

Phase I Desk Study

YMCA London City and North, 184 Tottenham Lane, Crouch End, London N8 8SG

On Behalf of Altair Limited

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EXECUTIVE SUMMARY	
PROPOSED DEVELOPMENT	At the time of reporting, March 2026, the proposed development was understood to comprise the redevelopment of the existing building to deliver approximately 170 bedspaces (from 155 bedspaces) and associated infrastructure. These changes will include alterations to the footprint of the building (part of the northern section the dwelling will be removed and part of the western portion will be extended with new foundations) and adding another storey to the existing 5 storey building. No new soft landscaping areas are proposed
GEOLOGY AND HYDROGEOLOGY	The site was underlain by bedrock deposits of the London Clay Formation (unproductive strata). No areas of Made Ground or Reworked Ground were noted within a 250m radius. The site did not fall within a Groundwater Source Protection Zone. Groundwater was anticipated to be encountered at depth below the London Clay Formation. Some amounts of groundwater however may be present at shallower depths within Made ground, or silty/sandy pockets of the London Clay Formation. It was considered that groundwater was flowing in a north-easterly direction toward the in line with local topography
POTENTIAL SOURCES OF CONTAMINATION	Full details can be seen in sections 6.3 and 6.4 of this report. Onsite - The Desk study has revealed the following potential sources of contamination onsite: • Potential for Made Ground (associated with historical construction/demolition onsite) Offsite - The Desk study has revealed the following potential sources of contamination within the site's environs: • Potential for Made Ground • Garages and filling station • Engineering Works • Printing Works • Electrical substations • Blacksmith • Surgery • Tannery • Glass Factory • Laundry/dry cleaners
RECOMMENDATIONS / PHASE II OBJECTIVES	It is recommended that an intrusive ground investigation is undertaken at the site to evaluate the risk that contaminants of concern within the soils and groundwater may affect end-users. This should determine the underlying ground and groundwater conditions and include an assessment of the level of contamination to enable the quantification of the ground-related risks associated with the proposed redevelopment. A site investigation should also be undertaken to determine soil parameters to inform foundation design from the proposed structures.

1. INTRODUCTION

1.1. General

Ground and Water Limited were instructed by Altair Limited (the Client) on the 17th March 2026 to conduct a Phase I Desk Study on the site at 184 Tottenham Lane, London, N8 8SG (the Site). The scope of the investigation was detailed within the fee proposal GW-2386, dated the 03rd March 2026.

1.2. Aims of the Investigation

This Phase 1 Desk Study was undertaken to advise the client on risk factors pertaining to the site with special reference to former and present day potential contaminative uses and their impact on sensitive receptors, these being human health, controlled waters, buildings, building materials and services.

This Phase I Desk Study comprises a Tier 1 Preliminary Risk Assessment, under Land Contamination Risk Management (LCRM).

1.3. Conditions and Limitations

This report has been prepared based on the terms, conditions and limitations outlined within Appendix A.

1.4. Technical Glossary

Generic technical terms and their description can be viewed within the glossary provided within Appendix B.

2. SITE SETTING

2.1. Site Location

The site comprised a ~2,000m² irregular-shaped plot of land. The site was located along the north-western side of Tottenham Lane, along the north-eastern side of Rosebery Gardens and along the south-western side of Elmfield Avenue. The site was located in the eastern portion of Crouch End, north London. The national grid reference for the centre of the site was approximately TQ 30297 88692. A site location plan is given within Figure 1.

2.2. Site Description

A Site Walkover was undertaken on the 31st March 2026. A description of the site, as noted during the Site Walkover, is tabulated below. Photographs can be seen in Appendix C.

Site Description Sheet	
Use of site	At the time of the site walkover, 31 st March 2026, the site was occupied by the building known as the YMCA Hostel London City and North. The building contains single occupancy bedrooms with communal areas and a fitness centre A -courtyard is present in the central north of the site used as carparking and bin storage facilities. The property is accessed via Rosebery Gardens.
Site topography	The site was generally flat and level with no noticeable slope onsite.
Area topography	The site was located in a gentle dip with topography gently sloping towards the site from the northeast and southwest.
Structures on-site	There is an existing split level building. The four to five storey building in the southern section, parallel to Tottenham Lane, comprises 155 single occupancy bedrooms with communal areas (including meeting rooms, storage areas and a canteen with adjacent kitchen). The northern section comprises three storey fitness centre known as Crouch End Fitness Centre.
Structures off-site	To the north of the site residential houses are present, to the south multi-storey buildings are present used as high street shops. A petrol station and nursery school are present to the northeast.
Use of surrounding ground	The site is adjacent to private housing, as well as public highway and high street shops. A Petrol station and a Nursery school is present to the northeast.
Boundary features	Northern Boundary: A 2.0m high wooden fence and the northern wall of the fitness centre. Eastern Boundary: An open boundary to Elmfield Avenue Southern Boundary: An open boundary to Tottenham Lane. Western Boundary: A 2.0m high brick fence and metal gate on to Rosebery Gardens.
Site covering	The majority of the site was covered with the YMCA building. The central northern portion of the site was covered with Tarmac and concrete hardstanding with a small soft landscaped area along the northern boundary fence.
Contamination sources on-site	None noted.
Contamination sources off-site	Contamination associated with a petrol station northeast of the site
Vegetation on-site	Three 7 - 10m mature trees along the Rosebery Garden boundary. Three to five small shrubs within the small soft landscaped area along the northern boundary.
Vegetation off-site	Various residential gardens containing small shrubs and semi mature trees are present to the north. Semi-mature and mature ~2 – 12m high trees were noted within footpath landscaping along Elmfield Avenue and Rosebery Gardens.
Services	Drainage in the central north of the site. Manhole covers and service connections along the western border of the site.

2.3. Proposed Development

At the time of reporting, March 2026, the proposed development was understood to comprise the redevelopment of the existing building to deliver approximately 170 bedspaces (from 155 bedspaces) and associated infrastructure. These changes will include alterations to the footprint of the building (part of the northern section the dwelling will be removed and part of the western portion will be extended with new foundations) and adding another storey to the existing 5 storey building. No new soft landscaping areas are proposed. The proposed development plan can be seen within Figure 2.

2.4. Geology

The British Geological Survey Solid Map revealed that the site was underlain by bedrock deposits of the London Clay Formation. No areas of Made Ground/Reworked Ground or superficial deposits were noted within a 250m radius due to their likely absence.

2.5. Hydrogeology and Hydrology

A study of the aquifer maps on the DEFRA website revealed the site was underlain by **Unproductive Strata** comprising bedrock deposits of the London Clay Formation.

