



DESK TOP STUDY REPORT

Site Address:	Ermine Road Hackney, London N15 6DE
Report Date:	August 2023
Project No.:	17719
Prepared for:	JDW Architects Limited
Planning Application	Haringey Council - HGY/2017/3586



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LIST OF ABBREVIATIONS

BGS	British Geological Society
CIRIA	Construction Industry Research and Information Association
EA	Environment Agency
EHO	Environmental Health Officer
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.

It should be confirmed that the extent of review of this report has undertaken a broad review of on site features which would promote a contamination ground risk, however, this does not include ecological features and in particular Japanese Knotweed which should be reviewed under separate cover.

A review of the site will be made to confirm the extent of obvious Asbestos product or sheet materials either on the surface of the site soils or evident above ground, however, does not constitute a full Asbestos Survey by any means. This should be sought under separate cover.

DOCUMENT INFORMATION AND CONTROL SHEET

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- ONC - Civil Engineering.
- HNC – Civil Engineering.
- P.G. Certificate – Geotechnical Engineering, (Inc. Environmental Engineering)
- P.G. Diploma – Geotechnical Engineering, (Inc. Environmental Engineering)
- Master of Science, (Geotechnical Engineering), (Inc. Environmental Engineering)
- SNIFFER modelling course.
- CONSIM Groundwater Assessment Course.
- (30 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 in Construction – 3 Day Course – 3 years.
- CSCS Labourer Card.

Document Status and Approval Schedule

Issue No	Status	Date	Prepared by:	Technical review
			Rebecca Chamberlain	by:
			Signature / Date	Chris Gray
				Signature / Date
1	Final	August 2023		

SUMMARY

Client	JDW Architects Ltd		
Site Location	Land At Ermine Road Hackney, London N15 6DE		
Existing Development	Open Land – Imported with raised ground		
Proposed Development	Residential development comprising 6 no. Residential development comprising 6 no. three Residential development comprising 6 no. three-storey dwellings		
Site Settings and Previous Uses	The site is recorded as open land from the earliest map record until 1896 when residential housing was developed in the southern section of the site. This remained until 1991 when a playground was shown on records. This remained in place until the last map record. Surrounding the site, open land is initially in place with railway lines and associated embankments close to the site to the west and north. These are in place from 1871 until present day. Residential land is developed surrounding the site from 1896		
Geological and Hydrological Profile	Geology		Aquifer Classification
	Made Ground	Not Classified	Not Classified
	London Clay	Clay	Unproductive Stratum
Nearest Surface Water Feature	The nearest surface water feature is recorded as a reservoir which located as 809 meters to the south west of the site.		
Groundwater Abstractions	The nearest abstraction well is located 899 meters to the north of the site which is recorded as Schools and Colleges: Drinking; Cooking; Sanitary; Washing; (Small Garden).		
Source Protection Zone	The site is recorded as in a Source Zone II Protection zone. A source zone I is recorded as 289 meters to the west of the site.		
Potential Sources of Contamination	Features On Site - Imported Soils Features Off Site - Railway Land & Embankments - Demolition of Housing		
Previous Investigations	No reports relating to contaminated land are known to us at the time of writing this report relating to the site.		

Human Health Risk	We would suggest that there are potential sources of contamination relating to the historical land use of the site that, may be in place within the upper subsoil which will require assessment. Potential pathways in place within the site area recorded as : - - Dermal Contact. - Inhalation of dust and fibres. - Ingestion of home-grown produce. - Ingestion of dust and fibres - Ingestion of contaminated water through water main pipework. - Inhalation of vapours from soils. - Inhalation Asbestos dust and fibres (from Asbestos within the building); - Inhalation Asbestos dust and fibres (from asbestos within the soil).
Ground Water Risk	Risk to the ground water is reduced due to the London Clay, an Unproductive Strata recorded in place within the site and no abstractions wells are recorded close to the site area. A watching brief should be maintained throughout the development, should any significant pollution or suspect materials be encountered reassessment to the risk should be undertaken.
Surface Water Risk	Considering the nature of the feature surrounding the site area and the London Clay risk to the feature is reduced. A watching brief should be maintained throughout the development, should any significant pollution or suspect materials be encountered reassessment to the risk should be undertaken.
Vapour Risk	Sources of contamination that may promote a vapour risk are recorded in place as such risk maybe in place. Potential pathways in place within the site area recorded as Inhalation of vapours from soils - Visual and chemical tests to be completed initially;
Land Gas Risk	Infilled land is recorded in place in the form of a imported materials on site and also embankments relating to railway land. As such, this will have been infilled with potentially waste product and degradable materials and as such, the potential for contamination and land gas risk is in place. Based on this, we would confirm that a minimum of six monitoring rounds should be completed over falling or low atmospheric pressures or frozen ground conditions. Appropriate reporting should be completed post site monitoring.
Recommendations	- Intrusive shallow based excavation using window sampler to assess the geological conditions and recover samples. - Initially assess soils for presence / absence of fuels and if encountered: - - Install standpipe for the monitoring of both land gas / vapour risks. - Targeted and spatial sampling to assess on site source risk. - 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. Based on the above, a risk assessment should be completed when the findings of the investigation have been completed. This will result in a revised conceptual model based on actual site conditions and confirm the risks in place.

