19th March 2024

YEX5832 – 7A Green Balk Lane, Little Lepton, Huddersfield HD8 0LN
Additional Works – Assessment of Topsoil

FAO: Mr Alan Steers
Lea Swallow Barn
Pond Lane
Little Lepton
Huddersfield
HD8 0LN

Dear Mr Steers

Further to completion of recent works at the above by Your Environment (YE), the following information presented below forms a summary of the site works carried out on 4th March and an assessment of these findings.

Context and Background

The purpose of this report is to address comments raised by Kirklees Building Control with respect to Application No. 2024/EF/00070/W in recent correspondence dated 21st February 2024. This relates to the granting of Building Regulation Approval for the proposed redevelopment of the site and, in particular, point 7 of the list of comments requiring additional intrusive investigation of the wider rear garden area.

We understand current plans for the redevelopment of the site include:

- Demolition of an existing bungalow and detached garage; and
- Construction of replacement detached 2 storey dwelling with integral garage.

YE previously prepared a Phase 1: Desktop Study & Risk Assessment (Report Reference: YE7208, dated June 2019) and a Phase 2: Site Investigation (Report reference: YE7444 dated September 2019). This report has been prepared subsequent to a Phase 3: Remediation Strategy (Report reference: YE8009 dated February 2020). All these reports should be read in conjunction with this report.

A proposed development plan is appended to this report.

Previous Soil Contamination and Remediation Strategy

The Phase 2 SI comprised the drilling of 3no. boreholes at the site, including 1no. (WS01) in the front garden under grass, 1no. (WS02) in the soft landscaping to the southeast of the existing property and 1no. (WS03) in the soft landscaped immediate part of the rear garden. Ground conditions comprised a cover of reworked topsoil (0.6m to 0.8m thickness) including fragments of clinker overlying natural clayey sandy gravel to at least 2.45mbgl.

Elevated concentrations of arsenic above the Generic Assessment Criteria (GAC) were recorded within the reworked topsoil in WS01 and WS03 together with elevated concentrations of lead in the

reworked topsoil in WS03 only. Hence, these contaminants are regarded as presenting a potential risk to human health of future occupants.

In order to mitigate the risk presented by these contaminants, the Remediation Strategy recommended the removal of soils to 600mm depth in the area of the proposed permeable driveway, placement of a geotextile marker and importation of clean material. This will be achieved by using Type 1 material or similar as part of the construction build up beneath the permeable driveway, itself chemically validated. Construction of a stone flagged patio is proposed at the rear of the new dwelling, which was recommended as a suitable method of breaking any potential pathway to contaminants identified within the soils in this part of the site.

However, additional areas of soft landscaping are present beyond and northeast of the proposed external flagged patio that are to be retained as part of the redevelopment and which were not investigated during these earlier works. Hence, there is the potential for similar contaminants to be present within the topsoil in these areas of the site.

Recent Additional Intrusive Investigation Works

On 4th March, a total of six (6no) trial pits (TP01 to TP06) were mechanically excavated within the rear grassed garden area, as presented on the attached location plan.

The investigation proved topsoil at thicknesses of between 0.4m and 0.55m with a shallow geotextile/weed barrier consistently present just beneath the grass at approximately 0.05m depth. In TP04, located in the area of the proposed patio, reworked topsoil containing ash and cinder fragments was confirmed. The topsoil elsewhere across the northeastern part of the site did not contain such materials. Natural firm light brown gravelly clay was present beneath the topsoil in all locations. No free groundwater was present.

Site photographs are appended to the report.

Chemical Laboratory Testing

A total of six (6no.) samples of the topsoil, one from each location, were analysed at a UKAS and MCERTS accredited laboratory for the presence of arsenic and lead. The results of the laboratory testing have been compared to the LQM/CIEH S4UL criteria, where available, or C4SL in the case of lead. These Generic Assessment Criteria (GACs) appropriate for 'Residential with Homegrown Produce' use have been chosen.

The laboratory results are summarised below with the laboratory certificates appended to this report.

Determinand	Min (mg/kg)	Max (mg/kg)	GAC (mg/kg)	Number of exceedances and location
Arsenic	23	36	37	0
Lead	102	247	200	**1** (TP04 @ 0.15m)

The results indicate there were no exceedances of the GACs with respect to arsenic. However, a single exceedance of the GAC for lead was recorded in the shallow reworked topsoil in TP04, which is located in the area of the proposed patio.

