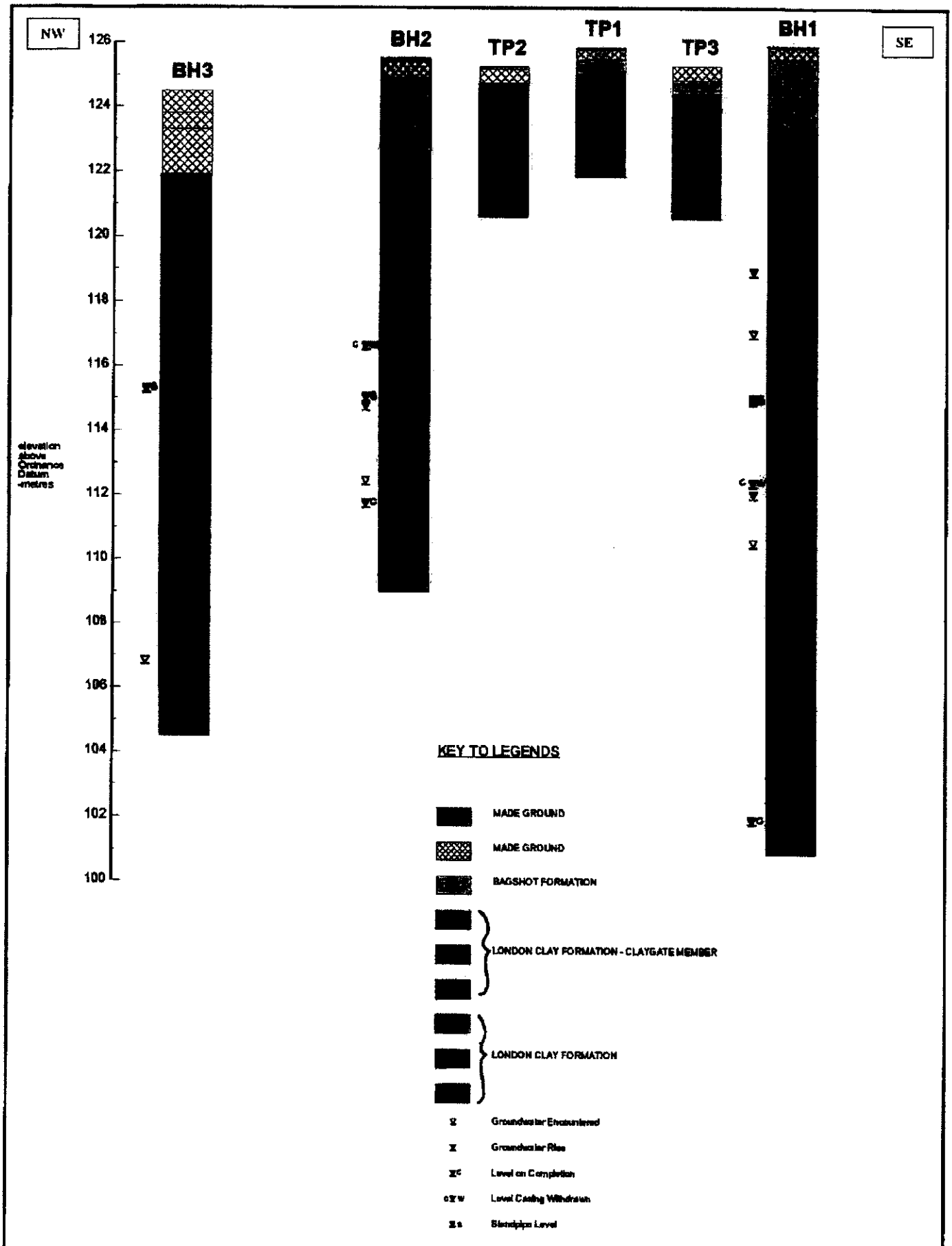
APPENDIX 7

FIGURES



SITE	WITANHURST, 41 HIGHGATE WEST HILL, LONDON N6		Contract No. 11681
CLIENT	DEWRACE MANAGEMENT SERVICES	Soil Profile	Vertical Scale 1:150
GROUND ENGINEERING, NEWARK ROAD, PETERBOROUGH,		Date 30/04/09	Fig. No 1

APPENDIX 8

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

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.

