HERTS & ESSEX SITE INVESTIGATIONS

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GEOTECHNICAL ASSESSMENTS – ENVIRONMENTAL ASSESSMENT - DESKTOP STUDY – CONTAMINATED LAND

Report For :

Paul Stewart Ltd

PHASE IV –VALIDATION REPORT

CAMDEN COUNCIL
APPLICATION NUMBER 2011/2444/P

Site location :

Site at
3 Augustines Road
London
NW1 9RP

October 2018
Report No. 7769

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DOCUMENT INFORMATION AND CONTROL SHEET

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C.S.G

Principal Author :

C.S.G

Qualifications

C.S.Gray

- ONC, HNC, P.G.Cert, P.G.Dip, M.Sc, (Geotechnical Engineering)
- SNIFFER modelling course
- CONSIM Groundwater Assessment Course.
- (28 Years in Geotechnical and Environmental Engineering)
- Asbestos Awareness Course;
- Non-Licensed Work with Asbestos Including NNLW.
- Site Supervisors Safety Training Scheme, (SSSTS).
- First Aid Course

Document Status and Approval Schedule

Issue No	Status	Date	***Prepared by :*** Chris Gray Signature / Date	***Technical review by :*** Rebecca Chamberlain Martyn Smith Signature / Date	***Checked By :*** Rebecca Chamberlain Chris Gray Signature / Date
1	Final				

REPORT ISSUE RECORD

As part of Herts & Essex Site Investigations approved Quality Management System, the company is required to document the issue of all reports to provide the client with a traceable control mechanism to prevent the issue of unauthorised copies.

All final copy reports are issued to the client on paper headed with Herts & Essex Site Investigations to assist in the identification of copied reports. Additionally, final copies are printed 'Velum' coloured paper for easy identification of final copy reports.

Notwithstanding the above, clients are at liberty to make copies of full or parts of these reports as they see fit, should they wish to do so. Additional controlled copies of documents may be supplied upon request, although, may be charged for, dependent upon the number of copies.

Please note, this reports has not been sent to the Local Authority, NHBC or Environment Agency with only the below issues made. Should copies be required for sending the relevant authorities, this can be undertaken upon request.

Controlled copies of this report have been issued according to the following schedule :-

	Issue No	Recipient	Type	No. of copies	Date
1	1	HESI, (File Copy)	Electronic	1	October 2018
2	1	Paul Stewart Ltd	Electronic	1	October 2018
3					
4					
5					
6					
7					
8					

1 Introduction

1.1 Aims and objectives

At the request of Paul Stewart Ltd, Herts & Essex Site Investigations have been employed to undertake validation works within the site to provide evidence and documentation to support the removal of any risk from the site development as a result of site investigation works undertaken and risk assessments completed as a result of these investigations.

The main objectives of the remediation works and validation works undertaken are as follows:

- To anticipate regulatory action and provide necessary data to remove risk;
- To assess the site for Part IIA;
- To ensure development is 'suitable for use' status, (status being residential land use);
- To assess the site in other regulatory contexts;
- To inform acquisition, transfer or sale plans;
- To support funding decisions;
- For valuation purposes;
- For insurance purposes

1.2 Current Planning Status

Under planning application 2001/1181/P, conditions have been discharged in respect to the site investigation works.

Details of tree protection measures, ground contamination results/remediation measures and hard and soft landscaping pursuant to conditions 2, 4b and 5 of planning permission granted on 08/08/2008 (Ref: 2007/4686/P) for amendments to permission 2004/1870/P granted on 13/05/2005 for a 5-storey building containing 9 residential flats.

Drawing Nos: Discharge of conditions statement dated March 2011; Phase II Environmental Report No. 7769 dated March 2007; Email form Herts and Essex Site Investigations dated 02-03-11; Drawing P-Ldscape01 rev A.

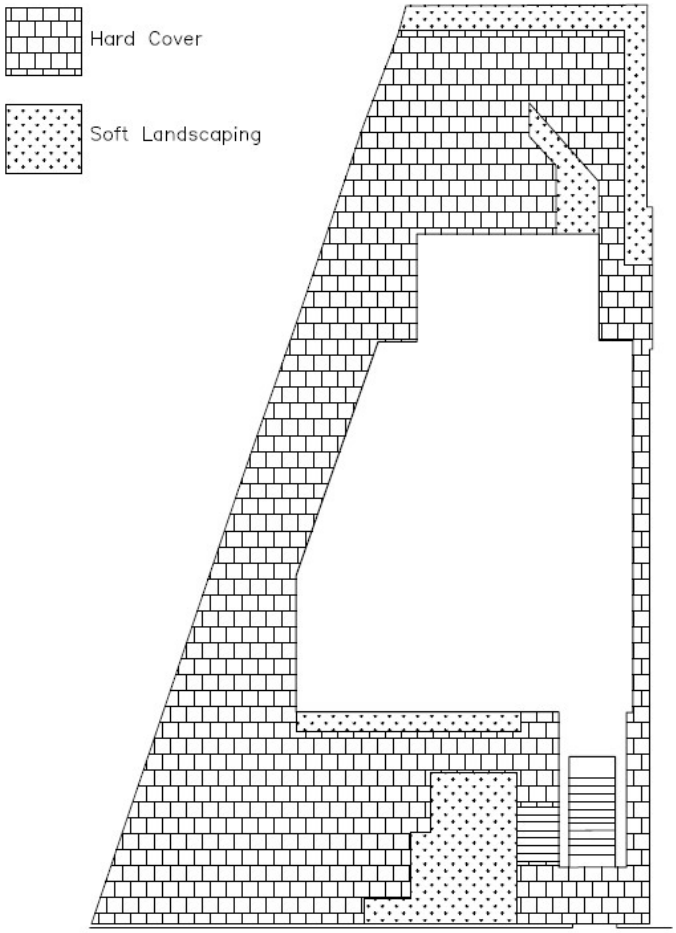
The Council has considered your application and decided to grant permission 2007/4686/P granted on 08/08/2008 are outstanding and require details to be submitted and approved.

