

Date: 19th June 2025
Reference: 15-065-V1

GARDEN VALIDATION – LICKERS LANE

Project Name:	Lickers Lane, Halsnead
Project Number:	15-065
Client:	Vistry
Date:	20-05-2025
Project Manager:	R. Horseman
E3P Engineer:	T. Walker
Plots:	19-20

OVERVIEW

An E3P engineer attended the above site to validate the thickness of the cover system placed within the rear garden of plots 19 and 20 at the site off Lickers Lane in Whiston, Prescot.

Two hand excavated trial pits were advanced, with the resulting strata detailed at the rear of this letter.

The trial pits were completed to highlight the required cover system of 600 mm (150 mm topsoil and 450 mm subsoil). Plots 17-22 require a 600 mm cover system as indicated on Drawing Ref: 15-065-031 (attached to this letter).

E3P can confirm that our independent validation demonstrates that the rear gardens have been installed with 150 mm of certified topsoil and at least 450 mm subsoil under the NHBC requirements for a site of this nature.





TOPSOIL

E3P attended the site on 27th May 2025 to obtain three samples of the site won topsoil deposits which were analysed following the E3P Remediation Strategy. Chemical analysis confirmed that these topsoil deposits were chemically suitable for use within the proposed garden areas.

Analysis for topsoil undertaken by Eurofins Chemtest Ltd using UKAS accredited methods where applicable.

The chemical analysis suite comprises heavy metals, sulphates, phenols, speciated Polycyclic Aromatic Hydrocarbons (PAHs), speciated and total Petroleum Hydrocarbons (TPH) and asbestos. The sampling frequency follows the agreed Remediation Strategy.

Chemical analysis results are included within lab report 25-17654-2 (attached to this letter).

SUBSOIL

E3P attended the site on 27th May 2025 to obtain three samples of the site won subsoil deposits which were analysed following the E3P Remediation Strategy. Chemical analysis confirmed that these subsoil deposits were chemically suitable for use within the proposed garden areas.

Analysis for subsoil undertaken by Eurofins Chemtest Ltd using UKAS accredited methods where applicable.

The chemical analysis suite comprises heavy metals, sulphates, phenols, speciated Polycyclic Aromatic Hydrocarbons (PAHs), speciated and total Petroleum Hydrocarbons (TPH) and asbestos. The sampling frequency follows the agreed Remediation Strategy.

Chemical analysis results are included within lab report 25-17654-2 (attached to this letter).

CHEMICAL ANALYSIS

TOPSOIL/SUBSOIL	SOURCE	LAB REFERENCE	SAMPLE REFERENCE	PASS/FAIL
Topsoil	Site Won	25-17654-2	TS101-TS103	Pass
Subsoil	Site Won	25-17654-2	SS101-SS103	Pass

The garden validation photographs are enclosed within this letter. For information, Table 1 includes references and validation dates of previously validated plots.

Table 1 – Validation Letter Reference

PLOT NUMBER	DATE	REPORT REFERENCE
19-20	20-05-2025	V1



Garden Cover System Validation

Score	10 / 10 (100%)
Site Name	Lickers Lane
Location	Higherside Drive, Halsnead Park Prescot England L35 United Kingdom (53.403065429333246, - 2.7912467462092962)
Project Number	15065
Developer	Countryside (Vistry)
Project Manager	R. Horseman
Conducted By	Thomas Walker
Date of visit	20 May 2025 11:40 AM BST
Subsoil/Topsoil Material Source (If the site manager can't supply you with detail of where the soil is sourced STOP THE INSPECTION and call the PM)	
Where has the Subsoil been sourced	Site won
Where has the Topsoil been sourced	Site won



Plot Validation 1		5 / 5 (100%)
Plot Number		19
Garden position	Rear	
Is Plot Ready	Yes	
Installation Standard	Pass	
Depth of Cover System Materials (record the depth and support with Photo down the hole)		600
 Photo 1		
Depth of Topsoil (mm)		150
 Photo 2		
Depth of Subsoil (mm)		450
Depth of Cover System at Ground Level (Photo)		600
 Photo 3		
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)		600
 Photo 4		
Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM.		Yes



If soil is unsuitable please add a FULL description and support with photos.

