

APPENDIX E



Chelmer Site Investigation Laboratories Ltd
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LONDON, E1W 1AW

Groundsure Reference: GS-3640792

Your Reference: 8417_7740

Report Date 16 Feb 2017

Report Delivery Method: Email - pdf

Groundsure Enviro Insight

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Yours faithfully,

A handwritten signature in black ink, appearing to be "J. O.", followed by a period.

Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Groundsure Enviro Insight

Address: 26, WEST HILL PARK, LONDON, N6 6ND
Date: 16 Feb 2017
Reference: GS-3640792
Client: Chelmer Site Investigation Laboratories Ltd

NW

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NE

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E



SW

S

SE

Aerial Photograph Capture date: 04-May-2014
Grid Reference: 527901,186844
Site Size: 0.08ha

Report Reference: GS-3640792
Client Reference: 8417_7740

Contents Page

Contents Page	3
Overview of Findings	6
Using this report	10
1. Historical Land Use	11
1. Historical Industrial Sites	12
1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping	12
1.2 Additional Information – Historical Tank Database	13
1.3 Additional Information – Historical Energy Features Database	13
1.4 Additional Information – Historical Petrol and Fuel Site Database	14
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	14
1.6 Potentially Infilled Land	14
2. Environmental Permits, Incidents and Registers Map	17
2. Environmental Permits, Incidents and Registers	18
2.1 Industrial Sites Holding Licences and/or Authorisations	18
2.1.1 Records of historic IPC Authorisations within 500m of the study site	18
2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site	18
2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site	18
2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site	18
2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site	18
2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site	19
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	19
2.1.8 Records of Licensed Discharge Consents within 500m of the study site	19
2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site	19
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	19
2.2 Dangerous or Hazardous Sites	19
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents	20
2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site	20
2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site	20
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	20
3. Landfill and Other Waste Sites Map	21
3. Landfill and Other Waste Sites	22
3.1 Landfill Sites	22
3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site	22
3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site	22
3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site	22
3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site	22
3.2 Other Waste Sites	22
3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site	22
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site	23
4. Current Land Use Map	24
4. Current Land Uses	25
4.1 Current Industrial Data	25
4.2 Petrol and Fuel Sites	25
4.3 National Grid High Voltage Underground Electricity Transmission Cables	25
4.4 National Grid High Pressure Gas Transmission Pipelines	26

5. Geology	27
5.1 Artificial Ground and Made Ground.....	27
5.2 Superficial Ground and Drift Geology	27
5.3 Bedrock and Solid Geology	27
6 Hydrogeology and Hydrology	28
6a. Aquifer Within Superficial Geology	28
6b. Aquifer Within Bedrock Geology and Abstraction Licenses	29
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses	30
6d. Hydrogeology – Source Protection Zones within confined aquifer	31
6e. Hydrology – Detailed River Network and River Quality	32
6.Hydrogeology and Hydrology	33
6.1 Aquifer within Superficial Deposits.....	33
6.2 Aquifer within Bedrock Deposits.....	33
6.3 Groundwater Abstraction Licences.....	33
6.4 Surface Water Abstraction Licences.....	33
6.5 Potable Water Abstraction Licences.....	34
6.6 Source Protection Zones.....	34
6.7 Source Protection Zones within Confined Aquifer.....	34
6.8 Groundwater Vulnerability and Soil Leaching Potential.....	34
6.9 River Quality.....	34
6.9.1 Biological Quality:.....	35
6.9.2 Chemical Quality:.....	35
6.10 Detailed River Network.....	35
6.11 Surface Water Features.....	37
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)	38
7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS)	39
Map	39
7 Flooding	40
7.1 River and Coastal Zone 2 Flooding.....	40
7.2 River and Coastal Zone 3 Flooding.....	40
7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating.....	40
7.4 Flood Defences.....	40
7.5 Areas benefiting from Flood Defences.....	40
7.6 Areas benefiting from Flood Storage.....	41
7.7 Groundwater Flooding Susceptibility Areas.....	41
7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? Yes.....	41
7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?.....	41
7.8 Groundwater Flooding Confidence Areas.....	41
8. Designated Environmentally Sensitive Sites Map	42
8. Designated Environmentally Sensitive Sites	43
8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:.....	43
8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:.....	43
8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:.....	43
8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:.....	43
8.5 Records of Ramsar sites within 2000m of the study site:.....	44
8.6 Records of Ancient Woodland within 2000m of the study site:	44
8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:.....	44
8.8 Records of World Heritage Sites within 2000m of the study site:.....	44
8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:	45

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:	45
8.11 Records of National Parks (NP) within 2000m of the study site:	45
8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:.....	45
8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:.....	45
8.14 Records of Green Belt land within 2000m of the study site:.....	45
9. Natural Hazards Findings	46
9.1 Detailed BGS GeoSure Data.....	46
9.1.1 Shrink Swell.....	46
9.1.2 Landslides.....	46
9.1.3 Soluble Rocks.....	46
9.1.4 Compressible Ground.....	47
9.1.5 Collapsible Rocks.....	47
9.1.6 Running Sand.....	47
9.2 Radon.....	47
9.2.1 Radon Affected Areas.....	47
9.2.2 Radon Protection.....	48
10. Mining	49
10.1 Coal Mining.....	49
10.2 Non-Coal Mining.....	49
10.3 Brine Affected Areas	49
Contact Details	50
Standard Terms and Conditions	52

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: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	0	8	21
1.2 Additional Information – Historical Tank Database	0	1	8	5
1.3 Additional Information – Historical Energy Features Database	0	3	2	5
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Potentially Infilled Land	0	0	25	42

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	0
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	1	1
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	0	0
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	0	0

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	1	2	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
5.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	None
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology				0-500m		
6.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?				No		
6.2 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
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	0	1	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

0-500m

	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Is there any Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site?	No	No	No	No	No	No
6.10 Detailed River Network entries within 500m of the site	0	0	10	17	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	No					
7.2 Are there any Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	No					
7.3 What is the Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site?	Very Low					
7.4 Are there any Flood Defences within 250m of the study site?	No					
7.5 Are there any areas benefiting from Flood Defences within 250m of the study site?	No					
7.6 Are there any areas used for Flood Storage within 250m of the study site?	No					
7.7 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Limited potential					
7.8 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	Low					

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	1	2	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	1	0	4
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	3
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	0	0	0	0	0	0
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards	
9.1 What is the maximum risk of natural ground subsidence?	Moderate
9.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Moderate
9.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
9.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Negligible
9.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Negligible
9.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Very Low
9.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Very Low
9.2 Radon	
9.2.1 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.
9.2.2 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.

Section 10: Mining	
10.1 Are there any coal mining areas within 75m of the study site?	No
10.2 Are there any Non-Coal Mining areas within 50m of the study site boundary?	No
10.3 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. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. 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.

3. 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.

4. Current Land Uses

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

5. Geology

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

6. 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.

7. Flooding

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

8. 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.

9. 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 and radon..

10. Mining

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

11. 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.

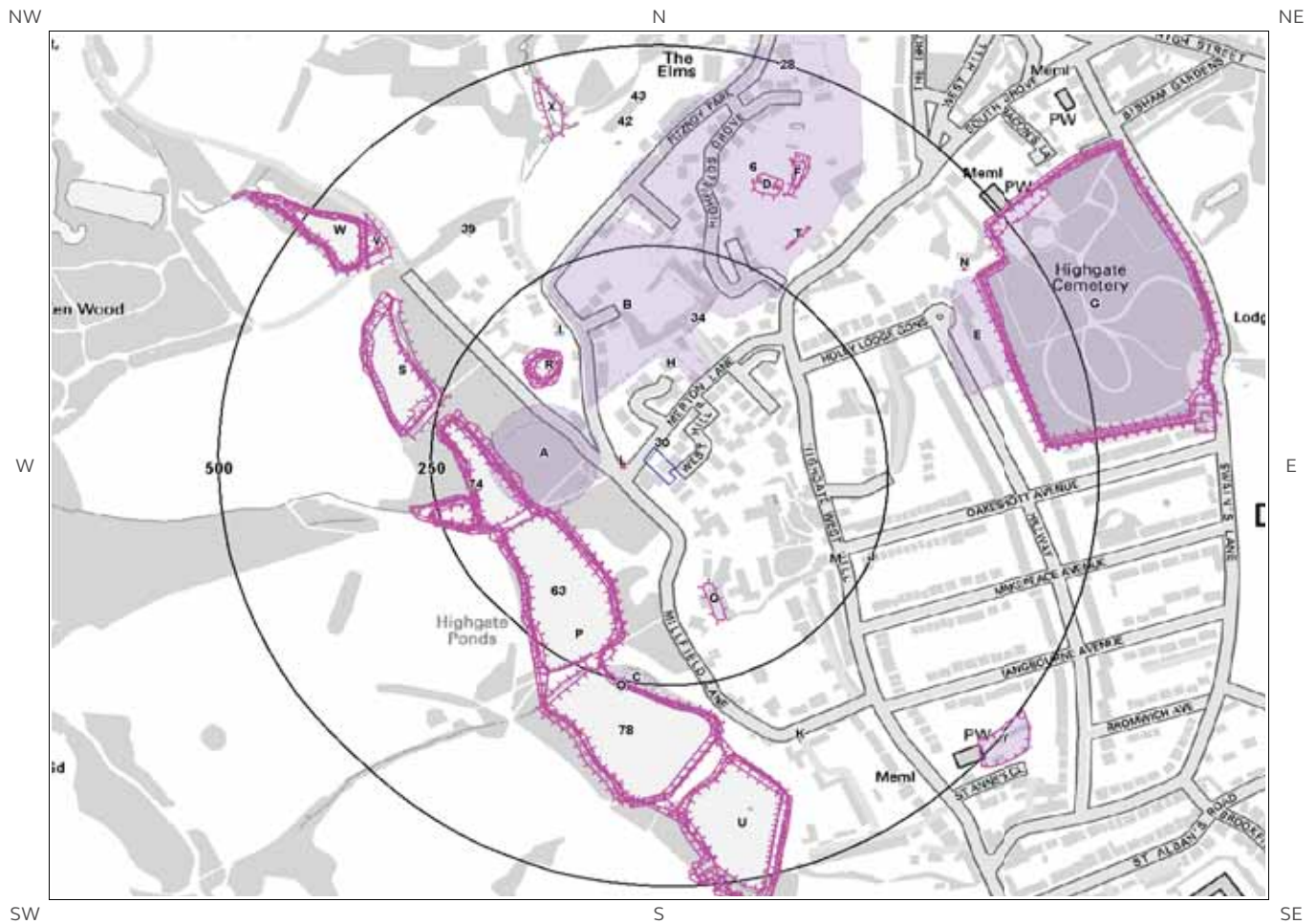
Note: Maps

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).

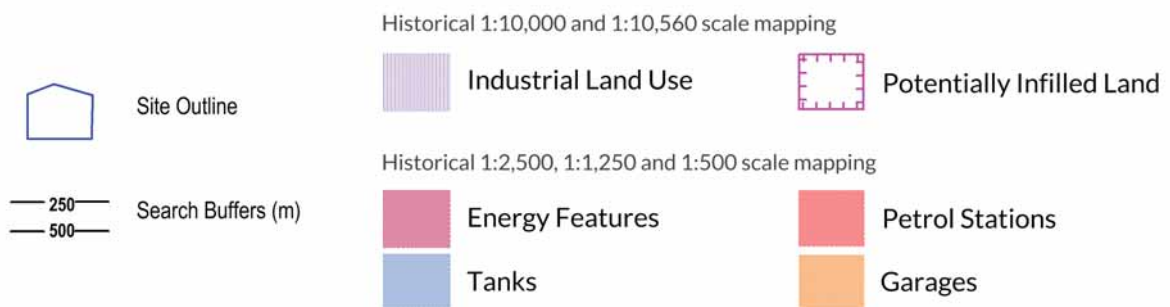
Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

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. Historical Land Use



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1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 29

ID	Distance [m]	Direction	Use	Date
1A	51	W	Rifle Range	1938
2A	66	W	Miniature Rifle Range	1920
3B	86	NW	Nurseries	1920
4B	88	NW	Nurseries	1938
5Q	130	S	Unspecified Heap	1869
6	180	NE	Nursery	1974
7C	233	S	Bathing Shed	1894
8J	247	SE	Unspecified Tank	1894
9C	252	S	Boat House	1938
10O	258	S	Boat House	1920
11D	340	N	Unspecified Ground Workings	1920
12D	349	N	Unspecified Ground Workings	1938
13E	350	E	Nursery	1894
14F	352	NE	Unspecified Ground Workings	1920
15E	353	E	Nursery	1879
16E	353	E	Nursery	1869
17F	361	NE	Unspecified Heap	1938
18G	417	E	Cemetery	1920
19G	419	E	Cemetery	1996
20G	419	E	Cemetery	1974
21G	419	E	Cemetery	1958
22G	419	E	Cemetery	1965
23G	419	E	Cemetery	1949
24G	422	E	Cemetery	1894
25G	423	E	Cemetery	1938
26G	426	E	Cemetery	1869
27G	426	E	Cemetery	1879
28	444	N	Nursery	1958
29Y	480	SE	Unspecified Ground Workings	1949

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary:

14

ID	Distance (m)	Direction	Use	Date
30	5	NE	Unspecified Tank	1870
31H	99	N	Unspecified Tank	1991
32H	99	N	Unspecified Tank	1977
33H	99	N	Unspecified Tank	1962
34	162	N	Unspecified Tank	1870
35I	174	NW	Unspecified Tank	1950
36I	175	NW	Unspecified Tank	1950
37J	245	E	Unspecified Tank	1915
38J	245	SE	Unspecified Tank	1896
39	339	NW	Unspecified Tank	1950
40K	349	SE	Unspecified Tank	1915
41K	353	SE	Unspecified Tank	1896
42	399	N	Unspecified Tank	1896
43	427	N	Unspecified Tank	1896

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary:

10

ID	Distance (m)	Direction	Use	Date
44L	22	SW	Electricity Substation	1977
45L	22	W	Electricity Substation	1991
46L	22	W	Electricity Substation	1996
47M	211	SE	Electricity Substation	1977
48M	211	SE	Electricity Substation	1991
49N	418	NE	Electricity Substation	1968
50N	418	NE	Electricity Substation	1951
51N	418	NE	Electricity Substation	1991
52N	418	NE	Electricity Substation	1951
53N	418	NE	Electricity Substation	1967

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 0

Database searched and no data found.