Conclusions and Recommendations

The reworked topsoil within the vicinity of the rear of the existing property and in the area proposed to be covered by a flagged patio as part of the new development records concentrations of lead above the GAC with respect to a residential end use. In addition, the earlier intrusive investigation recorded elevated concentrations of arsenic in this area. As such, it is considered that these soils present a potential human health risk to end users. The topsoil elsewhere across the northeastern part of the site and which is to be retained as soft landscaping does not present a risk to human health.

During the site strip and placement of Type 1 or similar materials as part of the construction build up for the new patio, the reworked topsoil material should be fully removed to expose the natural soils at formation. These excavated soils will be required to be segregated and stockpiled ahead of disposal off site to an appropriately licensed facility. This methodology will mitigate any potential risk to future users even if the patio is removed and the area returned to soft landscaping in the future.

Please do contact me on 01243 787150 should you have any questions.

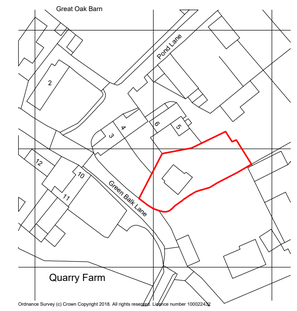
Regards

Jonny Roberts
Principal Geoenvironmental Engineer

Encl. Proposed development plan
Trial pit location plan
Site photos
Chemical laboratory certificates

Key

- Permable driveway
- stone patio
- local/wild vegetation



Location Plan
scale 1:250

Proposed Site Plan
scale 1:100

Surface water drainage:

Indicative suface water drainage layout shown. Layout subject to soakway testing and building control inspection.
Soakaway to be located min. 5m away from any building or road and min 2.5m away from any boundary.

Foul water drainage:

Foul water layout shown is indicative. New SVP's to connect to existing mains foul water drainage to contractors design and to the satisfaction of building control inspector.

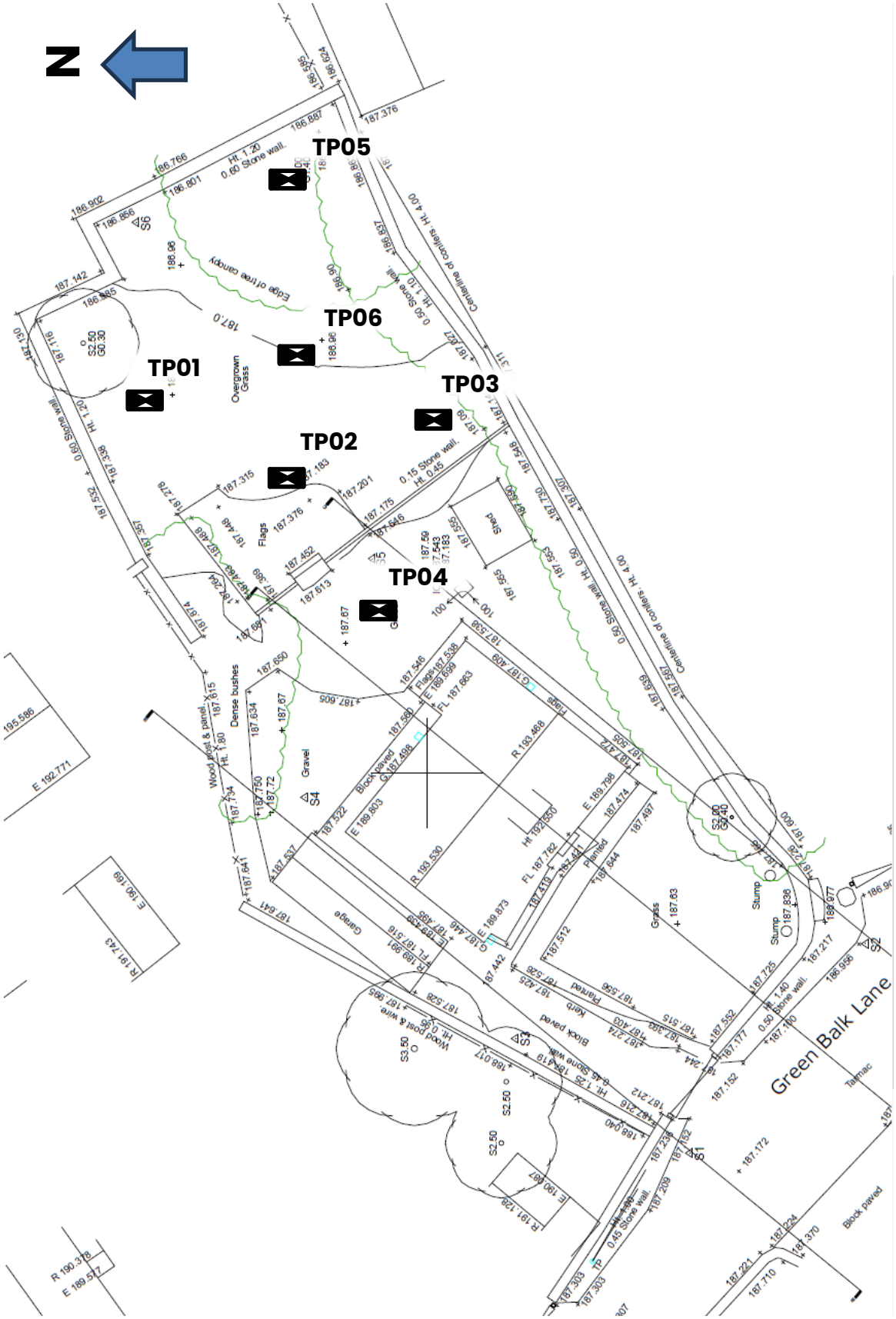
rev.	description	date	drawn	appvd
P03	Updated drainage and added woodstore as per building control comments	21.02.24	JW	NG
P02	Updated drainage	15.01.24	JW	NG
P01	Preliminary issue to consultants	16/11/23	JW	NG