Examination of the Environment Agency records showed that the site **did not** fall within a Groundwater Source Protection Zone (SPZ) as classified in the Policy and Practice for the Protection of Groundwater.

No surface water features were present within a 250m radius of the site. The nearest surface water feature was the a pond in Stationers park located ~600m south east of the site running in a north to south direction.

From analysis of hydrogeological and topographical maps, groundwater was anticipated at depth, below the cohesive, relatively impermeable soils of the London Clay Formation; however, some amounts of perched water may be present within particularly sandy/silty lenses of the London Clay Formation and/or within the shallow surface soils (i.e. Topsoil, Made Ground etc.), especially after periods of prolonged or intense rainfall. It was considered that groundwater was flowing in a north-easterly in line with the local topography.

Examination of the Environment Agency records showed that the site was located within a Flood Zone 1, i.e. an area with a very low probability of flooding.

The Groundsure Datasheets revealed the site was at a negligible risk of flooding from rivers and the sea, groundwater and surface water flooding.

2.6. BGS Borehole Records

A BGS borehole (TQ38NW303) located ~270m east of the site revealed a 0.20m capping of Topsoil over Made Ground consisting of sandy gravelly clay and brick to 3.1m bgl followed by a firm to stiff brown fissured slightly silty clay to 8.0m bgl. A stiff fissured grey silty clay with thin lamina structure and small pyrite nodules was then noted for the remainder of the borehole, a depth of 15.00m bgl. No groundwater was noted.

2.7. Radon

A review of the freely available UK Health Security Agency radon database, UK Radon, indicated that the site was located within a 1km grid square, where the maximum radon potential of less than 1%

was recorded for above ground structures. The neighbouring 1km grid square was noted to have a maximum radon potential of less than 1% Basic radon protection measures are required in areas where more than 3% of houses are at or above the Action Level.

2.8. Available Unexploded Ordnance (UXO) Map Review

A detailed Unexploded Ordnance Risk Assessment carried out by 1st Line Defence on the 13th August 2025 referenced DA22141-00, found there to be a medium risk to the site from German and anti-aircraft UXOs. According to the official home office bombing statistics the borough of Hornsey sustained an overall high density of bombing with 355 items of ordnance within the 2,872 acre borough, an average of 123.6 items per 1,000 acres. The report recommended site supervision during any stages of investigation or construction. The full report can be seen in Appendix F

2.9. Historical Landfill Tool Review

A review of the data available on www.groundsure.io/ revealed that an no areas of Historical Landfilling were located within 500m of the site.

3. HISTORICAL REVIEW

3.1. Historical Map Review

The object of this search was to report on the history of the site and its environs from available County Series and Ordnance Survey Maps dating from the mid to late 19th Century to the present day and downloaded from Groundsure. In the following sections dealing with individual maps, only features considered to have a potential contaminative impact on the site and usually within a notional 250 metre radius of the site boundaries are discussed. Any distances quoted for features remote from the site have been scaled from the maps and are only approximate. The north point and approximate extent of the site are indicated on each figure. The historical maps referred to are given within Appendix D. The implications of the map search are discussed later within this report.

Environmental Significance of Data from Historical Maps		
Date	Site	Environs
1864 - 1896	The site comprised a part of an undeveloped open plot of land, likely agricultural land/fields. A footpath was present intersecting the middle of the site running in a northwest to southeast direction.	The site environs generally comprised undeveloped agricultural land/fields. Tottenham Lane was present in its modern day setting immediately along the southeast boundary of the site. South of the site residential developments with private gardens are present. Approximately 200m west and east higher density residential developments were present. National School is present 120m northeast. There are three bodies of water/ponds present approximately 220m southeast, 100m southwest and 210m northwest.
1896 - 1914	No significant change recorded.	A well was present 90m northeast and east of the site. Higher density residential housing is present 100m southeast and west of the site. The pond to the southeast has been infilled
1914 - 1935	The western portion of the site was developed to include seven terraced residential houses with private gardens.	The immediate site environs to the northwest and west have undergone residential terraced housing developments. Rosebery Graden is present in its modern day setting southwest of the site. Residential terraced housing is present within the further environs west, south and east of the site. There is a smithy ~90m northeast, a S.A Citadel, and cinema is present south of the site. The ponds to the northwest and south west have been infilled.
1935 - 1954	The remainder of the site has been developed with the YMCA building being constructed in the eastern portion of the site. The residential housing in the west of the site is still present.	Further terraced residential housing has been constructed immediately north of the sites boundary. Elmfield Avenue is constructed in its modern day setting. Northeast of the site a school has been constructed. South of the site over Tottenham, Lane, a cinema is present south and ~175m southwest. All nearby roads are in their modern day setting with residential housing covering the majority of the sites environs in a 250m radius.
1954 - 1972	The residential terraced houses onsite have been demolished with the western portion of the site now vacant.	A garage is present on the corner of Tottenham Lane and Elmfield Ave. The last of the clear land 150m north of the site has been turned into residential housing. Further buildings have been constructed 100m northwest of the site at the Rokesly Junior School. The cinema south of the site has been turned into a Engineering works and the cinema to SW is disused, a leather works and glass works is present 180m to southwest. A garage was constructed northeast of the site
1972 - 1979	The YMCA building has been extended into the western portion of the site to its modern day setting.	One of the large high street buildings south of the site, present from 1935 has been labelled as a garage. An electricity substation is present ~120m north.

Environmental Significance of Data from Historical Maps		
Date	Site	Environs
1979 - 1991	The northwestern portion of the building was converted into a youth and community centre, the rest of the building was labeled the YMCA Hostel	A surgery is present 180m to the north and an electrical substation is present 170m southwest
1991 - 1995	No significant changes	The garage east of the site was turned into a petrol station.
1995 - 2003	No significant changes	Further residential development 150m north of the site following the demolition of Rokesly School Kitchens
2003 - 2025	No Significant changes	No Significant changes

3.2. Historical Aerial Photography Review

The object of this search was to report on the history of the site and its immediate environs from available Aerial Photography dating from the late-20th Century to the present day and downloaded from Google Earth and Groundsure. Any distances quoted for features remote from the site have been scaled from the photography and are only approximate.

At the time of the earliest aerial photography, 1999, the site appears to be occupied by the YMCA building across the majority of the site, with the central northern courtyard/parking area. The immediate environs include residential housing to the west and north, Rokesly School to the northeast, a garage to the east, and industrial building to the south including a garage, print shop and engineering works.