2 With respect to the information required for future discharge of condition 4(c) the verification report should be accompanied by information relating to confirmation of the final landscaping plan, proposed level of clean cover and the source of the soil and the test method.

Informative(s):

1 You are reminded that condition 4(c) (verification report of ground remediation measures) and 7 (detailed drawings and samples of materials) of planning.

Figure 1 Proposed site plan



Based on the above, the areas of the site marked as soft landscaping have been identified and shown. All remaining areas are laid to either hard landscaping or constructed with building.

Consultation with Local Authority

At this time, no consultation with the local authority has been made, although, a review of the planning files has been completed which confirms that the desk top study and environmental report have both been approved along with remediation options.

1.3 Site Details

The site is located within central area of Camden, North London , the details of which are summarised in Table 1 with the location plan of the site shown in Appendix 2, Sheet 1.

Table 1 Site Detail

Site Address :	Site at 3 St Augustines Road, London NW1
Site assessed under	Site owners instruction
Current use of land :	Open Land - Reduced by approximately 300-400 mm.
Previous use of site, (if known)	As Above
Grid Reference	NGR 529670E, 184410N
Site Area	Approximate area – 0.09 Hectares
Local Authority	Camden Council
Gradient of the site	The site is recorded as a uniform area of land which has been reduced in elevation through a site strip by approximately 300-400 mm. Adjacent to the site, railway land is approximately 4 meters below the site level.
Proximity of Controlled Waters, (if known)	The nearest surface water feature surrounding the site is recorded as a surface water feature, which lies 456 meters to the southwest of the centre of the site. From inspection of the map references, the feature is shown as a section of the Grand Union Canal.

1.4 Previous Reporting

The extent of former report which has been undertaken relating to the site is confirmed as follows :-

Table 2 Report Details

Report	***Developed by with Reference***	***Date***	***Submitted to Local Authority***	***Approved by Local Authority***
Planning Application Number PA/10/02578				
Desk Top Study	Herts & Essex Site Investigations -	March 2007	Yes	Yes
Environmental Report	Herts & Essex Site Investigations -	March 2007	Yes	Yes
Remediation Report	Herts & Essex Site Investigations -	September 2016	Yes	Yes

In order to gain a full understanding of the site and site history, a review of these documents should be made.

1.5 Proposed Site Development

The proposed development will include the clearance of all site features and construction of a new residential block of flats which will cover the majority of the site and the inclusion of a small section of soft landscaping towards the front of the site and hard landscaping across the remainder of the site.

1.6 Review of Reports

1.6.1 Site Description – Historic Inspection

The ground conditions have been reviewed using on line BGS mapping which can confirm that the site is recorded as within an area of London Clay which will form the solid geology and present until depth.

1.6.2 Brief Site History

The site has formed residential housing, with rear garden until 1969 when the site was redeveloped to form a Vehicle Garages, at the time of the site visit the site was open land, signs that a strip of the site had taken place to remove 0.40m off the site level.

Surrounding the site there has been residential housing. Railway lines to the west of the site at a reduced level. The lines go underground just to the north and south of the site.

1.6.3 Desk Top Study Conclusions

Considering the assessment of the site to incorporate the walk over survey, historical mapping and environmental searches undertaken, we can confirm that risks identified in place form :-

As a result of the works undertaken, the following have been confirmed as the following :

On Site

- ***Debris on site;***
- ***Asbestos;***
- ***Infilled land,*** *(as a result of a sewer and the railway land)*

Off site

- ***Railway Land;***
- ***Garage Works,***
- ***Lock Up Garages;***
- ***Builders Yard;***
- ***Diamond Tool Manufacture***

1.6.4 Scope of site investigation Works completed - Preliminary Testing

A Desk Top Study and environmental assessment have been carried out, with soil sampling and chemical testing carried out as follows:-

Main Investigation - March 2007

- Single phase investigation completed at the site to include :-
- 6 No window sampler boreholes sunk within the site area in order to determine the ground conditions within the site - completed for both geotechnical and environmental purposes - Date of Works - March 2007***;***
- Chemical Sampling and Testing recovered from samples and sent to analytical chemist, (20th March 2007).