1.6 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 67

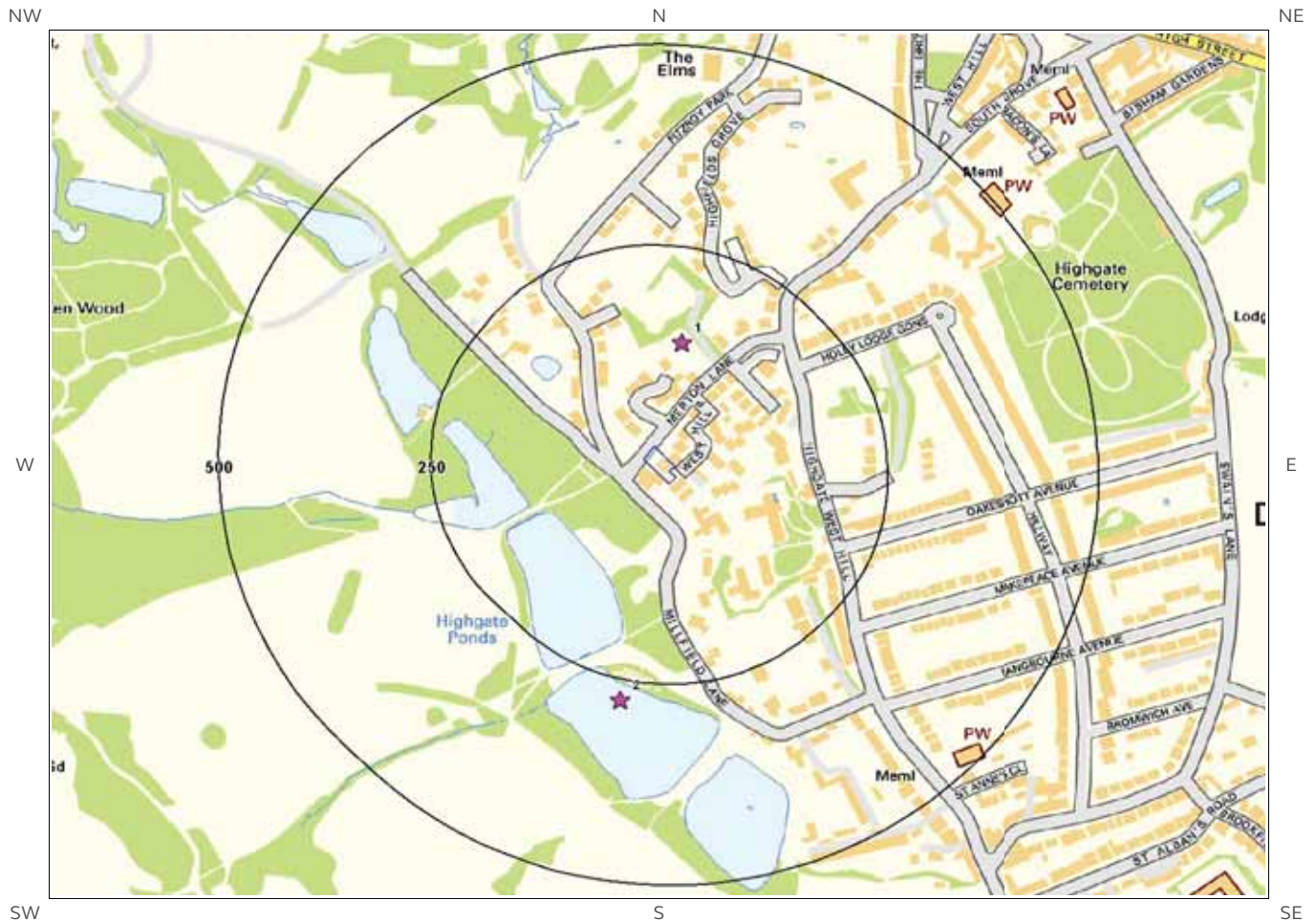
The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
54C	118	SW	Ponds	1938
55O	122	SW	Ponds	1949
56O	122	SW	Ponds	1974
57O	122	SW	Ponds	1965
58O	122	SW	Ponds	1996
59O	122	SW	Ponds	1958
60P	125	SW	Ponds	1894
61P	128	SW	Ponds	1869
62P	128	SW	Ponds	1879
63	129	SW	Ponds	1920
64Q	130	S	Unspecified Heap	1869
65R	141	NW	Pond	1869
66R	141	NW	Pond	1879
67R	147	NW	Pond	1938
68R	148	NW	Pond	1894
69R	148	NW	Pond	1965
70R	148	NW	Pond	1974
71R	148	NW	Pond	1996
72R	148	NW	Pond	1958
73R	148	NW	Pond	1920

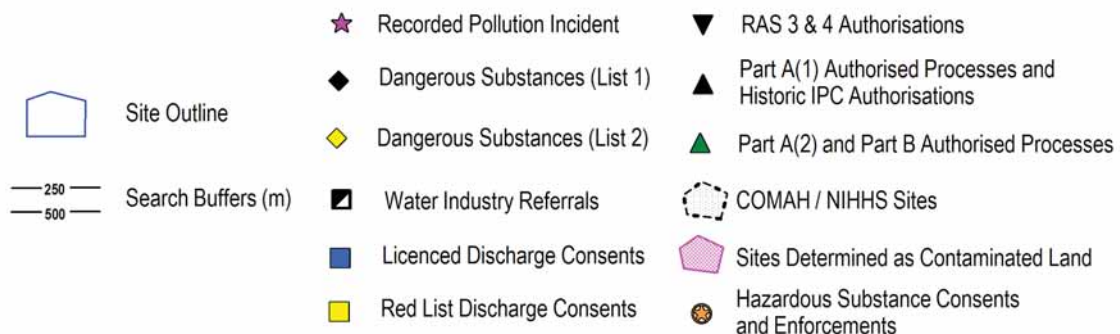
74	152	SW	Ponds	1920
75R	155	NW	Pond	1949
76S	245	W	Ponds	1869
77S	245	W	Ponds	1879
78	245	S	Ponds	1920
79S	255	W	Pond	1894
80S	256	W	Pond	1920
81S	260	W	Pond	1996
82S	260	W	Pond	1974
83S	260	W	Pond	1965
84S	260	W	Pond	1958
85S	260	W	Pond	1949
86T	291	NE	Pond	1869
87T	291	NE	Pond	1879
88D	340	N	Unspecified Ground Workings	1920
89U	344	S	Ponds	1869
90U	344	S	Ponds	1879
91U	347	S	Ponds	1920
92D	349	N	Unspecified Ground Workings	1938
93U	351	S	Pond	1894
94F	352	NE	Unspecified Ground Workings	1920
95F	361	NE	Unspecified Heap	1938
96V	392	NW	Ponds	1869
97V	392	NW	Ponds	1879
98W	404	NW	Pond	1965
99W	404	NW	Pond	1996
100W	404	NW	Pond	1974
101W	404	NW	Pond	1958
102X	405	N	Ponds	1974
103X	405	N	Ponds	1996
104V	405	NW	Pond	1894
105W	406	NW	Water Body	1873
106W	408	NW	Pond	1949
107W	410	NW	Pond	1938
108W	413	NW	Pond	1911
109W	413	NW	Pond	1894
110G	417	E	Cemetery	1920
111G	419	E	Cemetery	1996
112G	419	E	Cemetery	1974
113G	419	E	Cemetery	1965
114G	419	E	Cemetery	1958
115G	419	E	Cemetery	1949
116G	422	E	Cemetery	1894
117G	423	E	Cemetery	1938

118G	426	E	Cemetery	1879
119G	426	E	Cemetery	1869
120Y	480	SE	Unspecified Ground Workings	1949

2. Environmental Permits, Incidents and Registers Map



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2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.3 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.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.9 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.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

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

0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

2

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

ID	Distance (m)	Direction	NGR	Details
1	133	N	527924 186998	Incident Date: 10-Sep-2002 Incident Identification: 106832 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
2	275	S	527851 186553	Incident Date: 22-Jul-2004 Incident Identification: 252851 Pollutant: General Biodegradable Materials and Wastes Pollutant Description: Algae Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

0

Database searched and no data found.

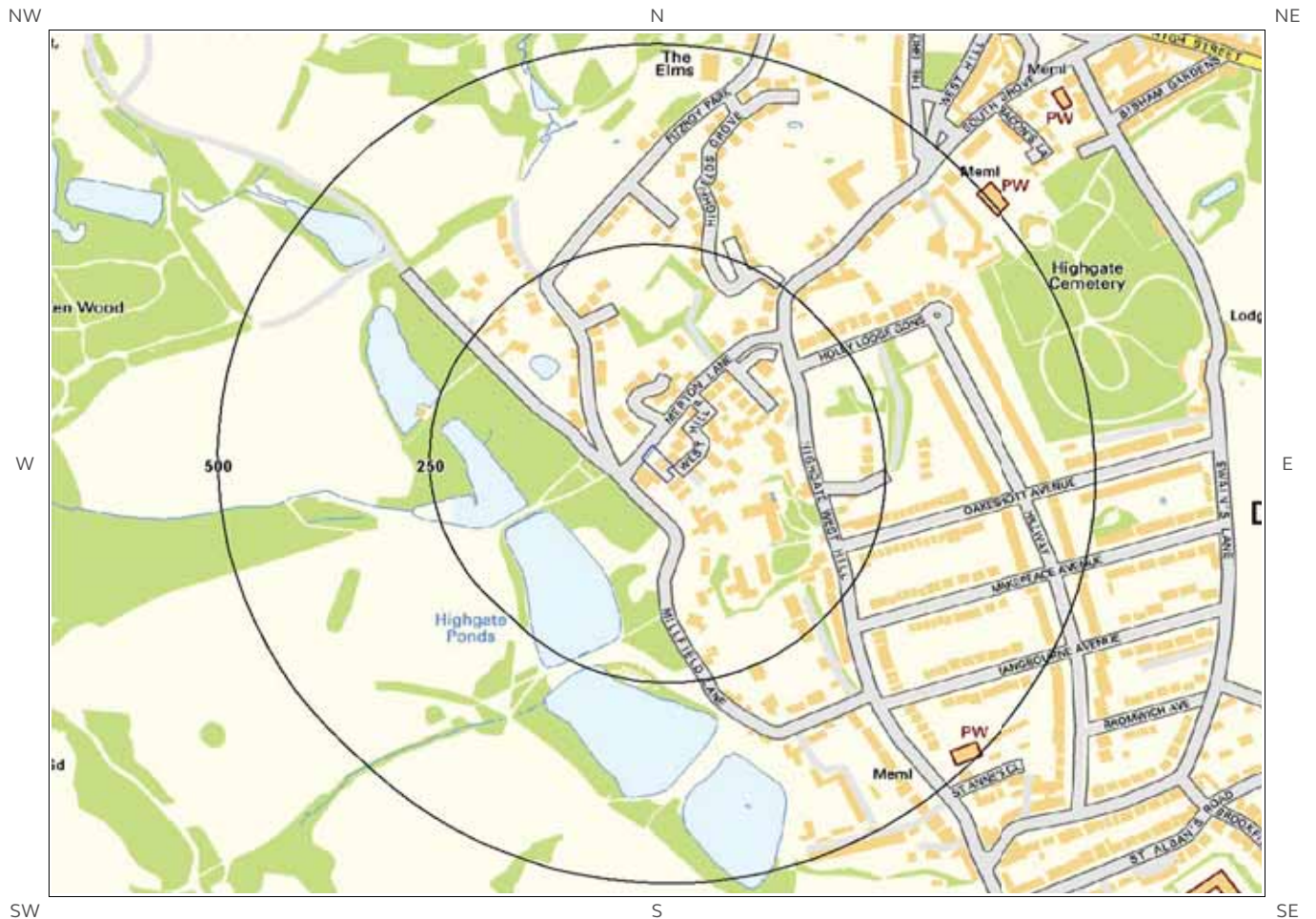
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

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?

