



Cedar Barn  
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Walgrave  
Northamptonshire  
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FAO Mr Amid Zadeh,  
Galliford Try Building,  
Southern Wonders House  
Old Portsmouth Road  
Guildford  
GU31LR

Date: 21<sup>st</sup> February 2017  
Your Ref:  
Our Ref: L-STN3652G-003

Dear Amid,

**RE: Soils investigation at Astor College, University College London**

**Introduction and brief**

Further to our recent telephone, e-mail correspondence, and your subsequent instructions, we confirm completion of soil sampling under former crane at the above site and can now offer the following report.

As per your request, we confirm visiting site to sample soils, which Galliford Try noted apparently to having a strong hydrocarbon odour. Our recommendations were for samples of the water to be tested by laboratory techniques to determine concentrations for a range of TPH contamination and if required for off-site disposal.

**Site location and description**

The site is located towards the northern outskirts of London within the University College London (UCL) campus. The site is located within an under-construction courtyard area, for the Astor College and Sainsbury's welcome centre.

A concrete wall for the Sainsbury's welcome centre building borders the northern site boundary. Astor College halls of residence border the site to the east, which comprised an 8-storey building. The southern boundary is formed by a gymnasium, with a single storey basement. The Middlesex Hospital Annexe, which is a 4-storey building, borders the western site boundary.

At the time of our water sampling we, a former crane base had been partially broken out exposing the underlying soils which were thought to potentially comprise organic derived contaminants based on soil appearance.

## Geology

Geological maps produced by the British Geological Survey (BGS) at a scale of 1:50,000 scale, show the geology at the site to be Lynch Hill Gravel underlain by London Clay. Lynch Hill Gravel typically comprises sands and gravels, with London Clay typically comprising clays.

Lynch Hill Gravel is considered permeable and subsequently has been designated a Secondary A aquifer. London Clay is impermeable and has been designated as unproductive strata.

## Fieldwork

Fieldwork was previously carried out between 13<sup>th</sup> – 15<sup>th</sup> July 2016, which comprised the formation of nine hand excavated trial pits and TRL DCP testing in ten positions. On the 8<sup>th</sup> August 2016, a further seven hand excavated trial pits were formed in the northern area of the site, to locate a separate crane base. Again, previously undertaken sampling of water was carried out on the 10<sup>th</sup> January 2017.

Soils inspection and testing was undertaken on 3<sup>rd</sup> February 2017 and comprised the excavation of a trial pit using a 360° tracked excavator in order to expose and take samples from the potentially contaminated soils. Sampling and logging was carried out as trial pit excavations proceeded but were not entered at depths exceeding 1.2m.

Soil samples for subsequent laboratory determination of concentration of chemical contaminants were taken from the sides of trial pits and stored in new plastic containers, which were labelled and sealed.

## Ground conditions

The excavation exposed Made Ground extending down to 2.0m and comprising firm brown sandy gravelly clay with frequent cobbles of brick and concrete with gravels consisting of brick, concrete flint, occasional fragments of timber, plastic, glass and charcoal.

At depth of below 2m a layer of reworked naturally deposited Lynch Hill Gravel was observed comprising a firm dark blue grey slightly gravelly very sandy clay with gravels of flint and occasional fragments of brick

Naturally deposited Lynch Hill Gravel member was encountered at depths below 2.3m and comprised of a clayey gravelly sand with gravels of flint.

Based on observations the shallow reworked Lynch Hill Gravel Member deposits presented a darker colour likely derived from decomposition of organic matter however no evidence of contamination on soils underlying the crane slab were observed/noted.

## Laboratory testing

Laboratory testing was carried out as deemed necessary and limited to total petroleum hydrocarbons (TPH) and MTBE compounds.

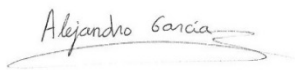
Laboratory testing was carried out by an independent specialist testing house, which operates a quality assurance scheme. A copy of the laboratory test result certificate is attached.

### Further works

If during the course of further excavations within the area hydrocarbon type odours become evident we recommend Soiltechnics are advised to determine an appropriate course of action and to assess whether further testing is required.

We trust this report provides you with the information you require. If you have any queries please do not hesitate to contact us.