Additional investigations – May 2011

Assess the risk of elevated PAH's identified within the original investigation

- Hand sample of near surface soils
- Testing for TPH contamination

Geology

The current site has been reviewed and we can confirm that the geology within the site is as follows :-

- By examination of the samples recovered from the site works, it is recorded that the upper subsoil formed a variable fill material to depths of 0.20-0.50m.
- This was seen to overlie a clay soil which was present to the close of the window sampler excavations at a depth of 3.00m. Within the shell an auger borehole, it is recorded the clay soil encountered is present until depth within the site, (20m+)

Chemical Testing

Chemical testing has been carried out on samples from both within the current site area as well as off site these results have been compared to the current guidance values for residential land the flowing contamination was recorded in place:-

Table 3 Summary of Elevated Contaminants

Location	*Depth*	*Boron, mg/kg^{-1}.*	*Arsenic, mg/kg^{-1}.*	*Copper, mg/kg^{-1}.*	*Lead, mg/kg^{-1}.*	*Zinc mg/kg^{-1}.*	*B.a.P, mg/kg^{-1}.*
WS1	***0.20***				3200		
WS3	***0.30***				1400		1.5
WS4	***0.40***	3.1	49	170	1400	400	4.4
WS5	***0.40***		36				
WS6	***0.50***				1600		6.9
Allowable Level *(at the time of writing the Environmental report)*		***3***	***20***	***120***	***450***	***300***	***1***

All concentrations are measured in mg/kg^{-1}.
These Allowable levels are based on historical values which have been altered in line with current best practice. The risk associated with these pollutants however remains unchanged.

Based on the information gained, we can confirm that the site records contamination in place which can be confirmed as follows :-

- Widespread metal risk across the site;
- Widespread PAH risk across the site.

General Source Risk Conclusions and Gaps in information

The Site

- Risks from ***Metals and Poly Aromatic Hydrocarbons recorded as widespread***;
- No Land gas risk has been recorded in place;
- No risk to groundwater has been identified;
- ***Risk to water main pipework is likely to be in place***;
- ***Risk to service trenches and staff that may complete maintenance on these service trenches is a risk.***
- Additional testing carried out in May 2011 confirmed that NO elevated levels of TPH's are in place within the site area, and therefore the requirement for a Hydrocarbon Barrier is NOT in place.

Next Steps

Based on the information gained, we would suggest that contamination is likely to be in place as site wide and an attempt to further investigate the site to determine the full site characteristics would be time consuming and an expense which is likely to return an outcome of site wide contamination.

The presence of Metals and, PAH within the site should be assumed as the case in order to take the site forward. We would additionally suggest that risk will be in place to water main pipework and to construction staff and maintenance contractors who may be involved in services which traverse the site.

As such, we can confirm that our suggestion would be as follows :-

Assume :-

- Site wide contamination is present from Metals and PAH's;

- Remediation appropriate to the level of risk will be required where pathways to receptors are in place;

- Risk to water mains are in place and as such, water mains should be installed using Protective pipework;

- Develop a Remediation Strategy Report and suitable Validation Process to combat the contamination risks identified.

1.7 Additional Site Investigation Work by HESI

No additional works are required to classify the site.

1.8 Conceptual Site Model

In order to assess the potential risks posed to human health and the surrounding environment from the site condition, a Generic Quantitative Risk Assessment has been used to consider whether risk is in place. This uses Source Pathway Receptor risk assessment methodology in accordance with CLR11.

The summary conceptual site model developed within the ground investigation reports has been re created below :-

Table 8 Risk Assessment A

Source	*Receptors*	*Pathway*	*Mitigation / Discussion*
PAH's	Site Users, (current and future); Construction Workers; Adjacent Site Users, Fauna.	Direct contact	Risks identified across front of site
		Ingestion dust and soil	
		Ingestion of soils attached to vegetation	
		Inhalation of asbestos fibers	Not Applicable
		Inhalation of vapours, (gas and organic)	No vapour risk from PAH contamination identified*
		Explosive risk from Land Gas	Not Applicable
		Ingestion of contaminated water through water main pipework	No risk in place from PAH contamination identified*
		Inhalation of vapours through contaminated ground waters	No vapour risk from PAH contamination identified*
		Direct contact with contaminated ground waters	On site soils do not pose a significant risk to ground waters or surface waters.
	Surface Water.	Lateral migration of shallow groundwater to a target receptor.	
	Ground Water; Abstraction Well.	Migration through fissures / cracks which may migrate to a groundwater receptor.	
	Plants; Vegetation.	Plant uptake; Direct contact.	Plant Risks are considered Low based on assessments with ICRCL old exposure levels. No specific plant risk assessment criteria in place
	Buildings; Construction Materials.	Direct contact with contaminated soils;	PAH's pose a low risk to the built environment.
		Direct contact with contaminated groundwater	No groundwater contamination is likely

* Some PAH pollutants can form Volatile Organic Compounds, although, none of the identified pollution forms a VOC

