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GEOTECHNICAL ASSESSMENTS – ENVIRONMENTAL ASSESSMENT - DESKTOP STUDY – CONTAMINATED LAND

Report For :

Regal Homes Ltd

Phase I DESK TOP STUDY REPORT

Site location :

277a Grays Inn Road,
London
WC1X 8QF

Sept 2014
Report No. 12138

Registered No 2203445. A Division of Warren House Limited. V.A.T Registered No 538 5788 89

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LIST OF ABRIVATIONS

BGS	British Geological Society
CIRIA	Construction Industry Research and Information Association
EA	Environment Agency
EFDC	Epping Forest District Council
GL	Ground Level
GW	Groundwater
HESI	Herts & Essex Site Investigations
LAPPC	Local Authority Pollution Prevention and Control
NOS	Not Otherwise Specified (waste material)
NHBC	National House-Building Council
OS	Ordnance Survey
PAH	Poly Aromatic Hydrocarbons
SPZ	Source Protection Zone
TPH	Total Petroleum Hydrocarbons
UFST	Underground Fuel Storage Tanks

DESK STUDY GENERAL NOTES

This report has been prepared based on the findings of investigations into the site conditions using current available data which has been recovered from Envirocheck to provide environmental data in relation to the site and surrounding area. Where possible, local sources have been researched to gain a better understanding of the site conditions. As part of this review, research has been undertaken with the Local Authority and the Environment Agency as to the site condition.

We can confirm that this report has been prepared based on the information gained and that this information is not exhaustive and that subsequent research may reveal additional facts that may influence the reporting. Where possible, this information has been researched.

All geological information has been researched using the British Geological Society website, (the geology viewer). The disclaimer associated with this portal confirms 'The British Geological Society accept no responsibility for omissions or misinterpretations of the data from their Data Bank as this may be old or obtained from Non-BGS sources and may not represent current interpretation.

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The accuracy of map extracts cannot be guaranteed and it should be recognized that different conditions on site may have existed between subsequent to the various map surveys.

We can confirm that within the assessment of the site, various websites have been visited and as such, we cannot confirm the validity of these sites and as such, this information is accepted de facto and without prejudice. Anyone relying on these sources does so at their own risk, however, Herts & Essex Site Investigations does undertake all reasonable care to ensure this data is relevant and correct.

DOCUMENT INFORMATION AND CONTROL SHEET

Client :

Regal Homes Ltd
4-5 Coleridge Gardens
London
NW6 3QH

Structural Engineering

Unknown

Owner :

Unknown

Client Contact :
Purchaser :

Unknown

Regulatory Body :

Camden Council

Developer :

Unknown

Environmental Consultants :

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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.

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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	HESI, (File Copy)	Paper	1	Sept 2014
2	Regal Homes Ltd	Paper	1	Sept 2014
3	Regal Homes Ltd	PDF	1	Sept 2014
4				
5				
6				
7				
8				

EXECUTIVE SUMMARY

Client	Regal Homes Ltd
Site Location	277a Grays Inn Road, London WC1X 8QF
Proposed Development	Comprehensive mixed-use redevelopment of site to provide 59 residential units comprising of a lower ground floor across the site area. Forming 55 units arranged around the new open space on the ground floor Level, 4 flats in a 4 storey plus lower-ground building on St Chads Street; with offices at ground and lower-ground floor, café/gallery (Class A1/Class A3) at lower ground floor and basement gym.
Site Settings and Previous Uses	The site area is recorded as a London General Depository, and the Robert Baker (Whitbread Co Ltd) Bottling Stores. As part of the use by Whitbread there are cold stores, compressor and coke and generation stores in place within the building. From 1967 the Goad mapping records the building as vacant. In 1991 the building is recorded as a depot which it remains until recently when the building was once again vacated. Surrounding the site residential land was recorded in place surrounding the site area. To the north of the site area this remains in place. To the east of the site area the building are recorded as commercial and retail units which remain in place to date. To the south of the site until about 1967 the building had a similar use to that within the site area, from about 1967 a garage was recorded in place and at the time of the walk over a commercial unit was in place within this area. To the west of the site area in 1953 the residential land was redeveloped to form residential flats, which remain in place to date.
Nearest Surface Water Feature	The nearest surface water feature is recorded as 446 meters to the north of the site which is recorded as a Basin off of the Grand Union Canal.

	Geology		***Aquifer***
Ground Conditions	Made Ground	The potential for made ground to be present is recorded.	Not Classified
	London Clay	Clay	Unproductive Strata

Groundwater Abstractions	The nearest abstraction well is recorded as 395 meters to the west of the site which is recorded for Other Industrial/Commercial/Public Services: Heat Pump. To the east of the site area 752 meters from the site there is a Public Water Supply: Potable Water Supply in place.
Source Protection Zone	By examination of the Environment Agency Website, and other published data, the site does not lie within a source protection zone.
Potential Sources of Contamination	***On Site*** • ***Former Depot/ Works*** • ***Former Coke and Generator Store - NE*** ***Off site*** • ***Beers and Empties Warehouse - S*** • ***Garage - S 10m***
Previous Investigations	No reports relating to contaminated land are known to us at the time of writing this report relating to the site.

Recommendations

Proposed Site Investigation :-

We would suggest that there is potential sources of contamination relating to the historical land use of the site that, may be in place within the upper subsoil and potentially have migrated in to the lower geology that is underlying any superficial fill deposit.

Vapour risk is also potentially in place from on site sources. As such, a vapour risk assessment will be required to classify the risk.

Limited risk to the groundwater is in place due to the Unproductive Strata below the site.

Considering the potential sources of contamination detailed above and within this report, we would suggest that some further works are carried out. These works should incorporate intrusive investigations to assess the upper and lower geology, recover samples and assess subsoil conditions through visual observations and chemical testing, also carry out vapour risk assessment. With this in mind, we consider the following to form an appropriate way forward :-

Next Steps

- Intrusive shallow based excavation using window sampler to assess the geological conditions and recover samples from the locations shown on the enclosed plan;
- Install standpipe for the monitoring of vapour risks;
- Vapour risk assessment, should contamination that promotes a vapour risk be in place;
- Targeted sampling to assess on site source risk;
- Spatial sampling for use in statistical analysis;
- Consideration through the site assessment as to the presence of Asbestos product within the site and subsoil within the site;
- Visual observations of the subsoil encountered to make initial assessment of the potential risk from contamination.
- Watching brief to record assess and report on unexpected contamination.

PRELIMINARY RISK ASSESSMENT – DESK TOP STUDY - PHASE 1 REPORT

1 Context and Objectives of this report

1.1 Introduction

We have been asked by Regal Homes Ltdto undertake an investigation of the above site in order to assess the potential environmental impact of the existing and historical use of the site on the proposed development sufficient to document the level of risk and impact on future users and the environment.

At this stage, we have been asked to carry out this report without further environmental works proposed, on completion of this report. We would suggest that the protocols for the investigation of the site should form this desk top study, an intrusive investigation and environmental report, a remediation strategy report and a final validation report, where required. This is the basis on which this report has been prepared and as such, these protocols are expected to follow this report.

1.2 Report Objectives

The objectives of the project were as follows:

- To anticipate regulatory action;
- To assess the site for Part IIA;
- To ensure development is 'suitable for use' status;
- 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

1.3 Timescales of the Assessment

The timescales for the site investigation process are based on immediate site investigation data and the assessment of the site conditions based on this report at present. The scope of this report which define the following :-

- Any immediate risks identified within the site that may promote a high risk to the immediate site conditions;
- Any current site use features that would promote a risk that required quick action;
- Any construction or medium term risks within the site which may be present during the construction process within the site;
- Any long term risks within the site that may require long term assessments or interim monitoring;
- Any risks within the site that may change upon the change in use of the site to form the proposed development.

1.4 Level of Technical Confidence Expected

The scope of this report has been prepared in order to assess the historical impact of the site and any previous site uses on the existing and proposed development scheme. The level of risk will be prepared and assessed based on historical mapping and environmental information which has been gained to support the development of this report.

Whilst this is the case, gaps in map records and information will be in place that would reduce the readers confidence of the information sought. As such, this report has been prepared as a preliminary or Indicative Report with a Medium Confidence Level.