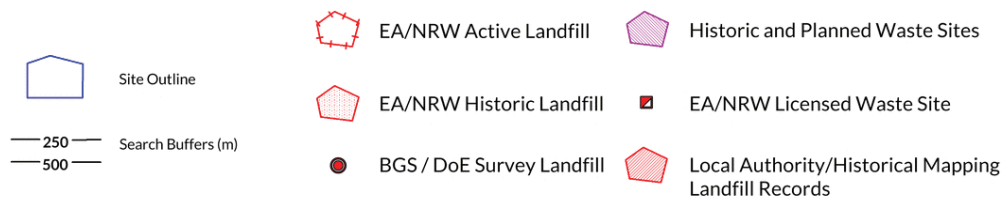
0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



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3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

3.2 Other Waste Sites

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

0

Database searched and no data found.

3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

0

Database searched and no data found.

4. Current Land Use Map



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4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 3

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	33	W	Electricity Sub Station	527846 186853	Electricity Sub Station, N6	Electrical Features	Infrastructure and Facilities
2	67	SE	The Russian Defence Office	527955 186773	The Russian Defence Office, 44, Millfield Lane, London, N6 6JB	Armed Services	Central and Local Government
3	208	SE	Electricity Sub Station	528094 186719	Electricity Sub Station, N6	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

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

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

Database searched and no data found.

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

5.3 Bedrock and Solid Geology

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

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

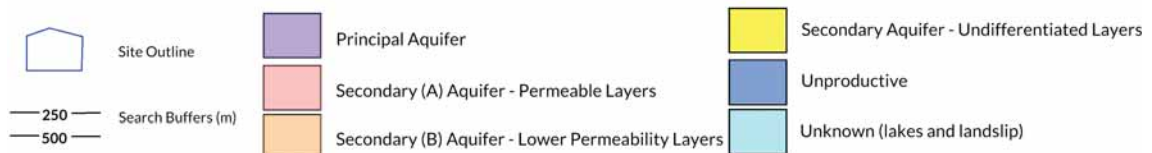
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

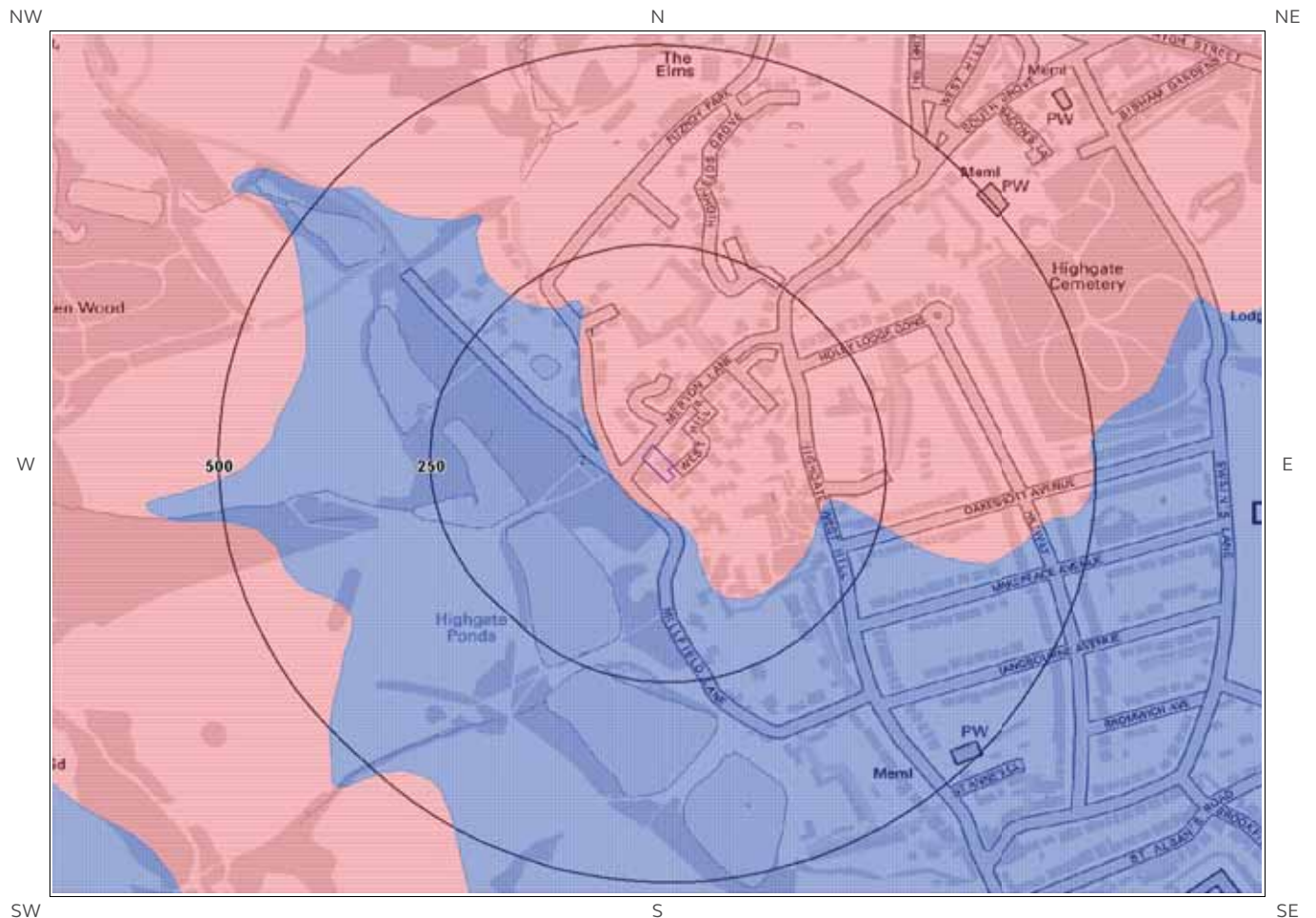
6a. Aquifer Within Superficial Geology



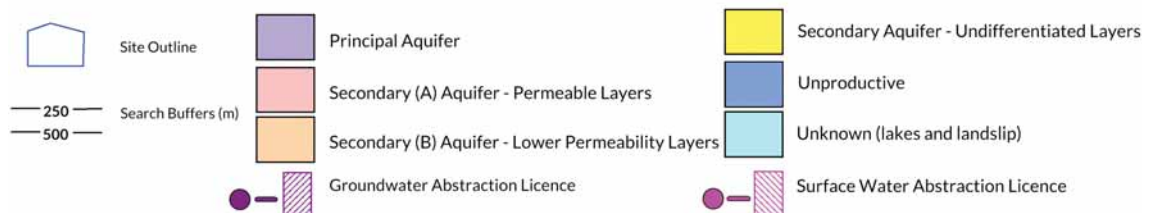
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6b. Aquifer Within Bedrock Geology and Abstraction Licenses



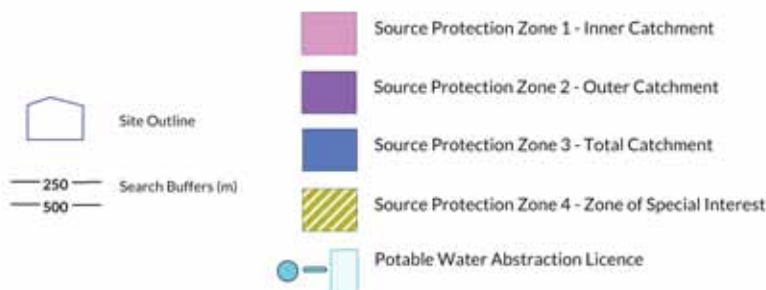
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6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



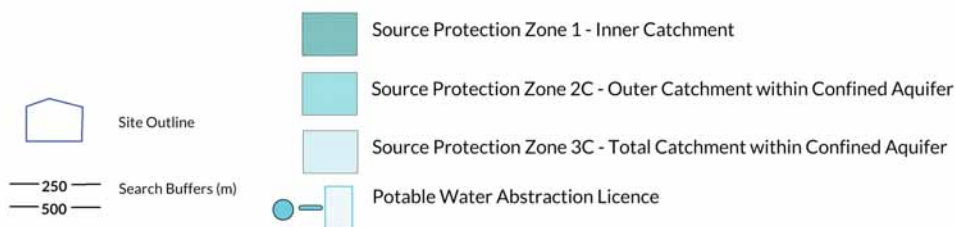
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6d. Hydrogeology – Source Protection Zones within confined aquifer



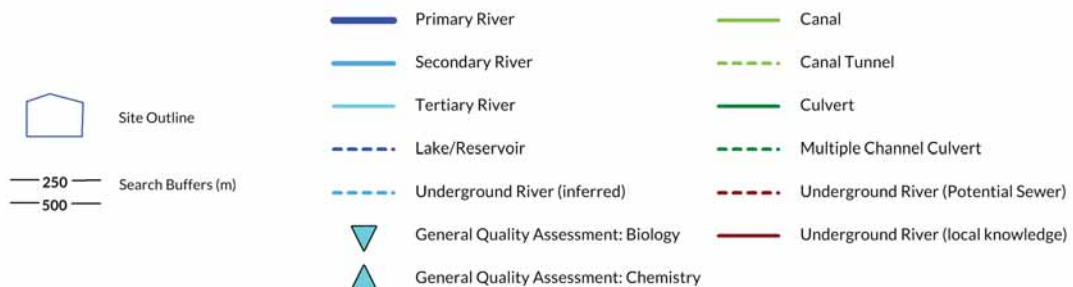
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6e. Hydrology – Detailed River Network and River Quality



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6. Hydrogeology and Hydrology

6.1 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/Natural Resources Wales'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 Enviro Insight User Guide.

6.2 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/Natural Resources Wales'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 Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	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	41	SW	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

6.3 Groundwater Abstraction Licences

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

Database searched and no data found.

6.4 Surface Water Abstraction Licences

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

Database searched and no data found.

6.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site?

No

Database searched and no data found.

6.6 Source Protection Zones

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

No

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

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

No

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

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

Yes

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
415	NW	Minor Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.

6.9 River Quality

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

No

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Detailed River Network

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

The following Detailed River Network records are represented on the Hydrology Map (6e):

ID	Distance (m)	Direction	Details
1A	162	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined
2	162	SW	River Name: Highgate Ponds No 3 Pond Model Yacht Pond Welsh River Name: - Alternative Name: - River Type: Lake/Reservoir Main River Status: Currently Undefined
3A	164	SW	River Name: Highgate Ponds No 4 Pond Welsh River Name: - Alternative Name: - River Type: Lake/Reservoir Main River Status: Currently Undefined
4	167	W	River Name: Highgate Ponds No 4 Pond Welsh River Name: - Alternative Name: - River Type: Lake/Reservoir Main River Status: Currently Undefined
5	167	W	River Name: Highgate Ponds No 4 Pond Welsh River Name: - Alternative Name: - River Type: Lake/Reservoir Main River Status: Currently Undefined
6	179	W	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
7	180	W	River Name: - Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined
8	186	W	River Name: Highgate Ponds No 4 Pond Welsh River Name: - Alternative Name: - River Type: Lake/Reservoir Main River Status: Currently Undefined
9	199	W	River Name: Highgate Ponds No 4 Pond Welsh River Name: - Alternative Name: - River Type: Lake/Reservoir Main River Status: Currently Undefined
10	231	W	River Name: - Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined
11	251	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined

ID	Distance (m)	Direction	Details	
12	253	W	River Name: Highgate Ponds No 5 Pond Kenwood Bathing Pond Welsh River Name: - Alternative Name: -	River Type: Lake/Reservoir Main River Status: Currently Undefined
13	264	SW	River Name: Highgate Ponds No 2 Pond Highgate Bathing Pond Welsh River Name: - Alternative Name: -	River Type: Lake/Reservoir Main River Status: Currently Undefined
14	277	W	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
15	277	W	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
16	278	S	River Name: Highgate Ponds No 2 Pond Highgate Bathing Pond Welsh River Name: - Alternative Name: -	River Type: Lake/Reservoir Main River Status: Currently Undefined
17	278	S	River Name: Highgate Ponds No 2 Pond Highgate Bathing Pond Welsh River Name: - Alternative Name: -	River Type: Lake/Reservoir Main River Status: Currently Undefined
18	309	SW	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
19	336	W	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
20	346	S	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
21	362	NW	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
22	363	NW	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
23	364	S	River Name: Highgate Ponds No 1 Pond Welsh River Name: - Alternative Name: -	River Type: Lake/Reservoir Main River Status: Currently Undefined
24	404	N	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
25	415	NW	River Name: - Welsh River Name: - Alternative Name: -	River Type: Lake/Reservoir Main River Status: Currently Undefined
26	416	SW	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
27	416	SW	River Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined

6.11 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 (m)	Direction
122	SW
134	SW
145	W
180	W
231	SW
240	S

