total Organic Carbon (TOC)	3	%	-	-	0.2	3	-		2.6	3	0.2
Total Phenols (monohydric)	3	mg/kg	280	LQM	0	BDL	0		< 1.0	< 1.0	< 1.0
Naphthalene	3	mg/kg	2.3	LQM	0.11	0.11	0		< 0.05	< 0.05	0.11
Acenaphthylene	3	mg/kg	170	LQM	0	BDL	0		< 0.05	< 0.05	< 0.05
Acenaphthene	3	mg/kg	210	LQM	0	BDL	0		< 0.05	< 0.05	< 0.05
Fluorene	3	mg/kg	170	LQM	0	BDL	0		< 0.05	< 0.05	< 0.05
Phenanthrene	3	mg/kg	95	LQM	0.05	0.05	0		< 0.05	< 0.05	< 0.05
Anthracene	3	mg/kg	2400	LQM	0	BDL	0		< 0.05	< 0.05	< 0.05
Fluoranthene	3	mg/kg	280	LQM	0.07	0.11	0		0.11	0.07	< 0.05
Pyrene	3	mg/kg	620	LQM	0.06	0.09	0		0.09	0.06	< 0.05
Benzo(a)anthracene	3	mg/kg	7.2	LQM	0	BDL	0		< 0.05	< 0.05	< 0.05
Chrysene	3	mg/kg	15	LQM	0	BDL	0		< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	3	mg/kg	2.6	LQM	0	BDL	0		< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	3	mg/kg	77	LQM	0	BDL	0		< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	3	mg/kg	2.2	LQM	0	BDL	0		< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	3	mg/kg	27	LQM	0	BDL	0		< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	3	mg/kg	0.24	LQM	0	BDL	0		< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	3	mg/kg	320	LQM	0	BDL	0		< 0.05	< 0.05	< 0.05
Total EPA-16 PAHs	3	mg/kg	0	BDL	0	BDL	0		< 0.80	< 0.80	< 0.80
Arsenic (dissolved)	3	mg/kg	37	LQM	11	12	0		12	11	12
Beryllium	3	mg/kg	1.7	LQM	0.59	0.75	0		0.65	0.59	0.75
Boron (dissolved)	3	mg/kg	290	LQM	0.3	2.3	0		2.3	2.1	0.3
Cadmium (dissolved)	3	mg/kg	11	LQM	0.4	0.4	0		0.4	< 0.2	< 0.2
Chromium (dissolved)	3	mg/kg	910	LQM	21	22	0		21	22	21
Copper (dissolved)	3	mg/kg	2400	LQM	14	19	0		18	19	14
Lead (dissolved)	3	mg/kg	210	C4SL	12	21	0		21	17	12
Mercury (dissolved)	3	mg/kg	40	LQM	0	BDL	0		< 0.3	< 0.3	< 0.3
Nickel (dissolved)	3	mg/kg	180	LQM	18	22	0		19	18	22
Selenium (dissolved)	3	mg/kg	250	LQM	0	BDL	0		< 1.0	< 1.0	< 1.0
Vanadium	3	mg/kg	410	LQM	36	37	0		37	36	37
Zinc (dissolved)	3	mg/kg	3700	LQM	57	71	0		70	71	57
Benzene	3	mg/kg	0.067	LQM	0	BDL	0		< 5.0	< 5.0	< 5.0
Toluene	3	mg/kg	130	LQM	0	BDL	0		< 5.0	< 5.0	< 5.0
Ethylbenzene	3	mg/kg	47	LQM	0	BDL	0		< 5.0	< 5.0	< 5.0
Xylenes (o)	3	mg/kg	60	LQM	0	BDL	0		< 5.0	< 5.0	< 5.0
Xylenes (m p)	3	mg/kg	56	LQM	0	BDL	0		< 8.0	< 8.0	< 8.0
WTBE (Methyl Tertiary Butyl Ether)	3	mg/kg	49	CLAIRE	0	BDL	0		< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	0	mg/kg	-	-	0	BDL	0				
TPH-CWG - Aliphatic > C5 - C6	3	mg/kg	42	LQM	0	BDL	0		< 0.010	< 0.010	< 0.010
TPH-CWG - Aliphatic > C6 - C8	3	mg/kg	100	LQM	0	BDL	0		< 0.010	< 0.010	< 0.010
TPH-CWG - Aliphatic > C8 - C10	3	mg/kg	27	LQM	0	BDL	0		< 0.010	< 0.010	< 0.010
TPH-CWG - Aliphatic > C10 - C12	3	mg/kg	130	LQM	0	BDL	0		< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic > C12 - C16	3	mg/kg	1100	LQM	0	BDL	0		< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic > C16 - C21	3	mg/kg	65000	LQM	0	BDL	0		< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic > C21 - C35	3	mg/kg	65000	LQM	3.2	14	0		9.2	14	< 8.0
TPH-CWG - Aliphatic > C35 - C44	3	mg/kg	65000	LQM	0	BDL	0		< 8.4	< 8.4	< 8.4
Total Aliphatic Hydrocarbons	3	mg/kg	-	-	14	14	0		< 10	14	< 10
TPH-CWG - Aromatic > C5 - C7	3	mg/kg	70	LQM	0	BDL	0		< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic > C7 - C8	3	mg/kg	130	LQM	0	BDL	0		< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic > C8 - C10	3	mg/kg	34	LQM	0	BDL	0		< 0.020	< 0.020	< 0.020
TPH-CWG - Aromatic > C10 - C12	3	mg/kg	74	LQM	0	BDL	0		< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic > C12 - C16	3	mg/kg	140	LQM	0	BDL	0		< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic > C16 - C21	3	mg/kg	260	LQM	0	BDL	0		< 10	< 10	< 10
TPH-CWG - Aromatic > C21 - C35	3	mg/kg	1100	LQM	0	BDL	0		< 10	< 10	< 10
TPH-CWG - Aromatic > C35 - C44	3	mg/kg	1100	LQM	0	BDL	0		< 8.4	< 8.4	< 8.4
Total Aromatic Hydrocarbon	3	mg/kg	-	-	0	BDL	0		< 10	< 10	< 10

