



98A PRIORY RD (THE OLD COACH HOUSE), NW6 3NT
Basement Impact Assessment: Land Stability

June 2015



Client:

**Croft Structural Engineers,
Clock Shop Mews,
Rear of 60 Saxon Rd,
SE25 5EH**

Ground and Project Consultants Ltd

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1. Introduction

Ground and Project Consultants Ltd have been instructed by Croft Structural Engineers to undertake the land stability element of a Basement Impact Assessment compliant with CPG4, for 98a Priory Road, London, NW6 3NT. The property is located in the London Borough of Camden in the Swiss Cottage ward, its location is indicated on Figure 1.



Figure 1: Site Location

Ordnance Survey Data © Crown copyright and database right 2015

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2. Scope and Objective

The scope of this report and approach is as follows:

- A review the existing data supplied by Croft has been carried out, including the proposal drawings produced to date, Ground Investigation data, Desk Study data form Groundsure (Enviroinsight report) photos of the building and the background data available through LB Camden's website and other freely available data such as BGS geological information.
- In line with the CPG4 guidance:
 - A detailed assessment of the published and encountered geology
 - Development of a ground model including an assessment of geotechnical properties
 - An engineering interpretation including an assessment of slope stability and potential for ground movements.
- Recommendations for additional work/ monitoring and observation have been provided.

This report and the work to support it has been carried out by Jon Smithson who is a Director of Ground and Project Consultants Ltd and is a Chartered Geologist with 30 years' experience.

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3. BIA Screening for Slope/Land Stability

A screening exercise has been carried out as per the guidance in CPG4 as follows:

Question	Answer	Action/ Comment
Question 1: Does the existing site include slopes, natural or manmade, greater than 7 degrees? (approximately 1 in 8)	No. The OS map shows that the ground surface falls gently to the SE over a gradient of around 1 in 40 (i.e. less than 2°).	None
Question 2: Will the proposed reprofiling of landscaping at site change slopes at the property boundary to more than 7deg? (approximately 1 in 8)	No. There are no changes in surface profile planned.	None
Question 3: Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7deg? (approximately 1 in 8)	No.	None
Question 4: Is the site within a wider hillside setting in which the general slope is greater than 7degrees? (approximately 1 in 8)	No, the slope in the area is around 1 in 40 (2°) based on Ordnance Survey data. The site is some distance from Hampstead Heath and steeper ground	None
Question 5: Is the London Clay the shallowest strata at the site?	No, the surface deposits are a thin layer of MADE GROUND overlying HEAD deposits. The surface of the LONDON CLAY was encountered at around 1.25m bgl.	The presence of London Clay close to surface is further discussed in the Impact Assessment.
Question 6: Will any tree/s be felled as part of the proposed development and/or are any works proposed within any tree protection zones where trees are to be retained? (Note that consent is required from LB Camden to undertake work to any tree/s protected by a Tree Protection Order or to tree/s in a Conservation Area if the tree is over certain dimensions).	No. However the sites sits within South Hampstead conservation area. Trees are present at site.	Further discussed in the Impact Assessment.
Question 7: Is there a history of seasonal shrink-swell subsidence in the local area, and/or evidence of such effects at the site?	None known. However London Clay is relatively close to surface.	Further discussed in the Impact Assessment.
Question 8: Is the site within 100m of a watercourse or a potential spring line?	Possibly: Figure 11 of the Arup report indicates an 'Lost River' some distance to the East of the property.	This is further discussed in the Impact Assessment.

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Question 9: Is the site within an area of previously worked ground?	None known or suspected.	None
Question 10: Is the site within an aquifer? If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction?	No. The London Clay is classified by the Environment Agency as unproductive strata (rock layers with low permeability and negligible significance for water supply or river base flow). The site is not within a source protection zone of a public water supply. However the basement may extend into the water table.	This is further discussed in the Impact Assessment.
Question 11: Is the site within 50m of the Hampstead Heath ponds?	No.	None
Question 12: Is the site within 5m of a highway or pedestrian right of way?	No. The basement will be a minimum of around 10m from the highway and pavement	Health Safety and environmental measures will be required to be integrated into the building contractors methods of working
Question 13: Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	Not known. However the base of the basement slab will be around 3.25m below the existing ground floor.	This is further discussed in the Impact Assessment.
Question 14: Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?	No.	None

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4. Site Information

4.1 Existing Property and Basement Proposals

The property at 98a Priory Road (known as the Old Coach House), London NW6 3NT is located on the east side of the road, which is itself located approximately 2km north west of Regents Park and some 200m south of the Jubilee Line and West Hampstead Station.

The house has a footprint of around 50m² with an overall plot size of approximately 150m². There is no existing basement to the property at present. The property is a narrow two storey detached building sandwiched in between two larger detached houses. There is a narrow space either side and the existing building does not share a party wall.

Camden's planning portal indicates that there have been a number of successful basement applications on Priory Road in recent years. The basement proposals are for the creation of a kitchen, living and utility rooms, along with front and rear lightwells and will extend beneath and slightly beyond the existing footprint of the house. The base of the basement slab will be around 3.5m below the existing ground floor. The front of the basement will be approximately 10m from the pavement.

4.2 Topography

The property is located on gently sloping ground below the base of Hampstead Heath. Its elevation estimated from the OS map is approximately 48mAOD. The OS map shows that the ground surface falls gently to the SE over a gradient of around 1 in 40 (i.e. less than 2°). The approximate National Grid Ref for the property is TQ 257845.

4.3 Geology

The available geological mapping (Ref 1.) indicates that the site lies on London Clay which typically comprises a stiff grey fissured clay, weathering to brown near surface. Concretions of argillaceous limestone in nodular form (Claystones) occur throughout the formation. The geological map (North London 256) indicates a 'propensity' for Head Deposits to be present reasonably close by (~500m) to the north, west and a little further to the east of the site. Typically they are thin (<2m) and consist of soft, ochreous brown silty clay with blue-grey mottling in places and angular, frost-shattered fragments of flint occur sporadically throughout. The base of the London Clay is likely to occur some depth below the property. See figure 2 below.

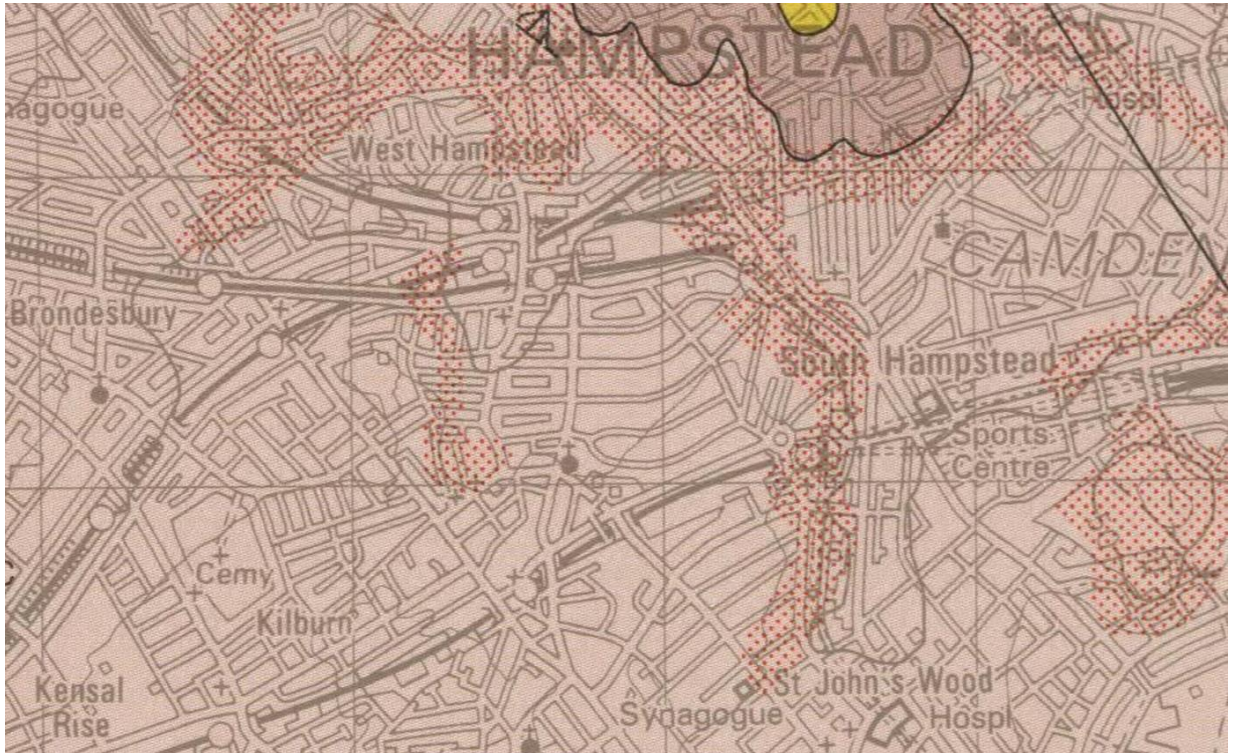


Figure 2: Site Location

BGS copyright and database right 2015

4.4 Hydrology and Hydrogeology

The OS Map indicates that there are no surface water bodies in the vicinity of the site. The Grand Union Canal forms the northern boundary of Regents Parks some 2km to the SE. The Hampstead Pond are approximately 2.5km to the NE. There are no springs shown on OS mapping.

The London Clay is classified by the Environment Agency as unproductive strata (rock layers with low permeability and negligible significance for water supply or river base flow). The site is not within a source protection zone of a public water supply. There are no groundwater abstraction licenses within 2 km of the site and no source protection zones within 500 m of the site. (Ref 5. Groundsure Report).

4.5 Other Environmental Data

The Groundsure report gives a wealth of background data on local environmental issues and hazards. (See Appendix A). The key issues are summarised in the table below:

Local Waste/Landfill sites	There is a waste depot and transfer station 400m to the NE of the property
Drift Deposits	None are indicated on BGS mapping
Made Ground	None are indicated on BGS mapping
Groundwater Abstraction	There is a supply borehole 1km to the East
Flood Risk	There is a very low flood risk at the property. The area is not prone to groundwater flooding
Shrink/ Swell	There is a moderate Hazard of shrink and swell from the London Clay soils
Landslide	Very Low Risk
Soluble Rocks	Negligible Risk

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Compressible Ground	Negligible Risk
Collapsible Ground	Very Low Risk
Running Sand	Very Low Risk
Mining	None recorded

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5. Ground Investigation

A ground investigation (GI) has been carried out at the site by Ground & Water Ltd and results of these have been made available by Croft. The GI was carried out in early May 2015. The work included two window sample boreholes to 7m bgl, a dynamic probe hole to 10m and a trial pit to expose the existing foundation.

The boreholes (WS1 and 2) were drilled using a window sampler to the front and rear of the property. They encountered a thin cover of made ground which is probably reworked natural ground associated with the construction. It is summarised as 'gravelly silty clay and sand'. This was found to overlie Head deposits at 0.9m in WS1 and 0.6m in WS2. These represent reworked London Clay by natural processes and are summarised as orange brown mottled sandy gravelly silty CLAY. The surface of the London Clay was encountered in both boreholes at 1.25m bgl. The boreholes terminated within the London Clay. It was encountered as a medium brown silty CLAY with frequent selenite crystals and occasional sandy or silty zones. Note that the Head Deposits could be interpreted as Alluvium associated with the River Westbourne Tributary.

The dynamic probe hole was undertaken to develop an assessment of the shear strength of the London Clay. This suggests that the upper 4m of the London Clay is soft to firm, becoming firm and firm to stiff and stiff below around 6m. Dynamic probes are subject to interpretation and in this case the soil may have been subject to disturbance, depending on the relative timing of the dynamic probe hole and window sample hole.