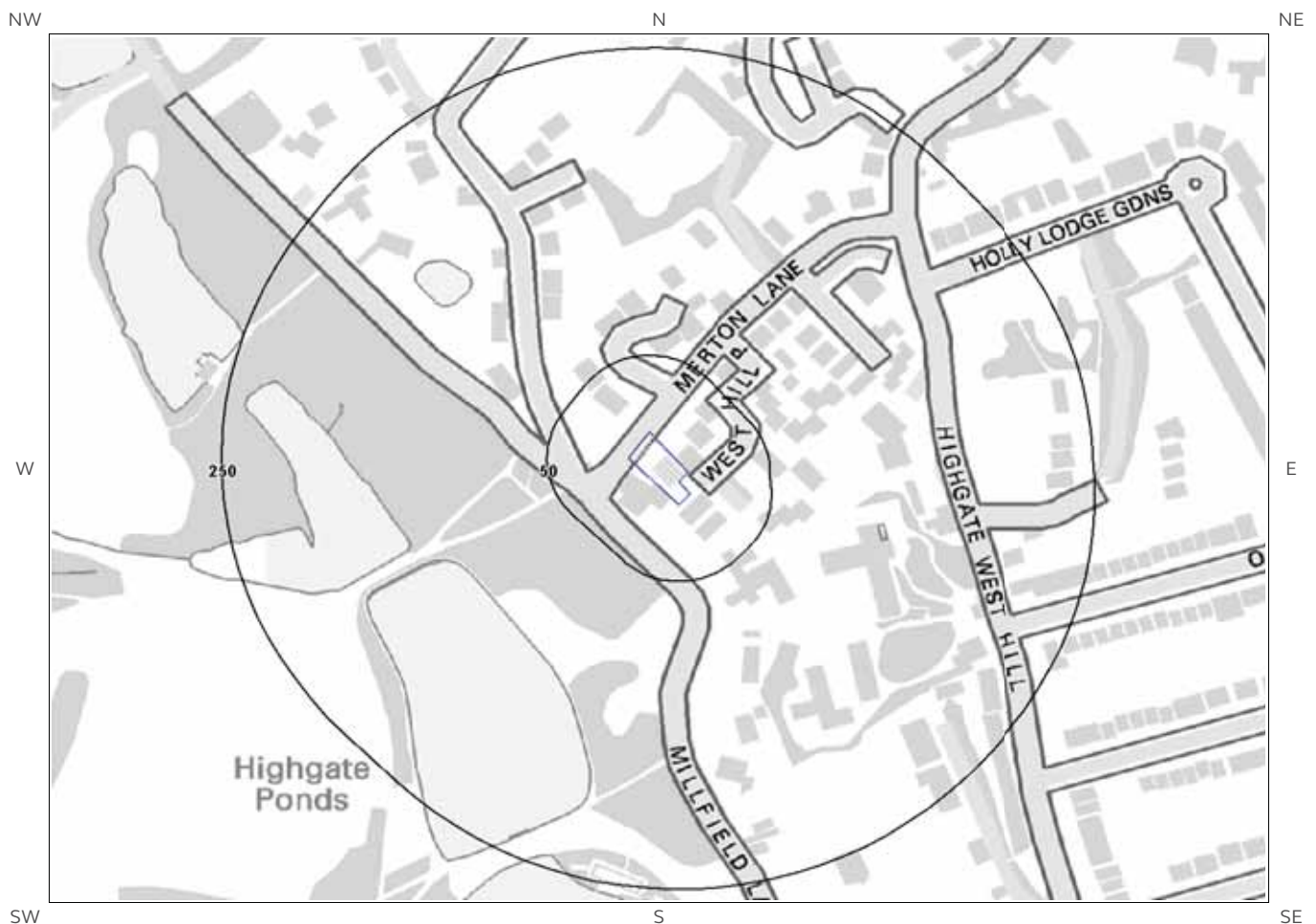
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



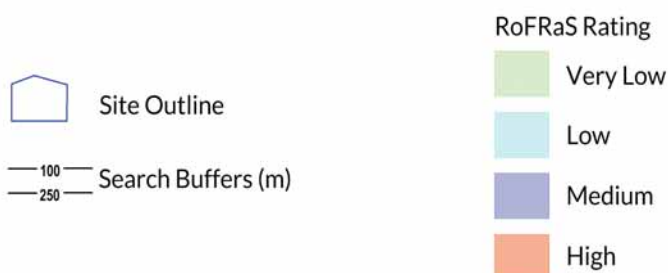
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7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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7 Flooding

7.1 River and Coastal Zone 2 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 2 floodplain? No

Environment Agency/Natural Resources Wales 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 7a – Flood Map for Planning:

Database searched and no data found.

7.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency/Natural Resources Wales Zone 3 floodplain? No

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 7a – Flood Map for Planning.

Database searched and no data found.

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

What is the highest risk of flooding onsite? Very Low

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

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

7.4 Flood Defences

Are there any Flood Defences within 250m of the study site? No
Database searched and no data found.

7.5 Areas benefiting from Flood Defences

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

7.6 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site?

No

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 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).

7.7.2 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.

7.8 Groundwater Flooding Confidence Areas

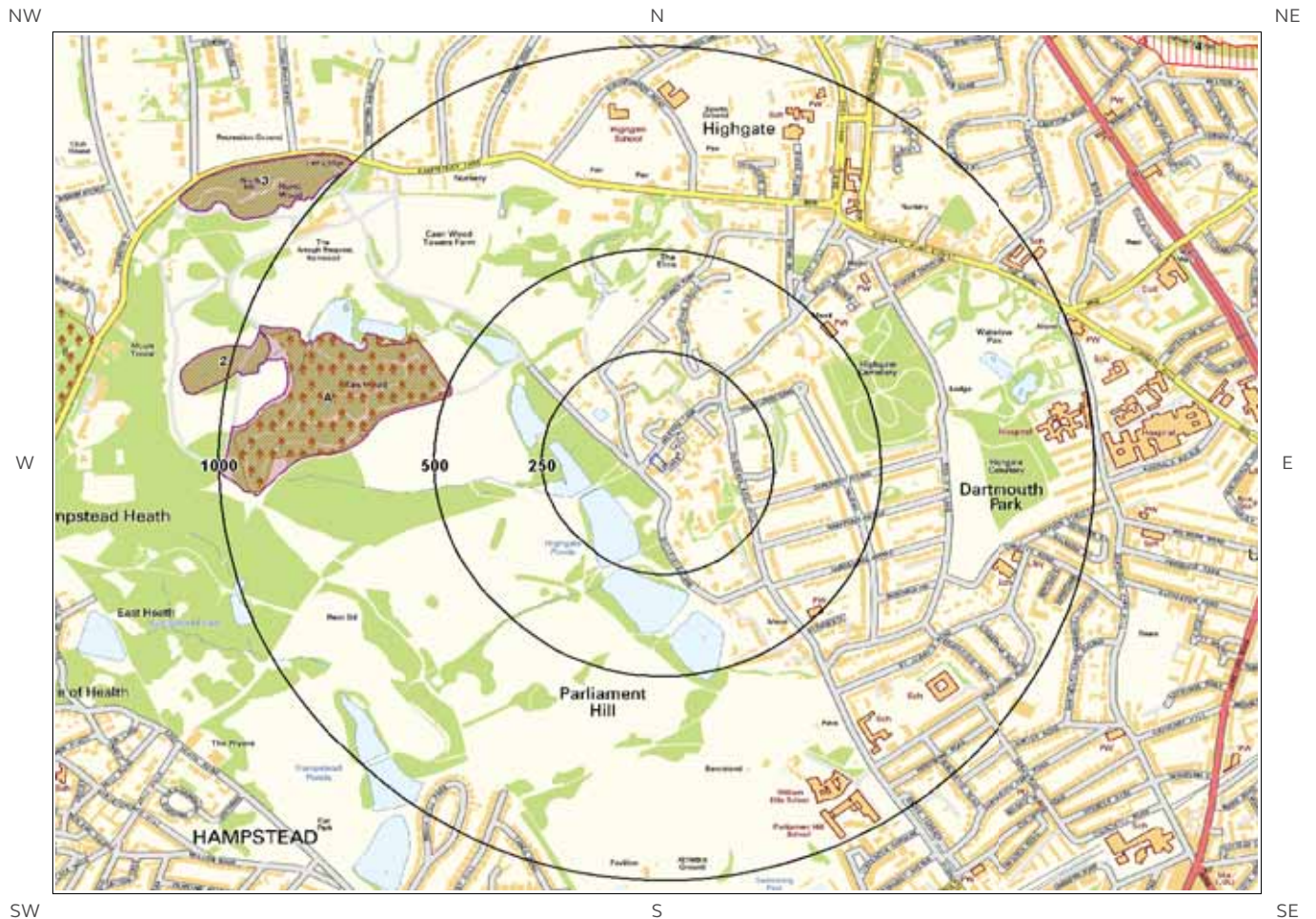
What is the British Geological Survey confidence rating in this result?

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.

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

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

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

3

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

ID	Distance (m)	Direction	SSSI Name	Data Source
1A	488	W	Hampstead Heath Woods	Natural England
2	922	W	Hampstead Heath Woods	Natural England
3	998	NW	Hampstead Heath Woods	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

5

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
7A	489	W	UNKNOWN	Ancient and Semi-Natural Woodland
8	1324	W	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1487	N	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1585	NW	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1640	NE	UNKNOWN	Ancient and Semi-Natural Woodland

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

3

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

ID	Distance (m)	Direction	LNR Name	Data Source
4	1438	NE	Parkland Walk	Natural England
Not shown	1568	S	Belsize Wood	Natural England
Not shown	1640	NE	Queen's Wood	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 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 Geo Insight**, available from our **website**. The following information has been found:

9.1.1 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.

9.1.2 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.

9.1.3 Soluble Rocks

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

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

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

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

9.1.4 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.

9.1.5 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.

9.1.6 Running 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.

9.2 Radon

9.2.1 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.

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

9.2.2 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.

10. Mining

10.1 Coal Mining

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

Database searched and no data found.

10.2 Non-Coal Mining

Are there any Non-Coal Mining areas within 50m of the study site boundary? No

Database searched and no data found.

10.3 Brine Affected Areas

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

Guidance: No Guidance Required.

Contact Details

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info@groundsure.com

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Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
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Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

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133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe
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Notts NG18 4RG
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DX 716176 Mansfield 5
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Ordnance Survey
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SO16 0AS
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Local Authority
Authority: London Borough of Camden
Phone: 020 7974 4444
Web: <http://www.camden.gov.uk/>
Address: Camden Town Hall, Judd Street, London, WC1H 9JE

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<https://www.groundsure.com/terms-and-conditions-sept-2016>



Chelmer Site Investigation Laboratories Ltd
TOWER BRIDGE BUSINESS CENTRE, 46-48,
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LONDON, E1W 1AW

Groundsure Reference: GS-3640793

Your Reference: 8417_7740

Report Date 16 Feb 2017

Report Delivery Method: Email - pdf

Groundsure Geo Insight

Address: 26, WEST HILL PARK, LONDON, N6 6ND

Dear Sir/ Madam,

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

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

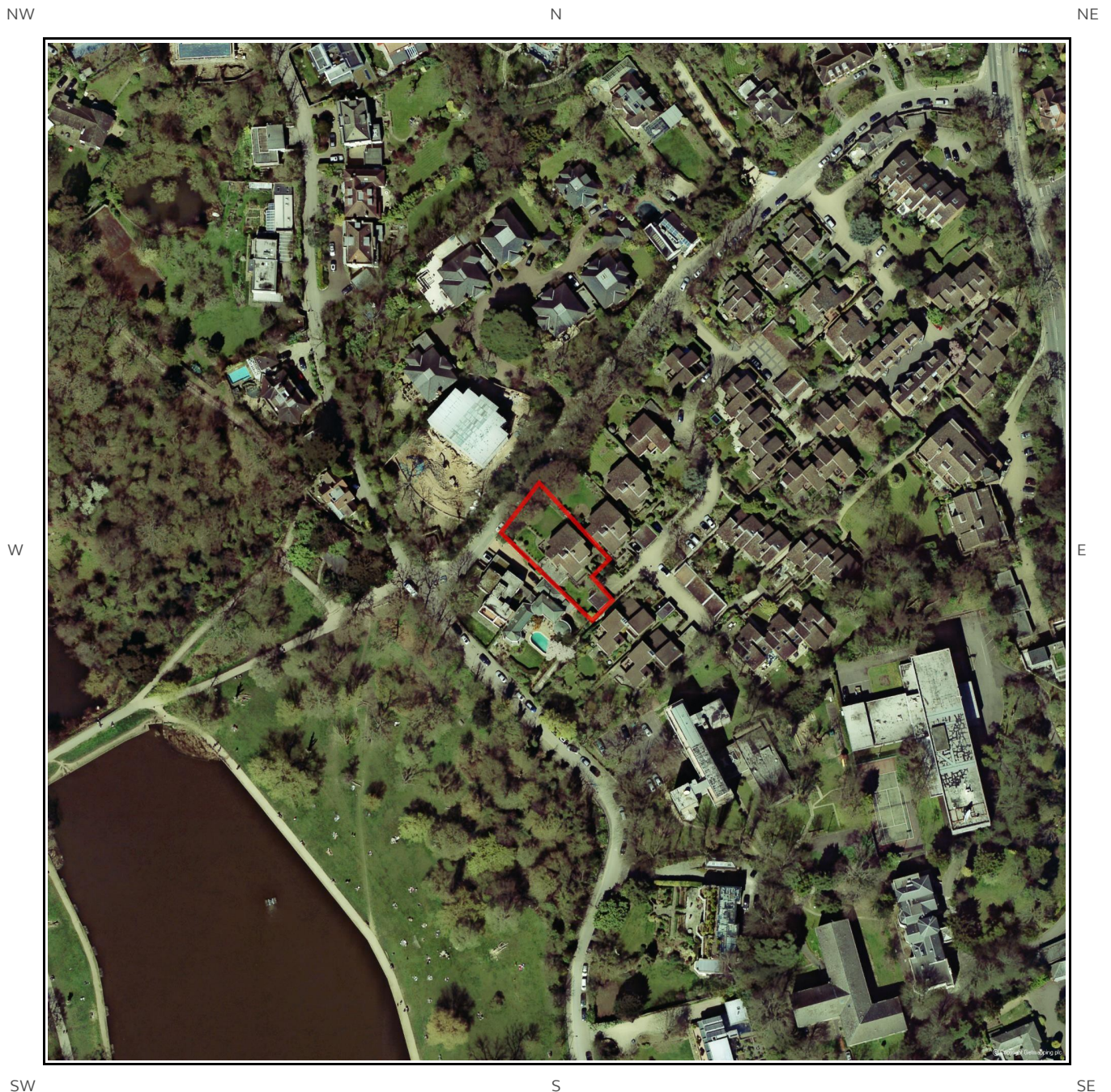
Yours faithfully,

Managing Director
Groundsure Limited

Enc.
Groundsure Geoinsight

Groundsure Geo Insight

Address: 26, WEST HILL PARK, LONDON, N6 6ND
Date: 16 Feb 2017
Reference: GS-3640793
Client: Chelmer Site Investigation Laboratories Ltd



