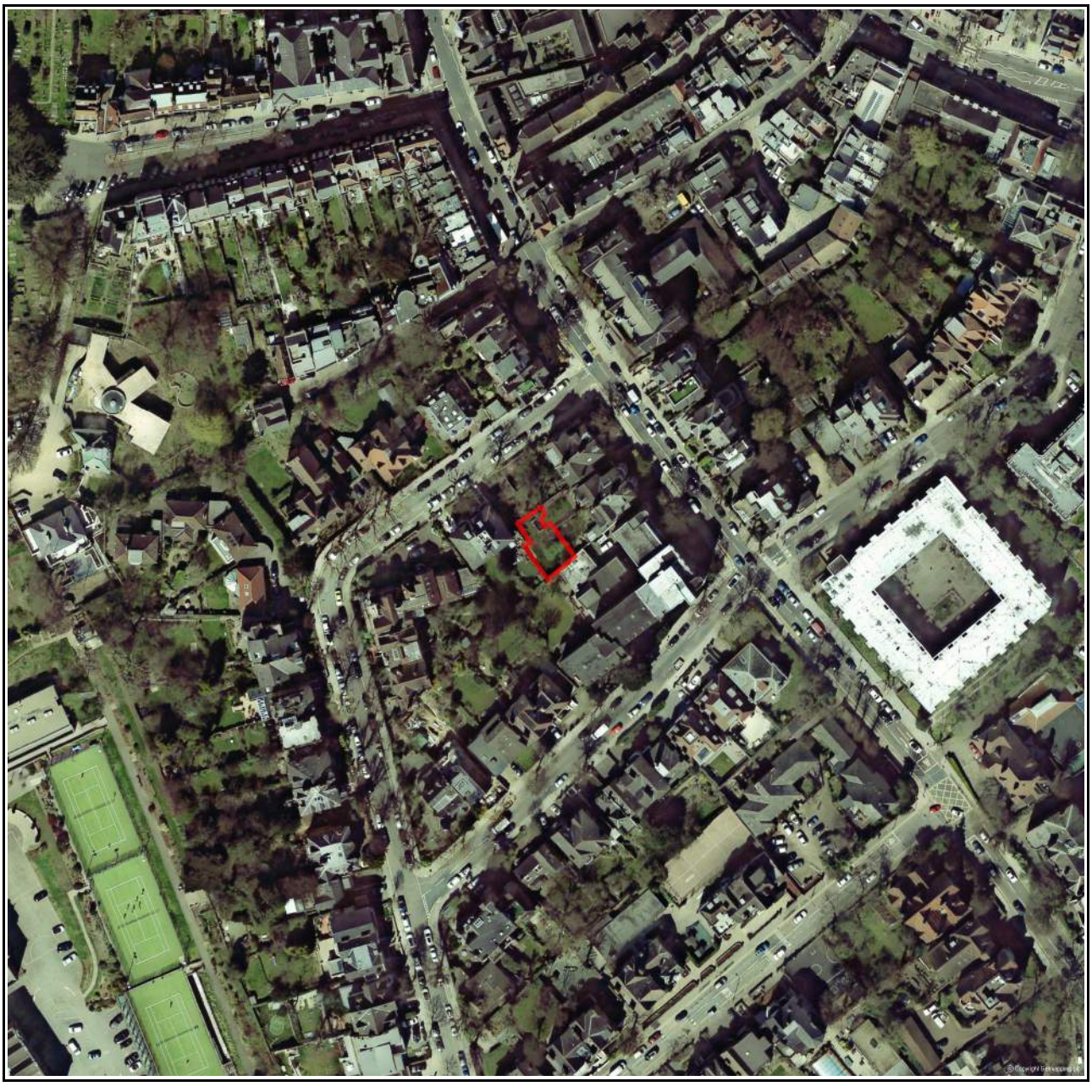
APPENDIX 2

ENVIRONMENTAL SEARCHES

GroundSure EnviroInsight

Address:	**LAND BY 1,ELLERDALE ROAD,LONDON, NW3 6BA**
Date:	**14 Mar 2014**
Reference:	**GS-1342326**
Client:	**Ground Engineering Limited**

NW N NE



W E

SW S SE

Aerial Photograph Capture date:	20-Apr-2013
Grid Reference:	526396,185518
Site Size:	0.02ha

Contents Page

Overview of Findings

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

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

Section 2: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-5000
2.1 Landfill Sites						
2.1.1 Environment Agency Registered Landfill Sites	0	0	0	0	0	Not searched
2.1.2 Environment Agency Historic Landfill Sites	0	0	0	0	1	0
2.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
2.1.4 GroundSure Local Authority Landfill Sites Data	0	0	0	0	0	0
2.2 Landfill and Other Waste Sites Findings						
2.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
2.2.2 Environment Agency Licensed Waste Sites	0	0	0	0	0	0

Section 3: Current Land Use

	On-site	0-50m	51-250	251-500
3.1 Current Industrial Sites Data	0	0	10	Not searched
3.2 Records of Petrol and Fuel Sites	0	0	0	0
3.3 Underground High Pressure Oil and Gas Pipelines	0	0	0	0

Section 4: Geology

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

Section 5: Hydrogeology and Hydrology

	0-500m
5.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	No
5.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
5.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	2
5.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
5.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
5.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched

	On-site	0-50m	51-250	251-500	501-1000	1000-1500
5.7 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	Not searched	Not searched
5.9 Surface water features within 250m of the study site	No	No	No	Not searched	Not searched	Not searched

Section 6: Flooding

6.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	No
6.2 Are there any Environment Agency 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?	Limited potential
6.7 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	Low

Section 7: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	2
7.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
7.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
7.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
7.5 Records of Ramsar sites	0	0	0	0	0	0
7.6 Records of Ancient Woodlands	0	0	0	0	0	3
7.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	3
7.8 Records of World Heritage Sites	0	0	0	0	0	0
7.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0
7.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
7.11 Records of National Parks	0	0	0	0	0	0
7.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
7.13 Records of Nitrate Vulnerable Zones	0	0	0	0	0	0

Section 8: Natural Hazards

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

Section 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 and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

8. Natural Hazards

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

9. Mining

Provides information on areas of coal 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.

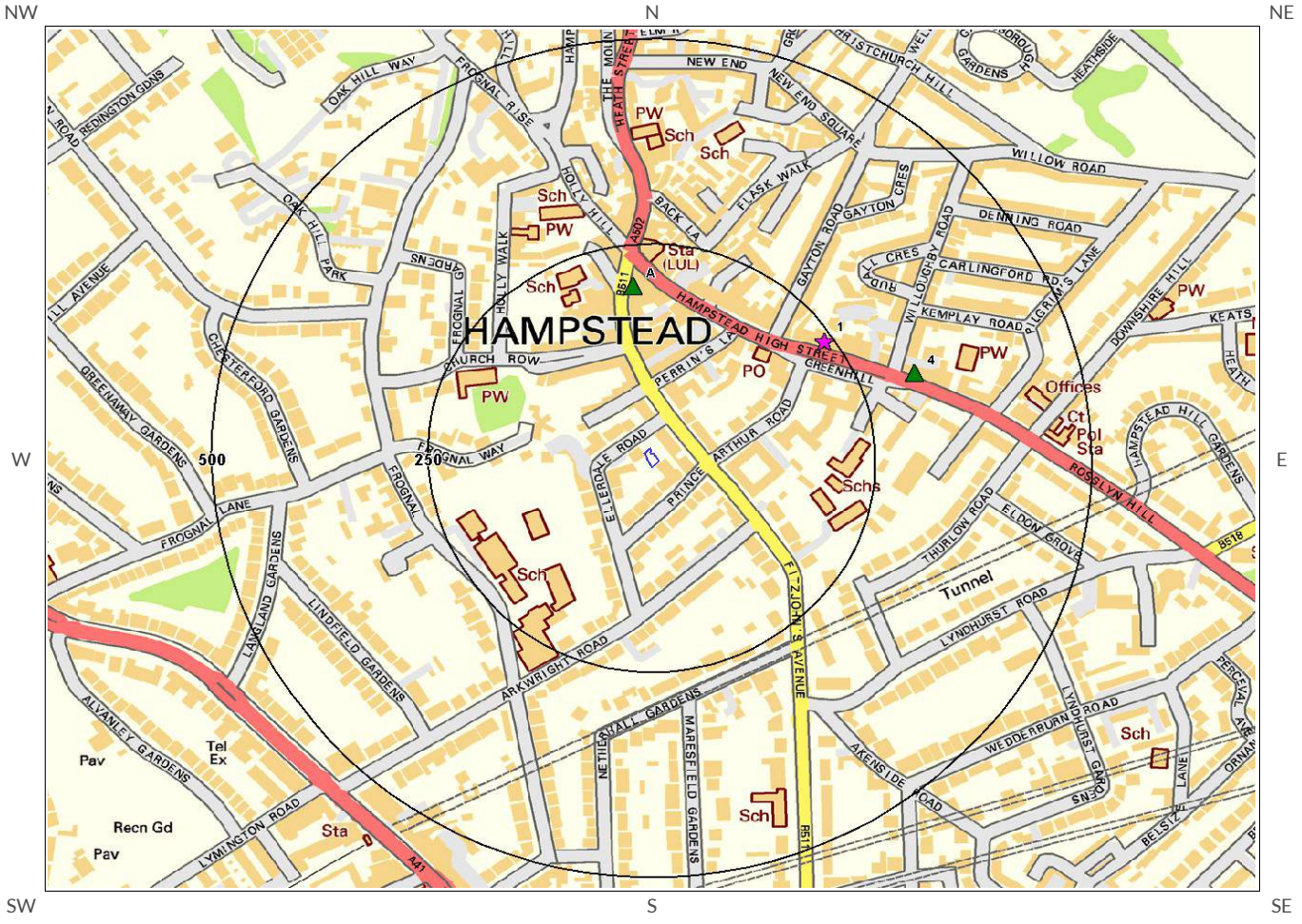
Note: Maps

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



Environmental Permits, Incidents and Registers Legend

Mapping sourced from Ordnance Survey

- Site Outline
- Search Buffers (m) — 250 — 500
- 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

1. Environmental Permits, Incidents and Registers

1.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

3

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

ID	Distance	Direction	NGR	Details	
2A	197.0	N	526375 185724	Address: Perkins Dry Cleaners, 40 Heath Street, NW3 6TE Process: Dry Cleaner Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
3A	197.0	N	526375 185724	Address: Perkins Dry Cleaners, 40 Heath Street, NW3 6TE Process: Dry Cleaner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
4	313.0	E	526700 185619	Address: Heath Dry Cleaners, 66 Rosslyn Hill, NW3 1ND Process: Dry Cleaner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

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1.1.8 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

1.2 Dangerous or Hazardous Sites

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

Database searched and no data found.

1.3 Environment Agency Recorded Pollution Incidents

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

1

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

ID	Distance	Direction	NGR	Details	
1	239.0	NE	526595 185659	Incident Date: 13/02/2002 Incident Identification: 58214 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