One trial hole was dug by hand to expose the foundation at the rear of the property. It was dug to 0.55m bgl and found that the house foundation of brick is located upon a 0.17m layer of crushed brick overlying made ground which sits on Made Ground (described as light brown and orange mottled sandy gravelly silty clay with gravel including brick fragments). Head Deposits were encountered below this at 0.9m as an Orange and brown mottled sandy gravelly CLAY.

Groundwater was encountered in borehole WS1 at 4.2m. No groundwater was encountered in WS2. A monitoring standpipe was installed in WS1. Monitoring indicates a level of 1.02m bgl on 10 June 2015. The base of the hole was dipped at 3.10m bgl possibly indicating a blockage or considerable silting up.

Laboratory tests were carried out on the samples collected from the borehole. Testing consisted of the following:

- 5 No. Atterberg Limit test, including moisture content determination
- 1 No. Sulphate on Groundwater sample
- 2 No. Soluble Sulphate, pH and related tests for Concrete Classification on soil samples

The Atterberg test on Made Ground is of limited value as Made Ground can be highly variable. The tests Head Deposits indicate that the moisture content is higher than but close to plastic limit probably indicating a firm to stiff consistency and related shear strength. The soils have a high Plasticity Index (36 -46%) classified as a clay soil of high plasticity, which means they are prone to swell and shrinkage with variations in Moisture content. Moisture contents at the time of testing are likely to be lower than their winter seasonal peak. Two test were carried out on the London Clay. Similarly these indicated a clay soil of high plasticity and moisture contents slightly above plastic limit indicating a firm to stiff or stiff consistency. The London Clay has a high Plasticity Index (45-47%) and is known for its shrink/swell potential. Whilst foundations are likely to be below the seasonable variations, the presence of local trees means that design should account for the potential for volume change in the soils.

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6. Conceptual Ground Model

From the above a conceptual Ground model has been developed and is presented in tabular form below:

Strata	Typical Description	Depth at Property	Geotechnical Properties – Tentative Characteristic Values*	Other
Made Ground	Orange brown silty clay and sand MADE GROUND containing brick and gravel	Ground level to 0.6-0.9m	N/A	Made Ground is unlikely to be encountered to a significant depth. It should not be relied upon as a bearing strata.
Head Deposits	Orange brown mottled sandy gravelly silty CLAY	0.6-1.25m	N/A	Head Deposits are unlikely to be encountered to a significant depth. It should not be relied upon as a bearing strata.
London Clay	Soft to firm becoming stiff with depth medium brown silty CLAY with frequent selenite crystals and occasional sandy or silty zones	1.25m to base unproven	$C' = 0$ $\phi' = 20^\circ$ $C_u = 25\text{kN/m}^2$ increasing to 100kN/m^2 at 8mbgl	
Groundwater		1.00		May exhibit significant vary seasonally or after prolonged wet or dry periods.

Table 3: Summary of Strata Characteristics

*The determination of parameters is tentative due to the lack of test data.

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7. Impact Assessment

There are no major issues which should seriously affect the viability of the construction of the new basement. However the assessment of the geological environment of the Old Coach House and the screening exercise indicate some areas for further discussion in this report with suggested mitigation where appropriate.

- 7.1 **London Clay:** As London Clay will be the founding material for the basement, it needs to be considered further. The basement will be founded at around 3m bgl, therefore below any seasonal shrink and swell. The presence of selenite crystals in the London Clay indicates the potential for high levels of soluble sulphate. The concrete mix design should take appropriate account of sulphate levels in accordance with BRE Special Digest 1.
- 7.2 **Trees:** Trees are located in the vicinity and the property is within the South Hampstead conservation area. There is a medium sized tree in the front of the adjoining property, possibly a silver birch. Roots have been noted in the ground investigation at 1.00-1.30m bgl. Care should be taken to minimise root damage during construction works.
- 7.3 **Basement Depth:** The basement is proposed to be constructed involving an excavation to 3.25m below the existing ground floor. The adjoining properties have a small cellar (No.98) and more extensive cellar (No. 96) respectively. It is understood that the proposals to construct the basement involves a 'hit and miss' approach in stages so each 'panel' is separated by others from the next open one. It will be important that the building contractor is closely supervised and is experienced in this type of construction. It will be critical to prevent exposed faces from collapse or significant ground loss into the new excavation and temporary face support should be maintained where practicable. Regular and baseline monitoring of the building and its immediate neighbours for settlement and movement/distress is highly recommended during building works and for a short period after completion.
- 7.4 **Groundwater:** The ground investigation encountered groundwater at depth, some 4.2m bgl. Monitoring of the standpipe piezometer has indicated higher groundwater levels at 1.02m bgl. Groundwater levels can vary significantly on a seasonal basis or after prolonged wet weather. Consideration should be given to limiting the size and time of face exposures during construction should significant flows be encountered during construction, for example from exposures of the sandy layers in the London Clay and measures taken to prevent wash out of fines. Settlement from any dewatering itself (i.e. if loss of fines is prevented) is likely to be of low magnitude. It is recommended that monitoring of groundwater is undertaken before during and after the works. The excavation should be kept dry during construction. Design of drainage systems should consider the requirements of sustainable urban drainage. It is recommended that ongoing monitoring of groundwater levels is carried out during and for a short time after construction.

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8. Conclusions

The methodology and approach of CPG4 has been followed in developing this BIA with respect to Land stability. It is concluded that with the construction of the new basement at 98a Priory Road should not have significant impacts on land stability provided that:

- Groundwater inflow, if encountered is reduced to a minimum and properly controlled such that there is no significant wash out of fine material. Groundwater levels should be monitored before, during and after construction.
- The construction of the basement is carried out by a competent and experienced building contractor and precautions are taken to maintain the stability of the excavations.
- Care should be taken to minimise the disturbance and damage to trees and their roots.
- Concrete should be designed in accordance with BRE Special Digest 1 accounting for the sulphate conditions anticipated.
- Monitoring of the structures is carried out before, during and after construction. The exact nature of this monitoring should be determined by the structural engineer.

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9. References

1. BGS open source mapping: <http://mapapps2.bgs.ac.uk/geoindex/home.html>
2. Arup: Camden Geological, Hydrogeological and Hydrological Study
3. Croft Structural Engineers: Design drawings available at the time of reporting.
4. Ground&Water Ground investigation report, The Coach House, 98a Priory Road, London NW6 3NT.
5. Groundsure Enviroinsight report GS-2103155.

APPENDIX

Groundsure Enviroinsight Report GS-2103155



H Fraser Consulting Ltd
72, CANON STREET,
SHREWSBURY, SY2 5HH

Groundsure Reference: GS-2103155

Your Reference: 30073

Report Date 18 May 2015

Report Delivery Method: Email - pdf

Groundsure Enviroinsight

Address: 98A, PRIORY ROAD, LONDON, NW6 3NT

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Enviroinsight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,

Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Groundsure Enviroinsight

Address: 98A, PRIORY ROAD, LONDON, NW6 3NT

Date: 18 May 2015

Reference: GS-2103155

Client: H Fraser Consulting Ltd

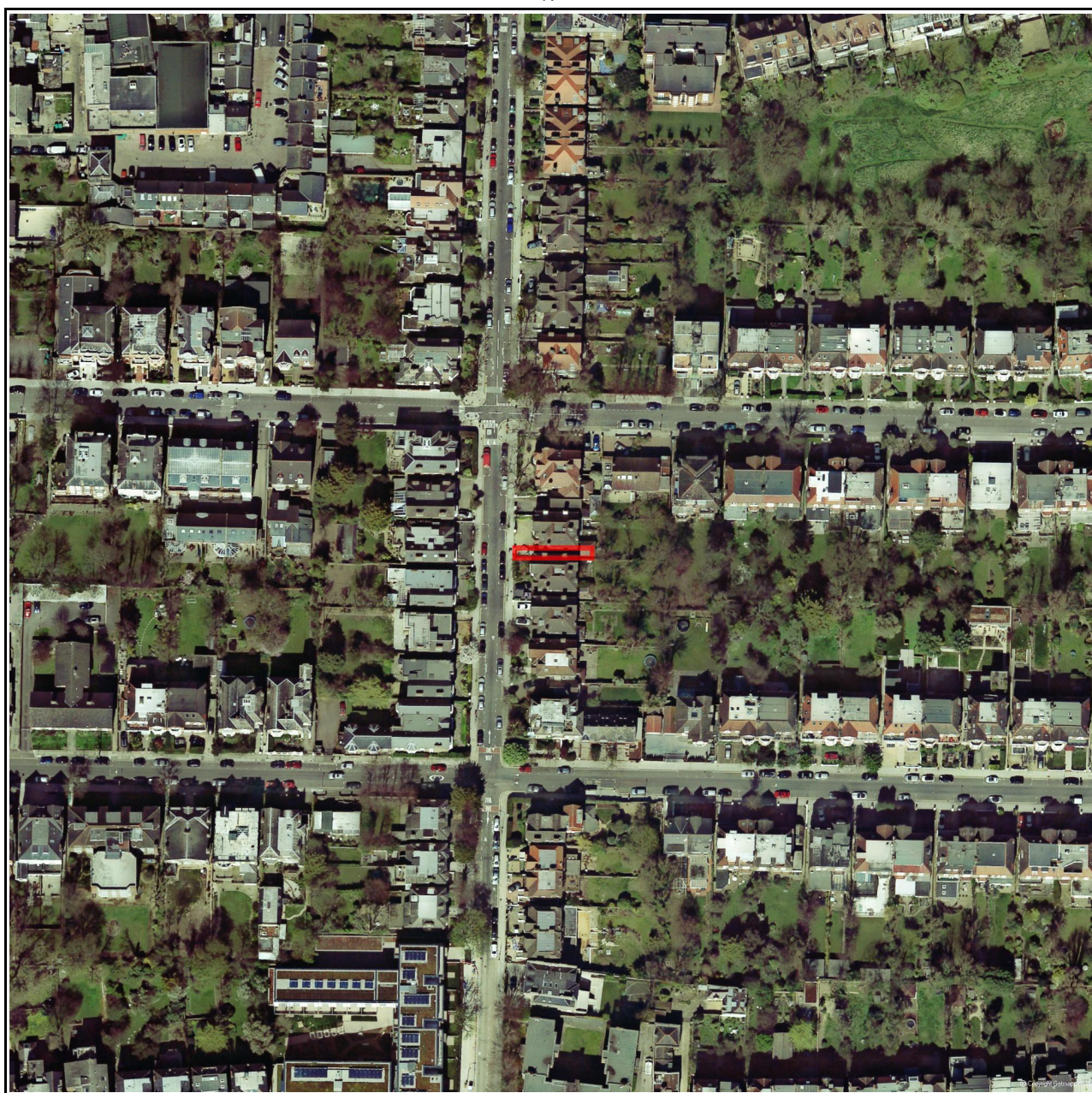
NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 20-Apr-2013

Grid Reference: 525702,184425

Site Size: 0.01ha

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Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
1.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
1.1.1 Records of historic IPC Authorisations	0	0	0	0
1.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
1.1.3 Records of Water Industry Referrals (potentially harmful discharges to the public sewer)	0	0	0	0
1.1.4 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters)	0	0	0	0
1.1.5 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
1.1.6 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
1.1.7 Records of Part A(2) and Part B Activities and Enforcements	0	0	1	2
1.1.8 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
1.1.9 Records of Licensed Discharge Consents	0	0	0	0
1.1.10 Records of Planning Hazardous Substance Consents and Enforcements	0	0	0	0
1.2 Records of COMAH and NIHHS sites	0	0	0	0
1.3 Environment Agency Recorded Pollution Incidents				
1.3.1 National Incidents Recording System, List 2	0	0	0	0
1.3.2 National Incidents Recording System, List 1	0	0	0	0
1.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 2: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-5000
2.1 Landfill Sites						
2.1.1 Environment Agency Registered Landfill Sites	0	0	0	0	0	Not searched
2.1.2 Environment Agency Historic Landfill Sites	0	0	0	1	0	0
2.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0