1.5 Management Constraints

The site investigation has been prepared based on a budget and time scales which has been agreed with the client. The desk top study fees have been agreed at this time which will dictate a way forward.

2 Broad Characteristics of the site

2.1 The Site

The site is located within a residential and commercial area within 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 :	277a Grays Inn Road, London WC1X 8QF
Site assessed under	Planning Application
Current use of land :	Vacant Warehouse/ Works
Previous use of site, (if known)	Warehouse/ Works
Grid Reference	NGR 530450, 182850
Site Area	Approximate area – 0.03 Hectares
Local Authority	Camden Council
Gradient of the site	The site forms a level area of land, with a slightly slope within the yard area to the north of the site, leading down towards the road.
Proximity of Controlled Waters, (if known)	The nearest surface water feature is recorded as 446 meters to the north of the site which is recorded as a Basin off of the Grand Union Canal.

2.2 Existing Site Use

The site currently forms a vacant warehouse/ works.

2.3 Surrounding Land Uses

The surrounding land uses are detailed below :-

- To the north St Chad's Street is in place with residential land beyond,
- To the east of the site commercial shops are in place off of Grays Inn Road.
- To the south of the site a large commercial unit is in place (off of Ardyle Street)
- To the west of the site area residential flats are in place with soft landscaping surrounding them.

2.4 Site Reconnaissance

The site walk over visit was undertaken in Sept 2014, on which the weather conditions were recorded as slightly overcast.

Access

Access to the site area if gained from St Chad's Street, which is in place to the north of the site area. Where metal gates open out onto a small cobble yard area.

Access to the building is gained from this yard area where large roller shutter doors give vehicle access to the building.

Site Area

The majority of the site area is covered by a large warehouse/ depot building, with a small access yard/driveway area to the north of the site area.

At the time of the walk over the site was in use to stage a fashion show and therefore generators, containers of equipment were in place across the site and within the building, although, it would appear this was purely a one time show at this location.

The yard area is laid to cobble stones, and slopes up slightly to the ground level within the building. Along the entrance to the yard area there is a gully in place, which looked to be in a good condition.

The building forms a large open double height building. Along the wall of the building some vent pipework was in place, possibly associated machinery and or ventilation systems previously in place within the building. All features within the site had been removed. To the north eastern corner of the building there were small office rooms in place, no feature were in place within these area.

The floor of the building was laid to concrete, at the time of the walk over section of the floor had been painted over, although where no paint had been applied no staining was seen in place and the floor looked to be in a good condition. The roof of the building was asbestos sheeting, which looked to be in-tacked and in a good state of repair.

Vegetation

No soft landscaping nor vegetation is in place within the site area.

Above or below ground fuel or oil storage tanks

By examination of the site, no tanks area recorded in place within the site area. No manholes or vent pipes were seen in place, suggesting that no below ground fuel tanks are in place.

Asbestos Containing Materials

The roof of the building looks to form Asbestos sheeting although this looked to be in-tacked from what could be seen, due to the significant risk associated with asbestos, an asbestos survey of the building and soils within the site area is recommended, a detailed review of the soils should be undertaken through the sampling completed to confirm whether any Asbestos containing material is present or not.

Surrounding Area

To the north of the site area there is St Chads Street in place, with residential dwellings present on the opposite side of the road, these form four storey buildings with basement/semi basement level.

To the east of the site area there are commercial shops in place abut with the site building. These are located off of Greys Inn Road.

To the north east of the site area there are terraced dwellings in place, similar to those in place to the north of the site area.

To the north west of the site area there is a construction site in place where the building is under refurbishment/ redevelopment.

To the west of the site area there are residential flats in place with open grassed landscaping surrounding them and extending up to the site .

To the south of the site area there is a commercial unit in place extending up to the site area.

Site Levels and Ground Cover

The floor level within the building forms a level area. The yard area within the north of the site area slopes down slightly to the north.

The site area is laid to hardcover.

Current site activities

The site is currently vacant, although is temporarily in use to host a fashion show, although appeared vacant in it's recent past.

Effluent, Site Drainage and Services

Services are in place within the site area. Service plans of the site area recorded within Appendix 6

Table 2 Walk Over Inspection Risk

Feature	*Location*	*Elevation*	*Is Risk Present?*
Former Depot/works	On site	At G.L	✓
Residential land	Off site - N, NE, W	At G.L	X
Commercial retail units	Off site - E	At G.L	X

3 Details of Searches Undertaken

Within this report, various searches have been undertaken in order to assess the risk associated with the development of the site from the historical and current use of the site and surrounding area. These include :-

- Environmental Data Search 1 : 10,000;
- Environmental Data Search 1 : 2,500;
- Site Sensitivity Maps and Data Sheets;
- Historical Maps;
- Internet Search;
- Local Authority Search – Planning Files;
- Consultation with Site Owner / Architect.

4 Information on Historical and Current Activities on the Site and Surrounding Area

The history of the site's land-use and development from Victorian times onwards has been researched from Ordnance Survey, (O.S.) maps. Extracts of the O.S. Maps and plans are presented in Appendix 4. Reference to historical maps provides invaluable information regarding the land use/history of the site, but historical evidence may be incomplete for the period pre-dating the first edition and between successive map references.

4.1 Discussion of the Development History

A summary of the historical development history of the site and surrounding area, based on the information obtained from the above sources is provided in Table 3.

Table 3 *Historic Maps Assessment*

Date	On Site Feature	On Site Mitigation (considering all possible pathways)	Off Site Feature	Off Site Mitigation (considering all possible pathways)
1874 Source Map Scale 1:1,056	"London General Depository"	Soil Risk Vapour Risk Groundwater Risk	Residential land - N, E, S, W 0m	No Source
			Railway land - N, 50m	Distance reduces the risk
			Chemical Works - E, 30m	Vapour Risk Groundwater Risk
1892 Goad mapping	Robert Baker (Whitbread Co Ltd) Bottling Stores	Soil Risk Vapour Risk Groundwater Risk	Commercial/Retail Units - E , 0m	Limited sources
	Concrete Flooring	Reduces migration risk		
1895 Source Map Scale 1;1,056	Bottled beer store	Soil Risk Vapour Risk Groundwater Risk	Hospital - E, 20m	Vapour Risk Groundwater Risk
1896 Source Map Scale 1:2,500			Chemical Works - REMOVED - E, 30m	Vapour Risk Groundwater Risk
1896 Source Map Scale 1:10,560				
1916 Source Map Scale 1:2,500				
1923 Source Map Scale 1:1,056				

Table 3a *Historic Map Assessment - Continued.....*

Date	On Site Feature	On Site Mitigation (considering all possible pathways)	Off Site Feature	Off Site Mitigation (considering all possible pathways)
1936 Goad Mapping	Whitebread Co Ltd Bottling Stores	Soil Risk Vapour Risk Groundwater Risk		
	Cold Stores - W	Limited Risks		
	Compressors - N	Limited Risks		
	Coke and Generator Store - NE	Soil Risk Vapour Risk Groundwater Risk		
1938 Source Map Scale 1:10,560				
1940 Source Map Scale 1:10,000				
1946 Source photo Scale 1:1,250				
1951 Goad Mapping				
1957 Source Map Scale 1:10,000				
1953 Source Map Scale 1:1,250			Residential land - REDEVELOPED - E 0m	Limited sources
			Printing Works - E, 30m	Vapour Risk Groundwater Risk
1954 Source Map Scale 1:2,500				
1960 Goad Mapping				

Table 3b *Historic Map Assessment - Continued.....*

Date	On Site Feature	On Site Mitigation (considering all possible pathways)	Off Site Feature	Off Site Mitigation (considering all possible pathways)
1960 Source Map Scale 1:1,250			Printing Works - RENAMED - E, 30m	Vapour Risk Groundwater Risk
			Works - E, 30m	Vapour Risk Groundwater Risk
1965 Source Map Scale 1:2,500				
1967 Goad Mapping	Whitebread Co Ltd Bottling Stores - VACANT	Soil Risk Vapour Risk Groundwater Risk	Beers and Empties Warehouse - S 0m	Soil Risk Vapour Risk Groundwater Risk
	Cold Stores - REMOVED- W	Limited Risks		
	Compressors - REMOVED - N	Limited Risks		
	Coke and Generator Store - REMOVED - NE	Soil Risk Vapour Risk Groundwater Risk	Garage - S, 10m	Vapour Risk Groundwater Risk
1973 Source Map Scale 1:1,250			Works - REMOVED - E, 30m	Vapour Risk Groundwater Risk
1974 Source Map Scale 1:1,250				
1976 Source Map Scale 1:1,250				
1990 Source Map Scale 1:1,250				