Table 7 Risk Assessment B

Source	*Receptors*	*Pathway*	*Mitigation / Discussion*
Metals	Site Users, (current and future); Construction Workers; Adjacent Site Users, Fauna.	Direct contact	Risks identified across front of site
		Ingestion dust and soil	
		Ingestion of soils attached to vegetation	
		Inhalation of asbestos fibers	Not Applicable
		Inhalation of vapours, (gas and organic)	No vapour risk from Metal contamination identified*
		Explosive risk from Land Gas	Not Applicable
		Ingestion of contaminated water through water main pipework	No risk in place from Metal contamination identified*
		Inhalation of vapours through contaminated ground waters	No vapour risk from Metal contamination identified*
		Direct contact with contaminated ground waters	On site soils do not pose a significant risk to ground waters or surface waters.
	Surface Water.	Lateral migration of shallow groundwater to a target receptor.	
	Ground Water; Abstraction Well.	Migration through fissures / cracks which may migrate to a groundwater receptor.	
	Plants; Vegetation.	Plant uptake; Direct contact.	Plant Risks are considered Low based on assessments with ICRCL old exposure levels. No specific plant risk assessment criteria in place
	Buildings; Construction Materials.	Direct contact with contaminated soils;	PAH's pose a low risk to the built environment.
		Direct contact with contaminated groundwater	No groundwater contamination is anticipated based on leaching tests. EA confirm no risk.

2 Remediation

2.1 Remediation Proposals

This section provides summary of the remediation proposals set out in the Remediation Strategy Report.

The scope of works based on end use will be recorded as follows :-

Soft Landscaping	Excavation and removal of soils to remove at least 0.60 meters of contaminated soil.
	A demarcation barrier should be placed below any capping soils to confirm to future residents that the further excavation through the area is restricted. This will form a no dig barrier.
	Import clean topsoil. Certify that topsoil is fit for residential land use
Hard Landscaping, (Roads, Pavements)	No Action.
Under Buildings	No action required

The strategy adopted for the remediation of the site are defined as follows :-

2.2 Soft Landscaping Areas

- Within the site investigation the made ground within the site is noted to a maximum depth of 0.50 meters. As such, remediation which would normally extend to a depth of only 0.60 meters could be reduced which would fully remove the made ground.

Where contamination extends to depth ?

- Contaminated soils do not extend to depth based on the information gained;
- Remediation cells will be formed through excavation and disposal of appropriate depths of soil. As considered within the below 'Cover Systems' assessment, we would suggest that a minimum depth of 0.60 meters of surface soils are removed to depths below the finished ground level. If the current ground levels are 'Low' the proposed capping layer only need to remove sufficient soils to provide a minimum of 0.60 meters of the layer.

Where contamination is recorded as shallow ?

- In areas of the site where contamination is only present to a shallow depth, excavation and removal of the soils can be undertaken to confirm that the stratum is removed. This may not remove the proposed full depth of capping and as such, validation sampling should be completed across the base of the excavation to confirm that any soils which remain in place are clean and fit for the proposed land use which lie within this proposed capping depth;

- To re-iterate, the remediation of the site does not need to automatically remove 0.60 meters of soil regardless of what the material is and only needs to remove the contamination present with appropriate validation. If the contaminated stratum only extends to 0.20 meters, only 0.20 meters of soil need removal but validation sampling will be required to confirm that the soils are acceptable;
- Where a particular remediation cell has exposed a combination of both clean clay soils and also recorded the made ground extending deeper within the 0.60 meter excavation defined as the remediation cell, file notes should be maintained for future reference to confirm the location of where contamination still exists below the capped soils;
- All data should be retained for inclusion and submission in a validation report, (i.e. this report).

2.3 Below Buildings

- No Action Required.

2.4 Water Main Pipework

- By examination of the current chemical assessment undertaken, we can confirm that in accordance with UKWIR, (UK Water Industry Research – Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites), risk is in place to water main pipework and protective pipework will be required at this stage and as such, a conventional water main pipework could be adopted for the site.
- To confirm, Protect-Aline pipework will be required;
- Clean Corridors should be completed where all service trenches extend across the site which will provide a trench with membrane liner and clean soils placed within to provide any future workforce with reduced risks when excavating to maintain or service pipework.

2.5 Photographs

We can confirm that photographs will be required of Remediation Cell within the area of soft landscaping, which should be included within a validation report.

We can confirm that photographic evidence of the reduced dig exposed soils will be needed to the base of each remediation cell.

Photographs required will need to include :-

- Photograph of the excavated soils from the remediation cell in all locations;
- These need to show the extents of the remediation and the depth of the cell;
- Photographs of the Protective pipe work;
- Photographs of the clean corridors.

2.6 Validation of Imported Soils

- Upon importing of subsoil and topsoil, (if any) samples will be required for chemical analysis. It should be noted that soils which are placed in the site are recommended for pre-validation such that confirmation that these soils will form clean and acceptable materials based on the validation criteria shown within this report. It is often the case that soils are manufactured in landfill sites or waste management facilities which still promote an unacceptable risk based on an end use of residential land uses.
- We can confirm that Paul Stewart Ltd should operate a sampling system for topsoil which confirm that one sample should be recovered per 15m³ of imported soils which is proposed to be adopted for this site. This could be reduced if all soils are sourced from a single source and that source is known to be reputable.