0

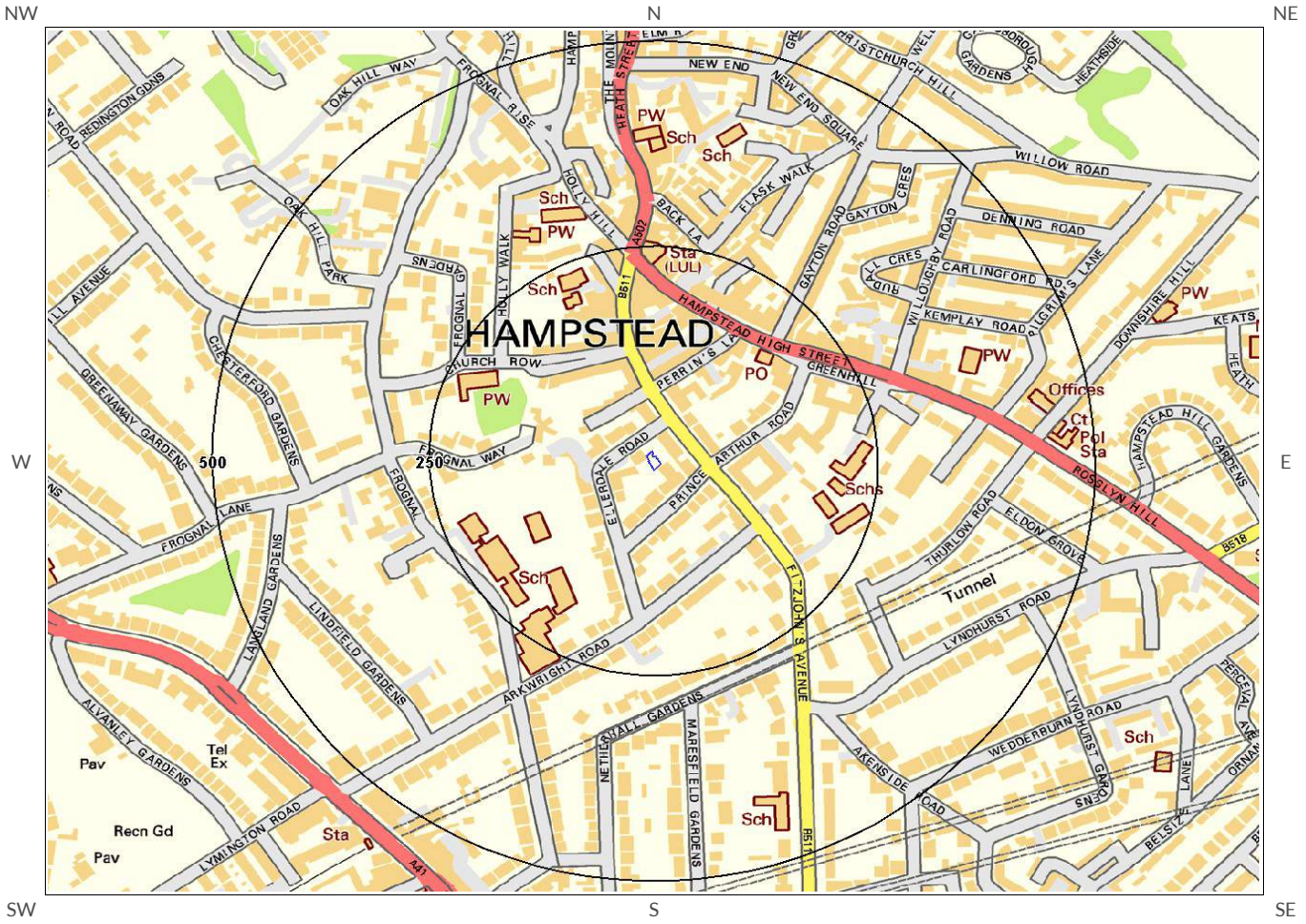
Database searched and no data found.

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

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

Database searched and no data found.

2. Landfill and Other Waste Sites Map



Landfill and Other Waste Sites Legend

Mapping sourced from Ordnance Survey

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

2. Landfill and Other Waste Sites

2.1 Landfill Sites

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

0

Database searched and no data found.

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

1

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	765.0	SW	526000 184800	Site Address: Canfield Place, London NW6 Waste Licence: - Site Reference: DON009 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Other Waste Sites

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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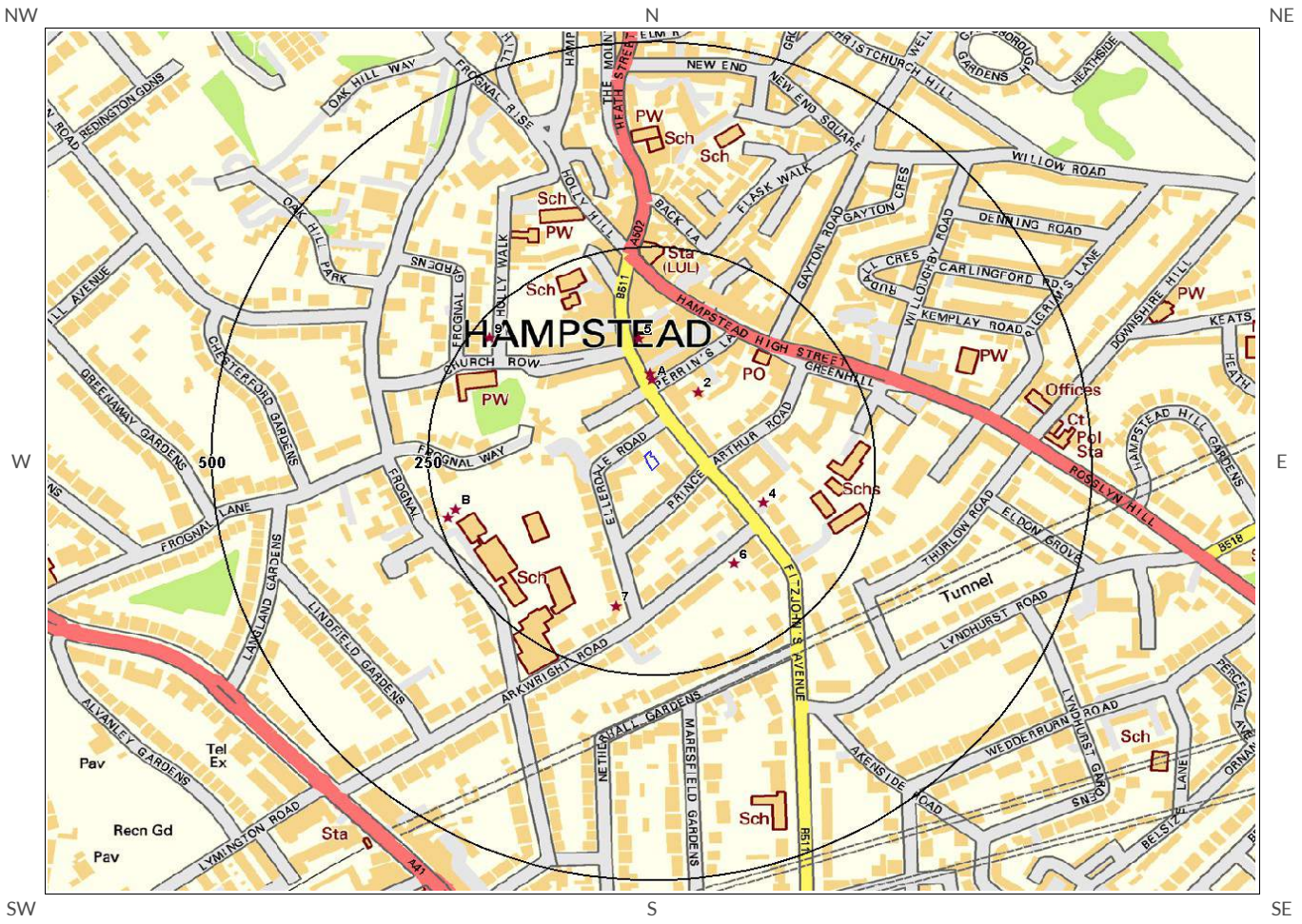
3. Current Land Use Map



Current Land Use Legend

Mapping sourced from Ordnance Survey

Site Outline

250
500
Search Buffers (m)

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: 10

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1A	88.0	N	Photo Craft Hampstead Ltd	526396 185615	4, Heath Street, London, NW3 6TE	Photographic and Optical Equipment	Household, Office, Leisure and Garden
2	91.0	NE	Electricity Sub Station	526450 185601	NW3	Electrical Features	Infrastructure and Facilities
3A	95.0	N	Vita	526394 185623	6, Heath Street, London, NW3 6TE	Vehicles	Industrial Products
4	129.0	E	Electricity Sub Station	526525 185466	NW3	Electrical Features	Infrastructure and Facilities
5	139.0	N	Andrews of Hampstead	526380 185666	22, Heath Street, London, NW3 6TE	General Construction Supplies	Industrial Products
6	148.0	SE	Electricity Sub Station	526491 185392	NW3	Electrical Features	Infrastructure and Facilities
7	171.0	S	Obelisk Music	526354 185339	32, Ellerdale Road, London, NW3 6BB	Recording Studios and Record Companies	IT, Advertising, Marketing and Media Services
8B	227.0	W	Electricity Sub Station	526170 185458	NW3	Electrical Features	Infrastructure and Facilities
9	230.0	NW	Electricity Sub Station	526209 185667	NW3	Electrical Features	Infrastructure and Facilities
10B	239.0	W	Electricity Sub Station	526161 185448	NW3	Electrical Features	Infrastructure and Facilities

3.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 0

Database searched and no data found.

3.3 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

Database searched and no data found.

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

4.3 Bedrock and Solid Geology

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

Lex Code	Description	Rock Type
CLGB-CLSS	CLAYGATE MEMBER	CLAY, SILT AND SAND
BGS-SAND	BAGSHOT FORMATION	SAND

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

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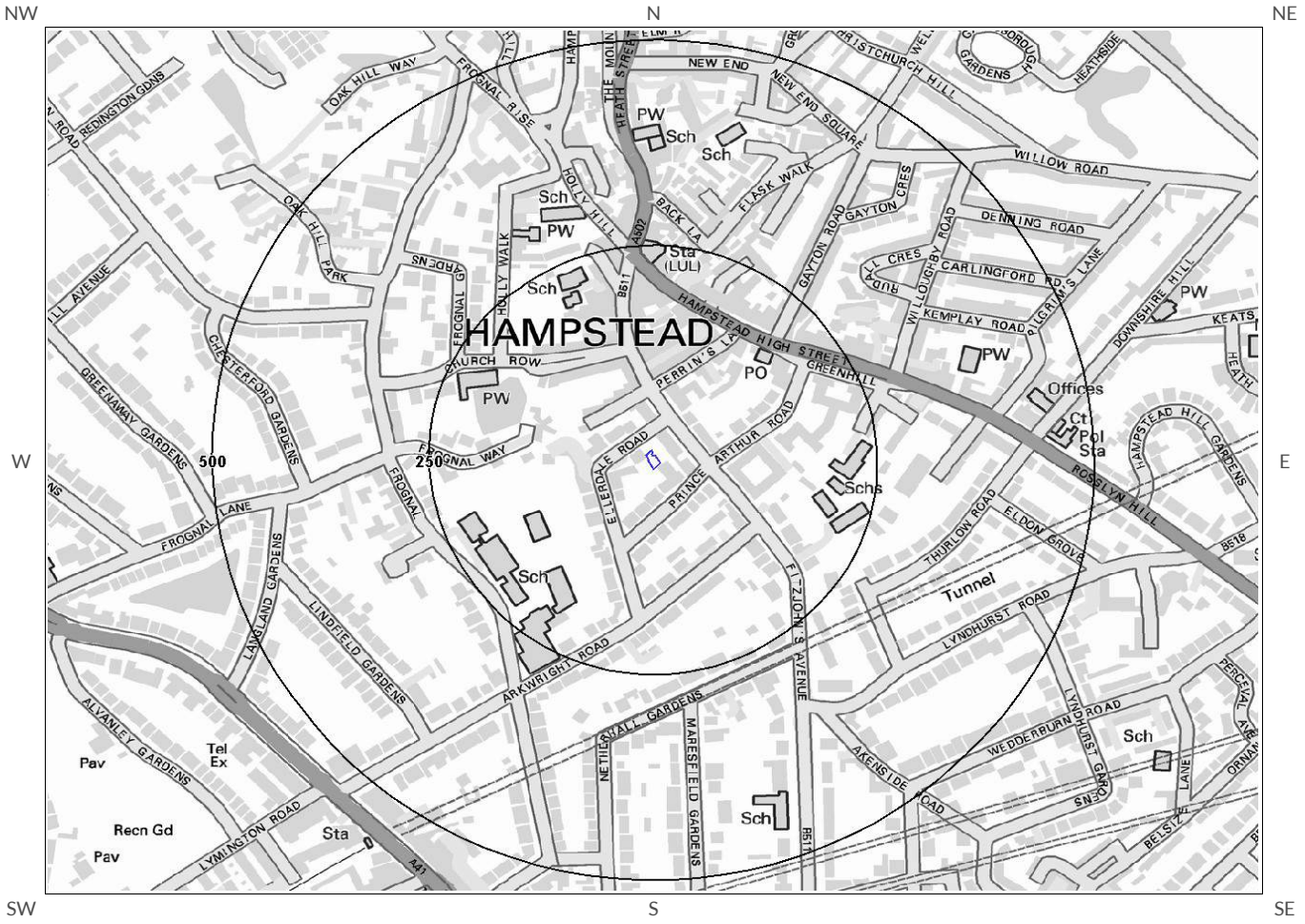
5. Hydrogeology and Hydrology