Table 3c *Historic Map Assessment - Continued.....*

Date	On Site Feature	On Site Mitigation (considering all possible pathways)	Off Site Feature	Off Site Mitigation (considering all possible pathways)
1991 Source Map Scale 1:1,250	Bottled beer store - RENAMED	Soil Risk Vapour Risk Groundwater Risk		
	Depot	Soil Risk Vapour Risk Groundwater Risk		
1992 Source Map Scale 1:10,000				
1993 Source Map Scale 1:1,250				
1995 Source Map Scale 1:0.000				
2006 Source Map Scale 1:0.000				
2014 Source Map Scale 1:0.000				

Table 4 Overview of Historic Map Assessment Risk

Identified Risk	Distance & Direction	Year	Is risk in place?	Considering All Pathways	
				Assessment Required.	Method of Assessment
"London General Depository"	On Site	Pre 1874 - 1982	✓	Soil Assessment GW Assessment Vapour Assessment	Recover Soil Samples Install Standpipes Leachate Testing or GW Sampling Gas Monitoring Wells – Vapour Risk
Robert Baker (Whitebread Co Ltd) Bottling Stores	On Site	1892 - 1967	✓	Soil Assessment GW Assessment Vapour Assessment	Recover Soil Samples Install Standpipes Leachate Testing or GW Sampling Gas Monitoring Wells – Vapour Risk
Cold Stores	On Site - W	1936 - 1967	X	No	
Compressors	On Site - N	1936 - 1967	X	No	
Coke and Generator Store	On Site - NE	1936 - 1967	✓	Soil Assessment GW Assessment Vapour Assessment	Recover Soil Samples Install Standpipes Leachate Testing or GW Sampling Gas Monitoring Wells – Vapour Risk
Depot	On Site	1991 - Recently	✓	Soil Assessment GW Assessment Vapour Assessment	Recover Soil Samples Install Standpipes Leachate Testing or GW Sampling Gas Monitoring Wells – Vapour Risk
Residential land	Off site - N, E, S, W 0m	Pre 1974 - Present	X	No Source	
Railway land	Off site - N, 50m	Pre 1974 - Present	X	Distance reduces the risk	
Chemical Works	Off site - E, 30m	Pre 1987 - 1896	✓	Vapour Risk Groundwater Risk	Install Standpipes Leachate Testing or GW Sampling Gas Monitoring Wells – Vapour Risk
Hospital	Off site - E, 20m	1895 - Present	✓	Vapour Risk Groundwater Risk	Install Standpipes Leachate Testing or GW Sampling Gas Monitoring Wells – Vapour Risk

Table 4a **Overview of Historic Map Assessment Risk - Continued.....**

Identified Risk	Distance & Direction	Year	Is risk in place?	Considering All Pathways	
				Assessment Required.	Method of Assessment
Printing Works	Off site - E, 30m	1953 - 1960	✓	Vapour Risk Groundwater Risk	Install Standpipes Leachate Testing or GW Sampling Gas Monitoring Wells – Vapour Risk
Works	Off site - E, 30m	1960 - 1973	✓	Vapour Risk Groundwater Risk	Install Standpipes Leachate Testing or GW Sampling Gas Monitoring Wells – Vapour Risk
Beers and Empties Warehouse	Off site - S, 0m	1967 - ?	✓	Soil Assessment GW Assessment Vapour Assessment	Recover Soil Samples Install Standpipes Leachate Testing or GW Sampling Gas Monitoring Wells – Vapour Risk
Garage	Off site - S, 10m	1967 - 2014	✓	Vapour Risk Groundwater Risk	Install Standpipes Leachate Testing or GW Sampling Gas Monitoring Wells – Vapour Risk

5 Details of the Intended Future Use of the Site

Comprehensive mixed-use redevelopment of site to provide 59 residential units comprising of a lower ground floor across the site area. Forming 55 units arranged around the new open space on the ground floor Level, 4 flats in a 4 storey plus lower-ground building on St Chads street; with offices at ground and lower-ground floor, café/gallery (Class A1/Class A3) at lower ground floor and basement gym.

6 References of Planning Applications

An applications is in place with Camden Council for the development of the site area.

Application Number: 2014/4267/P
Proposal: Comprehensive mixed-use redevelopment of site to provide 59 residential units comprising: 55 units arranged around the new open space (seven x 2 storey houses plus lower-ground floor, 48 x flats in 3, 7 and 8 storey blocks plus lower-ground floor) and 4 flats in a 4 storey plus lower-ground building on St Chads Street; with offices at ground and lower-ground floor, café/gallery (Class A1/Class A3) at ground floor and basement gym, together with landscaping and associated works.
Current Status: REGISTERED

No decision has been made on this application.

7 Discussion with Local Authority

Other than the review of the online planning files no other consultation has been carried out with local authority at this stage of reporting. No additional information was gained from the planning files.

8 Previous Reporting

No previous reports are known to us at the time of writing this report.

9 Environmental Settings

9.1 Superficial Deposits and Solid Geology

The ground conditions based on geological maps and BGS information is recoded as London Clay. No superficial deposits are recorded in place.

9.2 BGS Boreholes

Limited BGS boreholes are recorded surrounding the site area.

Table 5 Geological Information

Geological Unit	*Brief Description*	*Anticipated thickness, (m)*	*Aquifer Type*
Superficial Deposits/Drift <u>*On Site*</u>			
Filled/Re-worked ground	Made Ground, (Potentially Contaminated Stratum).	0.5-1.00 meters+	Not Classified
Solid Geology Deposits			
London Clay	Clay	30m+	Unproductive Strata

9.3 Hydrology

The nearest surface water feature is recorded as 446 meters to the north of the site which is recorded as a Basin off the Grand Union Canal.

The nearest discharge consent is recorded 336 meters to the north of the site, recorded for Trade Discharges - Cooling Water in the groundwater via borehole.

9.4 Hydrogeology

The published Environment Agency Groundwater Vulnerability Map of the area, (Sheet 40 Thames Estuary), indicates the site to be located within an area classified as an Unproductive Strata relating to the underlying Bedrock Aquifer being formed by London Clay. No Superficial deposits are recorded within the site area.

The nearest abstraction well is recorded as 395 meters to the west of the site which is recorded for Other Industrial/Commercial/Public Services: Heat Pump. To the east of the site area 752 meters from the site there is a Public Water Supply: Potable Water Supply in place.

By examination of the Environment Agency Website, and other published data, the site does not lie within a source protection zone.

9.5 Implication of groundwater

In light of the Unproductive Stratum in place below and surrounding the site area there is reduced potential for ground water to be in place, it will also act as an aquatard against surface water migration and possible contamination migrating to the lower geology or groundwater system.

Limited groundwater receptors are recorded in place surrounding the site area which would influence the groundwater system. The distance to the surface water feature and the abstraction well will reduce the risk to these features. The London clay within the site area will reduce any impact on the groundwater and lower aquifer, Should significant risk or persistent pollutants be in place within the site area there may be a risk , also, in accordance with Environment Agency guidance document: -

- Groundwater Protection: Principles and Practice (GP3) Part 5 – Remedial Targets Methodology,

The document confirms :-

- "Selecting compliance points for use in land contamination risk assessments the distance to a set compliance point should not exceed 50 metres for hazardous substances or a maximum of 250 metres for non-hazardous pollutants unless there are specific physical constraints on the ability to use the groundwater resource. Any increases above these specified distances may be justified but must be supported by a sustainability assessment that takes into account environmental, social and economic factors."

Considering the above, groundwater risk may be in place if significant contamination or a persistent source of contamination is encountered or recorded within the site area, within the information to date risk is considered low.

9.6 Flooding

The site is not recorded as within an area which is susceptible to extreme flooding from Rivers or Seas without defences.

Within Table 6, the sensitivity of the identified receptors within the vicinity of the site to contamination along with pathways from the site is recorded.