Yours sincerely,



Alejandro G. Montero, Geological engineer

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Geo-environmental Engineer, Soiltechnics Limited

Supervised by



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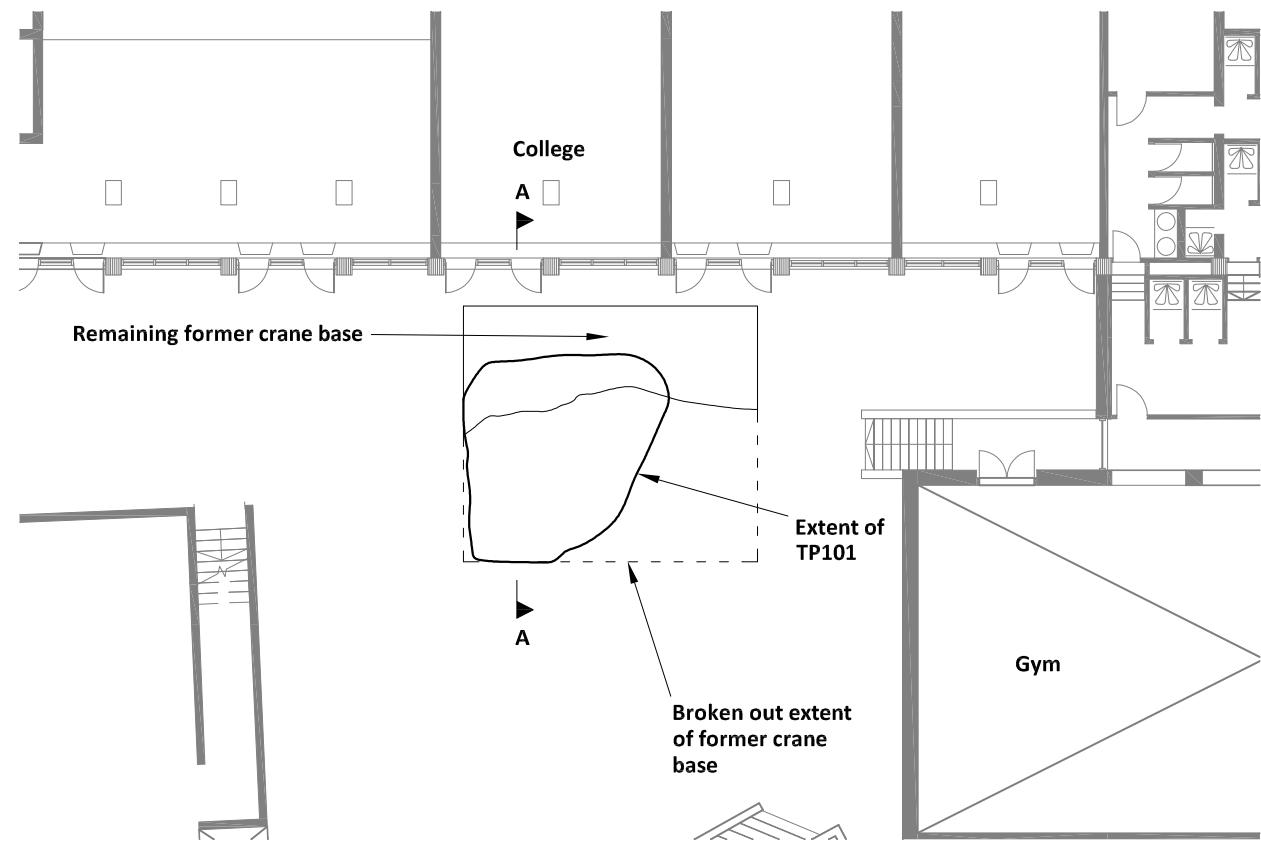
Senior geo-environmental Engineer, Soiltechnics Limited