Section 2: Landfill and Other Waste Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-5000
2.1.4 Landfills from Local Authority and Historical Mapping Records	0	0	0	0	0	0
2.2 Landfill and Other Waste Sites Findings						
2.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	3	Not searched	Not searched
2.2.2 Environment Agency Licensed Waste Sites	0	0	0	0	0	0

Section 3: Current Land Use	On-site	0-50m	51-250	251-500
3.1 Current Industrial Sites Data	0	1	14	Not searched
3.2 Records of Petrol and Fuel Sites	0	0	0	0
3.3 National Grid Underground Electricity Cables	0	0	0	0
3.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 4: Geology

4.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
4.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	None
4.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 5: Hydrogeology and Hydrology

5.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	No					
5.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
5.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	4
5.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
5.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
5.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
5.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
5.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	0	0	0	0	Not searched	Not searched
	On-site	0-50m	51-250	251-500	501-1000	1000-1500

Section 5: Hydrogeology and Hydrology

0-500m

5.9 Is there any Environment Agency information on river quality within 1500m of the study site?	No	No	No	No	No	No
5.10 Detailed River Network entries within 500m of the site	0	0	0	0	Not searched	Not searched
5.11 Surface water features within 250m of the study site	No	No	No	Not searched	Not searched	Not searched

Section 6: Flooding

6.1 What is the highest risk of flooding within 25m of the centre of the study site?	Very Low
6.2 Are there any Flood Defences within 250m of the study site?	No
6.3 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
6.4 Are there any areas used for Flood Storage within 250m of the study site?	No
6.5 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Not Prone
6.6 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	Not Applicable

Section 7: Designated Environmentally Sensitive Sites

On-site 0-50m 51-250 251-500 501-1000 1000-2000

7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
7.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
7.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
7.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
7.5 Records of Ramsar sites	0	0	0	0	0	0
7.6 Records of Ancient Woodlands	0	0	0	0	0	0
7.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	4
7.8 Records of World Heritage Sites	0	0	0	0	0	0
7.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0
7.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0

Section 7: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
7.11 Records of National Parks	0	0	0	0	0	0
7.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
7.13 Records of Nitrate Vulnerable Zones	0	0	0	0	0	0
7.14 Records of Green Belt Data	0	0	0	0	0	0

Section 8: Natural Hazards

8.1 What is the maximum risk of natural ground subsidence?	Moderate
8.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Moderate
8.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
8.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Negligible
8.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Negligible
8.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Very Low
8.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Negligible

Section 9: Mining

9.1 Are there any coal mining areas within 75m of the study site?	No
9.2 What is the potential for undermining as a result of underground mineral extraction, excluding coal and minerals extracted as a consequence of coal mining?	Unclassified
9.3 Are there any brine affected areas within 75m of the study site?	No

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

2. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

3. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

4. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

5. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licenses, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

6. Flooding

Provides information on surface water flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

7. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

8. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence.

9. Mining

Provides information on areas of coal, “non-coal” mining and brine affected areas.

10. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

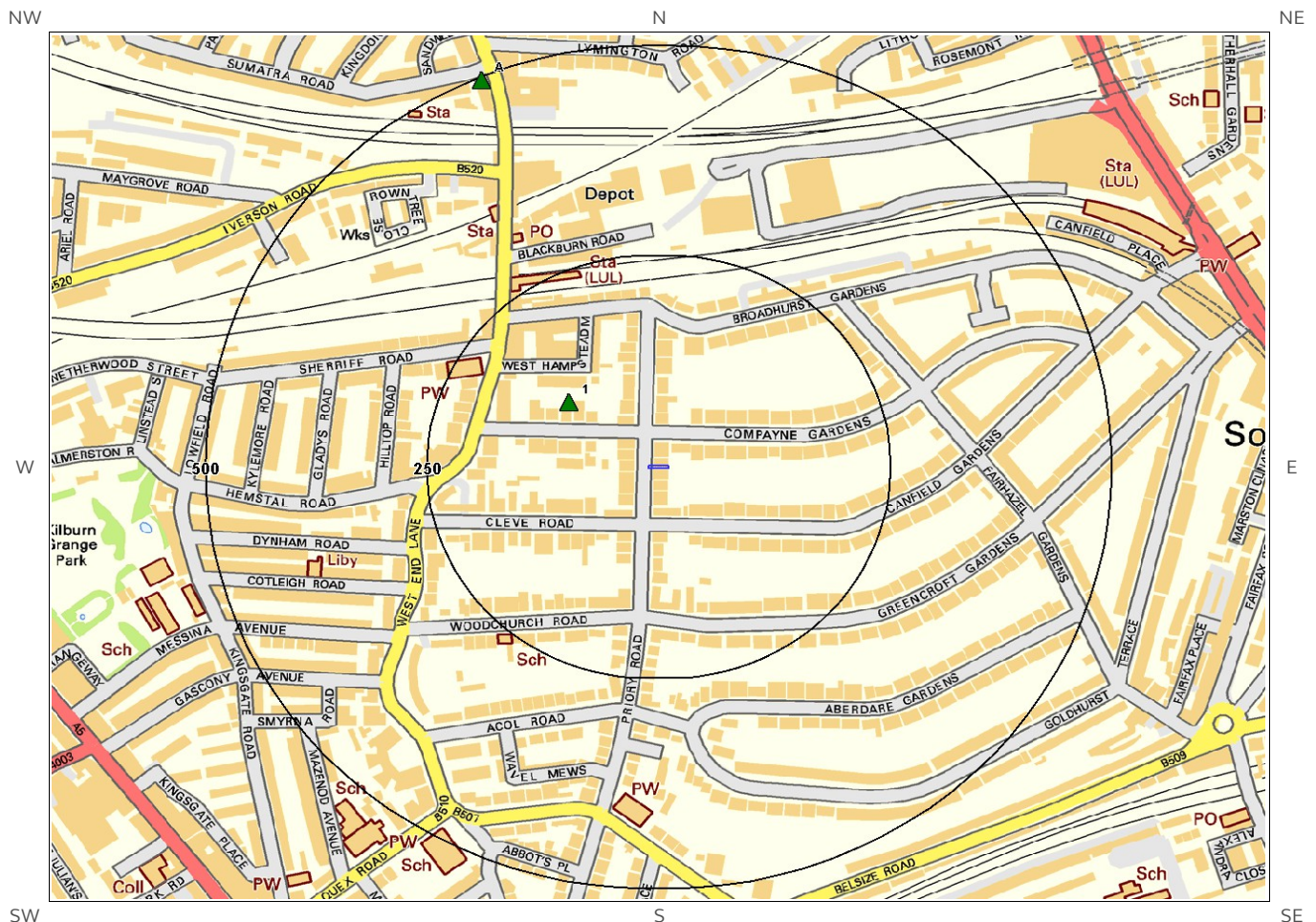
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier “A” on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as “Not Shown”.

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Environmental Permits, Incidents and Registers Map


















Environmental Permits,
Incidents and Registers Legend

Mapping
sourced from

 **Ordnance Survey**

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- | | | |
|--|---|--|
|  Site Outline |  Recorded Pollution Incident |  Radioactive Consents (Lower Risk) |
|  Search Buffers (m) |  Dangerous Substances (List 1) |  Part A(1) Authorised Processes & Historic IPC Authorisations |
|  500 |  Dangerous Substances (List 2) |  Part A(2) and Part B Authorisations |
| |  Water Industry Referrals |  Sites Determined as Contaminated Land |
| |  Licensed Discharge Consents |  COMAH / NIHS Sites |
| |  Red List Discharge Consents |  Hazardous Substance Consents & Enforcements |

1. Environmental Permits, Incidents and Registers

1.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency and Local Authorities reveal the following information:

1.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

1.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

1.1.3 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

1.1.4 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

1.1.5 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

1.1.6 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

1.1.7 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

3

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance	Direction	NGR	Details
1	117.0	NW	525600 184500	Address: Wj Humpage, Loudon Rd Coachworks, West Hampstead Mews, NW6 3BB Process: Vehicle Re-spray Process Status: Historical Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
2A	495.0	N	525501 184883	Address: Madame George Dry Cleaners , 227 West End Lane, NW6 1XJ Process: Dry Cleaner Status: Historical Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
3A	495.0	N	525501 184883	Address: Madame George Dry Cleaners, 227 West End Lane, NW6 1XJ Process: Dry Cleaner Status: Current Permit Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

1.1.8 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

1.1.9 Records of Licensed Discharge Consents within 500m of the study site:

0

Database searched and no data found.

1.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

1.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

1.3 Environment Agency Recorded Pollution Incidents

1.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site: 0

Database searched and no data found.

1.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site: 0

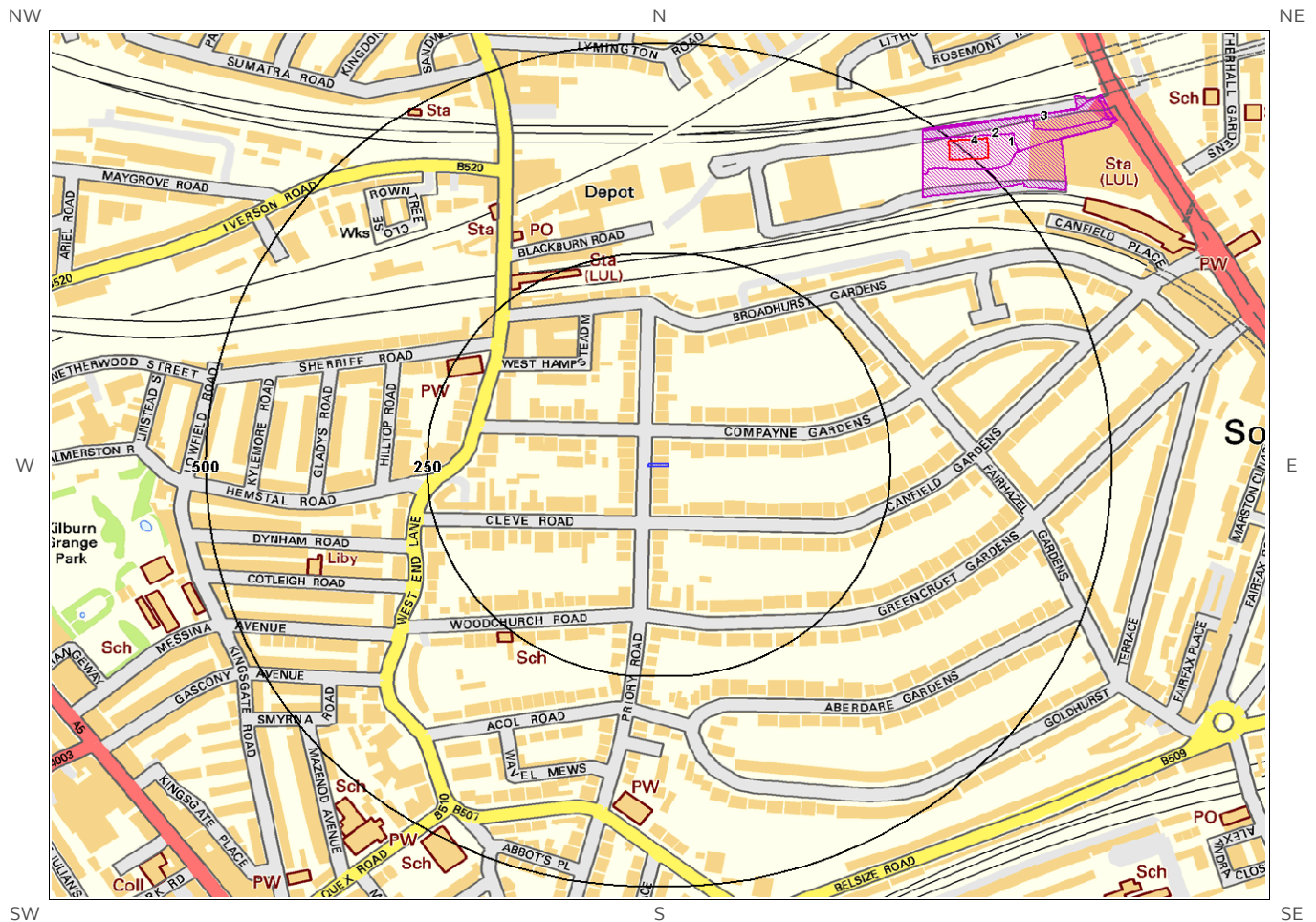
Database searched and no data found.