PRELIMINARY RISK ASSESSMENT – DESKTOP STUDY - PHASE 1 REPORT

1 Context and Objectives of this report

1.1 Introduction

We have been asked by JDW Architects Ltd to 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.

The client is proposing to develop residential dwellings with gardens, as such the derivation of risk has been assigned as a 'Residential Land Use with Home-grown Produce'.

1.2 Reference to the Current Planning Application Details

An application is in place with Haringey Council as follows:-

Planning Application : HGY/2017/3586.

Proposal: Residential development comprising 6 no. Residential development comprising 6 no. three Residential development comprising 6 no. three-storey dwellings (4 storey dwellings (4 storey dwellings (4-bed), with associated bed), with associated car parking, cycle and bin storage, landscaping tog car parking, cycle and bin storage, landscaping together with the provision ether with the provision of an ecological n of an ecological enhancement area.

Decision

1.3 Decision Notice Relating to Contaminated Land

Condition 3.

Before development commences other than for investigative work:

a) A desktop study shall be carried out which shall include the identification of previous uses, potential contaminants that might be expected, given those uses, and other relevant information. Using this information, a diagrammatical representation (Conceptual Model) for the site of all potential contaminant sources, pathways and receptors shall be produced. The desktop study and Conceptual Model shall be submitted to the Local Planning Authority. If the desktop study and Conceptual Model indicate no risk of harm, development shall not commence until approved in writing by the Local Planning Authority.

b) If the desktop study and Conceptual Model indicate any risk of harm, a site investigation shall be designed for the site using information obtained from the desktop study and Conceptual Model. This shall be submitted to, and approved in writing by, the Local Planning Authority prior to that investigation being carried out on site. The investigation must be comprehensive enough to enable:-

- a risk assessment to be undertaken,
- refinement of the Conceptual Model, and
- the development of a Method Statement detailing the remediation requirements. The risk assessment and refined Conceptual Model shall be submitted, along with the site investigation report, to the Local Planning Authority for written approval.

1.4 Report Objectives

The objectives of the project were as follows: -

- A review of the geological, hydrological and hydrogeological setting of the site, and public domain environmental information to build up an understanding of the site and its environmental setting/sensitivity.
- Review of historical land uses for the site and surroundings with a particular emphasis on identifying potential ground hazards and on-site and off-site contamination sources.
- A visual walkover inspection of the site to review current and recent site activities, the condition of the site, potential ground related hazards and activities or areas that might have the potential to cause ground contamination as well as possible indicators of contamination; and
- Preparation of a Conceptual Site Model (CSM) with a view to identifying potentially significant source-pathway-receptor linkages followed by a qualitative risk assessment.

1.5 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.

1.6 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.

1.7 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 rural area of Hackney, 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:	Ermine Road Hackney, London N15 6DE
Site assessed under	Site Owners Request - Aid as part of planning and warranties
Current use of land:	Open land
Previous use of site, (if known)	As above
Grid Reference	NGR 533480, 188450
Site Area	0.23 Hectares
Local Authority	Haringey Council – Planning Application Number - HGY/2017/3586
Gradient of the site	The site is recorded as stockpiled with materials and is raised.
Proximity of Controlled Waters, (if known)	The nearest surface water feature is recorded as 809 meters to the south west of the site. This is identified as a reservoir.

2.2 Existing Site Use

The site is formed by a rectangular shaped parcel of land which is bounded by fencing. The main site has been stockpiled with earth which from a visual aspect, has minimal debris or waste within. This is based on a surface review of the material. Some trees bound the site.

2.3 Surrounding Land Uses

The surrounding land uses are detailed below: -

- To the north of the site open land is in place.
- To the east of the site area residential housing is in place.
- To the south of the site area, residential housing is in place.
- To the west of the site area railway land is in place.

2.4 Site Reconnaissance

The site walk over visit was undertaken in July 2023 on which the weather conditions were recorded dry and sunny.

Access

Access into the site is gained via metal gates which lead off the main road and into the site. The site is recorded as open land for the most part, although, has been stockpiled with debris and materials of unknown source. This has raised the ground level of the site by approximately 4-6 meters. As a result of this, no vehicle access is available into the site.

Site Area

The site is recorded as an irregular shaped parcel of land which is set between the main railway line and Ermine Street. The area has been raised up with imported soils. This is recorded across the front of the site and extending towards the rear area. The site records vegetation across the area which includes the perimeter and main site area. It is also recorded that some historic trees have been removed across the site.

Vegetation

Vegetation is recorded in place across the site main through the boundary areas of the site. This all appeared in good condition.

Above or below ground fuel or oil storage tanks

By examination of the site no above ground tanks are in place, no features are present to suggest that any below ground fuel tanks would be in place within the site area.

Asbestos Containing Materials

No Asbestos containing materials were reviewed within the site area. A full assessment for asbestos within any made ground will be required in order to fully consider risk from Asbestos.

Surrounding Area

Surrounding the site, residential land is present to the east and south of the site which is formed by two storey housing and gardens. To the west of the site area, railway land is in place. To the north of the site, open land is in place.