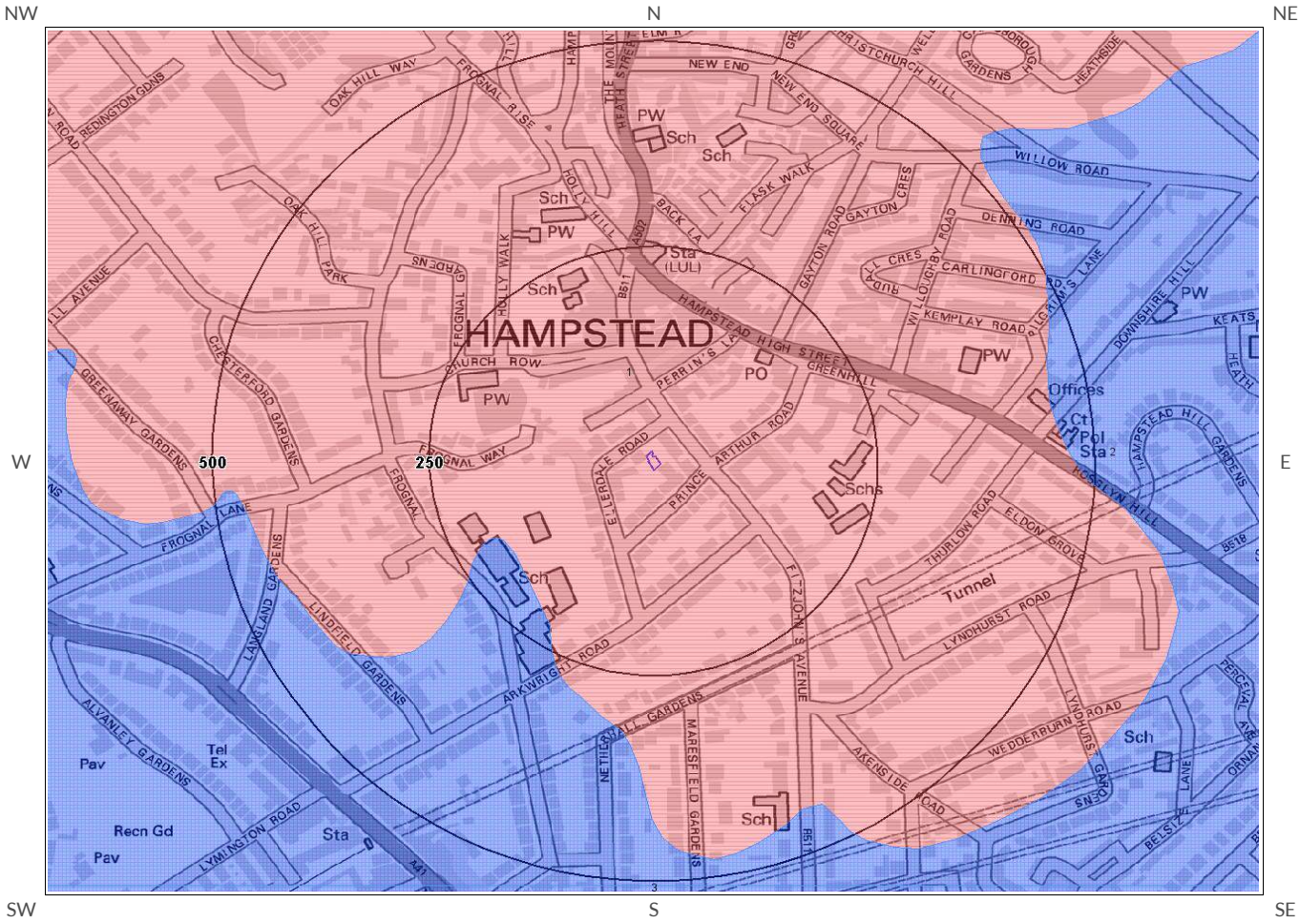
5a. Aquifer Within Superficial Geology



Map Legend

- Site Outline
- Search Buffers (m): 250, 500
- Principal Aquifer
- Secondary (A) Aquifer - Permeable Layers
- Secondary (B) Aquifer - Lower Permeability Layers
- Secondary Aquifer - Undifferentiated Layers
- Unproductive
- Unknown (lakes and landslip)

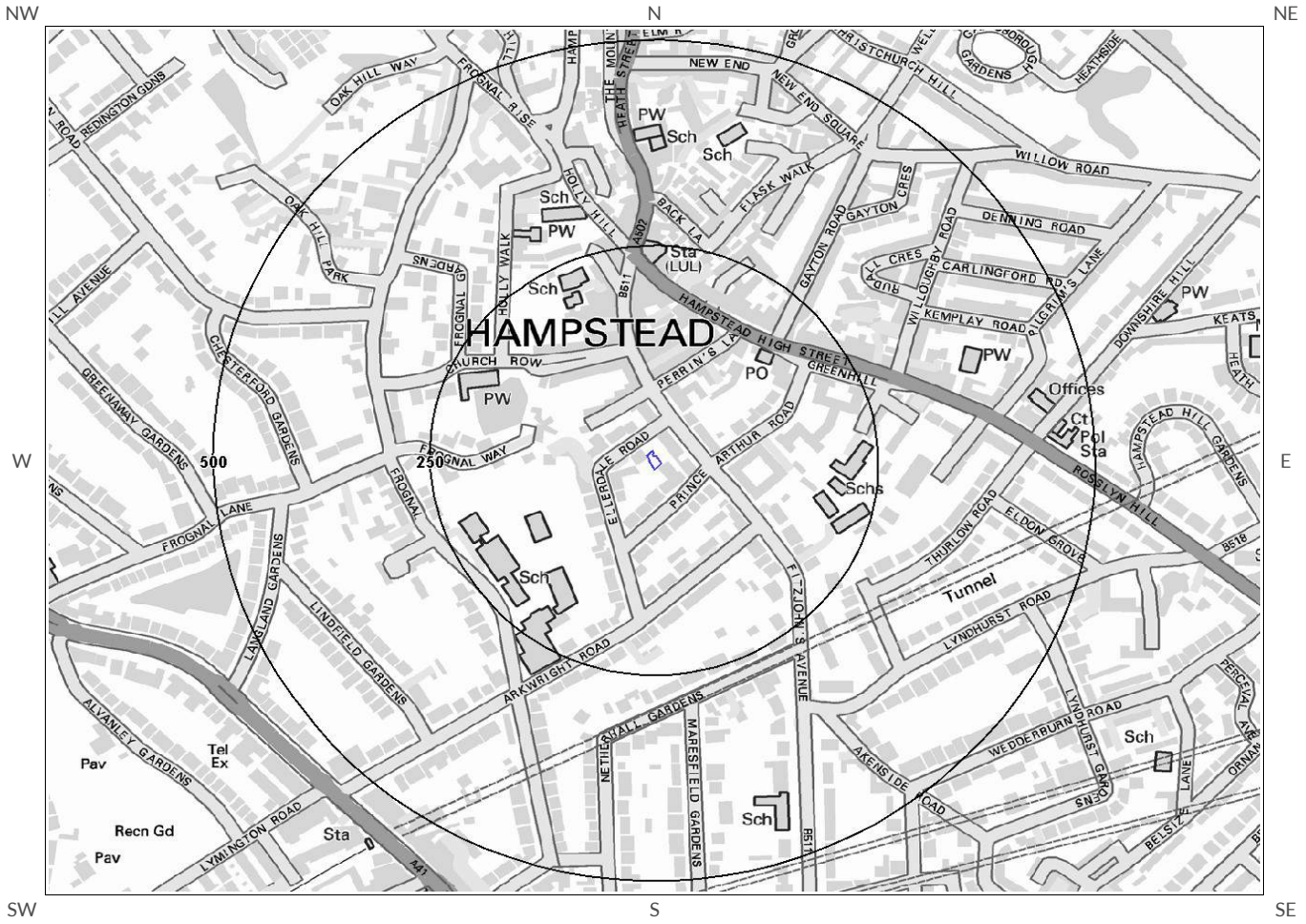
5b. Aquifer Within Bedrock Geology and Abstraction Licenses



Map Legend

- Site Outline
- Search Buffers (m): 250, 500
- Principal Aquifer
- Secondary (A) Aquifer - Permeable Layers
- Secondary (B) Aquifer - Lower Permeability Layers
- Secondary Aquifer - Undifferentiated Layers
- Unproductive
- Unknown (lakes and landslip)
- Groundwater Abstraction Licence
- Surface Water Abstraction Licence

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



Map Legend

Site Outline

250 / 500 Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

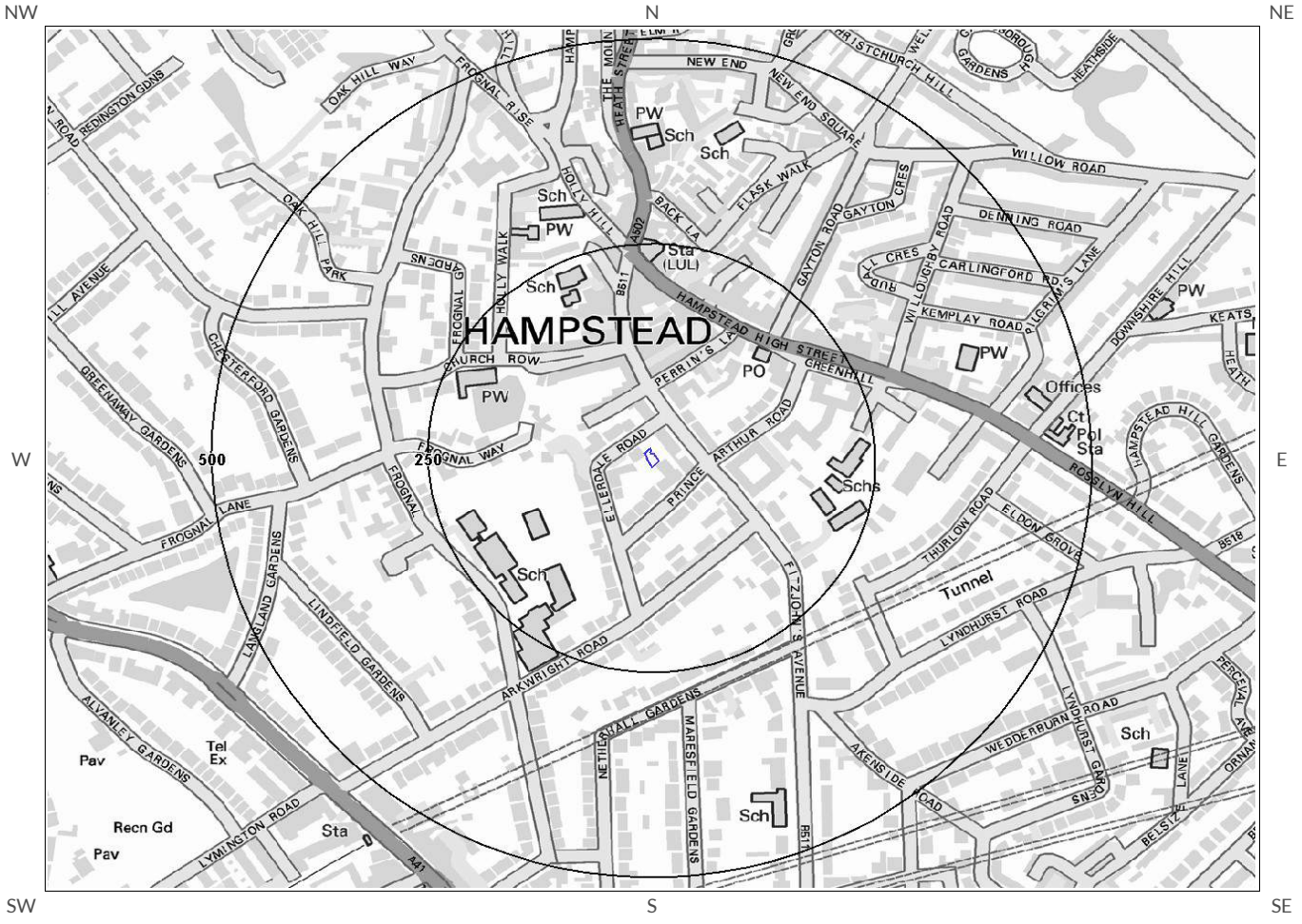
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

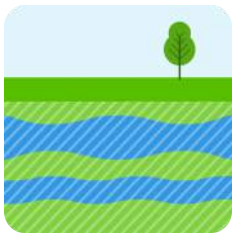
5d. Hydrology – Detailed River Network and River Quality



Map Legend

Mapping sourced from Ordnance Survey

- Site Outline
- Search Buffers (m): 250, 500
- Primary River
- Secondary River
- Tertiary River
- Lake/Reservoir
- Underground River (inferred)
- General Quality Assessment: Biology
- General Quality Assessment: Chemistry
- Canal
- Canal Tunnel
- Culvert
- Multiple Channel Culvert
- Underground River (Potential Sewer)
- Underground River (local knowledge)



5. Hydrogeology and Hydrology

5.1 Aquifer within Superficial Deposits

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

Database searched and no data found.

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

5.2 Aquifer within Bedrock Deposits

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

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

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

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

5.3 Groundwater Abstraction Licences

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

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	1291.0	S	526800 184280	Licence No: 28/39/39/0219 Details: Spray Irrigation - Direct Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point	Annual Volume (m^3): 10512 Max Daily Volume (m^3): 28.8 Original Application No: WRA/N/1407 Original Start Date: 12/8/2005 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: 1/4/2008 Version End Date:
Not shown	1294.0	S	526750 184261	Licence No: TH/039/0039/087 Details: Spray Irrigation - Direct Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point	Annual Volume (m^3): 10512 Max Daily Volume (m^3): 28.8 Original Application No: NPS/WR/014567 Original Start Date: 5/12/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 5/12/2013 Version End Date:

5.4 Surface Water Abstraction Licences

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

Database searched and no data found.