Geotextile membrane present

N/A



Plot Validation 2		5 / 5 (100%)
Plot Number		20
Garden position	Rear	
Is Plot Ready	Yes	
Installation Standard	Pass	
Depth of Cover System Materials (record the depth and support with Photo down the hole)		600
 Photo 5		
Depth of Topsoil (mm)		150
 Photo 6		
Depth of Subsoil (mm)		450
Depth of Cover System at Ground Level (Photo)		600
 Photo 7		
Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)		600
 Photo 8		
Soil suitable (Must be free from Brick, concrete, wood, plastics, glass, metal and anything none natural) if identified contact PM.		Yes



If soil is unsuitable please add a FULL description and support with photos.

Geotextile membrane present

N/A

Site Manager or Representative

Name

Gareth Fleming

Signature

20 May 2025 11:58 AM BST



Media summary



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



- Location Symbols**
- WS101 Approximate Window Sample Probehole Location
 - TP101 Approximate Trial Pit Location
 - RB101 Approximate Rotary Borehole Location
 - WS101 Approximate CC Geotechnical Window Sample Location
 - TP101 Approximate CC Geotechnical Machine Excavated Trial Pit Location

- Made Ground Depth (m)**
- Made Ground not Identified
 - Depth of Made Ground 0.00 - 0.19m
 - Depth of Made Ground 0.20 - 0.39m
 - Depth of Made Ground >0.40m

- Key**
- 300 mm growing medium using certified material with appropriate validation within proposed gardens and landscaped areas. Natural drift deposits encountered within the upper 300 mm of finished ground levels can be directly overlain with a suitable cover (minimum 150 mm topsoil).
 - Placement and validation of the 600 mm cover system where Made Ground remains within rear garden areas (150mm topsoil and 450mm subsoil)

Notes:

Client:

Vistry

Job No:

15-065

Date:

13.05.2025

Drawing No:

031

Scale:

NTS



Environmental Engineering
Partnership Ltd
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Urmston, Manchester, M41 7JQ
Tel: 0161 707 9612
E-mail: info@e3p.co.uk
Website: www.e3p.co.uk

P1 REVA 13.05.2025 TG RH
Phase Issue Date Drawn Checked

Job Title:

Hainsead,
Lickers Lane

Drawing Title:

Depth Of Made Ground With
Proposed Development Plan

The client must not amend any drawing, design or other intellectual property produced by E3P Ltd without permission in writing from E3P Ltd in advance of any amendments being made. In the event that such written permission is not obtained in advance of the amendments being made, E3P Ltd shall not be liable for any damage and/or losses occurring as a result of the amended drawing, design or intellectual property.



Amended Report

Report No.: 25-17654-2

Initial Date of Issue: 10-Jun-2025 **Date of Re-Issue:** 19-Jun-2025

Re-Issue Details: This report has been revised and directly supersedes 25-17654-1 in its entirety