Table 6 ***Sensitivity of Environmental Receptors in the Vicinity of the Site***

Receptor Type	*Receptor(s)*	*Sensitivity*	*Comments*
Groundwater	Unproductive Strata	Low	London Clay is recorded underlying the site.
Water Abstraction	Other Industrial/Commercial/Public Services: Heat Pump	Low	The nearest abstraction well is recorded as 395 meters to the west of the site. Distance and London Clay will reduce the risk.
	Public Water Supply	High	The nearest potable abstraction well is recorded as 752 meters to the east of the site.
Surface Water	Basin to the Grand Union Canal	Low	The nearest surface water feature is recorded as 446 meters to the north of the site.
Flooding	None	--	--
Ecological	None	--	--

10 Site Drainage and Other Potential Man Made Pathways

Within the north of the site area, there is a gully in place collecting surface water run off from the yard area of the site area this looked to be in a good condition and will therefore reduce the potential for surface water run off impacting on the site area.

The majority of services enter the site within the entrance off of St Chads Street (north) and Greys Inn Road (east), limited information of service runs within the site area are available.

11 Regulatory Data

Information relating to the potential hazards associated with environmental regulatory controls are summarised in Table 7 and 8. This information is recorded in full within the Envirocheck data provided within Appendix 5. The salient points recorded within this data are re-created below.

Table 7 ***Summery of Regulatory Data - Sources***

Data	*On Site*	*Off Site*	*Distance from site.*	*Is potential risk in place?*
Sources				
Discharge Consents	None	Trade Discharges - Cooling Water	W, 288m	X
Local Authority Pollution Prevention and Controls	None	Dry cleaning	NE, 8m	X
Pollution Incidents to Controlled Waters	None	Oils - Unknown in 1998 - Minor Incident	N, 503m	X
		Chemicals - Unknown - 1990 - Minor Incident	N, 509m	X
Registered Waste Transfer Sites	None	Construction And Demolition Wastes	NW, 384m	X
Radon Potential - Radon Protection Measures	Less than 1% of homes are above action level.			X

Table 8 ***Summary of Regulatory Data - Receptors***

Data	*On Site*	*Off Site*	*Distance from site.*	*Is potential risk in place?*
Receptors				
Nearest Surface Water Feature	None	Basin to the Grand Union Canal	N, 446m	X
Water Abstractions	None	Other Industrial/Commercial/Public Services: Heat Pump - Groundwater	W, 395m	X
		Public Water Supply: Potable Water Supply - Direct	E, 752m	X
Source Protection Zone	None	None		X

Table 9 BGS Estimated Chemistry Data

BGS Estimated Soil Chemistry Pollutant	BGS Estimated Soil Chemistry (mg / kg)	BGS Urban Soil Chemistry Averages (mg / kg)		
	270 SW	Min	Average	Max
Arsenic	17.00	1.00	17.00	161.00
Cadmium	0.80	0.30	0.90	165.20
Chromium	68.00	13.00	79.00	2094.00
Lead	242.00	11.00	280.00	10000.00
Nickel	23.00	2.00	28.00	506.00

Considering the background concentrations present, limited human health risk is anticipated within this area.

Table 10 Geological Hazards

Geological Hazard	Distance & Direction	Feature	Risk Assessment Required
Coal Mining	On Site	No Hazard	No Risk
Collapsible Ground	On Site	Very Low	No Risk
Compressible Ground	On Site	No Hazard	No Risk
Ground Dissolution Features	On Site	No Hazard	No Risk
Landslide	On Site	Very Low	No Risk
Running Sand	On Site	No Hazard	No Risk
Shrinking or Swelling Clay	On Site	Moderate	Geotechnical Risk

Table 11 Summary of Contemporary Trade Entries

Trade Name	*Trade Use*	*Distance & Direction from Site*	*Is potential risk in place?*	**Comment**
Stratstone Of Mayfair	Car Dealers	On Site - S	X	Inactive
Follett Mazda	Garage Services	On Site - S	X	Inactive
Stratstone Of Mayfair	Car Dealers	On Site - S	X	Inactive
Alex Dry Cleaners	Dry Cleaners	Off site - NE 9m	X	LAPPC in place
All Seasons Cleaning	Laundries & Launderettes	Off site - N, 33m	X	Inactive
G Thornfields Ltd Day By Day Art & Interiors	Wallpapers & Wall Coverings	Off site - NW, 40m	X	Inactive
Auto Audio Installations	Telecommunications Equipment & Systems	Off site - N, 80m	X	Distance reduces risk
The Royal National Throat Nose & Ear Hospital	Hospitals	Off site - E, 75m	X	Distance reduces risk
No other trades are recorded within 100 meters of the site				

**NB The above information is taken from the Envirocheck trade directories*

12 Consultation with Environment Agency

Consultation has not been made with the Environment Agency, information gained from Envirocheck and the EA web site has given sufficient information at this stage. The assessment of the site should take into account the groundwater regime within the site area and the possible risk from both on site and off site contamination. The EA website has been reviewed and no additional information in relation to groundwater, potable abstractions, source protection zones or landfill has been recovered.

The information gained within this report is sufficient to consider groundwater risk within any future works which may promote consultation in the future with the EA.

13 Consultation with Appropriate Bodies/Local Sources

Limited consultation has been carried out with the council, a review of the planning files have been reviewed within this report.

14 Identification of Potential Contaminants of Concern and Source Areas

Potential sources of contamination are brought forward for further risk assessment which are detailed in Table 12 :-

Table 12 ***Table of Source Risk***

				Considering Site Specific Pathways	
	Source Risk	***Location***	***Date***	**Assessment Required.**	**Method of Assessment**
Walk Over Survey	***Former Depot/ Works***	On site		Site Wide - Soil Assessment Vapour Assessment	Recover Soil Samples
Goad mapping	"London General Depository"	On site	Pre 1874 - 1982		
Goad mapping	Robert Baker (Whitebread Co Ltd) Bottling Stores	On site	1892 - 1967		
Historical maps	Depot	On site	1991 - Recently		
Goad mapping	***Coke and Generator Store***	On site - NE		Site Wide - Soil Assessment Vapour Assessment	Recover Soil Samples
	Off Site Sources	Off site		Site Wide - Soil Assessment Vapour Assessment	Recover Soil Samples
Historical Maps	Chemical Works	Off site - E, 30m	Pre 1987 - 1896	Unproductive Aquifer reduces Groundwater and Vapour Risk	
	Hospital	Off site - E, 20m	1895 - Present	Unproductive Aquifer reduces Groundwater and Vapour Risk	
	Printing Works	Off site - E, 30m	1953 - 1960	Unproductive Aquifer reduces Groundwater and Vapour Risk	
	Works	Off site - E, 30m	1960 - 1973	Unproductive Aquifer reduces Groundwater and Vapour Risk	
Goad mapping	***Garage***	Off site - S, 10m	1967 - 2014	Unproductive Aquifer reduces Groundwater and Vapour Risk Possibly soils risk in place	Recover Soil Samples
Goad mapping	***Beers and Empties Warehouse***	Off site - S, 0m	1967 - ?	Site Wide - Soil Assessment Vapour Assessment	Recover Soil Samples
Planning Files	None				

15 Outline Conceptual Model

What must now be considered is what contamination should be identified as a potential hazard as a result of the use of the site specific areas. In order to undertake this task, the ***Contaminated Land Reports, (CLR10)***, has been used which details some trades and potential sources of contamination. In addition to this, the Department of Environment Industry Profiles have been incorporated which detail trade, and also, specific site usage of the trade and contaminant sources.