Site Levels and Ground Cover

The elevation of the site is raised up by between 3-6 meters with soils imported into the site area. This is identified as a topsoil based product with minimal visual signs of contamination. This raised ground covers a lot of the site area, although, reduces towards the rear of the site. The site is broadly soft landscaping.

Current site activities

The current site use forms open land, (unoccupied).

Effluent, Site Drainage and Services

No drainage has been reviewed at the site.

2.5 Site Reconnaissance – Photos

Print 1



Print 2



Print 3



Print 4



Print 5



Print 6



Print 7



Print 8



Print 9



Print 10



Print 11



Print 12



Table 2 **Walk Over Inspection Risk**

<i>Feature</i>	<i>Location</i>	<i>Elevation</i>	<i>Is Risk Present?</i>	<i>Location to Target</i>
Imported Soils	Site Wide	At GL.	✓	

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 of the site and surrounding area based on the information obtained from the above sources is provided in Table 3. It should be noted that these maps are only a small section of time and represent the timescales given in each of the map records. It is highly possible that development or features may have been developed within or surrounding the site which may influence the site, and this should be born in mind when assessing the history of the site.

Table 3 *Historic Maps Assessment*

<i>Date</i>	<i>On Site Feature</i>	<i>On Site Mitigation (considering all possible pathways)</i>	<i>Off Site Feature</i>	<i>Off Site Mitigation (considering all possible pathways)</i>
Date: 1864 Source Map Scale 1:2,500	Open Land	No Source	Open Land	No Source
Date: 1871 Source Map Scale 1:2,500			Railway Land & Embankment, 80m, N	Possible Soil Risk Possible Vapour Risk Possible Groundwater Risk
Date: 1873 Source Map Scale 1:10,560				
Date: 1879 Source Map Scale 1:10,560				
Date: 1896 Source Map Scale 1:2,500	Residential Land	No Source	Railway Land & Embankment, 5m, W Residential Land, 5m, S to E	Possible Soil Risk Possible Vapour Risk Possible Groundwater Risk No Source
Date: 1915 Source Map Scale 1:2,500				
Date: 1920 Source Map Scale 1:10,560				
Date: 1936 Source Map Scale 1:2,500				
Date: 1938 Source Map Scale 1:10,560				

Table 4 *Historic Map Assessment - Continued.....*

<i>Date</i>	<i>On Site Feature</i>	<i>On Site Mitigation (considering all possible pathways)</i>	<i>Off Site Feature</i>	<i>Off Site Mitigation (considering all possible pathways)</i>
Date: 1946 Source Map Scale 1:1,250				
Date: 1950 Source Map Scale 1:10,560				
Date: 1955 Source Map Scale 1:2,500				
Date: 1962 Source Map Scale 1:10,560				
Date: 1967 Source Map Scale 1:10,000				
Date: 1970 Source Map Scale 1:1,250				
Date: 1975 Source Map Scale 1:10,000				
Date: 1984 Source Map Scale 1:10,000				
Date: 1985 Source Map Scale 1:25,000				
Date: 1990 Source Map Scale 1:10,000				

Table 5 *Historic Map Assessment - Continued.....*

<i>Date</i>	<i>On Site Feature</i>	<i>On Site Mitigation (considering all possible pathways)</i>	<i>Off Site Feature</i>	<i>Off Site Mitigation (considering all possible pathways)</i>
Date: 1991 Source Map Scale 1:1,250	Demolition of Housing	Possible Soil Risk Possible Vapour Risk Possible Groundwater Risk	Demolition of Housing, 5m, S to E	Possible Soil Risk Possible Vapour Risk Possible Groundwater Risk
			Housing, 5m, S	No Source
Date: 1992 Source Map Scale 1:1,250	Playground	No Source		
Date: 1999 Historic Aerial Photo				
Date: 1999 Source Map Scale 1:10,000				
Date: 2006 Source Map Scale 1:10,000				
Date: 2023 Source Map Scale 1:				

Table 6 **Overview of Historic Map Assessment Risk**

Identified Risk	Distance & Direction	Year	Is risk in place?	Considering All Pathways		Justification
				Assessment Required.	Method of Assessment	
Open Land	On Site	1864 – 1896	X			No Source
Residential Housing	On Site	1896 - 1991	X			No Source
Playground	On Site	1991 - Present	X			No Source
Railway Land & Embankment	Off Site, 80m, N	1871 - Present	✓	Possible Soil Risk Possible GW Risk Possible Vapour Risk	Recover Soil Samples Install Standpipes GW & Vapour Assessments	
Railway Land & Embankment	Off Site, 5m, W	1896 – Present	✓	Possible Soil Risk Possible GW Risk Possible Vapour Risk	Recover Soil Samples Install Standpipes GW & Vapour Assessments	
Residential Land	Off Site, 5m, S	1896 - Present	X			No Source
Demolition of Housing	Off Site, 5m, S	1991 - Present	✓	Possible Soil Risk Possible GW Risk Possible Vapour Risk	Recover Soil Samples Install Standpipes GW & Vapour Assessments	

5 *Details of the Intended Future Use of the Site*

Residential development comprising 6 no. three-storey dwellings (4 storey dwellings (4-bed), with associated car parking, cycle and bin storage, landscaping together with the provision of an ecological enhancement area.