3.0 Validation

3.1 Validation Works Completed

Herts & Essex Site investigations have not been asked to visit the site through the scope of the remediation works or construction program. As such, all validation data has been supplied by the client.

Herts & Essex Site Investigations have undertaken a site inspection post completion of the construction of the flats and the development of the soft landscaping areas

Under Buildings

No validation works required under buildings.

Landscaping

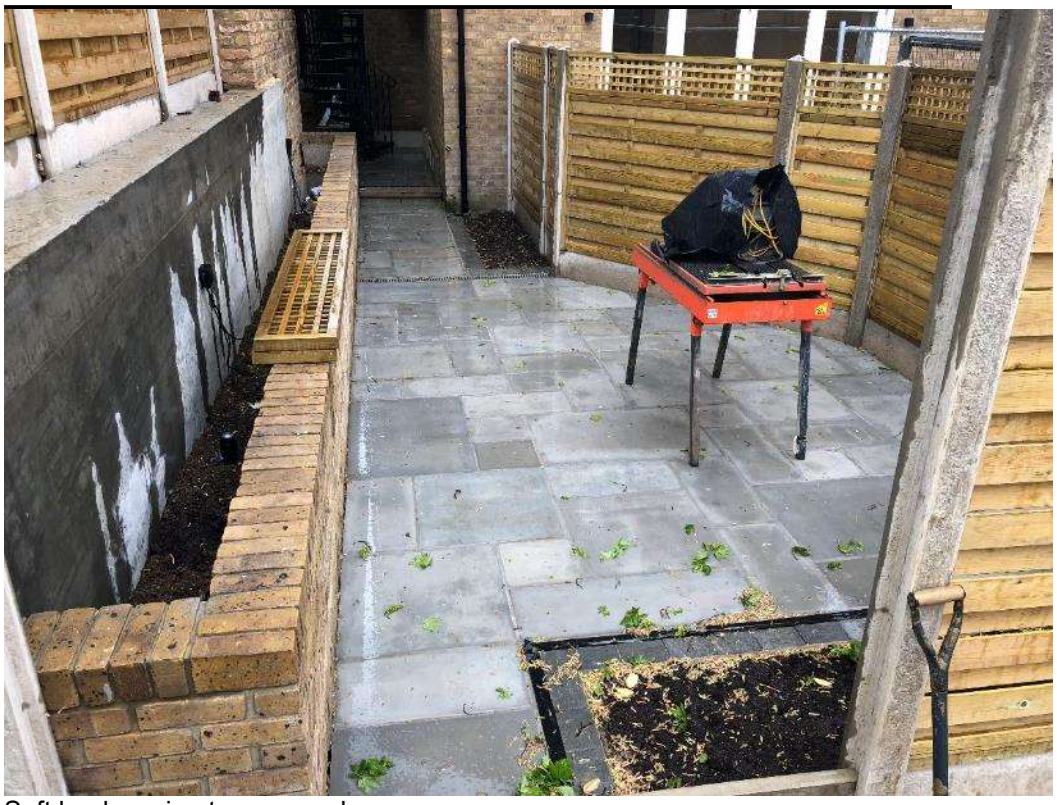
General

- The client was informed through a reporting as to the location of the identified contamination;
- The client was then advised of the specific requirements in place to remove any risk associated with the contamination identified;
- We have not been involved in the excavation and removal of contaminated soils from the garden areas at the site and as such, have no formal photographs or record that either the demarcation barrier has been installed or that the depth of cover has been confirmed;
- Whilst this is the case, we can confirm that the client has provided validation data which is as follows:-
    - Drawing defining areas of proposed soft landscaping;
    - What was used as a Demarcation Barrier? ***Yes. The client confirmed by email that a demarcation barrier was used;***
    - Was this placed under all areas of soft landscaping? ***Yes. The client confirmed by email that a demarcation barrier was used under all soft landscaped areas;***
- Based on the information gained and reliance of the client's confirmation, we can confirm that topsoil has been brought onto the site and placed in areas proposed for soft landscaping to the finished ground level. A sample of this was recovered direct from the site by Herts & Essex Site Investigations on 8th May 2018 which was sent to the analytical chemist for assessment;
    - The results of this chemical testing has confirmed that the sample sent for analysis is fit for residential land use with plant uptake and as such, the material is suitable for use in garden areas.

Photos

- Photos of the site area have been collected from site at the time the topsoil was imported these area as follows :-

Validation Photographs



Soft landscaping to rear gardens

Soft landscaping to rear gardens

Soft landscaping to front gardens

Soft landscaping to front gardens

Side hard landscaping

Side hard landscaping

3.2 Conclusions

This report forms a validation report for the completion of the of the residential development at the above site.

Within the small areas of soft landscaping a reduced dig has been completed with a demarcation barrier in place at the base of the reduced dig.

Clean topsoil has been used to replace the void a sample of which has been tested to confirm it is fit for use within a residential development.