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WITANHURST, HIGHGATE, LONDON N6

Structural Report In Connection with Planning Application

30th June 2009

Appendix A

National Soil Resources Institute

Cranfield UNIVERSITY

Soils Site Report

Full Soil Report

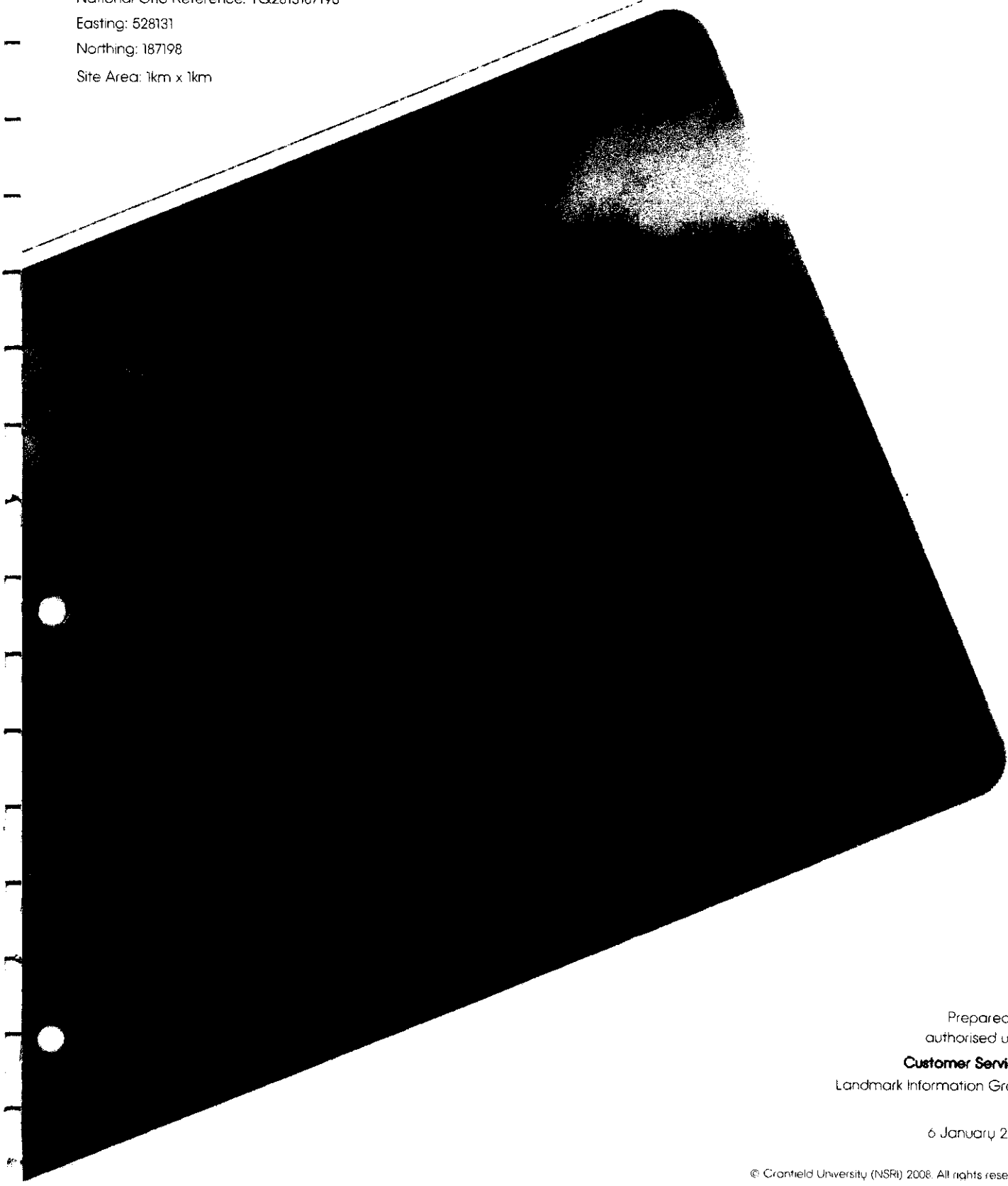
27013457

National Grid Reference: TQ2813187198

Easting: 528131

Northing: 187198

Site Area: 1km x 1km



Prepared by
authorised user:

Customer Services
Landmark Information Group

6 January 2009

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Citations

Citations to this report should be made as follows:

National Soil Resources Institute (2009) Full Soils Site Report for location 528131E, 187198N, 1km x 1km, National Soil Resources Institute, Cranfield University. Accessed via https://www.landis.org.uk/sitereporter/.