6 *References of Planning Applications*

From a review of the Haringey Council web site the following applications is recorded for the site area.

Application No: HGY/2017/3586

Proposal: Residential development comprising 6 no. three-storey dwellings (4 storey dwellings (4-bed), with associated car parking, cycle and bin storage, landscaping together with the provision of an ecological enhancement area.

Decision: Granted with conditions.

Other applications are in place which relate to conversions and extensions.

7 *Discussion with Local Authority*

No discussion with the Local Authority has been completed.

8 *Consultation with Environment Agency*

Consultation has not been made with the Environment Agency at this time. The information gained from Envirocheck and the EA web site has provided 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.

Should heavy or persistent contamination be identified within any Phase 2 or intrusive investigation, consultation will be required and will be undertaken.

9 *Consultation with Appropriate Bodies/Local Sources*

Limited consultation with the Local Authority has taken place a review of the online planning files has been made. No other local sources of information were available at the time of the walk over. This forms the level of assessments made.

10 *Previous Reporting*

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

11 Environmental Settings

11.1 Superficial Deposits and Solid Geology

The ground conditions based on geological maps and BGS information shows the site to be located within an area defined as London Clay to depth.

11.2 BGS Boreholes

BGS Boreholes surrounding the site record Clay soils in place to depth.

Table 7 **Geological Information**

<i>Geological Unit</i>	<i>Brief Description</i>	<i>Anticipated thickness, (m)</i>	<i>Aquifer Type</i>
Superficial Deposits/Drift On Site			
Filled/Re-worked ground	Made Ground, (Potentially Contaminated Stratum).	0.5-1.00 meters+	Not Classified
Solid Geology Deposits			
London Clay	Clay	15m +	Unproductive Stratum

11.3 Hydrology

The nearest surface water feature is recorded as a reservoir which located as 809 meters to the south west of the site.

The nearest discharge consent is recorded as 140 meters to the north west of the site. Further discharge consents extend away from the site.

The nearest pollution incident to controlled waters is recorded as 818 meters to the east of the site and is recorded as a Minor Incident to controlled waters and unknown sewage.

11.4 Hydrogeology

The published Environment Agency Groundwater Vulnerability Map of the area indicates the site to be located within an area classified as Unproductive Stratum which is formed by London Clay.

Unproductive strata are largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them.

The nearest abstraction well is located 899 meters to the north of the site which is recorded as Schools and Colleges: Drinking; Cooking; Sanitary; Washing; (Small Garden).

The site is recorded as in a Source Zone II Protection zone. A source zone I is recorded as 289 meters to the west of the site.

11.5 Implication of groundwater

Considering the underlying Unproductive Strata, groundwater links are unlikely and therefore risk to the groundwater system, as well as abstraction wells, surface water features and source protection zones surrounding the site area are reduced.

11.6 Flooding

The site does not lie within an area which is susceptible to flooding.

11.7 Landfill Sites

No landfill sites are recorded in place surrounding the site area.

Table 8 *Sensitivity of Environmental Receptors in the Vicinity of the Site*

Receptor Type	Receptor(s)	Sensitivity	Comments
Groundwater	Unproductive Stratum	Low	Limited risk of migration to a lower groundwater system
Water Abstraction	Potable Water Supply	Medium	The nearest abstraction well is located 899 meters to the north of the site which is recorded as Schools And Colleges: Drinking; Cooking; Sanitary; Washing; (Small Garden).
Source Protection Zone	SPZ I	High	The site is recorded as in a Source Zone II Protection zone. A source zone I is recorded as 289 meters to the west of the site.
Surface Water	Pond	Low	The nearest surface water feature is recorded as 254 meters to the southwest of the site which is recorded as a likely pond
Flooding	NONE		

12 Site Drainage and Other Potential Man-Made Pathways

No drainage has been reviewed on site.

13 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 9 **Summery of Regulatory Data - Sources**

<i>Data Sources</i>	<i>On Site</i>	<i>Off Site</i>	<i>Distance from site.</i>	<i>Is potential risk in place?</i>
Discharge Consents	None	Discharge Of Other Matter-Surface Water	140m, NW	X
LAPPC	None	Dry Cleaners	145m, SE	X
Pollution Incident to Controlled Waters	None	Minor Incident – Unknown Sewage	818m, E	X
		Minor Incident - Oil - Unknown	851m, NE	X
Substantiated Pollution Incident Register	None	Significant Water Impact	610m, E	X
Licensed Waste Management Facility	None	Metal Recycling Sites (Vehicle Dismantlers)	148m, NW	X
Registered Waste Transfer Site	None	O Donovan Waste Disposal	828m, NE	X
Radon Potential - Radon Protection Measures	The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level).			X