The information below incorporates a hazard assessment of the features surrounding the site that could potentially impact on the proposed development. This is based on the information below :-

Table 13 CIRIA Contaminated Land Risk Assessment Table

		Consequence			
		Severe	**Medium**	**Mild**	**Minor**
Probability	**High Likelihood**	**Very High Risk**	**High Risk**	**Moderate Risk**	**Moderate/Low Risk**
	Likely	**High Risk**	**Moderate Risk**	**Moderate/Low Risk**	**Low Risk**
	Low Likelihood	**Moderate Risk**	**Moderate/Low Risk**	**Low Risk**	**Very Low Risk**
	Unlikely	**Moderate/Low Risk**	**Low Risk**	**Very Low Risk**	**Very Low Risk**

Extracted from CIRIA Publication C552 Contaminated Land Risk Assessment

Table 14 *Risk Assessment A*

Source (Potential Contaminating Use)	Potential *Contaminants*	*Receptors*	*Pathways*	*Associated Hazard, [Severity]*	*Proposed Site Use Risk Assessment*		
					Likelihood of occurrence	*Potential Risk*	*Notes*
Former Depot/ Works On Site	TPH's VOC's PCB's Naphthalene,	Site Users Construction Workers.	Direct contact; Inhalation dust and fibers. Dermal contact	Medium	Likely	Moderate	Possible risk in place
			Ingestion of home grown produce	Medium	Likely	Moderate	Possible risk in place
			Ingestion of contaminated water through water main pipework	Medium	Likely	Moderate	Possible risk in place
			Inhalation of vapours	Medium	Likely	Moderate	Possible risk in place
			Inhalation of vapours through contaminated ground waters	Medium	Unlikely	Low	Unproductive Strata
		Adjoining Land Owners	Direct contact; Inhalation dust and fibers. Dermal contact	Medium	Low Likelihood	Moderate / Low	Limited risk in place
			Ingestion of home grown produce	Medium	Low Likelihood	Moderate / Low	Limited risk in place
			Ingestion of contaminated water through water main pipework	Medium	Low Likelihood	Moderate / Low	Limited risk in place
			Inhalation of vapours	Medium	Low Likelihood	Moderate / Low	Limited risk in place
			Inhalation of vapours through contaminated ground waters	Medium	Unlikely	Low	Unproductive Strata
		Controlled Surface Water;	Leaching, lateral migration of shallow groundwater to a target receptor.	Medium	Unlikely	Low	Unproductive Strata
		Ground Water; Abstraction Well.	Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.	Medium	Unlikely	Low	Unproductive Strata
		Flora	Plant Uptake Direct Contact	Medium	Likely	Moderate	Possible risk in place
	Asbestos	Site Users Construction Workers.	Inhalation dust and fibers (from Asbestos within the building)	Severe	Likely	High	Possible risk in place
			Inhalation dust and fibers (from asbestos within the soil)	Severe	Likely	High	Possible risk in place
	Metals Metalloids PAH's	Site Users Construction Workers.	Direct contact; Inhalation dust and fibers; Dermal contact;	Medium	Likely	Moderate	Possible risk in place
			Ingestion of home grown produce	Medium	Likely	Moderate	Possible risk in place
		Controlled Surface Water;	Leaching, lateral migration of shallow groundwater to a target receptor.	Medium	Unlikely	Low	Unproductive Strata
		Ground Water; Abstraction Well.	Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.	Medium	Unlikely	Low	Unproductive Strata
	TPH's, Naphthalene, Sulphate, pH	Buildings; Construction Materials. Services	Direct contact with contaminated soils;	Medium	Likely	Moderate	Possible risk in place
			Direct contact with contaminated groundwater	Medium	Unlikely	Low	Unproductive Strata

Table 15 *Risk Assessment A*

Source (Potential Contaminating Use)	Potential *Contaminants*	*Receptors*	*Pathways*	*Associated Hazard, [Severity]*	*Proposed Site Use Risk Assessment*		
					Likelihood of occurrence	*Potential Risk*	*Notes*
Former Coke and Generator Store Onsite - NE	TPH's VOC's PCB's Naphthalene,	Site Users Construction Workers.	Direct contact; Inhalation dust and fibers. Dermal contact	Medium	Likely	Moderate	Possible risk in place
			Ingestion of home grown produce	Medium	Likely	Moderate	Possible risk in place
			Ingestion of contaminated water through water main pipework	Medium	Likely	Moderate	Possible risk in place
			Inhalation of vapours	Medium	Likely	Moderate	Possible risk in place
			Inhalation of vapours through contaminated ground waters	Medium	Unlikely	Low	Unproductive Strata
		Adjoining Land Owners	Direct contact; Inhalation dust and fibers. Dermal contact	Medium	Low Likelihood	Moderate / Low	Limited risk in place
			Ingestion of home grown produce	Medium	Low Likelihood	Moderate / Low	Limited risk in place
			Ingestion of contaminated water through water main pipework	Medium	Low Likelihood	Moderate / Low	Limited risk in place
			Inhalation of vapours	Medium	Low Likelihood	Moderate / Low	Limited risk in place
			Inhalation of vapours through contaminated ground waters	Medium	Unlikely	Low	Unproductive Strata
		Controlled Surface Water;	Leaching, lateral migration of shallow groundwater to a target receptor.	Medium	Unlikely	Low	Unproductive Strata
		Ground Water; Abstraction Well.	Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.	Medium	Unlikely	Low	Unproductive Strata
		Flora	Plant Uptake Direct Contact	Medium	Likely	Moderate	Possible risk in place
	Asbestos	Site Users Construction Workers.	Inhalation dust and fibers (from Asbestos within the building)	Severe	Likely	High	Possible risk in place
			Inhalation dust and fibers (from asbestos within the soil)	Severe	Likely	High	Possible risk in place
	Metals Metalloids PAH's	Site Users Construction Workers.	Direct contact; Inhalation dust and fibers; Dermal contact;	Medium	Likely	Moderate	Possible risk in place
			Ingestion of home grown produce	Medium	Likely	Moderate	Possible risk in place
		Controlled Surface Water;	Leaching, lateral migration of shallow groundwater to a target receptor.	Medium	Unlikely	Low	Unproductive Strata
		Ground Water; Abstraction Well.	Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.	Medium	Unlikely	Low	Unproductive Strata
	TPH's, Naphthalene, Sulphate, pH	Buildings; Construction Materials. Services	Direct contact with contaminated soils;	Medium	Likely	Moderate	Possible risk in place
			Direct contact with contaminated groundwater	Medium	Unlikely	Low	Unproductive Strata

Table 16 *Risk Assessment B*

Source (Potential Contaminating Use)	Potential Contaminants	Receptors	Pathways	Associated Hazard, [Severity]	Proposed Site Use Risk Assessment		
					Likelihood of occurrence	Potential Risk	Notes
Beers and Empties Warehouse 1967 - ? Off Site - S ***Garage*** 1967 - 2014 Off site - S, 10m	TPH's VOC's PCB's Naphthalene,	Site Users Construction Workers.	Direct contact; Inhalation dust and fibers. Dermal contact	Medium	Likely	Moderate	Possible risk in place
			Ingestion of home grown produce	Medium	Likely	Moderate	Possible risk in place
			Ingestion of contaminated water through water main pipework	Medium	Likely	Moderate	Possible risk in place
			Inhalation of vapours	Medium	Likely	Moderate	Possible risk in place
			Inhalation of vapours through contaminated ground waters	Medium	Unlikely	Low	Unproductive Strata
		Adjoining Land Owners	Direct contact; Inhalation dust and fibers. Dermal contact	No liability for offsite source.			
			Ingestion of home grown produce				
			Ingestion of contaminated water through water main pipework				
			Inhalation of vapours				
			Inhalation of vapours through contaminated ground waters				
		Controlled Surface Water;	Leaching, lateral migration of shallow groundwater to a target receptor.				
		Ground Water; Abstraction Well.	Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.				
		Flora	Plant Uptake Direct Contact	Medium	Likely	Moderate	Possible risk in place
Asbestos		Site Users Construction Workers.	Inhalation dust and fibers (from Asbestos within the building)	Severe	Likely	High	Possible risk in place
			Inhalation dust and fibers (from asbestos within the soil)	Severe	Likely	High	Possible risk in place
Metals Metalloids PAH's		Site Users Construction Workers.	Direct contact; Inhalation dust and fibers; Dermal contact;	Medium	Likely	Moderate	Possible risk in place
			Ingestion of home grown produce	Medium	Likely	Moderate	Possible risk in place
		Controlled Surface Water;	Leaching, lateral migration of shallow groundwater to a target receptor.	No liability for offsite source.			
		Ground Water; Abstraction Well.	Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.				
TPH's, Naphthalene, Sulphate, pH		Buildings; Construction Materials. Services	Direct contact with contaminated soils;	Medium	Likely	Moderate	Possible risk in place
			Direct contact with contaminated groundwater	Medium	Unlikely	Low	Unproductive Strata