Since then to the most recent aerial photography, 2022, no significant changes were noted to the site of environs.

4. ENVIRONMENTAL AND GEOLOGICAL INSIGHT

4.1. Groundsure Datasheets

Groundsure Environmental and Geological Datasheets were obtained for the site. Unless the data indicates a significant risk, only information within a 250m buffer zone has been included. The GroundSure Datasheets are also presented in Appendix E and a summary is given below and overleaf(s).

Environmental Insight	
Source	Nearest Distance from Site/Dated/Type
Past Land Use	
Historical industrial land uses	1x off-site records within a 250m radius: 1x record of a smithy 40m east (1920)
Historical Energy Features Database	6x off-site records within a 250m radius: 6x records of electricity substations 77m, 183m southeast, 125m north, 162m, 163m southwest (1972 – 1995).
Historical Petrol Stations Database	1x off-site record within a 250m radius. 1x record of filling station 14m northeast (1991)
Historical Garages Database	9x off-site records within a 250m radius: 9x record of a garage 14m, 15m, 230m, 231m, northeast, 19m, 20m southeast (1954 - 1995)
Current Industrial Land Use	
Recent Industrial Land Uses	15x off-site records within a 250m radius: 1x Construction services 29m southeast 1x Asda Petrol Station 55m northeast 4 x Electrical substations 81m southeast, 130m north, 158m southwest, 186m southeast 1x record Foodstuffs 140m southwest 2x records Hire Services 147m east, 170m southwest, 1x Industrial Products 150m southwest 3 x Customer Products 192m southwest, 228m southwest, 247m southwest 1x engineering services 22m west 1x Repair and servicing 243m southwest
Current or recent petrol stations	1x offsite records within a 250m radius. 1x Texaco 25m northeast
Licensed pollutant release (Part A(2)/B)	4x offsite records within a 250m radius. 2x records of service station 38m, 40m northeast, 2x records of Dry cleaners 151m southwest, 162m east
Hydrogeology	
Bedrock Aquifer	1 record onsite: 1x Unproductive Aquifer.
Groundwater Vulnerability	1 record onsite: 1x Unproductive Aquifer.– N/A vulnerability, leaching class: low.

Geological Insight	
Source	Nearest Distance from Site/ Type
Bedrock Geology (1:10,000 Scale)	1 on-site records: 1x London Clay Formation
Bedrock Geology and Permeability (1:50,000 scale)	1 record onsite: 1x London Clay Formation. Flow Type – Mixed, Maximum Permeability – Moderate, Minimum Permeability – Very Low
Mining, Ground Working and Natural Cavities	
Records of Surface Ground Workings	5x records within a 250m radius: Pond, 82m 89m southwest, 201m southeast, 1873 - 1894
Estimated Background Soil Chemistry	
Records of BGS Estimated Urban Soils Chemistry	4 records within a 250m radius: On-site (x4) Arsenic: 16-17mg/kg Lead 228-239mg/kg (157-164mg/kg bioaccessible) Cadmium: 0.7mg/kg Chromium: 61mg/kg Nickel: 23mg/kg
Records of BGS Measured Urban Soil Chemistry	1 record onsite (topsoil): Arsenic: 16mg/kg Lead 221mg/kg Cadmium: 0.6mg/kg Chromium: 60.2mg/kg Copper: 53.6mg/kg Tin: 11.5mg/kg Nickel: 22.8mg/kg

5. ONLINE REVIEW AND HISTORICAL INVESTIGATIONS

5.1. Online Council Planning Database

A review of the Haringey London Borough Council Planning Database revealed that seventeen planning applications had been filed for the YMCA Building at 184 Tottenham Lane, London, N8 8SG. Those pertinent to the site development area are tabulated below.

Planning Applications for the site		
Application No./Date	Proposed	Decision
OLD/1971/1179 19/11/1971	Erection of additional floor (at 3rd floor level), with 20 study bedrooms & new squash court on ground floor.	Approve with Conditions
OLD/1975/1311 24/11/1975	Partial demolition of existing building and then rebuild to provide residential accommodation for 98 persons with associated toilets, lounges etc. plus admin offices and gymnasium	Approve with Conditions
OLD/1972/1470 27/6/1972	Erection of additional 3rd floor (21 study bedrooms) squash court at ground level and 1st floor changing rooms, parking for 7 cars	Approve with Conditions
HGY/1996/0427 27/8/1996	Erection of rear/side ground floor extension to enlarge fitness suite and to provision of lift to provide disabled access.	Approve with Conditions

5.2. Internet Search

An internet search did not identify any other information pertinent to this report.

6. PRELIMINARY RISK ASSESSMENT

6.1. Contaminant Source-Pathway-Receptor Model

In the UK, the assessment of risk from contamination follows the source-pathway-receptor (SPR) approach. For a risk to be present there must be a source of contamination, a receptor or receptors, and a pathway for contaminants to migrate or be absorbed. If one of these three elements are absent, it is considered that there is no risk of harm. If, however, there is a linkage between any given source and any given receptor, then a risk-based approach is used to assess the significance or impact of the pollutant linkage.

This Phase 1 Desk Study has been used to identify potential on-site and off-site sources of contamination, which are summarised in this section of the report. Additional potential sources of contamination identified within the Desk Study have been discounted based on the absence of a realistic SPR linkage (i.e. the distance from the site or the nature or age of any potential contamination sources).

In line with the requirements of BS 21365:2020, *Soil Quality – Conceptual site models for potentially contaminated sites*, the Conceptual Site Model (CSM) can be described in text, tabulated or presented as a figure. A tabulated CSM is provided in Section 6.6 of this report, where each component is discussed in the following sections.

6.2. Potential On-site Sources of Contaminants

This Desk Study revealed that at the time of the earliest historical mapping (1864) the site comprised undeveloped fields with a farm track intersecting the middle of the site until 1914, where terraced housing is noted in the west of the site. By the time of the 1935 mapping, the present YMCA structure had been built in the eastern portion of the site. In 1954 the terraced housing in the west of the site had been demolished, and by 1974 the YMCA building has been extended into the western portion of the site to its modern day setting. In 1979 the northwestern portion of the building was converted into the youth and community centre, the rest of the building was labelled the YMCA Hostel, since then it has remained unchanged.

The Phase 1 Desk Study revealed the following on-site sources of contamination:

Background levels of lead

Records of BGS Measured Urban Soil Chemistry on site highlighted in the data sheets, revealed an elevated level of lead (221mg/kg)

Made Ground

In the east the site has undergone one phase of construction, while in the west the site has undergone two phases of construction/demolition. As a result various thicknesses of Made Ground resulting from these activities are likely to be encountered.