Table 10 **Summary of Regulatory Data - Receptors**

<i>Data Receptors</i>	<i>On Site</i>	<i>Off Site</i>	<i>Distance from site.</i>	<i>Is potential risk in place?</i>
Nearest Surface Water Feature	None	Reservoir	809m, SW	X
Water Abstractions	None	Drinking; Cooking; Sanitary; Washing	899m, N	X
		Commercial Private Water Undertaking	899m, N	X
OS Water Network Lines	None	Inland River	31m, N	X
Source Protection Zone	SPZ II	SPZ I	289m, W	✓

Table 11 **BGS Estimated Chemistry Data**

<i>BGS Estimated Soil Chemistry Pollutant</i>	<i>BGS Measured Urban Soil</i>	<i>BGS Urban Soil Chemistry Averages (mg / kg)</i>		
		<i>Minimum</i>	<i>Average</i>	<i>Maximum</i>
Arsenic	21.70	1.00	17.00	161.00
Cadmium	1.50	0.10	0.90	165.20
Chromium	85.70	13.00	79.00	2094.00
Lead	841.00	11.00	280.00	10000.00
Nickel	45.50	2.00	28.00	506.00

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

Table 12 Geological Hazards

<i>Geological Hazard</i>	<i>Distance & Direction</i>	<i>Feature</i>	<i>Risk Assessment Required</i>
Non-Coal Mining Areas of Great Britain	On Site		No Hazard
Collapsible Ground	On Site		Very Low
Compressible Ground	On Site		No Hazard
Ground Dissolution Features	On Site		No Hazard
Landslide	On Site		Very Low
Running Sand	On Site		Very Low
Shrinking or Swelling Clay	On Site		Moderate

Table 13 Summary of Contemporary Trade Entries

<i>Trade Name</i>	<i>Trade Use</i>	<i>Distance & Direction from Site</i>	<i>Is potential risk in place?</i>	<i>Comment</i>
Green Flag	Car Engine Tuning & Diagnostic Services	75m, SW	X	
D & J Developers	Cleaning Services - Domestic	85m, E	X	
Further trades extend away from the site, (See Envirocheck Data)				

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

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 14: -

Table 14 **Table of Source Risk**

Risk Assessment	Source Risk	Source of Information	Location	Date	Considering Site Specific Pathways	
					Assessment Required.	Method of Assessment
On Site Features		Walk Over Survey				
A	Imported Soils	Site Inspection	Site Wide	Present Day	Possible Soil Risk Possible GW Risk Possible Land Gas Possible Vapour Risk	Recover Soil Samples Install Standpipes Land Gas Assessment GW & Vapour Assessments
Off site Features						
B	Railway Land & Embankment	Envirocheck Data	Off Site, 80m, N	1871 - Present	Possible GW Risk Possible Land Gas Possible Vapour Risk	Install Standpipes Land Gas Assessment GW & Vapour Assessments
	Railway Land & Embankment		Off Site, 5m, W	1896 – Present		
	Demolition of Housing		Off Site, 5m, S	1991 - Present		

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 15 **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 16 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
Imported Soils On site	TPH's Naphthalene Land Gases	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
Walk Over Inspection			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 land Gases	Medium	Likely	Moderate	Possible risk in place
			Inhalation of vapours through contaminated ground waters	Medium	Unlikely	Low	Groundwater Risk Unlikely
		Adjoining Landowners	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	Groundwater Risk Unlikely
		Controlled Surface Water;	Leaching, lateral migration of shallow groundwater to a target receptor.	Medium	Unlikely	Low	Groundwater Risk Unlikely
		Ground Water. Abstraction Well.	Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.	Medium	Unlikely	Low	Groundwater Risk Unlikely
		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	Groundwater Risk Unlikely
		Ground Water. Abstraction Well.	Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.	Medium	Likely	Moderate	Possible risk in place
		TPH's Naphthalene	Buildings. Construction Materials. Services	Medium	Unlikely	Low	Groundwater Risk Unlikely
			Direct contact with contaminated groundwater	Medium	Likely	Moderate	Possible risk in place

Table 17 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
Railway Land & Embankments Off Site, Off Site, 80m, N & Off Site, 5m, W. Demolition of Housing, Off Site, 5m, S. Historic Maps and Walk Over Survey	TPH's Naphthalene Land Gases. PCB'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
			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 land Gases	Medium	Likely	Moderate	Possible risk in place
			Inhalation of vapours through contaminated ground waters	Medium	Unlikely	Low	Groundwater Risk Unlikely
		Adjoining Landowners	Direct contact. Inhalation dust and fibers. Dermal contact	NO LIABILITY FROM THIRD PARTIES			
			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.	NO LIABILITY FROM THIRD PARTIES			
		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 FROM THIRD PARTIES			
		Ground Water. Abstraction Well.	Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.				
		TPH's Naphthalene Buildings. Construction Materials. Services	Direct contact with contaminated soils;	Medium	Unlikely	Low	Groundwater Risk Unlikely
			Direct contact with contaminated groundwater	Medium	Likely	Moderate	Possible risk in place