*Enclosed:*

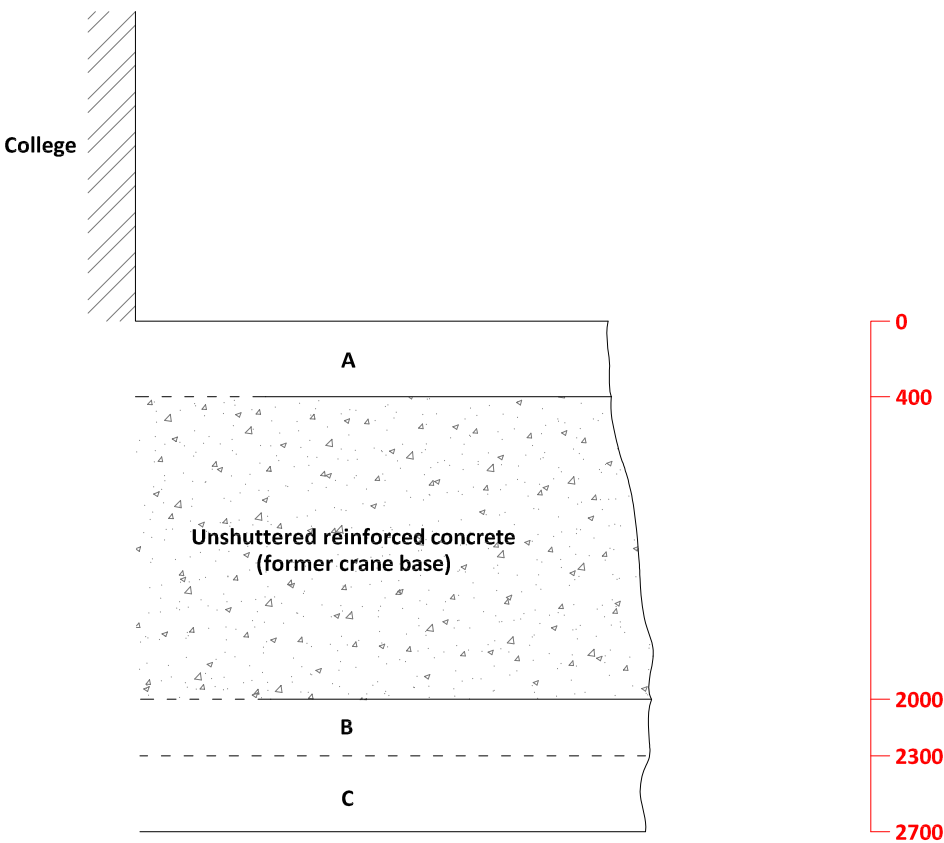
- Trial pit log and drawing location
- Copy of laboratory test result certificate



Plan (1:200 @ A3)



Section A-A



Photographic record



Key

- A. Firm brown sandy gravelly CLAY with frequent cobbles of brick and concrete. Gravel consists of brick, concrete, flint, plastic, timber remains, charcoal and occasional glass.  
(MADE GROUND)
- B. Firm dark blue grey becoming dark brown slightly gravelly very sandy CLAY. Gravel consists of flint and occasional brick.  
(MADE GROUND)
- C. Orange brown clayey gravelly medium to coarse SAND. Gravel consists of fine to coarse flint.  
(LYNCH HILL GRAVEL MEMBER)

——— Observed features  
- - - - - Assumed features

**Denotes concrete**      **Denotes masonry**

Notes

- All dimensions shown in millimetres.
- Disturbed and environmental samples taken from 1.2m, 2.1m and 2.4m depths.

Method of excavation 360 Tracked Excavator	Title Trial pit record	Location reference TP101
Dimensions As shown	Date of works 03.02.2017	Location plan on drawing number 01
Groundwater observations No groundwater encountered	Scale 1:40 at A3	Appendix C



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# Final Report

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**Report No.:** 17-03028-1

**Initial Date of Issue:** 10-Feb-2017

**Client** Soiltechnics Limited

**Client Address:** Cedar Barn  
White Lodge  
Walgrave  
Northampton  
Northamptonshire  
NN6 9PY

**Contact(s):** Rachel Brown

**Project** STN3652G Astor College, UCL,  
London

**Quotation No.:**

**Order No.:** 23447

**No. of Samples:** 1

**Turnaround (Wkdays):** 3

**Date Approved:** 10-Feb-2017

**Date Received:** 08-Feb-2017**Date Instructed:** 08-Feb-2017**Results Due:** 10-Feb-2017**Approved By:****Details:** Keith Jones, Technical Manager

## Results - Soil

<b>Client: Soiltechnics Limited</b>	<b>Chemtest Job No.:</b>		17-03028		
Quotation No.:	<b>Chemtest Sample ID.:</b>		409275		
Order No.: 23447	Client Sample Ref.:		TP101		
	Client Sample ID.:		2-001		
	Sample Type:		SOIL		
	Top Depth (m):		2.10		
	Date Sampled:		03-Feb-2017		
Determinand	Accred.	SOP	Units	LOD	
Moisture	N	2030	%	0.020	15
Organic Matter	U	2625	%	0.40	0.66
Total Organic Carbon	U	2625	%	0.20	0.38
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010	< 0.010
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010	< 0.010
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010	< 0.010
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010	< 0.010
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0	< 2.0
Benzene	U	2760	µg/kg	1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0

SOP	Title	Parameters included	Method summary
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 <37°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.



## **Report Information**

### **Key**

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- 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"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

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 TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°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

### **Sample Deviation Codes**

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- 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

### **Sample Retention and Disposal**

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All soil samples will be retained for a period of 45 days from the date of receipt

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

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

[customerservices@chemtest.co.uk](mailto:customerservices@chemtest.co.uk)