Aerial Photograph Capture date: 04-May-2014
Grid Reference: 527901,186844
Site Size: 0.08ha

Contents Page

Overview of Findings.....	5
1 Geology.....	8
1.1 Artificial Ground Map.....	8
1 Geology.....	9
1.1 Artificial Ground.....	9
1.1.1 Artificial/ Made Ground.....	9
1.1.2 Permeability of Artificial Ground.....	9
1.2 Superficial Deposits and Landslips Map.....	10
1.2 Superficial Deposits and Landslips.....	11
1.2.1 Superficial Deposits/ Drift Geology.....	11
1.2.2 Permeability of Superficial Ground.....	11
1.2.3 Landslip.....	11
1.2.4 Landslip Permeability.....	11
1.3 Bedrock and Faults Map.....	12
1.3 Bedrock, Solid Geology & Faults.....	13
1.3.1 Bedrock/ Solid Geology.....	13
1.3.2 Permeability of Bedrock Ground.....	13
1.3.3 Faults.....	13
1.4 Radon Data.....	14
1.4.1 Radon Affected Areas.....	14
1.4.2 Radon Protection.....	14
2 Ground Workings Map.....	15
2 Ground Workings.....	16
2.1 Historical Surface Ground Working Features derived from Historical Mapping.....	16
2.2 Historical Underground Working Features derived from Historical Mapping.....	17
2.3 Current Ground Workings.....	17
3 Mining, Extraction & Natural Cavities Map.....	18
3 Mining, Extraction & Natural Cavities.....	19
3.1 Historical Mining.....	19
3.2 Coal Mining.....	19
3.3 Johnson Poole and Bloomer.....	19
3.4 Non-Coal Mining.....	19
3.5 Non-Coal Mining Cavities.....	20
3.6 Natural Cavities.....	20
3.7 Brine Extraction.....	20
3.8 Gypsum Extraction.....	20
3.9 Tin Mining.....	20
3.10 Clay Mining.....	21
4 Natural Ground Subsidence.....	22
4.1 Shrink-Swell Clay Map.....	22
4.2 Landslides Map.....	23
4.3 Ground Dissolution Soluble Rocks Map.....	24
4.4 Compressible Deposits Map.....	25
4.5 Collapsible Deposits Map.....	26
4.6 Running Sand Map.....	27
4 Natural Ground Subsidence.....	28
4.1 Shrink-Swell Clays.....	28
4.2 Landslides.....	28
4.3 Ground Dissolution of Soluble Rocks.....	28

4.4 Compressible Deposits.....	29
4.5 Collapsible Deposits.....	29
4.6 Running Sands.....	29
5 Borehole Records Map.....	30
5 Borehole Records.....	31
6 Estimated Background Soil Chemistry.....	32
7 Railways and Tunnels Map.....	33
7 Railways and Tunnels.....	34
7.1 Tunnels	34
7.2 Historical Railway and Tunnel Features	34
7.3 Historical Railways.....	35
7.4 Active Railways.....	35
7.5 Railway Projects.....	35

Overview of Findings

The Groundsure Geo Insight 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.

Section 1:Geology

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 and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?	No
	1.2.2 Are there any records relating to permeability of superficial geology within the study site boundary?	No
	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
1.4 Radon data	1.4.1 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
	1.4.2 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

Section 2:Ground Workings	On-site	0-50m	51-250	251-500	501-1000
2.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	28	Not Searched	Not Searched
2.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
2.3 Current Ground Workings	0	0	0	0	0

Section 3: Mining, Extraction & Natural Cavities	On-site	0-50m	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	0	0	0	0
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

Section 4: Natural Ground Subsidence	On-site
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

Section 5: Borehole Records	On-site	0-50m	51-250
5 BGS Recorded Boreholes	0	1	0

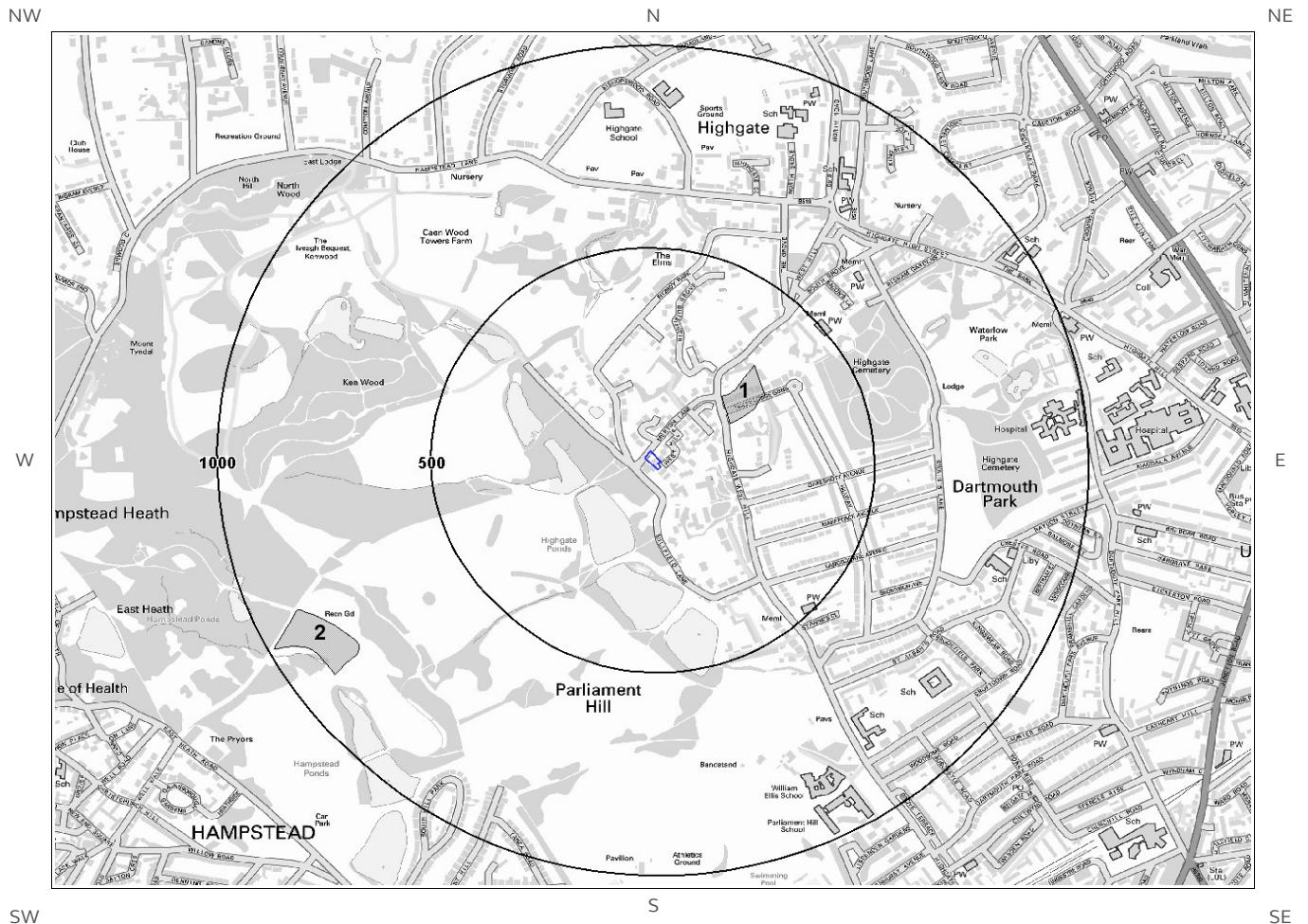
Section 6: Estimated Background Soil Chemistry	On-site	0-50m	51-250
6 Records of Background Soil Chemistry	1	1	6

Section 7: Railways and Tunnels	On-site	0-50m	51-250	251-500
7.1 Tunnels	0	0	0	Not Searched
7.2 Historical Railway and Tunnel Features	0	0	0	Not Searched
7.3 Historical Railways	0	0	0	Not Searched
7.4 Active Railways	0	0	0	Not Searched

Section 7:Railways and Tunnels	On-site	0-50m	51-250	251-500
7.5 Railway Projects	0	0	0	0

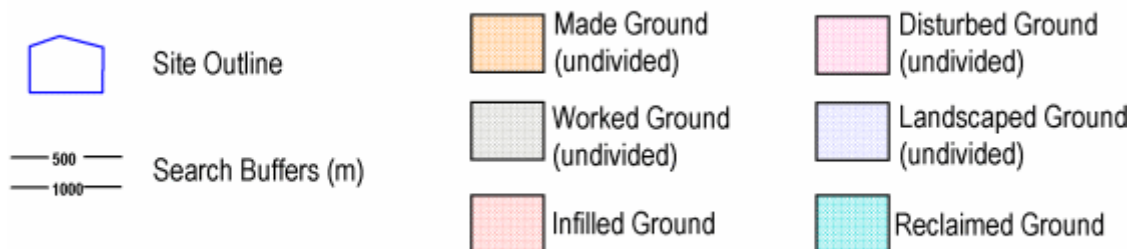
1 Geology

1.1 Artificial Ground Map



Artificial Ground Legend

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1 Geology

1.1 Artificial Ground

1.1.1 Artificial/ Made Ground

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

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	187.0	NE	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

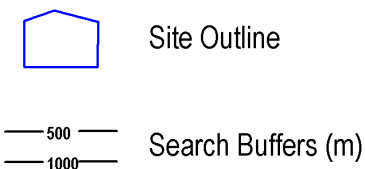
Database searched and no data found.

1.2 Superficial Deposits and Landslips Map



Superficial Deposits and Landslips Legend

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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? No

Database searched and no data found.

1.2.2 Permeability of Superficial Ground

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

Database searched and no data found.

1.2.3 Landslip

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

Database searched and no data found.

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.