The remaining areas surrounding the dwelling forms hard landscaping.

The pipework has been installed with Barrier pipe supply

It is not proposed to undertake any long term monitoring or maintenance programmes within the site.

We can confirm that no permanent installations are in place within the site.

APPENDIX ONE

SITE PLANS

HERTS & ESSEX SITE INVESTIGATIONS

THE OLD POST OFFICE', WELLPOND GREEN,
STANDON, WARE, HERTS, SG11 1NJ

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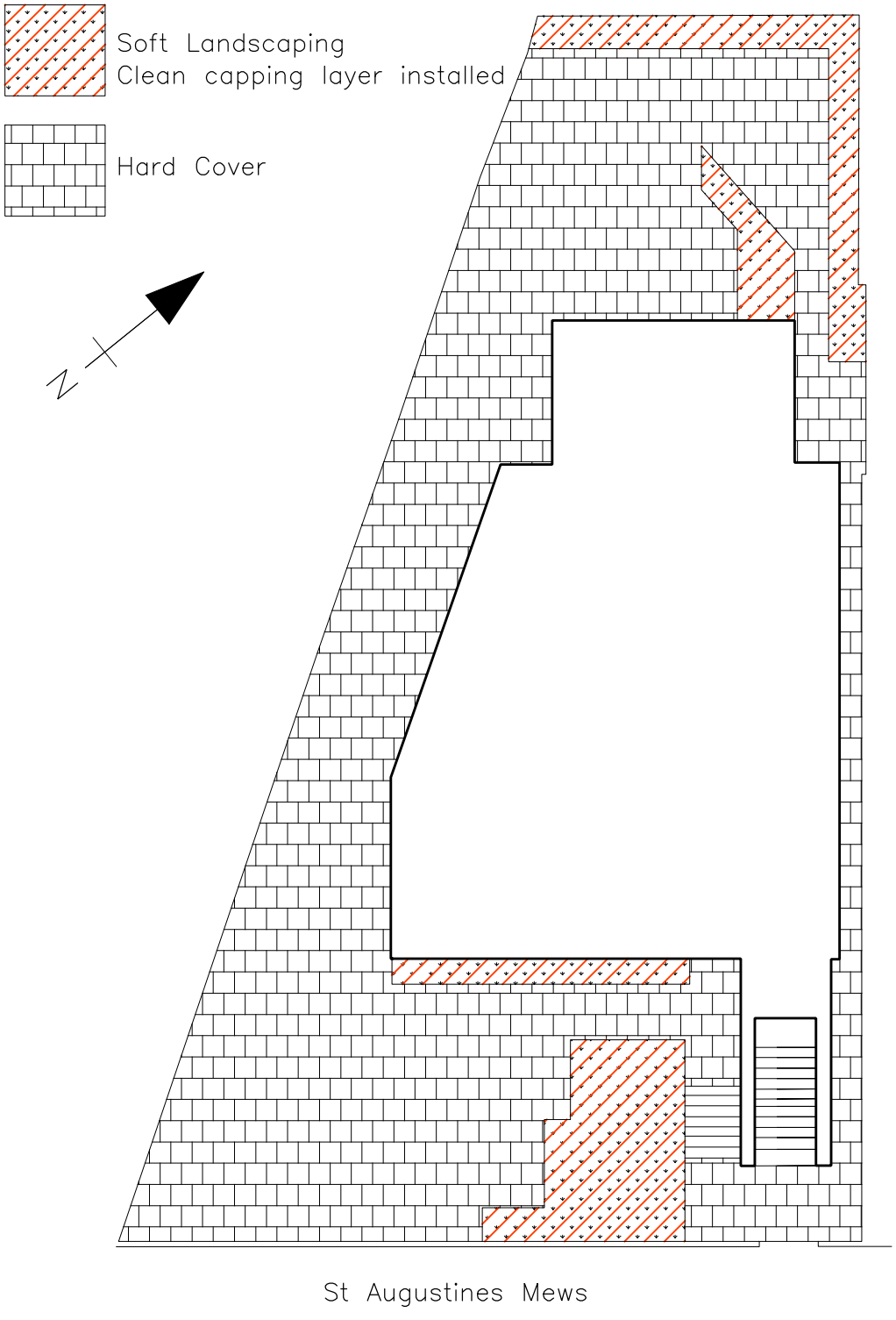
Appendix No.	1
Sheet No.	1
Job No.	7769
Date	Oct 2018

Site at 3 St Augustines Mews, London N1

Validation Plan



Not To Scale

Sketch No: VAL/7769/01/01

APPENDIX TWO

TOPSOIL CERTIFICATES

Chemtest
The right chemistry to deliver results
Chemtest Ltd.
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.co.uk

Final Report

Report No.:	18-12729-1
Initial Date of Issue:	11-May-2018
Client	Herts & Essex Site Investigations
Client Address:	The Old Post Office Wellpond Green Standon Ware Hertfordshire SG11 1NJ
Contact(s):	Chris Gray Rebecca Chamberlain
Project	7769 3 Augustines Road & 4 Murray Mews, London NW1