Table 18 **Overview of Risk Assessments - Proposed Site Use**

Receptors	Pathways	A	B
		Imported Soils	Railway Land & Embankments and Demolition of Housing.
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 vapor from contaminated ground waters	X	X
	Inhalation of land gas vapours	✓	✓
	Inhalation Asbestos dust and fibers (from Asbestos within the building)	✓	✓
	Inhalation Asbestos dust and fibers (from asbestos within the soil)	✓	✓
Adjoining Owners	Direct Contact, Inhalation of Dust and Fibres, Dermal Contact	✓	No Liability from third parties
	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	
Flora	Plant Uptake / Direct Contact	✓	✓
Groundwater; Abstraction Well & Surface Water	Leaching, lateral migration of shallow groundwater to a River or surface water receptor.	X	No Liability from third parties
	Leaching, lateral migration of shallow groundwater system underlying the site and subsequent abstraction well or SPZ	X	
Buildings	Direct contact with contaminated soils.	✓	✓
	Direct contact with contaminated groundwater	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 19 **Pollutant Risk**

<i>Risk Assessment</i>	<i>Land Use</i>	<i>Pollutant</i>
Soil, Groundwater & Vapour Risk		
Risk Assessment A	Imported Soils	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 8-Band), Naphthalene, CO ₂ , CH ₄ .
Soil Sampling Groundwater & Vapour Assessment		
Soil, Groundwater & Vapour Risk		
Risk Assessment B	Railway Land & Embankment. Demolition of Housing.	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 8-Band), Naphthalene, CO ₂ , CH ₄ , PCB's.
Soil Sampling Groundwater & 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. BS3882:2015
		Asbestos
		25-meter Centers In accordance with BS10175: 2011+A2:2017.
		5-10-meter Centers In accordance with BS10175: 2011+A2:2017.

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.

The assessment of the site proposed in this report and the following recommendations which are detailed below have been prepared in accordance with key guidance documents as follows: -

- National Planning Policy Framework.
- British Standards 10175:2011+A2:2017
- Land contamination risk management (LCRM)
- Contaminated Land Report, (CLR11) 11, 'Model Procedures for the Management of Contaminated Land', (2004).
- DEFRA: Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, (April 2012)
- Environment Agency, (2010) GPLC1 Guidance Principles for Land Contamination.

The investigation is proposing to undertake the following at the site: -

- Determine the ground and groundwater conditions.
- Determine if there are any obstructions such as old service and foundations, buried tanks, etc.
- Install gas, vapour and groundwater monitoring well installations and monitor the levels of groundwater, gas and vapours.
- Obtain samples of the made ground, natural soils and groundwater for contamination testing at targeted site-specific designed locations. Test soil and groundwater samples for a range of contaminants, as identified in Table 19.
- Obtain samples of soil to test for vapours contaminants, as identified in Table 19.
- Visually appraise soils to consider olfactorily or visual presence of contamination factors, risk, vapours or fragments.
- All laboratory testing should be completed to MCERT/UKAS accredited standard.
- All detection limits provided by chemical laboratories must fall below the set screening values.

17.1 Soil Assessment

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.

Based on the site area and size of the site, (approximately 2300 m²), we would recommend that the site should be subjected to a sampling density of between 15-20 meter grid pattern or moderate risk pollutants which is broadly in line with that proposed by 10175:2011+A2:2017 and offers a greater density sampling pattern of 10-15 meter grid pattern for high risk pollutant such as Asbestos. As such, we can confirm that a likely 10-15 samples will be required across the site to provide a 'good' spatial density and an additional 12-16 sample locations being tested for Asbestos.

Table 20 **Soils Assessment - Targeted Sampling**

<i>Feature</i>	<i>Contaminant</i>	<i>Method of Investigation</i>
Imported Soils	Metals, Semi Metals, PAHs, TPHs, Asbestos	Window Sampler Boreholes Hand Auger Boreholes Trial Pits
Railway Land	Metals, Semi Metals, PAHs, TPHs, Asbestos, PCBs	
Embankments	Metals, Semi Metals, PAHs, TPHs, Asbestos, PCBs	
Demolition of Housing	Metals, Semi Metals, PAHs, TPHs, Asbestos	

Table 21 **Soils Assessment – Spatial Sampling**

<i>Feature</i>	<i>Contaminant</i>	<i>Method of Investigation</i>
Imported Soils	Metals, Semi Metals, PAHs, TPHs, Asbestos	Window Sampler Boreholes Hand Auger Boreholes Trial Pits

Upon completion of on-site sampling and the associated chemical analysis, the soil data will be compared against the Generic Assessment Criteria derived by AtRisk Soils which has been purchased as a reviewing standard. This has been prepared by Atkins as Soil Screening Values, (SSV's). Additionally, values will be adopted for screening values using LQM / CIEH – Suitable 4 Use Levels in the absence of Atkins adopted values.

17.2 Groundwater Assessment

Considering the low risk to the ground water and surface water feature order to gain an understanding of the groundwater system and the level of risk in place, we can confirm that the following works should be completed:

-

- Assess the geology and absence or presents of groundwater.
- Groundwater assessments are considered limited at present. If groundwater is encountered within the site an additional assessment should be made and standpipes should be installed. At present, this is not considered unlikely.

17.3 Land Gas Assessment

Considering the potential for Land Gas risks due to the potential made ground and infilled ground potentially in place within the site area Land Gas risk assessments must be completed. These will include the potential for contamination migration from on and off-site sources which may be present in concentrations where risk is recorded.