Contaminants of concern associated with Made Ground deposits include; metals, Petroleum Hydrocarbons (TPHs), Polycyclic aromatic hydrocarbons (PAHs), asbestos, sulphates. As a result risks of contaminants in the made ground is moderate.

Aggressive ground conditions

The site is located overlying geology of the London Clay Formation, known as having high concentrations of pyrite. Pyrite poses a risk to concrete used in foundations due to the elevated levels of sulphate. As a result, the risk to future foundations is high and the proposed foundations will likely require a higher class of concrete.

Asbestos in the building

The western end of the building was constructed sometime between 1954 – 1972. Due to the high levels of asbestos containing building materials during this period it is highly likely that existing building materials used in the construction of the western portion of the building will contain asbestos.

An Asbestos Survey should also be undertaken prior to the demolition of any structures on-site. An Asbestos Management Strategy should be implemented to ensure that any asbestos uncovered during the investigation does not pose a risk to members of the public that use the site.

UXO

A detailed Unexploded Ordnance Risk Assessment carried out by 1st Line Defence on the 13th August 2025 referenced DA22141-00, found there to be a medium risk to the site from German and anti-aircraft UXOs.

Given the risk noted from unexploded ordinance, it is recommended that protection measures may be required during drilling/excavation of all stages of the investigation and development of the site, based on the results of the reporting.

6.3. Potential Off-site Sources of Contaminants

The Phase 1 Desk Study revealed the following potential off-site sources of contamination:

Made Ground

Historical ponds were identified approximately 220m southeast, 100m southwest and 210m northwest of the site. These ponds were infilled in the early 20th century around 1914. Due to the time passed since the ponds were infilled and the distance from site the risk to site was negligible.

Garage Services ~14m southeast and Filling Station ~14m northeast

Potential sources of contamination associated with a garage services, motor body repair works and body/paint spray workshop include:

- Lubricant oils (engine and transmission lubricating oils, both used and new);
- Contaminants from used oils and paints include: lead, copper and a range of other heavy metals, unburnt fuel, Polycyclic Aromatic Hydrocarbons (PAHs);
- Anti-freeze – ethylene glycol and propylene glycol, along with methanol, is used as an antifreeze in coolant systems;
- Brake fluids (constitute mainly of polymerised glycols and ethers);
- Waste fluid generated during repair work on brake systems;
- Solvents (chlorinated hydrocarbons, carbon tetrachloride, paraffin and proprietary

degreasing compounds);

- Paints (lead-based paints, zinc-rich epoxy primers, polyurethanes as decorative finishes, Volatile Organic Compounds (VOCs));
- Gasoline;
- Diesel;
- Asbestos
- Organometallic compounds
- Metals
- Selling fuel e.g. petrol and diesel
- Washing station PFAs

(Department of the Environment Industry Profile, Road vehicle fuelling, service and repair: garages and filling stations 1996).

The nearest garage to the site was founded after the YMCA building had been constructed. Due to this, and the local geology underlying the site being impermeable (i.e. low mobility of contaminants), and the hardstanding road separating the garage and petrol station from the site, the risk to site was deemed to be negligible.

Engineering Works ~20m south parallel to contamination/groundwater migration path

Potential contaminants associated with engineering works include heavy metals, semi-metals, asbestos, acetone, oil/fuel hydrocarbons, PAHs and PCBs (R&D Publication CLR 8, 2002). Due to the distance from site and the local geology underlying the site being impermeable (i.e. low mobility of contaminants the risk to the site was deemed negligible

Printing Works ~20m south parallel to contamination/groundwater migration path

The most extensive contamination associated with printing works is the release of organic solvents. Metal contamination is likely to be more localised in nature. Organic solvent contamination is most likely to occur around bulk storage and transfer areas as well as underneath machines that are cleaned using solvents. Contamination from fuel oils and acids may arise in bulk storage areas and the associated pipework. Contaminants from inks and other chemicals stored in drums or kegs would probably be localised around storage areas.

Potential contaminants associated with printing works include heavy metals, semi-metals, sulphate, VOCs, Halogenated Hydrocarbons, Non-Halogenated Hydrocarbons, POPs, Metals, asbestos, aromatic hydrocarbons, chlorinated aliphatic hydrocarbons, PCBs and Per- and Polyfluoroalkyl Substances (PFAS) (Department of the Environment Industry Profile, Profile of Miscellaneous Industries 1996). to the distance from site, and the local geology underlying the site being impermeable (i.e. low mobility of contaminants), the risk to site was deemed to be negligible.

Blacksmith~40m east downgradient to contamination/groundwater migration path

Likely contaminants associated with a Blacksmiths include oil/fuel hydrocarbons, PAHs, namely benzo (a) pyrene, and heavy metals. local geology underlying the site being impermeable (i.e. low mobility of contaminants), the risk to site was deemed to be negligible

Electrical Sub-Station ~77m southeast downgradient to contamination/groundwater migration path

PCB oils and other cable/transformer oils, together with a series of waxes are commonly used in mainly high voltage applications. PCBs are generally toxic; however, newer forms of non-toxic oils and waxes have replaced the use of PCBs. All cable oils are extremely viscous and adhere strongly to soil particles and do not tend to migrate far from the point of leakage or spillage. Therefore, the potential risk of encountering PCBs on the site was negligible.

Laundry/Dry Cleaners 151m southwest, 162m east

Likely contaminants associated with a laundry include metals and semi-metals such as lead, cadmium, mercury, arsenic, selenium; asbestos; aromatic hydrocarbons; chlorinated aliphatic hydrocarbons and Polychlorinated Bi-phenols (PCBs) ("Dry Cleaners" – Potential Contaminants for the Assessment of Land, R&D Publications CLR 8, 2002). Due to the distance from site the risk was deemed negligible

Tannery 180m southwest

The tanning process involves treating the skin with an agent, current tanning agents include chromium (III) sulphate, various vegetable tans and some synthetic tans. Sometimes oil-tanning utilises formaldehyde and fish oils. Drums of chemicals and sometimes pits/tanks used for tanning process may have leaked contaminants into the ground. Contaminants of concern include: metals, particularly chromium and arsenic. Due to the distance from site the risk was deemed negligible

General Industrial Works (Glass Factory) 180m southwest

Metals and semi-metals; asbestos; oil/fuel hydrocarbons, PAHs, solvents and inorganic chemicals (R&D Publication CLR 8, 2002). Due to the distance from site the risk was deemed negligible

Surgery 180m north

Clinical waste is generally defined as meaning: human tissue, blood or other body fluids, drugs and pharmaceuticals, needles and any other sharp instruments and any other waste arising from medical, nursing or similar practice or investigation (Controlled Waste Regulations, 1992). Due to the distance from site the risk was deemed negligible

6.4. Potential Receptors

At the time of reporting, April 2026, the proposed development was understood to comprise the redevelopment of the existing building to deliver approximately 170 bedspaces (from 155 bedspaces) and associated infrastructure. These changes will include increasing the footprint of the building and adding another storey to the existing 5 storey building. The proposed development plan can be seen within Figure 2.