WDE Consulting Ltd
62a Western Road
Tring
Hertfordshire
HP23 4BB

t: 01442 825570

e: results@wdeconsulting.co.uk

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 : 25-019761

Project / Site name:	St Ippolyts	Samples received on:	17/04/2025
Your job number:	20713	Samples instructed on/ Analysis started on:	17/04/2025
Your order number:	25-201	Analysis completed by:	29/04/2025
Report Issue Number:	1	Report issued on:	29/04/2025
Samples Analysed:	2 soil samples		

Signed:



Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

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
asbestos	- 6 months from reporting
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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: 25-019761

Project / Site name: St Ippolyts

Your Order No: 25-201

Lab Sample Number				517604	517605
Sample Reference				Plot 5 - TS	Plot 7 - TS
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.10	0.15
Date Sampled				17/04/2025	17/04/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	18	15
Total mass of sample received	kg	0.1	NONE	0.5	0.4

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MBI	MBI
Analysis completed	N/A	N/A	N/A	29/04/2025	29/04/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.2	7.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO ₄	%	0.005	MCERTS	0.047	0.056
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	250	260
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	127	130
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.6	3

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.11	0.07
Pyrene	mg/kg	0.05	MCERTS	0.09	0.06
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80
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Analytical Report Number: 25-019761

Project / Site name: St Ippolyts

Your Order No: 25-201

Lab Sample Number				517604	517605
Sample Reference				Plot 5 - TS	Plot 7 - TS
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.10	0.15
Date Sampled				17/04/2025	17/04/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	11
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.65	0.59
Boron (water soluble)	mg/kg	0.2	MCERTS	2.3	2.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	21	17
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	37	36
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	70	71