Land gas monitoring should be specifically targeting the following land uses.

Table 22 **Land Gas Assessment - Response Zone**

<i>Feature</i>	<i>Targeted Response Zone</i>	<i>Location to Target</i>	<i>Gas risk</i>
Imported Soils			
Embankments & Railways	Made Ground	Site Wide	Land Gases - CO ₂ , CH ₄ .
Demolition of Housing			

Infilled land is recorded in place off site, although, we would suggest that an assessment of risk could be completed using RB17 A Pragmatic Approach to Ground Gas Risk Assessment (2012). The surrounding land is primarily residential and as such, a pragmatic approach is deemed most suitable for the site and if risk confirmed, additional more intrusive assessments completed.

Considering the above, we would suggest that soil testing is undertaken to assess the infilled ground its depth and type, and a standpipe should be installed within the site with response zones placed within the upper made ground solely, and the following assessments completed as follows :-

- Install standpipes to allow vapour and Land Gas risk to be considered from the upper made ground.
- 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, although, the site is laid to hard cover which will restrict natural ventilation of any gases.
- Reporting of land gas and 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 Vapour Risk Assessment

Considering the potential for vapour risk to be in place from various source as noted below, the following risk are in place.

Table 23 **Vapour Risk Assessment - Response Zone**

<i>Feature</i>	<i>Targeted Response Zone</i>	<i>Location to Target</i>	<i>Vapour risk</i>
Imported Soils			
Embankments & Railways	Made Ground	Site wide	TPH's, Naphthalene, PCB's
Demolition of Housing			

Considering the above, we would suggest that soil testing is undertaken to assess whether contamination that may promote a vapour risk is in place within the site area and the groundwater.

17.5 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 24 *Overview of Works*

Receptor	Scope of Investigation Works Required			Proposed Method of Assessment	Proposed Site Works to Complete
	Assessment of: Soils	Vapour and Gas	Ground Surface Water and		
Human Health	✓	✓	✓	Window Sampling - Soil sampling - Install standpipe - Groundwater sampling*	Recover samples of the made ground. Assessment of the underlying natural soils to consider contamination. Leachate testing on elevated samples. Vapour Risk Assessment. Analysis of soil samples for GQRA Assessment. Reporting
Surface Water	X	X	X	No Action	
Ground Water	X	X	X		
Services & Building	✓	✓ #	X	Window Sampling - Soil sampling	Recover samples of the made ground. Vapour Risk Assessment. Groundwater 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.

Complete soils testing to assess if vaporous contamination is in place within the site area.

APPENDIX ONE

CONCEPTUAL MODEL



Ermine Road Hackney, London, N15 6DE

Site Conceptual Model - Proposed Site Plan

Potential Pathways

Human Health

- ① Direct contact with contaminants in soil/dust or water
- ② Inhalation of contaminants through soil/dust/particles
- ③ Dermal Contact
- ④ Ingestion of home grown produce
- ⑤ Ingestion of contaminated water through water main pipework
- ⑥ Inhalation of Vapours From Soils
- ⑦ Inhalation of Vapours from Groundwater
- ⑧ Migration to off site Adjoining Land Owners

Flora

- ⑨ Plant Uptake & Direct Contact with soil

Controlled Surface Water, Ground Water & Abstraction Well

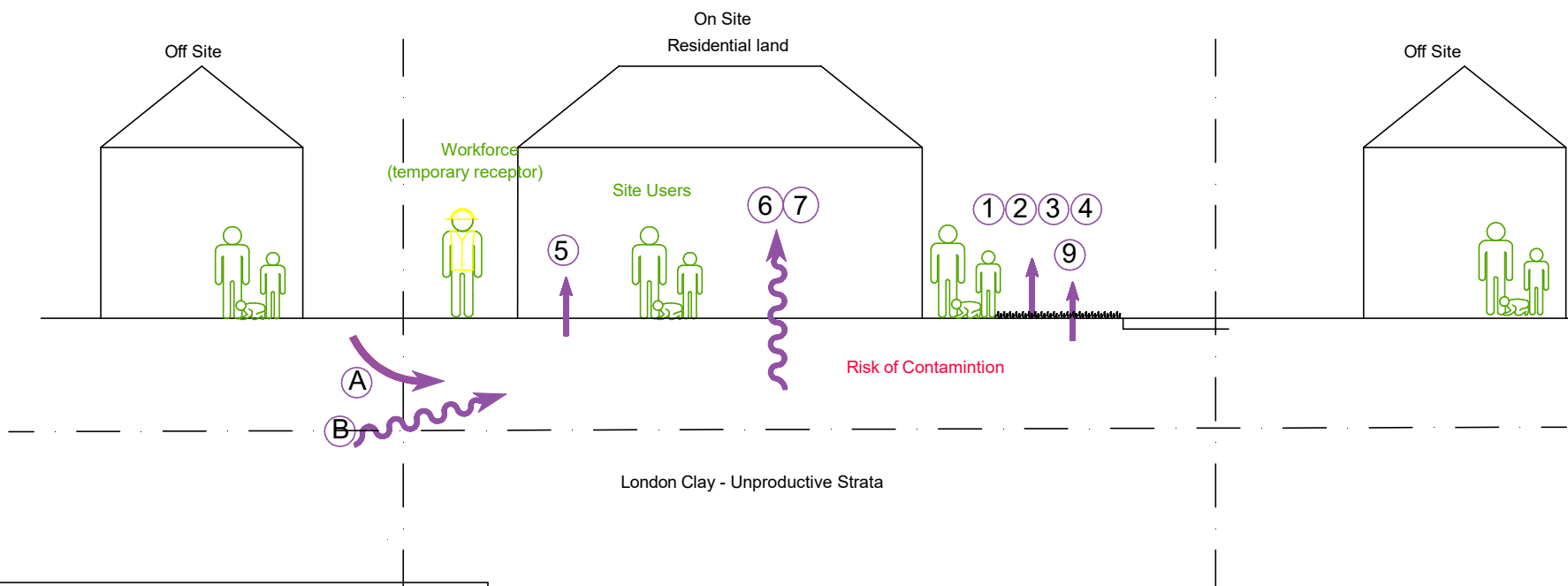
- ⑩ Leaching, lateral migration of shallow groundwater to a target receptor