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About this report

This Soils Site Report identifies and describes the properties and capacities of the soil at your specified location as recorded in the 1:250,000 scale National Soil Map for England and Wales. It has been produced by Cranfield University's National Soil Resources Institute.

The National Soil Map represents the most accurate comprehensive source of information about the soil at the national coverage in England and Wales. It maps the distribution of soil mapping units (termed soil associations) which are defined in terms of the main soil types (or soil series) that were recorded for each soil association during field soil survey. Each soil association is named after its principal soil series and these bear the location name from where they were first described (e.g. Windsor). Each of these soil associations have differing environmental characteristics (physical, chemical and biological) and it is by mapping these properties that the range of thematic maps in this report have been produced.

Soil types and properties vary locally, as well as at the landscape scale. It is not possible to identify precisely the soil conditions at a specific location without first making a site visit. We have therefore provided you with information about the range of soil types we have identified at and around your selected location. Schematic diagrams are also provided to aid accurate identification of the soil series at your site.

Whilst an eight-figure national grid reference should be accurate to within 100m, a single rural Postcode can cover a relatively large geographical area. Postcodes can therefore be a less precise basis for specifying a location. The maps indicate the bounded area the reports relate to.

Your Soils Site Report will enable you to:

- identify the soils most likely to be present at and immediately around your specified location;
- understand the patterns of soil variation around your location and how these correlate with changes in landscape;
- identify the nature and properties of each soil type present within the area;
- understand the relevant capacities and limitations of each of the soils and how these might impact on a range of factors such as surface water quality.

Provided that this Soils Site Report is not modified in any way, you may reproduce it for a third-party.

For more information visit www.landis.org.uk/reports

Table of Contents

Envirocheck®

Envirocheck® Report:

Historical Data Report Datasheet

Order Details:

Order Number:
27013457_1_1

Customer Reference:
3966

National Grid Reference:
528130, 187200

Slice:
A

Site Area (Ha):
0.01

Search Buffer (m):
1000

Site Details:

41 Highgate West Hill
Highgate
LONDON
N6 6LS

Client Details:

Ms L Pettersson
Michael Barclay Partnership
105-109 Strand
London
WC2R 0AA

Prepared For:

Witanhurst Construction Management Limited

Envirocheck®
Historical Data Report
A Landmark service

Contents

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v36.0

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
Historical Building Plans Information					
Areas Cleared Due To Enemy Action					
Above Ground Fuel Tanks				n/a	n/a
Asbestos				n/a	n/a
Benzene/Benzole/Naphtha, Naphthalene/Kerosene				n/a	n/a
Electricity Generation				n/a	n/a
Electricity Sub-Stations				n/a	n/a
Gas Industry				n/a	n/a
Gas Storage				n/a	n/a
Gas Use				n/a	n/a
Oil Industry				n/a	n/a
Oil Storage				n/a	n/a
Oil Use				n/a	n/a
Paint based Oils				n/a	n/a
Paraffin				n/a	n/a
Petrol and Diesel Industry				n/a	n/a
Petrol and Diesel Storage				n/a	n/a
Petrol and Diesel Use				n/a	n/a
Potential Fuel Gas				n/a	n/a
Potential Fuel Oil				n/a	n/a
Potential Fuel Use				n/a	n/a
Potential Petrol and Diesel				n/a	n/a
Potential Tanks				n/a	n/a
Potentially Fuel-related Tanks				n/a	n/a
Underground Fuel Tanks				n/a	n/a
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Former Marshes					
Historical Flood Liabilities					
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Potentially Infilled Land (Non-Water)	pg 1				3
Potentially Infilled Land (Water)	pg 1			1	10