Client E3P

Client Address: Taylor Road
Trafford Park
Urmston
Manchester
M41 7JQ

Contact(s): rhorseman@e3p.co.uk

Project Lickers Lane

Quotation No.: Q23-31421 **Date Received:** 28-May-2025

Order No.: 011289 **Date Instructed:** 28-May-2025

No. of Samples: 6

Turnaround (Wkdays): 5 **Results Due:** 03-Jun-2025

Date Approved: 10-Jun-2025

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: Lickers Lane

Client: E3P		Chemtest Job No.:		25-17654	25-17654	25-17654	25-17654	25-17654	25-17654	25-17654
Quotation No.: Q23-31421		Chemtest Sample ID.:		1979086	1979087	1979088	1979089	1979090	1979091	
Order No.: 011289		Client Sample Ref.:		TS101	TS102	TS103	SS101	SS102	SS103	
		Client Sample ID.:		TS101	TS102	TS103	SS101	SS102	SS103	
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
		Date Sampled:		27-May-2025	27-May-2025	27-May-2025	27-May-2025	27-May-2025	27-May-2025	
		Time Sampled:		12:00	12:00	12:00	12:00	12:00	12:00	
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	
Determinand	HWOL Code	Accred.	SOP	Units	LOD					
ACM Type		N	2192		N/A	-	-	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	11	11	4.3	9.5	4.8
Soil Colour		N	2030		N/A	Brown	Brown	Brown	Brown	Brown
Other Material		N	2030		N/A	Stones, Roots and	Stones, Roots and	Stones, Roots and	Stones, Roots and	Stones, Roots and
Soil Texture		N	2030		N/A	Loam	Loam	Sand	Loam	Sand
pH at 20C		M	2010		4.0	8.1	7.8	7.6	7.9	7.7
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	0.13	0.13	0.083	0.30	0.063
Total Sulphur		U	2175	%	0.010	0.020	0.020	0.020	0.030	0.020
Cyanide (Total)		M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50	3.1	3.4	3.5	3.5	3.4
Sulphate (Total)		U	2430	%	0.010	0.031	0.040	0.039	0.028	0.027
Arsenic		M	2455	mg/kg	0.5	3.3	3.9	3.9	1.3	3.1
Cadmium		M	2455	mg/kg	0.10	0.17	0.19	0.19	< 0.10	0.15
Chromium		M	2455	mg/kg	0.5	5.9	5.5	6.1	2.5	6.7
Copper		M	2455	mg/kg	0.50	16	19	19	5.9	14
Mercury		M	2455	mg/kg	0.05	< 0.05	< 0.05	0.05	< 0.05	< 0.05
Nickel		M	2455	mg/kg	0.50	6.0	6.2	6.8	4.2	7.2
Lead		M	2455	mg/kg	0.50	27	22	26	5.5	14
Selenium		M	2455	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Zinc		M	2455	mg/kg	0.50	23	25	28	15	24
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter		M	2625	%	0.40	1.5	2.2	2.2	0.97	2.2
Total Organic Carbon		M	2625	%	0.20	0.87	1.3	1.3	0.56	1.3
TPH >C6-C8	EH 1D Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C8-C10	EH 1D Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C10-C12	EH 1D Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C12-C16	EH 1D Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	5.3	< 1.0	< 1.0
TPH >C16-C21	EH 1D Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	37	< 1.0	< 1.0
TPH >C21-C25	EH 1D Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	19	< 1.0	< 1.0
TPH >C25-C35	EH 1D Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	30	< 1.0	< 1.0
TPH >C35-C40	EH 1D Total	N	2670	mg/kg	1.0	< 1.0	< 1.0	2.2	< 1.0	< 1.0
Total TPH >C6-C40	EH 1D Total	U	2670	mg/kg	10	< 10	< 10	93	< 10	< 10
Naphthalene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.25	< 0.10
Anthracene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: Lickers Lane

Client: E3P		Chemtest Job No.: 25-17654 25-17654 25-17654 25-17654 25-17654 25-17654									
Quotation No.: Q23-31421		Chemtest Sample ID.: 1979086 1979087 1979088 1979089 1979090 1979091									
Order No.: 011289		Client Sample Ref.: TS101 TS102 TS103 SS101 SS102 SS103									
		Client Sample ID.: TS101 TS102 TS103 SS101 SS102 SS103									
		Sample Type: SOIL SOIL SOIL SOIL SOIL SOIL									
		Date Sampled: 27-May-2025 27-May-2025 27-May-2025 27-May-2025 27-May-2025 27-May-2025									
		Time Sampled: 12:00 12:00 12:00 12:00 12:00 12:00									
		Asbestos Lab: DURHAM DURHAM DURHAM DURHAM DURHAM DURHAM									
Determinand	HWOL Code	Accred.	SOP	Units	LOD						
Fluoranthene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.21	0.26	0.16
Pyrene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.25	0.37	0.25
Benzo[a]anthracene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.14	< 0.10
Chrysene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.29	0.21
Benzo[b]fluoranthene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's		M	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Text example All items indicated in italic font represent customer-supplied information that may not be independently verified by the laboratory

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

NEW_ASB Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL

DURHAM Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - The required amount of sample for analysis was not received

H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Report Information

Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com