Quotation No.:		**Date Received:**	09-May-2018
Order No.:		**Date Instructed:**	09-May-2018
No. of Samples:	1		
Turnaround (Wkdays):	3	**Results Due:**	11-May-2018
Date Approved:	11-May-2018		

Approved By:

Details: Martin Dyer, Laboratory Manager

Results - Soil

Project: 7769 3 Augustines Road & 4 Murray Mews, London NW1

Client: Herts & Essex Site Investigations			**Chemtest Job No.:**		18-12729
Quotation No.:			**Chemtest Sample ID.:**		619048
Order No.:			Client Sample Ref.:		TS
			Sample Type:		SOIL
			Date Sampled:		04-May-2018
			Asbestos Lab:		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
ACM Type	U	2192		N/A	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected
Moisture	N	2030	%	0.020	33
Stones and Removed Materials	N	2030	%	0.020	< 0.020
Soil Colour	N	2040		N/A	Brown
Other Material	N	2040		N/A	NONE
Soil Texture	N	2040		N/A	Loam
pH	M	2010		N/A	8.1
Electrical Conductivity (2:1)	N	2020	µS/cm	1.0	78
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.057
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50
Sulphate (Total)	M	2430	%	0.010	0.12
Arsenic	M	2450	mg/kg	1.0	4.7
Cadmium	M	2450	mg/kg	0.10	< 0.10
Copper	M	2450	mg/kg	0.50	7.1
Mercury	M	2450	mg/kg	0.10	< 0.10
Nickel	M	2450	mg/kg	0.50	30
Lead	M	2450	mg/kg	0.50	6.9
Zinc	M	2450	mg/kg	0.50	34
Chromium (Trivalent)	N	2490	mg/kg	1.0	23
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50
Organic Matter	M	2625	%	0.40	8.3
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	380
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	380
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0

Results - Soil

Project: 7769 3 Augustines Road & 4 Murray Mews, London NW1

Client: Herts & Essex Site Investigations			**Chemtest Job No.:**		18-12729
Quotation No.:			**Chemtest Sample ID.:**		619048
Order No.:			Client Sample Ref.:		TS
			Sample Type:		SOIL
			Date Sampled:		04-May-2018
			Asbestos Lab:		COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	6.7
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	96
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	700
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	83
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	890
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	1300
Naphthalene	M	2700	mg/kg	0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10
Anthracene	M	2700	mg/kg	0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	< 0.10
Pyrene	M	2700	mg/kg	0.10	< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10	< 0.10
Chrysene	M	2700	mg/kg	0.10	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0
Total Phenols	M	2920	mg/kg	0.30	< 0.30

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Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2020	Electrical Conductivity	Electrical conductivity (EC) of aqueous extract or calcium sulphate solution for topsoil	Measurement of the electrical resistance of a 2:1 water/soil extract.
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.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	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-diphenylcarbazide.
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
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; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID
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.

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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"

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

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 - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

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

APPENDIX THREE

WATERMAIN PIPEWORK VALIDATION

SITE LOCATION: 3 St. Augustines Road, London NW1 9RL			
DS Reference:	DS6041829	Service pipe material:	Barrier Pipe
Order number:	80653883	Designer:	Natasha Holder
Co-ordinates:	X: 529688.55 Y: 184385.09	Date:	05.12.2017

Single connection
2 port Manifold
4 port Manifold
6 port Manifold
Revenue meter
Valve

Thames Water Point of Entry Plan - Not To Scale

Plot(s) and Connection Objects (CO)