Off Site Sources

- A Migration of contamination to the site area
- B Migration of land gases/ Vapours to the site area
- C Migration of contaminated groundwater to the site area

Key

Purple	=Possible	pathways
Green	=Possible	receptors
Red	=Possible	sources



Not to Scale

Sketch No. : DTS / 17719 / 01 / 01

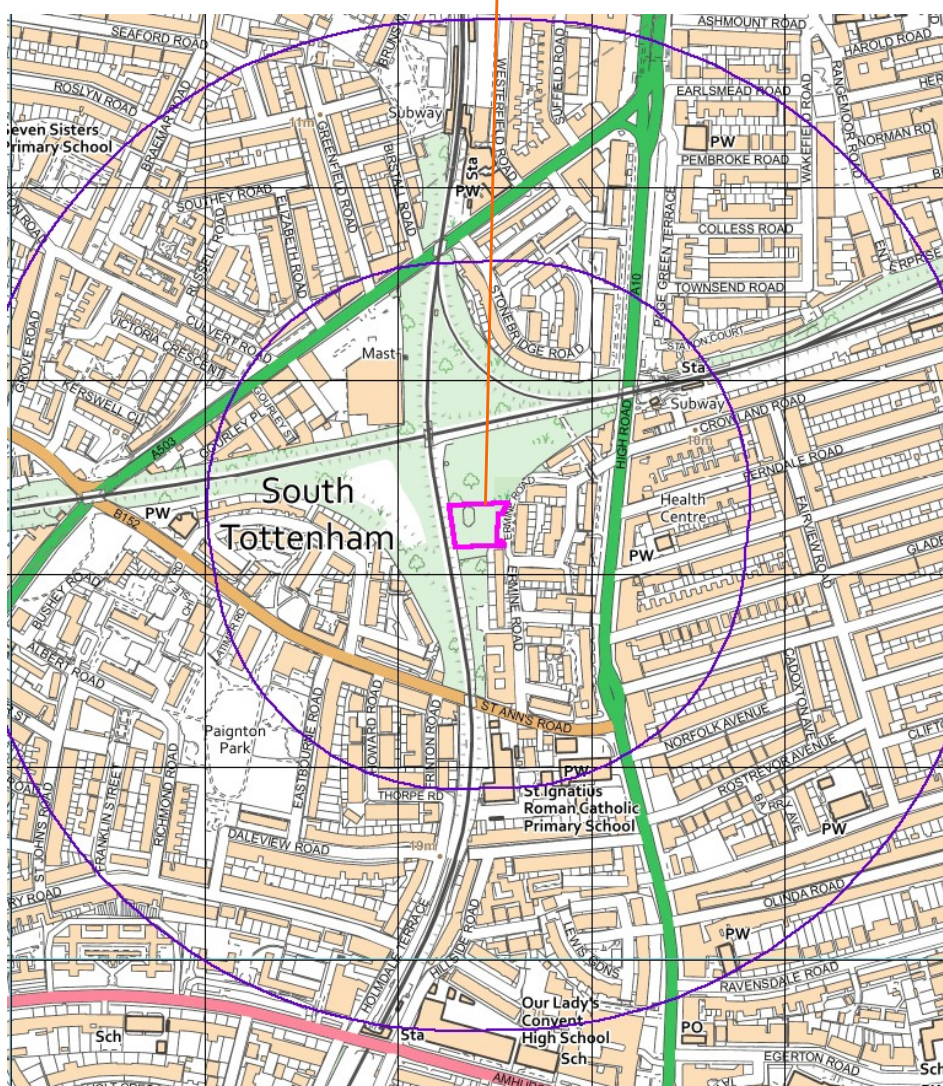
APPENDIX TWO

SITE PLANS

Location Plan



The Site



Sketch No. : DTS / 17719 / 02 / 01

Ermine Road Hackney, London, N15 6DE

Existing Site Plan



Ermine Road Hackney, London, N15 6DE

Proposed Site Plan

