

**Appendix F: Ground Conditions
Desk Study**

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CENTRE POINT, LONDON

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GROUND CONDITIONS
DESK STUDY

A12504G001B

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CENTRE POINT, LONDON
GROUND CONDITIONS DESK STUDY
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EXECUTIVE SUMMARY

Site Name	Centre Point, London
Location	The site is located on New Oxford Street in the Camden area of London. The approximate national grid reference for the centre of the site is TQ29899 81360.
Redevelopment details	The proposed development will consist of the refurbishment of the existing buildings which will contain two storeys of retail units and residential accommodation in the tower blocks with penthouse apartments on the top floor.
Site History	The historical maps indicate that the site has remained predominantly as terraced properties since the earliest available maps (1874-75) until it was developed and took on its current layout as a large L shaped commercial building (Centre Point) as shown on the 1970-1973 map. At the time of the earliest available map (1874-75) the immediate surrounding area of the site was predominantly terraced buildings, with a few commercial buildings. The area has experienced moderate commercial development. A number of potentially significant contaminative land uses have been identified in the surrounding area, including Brewery, Warehouses, Cardboard Box factory
Geology	The published geology for the area indicates that the site is underlain by Lynch Hill Gravel Member comprising Sand and gravel which is underlain by the London Clay Formation.
Hydrogeology	The superficial deposits are classified by the EA as being a Secondary A Aquifer.
Hydrology	The nearest surface water feature is the River Thames situated at a distance of 1km to the south east of the site.
Previous Site investigation	Two Phases of intrusive ground investigation works have been undertaken by C J Pell and Partners 1960-61 for the design and construction of the existing Centre Point building. The investigations comprised the following works: <ul style="list-style-type: none">Drilling of 11 boreholes (BH1- BH11), with associated in situ and laboratory geotechnical analysis.
Ground Conditions	The 1960-61 site investigations generally encountered a sequence of Made Ground over Sand and Gravels underlain by the London Clay Formation and the Lambeth Beds (Formerly the Woolwich and Reading). Groundwater was first encountered in the sand and gravel at depth varying between 2.74m and 4.15m bgl.
Conclusions and Recommendations	Potentially complete pollutant linkages have been identified on the site; an overall non-urgent Low/Medium risk rating has been assigned based on the proposed mixed use developments. The key potential pollution linkages and risk is summarised as: <ul style="list-style-type: none">Potential contamination migrating onsite from offsite sources impacting on future users and construction workers of the proposed developments;Potential Contaminants onsite migrating and accumulating within buildings and structures. Foundation augmentation may be carried out as required using straight shafted bored cast in situ piles to act in conjunction with the existing under-reamed piles.

1. INTRODUCTION

Pell Frischmann has been appointed by Almacantar (Centre Point) Ltd to produce a desk based ground conditions assessment in support of the proposed redevelopment of the existing commercial development at Centre Point, New Oxford Street in London.

It is understood that the proposed redevelopment will consist of the refurbishment of the existing buildings which will contain two storeys of retail units and residential accommodation in the tower blocks with penthouse apartments on the top floor.

1.1 OBJECTIVES

The objectives of this desk based ground conditions assessment are to review any existing information available for the site and make an assessment of the likely land contamination and geotechnical risks associated with the development

The desk study was undertaken to facilitate an initial assessment of the following to be made:

- Potential land contamination and ground conditions on site;
- Geotechnical engineering design implications for the proposed redevelopment; and
- Land contamination risks associated with the site's development.

1.2 DATA SOURCES

This report has been prepared by utilising a range of sources and publications relating to the geo-environmental and historical development of the site. The sources are listed as follows:

- GroundSure Environmental Data Report prepared by eMapSite;
- GroundSure Geology Report prepared by eMapSite
- Historical Ordnance Survey Maps;
- The Environment Agency data (www.environment-agency.gov.uk).
- British Geological Survey Map

2. THE SITE

2.1 SITE LOCATION

Centre Point lies at the historic junction at the end of St Giles High St, Oxford St, Tottenham Court Road and Charing Cross Road within the London Borough of Camden as illustrated in Figure 1 below.



Figure 1 – Site Location Plan

2.2 SITE DESCRIPTION

The site covers an area of approximately 0.47 ha and currently comprises:

- Centre Point Tower - a thirty four storey office block with double basement;
- Centre Point Bridge Link – connecting Centre Point Tower and Centre Point House at first floor level; and
- Centre Point House – an eight storey building with basement

All the buildings on site are Grade two listed buildings.

To the north the site is bound by New Oxford Street, to the west is Charing Cross Road, to the south by St Giles High Street and to the east by Earnshaw Street. The surrounding area is a highly built up area with a mix of commercial, retail and office uses.

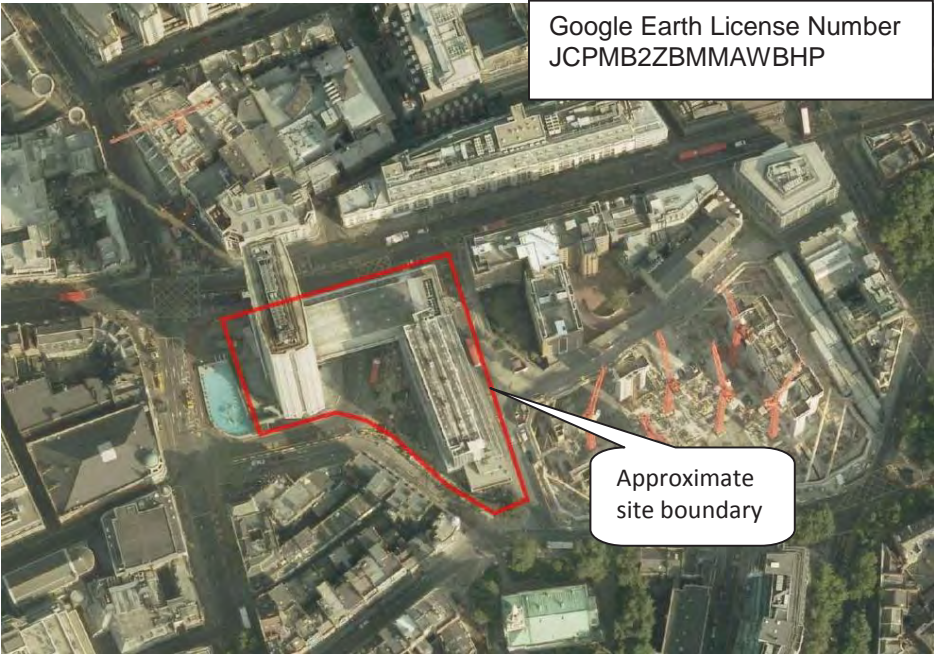


Figure 2 – Aerial Photograph of the Site

3. SITE DATA SEARCHES

3.1 INTRODUCTION

A desk study of archives and public registers encompassing relevant information with regard to the history and current status of the site and its surroundings has been carried out. The following sources of information have been consulted where available and are presented in the following sub-sections of this report.

- GroundSure Report
- Superseded (historical) editions of Ordnance Survey maps
- British Geological Survey records
- Local Authority records
- Environment Agency records
- Statutory Authority records, and
- Magic- Multi-Agency Geographic Information for the Country.

3.2 ENVIRONMENTAL DATA SEARCH

As part of the environmental data search, a GroundSure Report was procured on 30 January 2012 from eMapSite for the purpose of this assessment. The results of the GroundSure report have been collated with additional results of the desk study review and are presented in the following subsections of this report. The complete GroundSure report, in the form of datasheets and maps, is included in Appendix A.

The GroundSure Report includes data from the following providers:

- Ordnance Survey
- Environment Agency
- The Coal Authority
- British Geological Survey
- Peter Brett Associates
- British Gypsum, and
- Get mapping.

Table 1 and the subsequent text summarises the results relevant to the potential ground conditions. Where the GroundSure report data is referenced in this report, the distances quoted from the identified features are to the nearest point of the subject site boundary unless otherwise stated.

Table 1: Summary of GroundSure Data

Data type	On-site	0 to 50m	51 to 250m	251 to 500m	501 to 1000m
Environmental Permits, Incidents and Registers					
Records of list 2 dangerous substances inventory sites within 500m of Study Site	0	0	0	1	0
Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site	0	0	4	3	0
Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	2	26	0
Environment Agency Recorded Pollution Incidents - List 2	0	1	0	0	0
Landfill and Other Waste Sites					
Environment Agency Historic Landfill Sites	0	0	0	0	1
Current Land Uses					
Current Industrial Site Data	3	7	66	-	-
Records of Petrol and Fuel Sites	0	0	0	1	-

3.2.1 On-site

Environmental incidents, discharges, consents, registers, landfill and other waste sites, abstraction licences or designated environmentally sensitive sites are not recorded on the site itself.

3.2.2 Off-site

The following records have been identified off site:

- One record of a List 2 dangerous substance is indicated within 500m of the site, located 375m to the south west of the site. "Soho film Lab – authorised substance – Silver".
- There are seven records of Part A (2) and Part B activities and enforcements within 500m of the site. The closest current permit (a Part B Permit) relates to Valentino Dry Cleaners located 188m south of the site.
- Two Records of Category 3 or 4 Radioactive Substance Authorisations have been recorded within 250m of the site and a further 26 within 500m of the site. The closest active authorisation is located 146m east of the site at St Paul's Hospital for 'Keeping and use of Radioactive Material.
- One "Environment Agency Recorded Pollution Incidents - List 2" has been recorded within 500m of the site. This record is located 40m west of the site for Atmospheric Pollutants and effects, Pollutant: smoke leading to Land and Air impacts – category 3 (Minor).
- One Environment Agency Historic Landfill Site is recorded within 1km of the site. This record is located on Portugal Street, 778m east of the site. No other information is available regarding this record.

3.3 CURRENT LANDUSES

The surrounding land use has been ascertained from a combination of sources including GroundSure data and Ordnance Survey mapping. Table 2 summarises

the findings of the surrounding land use review and details potentially significant contaminative land uses within 250m of the site.

There are three current industrial land uses recorded for the site itself, these are

- Kall Kwik Printing – Publishing Goods
- MC Bride Plc – Cosmetics, toiletries and Perfumes – Consumer goods
- Midular Lighting UK – Lampshades and Lighting – consumer goods.

Table 2: Surrounding Land Use

Direction	Land-use	Distance
South West	G Noden – Sports and Leisure Equipment and Repair	25m
	Nightingale Guitars – Musical Instruments	36m
	London Pro Audio Centre – Electronic Equipment	49m
	Tinpanalley Studio – Underground Network Stations	54m
	Samson Marble – Stone quarrying and preparation	85m
	Stobart Group – Distribution and Haulage	117m
	Apatite 4 Ltd – Construction Completion Services	202m
	M G Video- Electronic Equipment	239m
South	Pages – Food and beverage Industry Machinery	193m
South East	Idemitsu Internation Europe Plc – Fuel Distributors and suppliers	133m
	Miller Harris – Candles	172m
	Neals Yard Dairy – Dairy Farming	222m
	Brodies – Stationary, stamps, tags and labels	222m
East	Jessops – Photographic and optical equipment	82m
	Arthur Beale Ltd – Marine Equipment Including boats and ships	142m
	James Smith & Sons Ltd – Luggage, Bags, umbrellas and Travel Accessories	160m
	Sinnet Partnership – Mechanical Engineers	161m
	Service Point UK – Office and Shop Equipment	161m
	Alstom UK Ltd – electronic Equipment	224m
North East	Jacobs Digital Photo & Video – Photographic and Optical Equipment	110m
	Electrical Sub station	215m
North	The Cavalry –Vehicle Breakdown and recovery services	86m
	Artmide GB Ltd – Lampshades and Lighting	118m
	Axel Poignant Archive – Container and Storage	144m
	Virtual Angel Services – Business Parks and Industrial Estates	205m
North west	West End D J Ltd – Electronic Equipment	132m
	Specsavers Hearcare- Disability and Mobility equipment	138m
	Nena Fashion Group – Clothing Components and Accessories	142m
	CCTV & Av Solutions Ltd – Electronic Equipment	158m
	Car Audio & security Ltd – Vehicle Parts and Accessories	177m
	Time Out Guides Ltd – Distribution and Haulage	177m
	Icon World Ltd – Electrical Equipment Repair and servicing	177m
	Techno Talks Ltd – Electrical Equipment repair and servicing	177m
	Security Development Systems – Electrical Equipment -	177m
	Video & Sound Services - Electrical Equipment Repair and servicing	204m

The table above indicates that potentially significant contaminative industrial land uses have been recorded within the vicinity of the site. The site appears to be located in an area of mixed commercial with some industrial units. The predominant activities are related to published goods, recording studios and record companies and electrical equipment repair and service.

One petrol and fuel site has been recorded within 500m of the site. This relates to Store Street Services (Obsolete) approximately 432m north of the site. High pressure oil and gas pipelines have not been recorded within 500m of the site.

3.4 LANDUSE HISTORY

The historical land use of the site and the surrounding area has been established from superseded editions of Ordnance Survey maps which are presented in Appendix B. The findings are detailed in Table 3 (approximate distances are given from the site boundary).

It can be seen that Centre Point is located within an area with an industrialised history, including several potentially contaminative historical land uses.

3.5 LAND USE HISTORY

Table 3: Land Use History

Date	Description	Source
1874-1975	The site is occupied by terraced housing. Green Street runs north east to south west through the middle of the site. The surrounding area is predominantly terraced properties. The Horsehoe Brewery is located to the south of the site	1056 scale Town Plan Scale 1: 1,056
1896-1897	No significant change to the site itself, however a bank is labelled on the north west corner. The British Museum North is shown to the east of the site, a hospital is labelled to the south west and a workshop to the south east.	County series Scale 1:2,500
1916	No significant change to the site. North of the site several cinemas are shown.	County series Scale 1:2,500
1951	No significant change to the site. North of the site, the brewery has gone and in its place is a theatre and car park. South east of the site is a cardboard box factory and a warehouse. East of the site, the terraced properties have gone and have been replaced by St Giles Court and the Ministry of Supply Offices. Several ruins are marked on the map, presumably from bombing during World War II	National Grid Scale 1:1,250
1957-1961	The Terraced properties within the northern section of the site have gone and the area is shown as empty with part of the area labelled 'Ruin'. North of the site, the car park is now Congress House.	National Grid Scale 1:2,500
1970-1973	All of the terraced properties on site have been removed and replaced by a large L shaped building labelled 'Centre Point'. No significant change to the surrounding area	National Grid Scale 1:1,250
1982-1987	No significant change to the site or the surrounding area	National Grid Scale 1:1,250
1993-1995	No significant change to the site or the surrounding area	National Grid Scale 1:1,250

Date	Description	Source
2011	No significant to the site itself. The area immediately west of the site and west of Charing Cross Road are shown a blank	

The historical maps indicate that the site has remained predominantly as terraced properties since the earliest available maps (1874-75) until it was developed as a large L shaped commercial building (Centre Point) as shown on the 1970-1973 map.

At the time of the earliest available map (1874-75) the immediate surrounding area of the site was predominantly terraced buildings, with a few commercial buildings. The area has experienced moderate commercial development.

The historic maps have identified several potential sources of contamination in the surrounding area including:

- Brewery
- Warehouses
- Cardboard Box factory

None of the above are considered to pose a significant risk to the site due to their distance, topography and the nature of the site and the proposed development.

3.6 UNDERGROUND STRUCTURES

The site is located within close proximity to London Underground running tunnels, with Tottenham Court Road Tube Station almost directly below the site. In addition, the new Crossrail tunnel lies to the south of the site.

3.7 UNEXPLODED ORDNANCE

The historical maps prior to (1916) and following the Second World War (WWII) (1951) show that the area immediately to the east of the site changed from terraced properties to several large building (St Giles Court and Ministry of Supply Offices). The area to the north of the site which was formerly a Brewery was redeveloped into a theatre and car park during this period. the 1951 map also records several areas marked 'ruins' to the south west, north west and north east of the site, suggesting potential bomb damage to the surrounding area. The site itself also appears to have remained the same since the late 1800s to 1951 edition maps suggesting little or no bomb damage to the buildings during the war.

In addition, a review of the London Bomb Mapping has been undertaken which indicates that two properties along the eastern boundary of the site itself suffered 'damage beyond repair' associated with bombing which occurred on Earnshaw Street. The London Bomb mapping (an extract is presented as Figure 2) also indicates that the surrounding area suffered considerable bombing damage, and confirms that the redevelopment of areas to the east and north of the site shown on the 1951 historic maps are likely to be following damage to the existing buildings from bombing. In particular, the area to the east of the site suffered 'total destruction/damage beyond repair'.

The proposed redevelopment will require piling works and the extension of the basement area within the north eastern section of the site. It is considered likely that there is a potential risk of encountering unexploded ordnance during future substructure works. Therefore it is recommended that further UXO assessment is undertaken prior to additional SI and construction/excavation works.



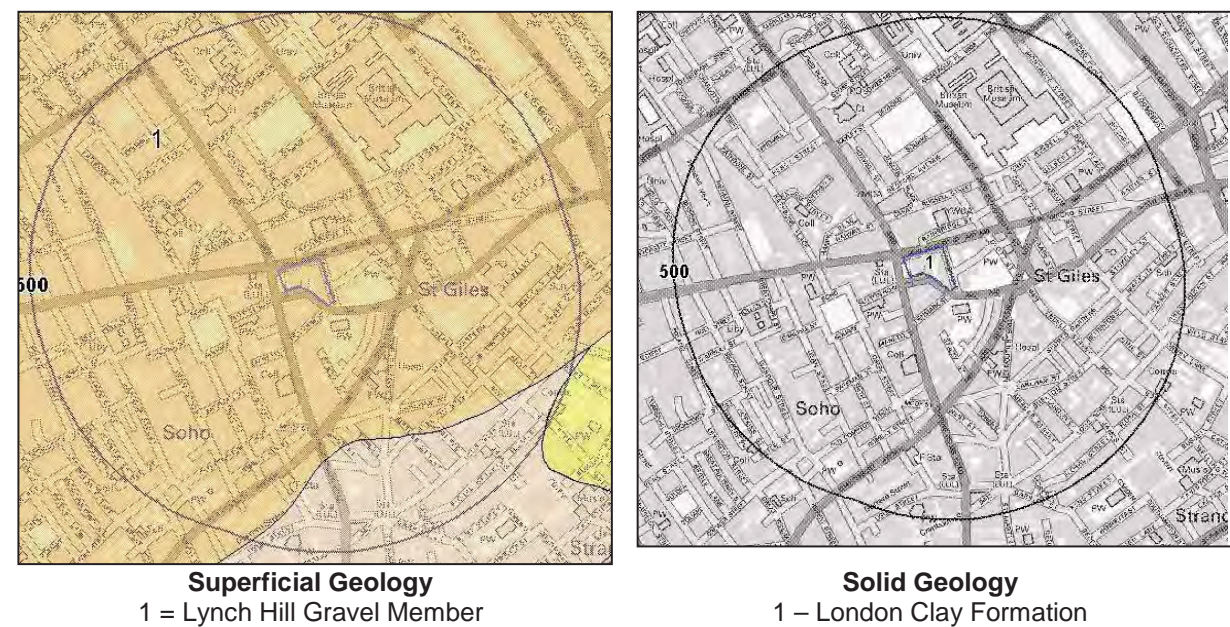
Figure 2 – Extract from the London Bomb Map

4. GROUND CONDITIONS

4.1 PUBLISHED GEOLOGY

The published geology for the area is illustrated in Figure 3. This indicates that the site is underlain by superficial deposits of the Lynch Hill Gravel Member comprising Sand and gravel. The bedrock beneath the site is classified as the London Clay Formation comprising Clay, silt and sand.

Figure 3: Geological Map Extracts



Maps extracted from GroundSure report

The GroundSure report records the superficial geology as the Lynch Hill Gravel which has a high to very high permeability and the London Clay Formation as having moderate to low permeability.

Artificial Made Ground is recorded in one location within 500m of the site. The record is related to 'Worked Ground (Undivided) – Void' located 406m north west of the site.

The report also indicates that the site is not within a Radon Affected area as less than 1% of properties are above the action level for radon, therefore radon protective measures are not required.

The GroundSure report indicates that there are no historical surface or underground workings recorded within 250m of the site.

The report also indicates that there are no BGS current ground workings located 1km north of the site.

The GroundSure report does not record historical mining or coal mining areas located within 1km of the site.

There are also no records of non-coal historic mining or cavities onsite or within 1km of the site. Natural cavities, brine extraction, gypsum extraction, tin mining and clay mining have not been recorded within 1km of the site.

Table 4 records the natural ground subsidence hazards reported in the GroundSure report.

Table 4: Natural Ground Subsidence Hazards

Natural Hazard	Ground Subsidence	Hazard rating
Shrink-swell clays		Negligible - moderate
Landslides		Very Low
Ground Dissolution of Soluble Rocks		Null-Negligible
Compressible Deposits		Negligible
Collapsible Deposits		Very low
Running Sands		Very Low

The above table indicates that the site is unlikely to experience problems due to natural ground subsidence, with the exception of shrink – swell clays. The GroundSure report records the following notes with respect to the shrink – swell clays:

“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.”

The GroundSure report indicates that the BGS database holds 7 borehole records onsite and 69 within 259m of the site. Of the on site boreholes, most relate to the site investigation undertaken in 1961 which is discussed in Section 5. The others relate to the boreholes drilled by Crossrail which are not publically available.

4.2 HYDROGEOLOGY

The Lynch Hill Gravel (superficial deposits) underlying the site is hydrogeologically classified as a Secondary A Aquifer. The London Clay is classified as unproductive.

Secondary A aquifers are 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;

‘Unproductive’ - These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow. The GroundSure report indicates that the site is not located within a Source Protection Zone.

The GroundSure report indicated that there are two groundwater abstraction licenses within 500m of the site and a further nine within 1km. Both records within 500m relate to Heat Pumps extracted from the Thames Groundwater from Borehole 1 and Borehole 2 located 473m and 476m respectively. There are no surface water abstractions within 1km of the site.