1.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site? 0

Database searched and no data found.

2. Landfill and Other Waste Sites Map












Landfill and Other Waste Sites Legend

Mapping sourced from



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- | | | | | | |
|---|---------------------------|---|--------------------------|---|---|
|  | Site Outline |  | E.A. Active Landfill |  | Historic and Planned Waste Sites |
|  | E.A. Historic Landfill |  | E.A. Licensed Waste Site |  | Local Authority/Historical Mapping Landfill Records |
|  | BGS / DoE Survey Landfill | | | | |
|  | 250 | | | | |
|  | 500 | | | | |
| | Search Buffers (m) | | | | |

2. Landfill and Other Waste Sites

2.1 Landfill Sites

2.1.1 Records from Environment Agency landfill data within 1000m of the study site:

0

Database searched and no data found.

2.1.2 Records of Environment Agency historic landfill sites within 1500m of the study site:

1

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
4	481.0	NE	526000 184800	Site Address: Canfield Place, London NW6 Waste Licence: - Site Reference: DON009 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: - First Recorded Input: Last Recorded Input:

2.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

2.1.4 Records of Landfills from Local Authority and Historical Mapping records within 1500m of the study site:

0

Database searched and no data found.

2.2 Other Waste Sites

2.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

3

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

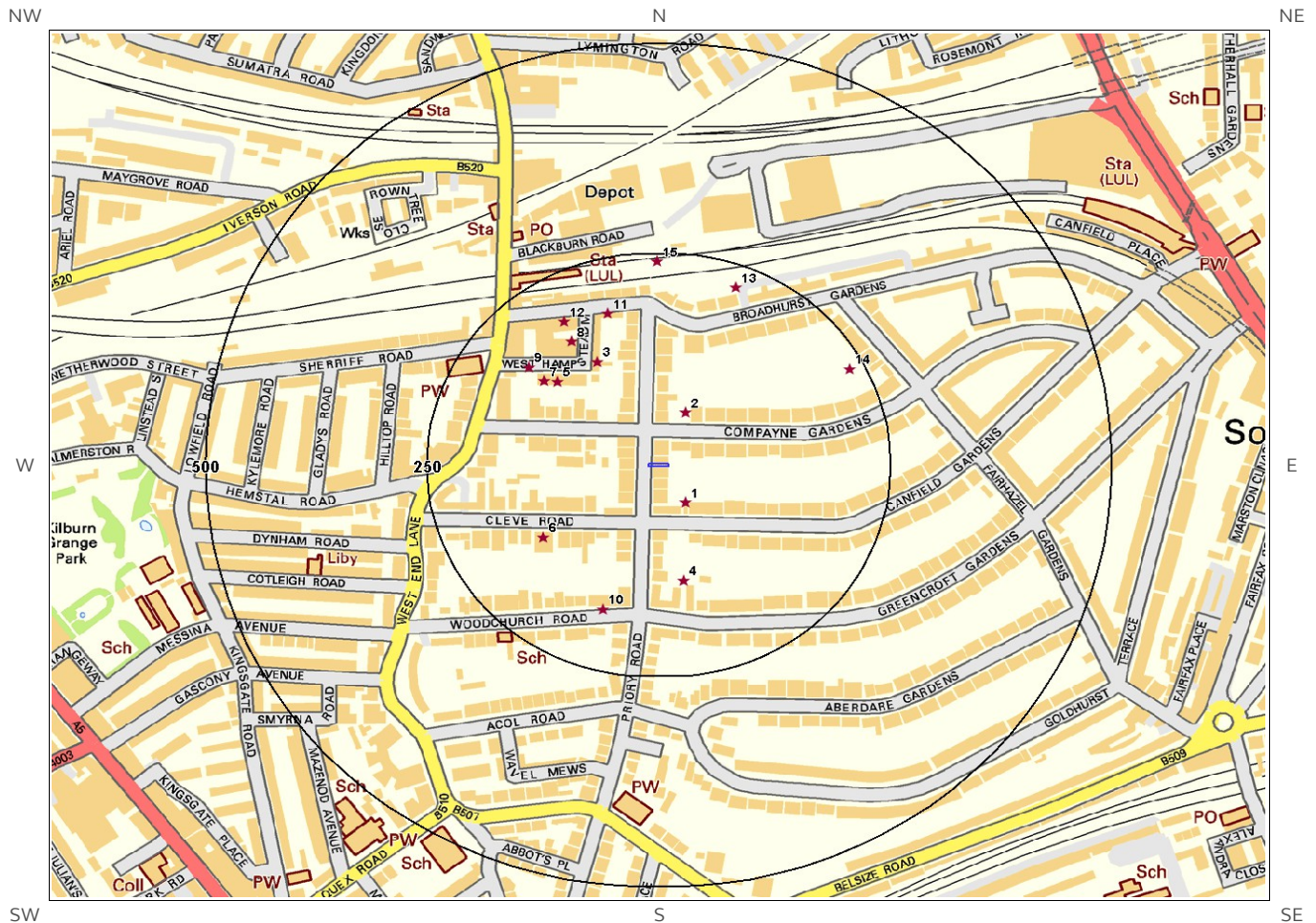
ID	Distance (m)	Direction	NGR	Details		
1	427.0	NE	526109 184803	Type of Site: Waste Transfer Station Site Address: N/A	Planning Application Reference: N/A Date: 1994	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
2	449.0	NE	526076 184811	Type of Site: Refuse Transfer Depot Site Address: N/A	Planning Application Reference: N/A Date: 1986	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
3	482.0	NE	526109 184831	Type of Site: Refuse Transfer Depot Site Address: N/A	Planning Application Reference: N/A Date: 1970	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

2.2.2 Records of Environment Agency licensed waste sites within 1500m of the study site:

0

Database searched and no data found.







3. Current Land Use Map



Current Land Use Legend



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- | | | | | | |
|---|--------------------|---|--------------------------|---|--------------------------------|
|  | Site Outline |  | Current Industrial Sites |  | Gas Transmission Pipeline |
|  | Search Buffers (m) |  | Petrol & Fuel Sites |  | Electricity Transmission Cable |

3. Current Land Uses

3.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site:

15

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	47.0	SE	Electricity Sub Station		NW6	Electrical Features	Infrastructure and Facilities
2	64.0	N	Electricity Sub Station		NW6	Electrical Features	Infrastructure and Facilities
3	134.0	NW	Hint of a Tint	184547	5, West Hampstead Mews, London, NW6 3BB	Industrial Coatings and Finishings	Industrial Products
4	137.0	S	Electricity Sub Station		NW6	Electrical Features	Infrastructure and Facilities
5	142.0	NW	Kwik Kar Service Centre	525587 184523	11, West Hampstead Mews, London, NW6 3BB	Vehicle Repair, Testing and Servicing	Repair and Servicing
6	146.0	SW	Wire Broadcast Ltd	525571 184338	Flat 1 Cleve House 7-9, Cleve Road, London, NW6 3RN	Civil Engineers	Engineering Services
7	154.0	NW	K & P Coachworks	184524	13, West Hampstead Mews, London, NW6 3BB	Vehicle Repair, Testing and Servicing	Repair and Servicing
8	169.0	NW	G M Deery	525602 184571	22, West Hampstead Mews, London, NW6 3BB	Vehicle Repair, Testing and Servicing	Repair and Servicing
9	177.0	NW	Electricity Sub Station		NW6	Electrical Features	Infrastructure and Facilities
10	178.0	S	Electricity Sub Station		NW6	Electrical Features	Infrastructure and Facilities
11	185.0	N	La Mer London Ltd	525643 184604	6-8 Broadwell Parade, Broadhurst Gardens, London, NW6 3BQ	Fish, Meat and Poultry Products	Foodstuffs
12	194.0	NW	Eclipse Td UK Ltd	184594	159, Broadhurst Gardens, London, NW6 3AU	Electronic Equipment	Industrial Products
13	223.0	N	Electricity Sub Station		NW6	Electrical Features	Infrastructure and Facilities
14	233.0	NE	Electricity Sub Station		NW6	Electrical Features	Infrastructure and Facilities
15	241.0	N	Gantry		NW6	Travelling Cranes and Gantries	Industrial Features

3.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site:

0

Database searched and no data found.

3.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site:

0

Database searched and no data found.

3.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site:

0

Database searched and no data found.

4. Geology

4.1 Artificial Ground and Made Ground

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

4.2 Superficial Ground and Drift Geology

Database searched and no data found.

The database has been searched on site, including a 50m buffer.

4.3 Bedrock and Solid Geology

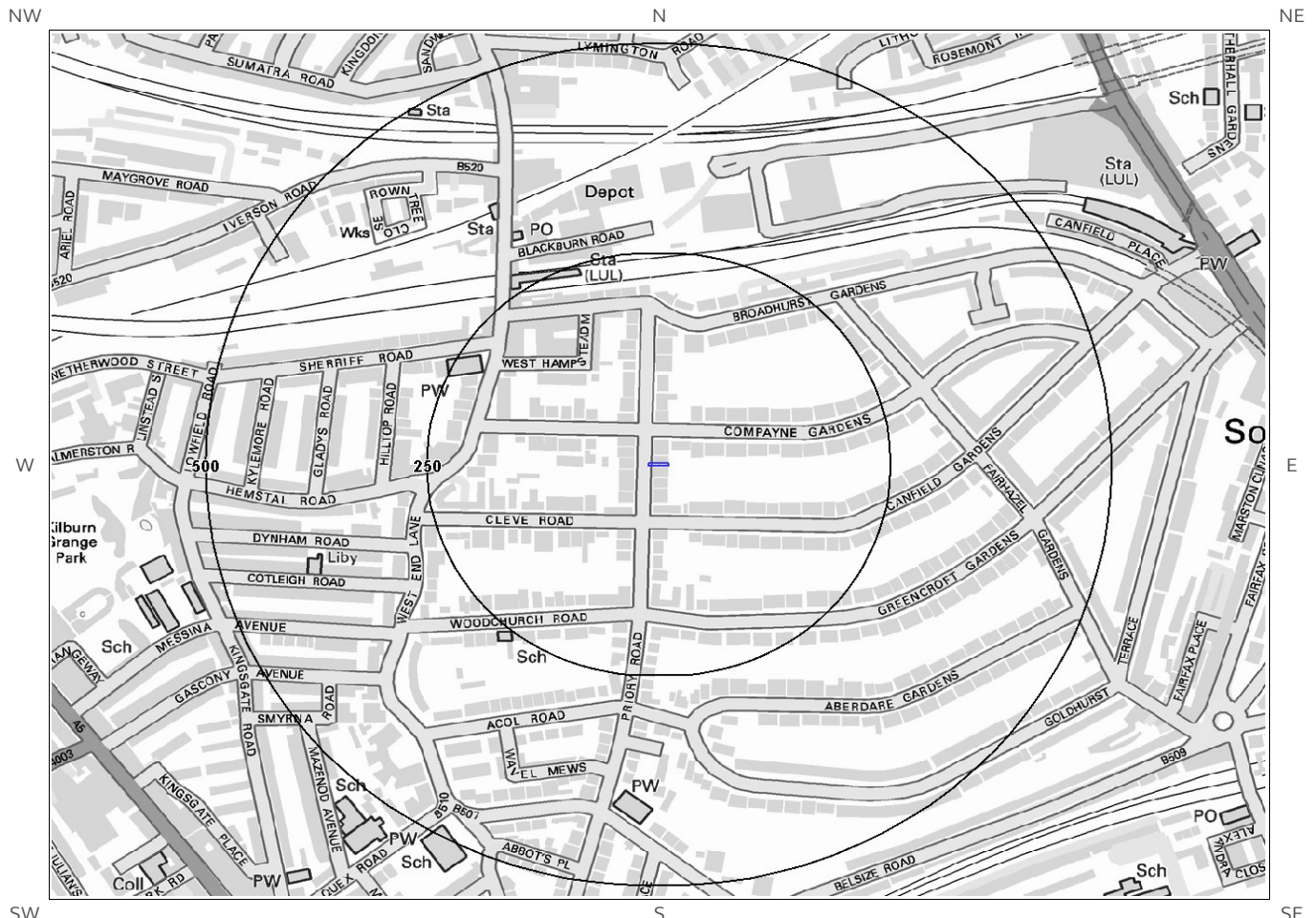
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
LC-CLSISA	LONDON CLAY FORMATION	CLAY, SILT AND SAND