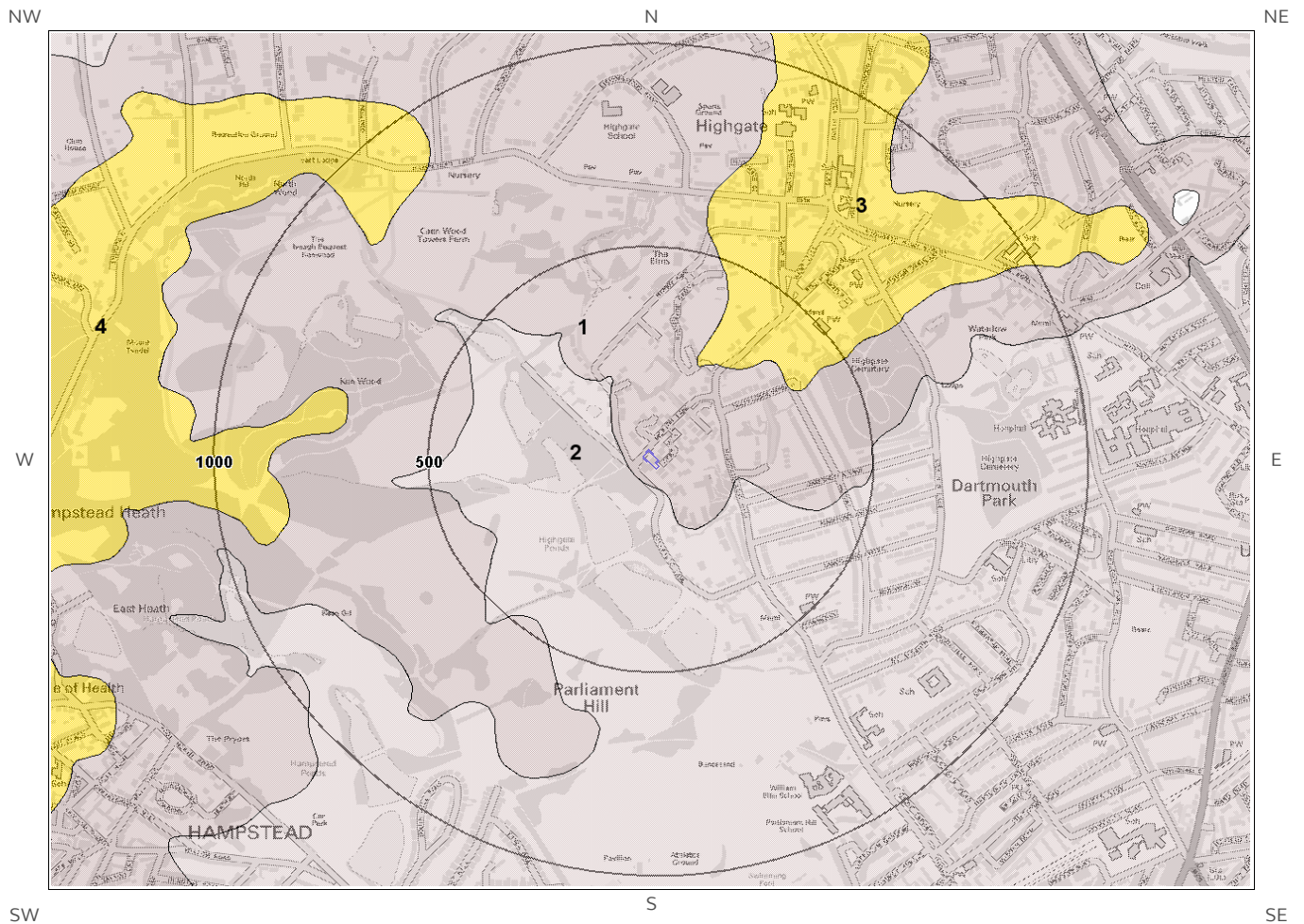
1.2.4 Landslip Permeability

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

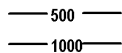


Bedrock and Faults Legend

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Site Outline



Search Buffers (m)

1.3 Bedrock, 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	Description	Rock Age
1	0.0	On Site	CLGB-CLSISA	Claygate Member - Clay, Silt And Sand	No Details
2	41.0	SW	LC-CLSISA	London Clay Formation - Clay, Silt And Sand	No Details
3	238.0	NE	BGS-SANDU	Bagshot Formation - Sand	No Details

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	High	Very Low
41.0	SW	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.

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

1.4 Radon Data

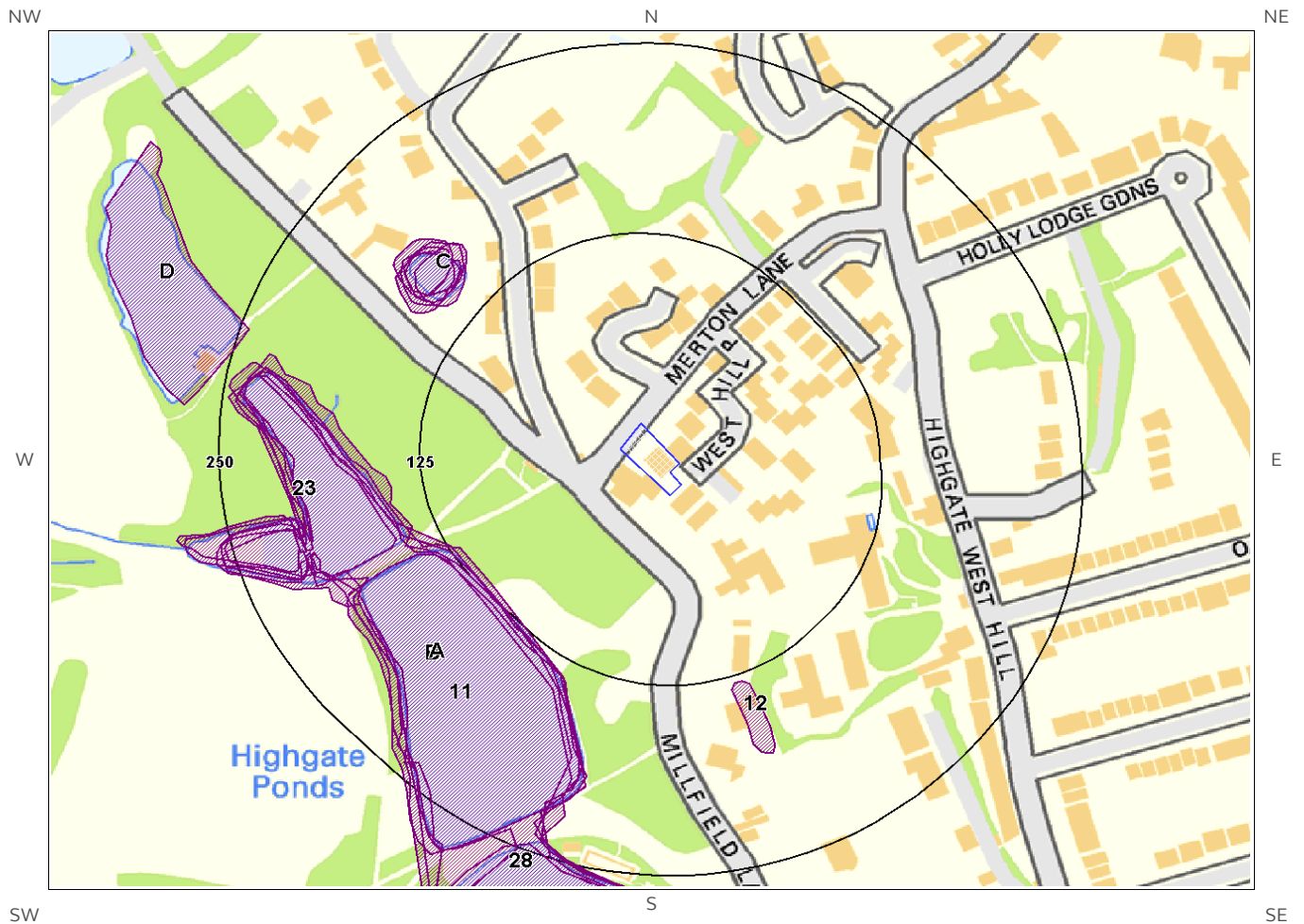
1.4.1 Radon Affected Areas

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

1.4.2 Radon Protection

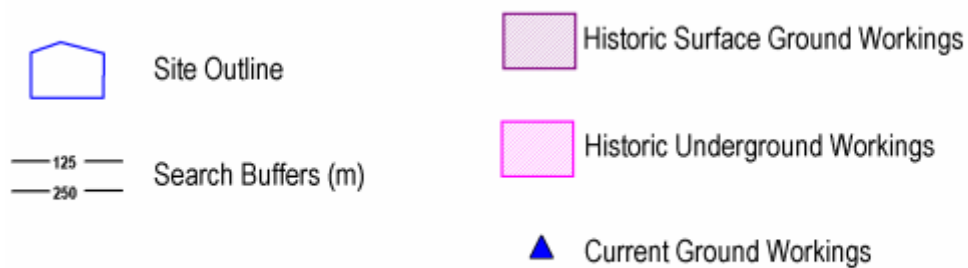
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary

2 Ground Workings Map



Ground Workings Legend

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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? Yes

The following Historical Surface Ground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
1A	118.0	SW	527788 186603	Ponds	1938
2A	122.0	SW	527823 186607	Ponds	1940
3A	122.0	SW	527828 186610	Ponds	1974
4A	122.0	SW	527828 186610	Ponds	1965
5A	122.0	SW	527828 186610	Ponds	1995
6A	122.0	SW	527828 186610	Ponds	1958
7B	125.0	SW	527744 186745	Ponds	1894
8B	128.0	SW	527802 186668	Ponds	1869
9B	128.0	SW	527802 186668	Ponds	1879
10B	128.0	SW	527802 186668	Ponds	1879
11	129.0	SW	527779 186684	Ponds	1913
12	130.0	S	527962 186676	Unspecified Heap	1869
13C	141.0	NW	527767 186967	Pond	1879
14C	141.0	NW	527767 186967	Pond	1869
15C	141.0	NW	527767 186967	Pond	1879
16C	147.0	NW	527763 186968	Pond	1938
17C	148.0	NW	527761 186966	Pond	1894
18C	148.0	NW	527762 186968	Pond	1974
19C	148.0	NW	527762 186968	Pond	1958
20C	148.0	NW	527762 186968	Pond	1995

ID	Distance (m)	Direction	NGR	Use	Date
21C	148.0	NW	527762 186968	Pond	1965
22C	148.0	NW	527757 186961	Pond	1913
23	152.0	SW	527684 186832	Ponds	1913
24C	155.0	NW	527756 186971	Pond	1940
25D	245.0	W	527607 186962	Ponds	1879
26D	245.0	W	527607 186962	Ponds	1879
27D	245.0	W	527607 186962	Ponds	1869
28	245.0	S	527858 186510	Ponds	1913

2.2 Historical Underground Working 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? No

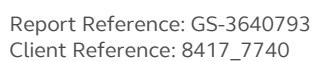
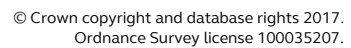
Database searched and no data found.

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

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? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

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 data provides information from the Coal Authority issued on behalf of the Cheshire Brine Subsidence Compensation Board.

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.

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.

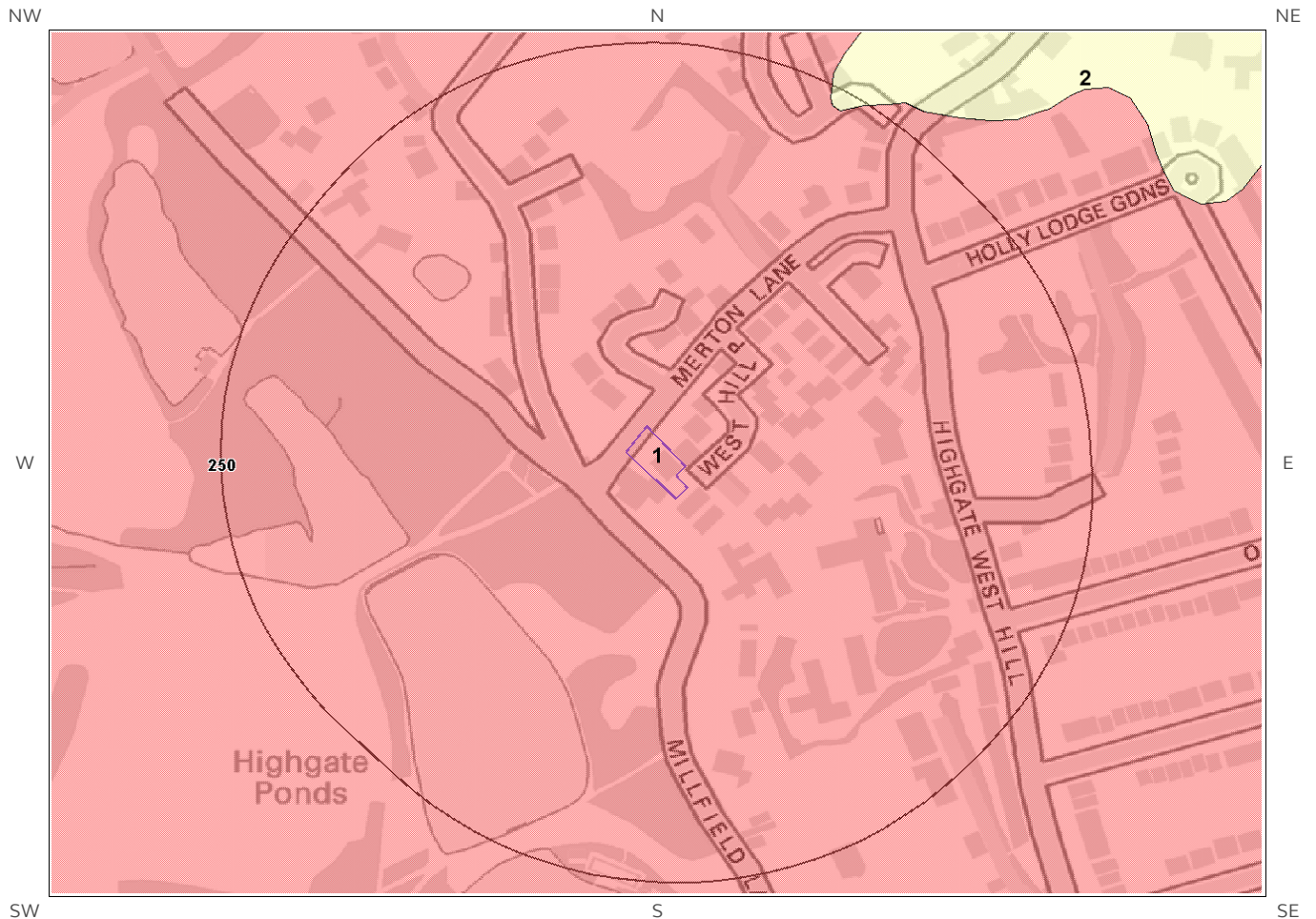
Are there any Clay Mining areas within 1000m of the study site boundary?