5.5 Potable Water Abstraction Licences

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

Database searched and no data found.

5.6 Source Protection Zones

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

Database searched and no data found.

5.7 River Quality

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

5.7.1 Biological Quality:

Database searched and no data found.

5.7.2 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

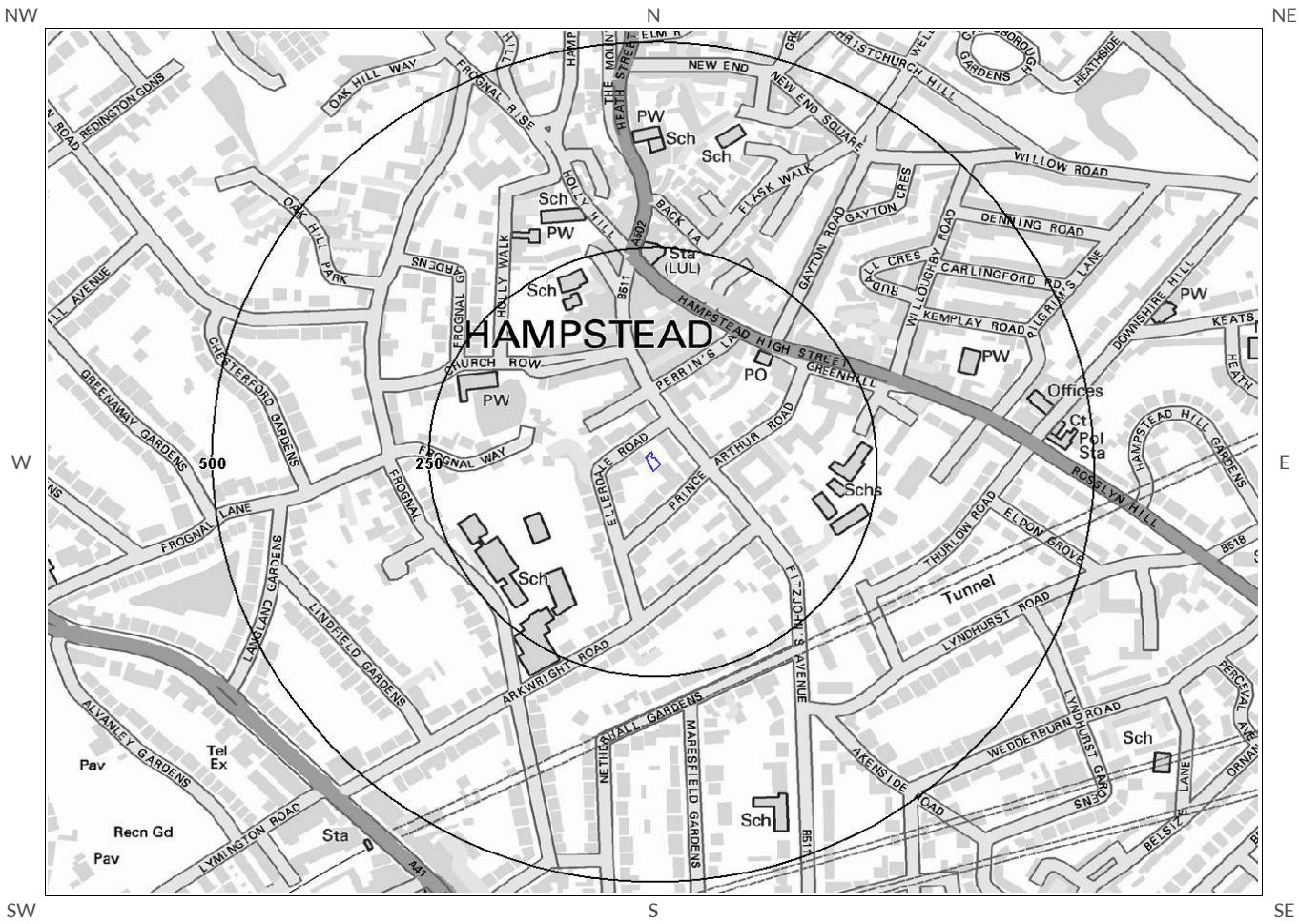
Database searched and no data found.

5.9 Surface Water Features

Are there any surface water features within 250m of the study site? No

Database searched and no data found.

6. Environment Agency Flood Map for planning (from rivers and the sea)



Map Legend

- Site Outline
- Search Buffers (m) — 250 — 500
- Zone 2 Floodplain
- Zone 3 Floodplain
- Flood Storage Area
- Area Benefiting from Flood Defences
- Flood Defences

6. Flooding

6.1 Zone 2 Flooding

Environment Agency Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 1 – Environment Agency Flood Map for Planning:

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

Database searched and no data found.

6.2 Zone 3 Flooding

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 1 – Environment Agency Flood Map for Planning.

Is the site within 250m of an Environment Agency 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

Database searched and no data found.

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 benefiting from Flood Storage

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

6.6 Groundwater Flooding Susceptibility Areas

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

Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding? Clearwater Flooding

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

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

Limited potential

Where limited potential for groundwater flooding to occur is indicated, this means that although given the geological conditions there may be a groundwater flooding hazard, unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area, you need take no further action in relation to groundwater flooding hazard.

6.7 Groundwater Flooding Confidence Areas

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

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

Map Legend

Mapping sourced from Ordnance Survey

- Site Outline
- Areas of Outstanding Natural Beauty
- SAC
- SPA
- Nitrate Vulnerable Zones
- SSSI
- Ramsar
- Nitrate Sensitive Areas
- NNR
- LNR
- National Parks
- World Heritage Sites
- Environmentally Sensitive Areas
- Ancient Woodlands

7. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site? No

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

2

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
Not shown	1362.0	NE	Hampstead Heath Woods	Natural England
Not shown	1983.0	N	Hampstead Heath Woods	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

3

The following Ancient Woodland records are supplied by English Nature/Scottish Natural Heritage/Countryside Council for Wales and are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
Not shown	1067.0	N	BISHOPS WOOD	Ancient and Semi-Natural Woodland
Not shown	1367.0	NE	KEN WOOD	Ancient and Semi-Natural Woodland
Not shown	1893.0	N	UNKNOWN	Ancient and Semi-Natural Woodland

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

3

The following Local Nature Reserve (LNR) records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
3	1096.0	E	Belsize Wood	Natural England
Not shown	1892.0	W	Westbere Copse	Natural England
Not shown	1911.0	W	Westbere Copse	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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.

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

8.1.4 Compressible Ground

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

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

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

8.1.5 Collapsible Rocks

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

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

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

8.1.6 Running Sand

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

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

Hazard
Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

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

9. Mining

9.1 Coal Mining

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

Database searched and no data found.

9.2 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

Guidance: No Guidance Required.

Contact Details

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

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email: **enquiries@bgs.ac.uk**
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries

Environment Agency

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

Public Health England

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

The Coal Authority

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

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

Local Authority
Authority: Camden London Borough Council
Phone: 020 7278 4444
Web: www.camden.gov.uk
Address: Camden Town Hall, Judd Street, Camden, London, WC1H 9JE

Gemapping PLC

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

GroundSure RadonCheck

Address: LAND BY 1,ELLERDALE ROAD,LONDON, NW3 6BA

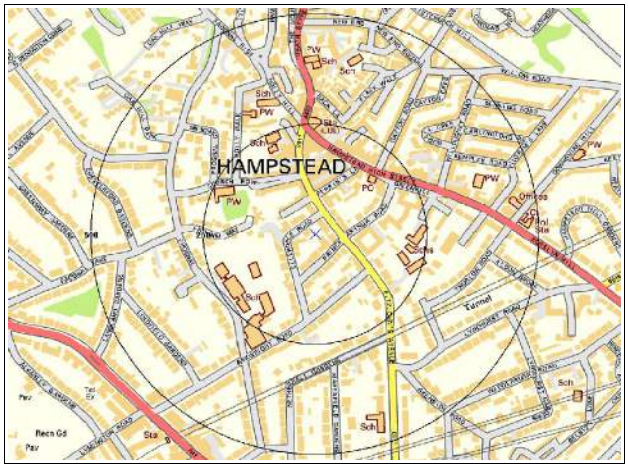
Date: 14 Mar 2014

GroundSure Reference: GS-1342324

Your Reference: SJF/C13183

Grid Reference**:** 526396,185518

Client: Ground Engineering Limited



Brought to you by GroundSure

1. Residential Radon Potential Result

1.1 Is the property in a Radon Affected Area?

The information in this section provides an answer to one of the standard legal enquiries on house purchase in England and Wales, known as *CON29 standard Enquiry of Local Authority; 3.13 Radon Gas: Location of the Property in a Radon Affected Area*.

Question: 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?

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

1.2 Are Radon Protective Measures required?

The information in this section will detail the level of protection required for new dwellings under as described in the latest Building Research Establishment guidance on radon protective measures for new dwellings. This may include extensions to the property.

Question: 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?

Answer: No Radon Protective Measures are necessary.

1.3 Combined Radon Guidance

Radon is a colourless, odourless radioactive gas which is present in all areas of the United Kingdom, usually at levels that pose a negligible risk to homebuyers. However, in some areas levels of radon are much higher than in others, and in these cases it can pose a health risk. The data supplied by the Health Protection Agency (HPA) and the British Geological Survey (BGS)is not able to determine exact Radon levels, as this information can only be obtained through site-specific, in-situ testing. As less than 1% of properties in the area may be radon affected, the HPA do not consider that further action is necessary.

The responses given on the level of Radon Protective Measures required are based on a joint radon potential dataset from the Health Protection Agency (HPA) and the British Geological Survey (BGS). No Radon Protective Measures are required for new builds or extensions.

1.4 Further details on Radon

Radon is a naturally occurring radioactive gas, which enters buildings from the ground. Outdoors, it is diluted to very low levels. However, in some cases the radon level indoors can build up to high concentrations. In such cases, it does pose a serious risk to health. Exposure to high concentrations increases the risk of lung cancer. The Health Protection Agency recommends that radon levels should be reduced in homes where the annual average is at or above 200 becquerels per cubic metre (200 Bq m^{-3}). This is termed the Action Level. The Health Protection Agency defines Radon Affected Areas as those with 1% chance or more of a house having a radon concentration at or above the Action Level of 200 Bq m^{-3}.

The joint HPA-BGS digital Radon Potential Dataset used in this report provides the current definitive map of Radon Affected Areas in England and Wales.

Indoor radon levels can usually be substantially reduced at a cost comparable to many home improvements, such as replacing carpets. Details of methods of reducing radon levels are given on the Building Research Establishment Website. http://www.bre.co.uk/radon/index.html

2. Contact Details

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

Local Authority - Camden London Borough Council. Address: Camden Town Hall, Judd Street, Camden, London, WC1H 9JE. Web: www.camden.gov.uk. Tel: 020 7278 4444

British Geological Survey Enquiries
Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143. Fax: 0115 936 3276.
Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk
BGS Geological Hazards Reports and general geological enquiries

Public Health England
Public information access office, Public Health England
Wellington House, 133-155 Waterloo Road, London, SE1 8UG
https://www.gov.uk/government/organisations/public-health-england
Email: enquiries@phe.gov.uk

Ordnance Survey
Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

CoPSO
29 Harley Street, London W1G 9QR
Tel: 020 7927 6836
(www.copso.org.uk)

APPENDIX 3 – CHEMICAL TEST RESULTS

Chemtest
The right chemistry to deliver results

Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070

Ground Engineering Limited
Newark Road
Peterborough

PE1 5UA

FAO S Fleming
14 February 2014

Dear S Fleming

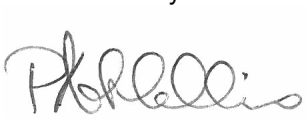
Test Report Number **250769**
Your Project Reference **C13183 Land by 1 Ellerdale Road, London NW3**

Please find enclosed the results of analysis for the samples received 6 February 2014.

All soil samples will be retained for a period of one month and all water samples will be retained for 7 days following the date of the test report. Should you require an extended retention period then please detail your requirements in an email to customerservices@chemtest.co.uk. Please be aware that charges may be applicable for extended sample storage.

If you require any further assistance, please do not hesitate to contact the Customer Services team.