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

5. Hydrogeology and Hydrology

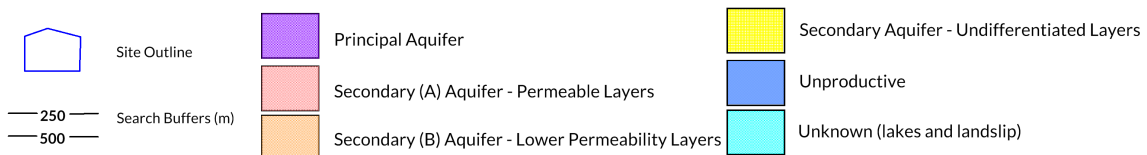
5a. Aquifer Within Superficial Geology



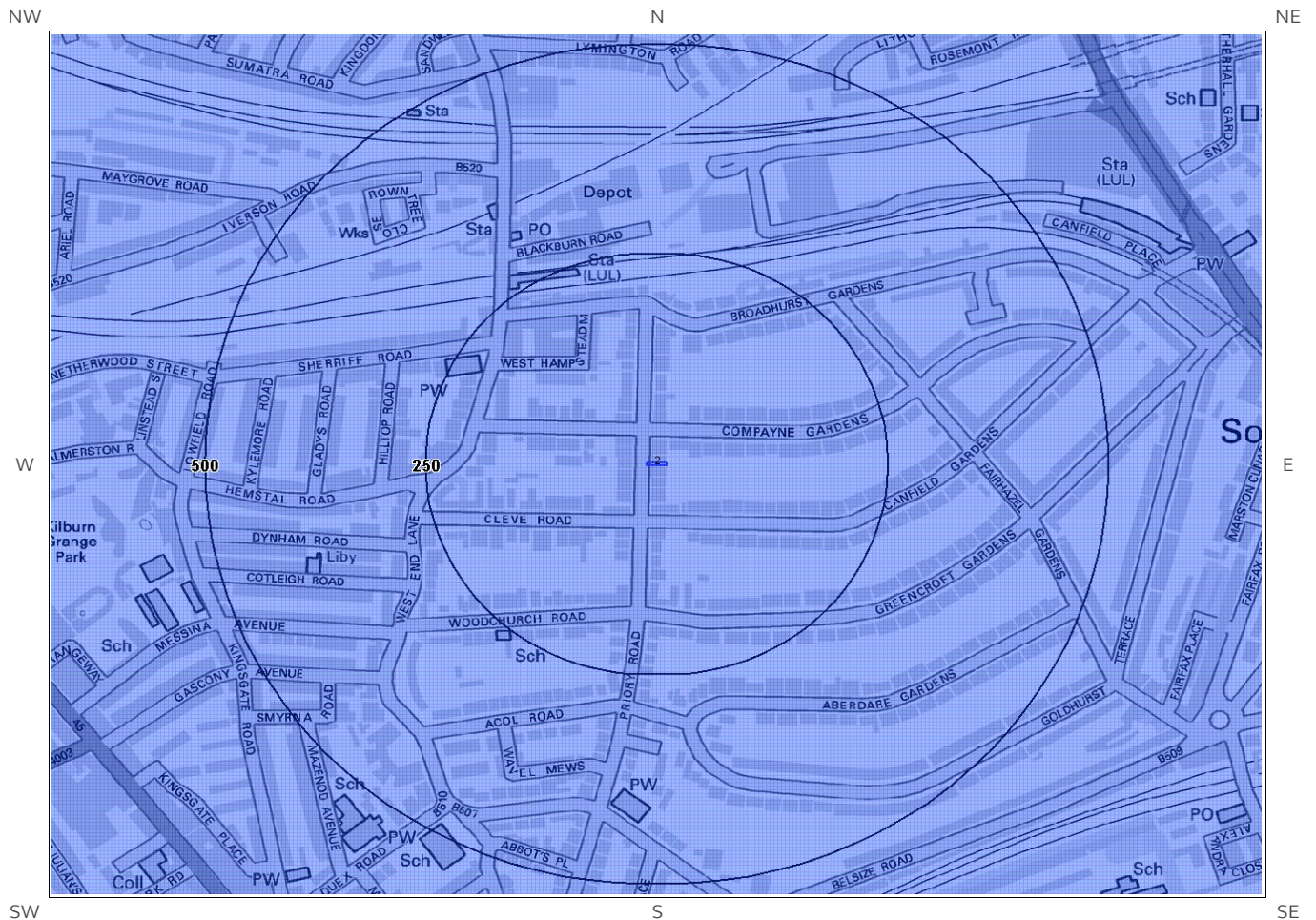
Aquifer Within Superficial Geology



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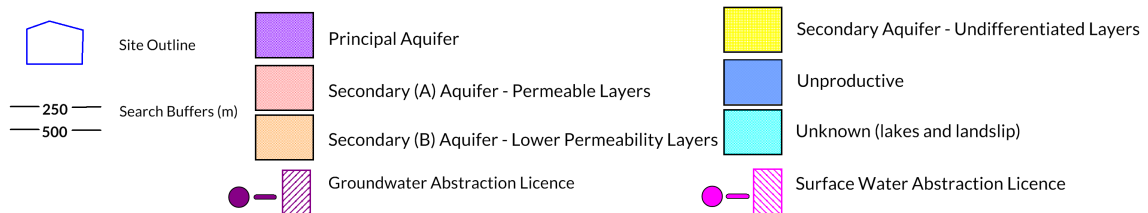
5b. Aquifer Within Bedrock Geology and Abstraction Licenses



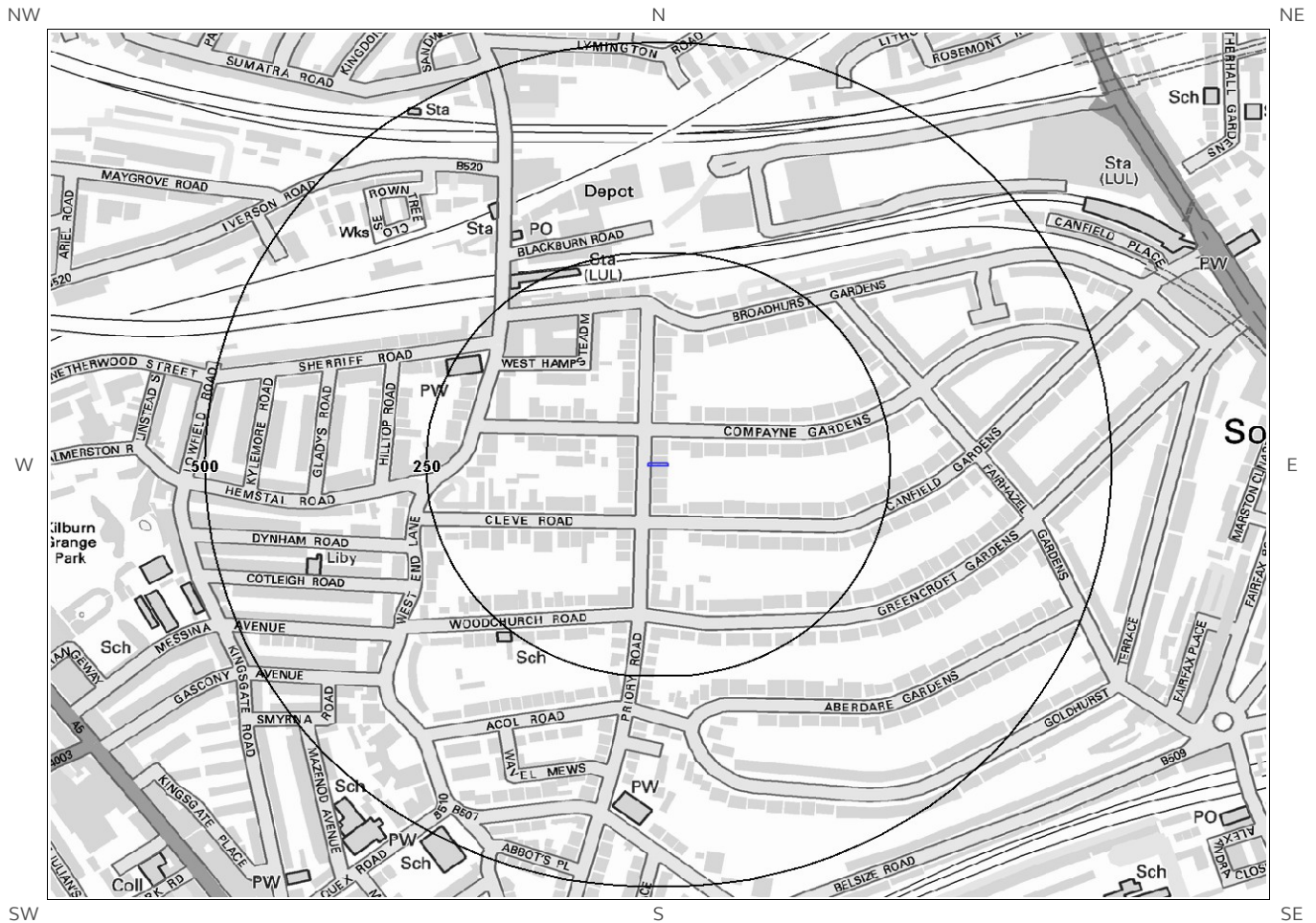
**Aquifer Within Bedrock Geology and
Abstraction Licenses**



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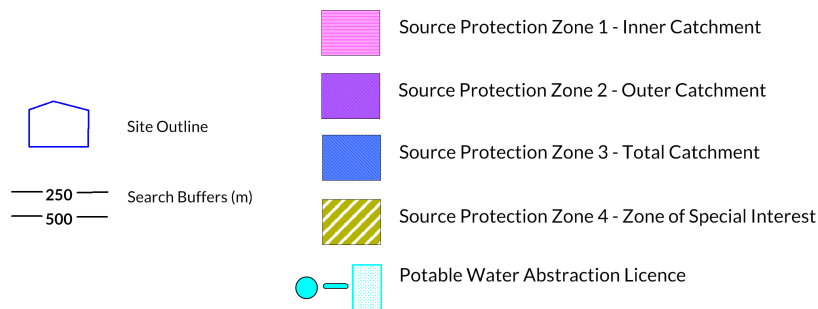
5c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