Table 17 ***Overview of Risk Assessments - Proposed Site Use***

		On Site		Off site
	Risk Assessment	**A**	**B**	**C**
Receptors	**Pathways**	***Former Depot/ Works*** On Site	***Former Coke and Generator Store*** On Site - NE	***Beers and Empties Warehouse*** ***Garage*** Off Site - S
Site Users ***Construction Workers***	Direct Contact, Inhalation of Dust and Fibres, Dermal Contact	✓	✓	✓
	Ingestion of home grown vegetation	✓	✓	✓
	Ingestion of contaminated water through water main pipework	✓	✓	✓
	Inhalation of vapours from soils	✓	✓	✓
	Inhalation of vapour from contaminated ground waters	X	X	X
	Inhalation of land gas vapours	X	X	✓
	Inhalation Asbestos dust and fibers (from Asbestos within the building)	✓	✓	✓
	Inhalation Asbestos dust and fibers (from asbestos within the soil)	✓	✓	✓
Adjoining Land Owners	Direct Contact, Inhalation of Dust and Fibres, Dermal Contact	✓	✓	No liability for offsite source.
	Ingestion of home grown vegetation	✓	✓	
	Ingestion of contaminated water through water main pipework	✓	✓	
	Inhalation of vapours from soils	✓	✓	
	Inhalation of vapours from contaminated ground waters	X	X	
Flora	Plant Uptake / Direct Contact	✓	✓	✓
Groundwater; Abstraction Well & Surface Water	Leaching, lateral migration of shallow groundwater to a River or surface water receptor.	X	X	No liability for offsite source.
	Leaching, lateral migration of shallow groundwater system underlying the site and subsequent abstraction well or SPZ	X	X	
Buildings	Direct contact with contaminated soils.	✓	✓	✓
	Direct contact with contaminated groundwater	X	X	X

* ***NB : Due to Severe Consequence from Asbestos and Explosive Gases, some risk is assessed and potentially in place and therefore highlighted above.***
GW Only: Some risks have been assessed as a direct result of potential mobilisation of groundwater contamination that may influence the site. A pictorial conceptual model has been reproduced within this report to confirm the above findings

16 Discussion on Sources of Contamination

The assessments of the site have drawn conclusions of historical and ongoing land uses which may impact on the proposed development which will be further considered through location, (either on or off site) and nature of risk. These are discussed below:-

Table 18 Pollutant Risk

Risk Assessment	Land Use	Pollutant
		Soil & Vapour
Risk Assessment A	***Former Depot/ Works*** On Site	Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos, Total Petroleum Hydrocarbons, (Aliphatic / Aromatic Split - 8 Band). Selected samples - VOC's, PCB's Soil Sampling & Vapour Assessment
		Soil & Vapour
Risk Assessment B	***Former Coke and Generator Store*** On site - NE	Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos, Total Petroleum Hydrocarbons, (Aliphatic / Aromatic Split - 8 Band) Selected samples - VOC's, PCB's Soil Sampling & Vapour Assessment
		Soil & Vapour
Risk Assessment C	***Beers and Empties Warehouse*** ***Garage*** Off site	Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos, Total Petroleum Hydrocarbons, (Aliphatic / Aromatic Split - 8 Band). Selected samples - VOC's, PCB's Soil Sampling & Vapour Assessment
Spatial Sampling, (General Assessment)		Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAH's, (EPA Priority 16), Phenols, Asbestos.

17 Next Steps

Considering the information gathered to date, we would suggest that an appropriate way forward would be to assess the condition of the subsoil within the site resulting from the historical and former uses of the site as detailed within previous sections of this report. We would suggest that the most viable way of assessing risk will be to consider the following assessment techniques.

17.1 Soil Assessment

Considering the site area, we would suggest that the most appropriate way forward would be to undertake a series of window sampler boreholes across the site to provide targeted sampling and additionally, general and spatial sampling of the subsoil to provide the necessary coverage of the site conditions.

Soil sampling will be completed recovering samples in appropriate containers for analysis by the analytical chemist. All sampling will be sent directly to the chemist in cool boxes to retain the integrity of the soil sample. Appropriate GQRA or DQRA assessments will be completed and reported in an Environmental Report as and when this is available and where appropriate.

17.2 Groundwater Assessment

Groundwater Receptors

As part of the justification for groundwater risk assessments or limitations of any groundwater assessments required, the following should be considered :-

- Soil contamination has a potential to be in place although is unlikely to be significant or from a persistent pollutants within the site area;
- Limited features are in place within and surrounding the site that will promote a significant risk to the groundwater;
- The London Clay below the site will reduce any further migration;
- The nearest surface water feature is too far from the site to promote a risk;
- The site does not lie within a source protection zone.
- The nearest abstraction well is recorded as 395 meters to the west of the site which is recorded for Other Industrial/Commercial/Public Services: Heat Pump

Human Health Risk

- In light of the London Clay underlying the site and possible migration of pollution from both on and off the site, is reduced.

Method of Groundwater Assessment

In light of the underlying Unproductive Stratum, limited risks are in place from the potential for migration from on site features to an underlying groundwater target or receptor.

By examination of the site conditions, limited significant sources of contamination have been identified at the site and as such, significant or persistent pollutants are not likely to be encountered. This would suggest that the potential for historic or future risk to a groundwater system will be limited.

Should the investigation identify significant risk, or foundation proposal are at risk of creating a pathway to the lower geology, further investigations outside that identified within this report may be required.

17.3 Vapour Risk Assessment

Considering the potential for vapour risk to be in place from TPH's VOC's and PCB's, assessments must be completed. These will include the potential for contamination within the site area and migration from off site sources which may be present in concentrations where risk is recorded.

Considering the above, we would suggest that soil testing is undertaken to assess whether contamination that may promote a vapour risk are in place or not, within the site area and a standpipe should be installed within the site with response zones placed within the upper made ground,

If encountered within the site area vapour risk assessments completed as follows :-

- *Install standpipes to allow vapour risk to be considered from the upper made ground. The Clay will prevent migration of vapours from depth;*
- *Assess vapour risk over a minimum of six monitoring rounds to comply with CIRIA C665 to consider risks to buildings, CLR 11 and R & D Publication 66;*
- *Monitoring should be completed over falling or low atmospheric pressures or in periods where ground conditions are frozen to provide the worst case scenario for the site.*
- *Reporting vapour risk/ can be completed assessing soils in situ using a Photo Ionisation Detector for Volatile Organic Compounds, (which include BTEX). Flow rates should also be noted for reporting purposes.*

17.4 Working Brief

It should be noted that this investigation is undertaken in order to identify the extent of contamination as a result of historic and ongoing use. Should any areas of the site be encountered within the development that appear potentially contaminated through visual or olfactory assessment outside that discussed within this report, consultation with ourselves should be undertaken in order to identify the risk associated with the material.

Table 19 *Overview of Works*

Receptor	*Scope of Investigation Works Required*				
	Assessment of :			*Proposed Method of Assessment*	*Proposed Site Works to Complete*
	Soils	*Vapour and Gas*	*Ground and Surface Water*		
Human Health	✓	✓	X	Window Sampling - Install standpipe	Recover samples of the made ground; Assessment of the underlying natural soils to consider contamination; Vapour Risk Assessment Analysis of soil samples for GQRA Assessment. Reporting
Surface Water	X	X	X		
Ground Water	X	X	X		
Services & Building	✓	✓	X	Window Sampling	Recover samples of the made ground; Assessment of the underlying natural soils to consider contamination; Vapour Risk Assessment Analysis of soil samples for GQRA Assessment. Reporting
Geotechnical Assessment	✓	N/A	X	Window Sampling	Recover samples of the natural soils for laboratory testing; Assessment of shallow soils for conventional foundation; Consider deeper or piled foundations; Reporting.

NB * Initial assessments of the site should be undertaken using Leachate Testing and water sampling if required.