project: Replacment dwelling within the green belt

7a Green Balk Lane, Little Lepton
HD8 0LN
for
Mr A Steers

title: Proposed Site Plan & Location Plan
number: 23011D -06 -P01
scale: 1:100 / 1:1250
size: A1

ARCHITECTURE + DESIGN PARTNERSHIP
The Old Police Station 16 Bridge Lane Holmfirth HD9 7AN
T: 01484 685411 E: hello@adp-architects.com
W: www.adp-architects.com
RIBA Chartered Practice



Site Investigation Plan

YOUR ENVIRONMENT

7A Green Balk Lane, Little Lepton HD8 0LN
YEX5832

Mar-24

YEX5832 Site Photos

View of rear garden looking west

View of rear garden looking northeast

TP02 with topsoil & remnant geotextile/weed barrier

TP04 showing exposed reworked topsoil

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 24/02253
Issue Number: 1 **Date:** 12 March, 2024

Client:
Your Environmental Company Ltd
Unit 8 to 10
Brockholes Business Park
Brockholes
Holmfirth
UK
HD9 7BN

Project Manager: USE THIS Tristan Mayor/Cathleen Cox/Jonny Roberts
Project Name: Little Lepton
Project Ref: YEX5832
Order No: N/A
Date Samples Received: 05/03/24
Date Instructions Received: 06/03/24
Date Analysis Completed: 12/03/24

Approved by:

Gemma Lancashire
Operations Manager

Envirolab Job Number: 24/02253

Client Project Name: Little Lepton

Client Project Ref: YEX5832

Lab Sample ID	24/02253/1	24/02253/2	24/02253/3	24/02253/4	24/02253/5	24/02253/6		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP01	TP02	TP03	TP04	TP05	TP06				
Depth to Top	0.25	0.25	0.40	0.15	0.30	0.20				
Depth To Bottom										
Date Sampled	04-Feb-24	04-Feb-24	04-Feb-24	04-Feb-24	04-Feb-24	04-Feb-24				
Sample Type	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES	SOIL - ES				
Sample Matrix Code	4AE	4AE	4AE	4AE	4AE	4AE				
% Stones >10mm$_A$	7.1	15.3	17.0	18.7	4.5	11.4		% w/w	0.1	A-T-044
Arsenic$_D^{M\#}$	35	30	23	33	36	27		mg/kg	1	A-T-024s
Lead$_D^{M\#}$	137	190	107	247	102	112		mg/kg	1	A-T-024s

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 within the same delivery, will be disposed of **four weeks** after the 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 our scope of accreditation.
The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
A deviating sample 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.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

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.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

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 by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25^{o}C / 11550µS/cm @ 20^{o}C fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU

Client: Your Environmental Company Ltd , Unit 8 to 10, Brockholes Business Park, Brockholes, Holmfirth, UK, HD9 7BN

Project: Little Lepton

Clients Project No: YEX5832

Project No: 24/02253

Date Received: 06/03/2024 (am)

Cool Box Temperatures (°C): 14.8

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	24/02253/1	24/02253/2	24/02253/3	24/02253/4	24/02253/5	24/02253/6
Client Sample No						
Client Sample ID/Depth	TP01 0.25m	TP02 0.25m	TP03 0.40m	TP04 0.15m	TP05 0.30m	TP06 0.20m
Date Sampled	04/02/24	04/02/24	04/02/24	04/02/24	04/02/24	04/02/24
A-T-024s	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024
A-T-044	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024	12/03/2024

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