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
Historical Tanks and Energy Facilities					
Electrical Sub Station Facilities	pg 3		2	n/a	n/a
Electricity Industry Facilities	pg 3		1	n/a	n/a
Gas Industry Facilities				n/a	n/a
Gas Monitoring Facilities				n/a	n/a
Miscellaneous Power Facilities				n/a	n/a
Oil Industry Facilities				n/a	n/a
Petroleum Storage Facilities				n/a	n/a
Potential Tanks				n/a	n/a
Tanks				n/a	n/a

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Historical Land Use Information

Map ID	Details	Quadrant Reference (Compass	Estimated Distance From Site	Contact	NGR
1	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Cemetery or Graveyard Date of Mapping: 1876 - 1996	A13SE (SE)	147	1	528264 187136
2	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Hospitals Date of Mapping: 1996	A13NW (NW)	373	1	527837 187429
3	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Military Land Date of Mapping: 1920 - 1946	A13SW (SW)	472	1	527800 186861
4	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Hospitals Date of Mapping: 1996	A18SE (NE)	646	1	528414 187780
5	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Hospitals Date of Mapping: 1896 - 1996	A14SW (E)	651	1	528741 186970
6	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Hospitals Date of Mapping: 1951	A14NW (E)	652	1	528776 187297
7	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Hospitals Date of Mapping: 1896	A14NW (E)	675	1	528800 187290
8	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Quarrying of sand & clay, operation of sand & gravel pits Date of Mapping: 1876	A19SW (NE)	760	1	528688 187716
9	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Hospitals Date of Mapping: 1876 - 1896	A14SE (E)	833	1	528931 186965
10	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Clay bricks & tiles [manufacture] Date of Mapping: 1876	A14SE (E)	899	1	529029 187147
11	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Air Shafts Date of Mapping: 1996	A14NE (E)	908	1	529027 187349
12	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Clay bricks & tiles [manufacture] Date of Mapping: 1876	A19SE (NE)	927	1	528931 187667
13	**Potentially Contaminative Industrial Uses (Past Land Use)** Use: Hospitals Date of Mapping: 1920 - 1951	A14SE (E)	975	1	529095 187049
14	**Potentially Infilled Land (Non-Water)** Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1996	A19SW (NE)	760	1	528688 187716
15	**Potentially Infilled Land (Non-Water)** Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1996	A14SE (E)	899	1	529029 187147
16	**Potentially Infilled Land (Non-Water)** Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1996	A19SE (NE)	927	1	528931 187667
17	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A18SW (N)	492	1	528057 187685
18	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1896	A14SW (E)	586	1	528716 187169
19	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1946	A19SW (NE)	606	1	528481 187693
20	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A14NW (NE)	688	1	528761 187476
21	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A14NW (NE)	691	1	528758 187489

Historical Land Use Information

Map ID	Details	Quadrant Reference (Compass	Estimated Distance From Site	Contact	NGR
22	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A14NE (NE)	751	1	528808 187523
23	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A18NE (N)	753	1	528148 187951
24	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A14NE (E)	762	1	528848 187458
25	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1896	A17SE (NW)	796	1	527618 187807
26	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1946	A19NW (NE)	904	1	528517 188016
27	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1876	A9SW (SE)	974	1	528719 186421

Historical Tanks and Energy Facilities

Map ID	Details	Quadrant Reference (Compass	Estimated Distance From Site	Contact	NGR
28	**Electrical Sub Station Facilities** Scale of Mapping: 1:1,250 Date of Mapping: 1952	A13SE (SE)	155	1	528246 187094
28	**Electrical Sub Station Facilities** Scale of Mapping: 1:2,500 Date of Mapping: 1952	A13SE (SE)	155	1	528246 187093
29	**Electricity Industry Facilities** Scale of Mapping: 1:2,500 Date of Mapping: Not Present	A13NE (NE)	231	1	528306 187350

Historical Map List

No Historical Building Plans information available.