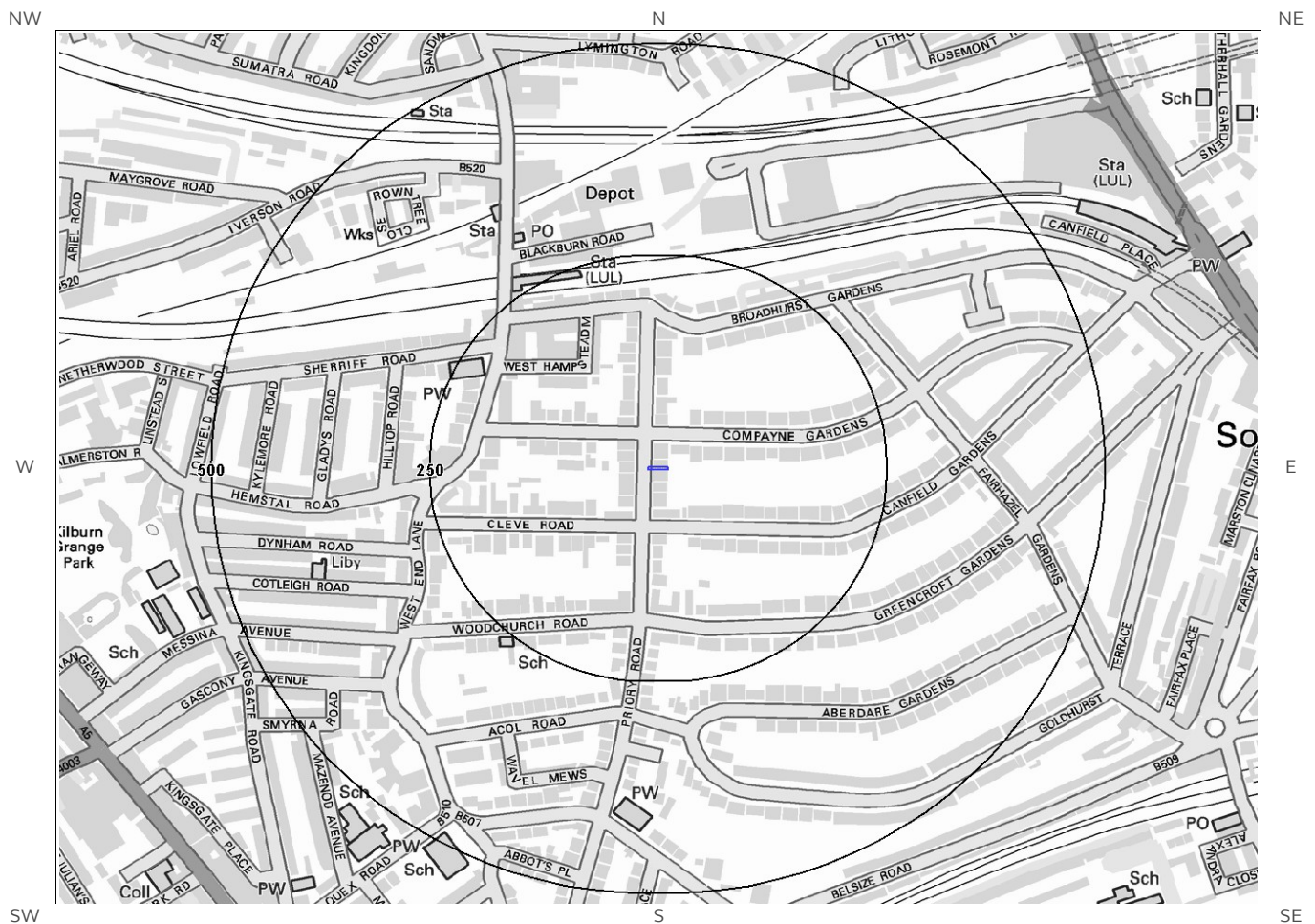
Hydrogeology-Source Protection Zones and Potable Water Abstraction Licenses



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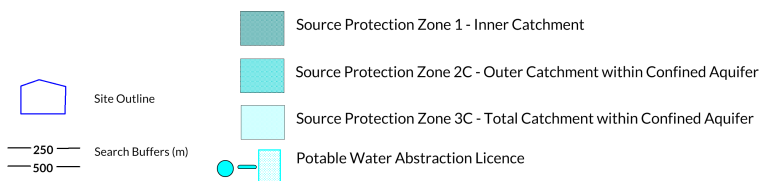
5d. Hydrogeology - Source Protection Zones within confined aquifer



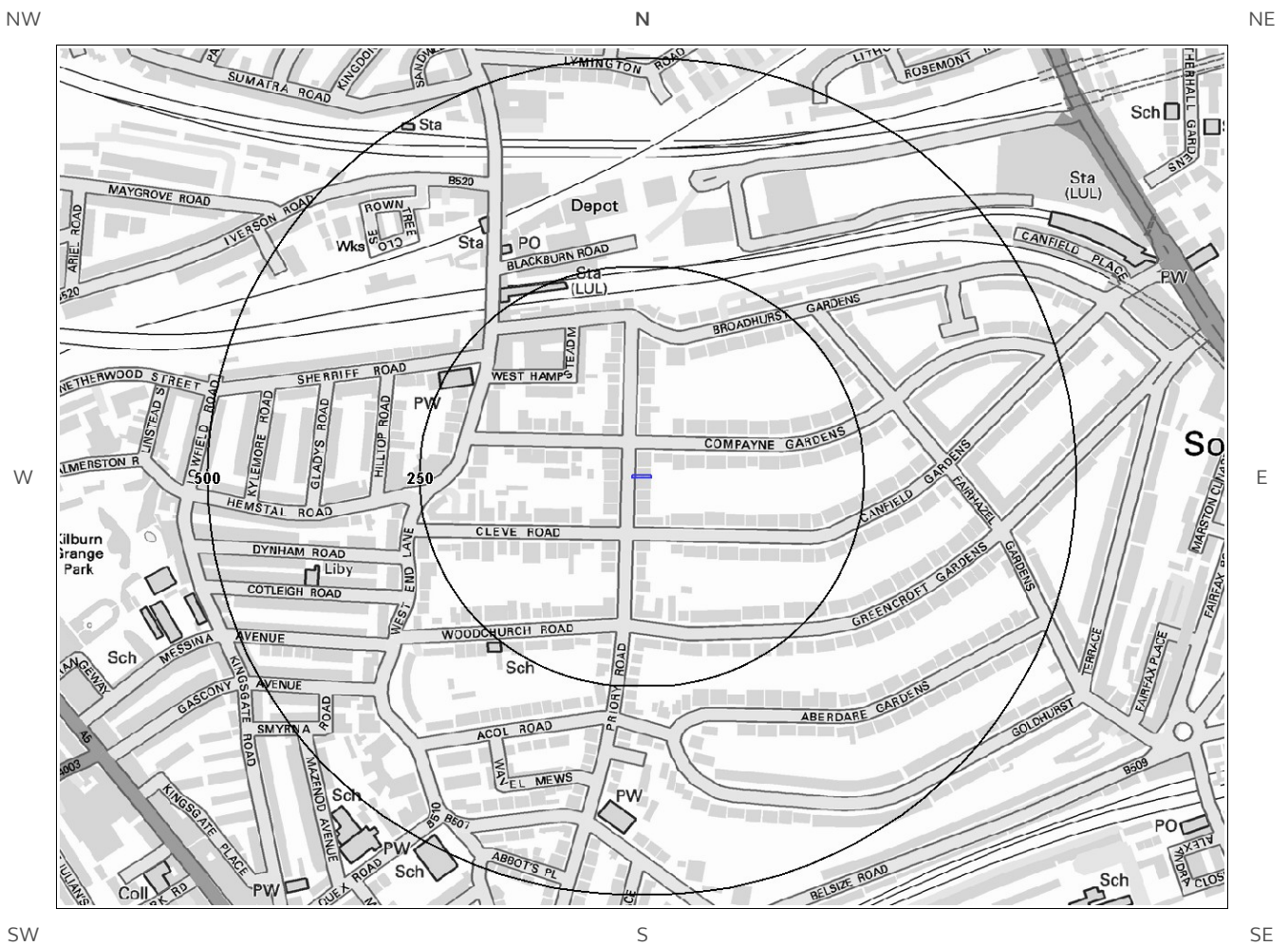
Hydrogeology Source Protection Zones

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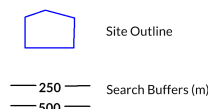
5e. Hydrology – Detailed River Network and River Quality
















Hydrology–Detailed River Network and River Quality



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- | | |
|---|--|
|  Primary River |  Canal |
|  Secondary River |  Canal Tunnel |
|  Tertiary River |  Culvert |
|  Lake/Reservoir |  Multiple Channel Culvert |
|  Underground River (inferred) |  Underground River (Potential Sewer) |
|  General Quality Assessment: Biology |  Underground River (local knowledge) |
|  General Quality Assessment: Chemistry | |

5. Hydrogeology and Hydrology

5.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property? No

Database searched and no data found.

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviroinsight User Guide.

5.2 Aquifer within Bedrock Deposits

Are there records of strata classification within the bedrock geology at or in proximity to the property? Yes

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	Designation	Description
2	0.0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

5.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site? Yes

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	NGR	Name	Details
Not shown	1050.0	E	526750 184261	LONDON BOROUGH OF CAMDEN	Licence No: TH/039/0039/087 Details: General Washing/Process Washing Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point Annual Volume (m³): 10512 Max Daily Volume (m³): 28.8 Original Application No: NPS/WR/014567 Original Start Date: 5/12/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 5/12/2013 Version End Date:

ID	Distance (m)	Direction	NGR	Name	Details
Not shown	1050.0	E	526750 184261	LONDON BOROUGH OF CAMDEN	Licence No: TH/039/0039/087 Details: Lake & Pond Throughflow Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point Annual Volume (m³): 10512 Max Daily Volume (m³): 28.8 Original Application No: NPS/WR/014567 Original Start Date: 5/12/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 5/12/2013 Version End Date:
Not shown	1050.0	E	526750 184261	LONDON BOROUGH OF CAMDEN	Licence No: TH/039/0039/087 Details: Spray Irrigation - Direct Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point Annual Volume (m³): 10512 Max Daily Volume (m³): 28.8 Original Application No: NPS/WR/014567 Original Start Date: 5/12/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 5/12/2013 Version End Date:
Not shown	1096.0	E	526800 184280	LONDON BOROUGH OF CAMDEN	Licence No: 28/39/39/0219 Details: Spray Irrigation - Direct Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point Annual Volume (m³): 10512 Max Daily Volume (m³): 28.8 Original Application No: WRA/N/1407 Original Start Date: 12/8/2005 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: 1/4/2008 Version End Date:

5.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site? No

Database searched and no data found.

5.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site? No

Database searched and no data found.

5.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site? No

Database searched and no data found.

5.7 Source Protection Zones within Confined Aquifer

Are there any Source Protection Zones within the Confined Aquifer within 500m of the study site?

No

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

5.8 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency information on groundwater vulnerability and soil leaching potential within 500m of the study site?

No

Database searched and no data found.

5.9 River Quality

Is there any Environment Agency information on river quality within 1500m of the study site?

No

5.9.1 Biological Quality:

Database searched and no data found.

5.9.2 Chemical Quality:

Database searched and no data found.

5.10 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site?

No

Database searched and no data found.