No

Database searched and no data found.

4 Natural Ground Subsidence

4.1 Shrink-Swell Clay Map

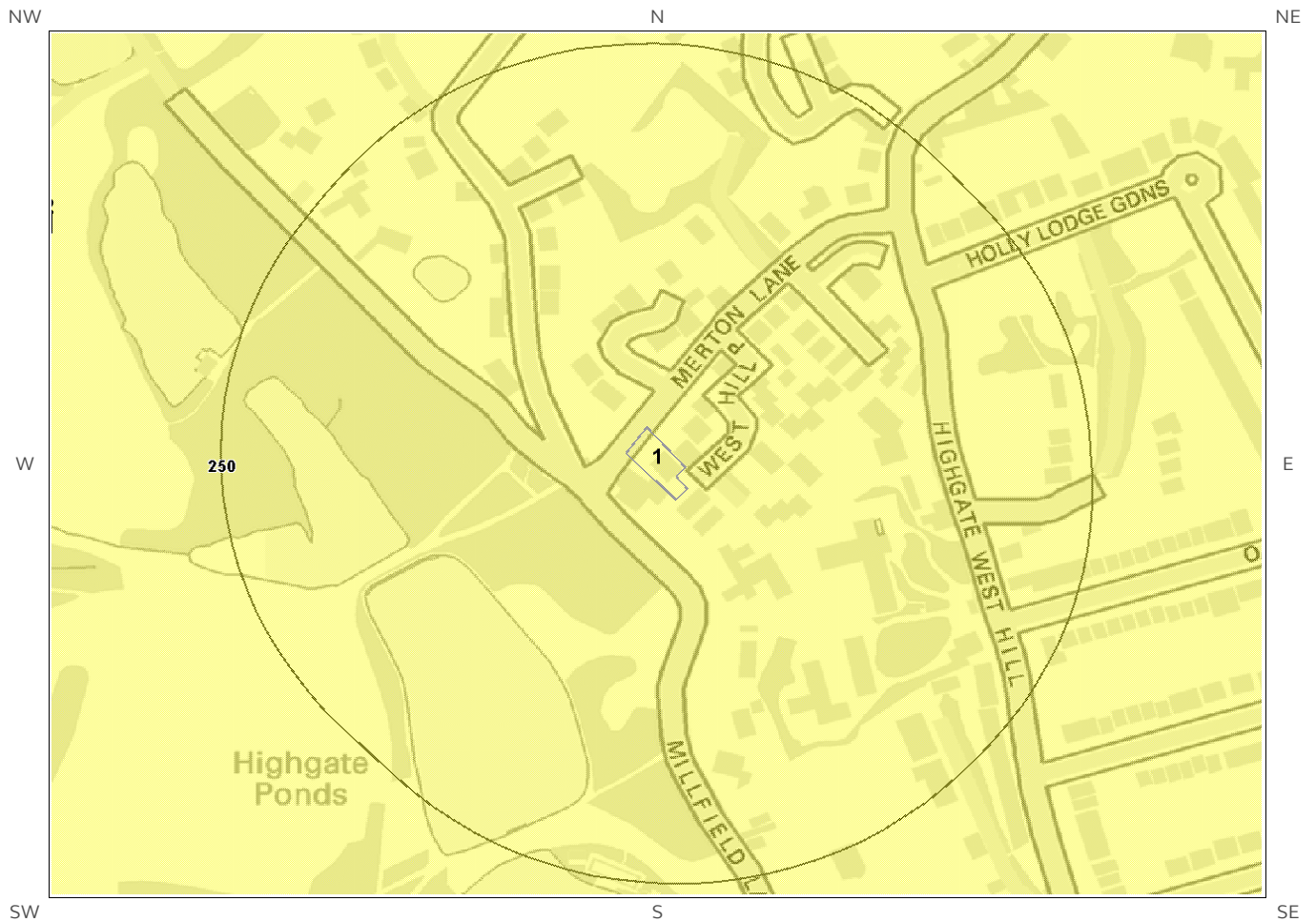


Shrink Swell Clay Legend

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4.2 Landslides Map



Landslides Legend

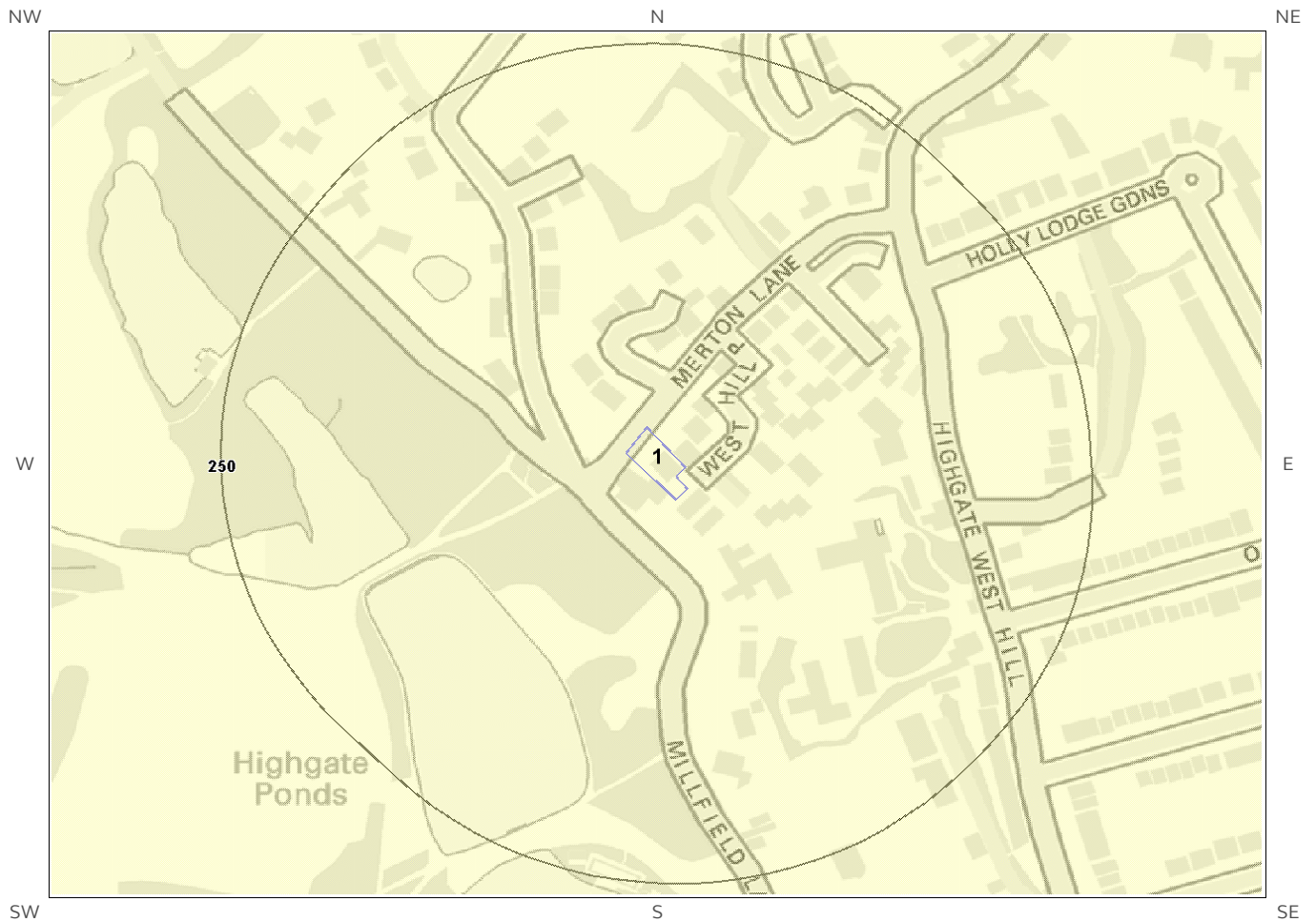
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4.3 Ground Dissolution Soluble Rocks Map



4.4 Compressible Deposits Map

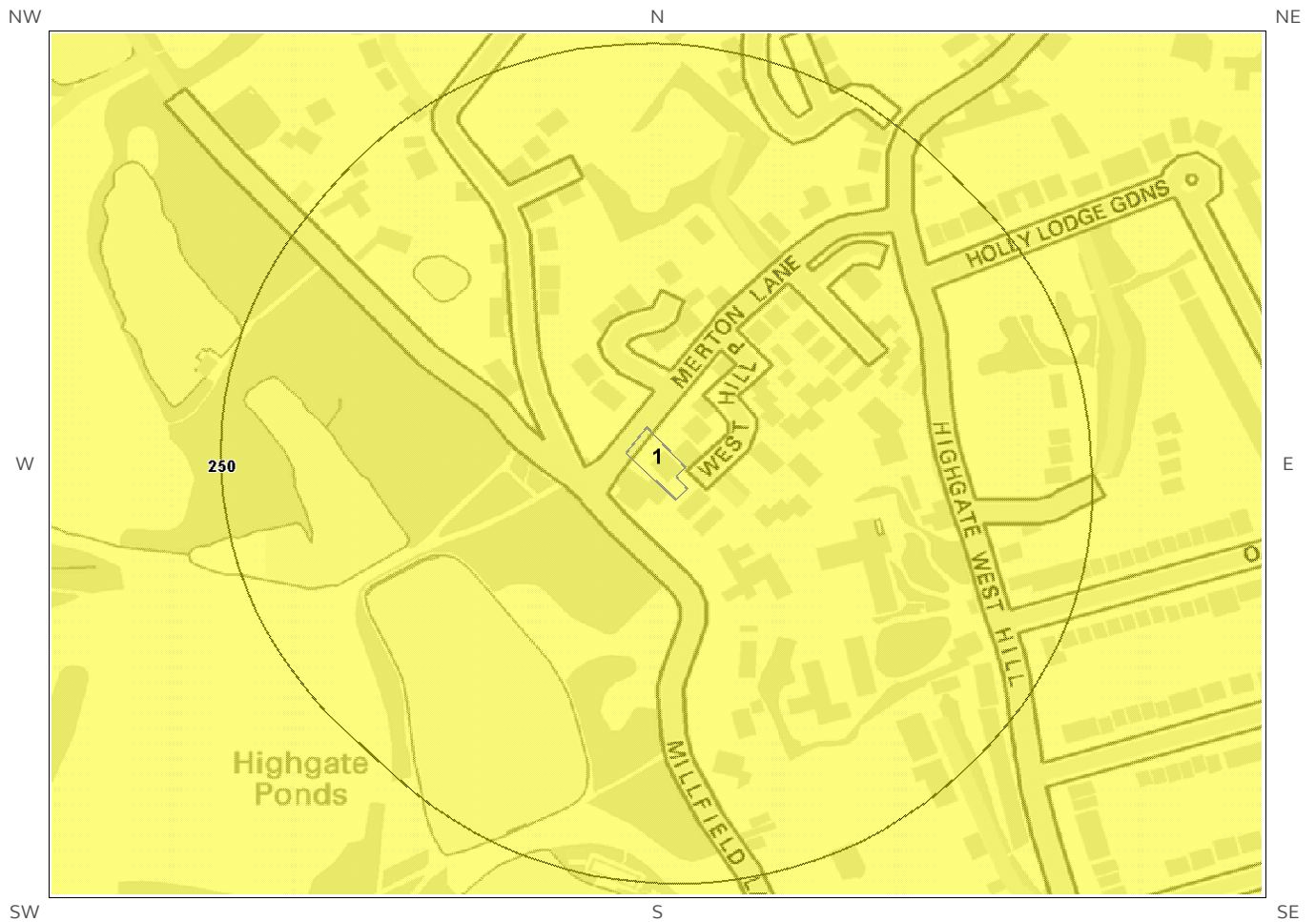


Compressible Deposits Legend

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4.5 Collapsible Deposits Map