Based on the proposed development, the potential receptors are presented below and comprise:

Human Health

- End users of the site (Residents/Future site visitors);
- Construction workers during redevelopment;
- Site operatives during maintenance works; and
- Neighbours and members of the public.

Flora and Fauna

- Vegetation within soft landscaped areas;

Building Materials and Services

- Buildings;
- Buried concrete;
- Confined spaces; and
- Underground services (Water Pipes).

6.5. Contaminant Absorption Pathways

The potential pathways for contaminant absorption between the identified sources and the identified receptors are as follows:

Human Health:

- Direct ingestion of soil and soil derived dust;
- Dermal contact of soil and soil derived dust;
- Inhalation of dust (indoors and outdoors) with elevated concentration of determinands;
- Direct ingestion of groundwater;
- Inhalation of volatile vapour (indoors and outdoors);
- Inhalation of ground gases.; and
- Explosion.

Flora and Fauna

- Direct uptake of groundwater; and
- Direct uptake of contaminants in the soil.

Building Materials and Services

- Direct contact;
- Explosion.

Controlled Waters

- Vertical and lateral migration in permeable strata horizons;
- Via anthropogenic pathways (infilled ground and service runs);
- Surface water Runoff.

6.6. Tabulated Conceptual Site Model

The tabulated Conceptual Site Model developed as part of this Desk Study is outlined overleaf. For ease of reference and understanding, the risks have been classified within this risk assessment against four possible levels / categories, summarised in the table below. Any risk that has been deemed to be negligible under section 6.2 and 6.3 of this report have been dismissed from the CSM.

Risk Categories used in the Tabulated CSM	
Negligible	Regarding this potential SPR linkage, the site is considered suitable for the proposed end-use and there is no plausible risk. Therefore, there is no need to further assess this potential source of contamination.
Low Risk	Regarding this potential SPR linkage, the site is considered suitable for the proposed end-use and there is not considered to be an unacceptable risk to receptors. However, it is considered that further investigation to confirm this is recommended.

Moderate Risk	Regarding this potential SPR linkage, the site may not be suitable for the proposed end-use in its current condition and there may be an unacceptable risk to receptors. Further investigation is required to confirm this.
High Risk	Regarding this potential SPR linkage, the site is probably or certainly not suitable for proposed end-use and there is likely to be an unacceptable risk to receptors. Contaminants probably or certainly present and urgent action required in the short term.

Tabulated Conceptual Site Model – Pollutant Linkage Summary			(On-Site Sources)
Potential Sources	Potential Absorption Pathways	Potential Receptors	Risk
Made Ground from construction/ demolition activities: - Asbestos, - PAHs, - TPHs, - Sulphates, and - Metals.	- Direct ingestion of soil and soil derived dust - Dermal contact of soil and soil derived dust - Inhalation of dust (indoors and outdoors) with elevated concentration of determinands - Direct ingestion of perched water - Inhalation of volatile vapour (indoors and outdoors)	Human Health - End Users (Site workers/Future site visitors) - Construction workers during development - Site operatives during maintenance works - Neighbours and public	Moderate
	- Direct uptake of perched water - Direct uptake of determinands in the soil	Flora and Fauna Vegetation within soft landscaped areas	Low
Aggressive ground conditions with Made Ground and natural ground, including groundwater: Sulphates	Direct contact with aggressive ground conditions	Building Materials and Services Buried Concrete	High
Aggressive ground conditions with Made Ground and natural ground, including groundwater: PAH/TPH.	Direct contact with aggressive ground conditions	Building Materials and Services Underground services (water pipes)	Low
Ground gases generated by Made Ground: - Methane, - Carbon Dioxide, - Hydrogen Sulphide, and - Carbon Monoxide.	- Migration through anthropogenic & natural pathways - Inhalation of Asphyxiating gases - Explosion (methane only)	Human Health - End Users (Residents/Future site visitors) - Construction workers during development (especially in confined spaces) - Site operatives during maintenance works in confined spaces - Neighbours and public	Negligible
	- Migration through anthropogenic & natural pathways - Explosion (methane only)	Building Materials and Services - Buildings - Confined spaces - Underground services	Negligible

Asbestos within the existing building.	• Direct contact with building materials • Inhalation of dust (indoors and outdoors) with elevated concentration of determinands during the construction process	Human Health • End Users (Site workers/Future site visitors) • Construction workers during development • Site operatives during maintenance works • Neighbours and public	Moderate
Unexploded Ordnances	• Direct contact with UXO while drilling • Direct contact with UXO during the construction phase	• Drillers and Construction workers during development • Neighbours and public	Moderate
Background levels of lead	• Direct ingestion of soil and soil derived dust • Dermal contact of soil and soil derived dust • Inhalation of dust (indoors and outdoors) with elevated concentration of determinands • Direct ingestion of perched water	• End Users (Site workers/Future site visitors) • Construction workers during development • Site operatives during maintenance works • Neighbours and public	Moderate

Tabulated Conceptual Site Model – Pollutant Linkage Summary			(Off-Site Sources)
Potential Sources	Potential Absorption Pathways	Potential Receptors	Risk
Made Ground from nearby works: • Asbestos, • PAHs, • TPHs, • VOCs, • Sulphates, and • Metals.	• Direct ingestion of soil and soil derived dust • Dermal contact of soil and soil derived dust • Inhalation of dust (indoors and outdoors) with elevated concentration of determinands • Direct ingestion of perched water • Inhalation of volatile vapour (indoors and outdoors)	Human Health • End Users (Residents/Future site visitors) • Construction workers during development • Site operatives during maintenance works	Negligible
	• Direct uptake of perched water	Flora and Fauna • Vegetation within soft landscaped areas	Negligible
Ground gases generated by Made Ground: • Methane, • Carbon Dioxide, • Hydrogen Sulphide, and • Carbon Monoxide.	• Migration through anthropogenic & natural pathways • Inhalation of Asphyxiating gases • Explosion (methane only)	Human Health • End Users (Residents/Future site visitors) • Construction workers during development (especially in confined spaces) • Site operatives during maintenance works in confined spaces	Negligible
	• Migration through anthropogenic & natural pathways • Explosion (methane only)	Building Materials and Services • Buildings • Confined spaces	Negligible