APPENDIX ONE

CONCEPTUAL MODEL

HERTS & ESSEX SITE INVESTIGATIONS

The Old Post Office, Wellpond Green, Standon, Ware, Herts SG11 1NJ
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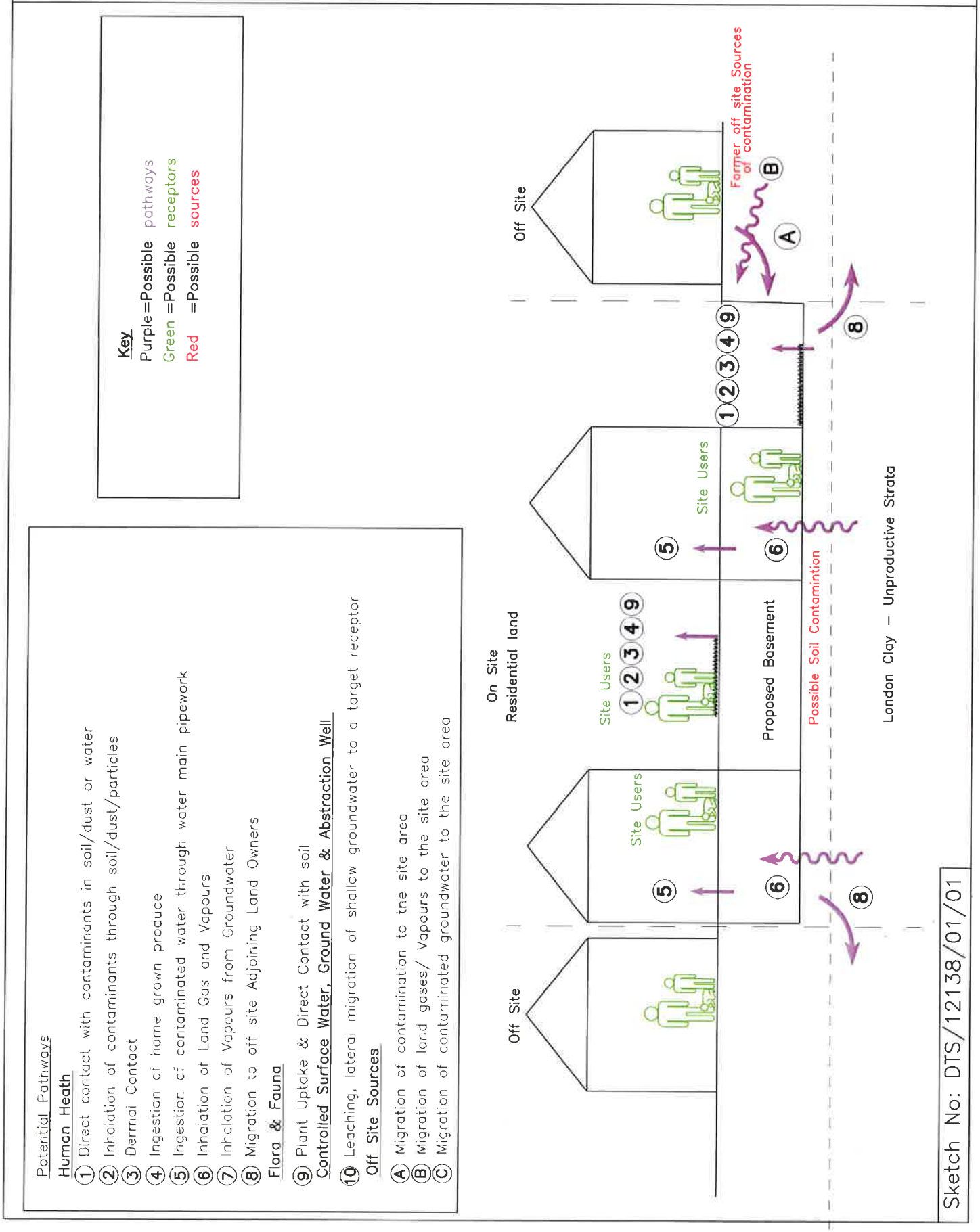
Appendix No. 1
Sheet No. 1
Job No. 12128
Date Sept 2014

277a Grays Inn Road, London WC1X 8QF

Site Specific Source–Pathway–Receptor – Proposed Site Use



Sketch No: DTS/12138/01/01

APPENDIX TWO

SITE PLANS

HERTS & ESSEX SITE INVESTIGATIONS

The Old Post Office, Wellpond Green, Standon, Ware, Herts SG11 1NJ
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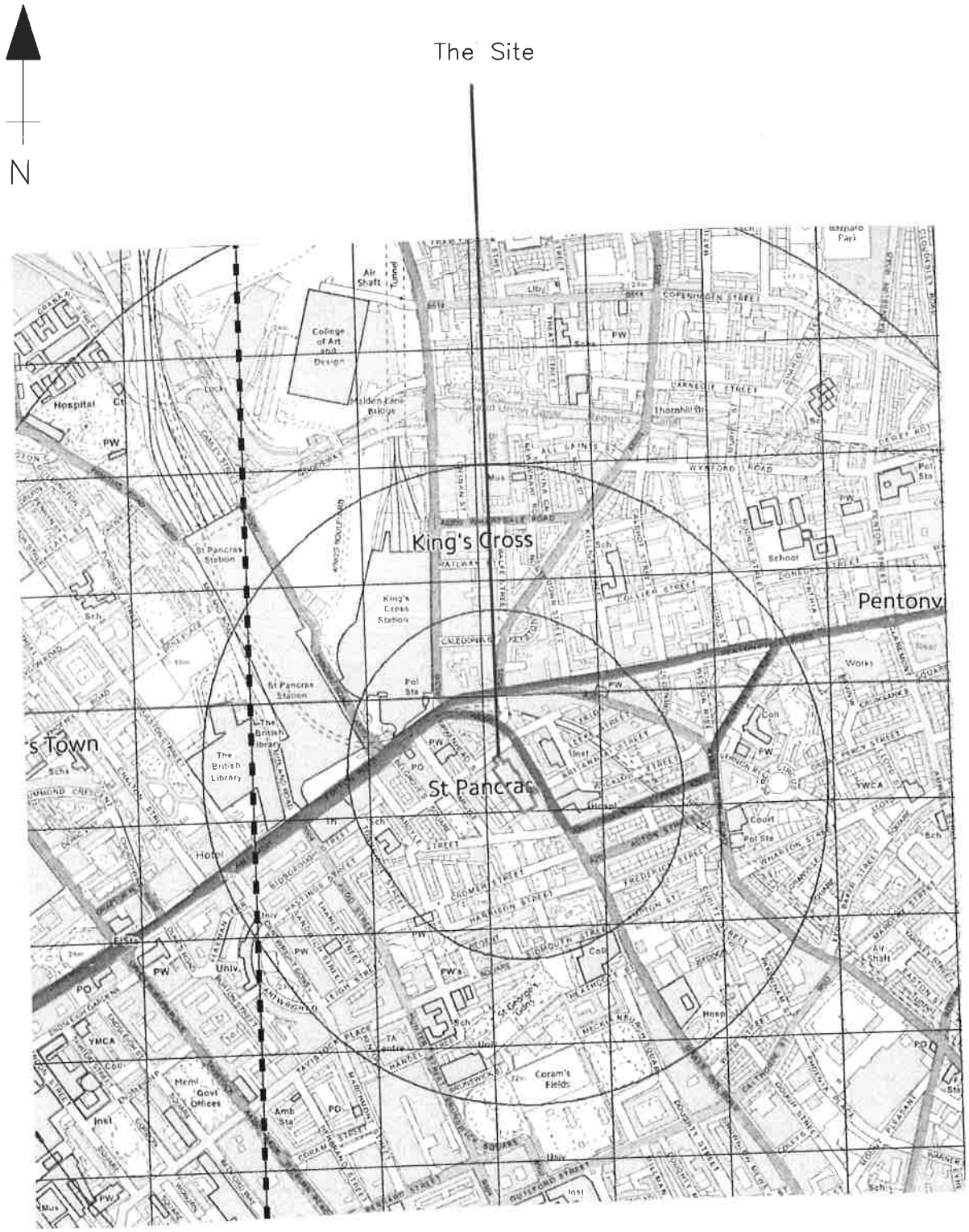
Fax: Ware (01920) 822200

Appendix No.	2
Sheet No.	1
Job No.	12138
Date	Aug 2014

277a Grays Inn Road, London WC1X 8QF

Location Plan



Not To Scale
Sketch No: DTS/12138/02/01

HERTS & ESSEX SITE INVESTIGATIONS

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Appendix No.	2
Sheet No.	2
Job No.	12138
Date	Sept 2014