The following mapping has been analysed for Historical Land Use Information:

1:10,560	Mapsheet	Published Date
Middlesex	011_00	1873
Middlesex	012_00	1876
London	002_NE	1896
London	002_SE	1896
London	003_NW	1896
London	003_SW	1896
Middlesex	011_NE	1896
Middlesex	011_SE	1896
Middlesex	012_NW	1896
Middlesex	012_SW	1896
Middlesex	011_NE	1916
London	001_00	1920
London	002_00	1920
Middlesex	011_NE	1935
Middlesex	011_SE	1938
Essex	077_00	1946
1:10,000	**Mapsheet**	**Published Date**
Ordnance Survey Plan	TQ28NE	1996

Historical Map List

The following mapping has been analysed for Historical Tanks and Energy Facilities:

1:2,500	Mapsheet	Published Date
Ordnance Survey Plan	TQ2887	1952
Ordnance Survey Plan	TQ2786	1953
Ordnance Survey Plan	TQ2787	1953
Ordnance Survey Plan	TQ2886	1953
Ordnance Survey Plan	TQ2886	1970
Ordnance Survey Plan	TQ2887	1970
1:1,250	**Mapsheet**	**Published Date**
Ordnance Survey Plan	TQ2786NE	1952
Ordnance Survey Plan	TQ2787NE	1952
Ordnance Survey Plan	TQ2787SE	1952
Ordnance Survey Plan	TQ2886NW	1952
Ordnance Survey Plan	TQ2887NW	1952
Ordnance Survey Plan	TQ2887SW	1952
Ordnance Survey Plan	TQ2786NE	1962
Ordnance Survey Plan	TQ2887NW	1962
Ordnance Survey Plan	TQ2787NE	1964
Ordnance Survey Plan	TQ2887NW	1968
Ordnance Survey Plan	TQ2887SW	1968
Ordnance Survey Plan	TQ2787SE	1975
Ordnance Survey Plan	TQ2887NW	1978
Ordnance Survey Plan	TQ2786NE	1979
Ordnance Survey Plan	TQ2886NW	1979

Useful Contacts and Further Information

Contact	Name and Address	Contact Details
1	**Landmark Information Group Limited** 5 - 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Telephone: 01392 441761 Fax: 01392 441709 Email: cssupport@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Historical Building Plans Information

This data set contains potentially contaminative features such as asbestos, petrol, oil and tanks captured from Historical Building Plans. The Historical Building Plans were produced by the London-based firm Charles E. Goad Ltd. as fire insurance plans, dating back to 1885. The firm ceased production of fire insurance plans in 1970. Most of the important towns and cities of the British Isles are covered. Historical Building Plans are usually at the scales of 1:480 (1 inch to 40 feet) for the British Isles. They were updated every 5-6 years by means of revision sheets designed to be pasted on to the original plans.

It should be noted that Historical Building Plans are only available for certain major towns and cities and in some cases there may only be partial coverage of the search area. It cannot therefore be assumed that the absence of responses under the Historical Building Plans section of this report indicates that no hazards exist. Please check the Historical Building Plans Map List table in the Historical Map List section of this report to establish if Historical Building Plans are available for this search area.

Historical Land Use Information

Landmark's Historical Land Use Data is the result of combined analysis of historical map data captured at 1:10,560 and 1:10,000. A unique comprehensive database of Historic Land Use from the 1840's to 1996 it includes 67 different types of potentially contaminated past industrial land use. This entailed analysing over 60,000 maps and is drawn from at least four, and up to six historical map editions. In addition a seventh layer was also created, known as the land use layer, containing areas of infilled land which are plotted via comparison between two or more map editions.

Historical Tanks and Energy Facilities

In addition to HLUD, additional analysis uncovered some of the most dangerous sources of contamination (past and present tanks, petrol storage, oil, gas, electricity, miscellaneous facilities). This data set covers over 390,000 Historical Tanks and Energy facilities in Great Britain and was captured from post war 1:2500 and 1:1250 Ordnance Survey historical mapping covering a period from 1943 to 1996.

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Envirocheck® Report:

BGS Boreholes Datasheet

Order Details:

Order Number:
27013457_1_1

Customer Reference:
3966

National Grid Reference:
528130, 187200

Slice:
A

Site Area (Ha):
0.01

Borehole Search Buffer (m):
1000

Site Details:

41 Highgate West Hill
Highgate
LONDON
N6 6LS

Client Details:

Ms L Pettersson
Michael Barclay Partnership
105-109 Strand
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Witanhurst Construction Management Limited