Tabulated Conceptual Site Model – Pollutant Linkage Summary			(Off-Site Sources)
Potential Sources	Potential Absorption Pathways	Potential Receptors	Risk
		Underground services	
Garages: - PAHs, - TPHs, - VOCs, - Sulphates, and - Metals.	- Direct ingestion of soil and soil derived dust - Dermal contact of soil and soil derived dust - Inhalation of dust (indoors and outdoors) with elevated concentration of determinands	Human Health - End Users (Residents/Future site visitors) - Construction workers during development - Site operatives during maintenance works	Negligible
	- Direct ingestion of perched water - Inhalation of volatile vapour (indoors and outdoors)		
	Direct uptake of perched water	Flora and Fauna Vegetation within soft landscaped areas	Negligible

7. RECOMMENDATIONS AND PHASE II OBJECTIVES

This section of the report will present recommendations for the further investigation of each plausible pollutant linkage identified by the Conceptual Site Model.

It is recommended that an intrusive ground investigation is undertaken at the site to evaluate the risk that contaminants of concern within the soils and groundwater may affect end-users. This should determine the underlying ground and groundwater conditions and include an assessment of the level of contamination to enable the quantification of the ground-related risks associated with the proposed redevelopment.

Consideration should be given to the testing of soil samples recovered from exploratory holes for chemical laboratory testing. The testing should be for a broad range of contaminants in accordance with DEFRA/CLEA methodologies and include the contaminants of concern identified within the Conceptual Site Model.

7.1. Soils

On the basis of the Phase 1 Site Assessment the following contaminants of concern have been identified and should be included in the chemical analysis suite for the ground investigation:

- Asbestos.
- Semi-metals and heavy metals;
- Poly-cyclic aromatic hydrocarbons (PAHs);
- Speciated TPH including full aliphatic/aromatic split;
- Volatile/semi-volatile organic compounds – BTEX Used as marker compounds;
- Sulphates.

The list above does not imply that these determinands are present on-site or that they are likely to cause contamination issues at the site. The ground investigation will be used to prove the presence or absence of these contaminants. The sampling and testing strategy must be in line with current standards. Given the building on the site is being extended with no soft landscaping areas proposed, random sampling should be adopted across the site. Results should be assessed against suitable assessment criteria to be protective of human health as well as vegetation.

Sub-surface concrete may be damaged due to being in contact with aggressive ground conditions. Sampling should be undertaken where the proposed foundations will be in contact with Made Ground and/or natural ground and tested for aggressive ground conditions (sulphates/pH). Classification should then be undertaken of the ground conditions in accordance with Building Research Establishment Special Digest 1, 2005, 'Concrete in Aggressive Ground'. Asbestos

7.2. Services

The CSM has identified a low for aggressive ground conditions that may affect water supply pipes as part of the development. Consideration should be given to the targeted sampling (0.75 – 1.50m bgl) to confirm.

7.3. Ground-gas

The CSM has identified a negligible risk from ground gases at the site as a result of limited Made Ground on-site or within the site's environs.

7.4. Vapours

The CSM has identified sources and associated contaminants that may pose a risk, however there is no identified pathway for the vapour to get to the site. As a result testing for BTEX within soil samples is sufficient.

7.5. UXO

Given the risk noted from unexploded ordinance, it is recommended protection measures may be required during drilling/excavation of all stages of the investigation and development of the site, based on the results of the reporting.

7.6. Geotechnical Review

The BGS have identified the following natural hazards on-site and within a 50m buffer.

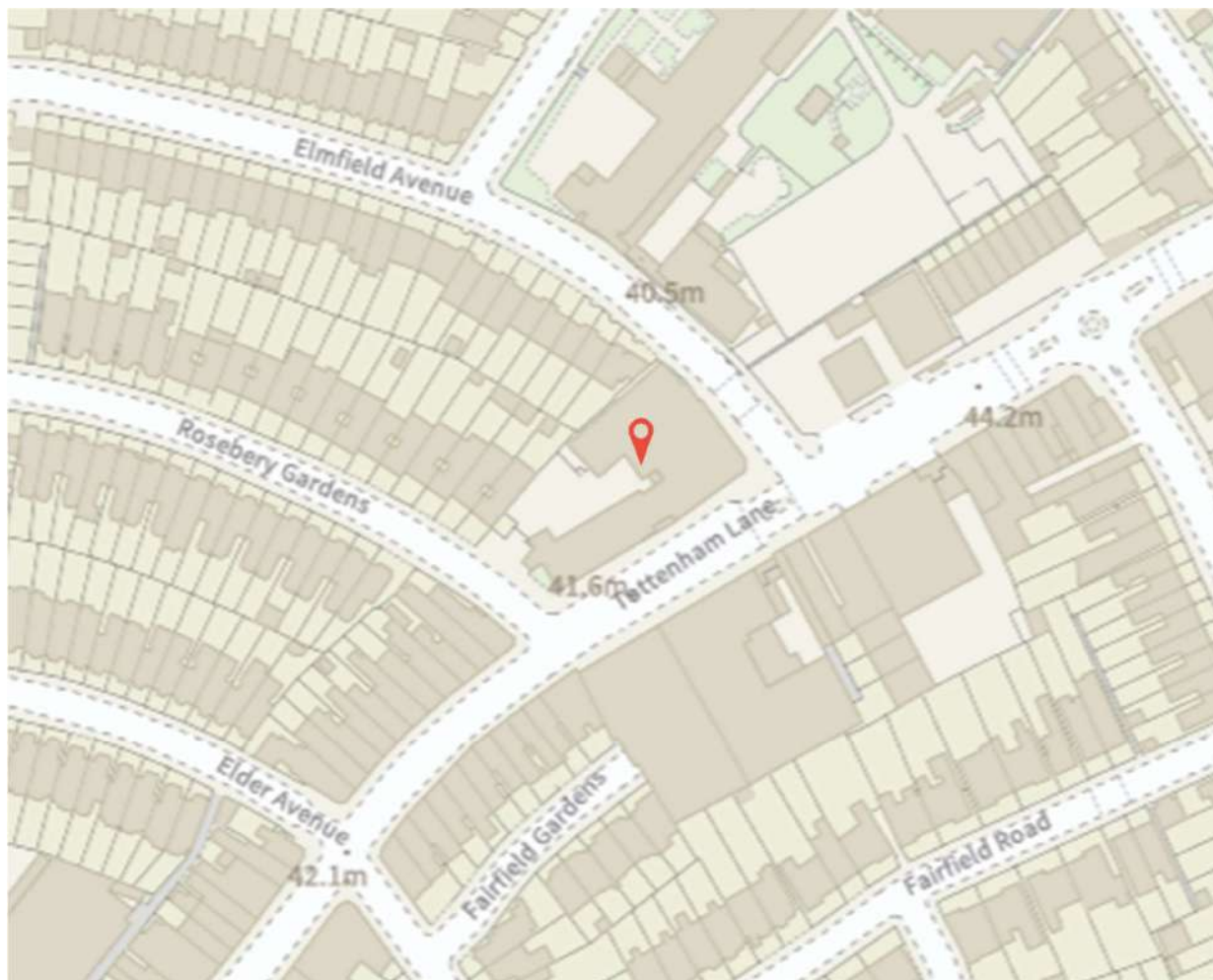
Natural Hazards	
Shrink-Swell Clay	Moderate hazard on-site.
Running Sands	Very Low hazard on-site.
Compressible Deposits	Negligible hazard on-site.
Collapsible Deposits	Very Low hazard on-site.
Landslides	Very Low hazard on-site.
Ground Dissolution of Soluble Rocks	Negligible hazard on-site.