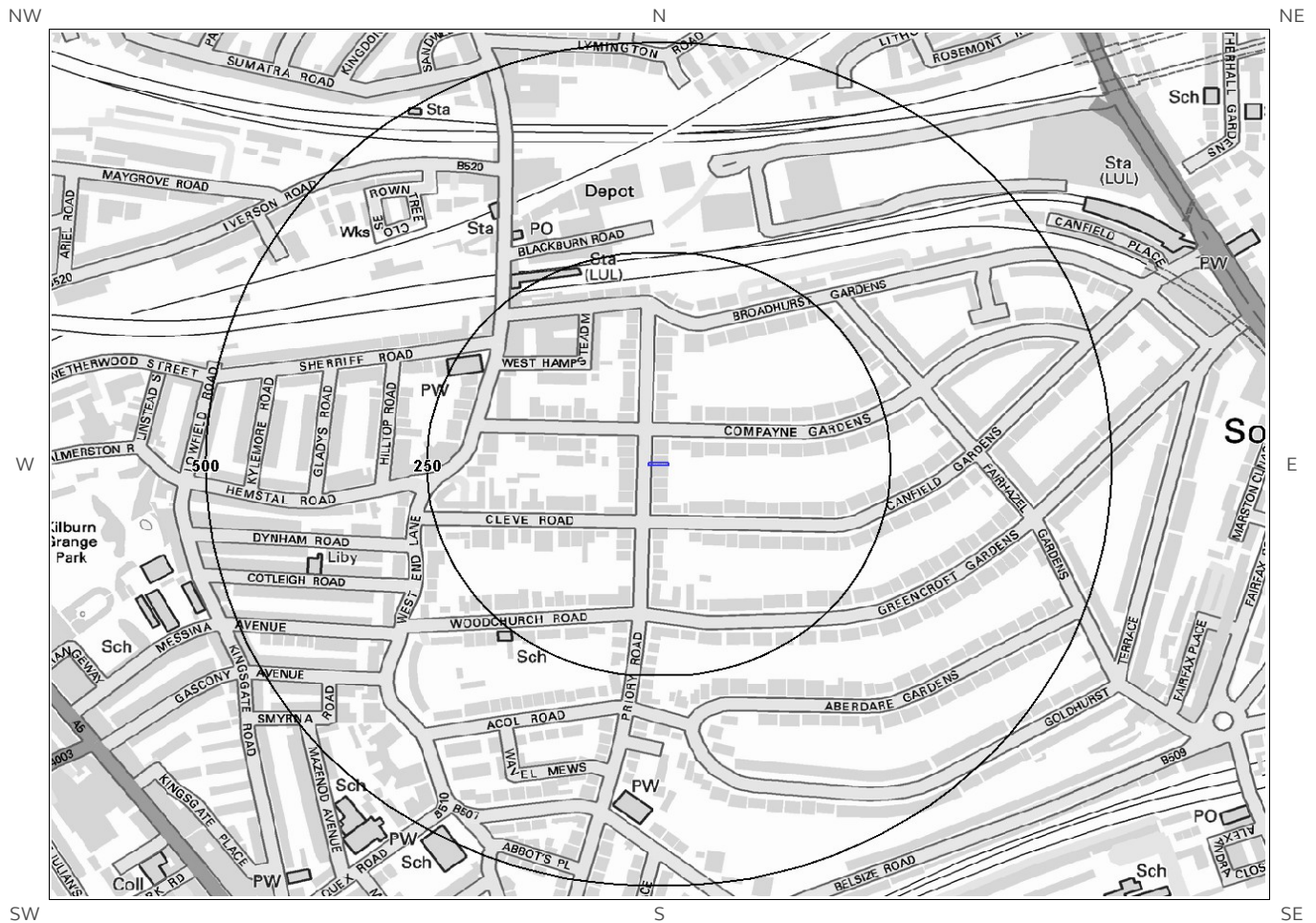
5.11 Surface Water Features

Are there any surface water features within 250m of the study site?

No

Database searched and no data found.

6. Environment Agency Risk of Flooding from Rivers and the Sea (RoFRaS) Map

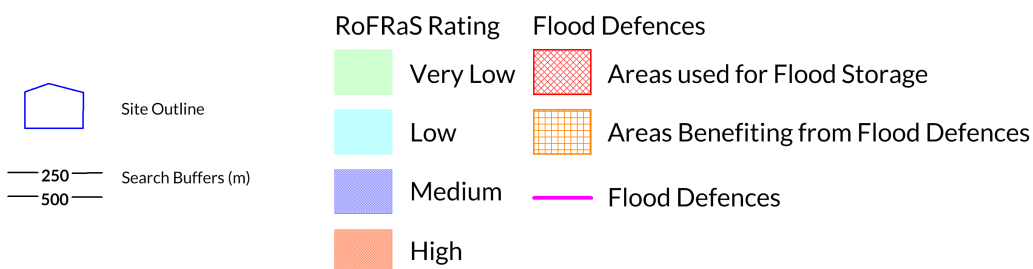


Environment Agency Risk of Flooding From Rivers and the Sea (RoFRaS)

Mapping sourced from



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6. Flooding

6.1 Risk of Flooding from Rivers and the Sea (RoFRaS)

What is the risk of flooding at the centre of the study site? Very Low

What is the highest risk of flooding within 25m of the centre of the study site? Very Low

The Environment Agency RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid as used by many of the insurance companies. RoFRaS data is based on a 50m grid system, with the flood rating at the centre of the grid calculated and given below. The data considers the probability that the flood defences will overtop or breach, and the distance from the river or the sea.

RoFRaS data for the study site indicates the property has a Very Low (less than 1 in 1000) chance of flooding in any given year.

6.2 Flood Defences

Are there any Flood Defences within 250m of the study site? No

Database searched and no data found.

6.3 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? No

6.4 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site? No

6.5 Groundwater Flooding Susceptibility Areas

6.5.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site?

No

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

6.5.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Not Prone

The area is not considered to be prone to groundwater flooding based on rock type.

6.6 Groundwater Flooding Confidence Areas

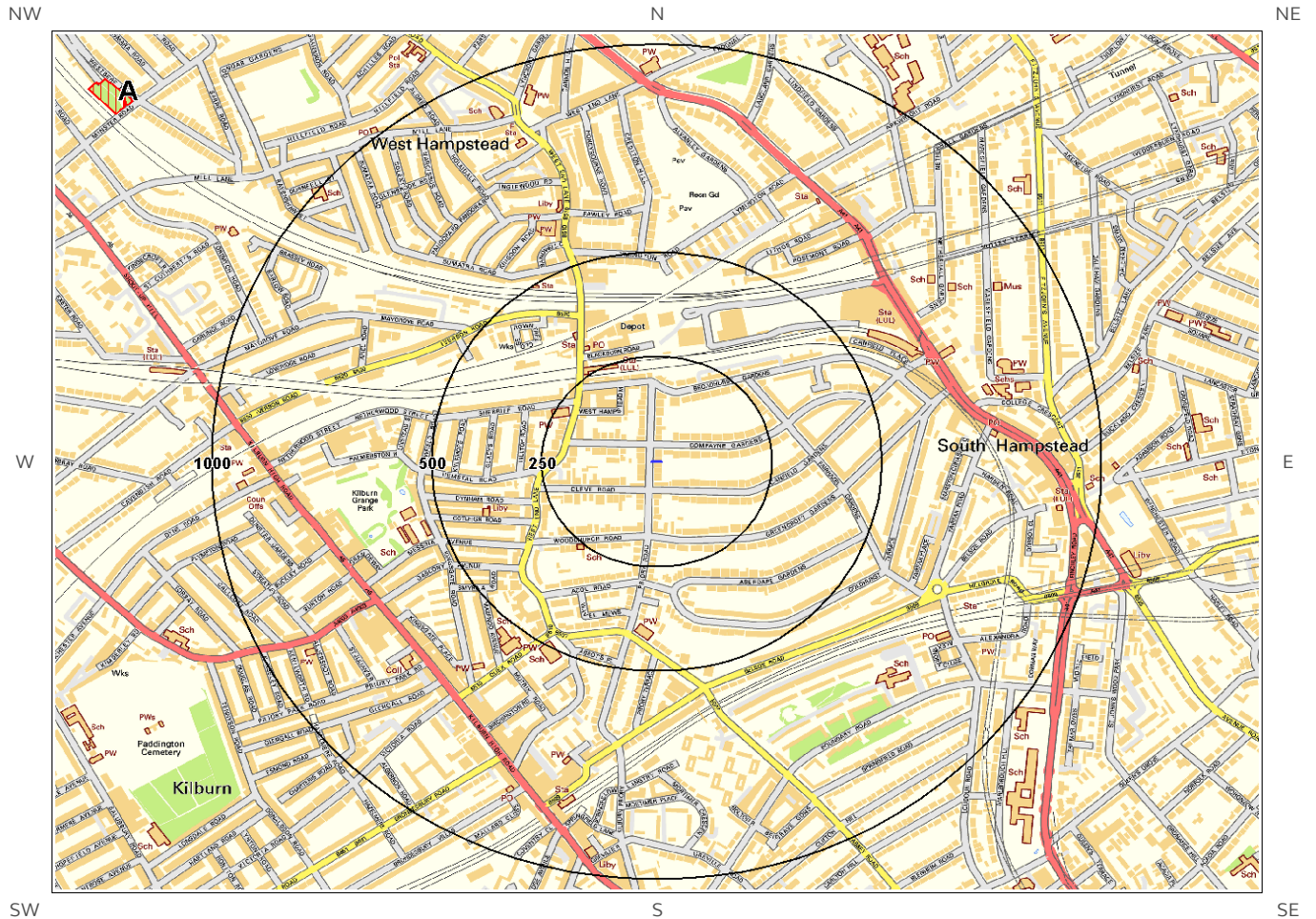
What is the British Geological Survey confidence rating in this result?

Not Applicable

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

7. Designated Environmentally Sensitive Sites Map



Designated Environmentally Sensitive Sites Map



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7. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site? Yes

7.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

0

Database searched and no data found.

7.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

7.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

0

Database searched and no data found.

7.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

7.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

7.6 Records of Ancient Woodland within 2000m of the study site:

0

Database searched and no data found.

7.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

4

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
1A	1463.0	NW	Westbere Copse	Natural England
2A	1470.0	NW	Westbere Copse	Natural England
Not shown	1928.0	SE	St John's Wood Church Grounds	Natural England
Not shown	1942.0	NE	Belsize Wood	Natural England

7.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

7.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

7.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

7.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

7.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

7.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

0

Database searched and no data found.

7.14 Records of Green Belt land within 2000m of the study site:

0

Database searched and no data found.

8. Natural Hazards Findings

8.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a Groundsure GeoInsight, available from our website. The following information has been found:

8.1.1 Shrink Swell

What is the maximum Shrink-Swell* hazard rating identified on the study site? Moderate

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

8.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

* This indicates an automatically generated 50m buffer and site.

8.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site? Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

8.1.4 Compressible Ground

What is the maximum Compressible Ground* hazard rating identified on the study site? Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

8.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks* hazard rating identified on the study site? Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

8.1.6 Running Sand

What is the maximum Running Sand** hazard rating identified on the study site?

Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

* This indicates an automatically generated 50m buffer and site.

9. Mining

9.1 Coal Mining

Are there any coal mining areas within 75m of the study site? No

Database searched and no data found.

9.2 BGS Non Coal Mining Hazards

What is the potential for undermining as a result of underground mineral extraction, excluding coal and minerals extracted as a consequence of coal mining? Unclassified

Database searched and no data found.

9.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site? No

Guidance: No Guidance Required.

Contact Details

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com



British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries



Environment Agency

National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 08708 506 506
Web: www.environment-agency.gov.uk
Email: enquiries@environment-agency.gov.uk



Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe
Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000



Public Health
England

The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



The Coal
Authority

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505



Local Authority

Authority: London Borough of Camden
Phone: 020 7974 4444
Web: <http://www.camden.gov.uk/>
Address: Camden Town Hall, Judd Street, London, WC1H 9JE

Gemapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444



Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England who retain the Copyright and Intellectual Property Rights for the data.

PointX © Database Right/Copyright, Thomson Directories Limited © Copyright Link Interchange Network Limited © Database Right/Copyright and Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028].

This report has been prepared in accordance with the Groundsure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

1 Definitions

In these terms and conditions unless the context otherwise requires:

“Beneficiary” means the person or entity for whose benefit the Client has obtained the Services.