Yours sincerely



Phil Hellier, Director

UKAS TESTING
2183

Notes to accompany report:

- *The sign < means 'less than'*
- *Tests marked 'U' hold UKAS accreditation*
- *Tests marked 'M' hold MCertS (and UKAS) accreditation*
- *Tests marked 'N' do not currently hold UKAS accreditation*
- *Tests marked 'S' were subcontracted to an approved laboratory*
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- *The results relate only to the items tested*
- *All results are expressed on a dry weight basis*
- *The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, phenols*
- *For all other tests the samples were dried at < 37°C prior to analysis*
- *Uncertainties of measurement for the determinands tested are available upon request*
- *None of the test results included in this report have been recovery corrected*

Ground Engineering Limited
Newark Road
Peterborough

PE1 5UA

FAO S Fleming

LABORATORY TEST REPORT

Results of analysis of 6 samples
received 6 February 2014

C13183 Land by 1 Ellerdale Road, London NW3

Chemtest
The right chemistry to deliver results

Report Date
14 February 2014

Login Batch No					**250769**						
Chemtest LIMS ID					AJ80063	AJ80064	AJ80065	AJ80066	AJ80067	AJ80068
Sample ID					TP1	TP1A	TP2	TP3	TP4	TP4
Sample No					D2	D3	D2	D2	D3	D6
Sampling Date					27/1/2014	27/1/2014	28/1/2014	28/1/2014	27/1/2014	27/1/2014
Depth					0.50m	0.80m	0.60m	0.50m	0.70m	1.60m
Matrix					*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
SOP↓	Determinand↓	CAS No↓	Units↓	*						
2010	pH			M	7.8	7.9	8.0	7.9	8.2	8.1
2300	Cyanide (free)	57125	mg kg-¹	M	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Cyanide (total)	57125	mg kg-¹	M	<0.50	2.4	<0.50	<0.50	<0.50	<0.50
2325	Sulfide (Easily Liberatable)	18496258	mg kg-¹	M	1.3	5.2	1.2	2.7	1.1	0.62
2625	Organic matter		%	M	4.3	4.8	2.1	2.9	4.3	2.4
2120	Boron (hot water soluble)	7440428	mg kg-¹	M	2.2	2.0	1.3	0.9	1.4	1.4
	Sulfate (2:1 water soluble) as SO4	14808798	g l-¹	M	0.02	1.3	0.07	<0.01	<0.01	0.04
2490	Chromium (hexavalent)	18540299	mg kg-¹	N	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2450	Arsenic	7440382	mg kg-¹	M	21	32	17	16	18	14
	Cadmium	7440439	mg kg-¹	M	0.25	0.47	<0.10	0.14	0.67	<0.10
	Chromium	7440473	mg kg-¹	M	32	40	31	30	30	32
	Copper	7440508	mg kg-¹	M	96	62	37	37	40	32
	Mercury	7439976	mg kg-¹	M	1.5	1.4	0.76	0.75	0.65	0.64
	Nickel	7440020	mg kg-¹	M	15	31	6.1	6.1	6.2	7.1
	Lead	7439921	mg kg-¹	M	590	3300	350	330	760	310
	Selenium	7782492	mg kg-¹	M	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
	Zinc	7440666	mg kg-¹	M	190	1100	84	110	220	60
2700	Naphthalene	91203	mg kg-¹	M	< 0.1	0.16	< 0.1	< 0.1	< 0.1	< 0.1
	Acenaphthylene	208968	mg kg-¹	M	0.1	1.3	< 0.1	< 0.1	< 0.1	< 0.1
	Acenaphthene	83329	mg kg-¹	M	0.13	0.2	< 0.1	0.13	< 0.1	< 0.1
	Fluorene	86737	mg kg-¹	M	< 0.1	0.25	< 0.1	< 0.1	< 0.1	< 0.1
	Phenanthrene	85018	mg kg-¹	M	0.46	1	0.21	0.52	0.27	< 0.1
	Anthracene	120127	mg kg-¹	M	0.16	0.53	0.11	0.15	0.13	< 0.1
	Fluoranthene	206440	mg kg-¹	M	1.2	2.8	0.51	0.65	0.66	0.13

All tests undertaken between 06/02/2014 and 11/02/2014

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page.

Ground Engineering Limited
Newark Road
Peterborough

PE1 5UA

FAO S Fleming

LABORATORY TEST REPORT

Results of analysis of 6 samples
received 6 February 2014

C13183 Land by 1 Ellerdale Road, London NW3

Report Date
14 February 2014

					250769					
					AJ80063	AJ80064	AJ80065	AJ80066	AJ80067	AJ80068
					TP1	TP1A	TP2	TP3	TP4	TP4
					D2	D3	D2	D2	D3	D6
					27/1/2014	27/1/2014	28/1/2014	28/1/2014	27/1/2014	27/1/2014
					0.50m	0.80m	0.60m	0.50m	0.70m	1.60m
					SOIL	*SOIL*	*SOIL*	*SOIL*	*SOIL*	*SOIL*
2700	Pyrene	129000	mg kg-1	M	1.1	3.7	0.5	0.65	0.51	0.12
	Benzo[a]anthracene	56553	mg kg-1	M	0.69	2.4	0.22	0.38	0.29	< 0.1
	Chrysene	218019	mg kg-1	M	0.74	2.5	0.25	0.43	0.3	< 0.1
	Benzo[b]fluoranthene	205992	mg kg-1	N	0.76	2.4	0.39	0.28	0.4	< 0.1
	Benzo[k]fluoranthene	207089	mg kg-1	N	0.55	1.9	0.31	0.25	0.21	< 0.1
	Benzo[a]pyrene	50328	mg kg-1	M	0.77	2.4	0.28	0.3	0.51	< 0.1
	Dibenzo[a,h]anthracene	53703	mg kg-1	M	0.11	0.24	< 0.1	0.14	< 0.1	< 0.1
	Indeno[1,2,3-cd]pyrene	193395	mg kg-1	M	0.59	1.4	0.17	0.37	0.3	< 0.1
	Benzo[g,h,i]perylene	191242	mg kg-1	M	0.99	1.8	0.57	0.28	0.26	< 0.1
	Total (of 16) PAHs		mg kg-1	M	8.4	25	3.5	4.5	3.8	< 2
2920	Phenols (total)		mg kg-1	M	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3

All tests undertaken between 06/02/2014 and 11/02/2014

* Accreditation status

This report should be interpreted in conjunction with the notes on the accompanying cover page.

Chemtest
The right chemistry to deliver results

Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070

Ground Engineering Limited
Newark Road
Peterborough

PE1 5UA

FAO S Fleming
17 February 2014

Dear S Fleming

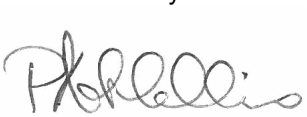
Test Report Number **250770**
Your Project Reference **C13183 Land by 1 Ellerdale Road, London NW3**

Please find enclosed the results of analysis for the samples received 6 February 2014.

All soil samples will be retained for a period of one month and all water samples will be retained for 7 days following the date of the test report. Should you require an extended retention period then please detail your requirements in an email to customerservices@chemtest.co.uk. Please be aware that charges may be applicable for extended sample storage.

If you require any further assistance, please do not hesitate to contact the Customer Services team.

Yours sincerely



Phil Hellier, Director

UKAS TESTING
2183

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- *Tests marked 'U' hold UKAS accreditation*
- *Tests marked 'M' hold MCertS (and UKAS) accreditation*
- *Tests marked 'N' do not currently hold UKAS accreditation*
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- *Uncertainties of measurement for the determinands tested are available upon request*
- *None of the test results included in this report have been recovery corrected*

LABORATORY TEST REPORT

CEN 10:1 CUMULATIVE TWO STAGE BATCH TEST

Ground Engineering Limited
Newark Road
Peterborough

PE1 5UA

Results of analysis of 2 samples received 6 February 2014

FAO S Fleming

C13183 Land by 1 Ellerdale Road, London NW3

Report Date 17 February 2014

Login Batch No	**250770**
Chemtest LIMS ID	AJ80073 Soil: AJ80072
Sample ID	BH1
Sample No	B2
Sampling Date	27/01/2014
Depth	0.60m - 1.20m

Solid Waste Analysis

Determinand ↓	SOP ↓	*	Units ↓			Landfill Waste Acceptance Criteria Limits: Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Total Organic Carbon	2625	M	%		1.3	3	5	6
Loss on Ignition	2610	N	%		3.14			10
Total BTEX	2761	M	mg kg^{-1}		<0.005	6		
Total PCBs (7 congeners)	2811	M	mg kg^{-1}		<1	1		
TPH Total WAC	2670	M	mg kg^{-1}		< 10	500		
Total (of 17) PAHs	2700	N	mg kg^{-1}		3.1	100		
pH	2010	M			8.1		>6	
Acid Neutralisation Capacity	2015	N	mol kg^{-1}		0.038		To evaluate	To evaluate

Eluate Analysis

Determinand ↓	SOP ↓	*	2:1 Eluate mg l^{-1}	8:1 Eluate mg l^{-1}	2:1 Eluate mg kg^{-1}	Cumulative 10:1 Eluate mg kg^{-1}	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
Arsenic	1450	U	0.021	0.015	<0.05	0.15	0.5	2	25
Barium	1450	U	0.013	0.009	<0.5	<0.5	20	100	300
Cadmium	1450	U	<0.0005	<0.0005	<0.01	<0.01	0.04	1	5
Chromium	1450	U	<0.001	<0.001	<0.05	<0.05	0.5	10	70
Copper	1450	U	0.01	0.006	<0.05	0.06	2	50	100
Mercury	1450	U	<0.0005	<0.0005	<0.01	<0.01	0.01	0.2	2
Molybdenum	1450	U	0.01	0.003	<0.05	<0.05	0.5	10	30
Nickel	1450	U	<0.001	<0.001	<0.05	<0.05	0.4	10	40
Lead	1450	U	<0.001	0.007	<0.01	0.06	0.5	10	50
Antimony	1450	U	0.008	0.004	0.02	0.04	0.06	0.7	5
Selenium	1450	U	0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	1450	U	0.004	0.002	<0.5	<0.5	4	50	200
Chloride	1220	U	2.9	1.3	5.8	14.2	800	15000	25000
Fluoride	1220	U	0.89	0.54	1.78	5.66	10	150	500
Sulfate	1220	U	28	7.7	56	91.8	1000	20000	50000
Total Dissolved Solids	1040	N	180	94	360	1000	4000	60000	100000
Phenol Index	1920	N	<0.030	<0.030	<0.5	<0.5	1		
Dissolved Organic Carbon	1610	N	40	15	80	168	500	800	1000

Solid Information

Dry mass of test portion/kg	0.175
Moisture (%)	15.5

Leach Test Information

Leachant volume 1st extract/l	0.318
Leachant volume 2nd extract/l	1.4
Eluate recovered from 1st extract/l	0.1274

All tests undertaken between 6-Feb-2014 and 17-Feb-2014
* Accreditation status
This report should be interpreted in conjunction with the notes on the accompanying cover page.

APPENDIX 4

CLASSIFICATION OF AGGRESSIVE CHEMICAL ENVIRONMENT FOR BURIED CONCRETE

TABLE C2 – AGGRESSIVE CHEMICAL ENVIRONMENT FOR CONCRETE (ACEC) CLASSIFICATION FOR BROWNFIELD LOCATIONS[a]

Table C2 Aggressive Chemical Environment for Concrete (ACEC) classification for brownfield locations [a]

Sulfate and magnesium						Groundwater		ACEC
Design Sulfate Class for location	2:1 water/soil extract[b]		Groundwater		Total potential sulfate[c]	Static water	Mobile water	Class for location
1	2 (SO_4 mg/l)	3 (Mg mg/l)	4 (SO_4 mg/l)	5 (Mg mg/l)	6 (SO_4 %)	7 (pH)[d]	8 (pH)[d]	9
DS-1	< 500		< 400		< 0.24	≥ 2.5		AC-1s
							> 6.5[d]	AC-1
							5.5–6.5	AC-2z
							4.5–5.5	AC-3z
							2.5–4.5	AC-4z
DS-2	500–1500		400–1400		0.24–0.6	> 5.5		AC-1s
							> 6.5	AC-2
						2.5–5.5		AC-2s
							5.5–6.5	AC-3z
							4.5–5.5	AC-4z
							2.5–5.5	AC-5z
DS-3	1600–3000		1500–3000		0.7–1.2	> 5.5		AC-2s
							> 6.5	AC-3
						2.5–5.5		AC-3s
							5.5–6.5	AC-4
							2.5–5.5	AC-5
DS-4	3100–6000	≤ 1200	3100–6000	≤ 1000	1.3–2.4	> 5.5		AC-3s
							> 6.5	AC-4
						2.5–5.5		AC-4s
							2.5–6.5	AC-5
DS-4m	3100–6000	> 1200[e]	3100–6000	> 1000[e]	1.3–2.4	> 5.5		AC-3s
							> 6.5	AC-4m
						2.5–5.5		AC-4ms
							2.5–6.5	AC-5m
DS-5	> 6000	≤ 1200	> 6000	≤ 1000	> 2.4	> 5.5		AC-4s
						2.5–5.5	≥ 2.5	AC-5
DS-5m	> 6000	> 1200[e]	> 6000	> 1000[e]	> 2.4	> 5.5		AC-4ms
						2.5–5.5	≥ 2.5	AC-5m

Notes

a Brownfield locations are those sites, or parts of sites, that might contain chemical residues produced by or associated with industrial production (Section C5.1.3).

b The limits of Design Sulfate Classes based on 2:1 water/soil extracts have been lowered from previous Digests (Box C7).

c Applies only to locations where concrete will be exposed to sulfate ions (SO_4), which may result from the oxidation of sulfides such as pyrite, following ground disturbance (Appendix A1 and Box C8).

d An additional account is taken of hydrochloric and nitric acids by adjustment to sulfate content (Section C5.1.3).

e The limit on water-soluble magnesium does not apply to brackish groundwater (chloride content between 12 000 mg/l and 17 000 mg/l). This allows 'm' to be omitted from the relevant ACEC classification. Seawater (chloride content about 18 000 mg/l) and stronger brines are not covered by this table.