When designing foundations, the potential presence of aggressive ground conditions should be taken into consideration. Further investigation may be required in accordance with the guidance established in BRE Special Digest 1 (SD1) (2005) 'Concrete in aggressive ground'. The BGS identified the potential for aggressive ground conditions within shallow units (London Clay Formation) identified at the site

It is recommended that as part of the site-specific ground investigation on-site, geotechnical testing is undertaken to determine the underlying ground conditions and to evaluate any geotechnical related risks associated with the proposed redevelopment of the site.

The Groundsure datasheets have identified the underlying London Clay was recorded to have a very low permeability and therefore would not be suitable for surface water disposal.

FIGURES



 Site Location

Not to Scale

YMCA London City and North, 184 Tottenham Lane, London, N8 8SG

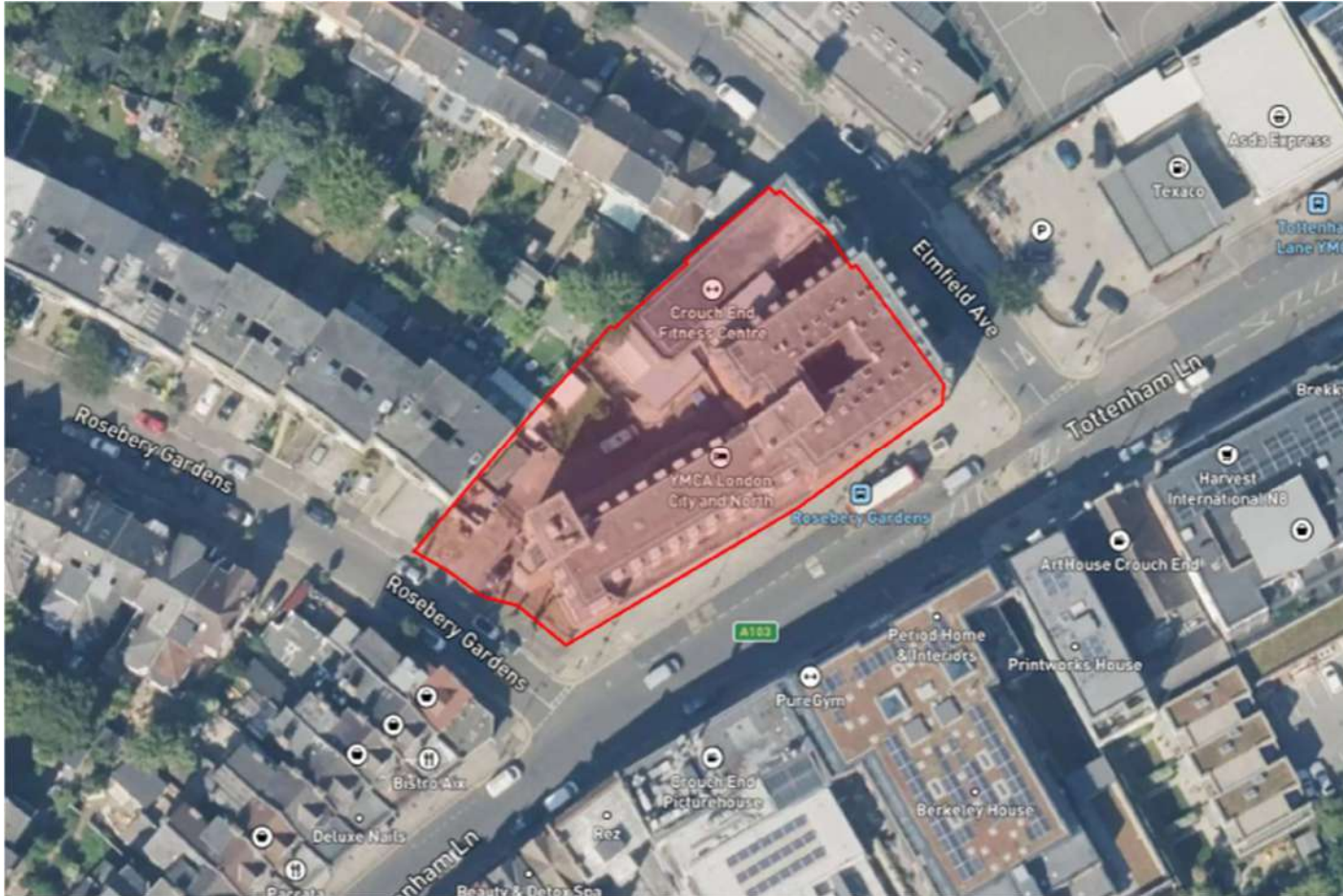
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Figure 1: Site Location Plan

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Site boundary

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Figure 2: Aerial View of the Site

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APPENDIX A: Conditions and Limitations

The ground is a product of continuing natural and artificial processes. As a result, the ground will exhibit a variety of characteristics that vary from place to place across a site, and also with time. Whilst a ground investigation will mitigate to a greater or lesser degree against the resulting risk from variation, the risks cannot be eliminated.