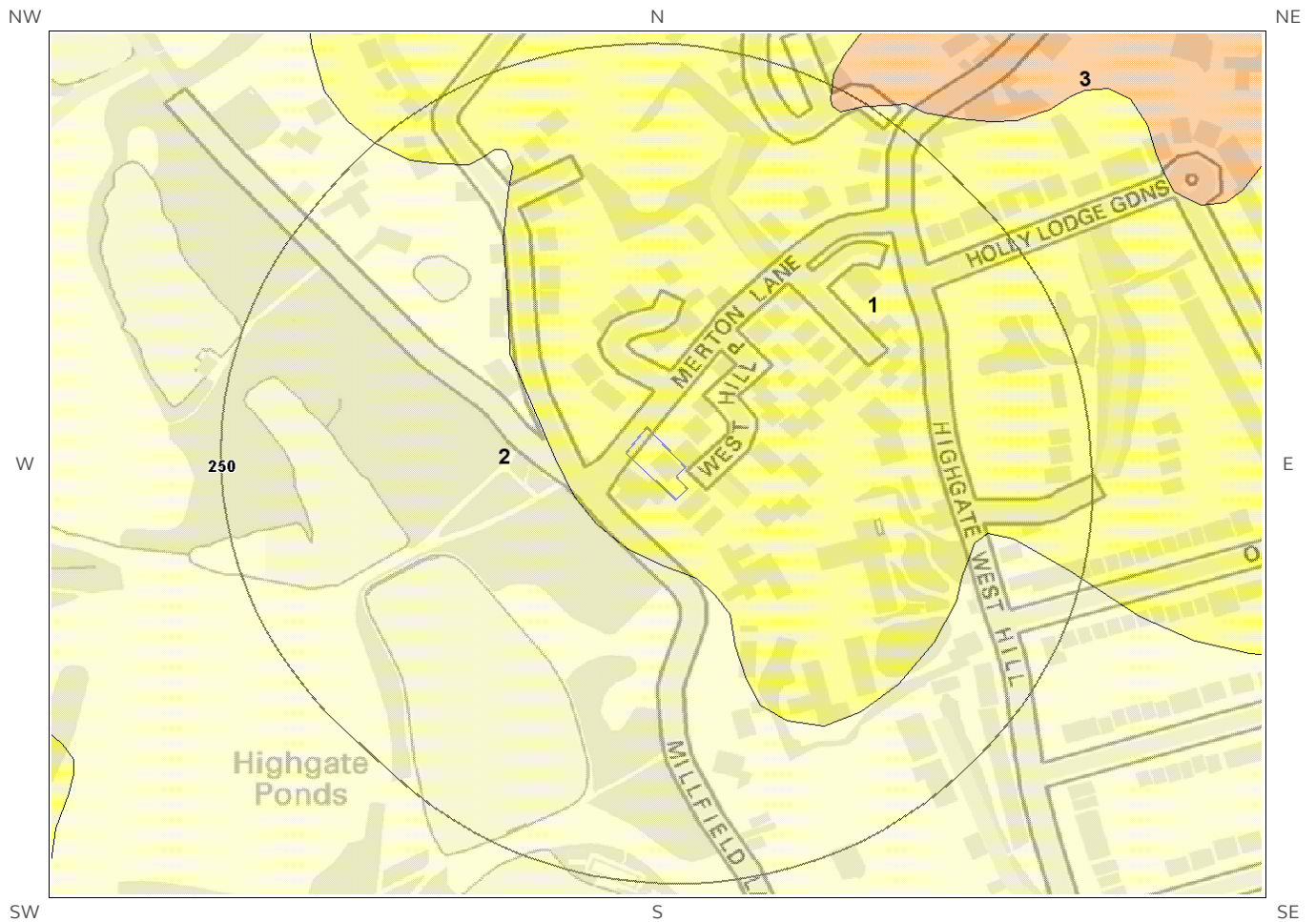


Collapsible Deposits Legend

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4.6 Running Sand Map



Running Sand Legend

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4 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

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

What is the maximum hazard rating of natural subsidence within the study site** boundary? Moderate

4.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Moderate	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.

4.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	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.

4.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

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

4.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible ground identified. No special actions required to avoid problems due to compressible ground. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible ground.

4.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

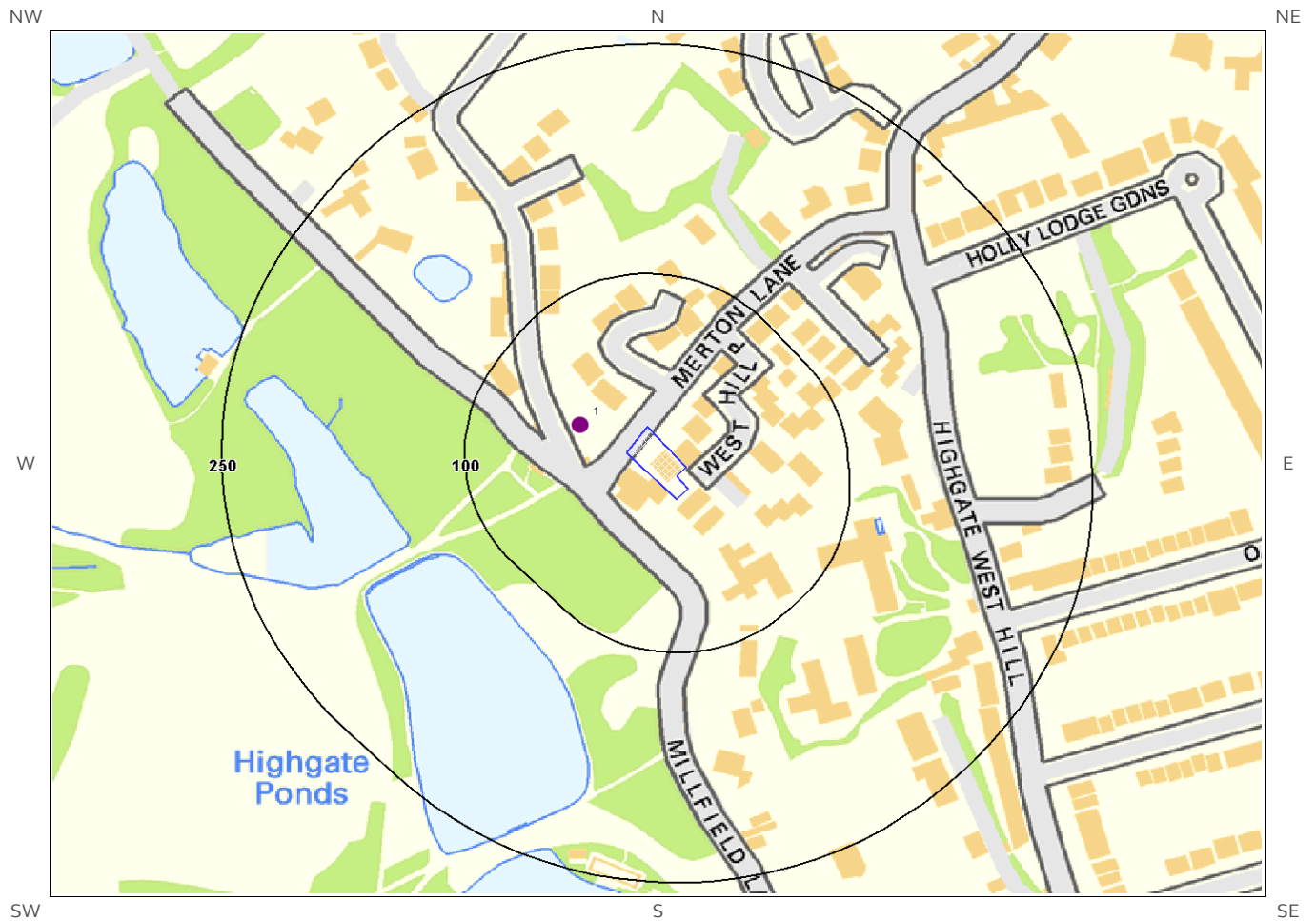
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

4.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

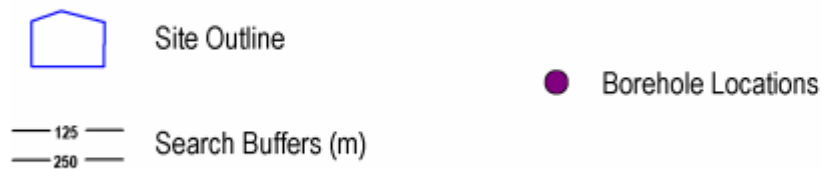
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	41.0	SW	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

5 Borehole Records Map



Borehole Records Legend

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5 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary:

1

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	34.0	NW	527850 186870	TQ28NE42	6.09	L.C.C. HOLLYCOURT SCHOOL HAMPSTEAD

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1: scans.bgs.ac.uk/sobi_scans/boreholes/590630

6 Estimated Background Soil Chemistry

Records of background estimated soil chemistry within 250m of the study site boundary:

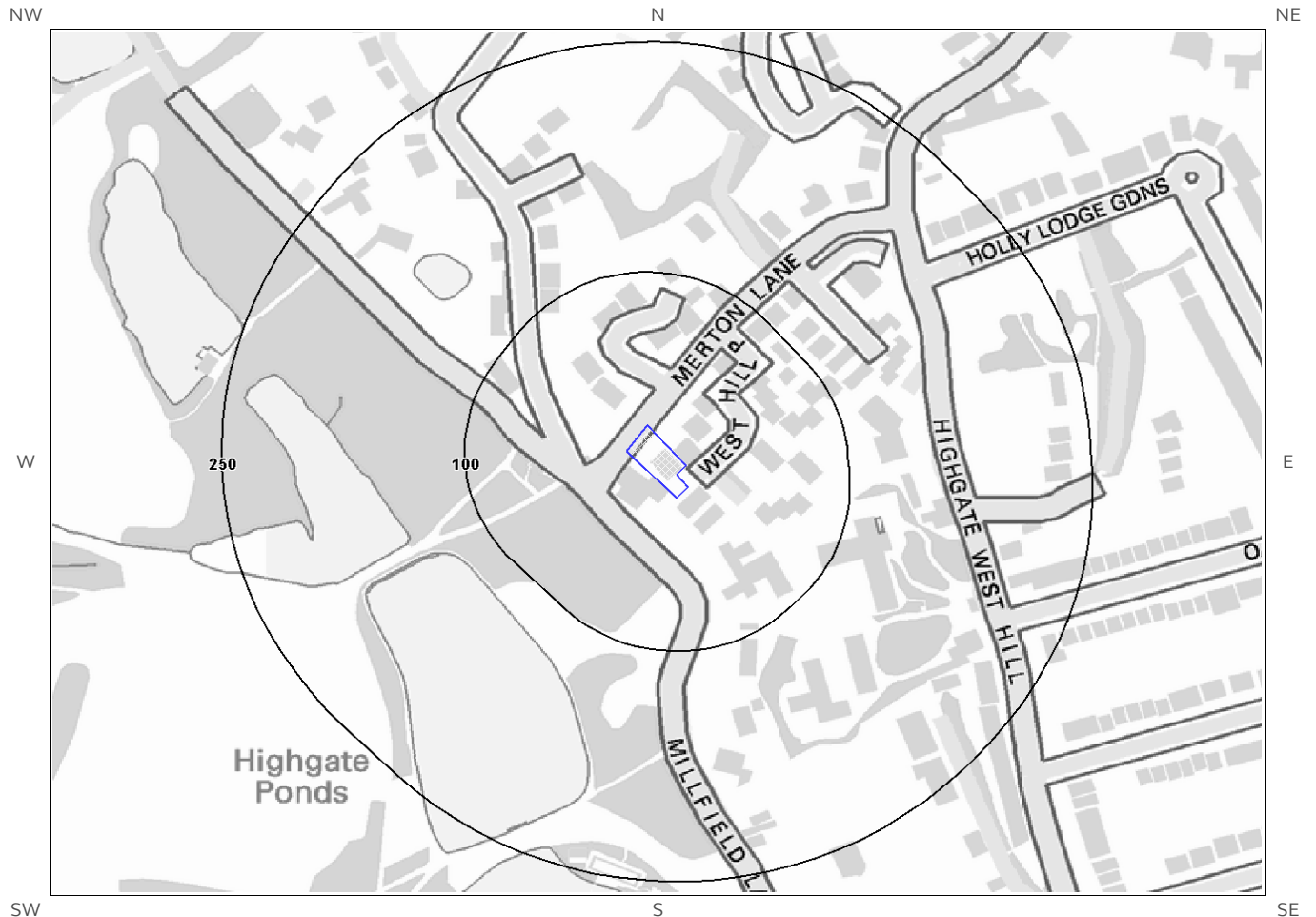
8

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	London	No data	No data	No data	No data	No data
41.0	SW	London	No data	No data	No data	No data	No data
83.0	E	London	No data	No data	No data	No data	No data
131.0	N	London	No data	No data	No data	No data	No data
158.0	NW	London	No data	No data	No data	No data	No data
170.0	NE	London	No data	No data	No data	No data	No data
172.0	SE	London	No data	No data	No data	No data	No data
238.0	NE	London	No data	No data	No data	No data	No data












*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

7 Railways and Tunnels Map



Railways and Tunnels Legend

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	Site Outline		Underground or Partially Underground Railway / Subway System		Railway Track (OpenStreetMap)
	Search Buffers (m)		Railway Tunnel (OS Mapping)		High Speed 2
			Abandoned or Dismantled Railway (OpenStreetMap)		High Speed 2 Revised Proposed Route
			Railway Track (OS Mapping)		Crossrail 1
					Railway and/or Tunnel Feature from Historical Mapping

7 Railways and Tunnels

7.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels Map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels Map.

7.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels Map.

7.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Note: multiple sections of the same track may be listed in the detail above

Any records that have been identified are represented on the Railways and Tunnels Map.

7.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Note: multiple sections of the same track may be listed in the detail above

Any records that have been identified are represented on the Railways and Tunnels Map.

7.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project? Yes

Is the study site within 500m of the route of the Crossrail 1 rail project? No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.

Crossrail route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

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