“Client” means the party or parties entering into a Contract with Groundsure.

“Commercial” means any building or property which is not Residential.

“Confidential Information” means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other than

(i) information which the Client can prove was rightfully in its possession prior to disclosure by Groundsure and

(ii) any information which is in the public domain (other than by virtue of a breach of this Contract).

“Support Services” means Support Services provided by Groundsure including, without limitation, interpreting third party and in-house environmental data, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

“Contract” means the contract between Groundsure and the Client for the provision of the Services, and which shall incorporate these terms and conditions, the Order, and the relevant User Guide.

“Third Party Data Provider” means any third party providing Third Party Content to Groundsure.

“Data Reports” means reports comprising factual data with no accompanying interpretation.

“Fees” has the meaning set out in clause 5.1.

“Groundsure” means Groundsure Limited, a company registered in England and Wales under number 03421028.

“Groundsure Materials” means all materials prepared by Groundsure and provided as part of the Services, including but not limited to Third Party Content, Data Reports, Mapping, and Risk Screening Reports.

“Intellectual Property” means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other rights of a similar nature anywhere in the world.

“Mapping” means a map, map data or a combination of historical maps of various ages, time periods and scales.

“Order” means an electronic, written or other order form submitted by the Client requesting Services from Groundsure in respect of a specified Site.

“Ordnance Survey” means the Secretary of State for Business, Innovation and Skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS, UK.

“Order Website” means the online platform through which Orders may be placed by the Client and accepted by Groundsure.

“Report” means a Risk Screening Report or Data Report for Commercial or Residential property.

“Residential” means any building or property used as or intended to be used as a single dwelling.

“Risk Screening Report” means a risk screening report comprising factual data with an accompanying interpretation by Groundsure.

“Services” means any Report, Mapping and/or Support Services which Groundsure has agreed to provide by accepting an Order pursuant to clause 2.6.

“Site” means the area of land in respect of which the Client has requested Groundsure to provide the Services.

“Third Party Content” means data, database information or other information which is provided to Groundsure by a Third Party Data Provider.

“User Guide” means the user guide, as amended from time to time, available upon request from Groundsure and on the website (www.Groundsure.com) and forming part of this Contract.

2 Scope of Services, terms and conditions, requests for insurance and quotations

2.1 Groundsure agrees to provide the Services in accordance with the Contract.

2.2 Groundsure shall exercise reasonable skill and care in the provision of the Services.

2.3 Subject to clause 7.3 the Client acknowledges that it has not relied on any statement or representation made by or on behalf of Groundsure which is not set out and expressly agreed in writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law.

2.4 The Client acknowledges that terms and conditions appearing on a Client’s order form, printed stationery or other communication, or any terms or conditions implied by custom, practice or course of dealing shall be of no effect, and that this Contract shall prevail over all others in relation to the Order.

2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result of the Services, Groundsure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and Groundsure will have no liability therefor. In addition you acknowledge and agree that Groundsure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.

2.6 Groundsure's quotations or proposals are valid for a period of 30 days only unless an alternative period of time is explicitly stipulated by Groundsure. Groundsure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by Groundsure. Groundsure's acceptance of an Order shall be binding only when made in writing and signed by Groundsure's authorised representative or when accepted through the Order Website.

3 The Client’s obligations

3.1 The Client shall comply with the terms of this Contract and

(i) procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and

(ii) be liable to Groundsure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client.

3.2 The Client shall be solely responsible for ensuring that the Services are appropriate and suitable for its and/or the Beneficiary’s needs.

3.3 The Client shall supply to Groundsure as soon as practicable and without charge all requisite information (and the Client warrants that such information is accurate, complete and appropriate), including without limitation any environmental information relating to the Site and shall give such assistance as Groundsure shall reasonably require in the provision of the Services including, without limitation, access to the Site, facilities and equipment.

3.4 Where the Client’s approval or decision is required to enable Groundsure to carry out work in order to provide the Services, such approval or decision shall be given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.

3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the Groundsure Materials, or use the Groundsure Materials in a manner for which they were not intended. The Client may make the Groundsure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.6 The Client is responsible for maintaining the confidentiality of its user name and password if using the Order Website and the Client acknowledges that Groundsure accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

4 Reliance

4.1 The Client acknowledges that the Services provided by Groundsure consist of the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or warranted by Groundsure to be reliable.

4.2 In respect of Data Reports, Mapping and Risk Screening Reports, the following classes of person and no other are entitled to rely on their contents;

- (i) the Beneficiary,
- (ii) the Beneficiary's professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as part of a lending syndicate),
- (iv) the first purchaser or first tenant of the Site, and
- (v) the professional advisers and lenders of the first purchaser or tenant of the Site.

4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly named in a Report and no other parties are entitled to rely on its contents.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in writing, no other person or entity of any kind is entitled to rely on any Services or Report issued or provided by Groundsure. Any party considering such Reports and Services does so at their own risk.

5 Fees and Disbursements

5.1 Groundsure shall charge and the Client shall pay fees at the rate and

frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by Groundsure. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services (together "Fees").

5.2 The Client shall pay all outstanding Fees to Groundsure in full without deduction, counterclaim or set off within 30 days of the date of Groundsure's invoice or such other period as may be agreed in writing between Groundsure and the Client ("Payment Date"). Interest on late payments will accrue on a daily basis from the Payment Date until the date of payment (whether before or after judgment) at the rate of 8% per annum.

5.3 The Client shall be deemed to have agreed the amount of any invoice unless an objection is made in writing within 28 days of the date of the invoice. As soon as reasonably practicable after being notified of an objection, without prejudice to clause 5.2 a member of Groundsure's management team will contact the Client and the parties shall then use all reasonable endeavours to resolve the dispute within 15 days.

6 Intellectual Property and Confidentiality

6.1 Subject to

(i) full payment of all relevant Fees and

(ii) compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, non-assignable and (save to the extent set out in this Contract) non-transferable licence to make use of the Groundsure Materials.

6.2 All Intellectual Property in the Groundsure Materials are and shall remain owned by Groundsure or Groundsure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure acknowledgement by the Beneficiary of, such ownership. Nothing in this Contract purports to transfer or assign any rights to the Client or the Beneficiary in respect of such Intellectual Property.

6.3 Third Party Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client shall, and shall procure that any recipients of the Groundsure Materials shall:

(i) not remove, suppress or modify any trade mark, copyright or other proprietary marking belonging to Groundsure or any third party from the Services;

(ii) use the information obtained as part of the Services in respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;

(iii) not create any product or report which is derived directly or indirectly from the Services (save that those acting in a professional capacity to the Beneficiary may provide advice based upon the Services);

(iv) not combine the Services with or incorporate such Services into any other information data or service;

(v) not reformat or otherwise change (whether by modification, addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services);

(vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and

(vii) not copy in whole or in part by any means any map prints or run-on copies containing content belonging to Ordnance Survey (other than that contained within Ordnance Survey's OS Street Map) without first being in possession of a valid Paper Map Copying Licence from Ordnance Survey,

6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the Groundsure Materials in order to advise the Beneficiary in a professional capacity. However, Groundsure shall have no liability in respect of any advice, opinion or report given or provided to Beneficiaries by the Client.

6.6 The Client shall procure that any person to whom the Services are made available shall notify Groundsure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.

7.Liability: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of Groundsure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of:

(i) any breach of contract, including any deliberate breach of the Contract by Groundsure or its employees, agents or

subcontractors;

(ii) any use made of the Reports, Services, Materials or any part of them; and

(iii) any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract.

7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation.

7.4 Groundsure shall not be liable for

(i) loss of profits;

(ii) loss of business;

(iii) depletion of goodwill and/or similar losses;

(iv) loss of anticipated savings;

(v) loss of goods;

(vi) loss of contract;

(vii) loss of use;

(viii) loss or corruption of data or information;

(ix) business interruption;

(x) any kind of special, indirect, consequential or pure economic loss, costs, damages, charges or expenses;

(xi) loss or damage that arise as a result of the use of all or part of the Groundsure Materials in breach of the Contract;

(xii) loss or damage arising as a result of any error, omission or inaccuracy in any part of the Groundsure Materials where such error, omission or inaccuracy is caused by any Third Party Content or any reasonable interpretation of Third Party Content;

(xiii) loss or damage to a computer, software, modem, telephone or other property; and

(xiv) loss or damage caused by a delay or loss of use of Groundsure's internet ordering service.

7.5 Groundsure's total liability in relation to or under the Contract shall be limited to £10 million for any claim or claims.

7.6 Groundsure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of Groundsure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against Groundsure in relation to the Services or other matters arising pursuant to the Contract.

8 Groundsure's right to suspend or terminate

8.1 If Groundsure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services, Groundsure shall be entitled to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 Groundsure shall be entitled to terminate the Contract immediately on written notice in the event that:

(i) the Client fails to pay any sum due to Groundsure within 30 days of the Payment Date; or

(ii) the Client (being an individual) has a bankruptcy order made against him or (being a company) shall enter into liquidation whether compulsory or voluntary or have an administration order made against it or if a receiver shall be appointed over the whole or any part of its property assets or undertaking or if the Client is struck off the Register of Companies or dissolved; or

(iii) the Client being a company is unable to pay its debts within the meaning of Section 123 of the Insolvency Act 1986 or being an individual appears unable to pay his debts within the meaning of Section 268 of the Insolvency Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or

(iv) the Client or the Beneficiary breaches any term of the Contract (including, but not limited to, the obligations in clause 4) which is incapable of remedy or if remediable, is not remedied within five days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services.

9.2 In any event, where the Client is a consumer (and not a business) he/she hereby expressly acknowledges and agrees that:

(i) the supply of Services under this Contract (and therefore the performance of this Contract) commences immediately upon Groundsure's acceptance of the Order; and

(ii) the Reports and/or Mapping provided under this Contract are

- (a) supplied to the Client's specification(s) and in any event
- (b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination of the Contract:

(i) Groundsure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client and/or Beneficiary any property of the Client and/or Beneficiary in Groundsure's possession or control; and

(ii) the Client shall pay to Groundsure all and any Fees payable in respect of the performance of the Services up to the date of termination or suspension. In respect of any Support Services provided, the Client shall also pay Groundsure any additional costs incurred in relation to the termination or suspension of the Contract.

11 Anti-Bribery

11.1 The Client warrants that it shall:

(i) comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010;

(ii) comply with such of Groundsure's anti-bribery and anti-corruption policies as are notified to the Client from time to time; and

(iii) promptly report to Groundsure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract.

11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract.

12.2 The Client shall be permitted to make one copy only of each Report or Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through Groundsure.

12.3 Groundsure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of Groundsure.

12.4 No failure on the part of Groundsure to exercise, and no delay in exercising, any right, power or provision under this Contract shall operate as a waiver thereof.

12.5 Save as expressly provided in this Contract, no person other than the persons set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS' successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

12.7 Groundsure shall not be liable to the Client if the provision of the Services is delayed or prevented by one or more of the following circumstances:

(i) the Client or Beneficiary's failure to provide facilities, access or information;

(ii) fire, storm, flood, tempest or epidemic;

(iii) Acts of God or the public enemy;

(iv) riot, civil commotion or war;

(v) strikes, labour disputes or industrial action;

(vi) acts or regulations of any governmental or other agency;

(vii) suspension or delay of services at public registries by Third Party Data Providers;

(viii) changes in law; or

(ix) any other reason beyond Groundsure's reasonable control.

In the event that Groundsure is prevented from performing the Services (or any part thereof) in accordance with this clause 12.6 for a period of not less than 30 days then Groundsure shall be entitled to terminate this Contract immediately on written notice to the Client.

12.8 Any notice provided shall be in writing and shall be deemed to be properly given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

12.11 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.

12.12 This Contract shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 Groundsure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at Groundsure who will respond in a timely manner.

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law.

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