Explanation of suffix symbols to ACEC Class

- Suffix 's' indicates that the water has been classified as static.
- Concrete placed in ACEC Classes that include the suffix 'z' have primarily to resist acid conditions and may be made with any of the cements in Table D2 on page 42.
- Suffix 'm' relates to the higher levels of magnesium in Design Sulfate Classes 4 and 5.

Appendix G – site investigation repot 2012

REPORT ON A SITE INVESTIGATION

at

1 ELLERDALE ROAD, HAMPSTEAD, LONDON, NW3

for

MR G GALBERG

CONSULTING ENGINEERS: GTA

Report No 12/9705/KJC **October, 2012**

ALBURY S.I. LTD

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CONTENTS

FOREWORD

The following notes should be read in conjunction with the report. Any variations on the general procedures outlined below are indicated in the text.

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General

The recommendations made and opinions expressed in the report are based on the strata conditions revealed by the fieldworks as indicated on the boring and trialpit records, together with an assessment of the data from insitu and laboratory tests. No responsibility can be accepted for conditions, which have not been revealed by the fieldworks, for example, between borehole and/or trialpit positions. While the report may offer opinions on the possible configuration of strata, both between the excavations and below the maximum depth achieved by the investigation, these comments are for guidance only and no liability can be accepted for their accuracy. For investigations, which include environmental issues, the data obtained relate to the conditions which are relevant at the time of the investigation.

Boring Techniques

Unless otherwise stated, the light cable percussion technique of soft ground boring has been used. This method generally enables the maximum information to be obtained in respect of strata conditions, but a degree of mixing if some layered soils, for example, thin bands of coarse and fine granular soils, is inevitable. Specific attention is drawn to this occurrence where evidence of such a condition is available.

The penetration resistances quoted on the boring records have been determined generally in accordance with the procedure given in BS1377 : 1990. The suffix '+' donates that the results has been extrapolated from less than 0.3m penetration into undisturbed soil.

Routine Sampling

During construction of boreholes, sampling and insitu testing will be completed in general accordance with Eurocode EN 1997-2 : 2007 and BS5930 : 1999. Variations to this code of practice will only occur where the strata conditions preclude implementation or the contract specifies alternatives.

Samples which are required for environmental testing will be stored in suitable glass containers in accordance with current guidelines.

Groundwater

The groundwater observations entered on boring and trialpit records are those noted at the time of the investigation. The normal rate of progress does not usually permit the recording of any equilibrium water level for any one water strike. Moreover, groundwater levels are prone to seasonal variation and to changes in local drainage conditions. The table on each boring record shows the groundwater level at the quoted borehole and casing depths usually at the start and finish of a day's work. The word 'none' indicates that groundwater was sealed off by the borehole casing, or that no water was observed in the borehole.

Trialpits

The method of construction employed to form the trialpits is entered in their records. In general, it is not possible to extend machine excavated trialpits to depths significantly below the water table, especially in predominantly granular soils. Except for manually excavated pits, and unless otherwise stated, the trialpits have not been provided with temporary side support during their construction, hence personnel have not entered them and examined the insitu exposed strata.

Window Sampling

Window sampling comprises driving a probe into the ground. On extraction of the probe the strata encountered are logged and representative disturbed samples recovered. In general, window sampling cannot be completed in granular soils, or below the water table.

Laboratory Testing

Unless stated in the tests, all laboratory tests have been performed in accordance with the requirements detailed in BS1377 (1990) : Parts 1-9, or other standards or specifications that may by appropriate.

REPORT ON A SITE INVESTIGATION

at

1 ELLERDALE ROAD, HAMPSTEAD, LONDON, NW3

for

MR G GALBERG

CONSULTING ENGINEERS: GTA

Report No 12/9705/KJC **October, 2012**

Prepared by **K J Clark BSc Hons**
Senior Geotechnical Engineer

1.0 SYNOPSIS

This investigation has demonstrated that made ground overlies soils thought to be associated with the Bagshot Beds of late Eocene age. The groundwater observations noted at the time of the fieldworks indicate that this phenomenon should not constitute a significant engineering problem at this site.

It is understood that it is proposed to construct a new garden house within the rear garden of the existing property. The proposal will result in excavation of up 2m depth in order to accommodate the new structure. Made ground has been revealed at the location of the borehole to 2.9m depth. Hence, the foundations to the structure should be located at depths of the order of 3m. It is recommended that foundations placed in the Bagshot Beds are designed to accept a maximum increase in load of 100kPa. The structure should be designed and constructed as a water tight element.

2.0 INTRODUCTION

It is understood that it is proposed to construct a new garden house within the rear garden of the existing property at 1 Ellerdale Road, Hampstead. Consequently, a site investigation has been undertaken in order to ascertain the nature and engineering properties of the soils underlying this site, and to obtain data which will assist in the formulation of a safe and economical foundation solution.

The programme of this investigation comprised the construction of a light cable percussive or shell and auger borehole. Due to limited access to the area of the proposed development a demountable boring unit was utilised. During this work, samples were recovered for further examination and laboratory testing. This report describes the work undertaken, presents the information obtained and discusses the ground conditions with respect to foundation design and construction. A copy of the order for these works is presented as Appendix 1. This report is for the benefit of the Client alone and cannot be assigned to a third party without the consent of Albury SI Ltd.

3.0 FIELDWORKS

The borehole was constructed on 3rd October, 2012, at a position as shown on the site plan, drawing no 12/9705/1, which is presented in Appendix 2 to this report. The salient details of this drawing have been extracted from a site layout plan supplied by the Client's representative.

The depths and descriptions of the strata encountered in the borehole are given on the record in Appendix 3 to this report. This records note the depths at which samples were taken, the results of standard penetration test and any groundwater observations noted at the time of the fieldworks.

4.0 GEOLOGY AND STRATA CONDITIONS

An examination of the 1:50,000 British Geological Survey map of the area, together with the relevant Handbook of Regional Geology, suggests that the site is underlain by Bagshot Beds of late Eocene age. This deposit consists of fine grained soils.

A study of the borehole record indicates that made ground, varying in composition from gravel/sand and brick to brown/grey very sandy clay with gravel and brick fragments was noted at the investigatory location. This fill material was proved to 2.9m depth.

Brown clayey sand with very occasional gravel or very sandy clay were encountered beneath the made ground and were proved to a depth of 6m. Brown very sandy clay with partings of sand was exposed below the clayey sand/very sandy clay and was shown to extend to the concluding depth of the borehole at 9m. It is suggested that these soils are associated with the Bagshot Beds.

No groundwater strikes were noted during the siteworks completed at this site. Temporary casing was installed to 6m depth. On completion of the borehole the casing was withdrawn. The borehole was allowed to remain open for a period of time on its completion. The borehole was noted to be dry at this time.

5.0 LABORATORY TESTING

A programme of laboratory testing has been undertaken and the results are presented as Appendix 4 to this report. Each type of test is summarised below, and the results obtained have been used to assist in the formulation of the discussion of ground conditions.

5.1 Particle Size Distribution

Samples of the soils encountered have been subjected to sieve and sedimentation analysis in order to ascertain the soils particle distribution and establish the soils clay fraction. The results of this work are presented in the form of grading curves.

5.2 Index Properties

The liquid and plastic limits of a sample of the soils have been determined. This work indicates that the soil sample tested is of intermediate plasticity. The plasticity index result has been corrected for the percentage of granular soil that is retained on the 425μm sieve. The percentage retained was 55%. Hence, the

corrected plasticity index indicates that the soil analysed can be regarded as being of a non-shrinkable nature.

5.3 Triaxial Compression

The undrained shear strength characteristics of a sample of the soils encountered have been determined by testing specimens in the triaxial compression apparatus. A cohesion of 80kPa has been established which is indicative of a stiff condition insitu for a purely cohesive soil.

5.4 Oedometer- Consolidation - Heave

The one dimensional settlement heave characteristics of a sample of the soils underlying this site has been determined by testing a specimen in the Terzaghi Oedometer or Consolidation apparatus. The test was made by preparing the specimen in the oedometer cell and applying an initial load which corresponds to the approximate existing overburden pressure. Two cycles of consolidation loading were then applied followed by two unloading cycles taking the final load back to the initial overburden pressure. The results of this unloading cycles have been used to calculate the coefficient of volume increase which is quoted in the test results. The results obtained suggest that low magnitudes of heave may be expected. The results also indicates that movements would occur in a short period of time.

5.5 Chemical Analyses - Soluble Sulphates & pH Values

Samples of the soils encountered at this site have been subjected to chemical analyses in order to determine their soluble sulphate content and pH values. Under the conditions of this work low to moderate concentrations of soluble sulphate contents have been recorded in association with near neutral pH values.

6.0 DISCUSSION OF GROUND CONDITIONS

It is understood that it is proposed to redevelop the site by the construction of a new single storey garden house. At the time of the preparation of this report, no precise

information was available with regard to the likely structural loadings generated by the proposed construction. It is further understood that the structure will be set in to the garden by up to 2m depth. Moreover, it is possible that a swimming pool may also be incorporated in the development.

It cannot be recommended that major structural foundations be located within the made ground revealed by this investigation. Soils of this origin are frequently present in a weak and variable condition, such that unacceptable settlement could occur even under the action of light loading intensities. The above precaution need not necessarily be applied to light ancillary structures, which will be formed structurally discrete from the main development and in which a greater degree of settlement can be tolerated.

Made ground has been noted to be present at the borehole location. Hence, it is likely that the foundations to the proposed structure will be constructed at depths of the order of 3m in order to locate footings within naturally occurring soils thought to be associated with the Bagshot Beds. It is recommended that new foundations within these soils can be designed to apply a maximum increase in load of 100kPa. At this loading intensity a factor of safety of 3 against general shear failure will be operative. Moreover, control will provided over settlements. The nature of the soils encountered suggests that these movements should be sensibly complete in the short-term as opposed to an extended period of time.

The groundwater observations noted at the time of the fieldworks suggest that this phenomenon should not constitute a significant engineering problem at this site. Nevertheless, should slight seepages be encountered or surface water run off drain into excavations, then these minor amounts should be removed expeditiously by the construction of sumps from which water can be pumped. It will be prudent to design and construct any structures below ground level as water tight units.

With regard to the construction works, it is evident that it is unlikely that it will be possible to construct any sort of strutted cofferdam in order to provide clear access for construction works in view of the limited working space/access and presence of adjacent existing buildings. Therefore, it is assumed that the basement will have to be excavated and the retaining walls constructed using manual techniques in panels. It should be

possible to construct the necessary excavation in panels of convenient width and depth. This work will be completed by constructing new foundations and include underpinning of the existing structures where necessary. Evidently, where appropriate support to excavation sides should be provided

In the design of the retaining walls account should be taken of the earth pressures and any surcharge loadings that will be applied to the walls. In the design of such a structure, it is normally necessary to employ the use of effective stress parameters such that the long term stability of the structure can be assured. Bearing this in mind it is recommended that the following design parameters are employed in the calculations.

Table 1 – Retaining Wall Design.

Soil Parameter	**Effective Cohesion**	**Effective Angle of Friction**	**Soil Density**
Made ground	0	15	1850
Bagshot Beds	2	25	1900

In view of the presence of made ground to approximately 3m, it is evident recommended that a fully suspended floor slab is adopted in the design of the proposed redevelopment.

The excavation of soil will result in a reduction in the overburden load to the underlying strata of approximately 20kPa. The suspended floor slab will ensure that any heave of the soils underlying the site will not represent an engineering problem. However, this figure is likely approach 40kPa should a swimming pool be incorporated at the new floor level - assuming a 2m deep construction. Evidently, it is likely that the pool slab can be constructed on the naturally occurring soils. This increased excavation may result in the development of elastic movement together with the potential for long-term heave under the revised stress conditions when the development is completed.

The magnitude of long-term uplift forces that may be applied to the swimming pool is difficult to predict. Computer programmes are available which attempt to model the problem. However, the complex nature of the proposed structure and difficulties in assuming the soil parameters would limit the validity of the calculations.