The report has been prepared on the basis of information, data and materials which were available at the time of writing. Accordingly, any conclusions, opinions or judgements made in the report should not be regarded as definitive or relied upon to the exclusion of other information, opinions and judgements.

The investigation, interpretations, and recommendations given in this report were prepared for the sole benefit of the client in accordance with their brief; as such these do not necessarily address all aspects of ground behaviour at the site. No liability is accepted for any reliance placed on it by others unless specifically agreed in writing.

Any decisions made by you, or by any organisation, agency or person who has read, received or been provided with information contained in the report (“you” or “the Recipient”) are decisions of the Recipient and we will not make, or be deemed to make, any decisions on behalf of any Recipient. We will not be liable for the consequences of any such decisions.

Current regulations and good practice were used in the preparation of this report. An appropriately qualified person must review the recommendations given in this report at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

Any Recipient must take into account any other factors apart from the Report of which they and their experts and advisers are or should be aware. The information, data, conclusions, opinions and judgements set out in the report may relate to certain contexts and may not be suitable in other contexts. It is your responsibility to ensure that you do not use the information we provide in the wrong context.

This report is based on readily available geological records, the recorded physical investigation, the strata observed in the works, together with the results of completed site and laboratory tests. Whilst skill and care has been taken to interpret these conditions likely between or below investigation points, the possibility of other characteristics not revealed cannot be discounted, for which no liability can be accepted. The impact of our assessment on other aspects of the development required evaluation by other involved parties.

The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous in ground activities. The ground

conditions have been sampled or monitored in recorded locations and tests for some of the more common chemicals generally expected. Other concentrations of types of chemicals may exist.

The conclusions and recommendations relate to YMCA London City and North, 184 Tottenham Lane, London, N8 8SG.

Trial hole is a generic term used to describe a method of direct investigation. The term trial pit, borehole or window sampler borehole implies the specific technique used to produce a trial hole.

The depth to roots and/or of desiccation may vary from that found during the investigation. The client is responsible for establishing the depth to roots and/or of desiccation on a plot-by-plot basis prior to the construction of foundations. Where trees are mentioned in the text this means existing trees, recently removed trees (approximately 15 years to full recovery on cohesive soils) and those planned as part of the site landscaping.

Ownership of copyright of all printed material including reports, laboratory test results, trial pit and borehole log sheets, including drillers log sheets, remain with Ground and Water Limited. Licence is for the sole use of the client and may not be assigned, transferred or given to a third party.

Only our client may rely on this report and should this report or any information contained in it be provided to any third party we accept no responsibility to the third party for the contents of this report save to the extent expressly outlined by us in writing in a reliance letter addressed from us to the third party.

Recipients are not permitted to publish this report outside of their organisation without our express written consent.

APPENDIX B:

Technical Glossary

TECHNICAL GLOSSARY

The list of possible definitions within the report may be seen below. Please note that some definitions may not be relevant to this report.

HYDROGEOLOGY:

A **Principal Aquifer** is a layer of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

Secondary (A) Aquifers consist of deposits with permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as Minor Aquifers.

Secondary (B) Aquifers consist of deposits with predominantly lower permeability layers with may stoke and yield limited amounts of groundwater due to localised features such as fissures, think permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

Secondary Aquifers (Undifferentiated) are assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both a minor aquifer and non-aquifer in different locations due to the variable characteristics of the rock type.

Unproductive Strata are rock layers with low permeability that have negligible significance for water supply or river base flow. These were formerly classified as non-aquifers.

FLOOD ZONES:

Environment Agency Flood Zone 2, defined as; land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.

Environment Agency Flood Zone 3 shows the extent of a river flood with a 1 in 100 (1%0 or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year.

Environment Agency Flood Zone 3 area that benefits from flood defences, defined as; land and property in this flood zone would have a high probability of flooding without the local flood defences. These protect the area against a river flood with a 1% chance of happening each year, or a flood from the sea with a 0.5% chance of happening each year.

GROUNDWATER SOURCE PROTECTION ZONES (SPZS):

Inner Zone (SPZ1): This zone is 50 day travel time of pollutant to source with a 50 metres default minimum radius.

Outer Zone (SPZ2): This zone is 400 day travel time of pollutant to source. This has a 250 or 500 metres minimum radius around the source depending on the amount of water taken.

Total Catchment (SPZ3): This is the area around a supply source within which all the groundwater ends up at the abstraction point. This is the point from where the water is taken. This could extend some distance from the source point.

Zone of Special Interest (SPZ4): This zone is where local conditions require additional protection.

IN-SITU STRENGTH GEOTECHNICAL TESTING:

Windowless Sample and/or Cable Percussion and/or Rotary Boreholes provide samples of the ground for assessment but they do not give any engineering data. The standard penetration test (SPT) is an in-situ dynamic penetration test designed to provide information on the geotechnical engineering properties of soil. The test uses a thick-walled sample tube, with an outside diameter of 50mm and an inside diameter of 35mm, and a length of around 650mm. This is driven into the ground at the bottom of a borehole by blows from a slide hammer with a weight of 63.5kg falling through a distance of 760mm. The sample tube is driven 150mm into the ground and then the number of blows needed for the tube to penetrate each 75mm up to a depth of 450mm is recorded. The sum of the number of blows is termed the "standard penetration resistance" or the "N-value".

Dynamic Probing involves the driving of a metal cone into the ground via a series of steel rods. These rods are driven from the surface by a hammer system that lifts and drops a 63.5kg (SHDP) hammer onto the top of the rods through a set height, thus ensuring a consistent energy input. The number of hammer blows that are required to drive the cone down by each 100mm increment are recorded. These blow counts then provide a comparative assessment from which correlations have been published, based on dynamic energy, which permits engineering parameters to be generated. (The Dynamic Probe 'Super Heavy' (SHDP) Tests were conducted in accordance with BS 1377; 1990; Part 9, Clause 3.2).

APPENDIX C: Site Photographs

Photograph 1. Courtyard along northern boundary looking east



Photograph 2. Court along northern boundary looking east



Photograph 3. Western boundary



Photograph 4. Eastern side of courtyard



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Site Walkover Pictures

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Photograph 5 Grassed area along northern boundary



Photograph 6: Northwestern boundary



Photograph 7: South eastern corner of building



Photograph 8: Eastern boundary



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Site Walkover Pictures

GWPR7007



Photograph 9:Petrol station northeast of the site



Photograph 10: Looking northeast from the southern side of Tottenham Lane at the site and petrol station



Photograph 11: Western boundary



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Photograph 12: western entrance to the site



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Site Walkover Pictures	GWPR7007