There are seven portable abstraction licenses recorded within 1km of the site. The closest two portable abstraction licenses are located 743m west of the site at Walmer House, 296 Regent Street relating to Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services and are from the Thames Groundwater.

The GroundSure report indicated that BGS flooding susceptibility flood areas are not recorded within 250m of the site however the highest susceptibility to groundwater flooding in the search area is recorded as high.

4.3 HYDROLOGY

The nearest surface water body is River Thames located 1km to the south east of the site. The GroundSure report indicates that surface water abstraction licenses have not been recorded within 1km of the sites.

The GroundSure report indicates that the site is not located within an area at risk from flooding, however a separate Flood Risk report (ref: A12504.Y001) has been produced by Pell Frischmann.

4.4 SENSITIVE LAND USES AND DESIGNATED AREAS

The Landmark report records details of the following Designated Environmentally Sensitive Sites:

- 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);
- World Heritage Sites;
- Environmentally Sensitive Areas;
- Areas of Outstanding Natural Beauty (AONB);
- National Parks (NP);
- Nitrate Sensitive Areas; and
- Nitrate Vulnerable Zones.

No Designated Environmentally Sensitive Sites have been recorded within 500m of the site.

5. PREVIOUS GROUND INVESTIGATIONS

Two previous site assessment and ground investigations have been undertaken for the site by CJ Pell and Partners (now Pell Frischmann) and reported in February and May 1961 for the construction of the original Centre Point Development.

5.1 C J PELL & PARTNERS FEBRUARY 1961 INVESTIGATION

Seven Boreholes were drilled between 17th November and 29th December 1960, with in situ and laboratory geotechnical testing undertaken to provide information on the soil conditions to inform foundation design.

5.2 C J PELL & PARTNERS INVESTIGATION MARCH 1961

Four boreholes were drilled between 14th to the 24th March 1961 with in situ and laboratory geotechnical testing, to provide supplementary information on conditions in the area proposed for the 33 storey development (Centre Point Tower) and to provide information on the soil conditions to inform foundation design.

5.3 FINDINGS OF THE 1961 INVESTIGATIONS

Table 5 below presents the general stratigraphy encountered within the boreholes.

Table 5: General stratigraphy encountered

	Description	Top Level (mOD)
Made Ground	Fill - Brick and concrete rubble	25.2 - 22.7
Sand and Gravels	Dense to very dense Brown SAND and GRAVEL	20.9 - 24.0
London Clay Formation	Soft to very stiff sometimes fissured grey silty CLAY with occasional claystone and occasionally layers of silty sand from 53ft, sandy clay from 52ft	18.1 - 18.6
Woolwich & Reading Beds (now the Lambeth Beds)	Very stiff to hard fissured mottled grey, green, brown and red CLAY	-2.2 - -4.1

Groundwater was first encountered in the sand and gravel at depths varying between 2.74m and 4.15m bgl.

Geotechnical testing was undertaken on soil samples obtained from the London Clay in Borehole 5. The results are presented in Table 6 below.

Table 6: London Clay Atterburg Limit results

Depth (m)	Liquid Limit %	Plastic Limit %	Plasticity Index %	Description of sample
28	56	20	36	Mottled grey, brown and red silty clay
30	68	23	45	Mottled grey, brown and red silty clay
32	85	28	57	Mottled grey, brown and red silty clay
33.8	85	23	62	Mottled grey, brown and red silty clay
36	24	16	18	Brown and grey silty sand with pockets of silty clay

The shear strength data has been converted to metric units and is presented as Figure 4. The “City line” has been added to show that the data is not significantly at odds with accepted values. As such it can be reused for scheme purposes pending further investigation.

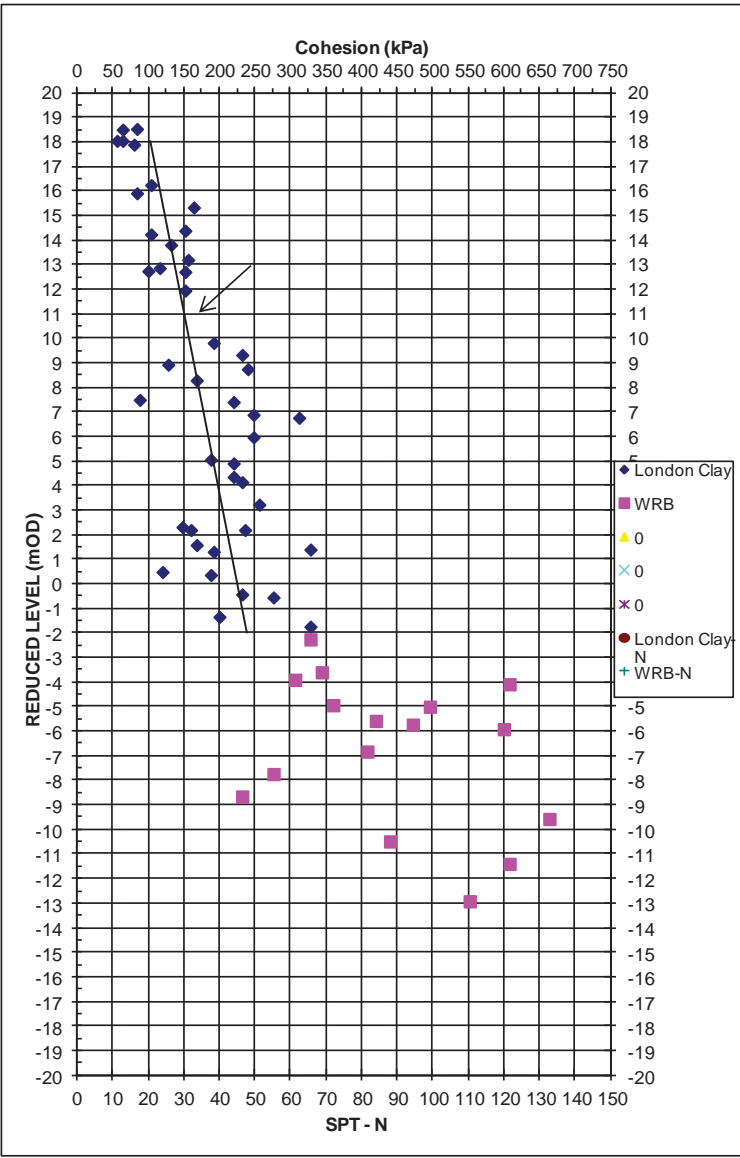


Figure 4: Shear Strength data from 1961 investigation.

6. PRELIMINARY LAND CONTAMINATION ASSESSMENT

6.1 LEGISLATIVE BACKGROUND

The primary legislative mechanism for contaminated land management in the UK is Part 2A of the Environmental Protection Act, 1990 (EPA). Part 2A was introduced into the EPA under Section 57 of the Environment Act 1995 to help deal with the substantial legacy of land contamination. It focuses on the identification and remediation of land which is in such a condition by reason of contamination that it gives rise to significant harm or the significant possibility of significant harm to certain named receptors, or gives rise to pollution of controlled waters or the likelihood of such pollution. Part 2A applies where there is unacceptable risk, assessed on the basis of the current use and the relevant circumstances of the land. It is not directed to assessing risks in relation to a future use of the land that would require a specific grant of planning permission.

The control of development and land use in the future is the responsibility of the planning system. A fundamental principle of sustainable development is that the condition of land, its use and its development should be protected from potential hazards. Planning Policy Statement (PPS) 23 *Planning and Pollution Control* details the process by which Local Planning Authorities should take decisions on applications in relation to development on land affected by contamination.

PPS 23 states that 'it remains the responsibility of the landowner/developer to identify land affected by contamination and to ensure that remediation is undertaken to secure a safe development'.

Where development is proposed, the developer is responsible for ensuring that the development is safe and suitable for the proposed end use for which it is intended. In particular, the developer should carry out an adequate investigation to inform a risk assessment to determine:

- Whether the land in question is already affected by contamination;
- Whether the proposed development will create new pollutant linkages (e.g. pathways by which existing contamination might reach existing or proposed receptors and whether it will introduce new vulnerable receptors); and
- Whether mitigation action is needed to break those linkages, avoid the introduction of new ones and deal with unacceptable risks to enable safe development and future occupancy of the site and neighbouring land.

As with the Part 2A regime, PPS 23 states that the assessment of land affected by contamination requires a risk assessment that identifies sources, pathways and receptors. PPS 23 also states that it is necessary to develop a conceptual site model (CSM), which identifies plausible pollutant linkages as a basis for assessing the risks and appraising the options for remediation.

The range of sensitive receptors which require consideration is wider under the planning regime than under Part 2A and includes for example, general fauna and flora, landscape and amenity. However, it is considered that the risks should be assessed and acted upon in accordance with Part 2A principles.

Following a review of the background geo-environmental information on the site, a conceptual site model (Table 8) has been formulated to identify potential sources of contamination, potential pathways and potential receptors on and in the immediate vicinity of the site.

It should be noted that some uncertainties exist due to the limited site-specific data available. However, potential contaminants and receptors have been identified based on the desk based assessment. Pathways have been established on reasonable scientific knowledge of the behaviour of the contaminants in the ground.

It should also be noted that, because the assessment is based on documentary evidence contaminants may be identified which, in practice, are not present and contaminants may be present which have not been identified.

The guidance provided in CLR11 indicates the CSM should identify those contaminants, pathways and receptors which are 'likely' to represent an 'unacceptable' risk either to human health or the surrounding environment.

6.2 POTENTIAL SOURCES OF CONTAMINATION

The desktop study performed for the sites has identified numerous potentially contaminative sources on the site and in the immediate surrounding area. These are summarised as follows:

- The historical location of a Brewery to the north of the site;
- The commercial operations within the surrounding area including electronic equipment and repair, food beverage industry machinery, vehicle breakdown and recovery services and distribution and haulage business. Electrical substation.

6.3 ECOLOGICAL RISK ASSESSMENT

The Ecological Risk Assessment (ERA) Framework for contaminated soils has been developed by the Environment Agency in collaboration with DEFRA, Natural England, the Welsh Assembly Government, the Countryside Council for Wales, local authorities and industry. It aims to provide a structured approach for assessing the risks to ecology from chemical contamination in soils that is a requirement under Part 2A (Contaminated Land) of the Environmental Protection Act 1990.

The ERA documentation sets out a three-tiered risk assessment process that has been designed to:

- Establish whether pollutant linkages are likely to exist between the contamination and the designated ecological receptors; and
- Gather sufficient information for making decisions regarding whether harm to those receptors is, or could, occur.

The risk assessment is preceded by a desk study that reviews information about the site and nature of the contamination to assess whether pollutant linkages are feasible.

The desk study process has not identified any ecological receptors (as defined by the ERA guidance) which are in potential influencing distance of the site. Therefore ecological risk assessment with respect to soil contamination requires no further consideration.

6.4 POTENTIAL PATHWAYS AND RECEPTORS

With respect to land contamination, potential receptors include human health, controlled waters, flora and fauna and buildings and structures. A pathway is a route or routes by which a receptor is exposed to a contamination source. Pathways can also determine the likelihood of the contamination source contacting a receptor.

The presence of potential receptors has been evaluated from our understanding of the current and future land use of the site, an assessment of surrounding land uses and currently available information pertaining to the site. The assessment for potential receptors at the site is shown in Table 7.

Table 7: Potential Receptors

Potential receptor	Present?	Reason
Future users of the site	Yes	Future users of the proposed commercial and residential redevelopment.
Visitors to the site	Yes	The site is currently open to the public
Construction workers on site	Yes	Workforce to be used to construct the proposed developments.
Groundwater	Yes	The superficial deposits beneath the whole site are hydrogeologically classified as a Secondary (A) Aquifer. The site is not located within an SPZ.
Groundwater use	No	There are two groundwater abstractions within 500m of the site and seven potable water abstraction licences located within 1km of the site.
Surface waters	Yes	The nearest surface water course is the River Thames located 1m south east of the site, .
Surface water use	No	Surface water abstraction licenses have not been recorded within 1km of the site.
Ecosystems	No	Potentially significant sensitive land uses and designated areas as defined by the ERA guidance have not been recorded within 1km of the site.

6.5 POTENTIAL POLLUTION LINKAGES

A preliminary risk assessment has been undertaken for both sites relating to the potential proposed developments based on a qualitative assessment of the likely presence of a pollutant linkage. A pollutant linkage is the relationship between a contaminant source, a pathway and a receptor. Unless all three elements of a pollutant linkage are present, a risk is not considered to exist. The approach adopted is to screen the site based on assigning a simple low, medium or high category. The preliminary risk assessment is presented as a preliminary Conceptual Site Model in Table 9 overleaf.

Table 8: Preliminary Conceptual Site Model

Scenario	Source	Pathway	Receptor	Potential pollution linkage	Complete	Risk rating
Future users of the potential proposed residential/commercial redevelopment	Potential organic and inorganic contaminants on-site and migrating from off-site	Dermal contact, ingestion of soil, and/or inhalation of dust. (Note: the consumption of vegetables has not been considered as it is highly unlikely that private gardens will be included as part of the proposed development).	Human health	Potential sources of inorganic and organic contamination have been identified within historical and current land uses in the surrounding area. Intrusive site investigation and contaminated land risk assessment is required to assess the actual risk.	Potentially	Low/medium
Migration and accumulation of vapours within buildings/structures	Potential organic contaminants on-site and migrating from off-site	Volatilisation/vapour intrusion into proposed buildings and structures	Human Health	Potential organic contamination on-site from the current and historical land uses within the surrounding area. Intrusive site investigation and contaminated land risk assessment is required to assess the actual risk.	Potentially	Low/Medium
Construction workers	Potential organic and inorganic contaminants on-site and migrating from off-site	Dermal contact, ingestion of soil and/or inhalation of dust and vapours	Human health	Potential sources of inorganic and organic contamination have been identified from historical and current land uses in the surrounding area. Construction workers are more likely to come into contact with contamination during groundwork etc, however the exposure tends to be acute rather than chronic and can generally be mitigated through the use of PPE and good practice. Intrusive site investigation and contaminated land risk assessment is required to assess the actual risk.	Potentially	Low/Medium
Site visitors	Potential organic and inorganic contaminants on-site and migrating from off-site	Dermal contact, ingestion of soil and/or inhalation of dust and vapours	Human health	The risk to this receptor is unlikely to be significant due to the likely duration of site visits.	Unlikely	Low

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Scenario	Source	Pathway	Receptor	Potential pollution linkage	Complete	Risk rating
Migration of contamination from site into surface water courses	Potential contaminants in the soil and groundwater on-site	Migration of contamination through surface water runoff and through the underlying aquifer	Surface water courses – River Thames	The nearest surface water course is the River Thames, located 1km south east of the site. Surface water abstraction licenses have not been encountered within 1km of the site. It is anticipated that the majority of the surface areas will be covered by hardstanding, which will limit the potential for contaminants to leach. In addition, it is considered that new site drainage will limit the amount of surface water run-off. Intrusive site investigation and contaminated land risk assessment is required to assess the actual risk.	Potentially	Low
Migration of contaminants from the site into the underlying aquifer	Potential contaminants in the soil on site	Leaching and/or percolation to underlying strata	Secondary A Aquifer	Potential sources of inorganic and organic contamination have not been identified on sites. The Alluvium beneath the whole site has been classified as a Secondary A Aquifer. This could act as a receptor but also a pathway to the River Thames. Proposed hardstanding, buildings and site drainage will limit infiltration into the underlying soils. Further intrusive site investigation including groundwater sampling and a generic risk assessment would be required to assess the actual risk.	Potentially	Low
Impacted groundwater abstraction and use	Potential geochemistry of underlying groundwater	Abstraction of groundwater	Groundwater users	There are two groundwater abstraction and seven potable water abstraction points within 1km of the site. Proposed hardstanding, buildings and site drainage will limit infiltration into the underlying soils.	Unlikely	Low
Migration and accumulation of Radon	Potential radon on-site and migrating from off-site	Radon intrusion into proposed buildings and structures	Human Health	Radon gas has not been identified as a potential source of contamination as less than 1% of the properties are above the action level for radon. Therefore radon protection measures are not required.	No	Negligible

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GROUND CONDITIONS DESK STUDY
A12504G001B

Scenario	Source	Pathway	Receptor	Potential pollution linkage	Complete	Risk rating
Flora and Fauna	Potential organic and inorganic contaminants on-site and migrating from off-site	Contact with potential contaminants	Local ecosystems	Potentially significant sensitive land uses and designated areas as defined by the ERA guidance have not been recorded within 1km of the site.	No	Negligible

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Potentially complete pollutant linkages have been identified on the site; an overall non-urgent **Low/Medium risk rating** has been assigned based on the proposed mixed use developments. The key potential pollution linkages and risk is summarised as:

- Potential contamination migrating onsite from offsite sources impacting on future users and construction workers of the proposed developments;
- Potential Contaminants onsite migrating and accumulating within buildings and structures.

This is a preliminary review, based on the assessment of available data presented in this report.

6.6 FURTHER WORKS

Further investigation would be required to determine and assess the presence of potential contamination sources on site

It is recommended that during the additional geotechnical drilling (proposed in Section 7.2), soil samples be obtained from the Made Ground and natural strata and sent for laboratory analysis. An assessment of the geochemistry of the underlying ground and groundwater can then be made as well as enabling potential waste classification of the arisings likely to be generated during the works.

7. RECOMMENDATIONS

7.1 GEOTECHNICAL

The alterations to the building will give rise to new loadings. Since the pile geometries are known it is possible to justify small increases in load. It is usual to restrict this to 10% since other factors such as material strengths etc. could come into play.

Where loading increases are greater than 10%, the use of additional piles to augment the existing may be considered. Bored cast in situ straight shafted piles are appropriate for the ground conditions. Straight shafts give a stiffer performance than an under-reamed pile and will take up the new loadings effectively. Care will be needed to ensure that the interaction with the existing piles is acceptable both in terms of capacity and settlement performance (Ultimate limit state and serviceability).

The London Clay is relatively thin in this area, of the order of 20m. New piles should be designed to found within the London Clay. If they go deeper there is a risk of water ingress in the Lambeth Beds, although none was found in 1961. Since water regimes can change this would need to be checked.

7.2 FURTHER WORKS

Site investigation boreholes will be required to confirm the strength parameters for the design of the new piles and that the ground water conditions are as anticipated. This may be obtained by drilling with low headroom rigs from the existing basement.

The adjacent Cross rail works may be temporarily altering the groundwater regime in the area and consultation with the relevant teams will be necessary. They will also be able to provide additional data to augment the knowledge base of the area.

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GROUND CONDITIONS DESK STUDY
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APPENDIX A
GROUNDSURE REPORT

Pell Frischmann



EmapSite
Masdar House, ,
Eversley, RG27 0RP

GroundSure Reference:	EMS-151651_218359
Your Reference:	EMS_151651_218359
Report Date:	Jan 30, 2012
Report Delivery Method:	Email - pdf
Client Email:	sales@emapsite.com

GroundSure EnviroInsight

Address: Centre Point,London,WC1A 1DD

Dear Sir/Madam,

Thank you for placing your order with emapsite. Please find enclosed the GroundSure EnviroInsight as requested

If you would like further assistance regarding this report then please contact the emapsite customer services team on 0118 9736883 quoting the above report reference number.

Yours faithfully,

emapsite customer services team

Enc.
GroundSure EnviroInsight

GroundSure EnviroInsight

Address: Centre Point,London,WC1A 1DD

Date: Jan 30, 2012

GroundSure Reference: EMS-151651_218359

Your Reference: EMS_151651_218359

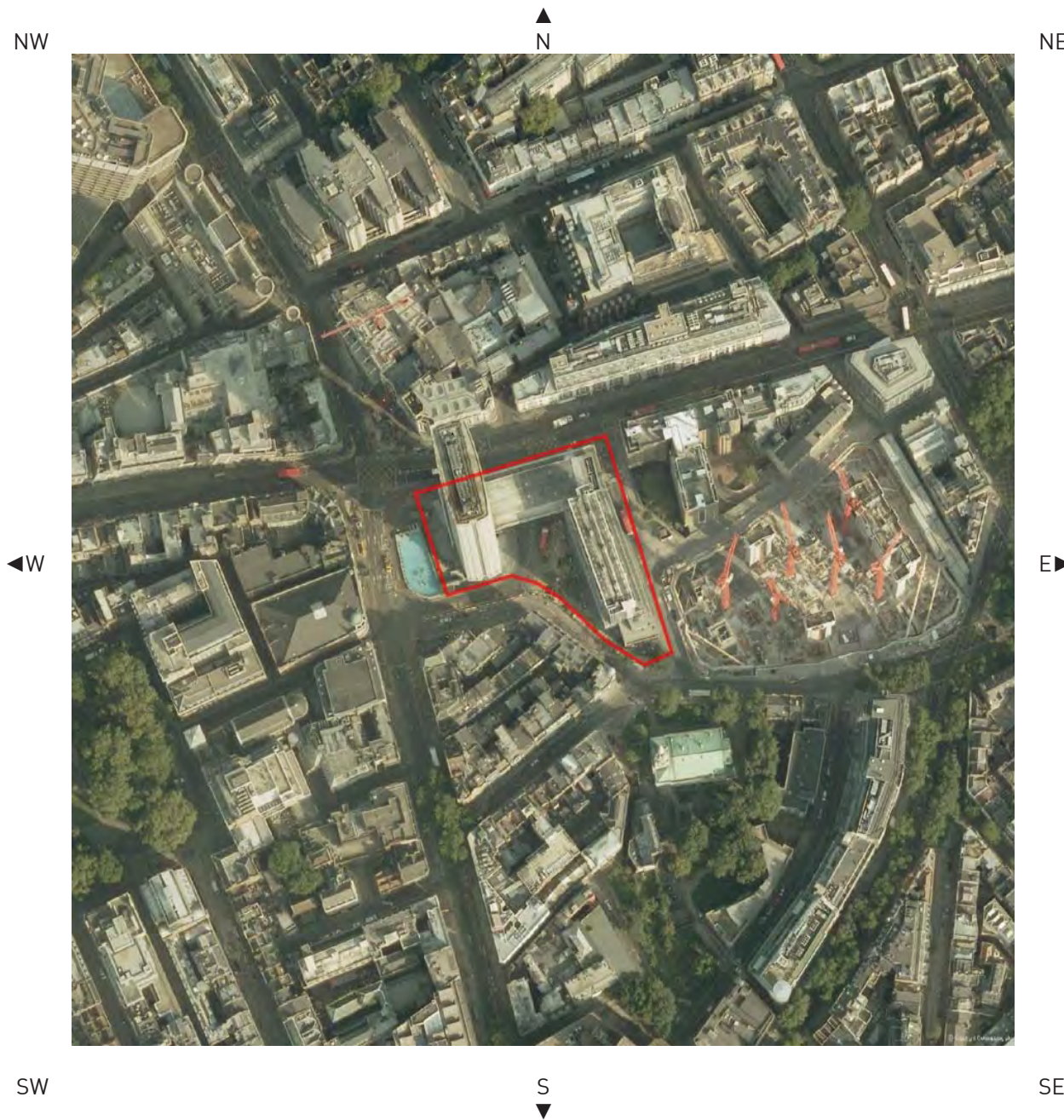
Client: EmapSite



Brought to you by emapsite

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Aerial Photograph of Study Site



Site Name: Centre Point,London,WC1A 1DD
Grid Reference: 529902,181351
Size of Site: 0.55 ha

Aerial photography supplied by Getmapping PLC.
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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.