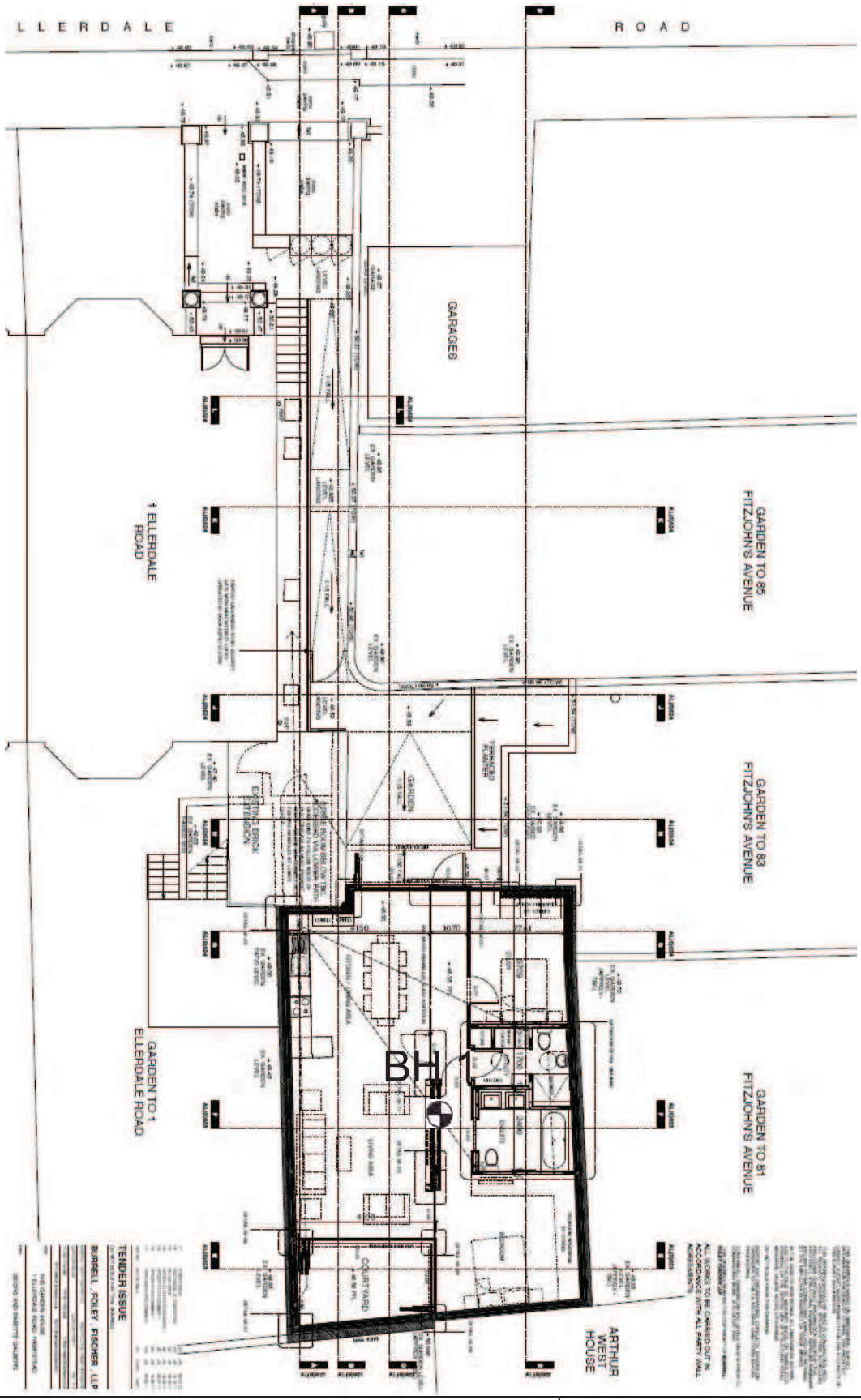
It should be appreciated that the magnitude of heave is dependent upon the loads and stiffness of the structure and performance of the underlying strata. The soils at this site are thought to comprise Bagshot Beds, the upper levels of which generally comprise brown/grey clayey sand. The results of laboratory analysis completed on the upper levels of the Barton Beds suggest that the soils are of non- shrinkable potential which implies that the soil does not contain a significant amount of active clay minerals. Hence, it is considered that the completed structure is likely to experience nominal heave/uplift force derived from the clayey sand which underlies this site.

7.0 EFFECT OF SULPHATES

The information obtained from this investigation has been compared with the criteria proposed in BRE Special Digest 1; 2005, Edition, Concrete in Aggressive Ground. Using the information in Table C1 (natural ground) of this publication the Aggressive Chemical Environment for Concrete Classification is AC-1s, which coincides with a Design Sulphate Class DS-1. This Design Sulphate Class can be used to establish the design mix for buried concrete in accordance with Part D of the Digest.

A P P E N D I X 2

Site Plan



Site:	ELLERDALE ROAD, HAMPSTEAD
Drawing No:	12/9705/1
Title:	SITE PLAN
Scale:	NTS
Revision:	A
Issue Date:	1.0 – 18/4/2011

Albury S.I. Ltd
Miltons Yard
Petworth Road
Witley,
Surrey, GU8 5LH
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A P P E N D I X 3

Boring Records

Albury S.I. Ltd

Petworth Road, Witley, Godalming, Surrey, GU8 5LH

		Borehole No	1
Contract	Ellerdale Road, Hampstead	Report No	12/9705/KJC
Client	Mr G Galberg	Ground Level	mOD
Site Address	1 Ellerdale Road, Hampstead, London, NW3	Boring Commenced	03/10/12
		Boring Completed	03/10/12

Type and diameter of boring: Light cable percussion (shell and auger): 150mm diameter

Water Strikes, m	Water levels recorded during boring, m							
1. none	Date	03/10	03/10					
2.	Hole Depth	9.00	9.00					
3.	Casing Depth	6.00	none					
4.	Water Level	none	none					

Remarks

Excavation of starter pit to clear services.

Samples or tests		SPT			Strata Description
Type	Depth, m	N	Depth	Legend	
D	0.20		0.40		Made ground (gravel/sand, gravel and brick)
B	0.50				Made ground (brown/grey very sandy clay with gravel and occasional brick particles)
D	1.00-1.50	8			
D	1.75				
D	2.00-2.50	8	2.00		Made ground (brown/grey clayey sand with gravel, pockets of clay and very occasional brick particles)
D	2.75		2.90		
D	3.00-3.50	11			Medium dense brown/grey clayey silty sand with very occasional gravel
D	4.00		4.00		Brown very sandy clay with partings of sand
U	4.50-5.00		4.50		Brown/grey clayey sand/very sandy clay with gravel
D	5.50		5.50		Brown clayey sand
D	6.00-6.50	16	6.00		Stiff brown very sandy clay with partings of sand
U	6.50-7.00				
D	7.00				
D	7.50				
D	8.50-9.00	19			
			9.00		

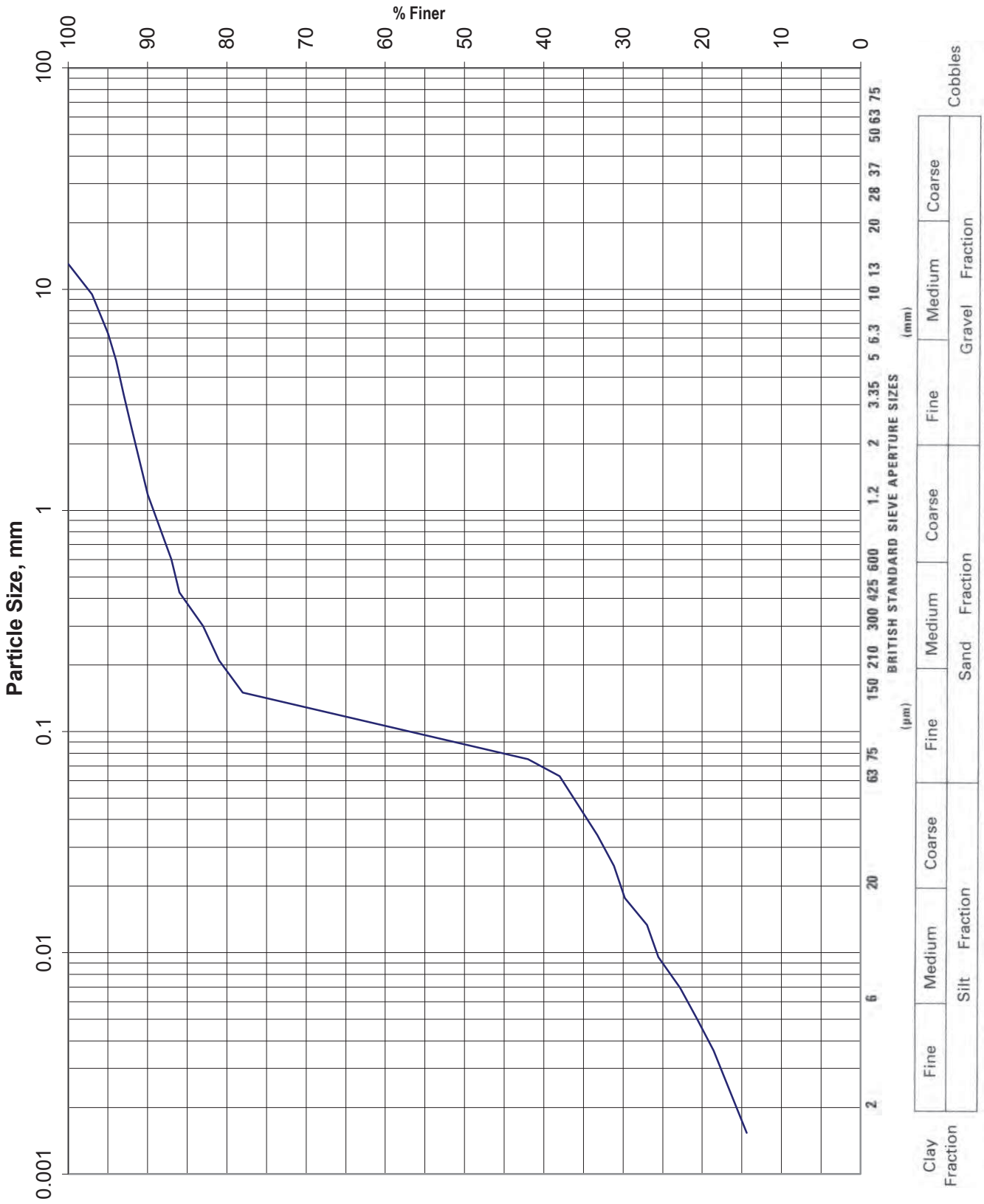
Sampling Code: **U**- Undisturbed, **B** - Large Disturbed, **D** - Small Disturbed, **W**- Water Sample, **(U)***- Non-recovery of undisturbed sample