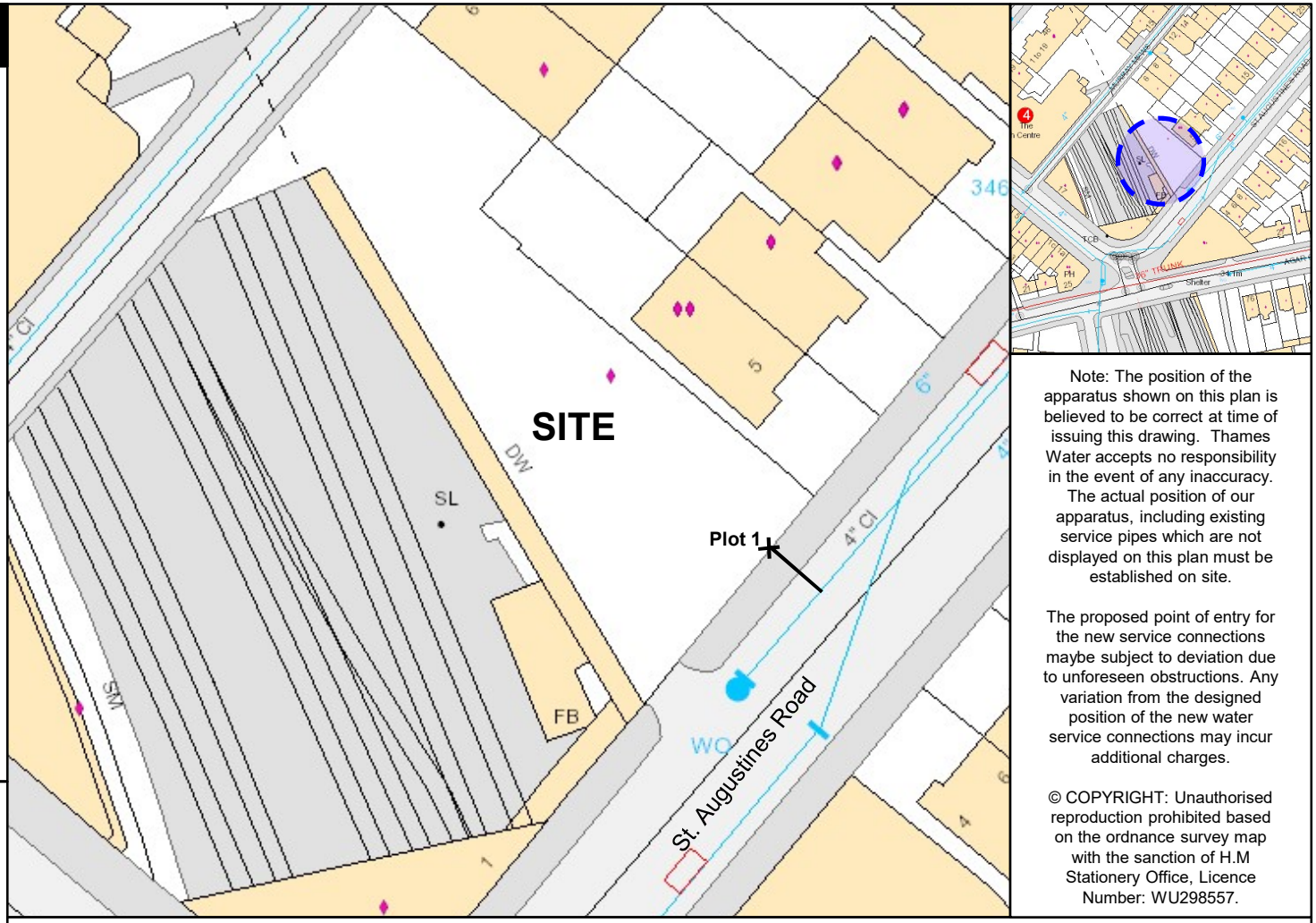
3 St. Augustines Road

Plot 1: 1x63mm un-metered Barrier pipe supply with 10x25mm internal fit meters
CO: 6776347

Connection to be made in St. Augustines Road

(New Domestic/Commercial – 9 Flats and 1 Landlord /external tap supply)

Please sign to confirm location of connections. Please ensure that you have a copy of this plan when you are booking your water regulations and on site during the inspections. This will enable us to confirm with you the correct plot to be inspected.



Note: The position of the apparatus shown on this plan is believed to be correct at time of issuing this drawing. Thames Water accepts no responsibility in the event of any inaccuracy. The actual position of our apparatus, including existing service pipes which are not displayed on this plan must be established on site.

The proposed point of entry for the new service connections maybe subject to deviation due to unforeseen obstructions. Any variation from the designed position of the new water service connections may incur additional charges.

Signature …….. Print Name…….....Date…..…….

Development Control
Planning Services
London Borough of Camden
Town Hall
Argyle Street
London WC1H 8ND

Tel 020 7974 4444
Fax 020 7974 1680
Textlink 020 7974 6866

env.devcon@camden.gov.uk
www.camden.gov.uk/planning

Mr Andrew Petty
Tasou Associates
4 Amwell Street
London EC1R 1UQ

Application Ref: **2011/1181/P**
Please ask for: **Neil McDonald**
Telephone: 020 7974 **2061**

5 May 2011

Dear Sir/Madam

DECISION

Town and Country Planning Acts 1990 (as amended)
Town and Country Planning (General Development Procedure) Order 1995
Town and Country Planning (Applications) Regulations 1988

Approval of Details Granted

Address:
3 St Augustine's Road
London
NW1 9RL

Proposal:
Details of tree protection measures, ground contamination results/remediation measures and hard and soft landscaping pursuant to conditions 2, 4b and 5 of planning permission granted on 08/08/2008 (Ref: 2007/4686/P) for amendments to permission 2004/1870/P granted on 13/05/2005 for a 5-storey building containing 9 residential flats.

Drawing Nos: Discharge of conditions statement dated March 2011; Phase II Environmental Report No. 7769 dated March 2007; Email form Herts and Essex Site Investigations dated 02-03-11; Drawing P-Ldscape01 rev A.

The Council has considered your application and decided to grant permission

Informative(s):

1 You are reminded that condition 4(c) (verification report of ground remediation measures) and 7 (detailed drawings and samples of materials) of planning

permission 2007/4686/P granted on 08/08/2008 are outstanding and require details to be submitted and approved.

2 With respect to the information required for future discharge of condition 4(c) the verification report should be accompanied by information relating to confirmation of the final landscaping plan, proposed level of clean cover and the source of the soil and the test method.