Report Section	Number of records found within (X) m of the study site boundary					
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1. Environmental Permits, Incidents and Registers	on-site	0-50	51-250	251-500	501-1000	1000-1500
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1.1 Industrial Sites Holding Environmental Permits and/or Authorisations						
Records of historic IPC Authorisations	0	0	0	0	-	-
Records of Part A(1) and IPPC Authorised Activities	0	0	0	0	-	-
Records of Water Industry Referrals (potentially harmful discharges to the public sewer)	0	0	0	0	-	-
Records of Red List Discharge Consents (potentially harmful discharges to controlled waters)	0	0	0	0	-	-
Records of List 1 Dangerous Substances Inventory sites	0	0	0	0	-	-
Records of List 2 Dangerous Substances Inventory sites	0	0	0	1	-	-
Records of Part A(2) and Part B Activities and Enforcements	0	0	4	3	-	-
Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	2	26	-	-
Records of Licensed Discharge Consents	0	0	0	0	-	-
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						
National Incidents Recording System, List 2	0	1	0	-	-	-
National Incidents Recording System, List 1	0	0	0	-	-	-
1.4 Sites Determined as Contaminated Land under Part IIA EPA 1990	0	0	0	0	-	-

2. Landfill and Other Waste Sites	on-site	0-50	51-250	251-500	501-1000	1000-1500
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2.1 Landfill Sites						
Environment Agency Registered Landfill Sites	0	0	0	0	0	-
Landfill Data – Operational Landfill Sites	0	0	0	0	0	-
Environment Agency Historic Landfill Sites	0	0	0	0	1	0
Landfill Data – Non-Operational Landfill Sites	0	0	0	0	0	-
BGS/DoE Landfill Site Survey	0	0	0	0	0	0
GroundSure Local Authority Landfill Sites Data	0	0	0	0	0	0
2.2 Landfill and Other Waste Sites Findings						
Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	-	-
Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	-	-
Environment Agency Licensed Waste Sites	0	0	0	0	0	0

3. Current Land Uses	on-site	0-50	51-250	251-500	501-1000	1000-1500
3.1 Current Industrial Sites Data	3	7	66	-	-	-
3.2 Records of Petrol and Fuel Sites	0	0	0	1	-	-
3.3 Underground High Pressure Oil and Gas Pipelines	0	0	0	0	-	-

4. Geology	Description
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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? *	Yes
4.3 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
Source: Scale: 1:50,000 BGS Sheet 256	

* This includes an automatically generated 50m buffer zone around the site.

5. Hydrogeology and Hydrology	on-site	0-50	51-250	251-500	501-1000	1001-2000
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5.1 Are there any records of Productive Strata in the Superficial Geology within 500m of the study site?				Yes		
5.2 Are there any records of Productive Strata in the Bedrock Geology within 500m of the study site?				Yes		
5.3 Groundwater Abstraction Licences (within 1000m of the study site).	0	0	0	2	9	-
5.4 Surface Water Abstraction Licences (within 1000m of the study site).	0	0	0	0	0	-
5.5 Potable Water Abstraction Licences (within 2000m of the study site).	0	0	0	0	7	22
5.6 Are there any Source Protection Zones within 500m of the study site?					No	
5.7 River Quality	on-site	0-50	51-250	251-500	501-1000	1001-1500
Is there any Environment Agency information on river quality within 1500m of the study site?	No	No	No	No	No	No
5.8 Detailed River Network entries within 500m of the site	0	0	0	0	-	-
5.9 Surface water features within 250m of the study site	No	Yes	Yes	-	-	-

6. Flooding

6.1 Are there any Environment Agency indicative Zone 2 floodplains within 250m of the study site?	No
6.2 Are there any Environment Agency indicative Zone 3 floodplains within 250m of the study site?	No
6.3 Are there any Flood Defences within 250m of the study site?	No
6.4 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
6.5 Are there any areas used for Flood Storage within 250m of the study site?	No
6.6 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	High
6.7 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	Moderate

7. Designated Environmentally Sensitive Sites	on-site	0-50	51-250	251-500	501-1000	1001-1500
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7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	-	-
7.2 Records of National Nature Reserves (NNR)	0	0	0	0	-	-

7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	-	-
7.3 Records of Local Nature Reserves (LNR)	0	0	0	0	-	-
7.4 Records of Special Areas of Conservation (SAC)	0	0	0	0	-	-
7.5 Records of Special Protection Areas (SPA)	0	0	0	0	-	-
7.6 Records of Ramsar sites	0	0	0	0	-	-
7.7 Records of World Heritage Sites	0	0	0	0	-	-
7.8 Records of Environmentally Sensitive Areas	0	0	0	0	-	-
7.9 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	-	-
7.10 Records of National Parks	0	0	0	0	-	-
7.11 Records of Nitrate Sensitive Areas	0	0	0	0	-	-
7.12 Records of Nitrate Vulnerable Zones	0	0	0	0	-	-

8. Natural Hazards

8.1 What is the maximum risk of natural ground subsidence?	Moderate
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9. Mining

9.1 Are there any coal mining areas within 75m of the study site?	No
9.2 What is the risk of subsidence relating to shallow mining within 150m of the study site?	Negligible
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 underground oil and gas pipelines.

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. These searches are conducted using radii of up to 500m.

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 and shallow mining.

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.

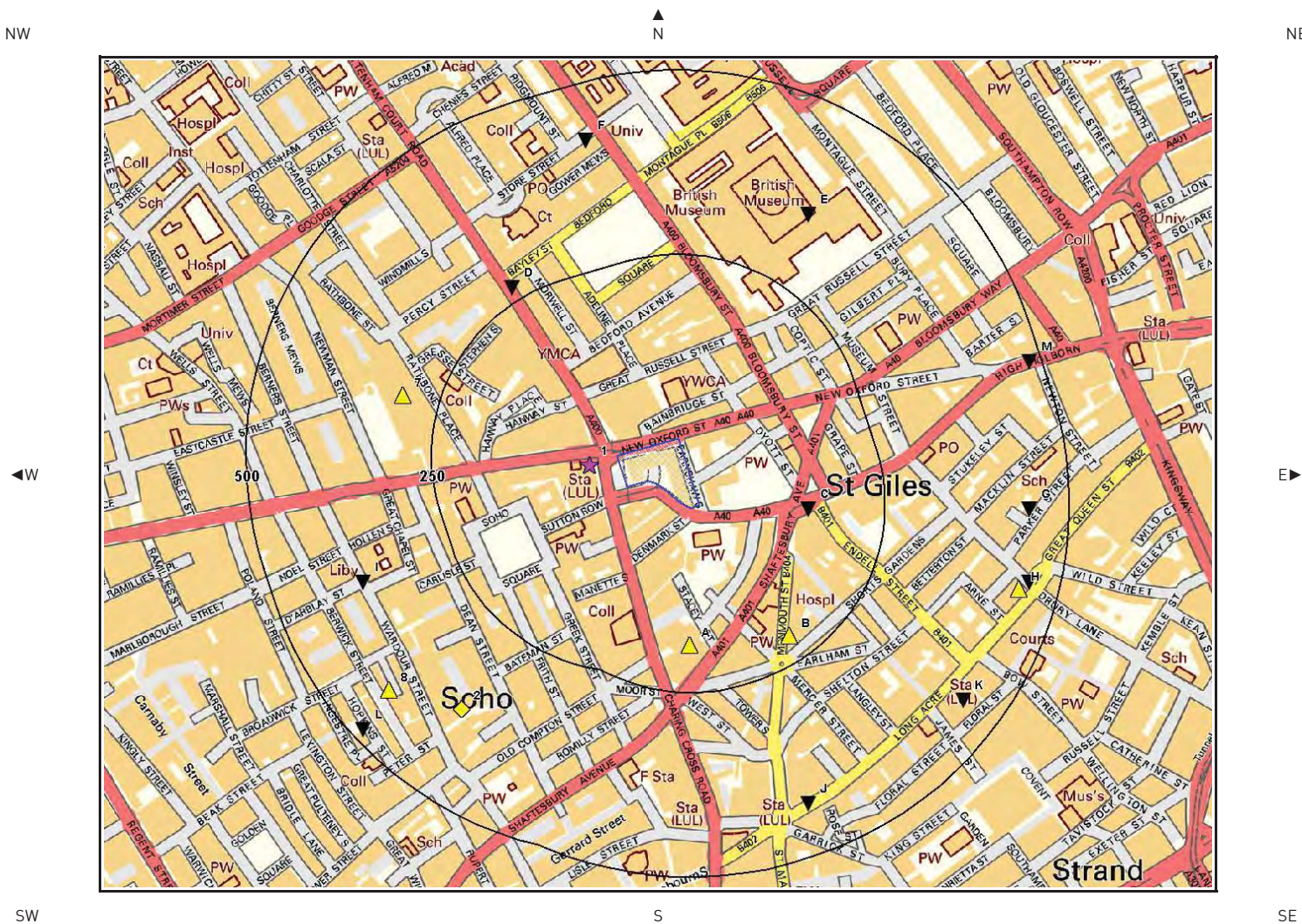
Note: Maps

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



Authorisations, Incidents and Registers Legend

- Site Outline
- Search Buffers (m)
- Recorded Pollution Incident
- Dangerous Substances (List 1)
- Dangerous Substances (List 2)
- Water Industry Referrals
- Licenced Discharge Consents
- Red List Discharge Consents
- RAS 3 & 4 Authorisations
- Part A(1) Authorised Processes and Historic IPC Authorisations
- Part A(2) and Part B Authorised Processes
- COMAH / NIHHS Sites
- Sites Determined as Contaminated Land
- Hazardous Substance Consents and Enforcements

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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:

Records of historic IPC Authorisations within 500m of the study site: 0

Database searched and no data found.

Records of Part A(1) and IPPC Authorised Activities within 500m of the study site: 0

Database searched and no data found.

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.

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.

Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site: 0

Database searched and no data found.

Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site: 1

The following List 2 Dangerous Substance Inventory Site records are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance	Direction	NGR	Details
2	375.0	SW	529633, 181026	Name: Soho Film Lab Status: Not Active Receiving Water: - Authorised Substances: Silver

Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site: 7

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

ID	Distance	Direction	NGR	Details
----	----------	-----------	-----	---------

Report Reference: EMS-151651_218359

3A	188.0	S	529940, 181111	Address: Valentino Dry Cleaners , Unit 5 125 Shaftesbury Avenue, WC2H 8AD Process: Dry Cleaner Status: Historic Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
4A	188.0	S	529940, 181111	Address: Valentino Dry Cleaners , Unit 5 125 Shaftesbury Avenue, WC2H 8AD Process: Dry Cleaner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
5B	216.0	SE	530074, 181124	Address: Seven Dials Dry Cleaners , 37 Monmouth Street, WC2H 9DD Process: Dry Cleaner Status: Historic Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
6B	216.0	SE	530074, 181124	Address: Seven Dials Dry Cleaners , 37 Monmouth Street, WC2H 9DD Process: Dry Cleaner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
7	300.0	W	529553, 181451	Address: Selfridges, 400 Oxford Street, London, W1a 1ab Process: Unloading Of Petrol Into Storage At Service Stations, Unloading Of Petrol Into Storage At Service Stations Status: Historic Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
8	425.0	SW	529534, 181051	Address: Soho Dry Cleaners, 15 Berwick Street, W1F 0PR Process: Dry Cleaning Processes Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
9H	447.0	E	530385, 181187	Address: Tuxedo Express, 40 Drury Lane, WC2B 5RR Process: Dry Cleaning Processes Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

Records of Category 3 or 4 Radioactive Substance Licences within 500m of the study site: 28

The following RAS Licence (3 or 4) records are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance [m]	Direction	Address	Operator	Type	Permission Number	Dates	Status
38C	146.0	E	St Paul"s Hospital, Endell St, London, WC2H 9AE	St Paul"s Hospital	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AE7155	Date of Approval:- Effective from:- Last date of update:20 01-06-01	-
39C	146.0	E	St Pauls Hospital Nhs Trust, Endell St, London, WC2H 9AE	St Pauls Hospital Nhs Trust	-	AE7147	Date of Approval:3 1/3/1991 Effective from: 31/3 /1991 Last date of update:20 11-11-01	Revoked/ cancelled
40D	270.0	NW	P And O Property Holdings Ltd, 237/247 Tottenham Court Road, London, W1P 0HH	P And O Property Holdings Ltd	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AN6906	Date of Approval:1 4-9-1994 Effective from:14- 9-1994 Last date of update:20 03-12-01	Revoked/ cancelled

Report Reference: EMS-151651_218359

41D	270.0	NW	Imagination Ltd, 25 Store Street,south Crescent, London, WC1E 7BL	Imaginat ion Ltd	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AV0843	Date of Approval:1-4-1991 Effective from:1-4-1991 Last date of update:2003-12-01	Revoked/ cancelled
42E	353.0	NE	British Museum, Scientific Research,great Russell Street, London, WC1B 3DG	British Museum	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	BF3133	Date of Approval:6/9/1999 Effective from:6/9/1999 Last date of update:2011-11-01	Revoked/ cancelled
43E	353.0	NE	British Museum, Scientific Research, Great Russell Street, London, WC1B 3DG	British Museum	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BF3141	Date of Approval:6/9/1999 Effective from:1/10/1999 Last date of update:2011-11-01	Supersed ed By Variation
44E	353.0	NE	British Museum, Scientific Research, Great Russell Street, London, WC1B 3DG	British Museum	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BF3141	Date of Approval:1/12/2003 Effective from:1/1/2004 Last date of update:2011-11-01	Supersed ed By Variation
45E	353.0	NE	British Museum, Scientific Research, Great Russell Street, London, WC1B 3DG	British Museum	Disposal Of Radioactive Waste (was Rsa60 Section 6).	BF3141	Date of Approval:5/1/2006 Effective from:5/1/2006 Last date of update:2011-11-01	Revoked/ cancelled
46E	353.0	NE	British Museum, Research Laboratories,39 Russell Square, London, WC1B 3DG	British Museum	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	BC4273	Date of Approval:- Effective from:- Last date of update:2001-06-01	-
47I	378.0	W	De Lane Lea Ltd, Basement Recording Studio,film House,142 Wardour Street, London, W1V 5HA	De Lane Lea Ltd	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AS8678	Date of Approval:1-4-1991 Effective from:1-4-1991 Last date of update:2003-12-01	Revoked/ cancelled
48F	425.0	N	London School Of Hygiene And Tropical Medicine, Keppel Street, London, WC1E 7HT	London School Of Hygiene And Tropical Medicine	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AA0540	Date of Approval:1/5/2005 Effective from:11/5/2005 Last date of update:2011-11-01	Effective

49F	425.0	N	London School Of Hygiene And Tropical Medicine, Keppel Street, London, WC1E 7HT	London School Of Hygiene And Tropical Medicine	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AA0540	Date of Approval:5-12-1991 Effective from:5-12-1991 Last date of update:2003-12-01	Supersed ed By Variation
50F	425.0	N	L S H And T M, Keppel Street, London, WC1E 7HT	L S H And T M	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AC4490	Date of Approval:- Effective from:- Last date of update:2001-06-01	-
51F	425.0	N	London School Of Hygiene And Tropical Medicine, Keppel Street, London, WC1E 7HT	London School Of Hygiene And Tropical Medicine	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AK3005	Date of Approval:- Effective from:- Last date of update:2001-06-01	-
52F	425.0	N	London School Of Hygiene And Tropical Medicine, Keppel Street, London, WC1E 7HT	London School Of Hygiene And Tropical Medicine	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AA0531	Date of Approval:26/1/1996 Effective from:27/1/1996 Last date of update:2011-11-01	Supersed ed By Variation
53F	425.0	N	London School Of Hygiene And Tropical Medicine, Keppel Street, London, WC1E 7HT	London School Of Hygiene And Tropical Medicine	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AA0531	Date of Approval:1/12/2003 Effective from:1/1/2004 Last date of update:2011-11-01	Supersed ed By Variation
54F	425.0	N	London School Of Hygiene And Tropical Medicine, Keppel Street, London, WC1E 7HT	London School Of Hygiene And Tropical Medicine	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AA0531	Date of Approval:20/9/2004 Effective from:18/10/2004 Last date of update:2011-11-01	Supersed ed By Variation
55F	425.0	N	London School Of Hygiene And Tropical Medicine, Keppel Street, London, WC1E 7HT	London School Of Hygiene And Tropical Medicine	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AA0531	Date of Approval:5/1/2006 Effective from:5/1/2006 Last date of update:2011-11-01	Effective
56F	425.0	N	London School Of Hygiene And Tropical Medicine, Keppel Street, London, WC1E 7HT	London School Of Hygiene And Tropical Medicine	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AA0540	Date of Approval:5/11/1993 Effective from:5/11/1993 Last date of update:2011-11-01	Supersed ed By Variation

57J	429.0	S	Seeboard Powerlink, 139 Long Acre, London, WC2E 9AD	Seeboard Powerlink	Keeping And Use Of Mobile Radioactive Sources (was Rsa60 Section 3)	AR8544	Date of Approval:- Effective from:- Last date of update:20 01-06-01	-
58K	443.0	SE	Royal Opera House (covent Garden) Ltd, Covent Garden, London, WC2E 9DD	Royal Opera House (covent Garden) Ltd	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	BL5067	Date of Approval:- Effective from:- Last date of update:20 03-06-04	-
59G	446.0	E	King's College London, 26/29 Drury Lane, London, WC2B 5RL	King's College London	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AE7031	Date of Approval:- Effective from:- Last date of update:20 01-06-01	-
60G	446.0	E	King's College London, 26/29 Drury Lane, London, WC2B 5RL	King's College London	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AE7023	Date of Approval:5 -2-1992 Effective from:5-2-1992 Last date of update:20 03-12-01	Revoked/ cancelled
61G	446.0	E	King's College London, 26/29 Drury Lane, London, WC2B 5RL	King's College London	-	AE7023	Date of Approval:3 1-3-1991 Effective from:31-3-1991 Last date of update:20 03-12-01	Superseded By Variation
62H	458.0	E	King's College London, 26-29 Drury Lane, London, WC2B 5RL	King's College London	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AA2160	Date of Approval:2 9/10/1993 Effective from:26/1 1/1993 Last date of update:20 11-11-01	Revoked/ cancelled
63H	458.0	E	King's College London, 26/29 Drury Lane, London, WC2B 5RH	King's College London	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AE7015	Date of Approval:- Effective from:- Last date of update:20 01-06-01	-
64L	484.0	SW	Dpm Design Consultants Ltd, 28 Lexington Street, London, W1R 3HS	Dpm Design Consultants Ltd	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AV4849	Date of Approval:1 -4-1991 Effective from:1-4-1991 Last date of update:20 03-12-01	Revoked/ cancelled

65M	485.0	E	Pearl Assurance Plc, 252 High Holborn, London, WC1V 7EE	Pearl Assurance Plc	Keeping And Use Of Radioactive Materials (was Rsa60 Section 1).	AP4548	Date of Approval:1 -4-1991 Effective from:1-4-1991 Last date of update:20 03-12-01	Revoked/ cancelled
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Records of Licensed Discharge Consents within 500m of the study site: 0

Database searched and no data found.

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

Records of National Incidents Recording System, List 2 within 250m of the study site: 1

The following NIRS List 2 records are represented as points on the Authorisations, Incidents and Registers Map:

ID	Distance	Direction	NGR	Details
1	40.0	W	529804, 181358	Incident Date: 16/2/2003 Incident Identification: 137183 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)

Records of National Incidents Recording System, List 1 within 250m of the study site: 0

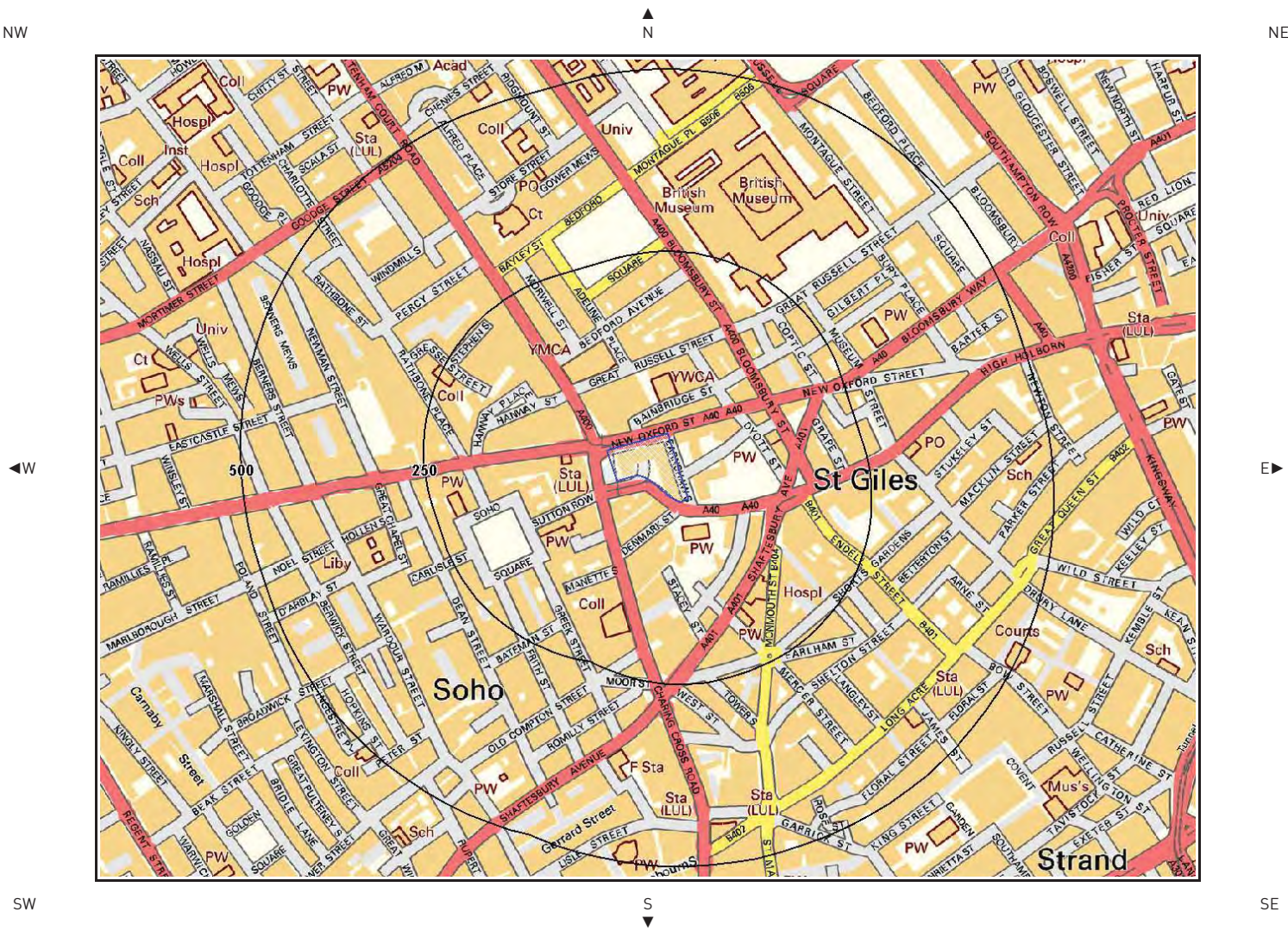
Database searched and no data found.

1.4 Sites Determined as Contaminated Land under Part IIA 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 & Other Waste Sites Legend

Site Outline

Search Buffers (m)

250

500

E.A. Active Landfill

E.A. Historic Landfill (Area Data)

E.A. Historic Landfill (Point Data)

BGS / DoE Survey Landfill

Local Authority Landfill (Area Data)

Local Authority Landfill (Point Data)

Operational Waste Treatment Licence

Closed Waste Treatment Licence

REGIS Waste Licence

Operational Landfill

Closed Landfill

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ENVIRONMENTAL INSIGHT

2. Landfill and Other Waste Sites

2.1 Landfill Sites

Records from Environment Agency landfill data within 1000m of the study site: 0

Database searched and no data found.

Records of operational landfill sites sourced from Landmark within 1000m of the study site: 0

Database searched and no data found.

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	Direction	NGR	Details
Not shown	778.0	E	530700, 181200	Site Address: Portugal Street, Lincoln's Inn Fields, London WC2A Waste Licence: - Site Reference: IMP006 Waste Type: - Regis Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -

Records of non-operational landfill sites sourced from Landmark within 1000m of the study site: 0

Database searched and no data found.

Records of BGS/DoE non-operational landfill sites within 1500m of the study site: 0

Database searched and no data found.

Records of Local Authority landfill sites within 1500m of the study site: 0

Database searched and no data found.

2.2 Other Waste Sites

Records of operational waste treatment, transfer or disposal sites within 500m of the study site: 0

Database searched and no data found.

Records of non-operational waste treatment, transfer or disposal sites within 500m of the study site: 0

Database searched and no data found.

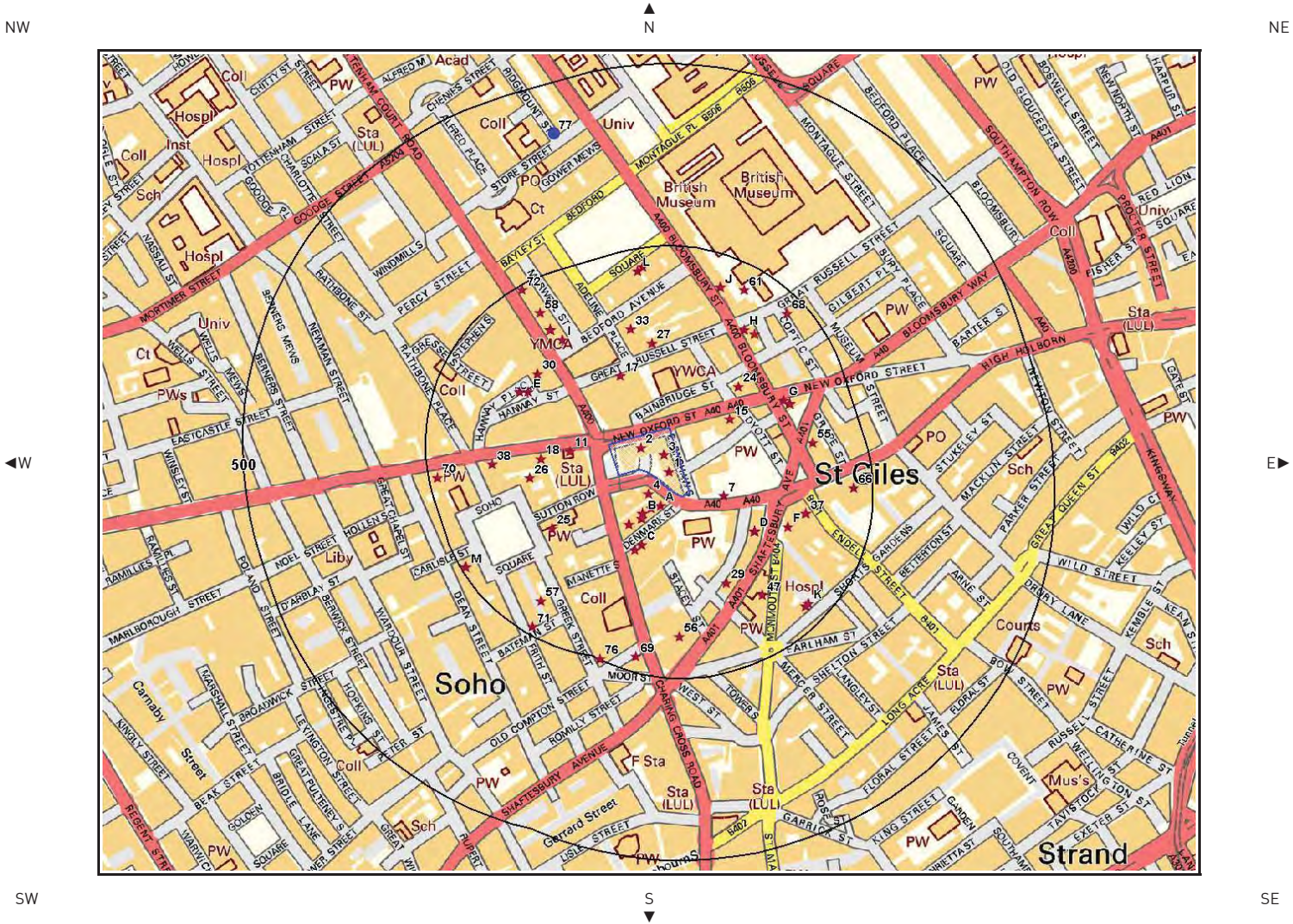
Records of Environment Agency licensed waste sites within 1500m of the study site: 0

Report Reference: EMS-151651_218359

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Database searched and no data found.

3. Current Land Use Map



Current Land Use Legend



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- Site Outline
- Search Buffers (m)
 - 250
 - 500
- Current Industrial Sites
- Petrol & Fuel Sites
- Underground High Pressure Oil & Fuel Pipelines

3. Current Land Uses

3.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 76

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

ID	Distance	Direction	Company	Address	Activity	Category
1	0.0	On Site	Kall Kwik Printing	19, St. Giles High Street, London, WC2H 8LN	Published Goods	Industrial Products
2	0.0	On Site	M C Bride Plc	Centre Point 103, New Oxford Street, London, WC1A 1DD	Cosmetics, Toiletries and Perfumes	Consumer Products
3	0.0	On Site	Modular Lighting UK	22-24, St. Giles High Street, London, WC2H 8TA	Lampshades and Lighting	Consumer Products
4	23.0	SW	Earache Records London Ltd	1-6, Denmark Place, London, WC2H 8NL	Recording Studios and Record Companies	IT, Advertising, Marketing and Media Services
5A	25.0	SW	G Noden	27, Denmark Street, London, WC2H 8NJ	Sports and Leisure Equipment Repair	Repair and Servicing
6A	36.0	SW	Nightingale Guitars	25, Denmark Street, London, WC2H 8NJ	Musical Instruments	Consumer Products
7	46.0	E	Octopus Publishing Group Ltd	Endeavour House 189, Shaftesbury Avenue, London, WC2H 8JY	Published Goods	Industrial Products
8B	49.0	SW	Q X Magazine	23, Denmark Street, London, WC2H 8NH	Published Goods	Industrial Products
9B	49.0	SW	Q X	23, Denmark Street, London, WC2H 8NH	Published Goods	Industrial Products
10 B	49.0	SW	London Pro Audio Centre	23, Denmark Street, London, WC2H 8NH	Electronic Equipment	Industrial Products
11	53.0	W	Tottenham Court Road	Tottenham Court Road Station, Oxford Street, London, W1D 2DH	Underground Network Stations	Public Transport, Stations and Infrastructure
12 B	54.0	SW	Tinpanalley Studio	22, Denmark Street, London, WC2H 8NG	Recording Studios and Record Companies	IT, Advertising, Marketing and Media Services
13 B	54.0	SW	Firststar	23, Denmark Street, London, WC2H 8NH	Published Goods	Industrial Products
14 B	69.0	S	Music Room at Argent's	19, Denmark Street, London, WC2H 8NA	Recording Studios and Record Companies	IT, Advertising, Marketing and Media Services
15	82.0	E	Jessops	63-69, New Oxford Street, London, WC1A 1DG	Photographic and Optical Equipment	Household, Office, Leisure and Garden
16 C	85.0	SW	Samson Marble	9, Denmark Street, London, WC2H 8LS	Stone Quarrying and Preparation	Extractive Industries
17	86.0	N	The Cavalry	10, Great Russell Street, London, WC1B 3BQ	Vehicle Breakdown and Recovery Services	Personal, Consumer and Other Services
18	95.0	W	Orange Telecom	27, Oxford Street, London, W1D 2DP	Radar and Telecommunications Equipment	Industrial Products
19 C	96.0	SW	Rose-morris	11, Denmark Street, London, WC2H 8LS	Recording Studios and Record Companies	IT, Advertising, Marketing and Media Services
20 D	103.0	SE	Bauer Ltd	Endeavour House 189, Shaftesbury Avenue, London, WC2H 8JG	Published Goods	Industrial Products
21 D	103.0	SE	More Magazine	Endeavour House 189, Shaftesbury Avenue, London, WC2H 8JG	Published Goods	Industrial Products
22 D	103.0	SE	F H M	Endeavour House 189, Shaftesbury Avenue, London, WC2H 8JG	Published Goods	Industrial Products
23 D	103.0	SE	The Nielsin Company	Endeavour House 189, Shaftesbury Avenue, London, WC2H 8TJ	Published Goods	Industrial Products

24	110.0	NE	Jacobs Digital Photo & Video	Isis House 74, New Oxford Street, London, WC1A 1EU	Photographic and Optical Equipment	Household, Office, Leisure and Garden
25	117.0	SW	Stobart Group	22, Soho Square, London, W1D 4NS	Distribution and Haulage	Transport, Storage and Delivery
26	117.0	W	M W B Business Exchange	18, Soho Square, London, W1D 3QL	Business Parks and Industrial Estates	Industrial Features
27	118.0	N	Artemide GB Ltd	106, Great Russell Street, London, WC1B 3NB	Lampshades and Lighting	Consumer Products
28E	132.0	NW	West End D J Ltd	10-12, Hanway Street, London, W1T 1UB	Electronic Equipment	Industrial Products
29	133.0	SE	Idemitsu International Europe Plc	Shaftesbury House 151, Shaftesbury Avenue, London, WC2H 8AL	Fuel Distributors and Suppliers	Household, Office, Leisure and Garden
30	138.0	NW	Specsavers Hearcare	Unit 6 6-17, Tottenham Court Road, London, W1T 1AZ	Disability and Mobility Equipment	Consumer Products
31F	142.0	E	Arthur Beale Ltd	194, Shaftesbury Avenue, London, WC2H 8JP	Marine Equipment Including Boats and Ships	Industrial Products
32E	142.0	NW	Nena Fashion Group	14, Hanway Place, London, W1T 1HD	Clothing, Components and Accessories	Consumer Products
33	144.0	N	Axel Poignant Archive	Flat 115 Bedford Court Mans, London, WC1B 3AG	Container and Storage	Transport, Storage and Delivery
34I	158.0	NW	CCTV & Av Solutions Ltd	257-258, Tottenham Court Road, London, W1T 7RE	Electronic Equipment	Industrial Products
35 G	160.0	E	James Smith & Sons Ltd	53, New Oxford Street, London, WC1A 1BL	Luggage, Bags, Umbrellas and Travel Accessories	Consumer Products
36F	161.0	E	Sinnet Partnership	81b Endell Street, London, WC2H 9AJ	Mechanical Engineers	Engineering Services
37	161.0	E	Service Point UK	81, Endell Street, London, WC2H 9AJ	Office and Shop Equipment	Industrial Products
38	162.0	W	Mac Right Ltd	51, Oxford Street, London, W1D 2EF	Electrical Equipment Repair and Servicing	Repair and Servicing
39 G	167.0	E	Classical Music Magazine	241, Shaftesbury Avenue, London, WC2H 8ER	Published Goods	Industrial Products
40 G	167.0	E	Piano Magazine	241, Shaftesbury Avenue, London, WC2H 8TF	Published Goods	Industrial Products
41 G	167.0	E	The Singer	241, Shaftesbury Avenue, London, WC2H 8ES	Published Goods	Industrial Products
42 G	167.0	E	Music Teacher Magazine	241, Shaftesbury Avenue, London, WC2H 8TF	Published Goods	Industrial Products
43 G	167.0	E	Opera Now Magazine	241, Shaftesbury Avenue, London, WC2H 8ER	Published Goods	Industrial Products
44 G	167.0	E	Rhinegold Publishinig	241, Shaftesbury Avenue, London, WC2H 8TF	Published Goods	Industrial Products
45 G	167.0	E	Early Music Today	241, Shaftesbury Avenue, London, WC2H 8TF	Published Goods	Industrial Products
46 H	170.0	NE	Caxton Publishing Group Ltd	20, Bloomsbury Street, London, WC1B 3JH	Published Goods	Industrial Products
47	172.0	SE	Miller Harris	Flat 4 14, Monmouth Street, London, WC2H 9HB	Candles	Consumer Products
48 H	174.0	NE	Bookforce	Suite 8 37, Great Russell Street, London, WC1B 3PP	Published Goods	Industrial Products
49I	177.0	NW	Car Audio & Security Ltd	254-256, Tottenham Court Road, London, W1T 7RD	Vehicle Parts and Accessories	Industrial Products
50I	177.0	NW	Time Out Guides Ltd	Universal House 251, Tottenham Court Road, London, W1T 7AB	Distribution and Haulage	Transport, Storage and Delivery
51I	177.0	NW	Icon World Ltd	251, Tottenham Court Road, London, W1T 7RB	Electrical Equipment Repair and Servicing	Repair and Servicing
52I	177.0	NW	Time Out Magazine	Universal House 251, Tottenham Court Road, London, W1T 7AB	Published Goods	Industrial Products
53I	177.0	NW	Techno Talks Ltd	254-256, Tottenham Court Road, London, W1T 7RD	Electrical Equipment Repair and Servicing	Repair and Servicing
54I	177.0	NW	Security Development Systems	First Floor Flat 251-256, Tottenham Court Road, London, W1T 7RL	Electronic Equipment	Industrial Products

55	181.0	E	London Print Co	212, Shaftesbury Avenue, London, WC2H 8EB	Published Goods	Industrial Products
56	193.0	S	Pages	121, Shaftesbury Avenue, London, WC2H 8AD	Food and Beverage Industry Machinery	Industrial Products
57	202.0	SW	Apatite 4 Ltd	55, Greek Street, London, W1D 3DT	Construction Completion Services	Construction Services
58	204.0	NW	Video & Sound Services	248-250, Tottenham Court Road, London, W1T 7QZ	Electrical Equipment Repair and Servicing	Repair and Servicing
59J	205.0	N	Electrum Resources	32, Bloomsbury Street, London, WC1B 3QJ	Published Goods	Industrial Products
60J	205.0	N	Virtual Angels Services	32, Bloomsbury Street, London, WC1B 3QJ	Business Parks and Industrial Estates	Industrial Features
61	215.0	NE	Electricity Sub Station	WC1E	Electrical Features	Infrastructure and Facilities
62L	219.0	N	Yale University Press	47, Bedford Square, London, WC1B 3DP	Published Goods	Industrial Products
63 K	221.0	SE	In & Around Covent Garden	19, Shorts Gardens, London, WC2H 9AW	Published Goods	Industrial Products
64 K	222.0	SE	Neals Yard Dairy	17, Shorts Gardens, London, WC2H 9AT	Dairy Farming	Farming
65 K	222.0	SE	Brodies	17, Shorts Gardens, London, WC2H 9AT	Stationery, Stamps, Tags and Labels	Industrial Products
66	224.0	E	Alstom UK Ltd	Alton House 174-177, High Holborn, London, WC1V 7AA	Electronic Equipment	Industrial Products
67L	224.0	N	Aurum Press Ltd	25, Bedford Avenue, London, WC1B 3AT	Published Goods	Industrial Products
68	225.0	NE	Souvenir Press Ltd	43, Great Russell Street, London, WC1B 3PD	Published Goods	Industrial Products
69	228.0	S	Andrew Mann Ltd	1, Old Compton Street, London, W1D 5JA	Published Goods	Industrial Products
70	238.0	W	Premier Security	Premiker House 77, Oxford Street, London, W1D 2ES	Agricultural Machinery and Goods	Industrial Products
71	239.0	SW	M G Video	10, Frith Street, London, W1D 3JF	Electronic Equipment	Industrial Products
72	243.0	NW	Digitals UK Ltd	246, Tottenham Court Road, London, W1T 7QU	Electronic Equipment	Industrial Products
73 M	245.0	SW	A & C Black	36, Soho Square, London, W1D 3QY	Published Goods	Industrial Products
74 M	245.0	SW	Bloomsbury Publishing	36, Soho Square, London, W1D 3QY	Published Goods	Industrial Products
75 M	245.0	SW	Media Village P R Ltd	13-14, Dean Street, London, W1D 3RS	Recording Studios and Record Companies	IT, Advertising, Marketing and Media Services
76	250.0	SW	A1 Vox Ltd	20, Old Compton Street, London, W1D 4TW	Recording Studios and Record Companies	IT, Advertising, Marketing and Media Services

3.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 1

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance	Direction	NGR	Company	Address	LPG	Status
77	432.0	N	529767, 181798	Obsolete	Store Street Service Station, 6, Store Street, Store Street, Richmond Street, London, Greater London, WC1E 7DQ	Not Applicable	Obsolete

3.3 Underground High Pressure Oil and Gas Pipelines

Records of high pressure underground 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

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

Lex Code	Description	Rock Type
LHGR-SAGR	LYNCH HILL GRAVEL MEMBER	SAND AND GRAVEL

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

4.3 Bedrock and Solid Geology

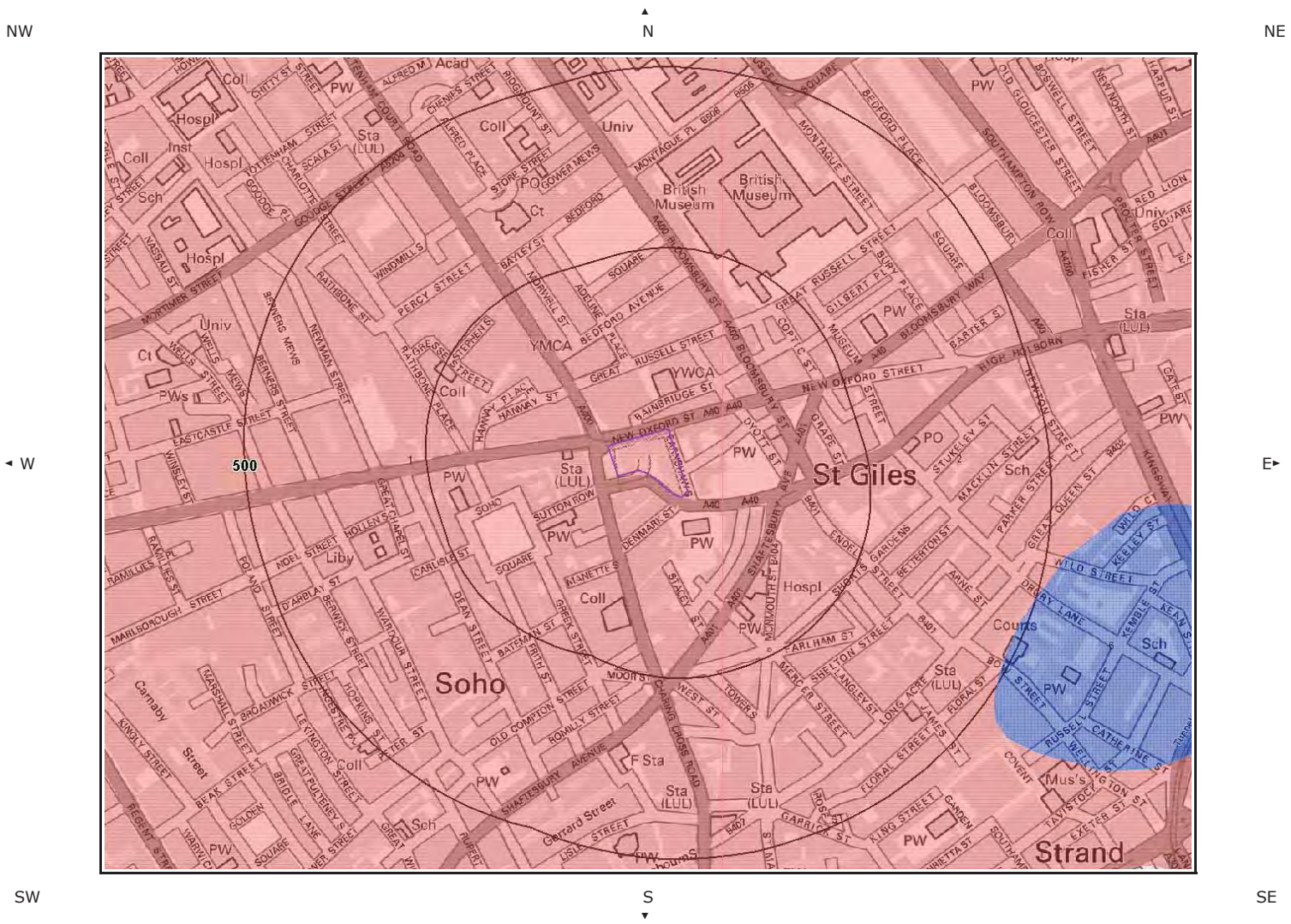
The database has been searched on site, including a 50m buffer.

LEX Code	Description	Rock Type
LC-CLSS	LONDON CLAY FORMATION	CLAY, SILT AND SAND

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

For more detailed geological and ground stability data please refer to the "GroundSure GeoInsight". Available from our website.

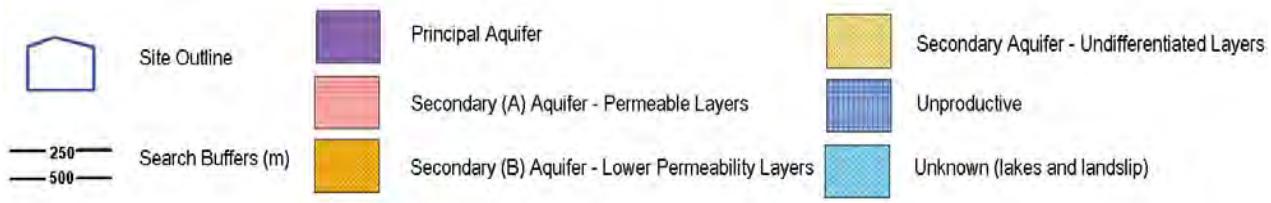
5a. Hydrogeology - Aquifer Within Superficial Geology



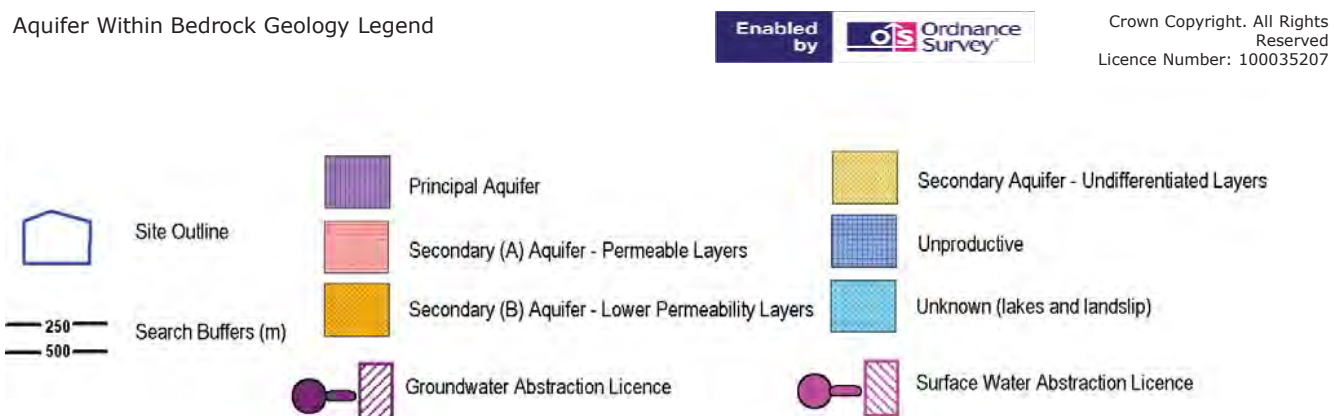
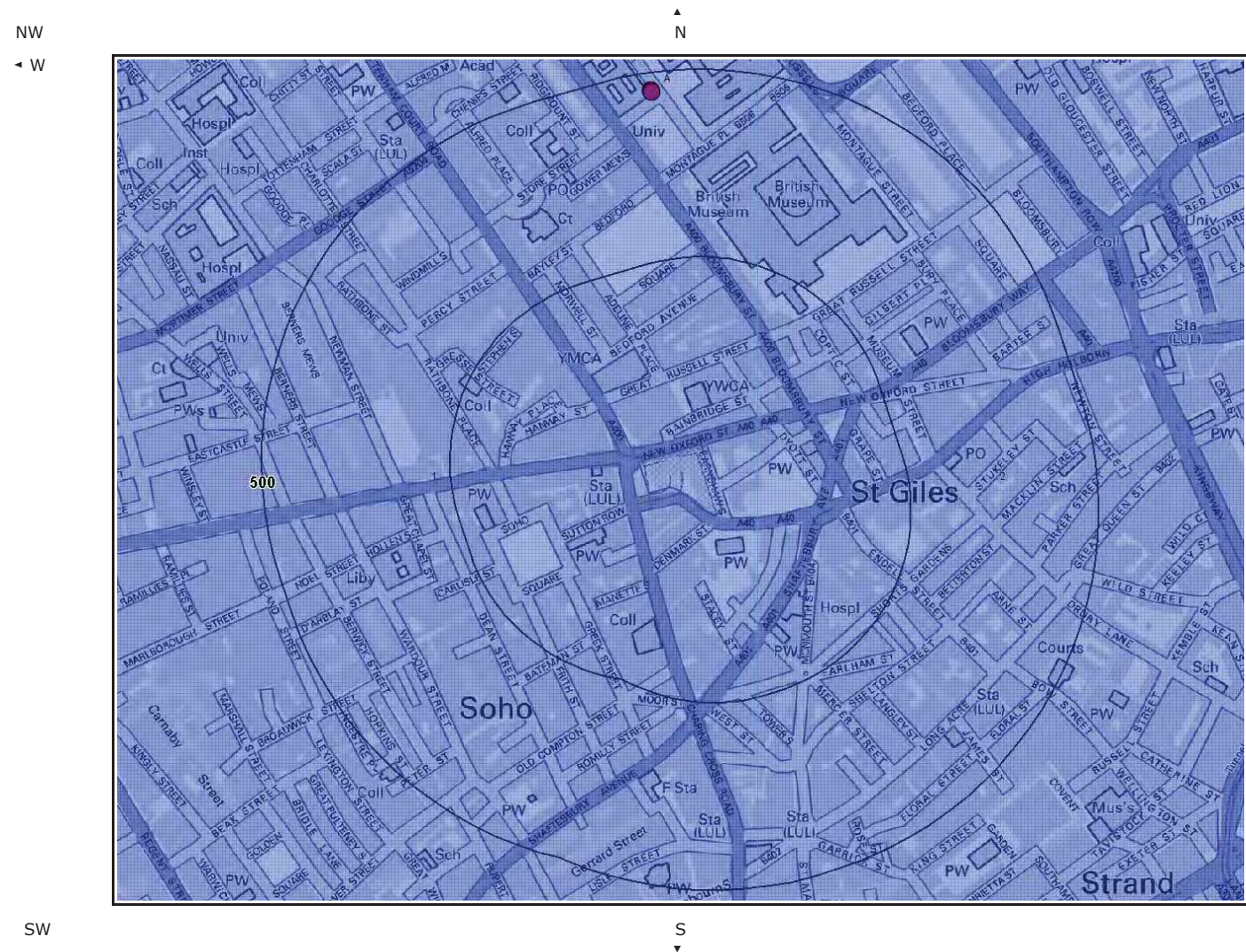
Aquifer Within Superficial Geology Legend



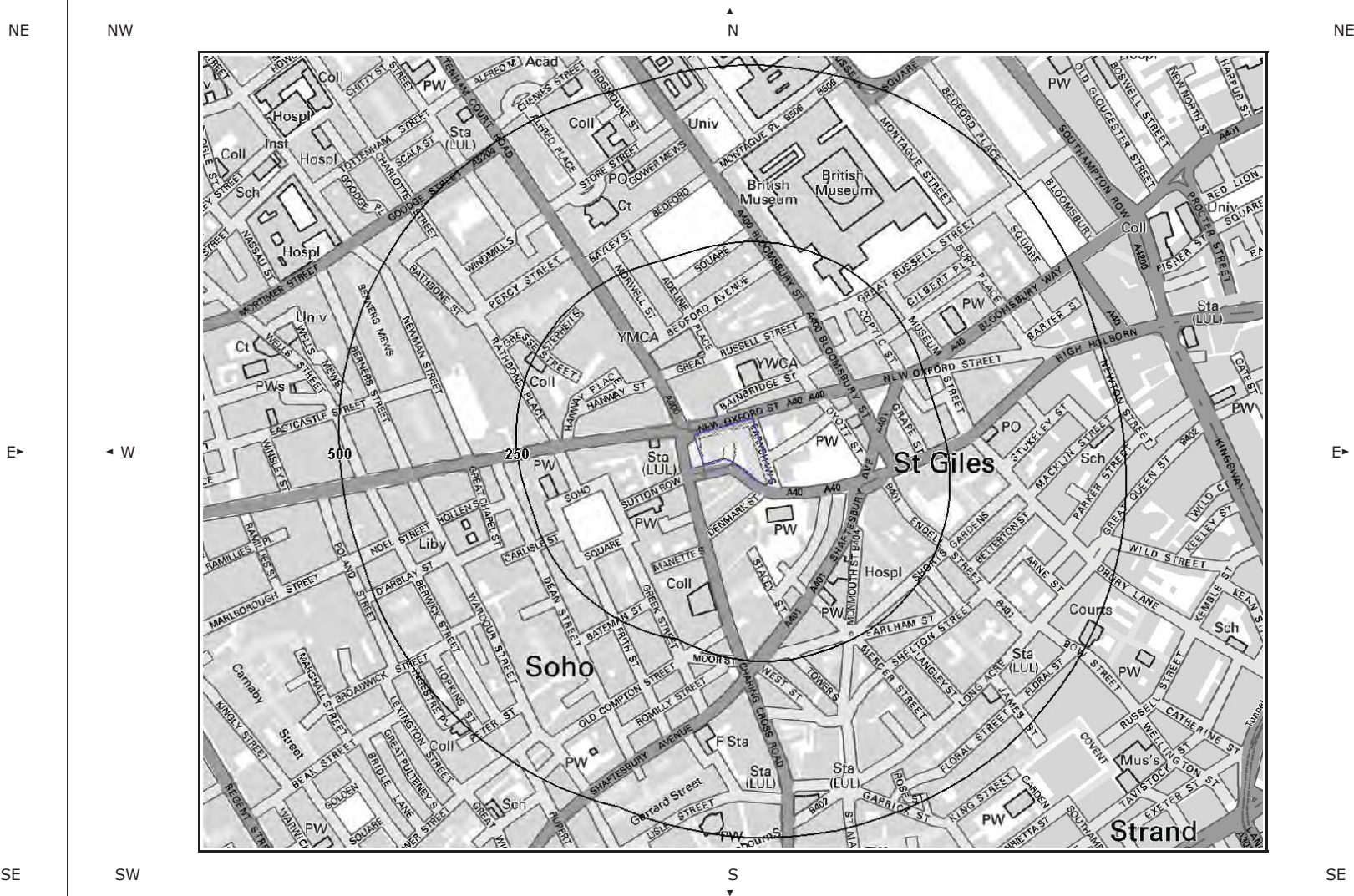
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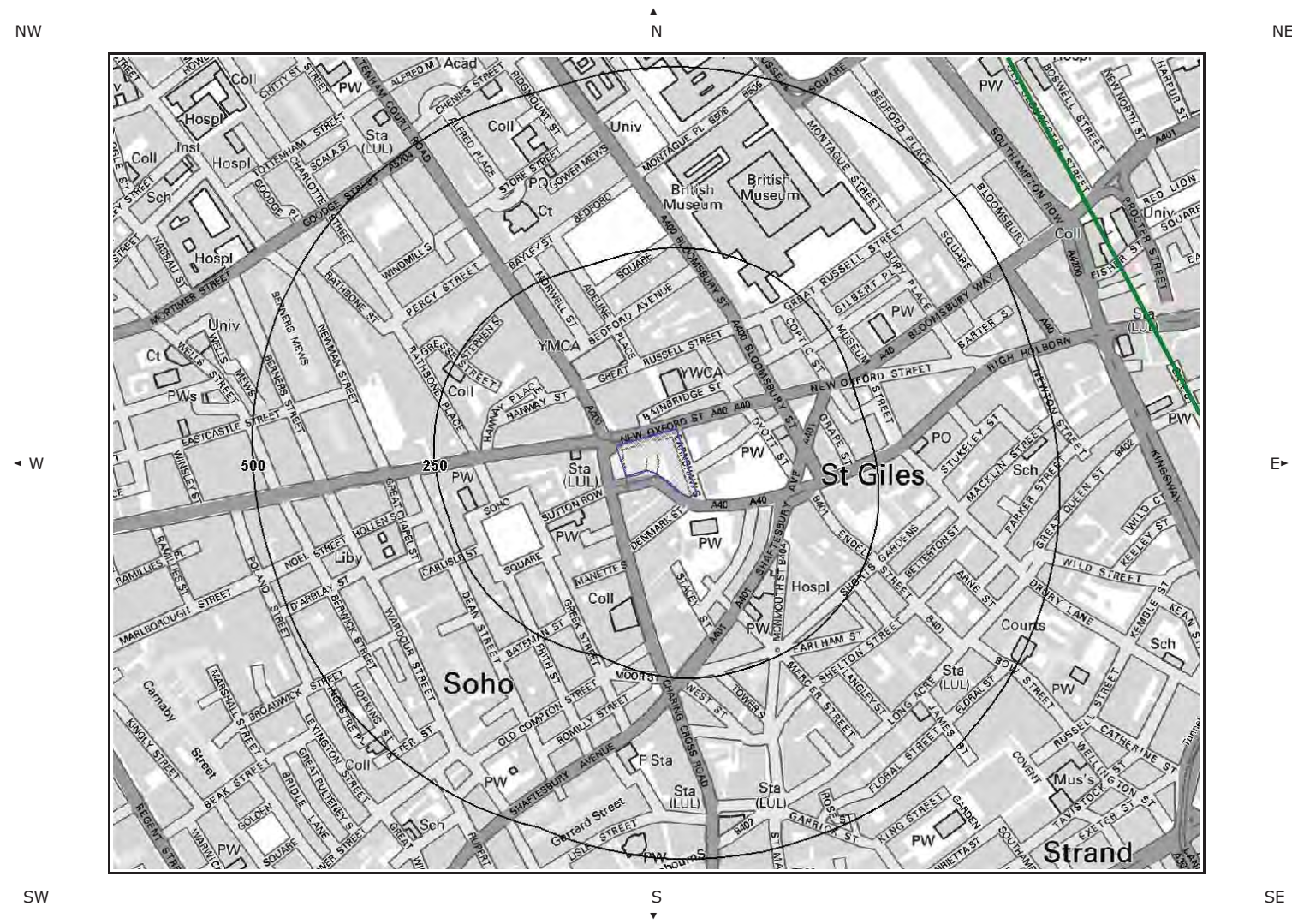
5b. Hydrogeology - Aquifer Within Bedrock Geology and Abstraction Licenses



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



5d. Hydrology – Detailed River Network and River Quality



Hydrology Legend

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- Site Outline
- Search Buffers (m)
- Primary River
- Secondary River
- Tertiary River
- Lake/Reservoir
- Underground River (inferred)
- General Quality Assessment: Chemistry
- Canal
- Canal Tunnel
- Extended Culvert (greater than 50m)
- D/S of High Water Mark
- D/S seaward extension
- General Quality Assessment: Biology

5.Hydrogeology and Hydrology

5.1 Aquifer within Superficial Deposits

Are there records of productive strata within the superficial 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 Superficial Geology Map (5a):

ID	Distance [m]	Direction	Designation	Description
1	0.0	On Site	Secondary A	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
2	46.0	E	Secondary A	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
6	490.0	SE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

5.2 Aquifer within Bedrock Deposits

Are there records of productive strata 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
1	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
2	46.0	E	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 1000m 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	Direction	NGR	Details
----	----------	-----------	-----	---------

3A	473.0	N	529860, 181863	Licence No: TH/039/0039/031 Details: Heat Pump Direct Source: Thames Groundwater Point: Borehole 1, Keppel Street Data Type: Point	Annual Volume (m³): 203407 Max Daily Volume (m³): 558 Original Application No: NPS/WR/004429 Original Start Date: 8/11/2010 Expiry Date: 31/3/2019 Issue No: 1 Version Start Date: 8/11/2010 Version End Date:
4A	476.0	N	529858, 181865	Licence No: TH/039/0039/031 Details: Heat Pump Direct Source: Thames Groundwater Point: Borehole 2, Keppel Street Data Type: Point	Annual Volume (m³): 203407 Max Daily Volume (m³): 558 Original Application No: NPS/WR/004429 Original Start Date: 8/11/2010 Expiry Date: 31/3/2019 Issue No: 1 Version Start Date: 8/11/2010 Version End Date:
Not shown	743.0	W	529100, 181400	Licence No: 28/39/39/0138 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Borehole 'b' At Walmer House, 296 Regent Street, London W1 Data Type: Point	Annual Volume (m³): 9126 Max Daily Volume (m³): 25 Original Application No: - Original Start Date: 11/10/1971 Expiry Date: - Issue No: 100 Version Start Date: 26/11/1979 Version End Date:
Not shown	743.0	W	529100, 181400	Licence No: 28/39/39/0138 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Walmer House, 296 Regent Street, London W1-borehole B Data Type: Point	Annual Volume (m³): 9126 Max Daily Volume (m³): 25 Original Application No: - Original Start Date: 11/10/1971 Expiry Date: - Issue No: 100 Version Start Date: 26/11/1979 Version End Date:
Not shown	754.0	S	530090, 180560	Licence No: 28/39/39/0236 Details: Heat Pump Direct Source: Thames Groundwater Point: 6 St Martins Place, London, Wc2n - Borehole Data Type: Point	Annual Volume (m³): 52000 Max Daily Volume (m³): 1300 Original Application No: GEN/39/117 Original Start Date: 24/4/2008 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: 24/4/2008 Version End Date:
Not shown	789.0	S	529960, 180510	Licence No: 28/39/39/0212 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: The National Gallery- Borehole Data Type: Point	Annual Volume (m³): 30558 Max Daily Volume (m³): 83.7 Original Application No: WRA/N/1311 Original Start Date: 27/10/2004 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: 1/4/2008 Version End Date:
Not shown	789.0	S	529960, 180510	Licence No: 28/39/39/0212 Details: Evaporative Cooling Direct Source: Thames Groundwater Point: The National Gallery- Borehole Data Type: Point	Annual Volume (m³): 30558 Max Daily Volume (m³): 83.7 Original Application No: WRA/N/1311 Original Start Date: 27/10/2004 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: 1/4/2008 Version End Date:
Not shown	832.0	W	529010, 181350	Licence No: 28/39/39/0138 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Walmer House, 296 Regent Street, London, W1b - Borehole 'a' Data Type: Point	Annual Volume (m³): 9126 Max Daily Volume (m³): 25 Original Application No: - Original Start Date: 11/10/1971 Expiry Date: - Issue No: 101 Version Start Date: 1/4/2008 Version End Date:
Not shown	833.0	W	529010, 181330	Licence No: 28/39/39/0138 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Walmer House, 296 Regent Street, London, W1b - Borehole 'b' Data Type: Point	Annual Volume (m³): 9126 Max Daily Volume (m³): 25 Original Application No: - Original Start Date: 11/10/1971 Expiry Date: - Issue No: 101 Version Start Date: 1/4/2008 Version End Date:
Not shown	845.0	W	529000, 181300	Licence No: 28/39/39/0138 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Borehole 'a' At Walmer House, 296 Regent Street, London W1 Data Type: Point	Annual Volume (m³): 9126 Max Daily Volume (m³): 25 Original Application No: - Original Start Date: 11/10/1971 Expiry Date: - Issue No: 100 Version Start Date: 26/11/1979 Version End Date:

Report Reference: EMS-151651_218359

Not shown	845.0	W	529000, 181300	Licence No: 28/39/39/0138 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Walmer House, 296 Regent Street, London W1-borehole A Data Type: Point	Annual Volume (m³): 9126 Max Daily Volume (m³): 25 Original Application No: - Original Start Date: 11/10/1971 Expiry Date: - Issue No: 100 Version Start Date: 26/11/1979 Version End Date:
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5.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 1000m 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? Yes

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (5c):

ID	Distance	Direction	NGR	Details
Not shown	743.0	W	529100, 181400	Licence No: 28/39/39/0138 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Borehole 'b' At Walmer House, 296 Regent Street, London W1 Data Type: Point
Not shown	743.0	W	529100, 181400	Licence No: 28/39/39/0138 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Walmer House, 296 Regent Street, London W1-borehole B Data Type: Point
Not shown	789.0	S	529960, 180510	Licence No: 28/39/39/0212 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: The National Gallery- Borehole Data Type: Point
Not shown	832.0	W	529010, 181350	Licence No: 28/39/39/0138 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Walmer House, 296 Regent Street, London, W1b - Borehole 'a' Data Type: Point
Not shown	833.0	W	529010, 181330	Licence No: 28/39/39/0138 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Walmer House, 296 Regent Street, London, W1b - Borehole 'a' Data Type: Point
Not shown	845.0	W	529000, 181300	Licence No: 28/39/39/0138 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Walmer House, 296 Regent Street, London, W1b - Borehole 'b' Data Type: Point

Report Reference: EMS-151651_218359

Not shown	845.0	W	529000, 181300	Licence No: 28/39/39/0138 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Borehole 'a' At Walmer House, 296 Regent Street, London W1 Data Type: Point	Annual Volume (m³): 9126 Max Daily Volume (m³): 25 Original Application No: - Original Start Date: 11/10/1971 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	845.0	W	529000, 181300	Licence No: 28/39/39/0138 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Walmer House, 296 Regent Street, London W1-borehole A Data Type: Point	Annual Volume (m³): 9126 Max Daily Volume (m³): 25 Original Application No: - Original Start Date: 11/10/1971 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1127.0	E	531030, 180970	Licence No: 28/39/39/0025 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Globe House, Victoria Embankment-Borehole B Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 10/1/1966 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:
Not shown	1143.0	E	531050, 180980	Licence No: 28/39/39/0025 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Globe House, Victoria Embankment-Borehole C Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 10/1/1966 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:
Not shown	1152.0	E	531060, 180980	Licence No: 28/39/39/0025 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Globe House, Victoria Embankment-Borehole A Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 10/1/1966 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:
Not shown	1161.0	S	529480, 180230	Licence No: 28/39/39/0006 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Borehole At The Army And Navy Club, Pall Mall, London Data Type: Point	Annual Volume (m³): 15911 Max Daily Volume (m³): 82.7 Original Application No: - Original Start Date: 11/10/1965 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1161.0	SE	531000, 180800	Licence No: 28/39/39/0025 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Borehole 'a' At Globe House, Temple Place, London Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 10/1/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1161.0	SE	531000, 180800	Licence No: 28/39/39/0025 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Borehole 'b' At Globe House, Temple Place, London Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 10/1/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1161.0	SE	531000, 180800	Licence No: 28/39/39/0025 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Borehole 'c' At Globe House, Temple Place, London Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 10/1/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1361.0	E	531300, 181100	Licence No: 28/39/39/0077 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Borehole At 37 Fleet Street, London Ec4 Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 13/6/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:

Report Reference: EMS-151651_218359

Not shown	1595.0	S	530230, 179730	Licence No: 28/39/39/0213 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: East Borehole At New Parliamentary Buildings, London Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WRA/N/1318 Original Start Date: 24/11/1999 Expiry Date: 31/1/2006 Issue No: 1 Version Start Date: Version End Date:
Not shown	1595.0	S	530230, 179730	Licence No: 28/39/39/0224 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Portcullis House- Borehole B Data Type: Point	Annual Volume (m³): 400000 Max Daily Volume (m³): 2074 Original Application No: WRA/N/1318 Original Start Date: 30/8/2006 Expiry Date: 31/3/2009 Issue No: 1 Version Start Date: Version End Date:
Not shown	1595.0	S	530230, 179730	Licence No: 28/39/39/0178 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: East Borehole At New Parliamentary Buildings, London Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WRA/N/1318 Original Start Date: 24/11/1999 Expiry Date: 31/12/2004 Issue No: 1 Version Start Date: Version End Date:
Not shown	1595.0	S	530230, 179730	Licence No: TH/039/0039/005 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Portcullis House- Borehole B Data Type: Point	Annual Volume (m³): 400000 Max Daily Volume (m³): 2074 Original Application No: NPS WR 000420 Original Start Date: 1/4/2009 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: Version End Date:
Not shown	1598.0	E	531500, 180900	Licence No: 28/39/39/0057 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Two Boreholes At Unilever House, Blackfriars, London Ec4 Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 9/5/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1613.0	S	530220, 179710	Licence No: 28/39/39/0213 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: West Borehole At New Parliamentary Buildings, London Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WRA/N/1318 Original Start Date: 24/11/1999 Expiry Date: 31/1/2006 Issue No: 1 Version Start Date: Version End Date:
Not shown	1613.0	S	530220, 179710	Licence No: 28/39/39/0224 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: New Parliamentary Buildings, London- Borehole A Data Type: Point	Annual Volume (m³): 400000 Max Daily Volume (m³): 2074 Original Application No: WRA/N/1318 Original Start Date: 30/8/2006 Expiry Date: 31/3/2009 Issue No: 1 Version Start Date: Version End Date:
Not shown	1613.0	S	530220, 179710	Licence No: 28/39/39/0178 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: West Borehole At New Parliamentary Buildings, London Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WRA/6429 Original Start Date: 24/11/1999 Expiry Date: 31/12/2004 Issue No: 1 Version Start Date: Version End Date:
Not shown	1613.0	S	530220, 179710	Licence No: TH/039/0039/005 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: New Parliamentary Buildings, London- Borehole A Data Type: Point	Annual Volume (m³): 400000 Max Daily Volume (m³): 2074 Original Application No: NPS WR 000420 Original Start Date: 1/4/2009 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: Version End Date:
Not shown	1700.0	S	529900, 179600	Licence No: 28/39/39/0046 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Borehole At The Central Hall, Matthew Parker Street, London Data Type: Point	Annual Volume (m³): 9092 Max Daily Volume (m³): 36.37 Original Application No: - Original Start Date: 9/5/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:

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Not shown	1878.0	SE	531600, 180400	Licence No: 28/39/42/0004 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Stamford House, Stamford Street, - Borehole 'a' Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: WR/RG568 Original Start Date: 13/12/1965 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1878.0	SE	531600, 180400	Licence No: 28/39/42/0004 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: Stamford House, Stamford Street, - Borehole Data Type: Point	Annual Volume (m³): 47733 Max Daily Volume (m³): 163.66 Original Application No: - Original Start Date: 13/12/1965 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:
Not shown	1883.0	NE	531650, 182150	Licence No: 28/39/39/0206 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Thames Groundwater Point: 86-88 Clerkenwell Road, London- Borehole A Data Type: Point	Annual Volume (m³): 25404 Max Daily Volume (m³): 69.6 Original Application No: - Original Start Date: 4/7/2003 Expiry Date: 31/3/2013 Issue No: 2 Version Start Date: Version End Date:
Not shown	1924.0	NE	531280, 182760	Licence No: 28/39/39/0201 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: New River Head, Finsbury - Borehole Data Type: Point	Annual Volume (m³): 1261440 Max Daily Volume (m³): 3456 Original Application No: WRA/R/2/2 Original Start Date: 8/1/2004 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: Version End Date:

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 River Quality

Is there any Environment Agency information on river quality within 1500m of the study site? No

Biological Quality:

Database searched and no data found.

Chemical Quality:

Database searched and no data found.

5.8 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site? No

Database searched and no data found.

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5.9 Surface Water Features

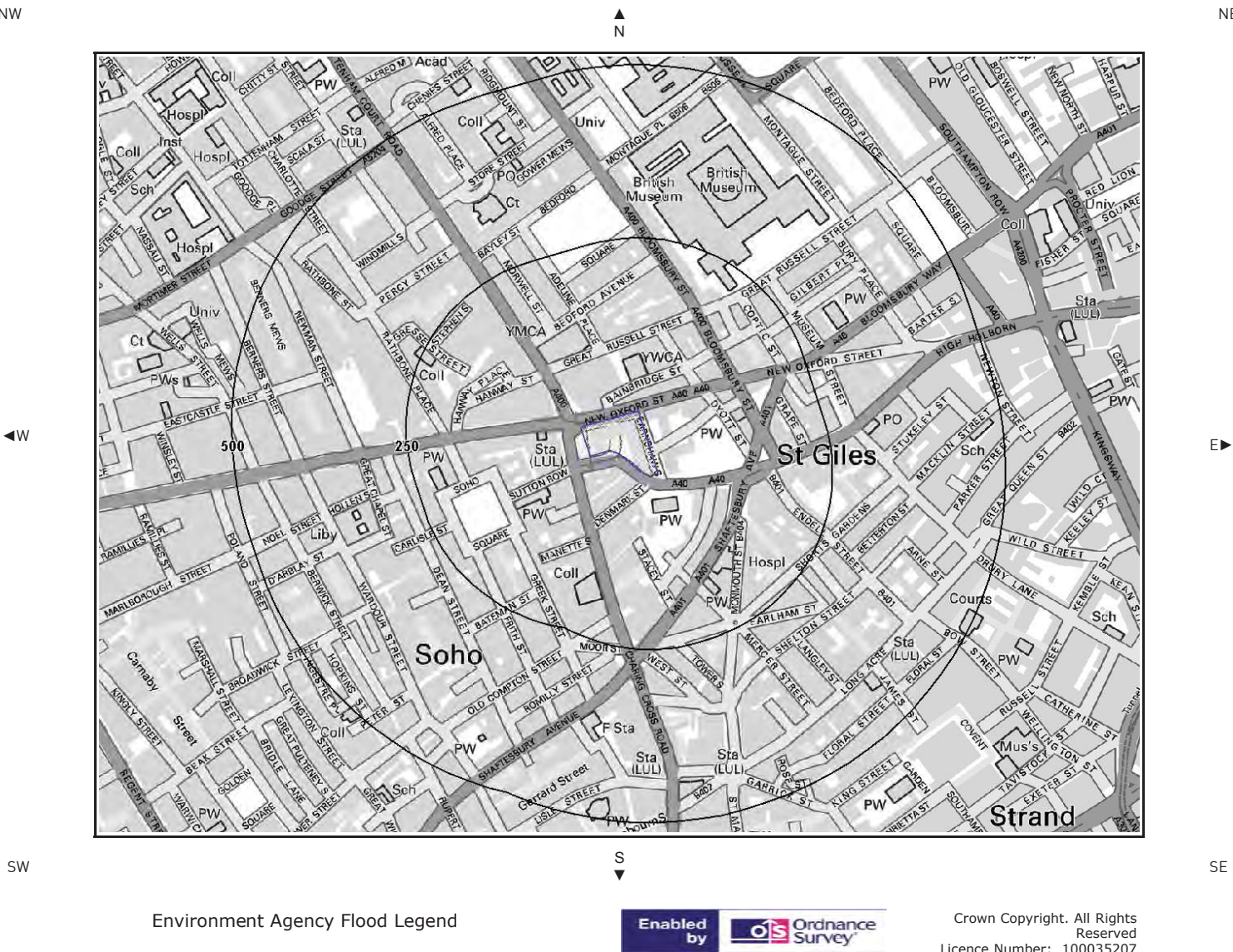
Are there any surface water features within 250m of the study site? Yes

The following surface water records are not represented on mapping:

Distance to Surface Water (m)	on-site	0-50	51-250
Surface water features within 250m of the study site	No	Yes	Yes

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6. Environment Agency Flood Map



6. Flooding

6.1 Zone 2 Flooding

Zone 2 floodplain estimates the annual probability of flooding as one in one thousand (0.1%) or greater from rivers and the sea but less than 1% from rivers or 0.5% from the sea. Alternatively, where information is available they may show the highest known flood level.

Is the site within 250m of an Environment Agency indicative Zone 2 floodplain? No

Database searched and no data found.

6.2 Zone 3 Flooding

Zone 3 estimates the annual probability of flooding as one in one hundred (1%) or greater from rivers and a one in two hundred (0.5%) or greater from the sea. Alternatively, where information is available they may show the highest known flood level.

Is the site within 250m of an Environment Agency indicative Zone 3 floodplain? No

Database searched and no data found.

6.3 Flood Defences

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

6.4 Areas benefiting from Flood Defences

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

6.5 Areas used for Flood Storage

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

6.6 Groundwater Flooding Susceptibility Areas

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

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

6.7 Groundwater Flooding Confidence Areas

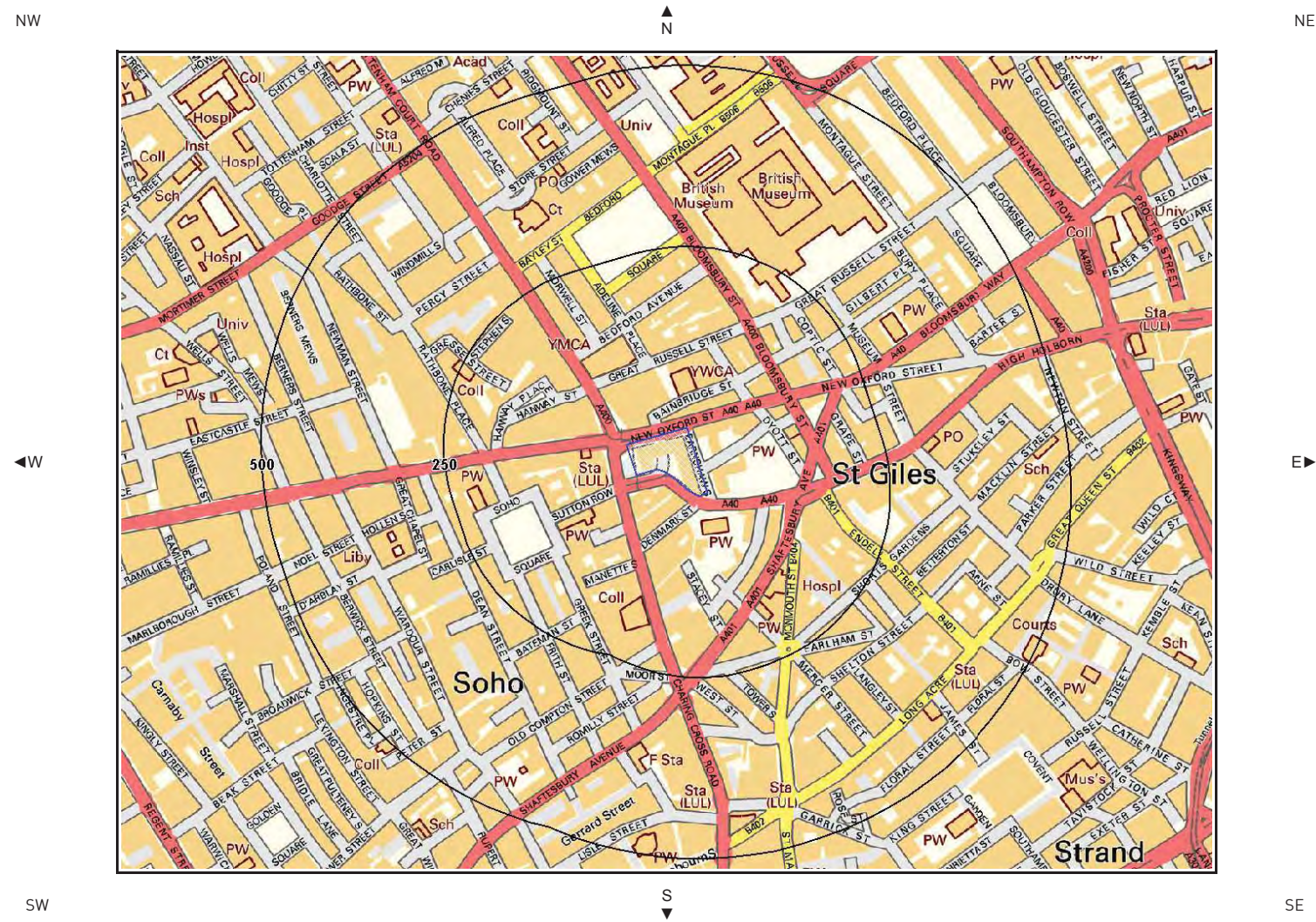
What is the British Geological Survey confidence rating in this result? **Moderate**

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 Legend



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- | | | | | |
|-------------------------------------|-------------------------|----------------|-----|---------------------------------|
| Site Outline | SAC | SSSI | NNR | World Heritage Sites |
| Search Buffers (m) | SPA | Ramsar | LNR | Environmentally Sensitive Areas |
| Areas of Outstanding Natural Beauty | Nitrate Sensitive Areas | National Parks | | |

7.Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 500m of the study site?

No

Records of Sites of Special Scientific Interest (SSSI) within 500m of the study site:

0

Database searched and no data found.

Records of National Nature Reserves (NNR) within 500m of the study site:

0

Database searched and no data found.

Records of Special Areas of Conservation (SAC) within 500m of the study site:

0

Database searched and no data found.

Records of Special Protection Areas (SPA) within 500m of the study site:

0

Database searched and no data found.

Records of Ramsar sites within 500m of the study site:

0

Database searched and no data found.

Records of Local Nature Reserves (LNR) within 500m of the study site:

0

Database searched and no data found.

Records of World Heritage Sites within 500m of the study site:

0

Database searched and no data found.

Records of Environmentally Sensitive Areas within 500m of the study site:

0

Database searched and no data found.

Records of Areas of Outstanding Natural Beauty (AONB) within 500m of the study site:

0

Database searched and no data found.

Records of National Parks (NP) within 500m of the study site:

0

Database searched and no data found.

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Records of Nitrate Sensitive Areas within 500m of the study site:

0

Database searched and no data found.

Records of Nitrate Vulnerable Zones within 500m of the study site:

0

Database searched and no data found.

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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.

8.1.3 Soluble Rocks

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

Soluble rocks are not present in the search area. 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.

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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.

8.1.6Running Sand

What is the maximum Running Sand* 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
Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. 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.

Report Reference: EMS-151651_218359

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 Shallow Mining

What is the subsidence hazard relating to shallow mining on-site*? **Negligible**

*Please note this data is searched with a 150m buffer.

9.3 Brine Affected Areas

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

Database searched and no data found.

10.Contacts

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sales@emapsite.com



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Phone: 020 7278 4444
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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 conditions unless the context otherwise requires:

“**Beneficiary**” means the Client or the customer of the Client for whom the Client has procured the Services.

“**Commercial**” means any building which is not Residential.

“**Commission**” means an order for Consultancy Services submitted by a Client.

“**Consultancy Services**” mean consultancy services provided by GroundSure including, without limitation, carrying out interpretation of third party and in-house environmental data, provision of environmental consultancy advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

“**Contract**” means the contract between GroundSure and the Client for the performance of the Services which arises upon GroundSure’s acceptance of an Order or Commission and which shall incorporate these conditions, the relevant GroundSure User Guide, proposal by GroundSure and the content of any subsequent report, and any agreed amendments in accordance with clause 11.

“**Client**” means the party that submits an Order or Commission.

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

“**Data Report**” means reports comprising factual data with no professional interpretation in respect of the level of likely risk and/or liability available from GroundSure.

“**GroundSure**” means GroundSure Limited, a company registered in England and Wales under number 03421028 and whose registered office is at Greater London House, Hampstead Road, London NW1 7EJ.

“**GroundSure Materials**” means all materials prepared by GroundSure as a result of the provision of the Services, including but not limited to Data Reports, Mapping and Risk Screening Reports.

“**Intellectual Property**” means any patent, copyright, design rights, service marks, moral rights, data protection rights, know-how, trade mark or any other intellectual property rights.

“**Mapping**” an historical map or a combination of historical maps of various ages, time periods and scales available from GroundSure.

“**Order**” means an order form submitted by the Client requiring Services from GroundSure in respect of a specified Site.

“**Order Website**” means online platform via which Orders may be placed.

“**Report**” means a Risk Screening Report or Data Report for commercial or residential property available from GroundSure relating to the Site prepared in accordance with the specifications set out in the relevant User Guide.

“**Residential**” means any building used as or suitable for use as an individual dwelling.

“**Risk Screening Report**” means one of GroundSure’s risk screening reports, comprising factual data with interpretation in respect of the level of likely risk and/or liability, excluding “**Consultancy Services**”.

“**Services**” means the provision of any Report, Mapping or Consultancy Services which GroundSure has agreed to carry out for the Client/Beneficiary on these terms and conditions in respect of the Site.

“**Site**” means the landsite in respect of which GroundSure provides the Services.

“**Third Party Content**” means any data, database or other information contained in a Report or Mapping which is provided to GroundSure by a Data Provider.

“**User Guide**” means the relevant current version of the user guide, available upon request from GroundSure.

2 Scope of Services

2.1 GroundSure agrees to carry out the Services in accordance with the Contract and to the extent set out therein.

2.2 GroundSure shall exercise all the reasonable skill, care and diligence to be expected of experienced environmental consultants in the performance of the Services.

2.3 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 the Contract.

2.4 Terms and conditions appearing on a Client’s order form, printed stationery or other communication, including invoices, to GroundSure, its employees, servants, agents or other representatives or any terms implied by custom, practice or course of dealing shall be of no effect and these terms and conditions shall prevail over all others.

2.5 If a Client/Beneficiary requests insurance in conjunction with or as a result of the Services, GroundSure shall use reasonable endeavours to procure such insurance, but makes no warranty that such insurance shall be available from insurers or offered on reasonable terms. GroundSure does not endorse or recommend any particular insurance product, policy or insurer. Any insurance purchased shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. The Client/Beneficiary should take independent advice to ensure that the insurance policy requested and/or offered is suitable for its requirements.

2.6 GroundSure’s quotations/proposals are valid for a period of 30 days only. GroundSure reserves the right to withdraw any quotation at any time before GroundSure accepts an Order or Commission. GroundSure’s acceptance of an Order or Commission shall be effective only where such acceptance is in writing and signed by GroundSure’s authorised representative or where accepted via GroundSure’s Order Website.

3 The Client’s obligations

3.1 The Client shall ensure the Beneficiary complies with and is bound by the terms and conditions set out in the Contract and shall provide that Groundsure may in its own right enforce such terms and conditions against the Beneficiary pursuant to the Contracts (Rights of Third parties) Act 1999. The Client shall be liable for all breaches of the Contract by the Beneficiary as if they were breaches by the Client. The Client shall be solely responsible for ensuring that the Report/Mapping ordered is appropriate and suitable for the Beneficiary’s needs.

3.2 The Client shall (or shall procure that the Beneficiary shall) supply to GroundSure as soon as practicable and without charge all information necessary and accurate relevant data including any specific and/or unusual environmental information relating to the Site known to the Client/Beneficiary which may pertain to the Services and shall give such assistance as GroundSure shall reasonably require in the performance of the Services (including, without limitation, access to a Site, facilities and equipment as agreed in the Contract).

3.3 Where Client/Beneficiary approval or decision is required, such approval or decision shall be given or procured in reasonable time as not to delay or disrupt the performance of any other part of the Services.

3.4 The Client shall not and shall not knowingly permit the Beneficiary to, save as expressly permitted by these terms and conditions, re-sell, alter, add to, amend or use out of context the content of any Report, Mapping or, in respect of any Services, information given by GroundSure. For the avoidance of doubt, the Client and Beneficiary may make the Report, Mapping or GroundSure’s findings available to a third party who is considering acquiring the whole or part of the Site, or providing funding in relation to the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.5 The Client is responsible for maintaining the confidentiality of its user name and password if using GroundSure’s internet ordering service and accepts responsibility for all activity that occurs under such account and password.

4 Reliance

4.1 Upon full payment of all relevant fees and subject to the provisions of these terms and conditions, the Client and Beneficiary are granted an irrevocable royalty-free licence to access the information contained in a Report, Mapping or in a report prepared by GroundSure in respect of or arising out of Consultancy Services. The Services may only be used for the benefit of the Client and those persons listed in clauses 4.2 and 4.3.

4.2 In relation to Data Reports, Mapping and Risk Screening Reports, the Client shall be entitled to make Reports available to (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 (v) the professional advisers and lenders of the first purchaser or tenant of the Site. Accordingly GroundSure shall have the same duties and obligations to those persons in respect of the Services as it has to the Client and those persons shall have the benefit of any of the Client’s rights under the Contract as if those persons were parties to the Contract. For the avoidance of doubt, the limitations of GroundSure’s liability as set out in clauses 7 and 11.6 shall apply.

4.3 In relation to Consultancy Services, reliance shall be limited to the Client, Beneficiary and named parties on the Report.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise agreed in writing with GroundSure, any other party considering the information supplied by GroundSure as part of the Services, including (but not limited to) insurance underwriters, does so at their own risk and GroundSure has no legal obligations to such party unless otherwise agreed in writing.

4.5 The Client shall not knowingly permit any person (including the Beneficiary) who is provided with a copy of any Report, (except as permitted herein or by separate agreement with GroundSure) to: (a) remove, suppress or modify any trade mark, copyright or other proprietary marking from the Report or Mapping; (b) create any product which is derived directly or indirectly from the data contained in the Report or Mapping; (c) combine the Report or Mapping with, or incorporate the Report or Mapping into any other information data or service; or (d) re-format or otherwise change (whether by modification, addition or enhancement) data or images contained in the Report or Mapping.

4.6 Notwithstanding clause 4.5, if the Client acts in a professional capacity, it may make reasonable use of a Report and/or findings made as a result of Consultancy Services to advise Beneficiaries. However, GroundSure shall have no liability in respect of any opinion or report given to such Beneficiaries by the Client or a third party.

5 Fees and Disbursements

5.1 GroundSure shall charge the Client fees at the rate and frequency specified in the Contract together, in the case of Consultancy Services, with all proper disbursements incurred by GroundSure in performing the Services. For the avoidance of doubt, the fees payable for the Services are as set out in GroundSure’s written proposal, Order Website or Order acknowledgement form. 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.

5.2 Unless GroundSure requires prepayment, the Client shall promptly pay all fees disbursements and other monies due to GroundSure in full without deduction, counterclaim or set off together with such value added tax or other tax as may be required within 30 days from the date of GroundSure’s invoice or such other period as may be agreed in writing between GroundSure and the Client (“**Payment Date**”). GroundSure reserves the right to charge interest which shall accrue on a daily basis from 30 days after the date of Payment Date until the date of payment (whether before or after judgment) at the rate of five per cent per annum above the Bank of England base rate from time to time.

5.3 In the event that the Client disputes the amount payable in respect of GroundSure’s invoice it shall notify GroundSure no later than 28 days after the date thereof that it is in dispute. In default of such notification the Client shall be deemed to have agreed the amount thereof. As soon as reasonably practicable following receipt of a notification in respect of any disputed invoice, a member of the management team at GroundSure shall contact the Client and the parties shall use all reasonable endeavours to resolve the dispute.

6 Intellectual Property and Confidentiality

6.1 Subject to the provisions of clause 4.1, the Client and the Beneficiary hereby acknowledge that all Intellectual Property in the Services and Content are and shall remain owned by either GroundSure or the Data Providers and nothing in these terms purports to transfer or assign any rights to the Client or the Beneficiary in respect of the Intellectual Property.

6.2 The Client shall acknowledge the ownership of the **Third Party** Content where such **Third Party** Content is incorporated or used in the Client’s own documents, reports, systems or services whether or not these are supplied to a third party.

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

6.4 The Client acknowledges that the proprietary rights subsisting in copyright, database rights and any other intellectual property rights in respect of any data and information contained in any Report are and shall remain (subject to clause 11.1) the property of GroundSure and/or any third party that has supplied data or information used to create a Report, and that these conditions do not purport to grant, assign or transfer any such rights in respect thereof to a Client and/or a Beneficiary.

6.5 The Client shall (and shall procure that any recipients of the Report as permitted under clause 4.2 shall):

(i) not remove, suppress or modify any trademark, 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;

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(iii) not create any product or report which is derived directly or indirectly from the data contained in 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; and

(v) not reformat or otherwise change (whether by modification, addition or enhancement), data contained in the Services (save that those acting in a professional capacity to the Beneficiary shall not be in breach of this clause 6.5(v) where such reformatting is in the normal course of providing advice based upon the Services),

in each case of parts (iii) to (v) inclusive, whether or not such product or report is produced for commercial profit or not.

6.6 The Client and/or Beneficiary shall and shall procure that any party 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.

6.8 Save as otherwise set out in these terms and conditions, any information provided by one party (“**Disclosing Party**”) to the other party (“**Receiving Party**”) shall be treated as confidential and only used for the purposes of these terms and conditions, except in so far as the Receiving Party is authorised by the Disclosing Party to provide such information in whole or in part to a third party.

7 Liability**THE CLIENT’S ATTENTION IS DRAWN TO THIS PROVISION**

7.1 Subject to the provisions of this clause 7, GroundSure shall be liable to the Beneficiary only in relation to any direct losses or damages caused by any negligent act or omission of GroundSure in preparing the GroundSure Materials and provided that the Beneficiary has used all reasonable endeavours to mitigate any such losses.

7.2 GroundSure shall not be liable for any other losses or damages incurred by the Beneficiary, including but not limited to:

(i) loss of profit, revenue, business or goodwill, losses relating to business interruption, loss of anticipated savings, loss of or corruption to data or for any special, indirect or consequential loss or damage which arise out of or in connection with the GroundSure Materials or otherwise in relation to a Contract;

(ii) any losses or damages that arise as a result of the use of all or part of the GroundSure Materials in breach of these terms and conditions or contrary to the terms of the relevant User Guide;

(iii) any losses or damages that arise as a result of any error, omission or inaccuracy in any part of the GroundSure Materials where such part is based on any Third Party Content or any reasonable interpretation of Third Party Content. The Client accepts, and shall procure that any other Beneficiary shall accept, that it has no claim or recourse to any Data Provider in relation to Third Party Content; and/or

(iv) any loss or damage to a Client’s computer, software, modem, telephone or other property caused by a delay or loss of use of GroundSure’s internet ordering service.

7.3 GroundSure’s total liability in contract, tort (including negligence or breach of statutory duty), misrepresentation, restitution or otherwise, arising in connection with the GroundSure Materials or otherwise in relation to the Contract shall be limited to £10 million in total (i) for any one claim or (ii) for a series of connected claims brought by one or more parties.

7.4 For the duration of the liability periods set out in clauses 7.5 and 7.6 below, GroundSure shall maintain professional indemnity insurance in respect of its liability under these terms and conditions provided such insurance is readily available at commercially viable rates. GroundSure shall produce evidence of such insurance if reasonably requested by the Client. A level of cover greater than GroundSure’s current level of cover may be available upon request and agreement with the Client.

7.5 Any claim under the Contract in relation to Data Reports, Mapping and Risk Screening Reports, must be brought within six years from the date when the Beneficiary became aware that it may have a claim and in no event may a claim be brought twelve years or more after completion of such a Contract. For the avoidance of doubt, any claim in respect of which proceedings are notified to GroundSure in writing prior to the expiry of the time periods referred to in this clause 7.5 shall survive the expiry of those time periods provided the claim is actually commenced within six months of notification.

7.6 Any claim under the Contract in relation to Consultancy Services, must be brought within six years from the date the Consultancy Services were completed.

7.7 The Client accepts and shall procure that any other Beneficiary shall accept that it has no claim or recourse to any Data Provider or to GroundSure in respect of the acts or omissions of any Data Provider and/or any Third Party Content provided by a Data Provider.

7.8 Nothing in these terms and conditions:

(i) excludes or limits the liability of GroundSure for death or personal injury caused by GroundSure’s negligence, or for fraudulent misrepresentation; or

(ii) shall affect the statutory rights of a consumer under the applicable legislation.

8 GroundSure right to suspend or terminate

8.1 In the event that GroundSure reasonably believes that the Client or Beneficiary as applicable has not provided the information or assistance required to enable the proper performance of the Services, GroundSure shall be entitled on fourteen days written notice to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 GroundSure may additionally terminate the Contract immediately on written notice in the event that:

(i) the Client shall fail to pay any sum due to GroundSure within 28 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 material term of the Contract (including, but not limited to, the obligations in clause 4) incapable of remedy or if remediable, is not remedied within 14 days of notice of the breach.

9 Client’s Right to Terminate and Suspend

9.1 Subject to clause 10.2, the Client may at any time after commencement of the Services by notice in writing to GroundSure require GroundSure to terminate or suspend immediately performance of all or any of the Services.

9.2 The Client waives all and any right of cancellation it may have under the Consumer Protection (Distance Selling) Regulations 2000 (as amended) in respect of the Order of a Report/Mapping. This does not affect the Beneficiary’s statutory rights.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination or any suspension of the Services, 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/Beneficiary any property of the Client/ Beneficiary in GroundSure’s possession or control.

10.2 In the event of termination/suspension of the Contract under clauses 8 or 9, 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/suspension. In respect of any Consultancy Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination/suspension of the Contract.

11 General

11.1 The mapping contained in the Services is protected by Crown copyright and must not be used for any purpose outside the context of the Services or as specifically provided in these terms.

11.2 GroundSure reserves the right to amend these terms and conditions. No variation to these terms shall be valid unless signed by an authorised representative of GroundSure.

11.3 No failure on the part of GroundSure to exercise and no delay in exercising, any right, power or provision under these terms and conditions shall operate as a waiver thereof.

11.4 Save as expressly provided in clauses 4.2, 4.3, 6.3 and 11.5, 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.

11.5 The Secretary of State for Communities and Local Government acting through Ordnance Survey may enforce breach of clause 6.1 of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

11.6 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 Data Providers; or

(viii) changes in law.

11.7 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.

11.8 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email and on the second working day after the day of posting if sent by first class post.

11.9 The Contract constitutes the entire contract between the parties and shall supersede all previous arrangements between the parties.

11.10 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.

11.11 These terms and conditions shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with these terms and conditions shall be subject to the exclusive jurisdiction of the English courts.

11.12 If the Client or Beneficiary has a complaint about the Services, notice can be given in any format eg writing, phone, email to the Compliance Officer at GroundSure who will respond in a timely manner.

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Report Reference: EMS-151651_218359



EmapSite
Masdar House,
Eversley, RG27 0RP

Report Reference: EMS-151651_218358
Your Reference: EMS_151651_218358
Report Date: Jan 30, 2012
Report Delivery Method: Email - pdf

GroundSure GeoInsight

Address: Centre Point,London,WC1A 1DD

Dear Sir/Madam,

Thank you for placing your order with GroundSure. Please find enclosed the **GroundSure GeoInsight** as requested.

If you would like further assistance regarding this report then please contact the emapsite customer services team on 0118 9736883 quoting the above report reference number.

Yours faithfully,

emapsite customer services team

Enc.
GroundSure GeoInsight



GroundSure GeoInsight

Address: Centre Point,London,WC1A 1DD

Date: Jan 30, 2012

Report Reference: EMS-151651_218358

Your Reference: EMS_151651_218358



Brought to you by emapsite



Report Reference: EMS-151651_218358

Aerial Photograph of Study Site



Site Name: Centre Point,London,WC1A 1DD
Grid Reference: 529902,181351
Size of Site: 0.55 ha

Aerial photography supplied by Getmapping PLC.
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Overview of Findings

The GroundSure GeoInsight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Shallow Mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and GroundSure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the 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.

Report Section	Number of records found within (X) m of the study site boundary
1. Geology	Description
1.1 Artificial Ground,	
1.1.1 Is there any Artificial Ground /Made Ground present beneath the study site?*	No
1.1.2 Are there any records relating to permeability of artificial ground within the study site* boundary?	No
1.2 Superficial Geology & Landslips	
1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
1.2.2 Are there any records relating to permeability of superficial geology within the study site* boundary?	Yes
1.2.3 Are there any records of landslip within 500m of the study site boundary?	No
1.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No
1.3 Bedrock, Solid Geology & Faults	
1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
1.3.2 Are there any records relating to permeability of bedrock within the study site* boundary?	Yes
1.3.3 Are there any records of faults within 500m of the study site boundary?	No
1.3.4 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level
1.3.5 Is the property in an area where Radon Protection Measures are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary

* This includes an automatically generated 50m buffer zone around the site

Source:Scale 1:50,000 BGS Sheet No:256

2. Ground Workings	on-site	0-50	51-250	251-500	501-1000
2.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	0	-	-
2.2 Historical Underground Workings Features from Small Scale Mapping	0	0	0	0	2
2.3 Current Ground Workings	0	0	0	0	0
3. Mining, Extraction & Natural Cavities	on-site	0-50	51-250	251-500	501-1000
3.1 Historical Mining	0	0	0	0	0
3.2 Coal Mining	0	0	0	0	0
3.3 Johnson Poole and Bloomer Mining Area	0	1	0	1	1
3.4 Non-Coal Mining*	0	0	0	0	0
3.5 Non-Coal Mining Cavities	0	0	0	0	0
3.6 Natural Cavities	0	0	0	0	0
3.7 Brine Extraction	0	0	0	0	0
3.8 Gypsum Extraction	0	0	0	0	0
3.9 Tin Mining	0	0	0	0	0
3.10 Clay Mining	0	0	0	0	0

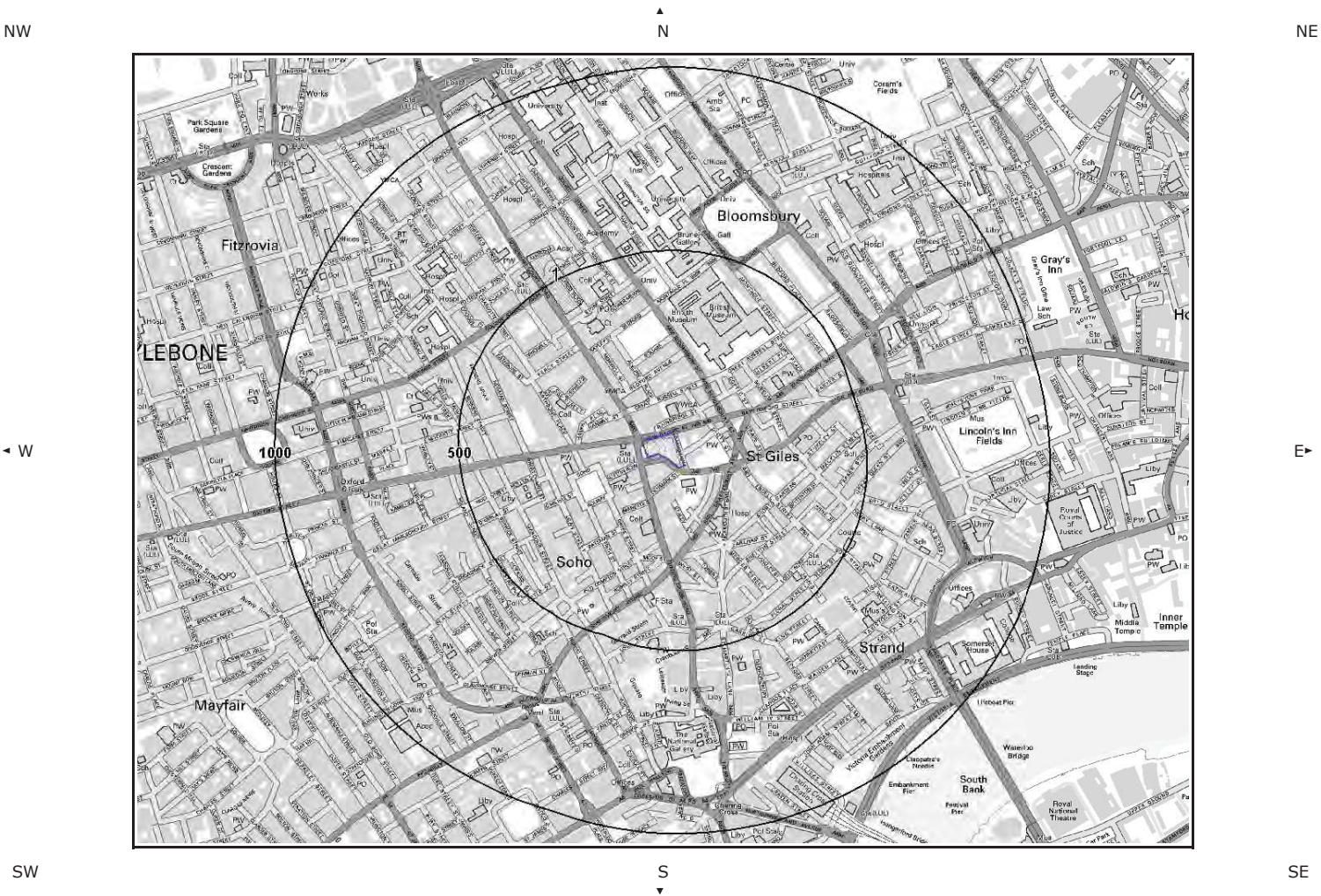
*This includes an automatically generated 50m buffer zone around the site

4. Natural Ground Subsidence	on-site*	0-50	51-250	251-500	501-1000
4.1 Shrink-Swell Clay	Moderate	-	-	-	-
4.2 Landslides	Very Low	-	-	-	-
4.3 Ground Dissolution of Soluble Rocks	Negligible	-	-	-	-
4.4 Compressible Deposits	Negligible	-	-	-	-
4.5 Collapsible Deposits	Very Low	-	-	-	-
4.6 Running Sand	Very Low	-	-	-	-

* This includes an automatically generated 50m buffer zone around the site

5. Borehole Records	on-site	0-50	51-250	251-500	501-1000
5.1 BGS Recorded Boreholes	7	7	62	-	-
6. Estimated Background Soil Chemistry	on-site	0-50	51-250	251-500	501-1000
6.1 Records of Background Soil Chemistry	1	1	0	-	-



1.1 Artificial Ground Map



Artificial Ground Legend



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	Site Outline		Made Ground (undivided)		Disturbed Ground (undivided)
	Worked Ground (undivided)		Landscaped Ground (undivided)		
	Infilled Ground		Reclaimed Ground		

Geological information represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:256

1.1.1 Artificial/Made Ground

Are there any records of Artificial/Made Ground within 500m of the study site boundary? **Yes**

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	406.0	NW	WGR-OPEN	WORKED GROUND (UNDIVIDED)	VOID

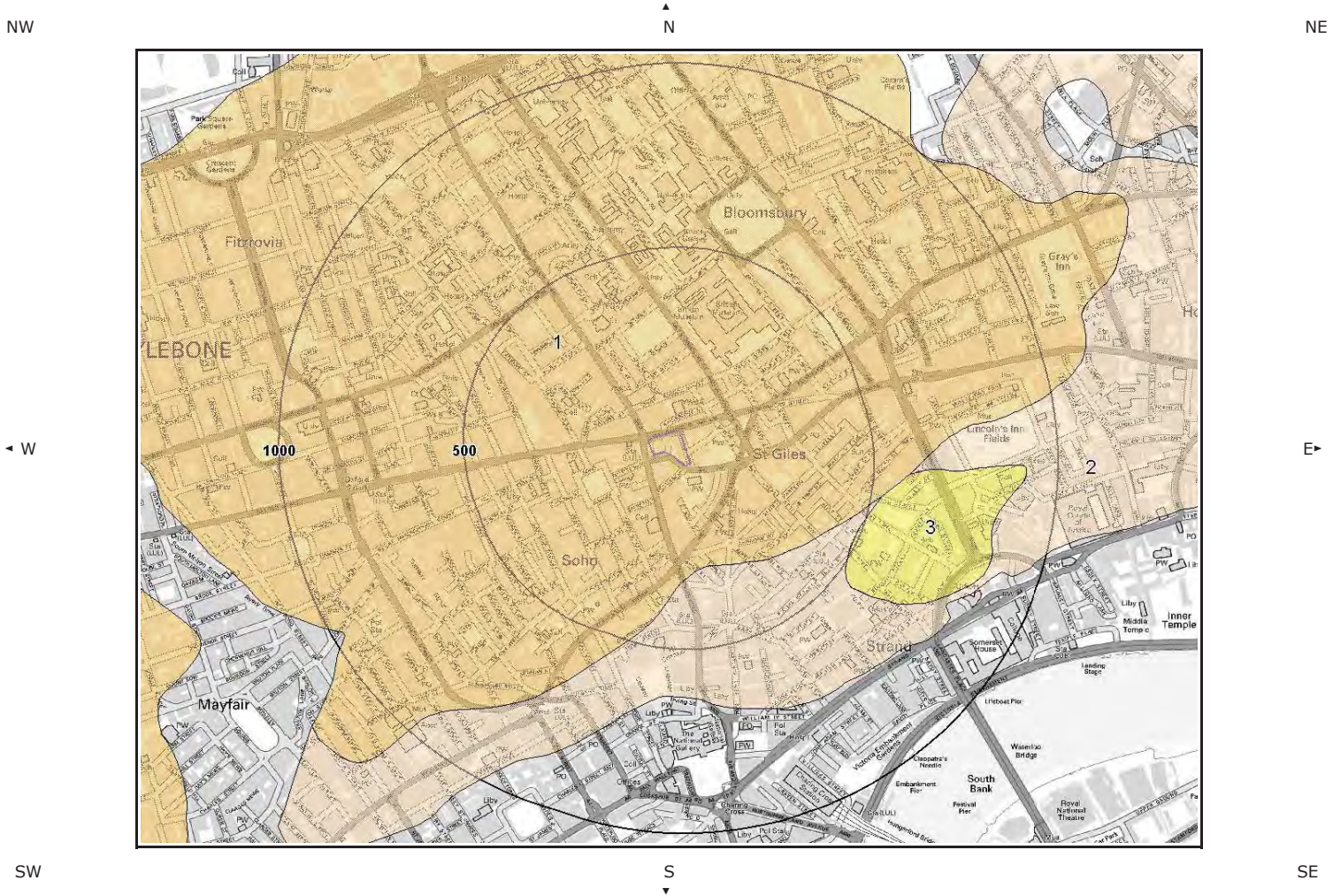
1.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site* boundary? **No**

Database searched and no data found.

* This includes an automatically generated 50m buffer zone around the site.

1.2 Superficial Deposits and Landslips Map



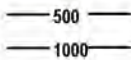
Superficial and Landslips Legend



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Site Outline



Search Buffers (m)

Geological information represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

1.2 Superficial Deposits and Landslips

1.2.1 Superficial Deposits/Drift Geology

Are there any records of Superficial Deposits/Drift Geology within 500m of the study site boundary? **Yes**

ID	Distance (m)	Direction	Lex Code	Description	Rock Description
1	0.0	On Site	LHGR-SAGR	LYNCH HILL GRAVEL MEMBER	SAND AND GRAVEL
2	280.0	S	HAGR-SAGR	HACKNEY GRAVEL MEMBER	SAND AND GRAVEL
3	490.0	SE	LASI-CLSI	LANGLEY SILT MEMBER	CLAY AND SILT

1.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site* boundary? **Yes**

Distance (m)	Direction	Flow type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	Very High	High
46.0	E	Intergranular	Very High	High

1.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? **No**

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site* boundary? **No**

Database searched and no data found.

*This includes an automatically generated 50m buffer zone around the site.

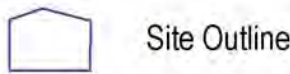
1.3 Bedrock and Faults Map



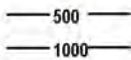
Bedrock & Faults Deposits Legend



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Site Outline



Search Buffers (m)

Geological information represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

1.3Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:256

1.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance (m)	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	LC-CLSS	London Clay Formation - Clay, Silt And Sand	Eocene

1.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site* boundary? Yes

Distance (m)	Direction	Flow type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	Moderate	Very Low
46.0	E	Mixed	Moderate	Very Low

1.3.3 Faults

Are there any records of Faults within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as Faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3.4 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level

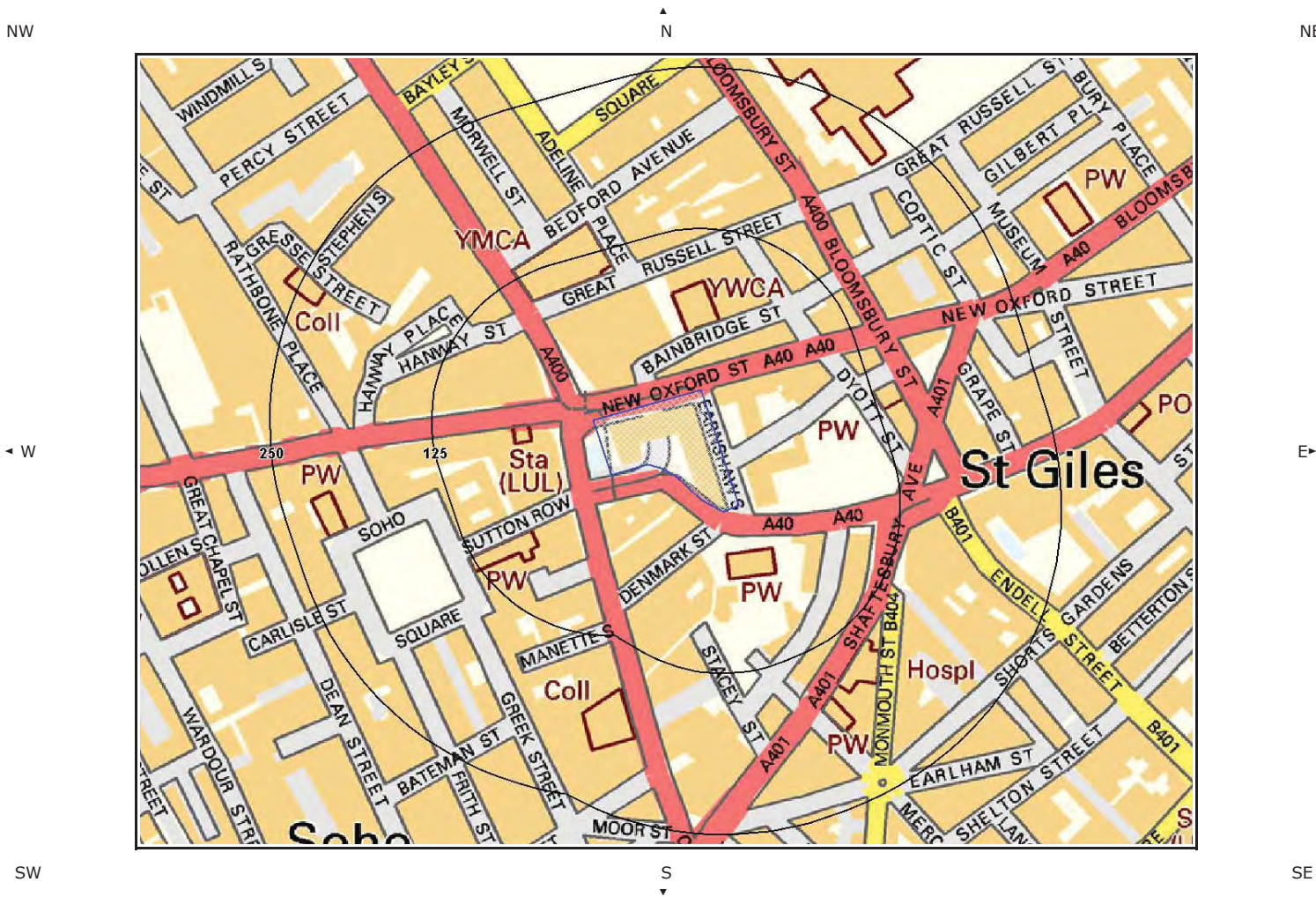
1.3.5 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?

No radon protective measures are necessary

* This includes an automatically generated 50m buffer zone around the site.

2. Ground Workings Map



Ground Workings Legend

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- Site Outline
- Search Buffers (m)
- Historic Surface Ground Workings
- Historic Underground Workings
- Current Ground Workings

2. Ground Workings

2.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on GroundSure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping.

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? No

Database searched and no data found.

2.2 Historical Underground Workings Features derived from Historical Mapping

This data is derived from the GroundSure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? Yes

The following Historical Underground Working Features are provided by GroundSure:

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	928.0	SE	530559,180596	Tunnel	1895
Not shown	928.0	SE	530573,180606	Tunnel	1895

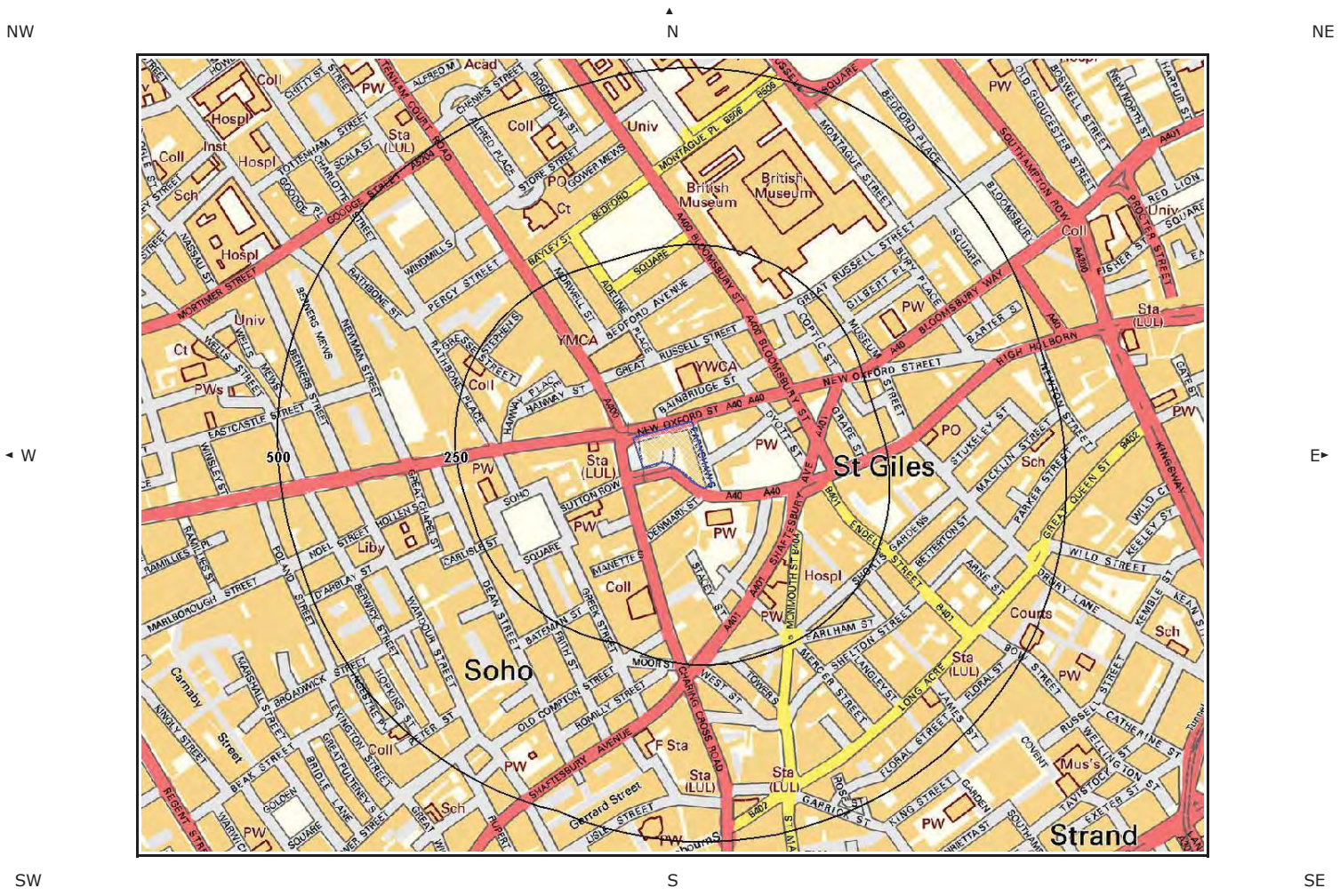
2.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? No

Database searched and no data found.

3. Mining, Extraction & Natural Cavities Map



Mining, Extraction & Natural Cavities
Legend

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3.Mining, Extraction & Natural Cavities

3.1 Historical Mining

This dataset is derived from GroundSure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? **No**

Database searched and no data found.

3.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? **No**

Database searched and no data found.

3.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? **Yes**

The following information provided by JPB is not represented on Mapping:

Whilst outside of an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property. Further details and a quote for services can be obtained by emailing this report to enquiries.gs@jpb.co.uk.

3.4 Non – Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? **No**

Database searched and no data found.

3.5 Non – Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great

Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? **No**

Database searched and no data found.

3.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

Are there any Natural Cavities within 1000m of the study site boundary? **No**

Database searched and no data found.

3.7 Brine Extraction

This dataset provides information from the Brine Compensation Board which has been discontinued and is now covered by the Coal Authority.

Are there any Brine Extraction areas within 1000m of the study site boundary? **No**

Database searched and no data found.

3.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? **No**

Database searched and no data found.

3.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level. More detailed information on potential Tin Mining may be found in Section 3.4 – Non-Coal Mining Hazards.

Are there any Tin Mining areas within 1000m of the study site boundary? **No**

Database searched and no data found.

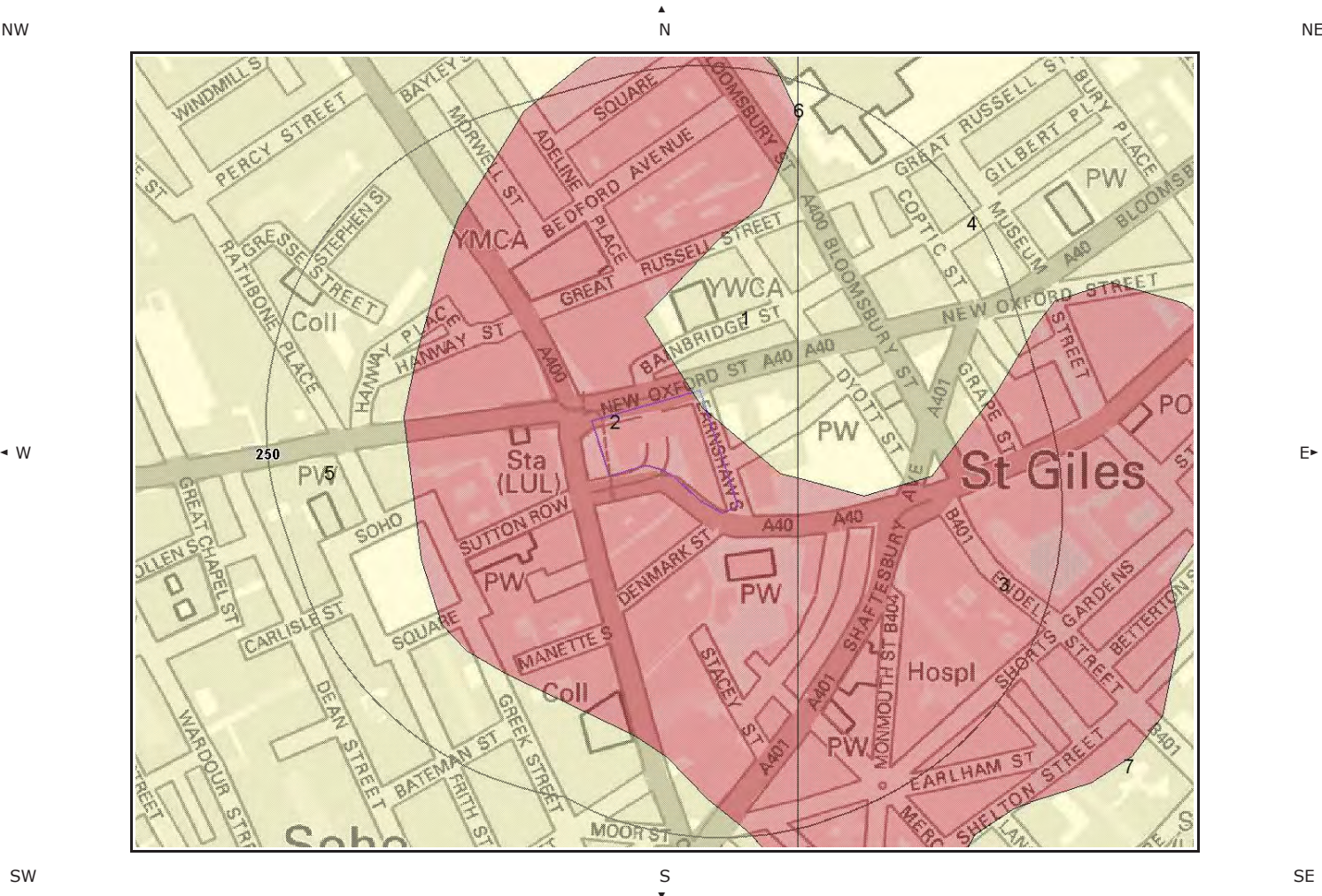
3.10 Clay Mining

This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? **No**

4. Natural Ground Subsidence

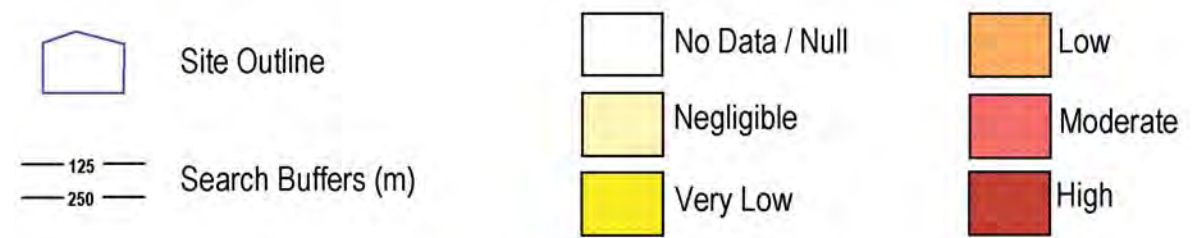
4.1 Shrink-Swell Clay Map



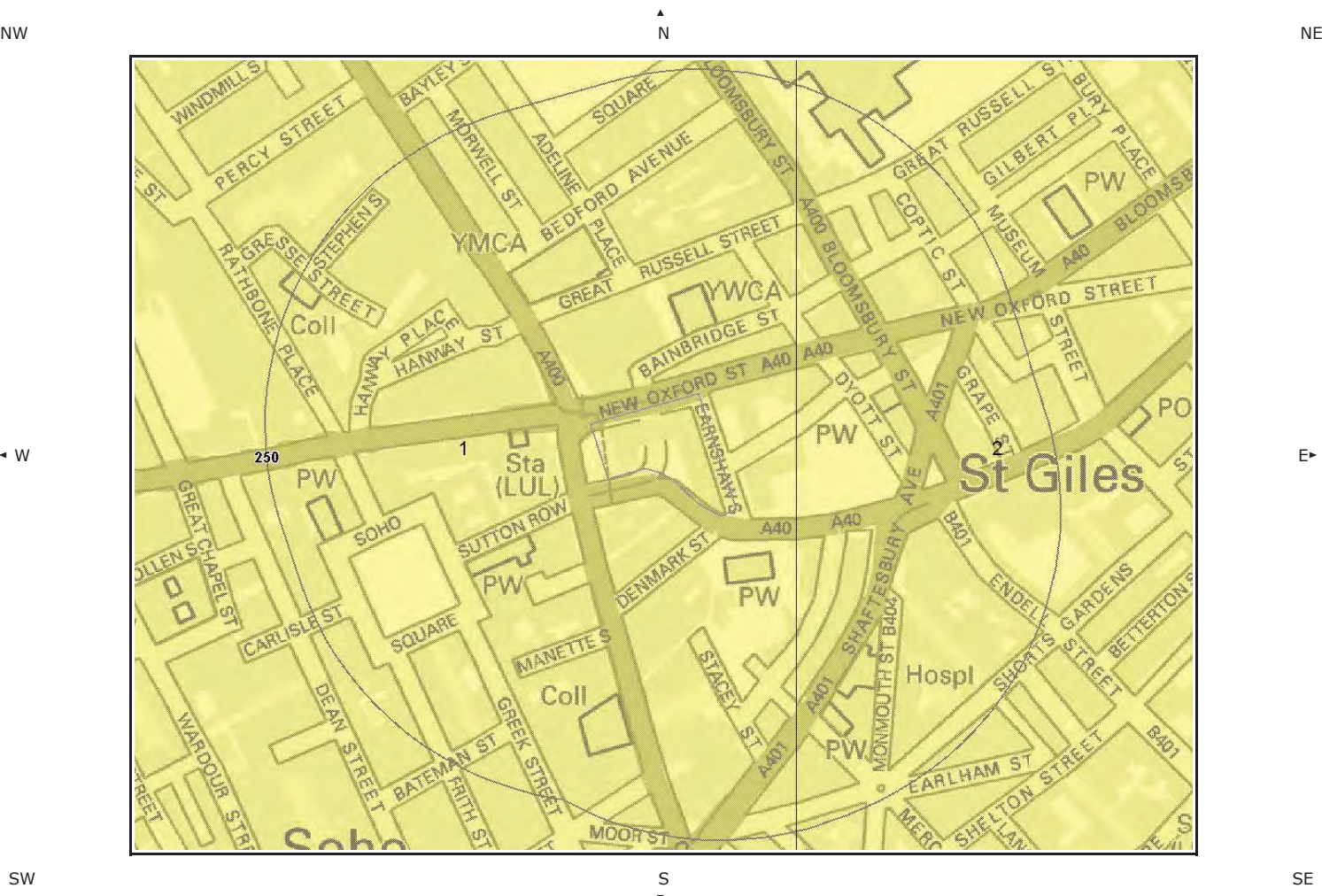
Shrink-Swell Clay Legend

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4.2 Landslides Map



Landslides Legend

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