A P P E N D I X 4

Laboratory Test Results

PARTICLE SIZE DISTRIBUTION - GRADING CURVE

Contract: Ellerdale Road, Hampstead | Report No. 12/9705/KJC



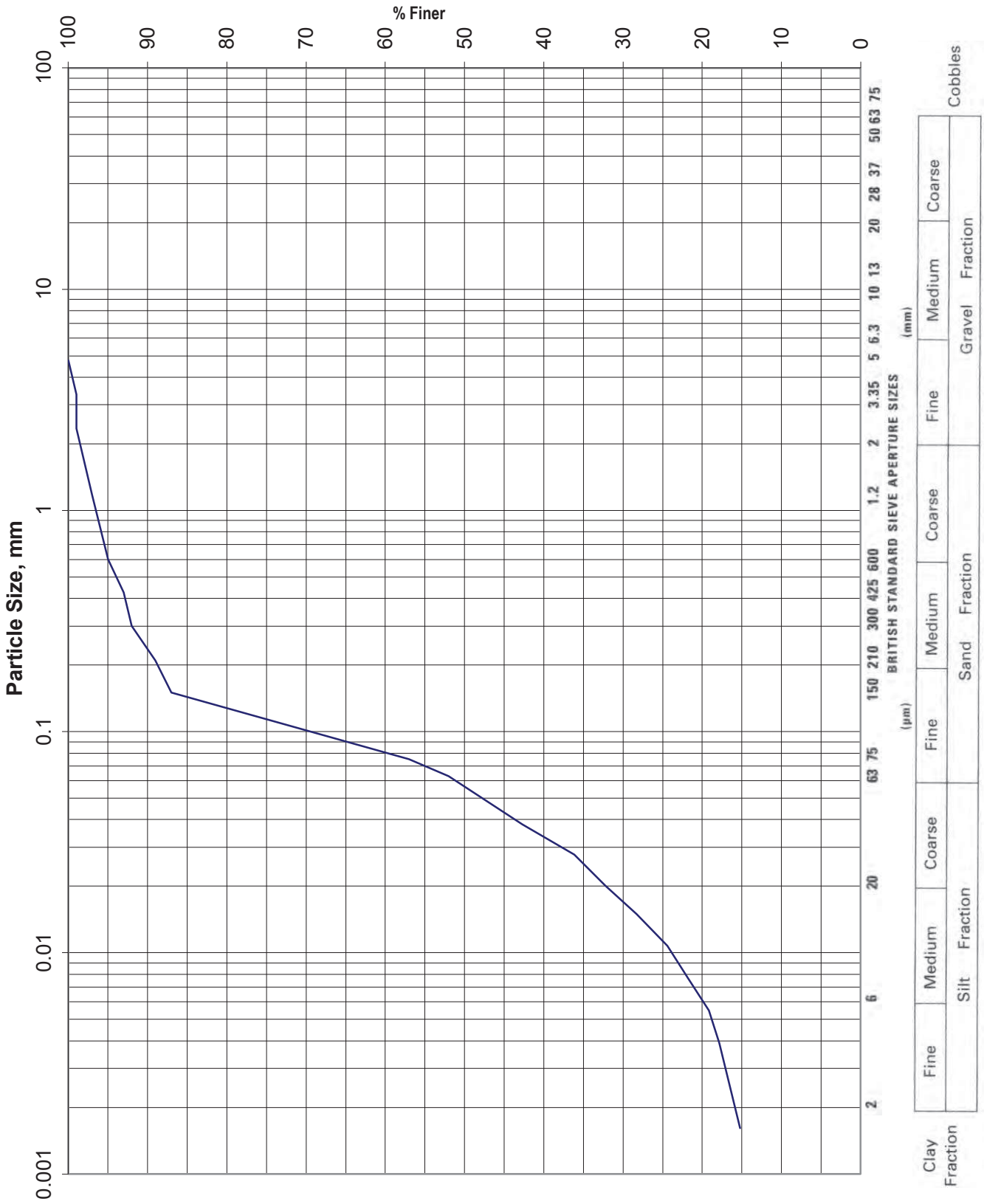
Borehole No. 1 | Depth of Sample, m: 1.75

Visual Description: Made ground (grey/brown clayey sand with gravel and brick fragments)

Albury S. I. Ltd Miltons Yard Petworth Road Witley Surrey GU8 5LH

PARTICLE SIZE DISTRIBUTION - GRADING CURVE

Contract: Ellerdale Road, Hampstead | Report No. 12/9705/KJC



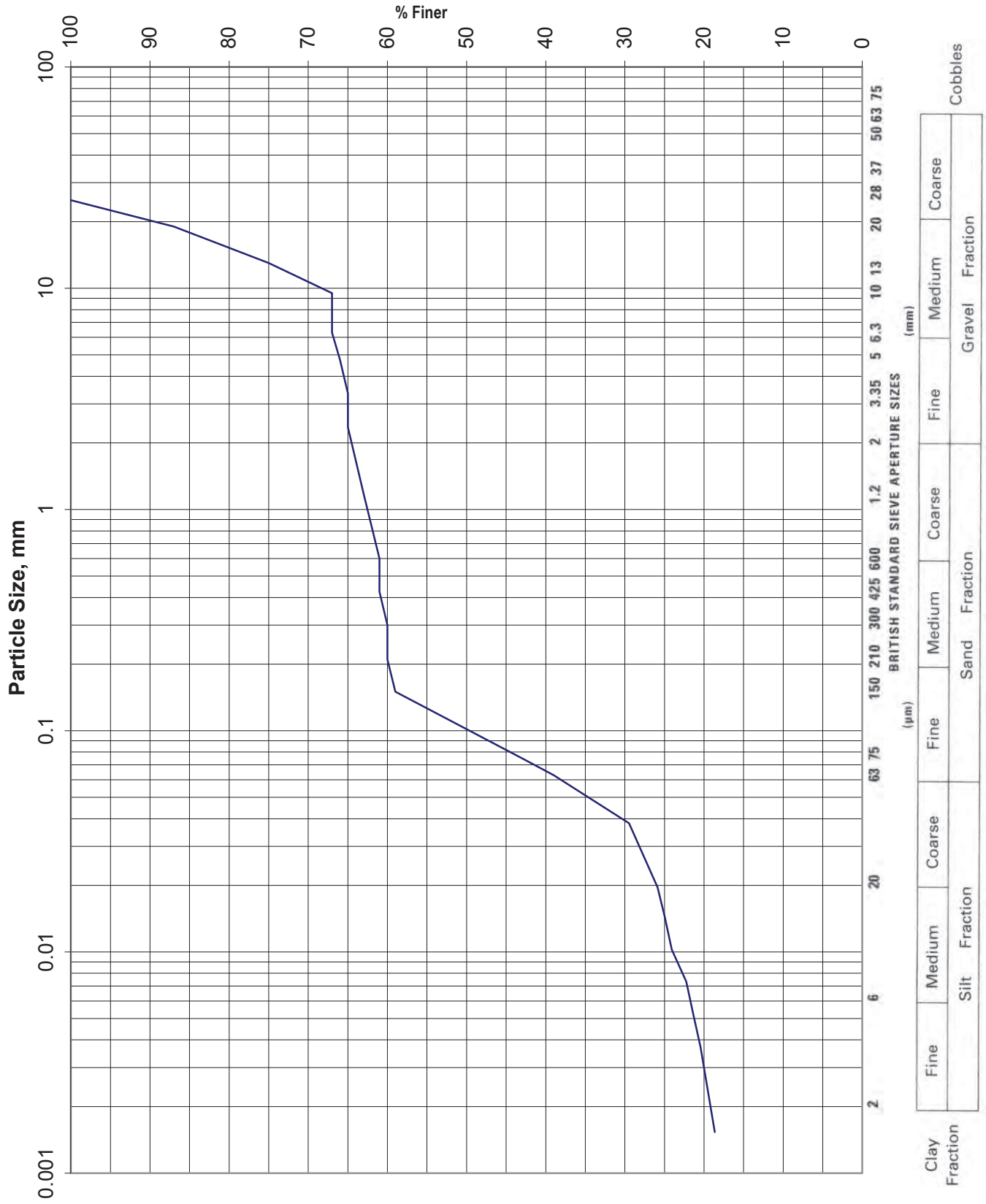
Borehole No. 1 | Depth of Sample, m: 3.00-3.50

Visual Description: Brown/grey clayey silty sand with very occasional gravel

Albury S. I. Ltd Miltons Yard Petworth Road Witley Surrey GU8 5LH

PARTICLE SIZE DISTRIBUTION - GRADING CURVE

Contract: Ellerdale Road, Hampstead | Report No. 12/9705/KJC



Borehole No. 1 | Depth of Sample, m: 4.50-5.00

Visual Description: Brown clayey sand with gravel

Albury S. I. Ltd Miltons Yard Petworth Road Witley Surrey GU8 5LH

RESULTS OF CONSOLIDATION TESTS

Contract: Ellerdale Road, Hampstead
Report No: 12/9705/KJC

BH no	Depth of Sample m	Description of Sample	INDEX PROPERTIES				TRIAXIAL COMPRESSION							CONSOLIDATION			REMARKS
			Liquid Limit %	Plastic Limit %	Plasticity Index %	Soil Classif-cation	Code	Lateral Pressure kPa	Com-pressive Strength kPa	Cohesion kPa	Angle of Friction (degrees)	Bulk Density kg/m^3	Water Content (% dry wt)	Pressure Range kPa	Coefficient of Volume Decrease mm^2/kN	Coefficient of Consolidation m^2/year	
1	4.50-5.00	Brown/grey clayey sand/very sandy clay with gravel (55% retained on 425µm sieve Corrected PI = 9%)	37	17	20	CI	38U	150 300 450					10.1				Specimens failed during preparation
	6.50-7.00	Brown very sandy clay with partings of sand					38U	150 300 450	155 175 150	80	0	1925 1925 1960	28.5 28.3 27.8	150-300 300-600 600-300 300-150	175 135 -25 -80	1.24 0.83 -2.90 -0.70	

Sheet No 1 of 1

TRIAXIAL COMPRESSION TEST CODE: **38-38mm dia specimen** **100-100mm dia specimen** **U-Undrained** **CD-Consolidated Drained** **CU-Consolidated Undrained**
P-Pore water pressure measurement **M-Multistage** **F-Functional** **R-Remoulded** **LV-Laboratory Vane Test**

RESULTS OF CHEMICAL ANALYSES

Determination of Sulphate Content and pH value

Contract: Ellerdale Road, Hampstead **Report No:** 12/9705/KJC

BH No	Depth of sample, m	Description	Concentrations of Sulphates expressed as SO_4			pH value
			In soil		In ground-Water *g/l*	
			Total SO_4 (%)	2:1 water:soil extract *g/l*		
1	1.75	Made ground		<0.25		7.4
	3.00-3.50	Clayey sand		<0.25		7.3
	6.50-7.00	Very sandy clay		<0.25		5.8

Appendix H – arboriculturalist's report

ARBORICULTURAL REPORT & IMPACT ASSESSMENT

PRE-DEVELOPMENT

Robert C Yates (Principal RGS)

December 2015

SITE : Land to rear of 1, Ellerdale Road, Hampstead

CLIENT : Mr. Jon McElroy

RGS – ARBORICULTURAL CONSULTANTS

Main Office : 52, MILLWAY, NORTHAMPTON NN5 6ES

Tel. 01604 581044 email: info@rgs-treeservices.co.uk

A pre-development advisory document, broadly in accord with British Standard 5837 : 2012 'Trees in relation to Design, demolition & construction - Recommendations', designed to inform the conceptual design by highlighting the above and below ground arboricultural constraints in the context of a proposed development.

CONTENTS :

1.0 Terms of Reference

1.1 We are instructed by Mark Knight (architect) of behalf of Mr Jon McElroy (client), to undertake a pre-development arboricultural impact assessment for a proposed garden house development to the rear of 1, Ellerdale Road, which is to be in line with B.S. 5837 : 2012 'Trees in Relation to Design, Demolition & Construction - Recommendations'.

1.2 Our report is required to assess the impact based on two scenarios, both relating to possible amendments to an extant planning approval (ref. 2012/6484/P) for a garden house on the site. Firstly, comprising a contiguous piled type foundation as opposed to a reinforced concrete wall, and secondly, comprising an additional basement level, also with contiguous piled foundation detail.

1.3 All trees relevant to the proposed development were inspected from ground level only and without gaining access to the adjacent land. Trees are dynamic living organisms, whose health and condition can be subject to rapid change, depending on a number of external and internal factors. The conclusions and recommendations contained in this report relate to the trees at the time of inspection.

1.4 This survey and report has been completed by Robert C Yates, who holds the Arboricultural Association Technicians Certificate and the LANTRA award in Professional Tree Inspection. He is also a professional member of the Consulting Arborist Society and member of The Arboricultural Association.

1.5 This report, its appendices and any subsequent revisions or additional information, will form part of any formal planning applications or amendments in respect of this site, and as such will be open to public scrutiny and comment.

2.0 Survey Methodology

2.1 The tree/s have been assessed using the current recommendations, as detailed in British Standard 5837 : 2012 'Trees in relation to Design, Demolition & Construction – Recommendations', in order to arrive at a Retention Category for each tree. A Root Protection Area (RPA) has been assigned to each tree, based on its stem diameter, which has then been used to produce a Tree Protection Plan (attached as appendix 1). For full details of the relevant assessment criteria and retention categories see Table 1 of B.S. 5837 (attached as appendix 2).

2.2 All individually surveyed trees have been given a notional identification i.e. T1. All collected survey data and work recommendations for the tree/s is presented in section 4.0 of this report. For the location of all trees see appendix 1 (Proposed Site Plan / Tree Protection).

3.0 Site Overview

3.1 The scope of the survey relates to only one tree, which is located in the rear garden of 83, Fitzjohn's Avenue, and is immediately adjacent the application site. There are two additional trees, also on adjacent land, in the rear garden of 81, Fitzjohn's Avenue; both of these are due to be removed following a previous Conservation Area consent notice from the LPA in 2011, hence no data has been collected for these trees.

4.0 Summary of Findings & Conclusions

4.1 The subject tree T1 is a mature common ash (*Fraxinus excelsior*) which is the subject of a tree preservation order – See Fig.1. It is approximately 22 metres in height, has a broadly symmetrical crown extending approximately 7 metres from the stem in all directions and a stem diameter of 700mm (estimated) – See Fig.2. It has good vitality and no obvious structural defects. We consider this tree of moderate quality with a life expectancy of up to 40 years in its current urban setting, hence a 'B' category.

Fig.1 Subject tree T1 as seen from Ellerdale Road, looking east
Fig.2 Base of T1 looking northwest