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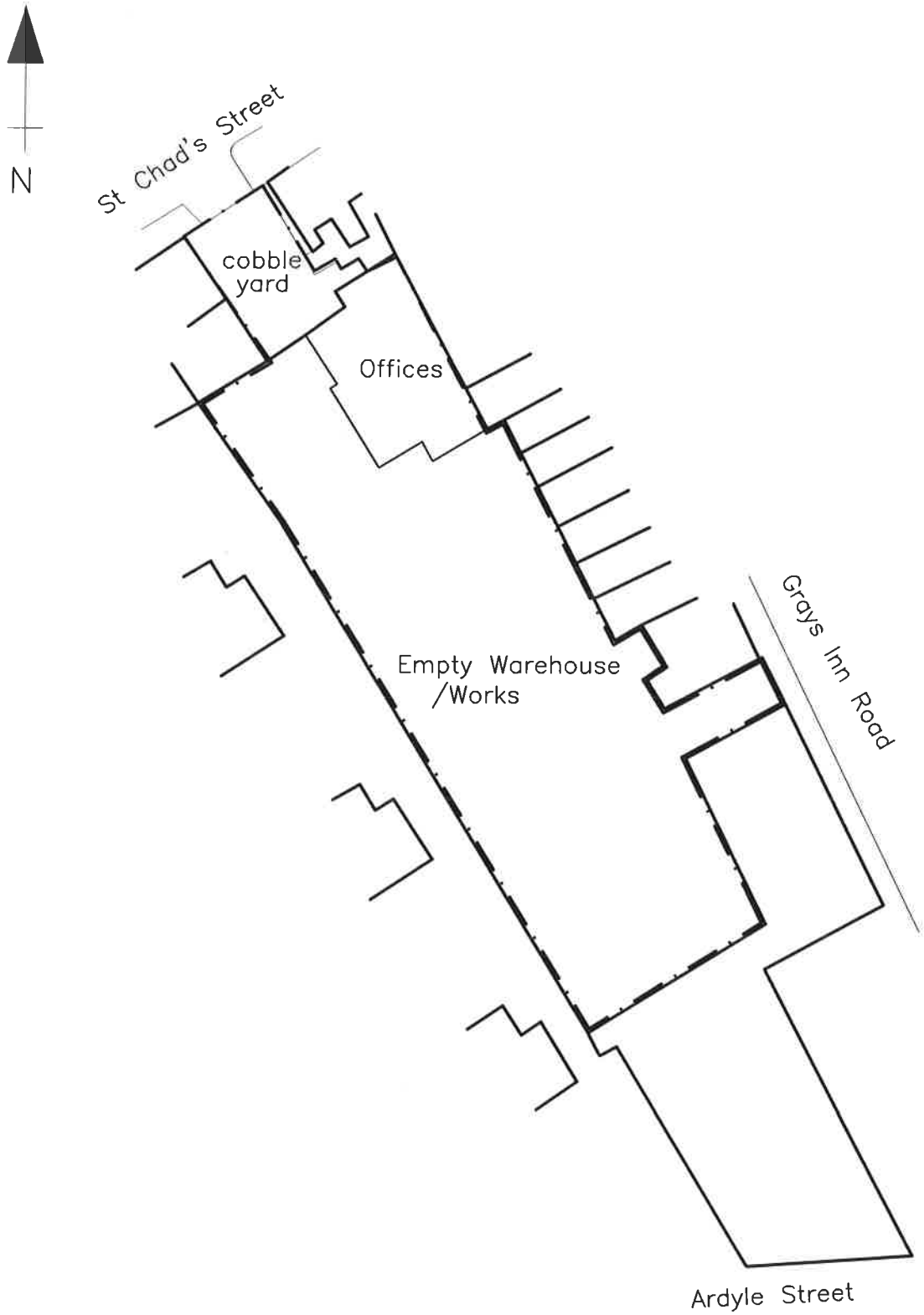
Existing Site Plan



Not To Scale
Sketch No: DTS/12138/02/02

HERTS & ESSEX SITE INVESTIGATIONS

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Appendix No.	2
Sheet No.	3
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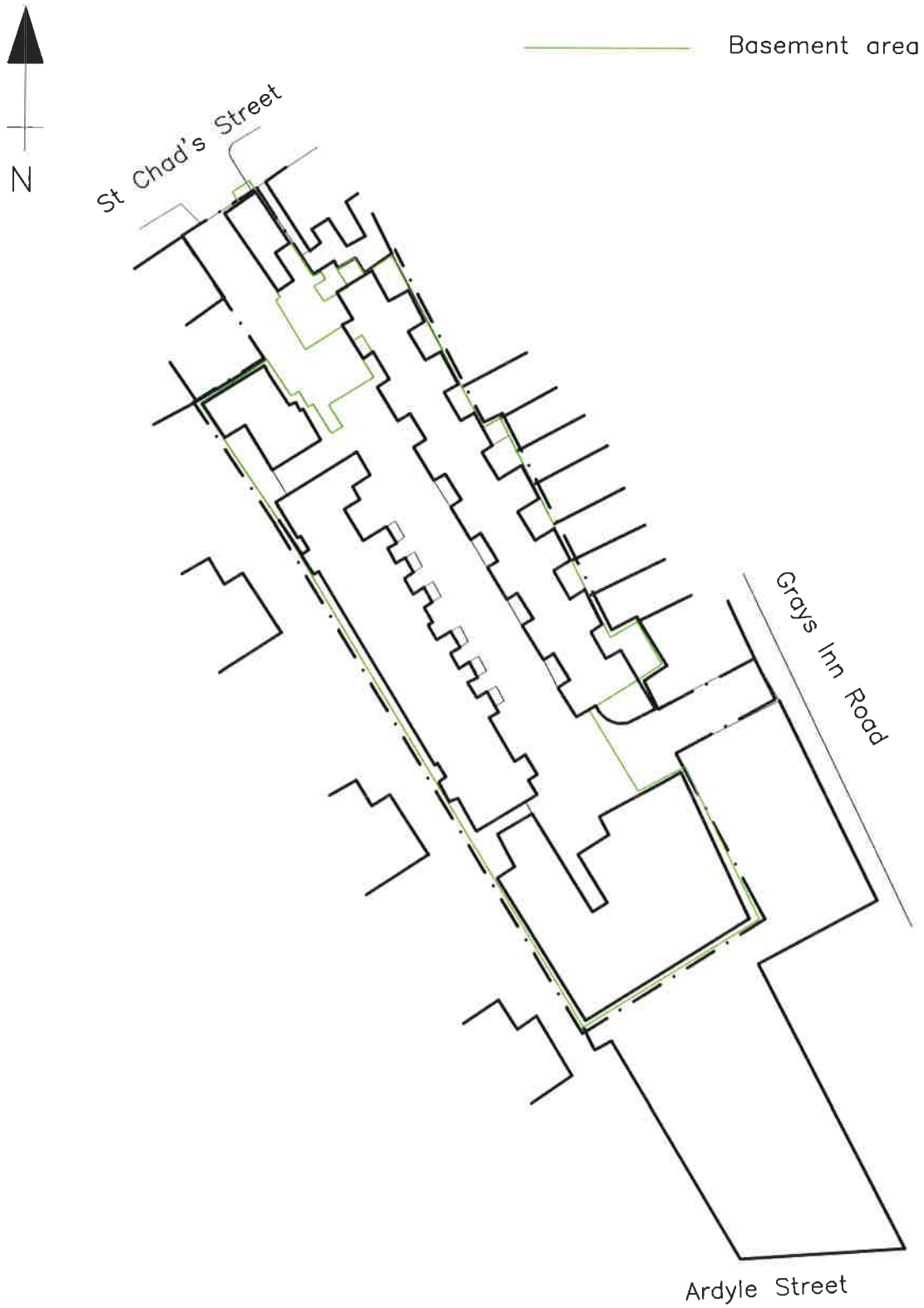
277a Grays Inn Road, London WC1X 8QF

Proposed Site Plan



Not To Scale
Sketch No: DTS/12138/02/03

APPENDIX THREE

PHOTO'S

Print 1 - View of the commercial units along Greys Inn Road, to the east of the site area.

Print 2 – View of the access to the site area looking from St Chads Street

Print 3 – View of the dwellings in place to the north east of the site area

Print 4 - View of the construction site in place to the north west of the site area and dwellings opposite the site - looking west along St Chads Street

Print 5 – View of the yard area within the north of the site area - gully along the entrance to the site area.