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	9.2	14
TPHCWG - Aliphatic >EC35 - EC44 _{EH_CU_1D_AL}	mg/kg	8.4	NONE	< 8.4	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	14
TPHCWG - Aliphatic >EC5 - EC44 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	14

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC35 - EC44 _{EH_CU_1D_AR}	mg/kg	8.4	NONE	< 8.4	< 8.4
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	< 10
TPHCWG - Aromatic >EC5 - EC44 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-019761

Project / Site name: St Ippolyts

* 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 (MCERTS) 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 *
517604	Plot 5 - TS	None Supplied	0.1	Brown clay with gravel and vegetation
517605	Plot 7 - TS	None Supplied	0.15	Brown loam and sand with gravel and vegetation

Analytical Report Number : 25-019761

Project / Site name: St Ippolyts

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	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
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
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.	L019B	D	NONE
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	L038B	D	MCERTS
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	L038B	D	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	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
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	L080-PL	W	MCERTS
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	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

Analytical Report Number : 25-019761

Project / Site name: St Ippolyts

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Analytical Report Number : 25-019761

Project / Site name: St Ippolyts

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
Plot 5 - TS	N/A	S	517604	b	BTEX and/or Volatile organic compounds in soil	L073B	b
Plot 5 - TS	N/A	S	517604	b	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	b
Plot 7 - TS	N/A	S	517605	b	BTEX and/or Volatile organic compounds in soil	L073B	b
Plot 7 - TS	N/A	S	517605	b	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	b

WDE Consulting Ltd
62a Western Road
Tring
Hertfordshire
HP23 4BB

t: 01442 825570

e: rsaint@wdeconsulting.co.uk
Results@wdeconsulting.co.uk

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 : 25-013359

Project / Site name:	Henry Issac, St Ippoolyts	Samples received on:	18/03/2025
Your job number:	20713	Samples instructed on/ Analysis started on:	18/03/2025
Your order number:	25 - 138	Analysis completed by:	25/03/2025
Report Issue Number:	1	Report issued on:	25/03/2025
Samples Analysed:	1 soil sample		

Signed:



Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

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
asbestos	- 6 months from reporting
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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: 25-013359
Project / Site name: Henry Issac, St Ippoolyts
Your Order No: 25 - 138

Lab Sample Number				484615
Sample Reference				SP1
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				None Supplied
Date Sampled				17/03/2025
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	7.6
Total mass of sample received	kg	0.1	NONE	0.6

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	JWU
Analysis completed	N/A	N/A	N/A	24/03/2025

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	%	0.005	MCERTS	0.048
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	210
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	106
Sulphide	mg/kg	1	MCERTS	3.4
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.2

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.11
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80
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Analytical Report Number: 25-013359
Project / Site name: Henry Issac, St Ippoolyts
Your Order No: 25 - 138

Lab Sample Number				484615
Sample Reference				SP1
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				None Supplied
Date Sampled				17/03/2025
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.75
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	14
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	37
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	57

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC35 - EC44 _{EH_CU_1D_AL}	mg/kg	8.4	NONE	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10
TPHCWG - Aliphatic >EC5 - EC44 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC35 - EC44 _{EH_CU_1D_AR}	mg/kg	8.4	NONE	< 8.4
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10
TPHCWG - Aromatic >EC5 - EC44 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number : 25-013359
Project / Site name: Henry Issac, St Ippoolyts

* 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 (MCERTS) 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 *
484615	SP1	None Supplied	None Supplied	Brown clay and sand with gravel

Analytical Report Number : 25-013359

Project / Site name: Henry Issac, St Ippoolyts

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	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
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
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.	L019B	D	NONE
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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
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	L080-PL	W	MCERTS
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	L080-PL	W	MCERTS



Analytical Report Number : 25-013359
Project / Site name: Henry Issac, St Ippoolyts

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' 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.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution