45 Maresfield Gardens

Basement Impact Assessment
Screening Assessment

Knapp Hicks and Partners

with Doyle Town Planning and Urban Design

for Mr Shai Greenberg/ Hestia Developments

September 2014

45 Maresfield Gardens
Basement Impact Assessment
Screening Assessment

Contents

1 Introduction

1.1 This document has been prepared by Knapp Hicks & Partners and their appropriately qualified geotechnical engineer. The information on the site geology and overall setting has been provided, by an appropriately qualified geotechnical engineer (CGeol). Formal design and construction of the basement has been undertaken by other parties. Chapter two, below, on the extent of the development in relation to policy and guidance (CPG4) has been drafted by Doyle Town Planning and Urban Design.

2 Scale of basement development

2.1 Section 27.3 of DP27 states that for larger schemes, where a basement development extends beyond the footprint of the original building or is deeper than one full storey below ground level (approximately 3 metres in depth), the Council expects that 'The level of information required will be commensurate with the scale and location of the scheme.'

2.2 Section 27.9 of DP27 suggests a basic 'envelope' within which basement development may be considered appropriate. In summary basement development should:

- not extend beyond the footprint of the original building;
- be no deeper than one full storey below ground level (approximately 3 metres in depth);
- not take up the whole rear and/or front garden of a property;
- provide sufficient margins between the site boundaries and any basement construction to sustain growth of vegetation and trees;
- provide an appropriate proportion of planted material above the structure to mitigate the reduction in the natural storm water infiltration capacity of the site and/or the loss of biodiversity caused by the development and;
- provide a minimum of 0.5 metres of soil above the basement development, where this extends beyond the footprint of the building, to enable garden planting.

2.3 The extent of the proposals fully accord with DP27 guidance:

- The proposed basement does not extend beyond the footprint of the original building.
- The existing semi- basement level is proposed to be extended outwards towards the front of the property. The existing and proposed semi-basement will be no deeper than one full storey below ground level and less than 3 metres in depth.
- The proposed basement extension is entirely confined within the existing building footprint and will not intrude upon either the rear or front garden areas.
- There will be no effect upon the potential to sustain vegetation growth and trees.
- There will be no reduction in the natural storm water infiltration capacity of the site and no loss of biodiversity (because the building footprint will not be extended) so that there is no requirement for mitigation.
- The proposed basement does not extend beyond the footprint of the building or below the area of garden so there is no need to provide soil above the basement development to enable garden planting.

2.4 The proposed basement does not extend beyond the footprint of the original building and is a lateral extension of the existing semi-basement, so that it cannot be classified as a 'larger scheme' according to DP27.

2.5 The modest physical scale and extent of the proposed basement does not, of itself, trigger a need for basement impact assessment. A full BIA may however be triggered if there is evidence of potential impacts that require further assessment. This is examined through desk top study in stages one and two of the BIA process.

3 Impact Assessment

3.1 Development Policy DP27 states that the Council will require an assessment of the impact on drainage, flooding, groundwater conditions and structural stability for basement and underground developments, where appropriate. Camden Planning Policy Guidance 4 (CPG4) gives detailed advice on how the LPA will apply planning policies (including DP27) when making decisions on new basement development or extensions to existing basement accommodation.

3.2 A preliminary screening exercise (Stage 1 of the BIA process) is normally required in accordance with DP27 and CPG4 to determine if there are potential impacts that require further assessment, triggering a full Basement Impact Assessment (BIA).

3.3 The purpose of the BIA is to demonstrate that the proposals comply with detailed criteria set out in CPG4 and will:

- maintain the structural stability of the building and neighbouring properties;
- avoid adversely affecting drainage and run-off or causing other damage to the water environment;
- avoid cumulative impacts upon structural stability or the water environment in the local area.

3.4 Stages one and two of the BIA process equate to screening and scoping for environmental impact assessments.

3.5 The following sheets set out a preliminary desk-top assessment based upon published information. This indicates that a number of the screening questions are not directly answered by published sources without the need to apply professional judgements.

3.6 This document represents the BIA stage 1 and 2 assessment and incorporates (a) relevant information from other sources (Thames Water sewer plans and a Groundsure Report incorporating publicly available environmental information and historic maps), (b) Stage 3 elements i.e. 2No intrusive boreholes with a period of monitoring of the groundwater level following completion of the boreholes (See attached site plans and Appendices), and (c) Formal Design and Construction Drawings.

3.7 Further assessments (stage 3 onwards) will be carried out and submitted with the application where issues are identified that require further assessment.

CPG4 – BIA Screening Flowcharts
Surface flow and flooding screening flowchart (CPG4 Figure 3)

	Question	Response	Notes
1	Is the site within the catchments of the pond chains on Hampstead Heath?	No	By inspection of Figure 14 of CPG4
2	As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?	No	It is unlikely that this development will materially change existing routes.
3	Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?	Yes	The proposed development will result in a small **reduction** in the area of hard paving in the rear garden. The front garden/hardstanding will remain unaltered.
4	Will the proposed basement result in changes to the profile of the inflows (instantaneous and long-term) of surface water being received by adjacent properties or downstream watercourses?	No	
5	Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	No	
6	Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk from flooding, for example because the proposed basement is below the static water level of nearby surface water features.	No	By reference to CPG4, Figure 15, it is noted that Maresfield Gardens was not floorded during the extreme flood events of 1975 and 2002, nor is it indicated as an area at risk of surface water flooding. This is confirmed by the Groundsure Report.

Subterranean (groundwater) flow screening flowchart (CPG4 Figure 1)

	Question	Response	Notes
1a	Is the site located directly above an aquifer?	No	The site is located on unproductive strata by reference to CPG4 Figure 8 and the attached Groundsure / British Geological Survey Records show the site partially located on unproductive strata (London Clay) and in the north east corner on a Secondary A aquifer (Claygate Beds).
1b	Will the proposed basement extend beneath the water table surface?	No	No groundwater was encountered above the maximum depth of dig (i.e. below the underside of the basement slab) in 2No boreholes undertaken on the site (refer attached site plans and Appendices for borehole logs and groundwater levels encountered).
2	Is the site within 100m of a watercourse, well (open/disused) or potential spring line?	No	The Groundsure Report does not identify any surface water or river network features near the site. Bartons Lost Rivers of London shows the upper reaches of a stream approximately 250m northwest from the site and the historic maps show another stream to the east. The site is located downhill from the spring line which reflects the relatively poor permeability of the subsoils at this site.
3	Is the site within the catchment of the pond chains on Hampstead Heath?	No	By inspection of Figure 14 CPG4, the site is approximately 1.2km south east from the Hampstead Heath Extension Chain Catchment and the Hampstead Chain Catchment.
4	Will the proposed basement development result in a change in the proportion of hard-surfaced/paved areas?	Yes	The proposed development will result in a small **reduction** in the area of hard paving in the rear garden. The front garden/hardstanding will remain unaltered.
5	As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soak-away and/or SUDS)?	No	There will be no change to the drainage arrangements for the site.
6	Is the lowest point of the excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond or spring line?	No	There are no surface water features located within 200m of the site.

Slope stability screening flowchart (CPG4 Figure 2)

	Question	Response	Notes
1	Does the existing site include slopes, natural or manmade greater than 7deg. (approx. 1V in 8H)?	No	Based on Ordnance Survey mapping, the topography surrounding the site generally falls from north to south at approximately 1V on 10H to 1V on 8H.
2	Will the proposed re-profiling of landscaping at site change slopes at the property boundary to more than 7deg.?	No	There will be no changes to the surrounding topography. Retaining wall heights will be adjusted and designed accordingly.
3	Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7deg.?	No	
4	Is the site within a wider hillside setting in which the general slope is greater than 7deg.?	No	
5	Is the London Clay the shallowest strata at the site?	TBC	Based on available site investigation records and works at the adjacent site (2 Dumpton Place), and reference to 1:50,000 Geological Map, the geological profile is expected to consist of variable depths of made ground and possible Head Deposits, overlying Claygate Beds and London Clay. The site investigation records have confirmed that the basement is founded upon Claygate Beds strata.
6	Will any trees be felled as part of the proposed development? Are any works proposed within any tree protection zones?	No	No trees are proposed to be felled. The proposed basement and rear lightwell will extend any closer to rear garden trees than existing conditions.
7	Is there a history of seasonal shrink-swell subsidence in the local area, and/or evidence of such effects at the site?	No	The soils on site are expected to be medium to high shrinkage potential. However, we are unaware of any shrink-swell subsidence or evidence thereof on site or in the area of the site.
8	Is the site within 100m of a watercourse or a potential spring line?	No	There are no Environment Agency flood plains, river network entries or surface water features indicated in the Groundsure Report 200m of the site.
9	Is the site within an area of previously worked ground?	No	The Phase 1 Environmental Report does not report any previous workings on or near the site.

Slope stability screening flowchart (CPG4 Figure 2) (Continued)

10	Is the site within an aquifer? If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction?	Yes	Q10a - The site is located on unproductive strata by reference to CPG4 Figure 8 and the attached Groundsure / British Geological Survey Records . These show the site partially located on unproductive strata (London Clay) and in the north east corner on a Secondary A aquifer (Claygate Beds). Q10b - No groundwater was encountered above the maximum depth of dig (i.e. below the underside of the basement slab) in 2 No. boreholes undertaken on the site (refer attached site plans and Appendices). Dewatering is not anticipated to be a requirement at this project. Further groundwater monitoring will be undertaken and reported.
11	Is the site within 50m of the Hampstead Heath ponds?	No	
12	Is the site within 5m of a highway or pedestrian right of way?	No	The basement wall closest to Maresfield Gardens is greater than 5m from the public footway.
13	Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	Yes	The change in level shows an increase between the new basement and the neighbouring site to the north is approximately 400mm at the rear half of the building and approximately 3.0m at the front. The difference in level between the new basement and the site to the south is reduced due to the sloping ground. It is considered that the increase in differential depth between the basement and the adjacent house to the north, whilst 'significant', does not represent a stability hazard, on condition that the retaining walls for the proposed development have been constructed in advance of the bulk excavations and have been designed by a competent structural engineer to take account of the loadings from the existing neighbouring walls and highway/railway loadings, and to resist sliding, overturning and overall stability. The Structural Engineers construction drawings for the retaining walls are attached at Appendix A.
14	Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?	No	No tunnels have been identified passing underneath the footprint of the site. The nearest tunnel is a railway tunnel located 27m south of the site, passing in an east-west direction.

4 Results of the Screening Process

4.1 The basement has been assessed in accordance with the three flow charts detailed in Appendix E of the CPG4 Basement and Lightwells.

4.2 Part 4A which considers surface water and flooding issues has raised no significant issues with regard to the development and no further action is deemed necessary.

4.3 Part 4B which covers subterranean (groundwater) flow has returned has raised no issues with regard to the development and no further action is deemed necessary.

4.4 Part 4C covers slope stability. The screening flowchart has returned two affirmative answers as follows: (1) Question 7 which confirms the location of the basement in relation to an aquifer, however the depth to the groundwater level is such that dewatering should not be required during construction, and (2) Question 13 concerning the change in differential depth of the foundations between the new development and adjacent property. Again this can be dealt with through the design of appropriate temporary and permanent works to ensure the stability of the basement and adjacent property.

5 Conclusions and Recommendations

5.1 The screening process has not highlighted any highly significant issues.

5.2 Based on intrusive investigations, the basement formation is expected to be above the water table. It is acknowledged that the groundwater level can be subject to seasonal and other changes. However, based on the findings of our investigation, we are not aware of any perched water above formation level. Therefore, Knapp Hicks propose that, in this case, no further action will be deemed necessary to deal with groundwater beyond following standard good construction practice for basements and incorporation of suitable waterproofing measures.

5.3 The designer will ensure that the basement wall and any temporary works are designed to accommodate the loadings of adjacent structures. Further, the walls will be constructed using techniques which prevent the adjacent land and any associated infrastructure from being destabilised. The designer will also ensure that no party walls with adjacent properties are undermined during the project.

REFERENCES

1. Camden Planning Guidance: Basements and Lightwells, CPG4

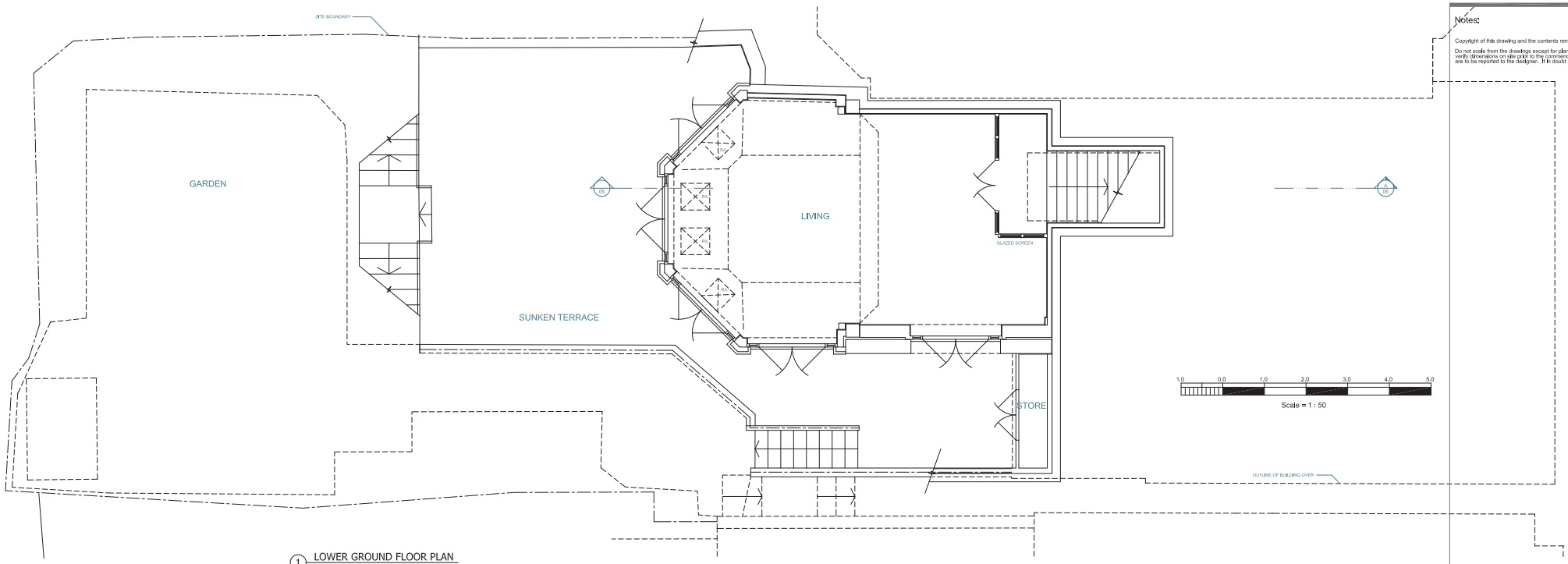
APPENDIX A

Site Plans

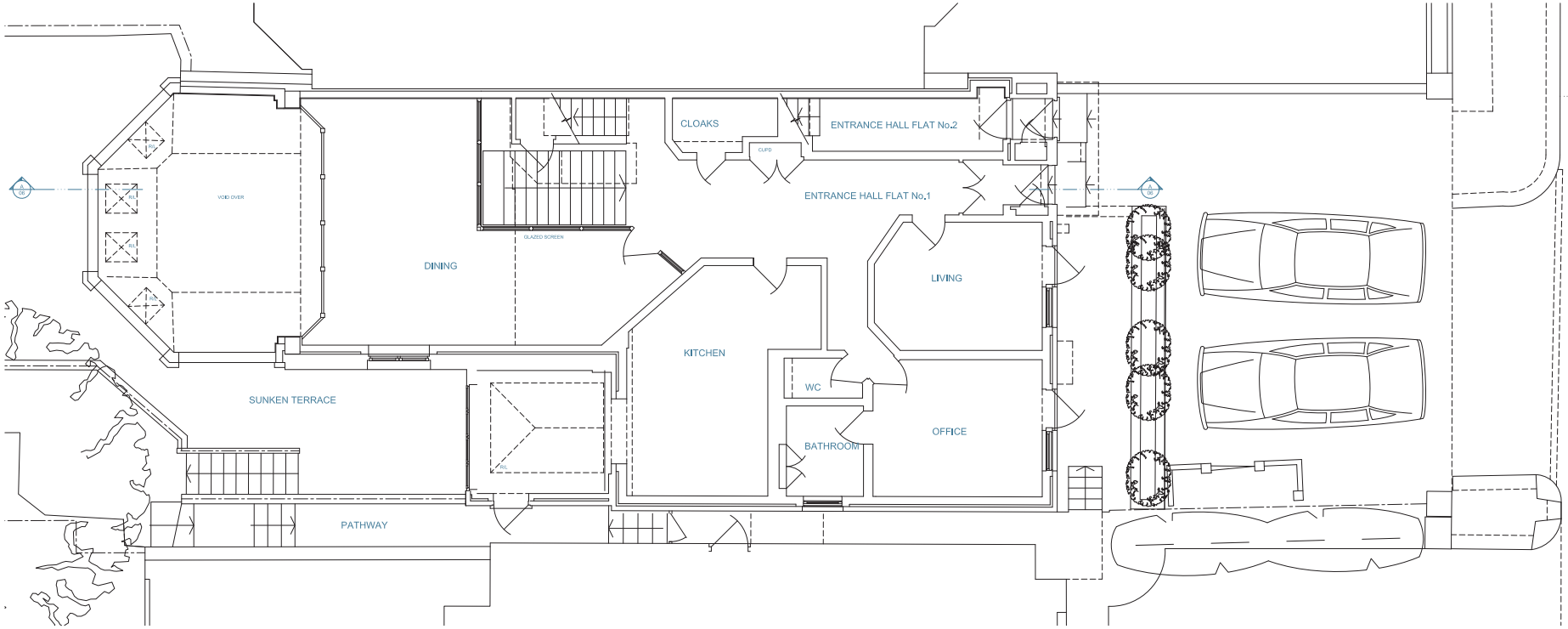
&

Cross Sections

(Existing & Proposed)



1 LOWER GROUND FLOOR PLAN



2 UPPER GROUND FLOOR PLAN

Notes:

Do not scale from the drawings except for planning purposes. The contractor is to verify dimensions on site prior to the commencement of work. Any discrepancies are to be reported to the designer. If in doubt - seek clarification.

Rev.	Date	Remarks

Project	45 Maresfield Gardens
Drawing	Existing Lower Ground and Ground Floor Plans
Scale	1:50
Date	15-02-13
Rev	
Status	Planning
Drawing No.	5835 -02
Approved	

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16 Spectrum House
32-34 Gordon House Road
London NW5 1LP
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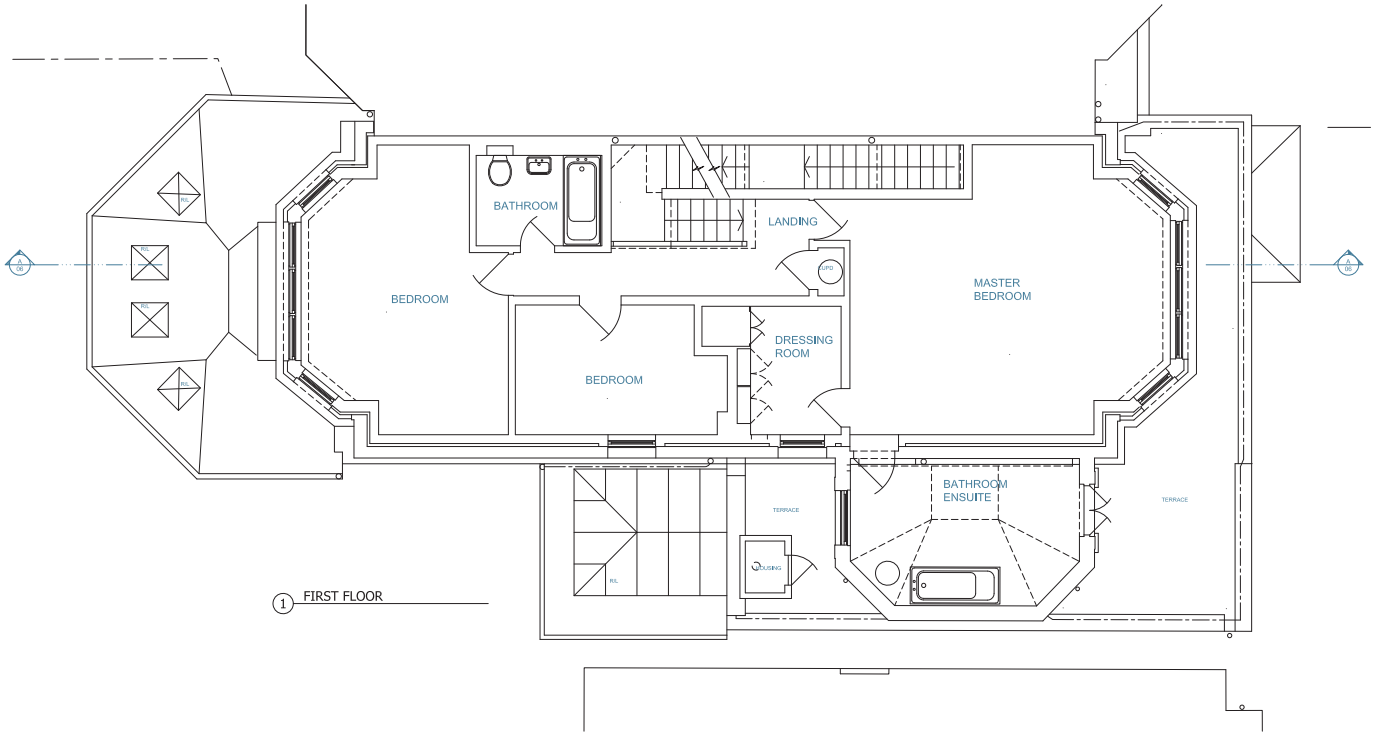

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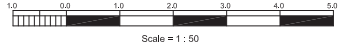

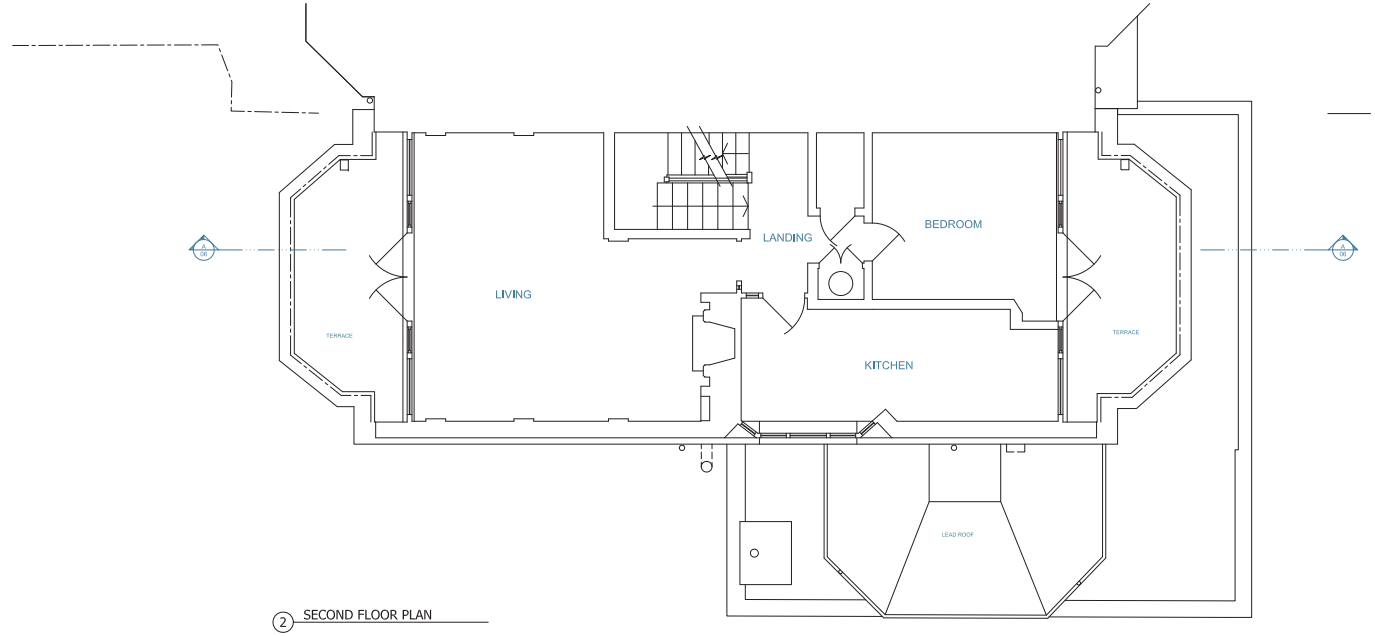

2 SECOND FLOOR PLAN

Notes:

Do not scale from the drawings except for planning purposes. The contractor is to verify dimensions on site prior to the commencement of work. Any discrepancies are to be reported to the designer. If in doubt - seek clarification.

Rev.	Date	Remarks

Project	45 Maresfield Gardens
Drawing	Existing First and Second Floor Plans
Scale	1:50
Date	15-02-13
Rev	
Status	Planning
Drawing No.	5835 - 03
Approved	

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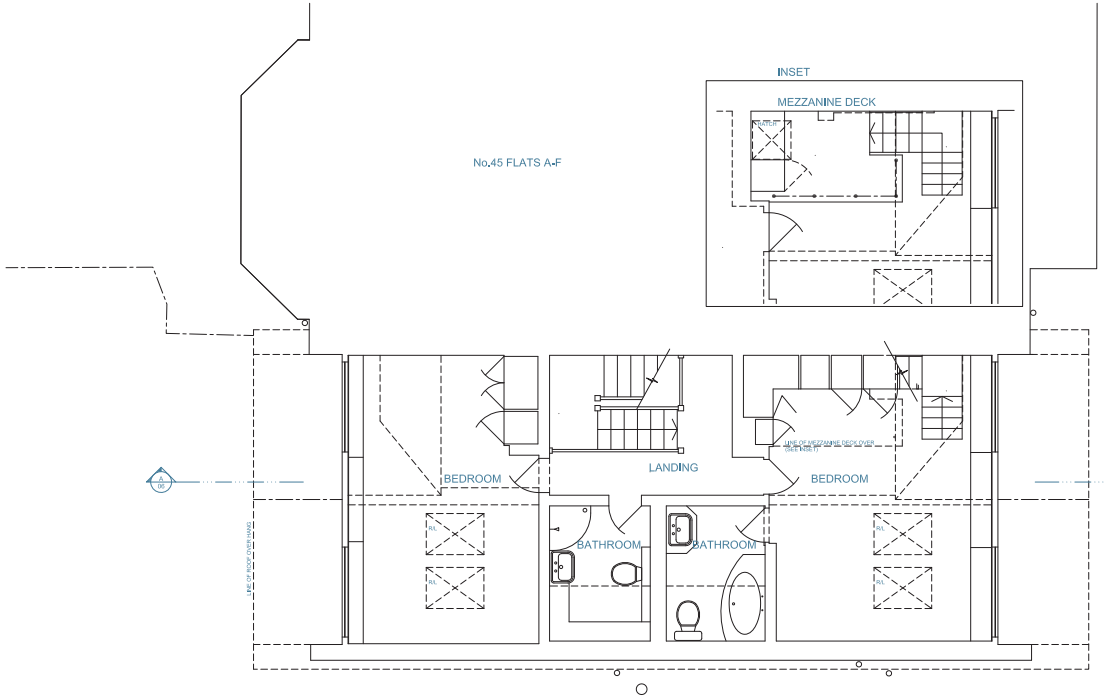

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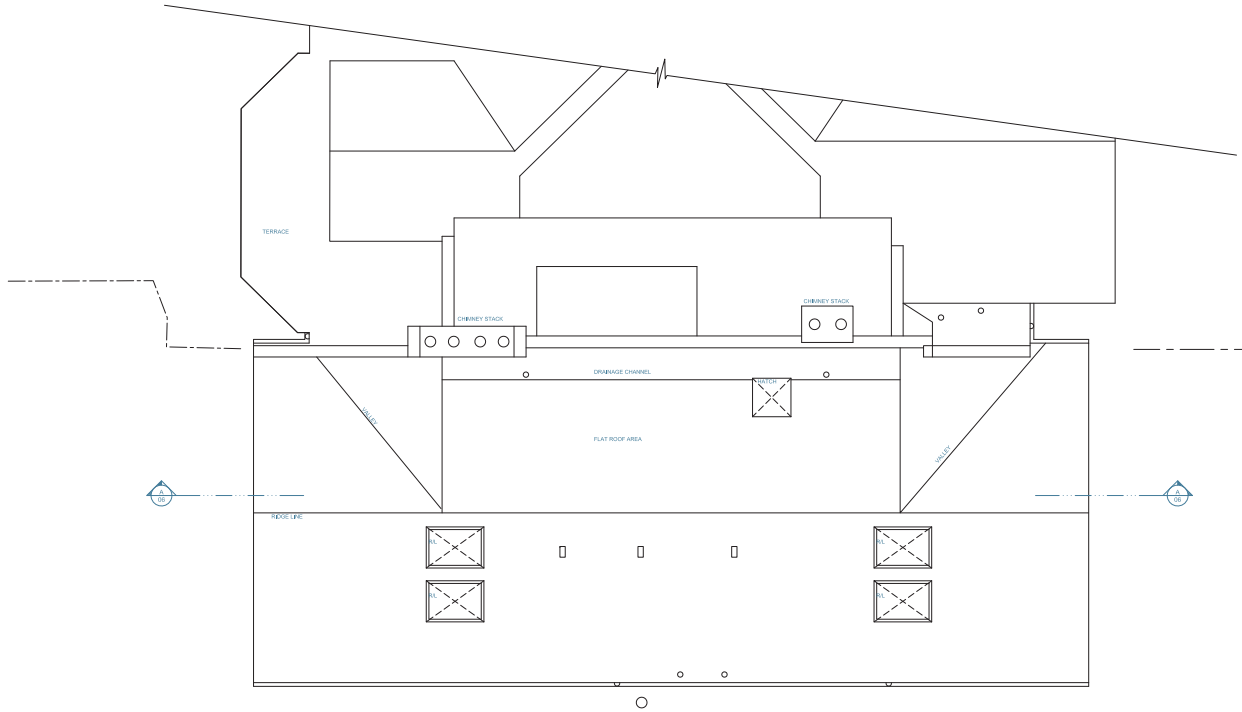
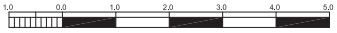


2 ROOF PLAN



Scale = 1 : 50

Notes:

Do not scale from the drawings except for planning purposes. The contractor is to verify dimensions on site prior to the commencement of work. Any discrepancies are to be reported to the designer. If in doubt - seek clarification.

Rev.	Date	Remarks

Project	45 Maresfield Gardens
Drawing	Existing Third Floor + Roof Plan
Scale	1:50
Date	15-02-13
Rev	
Status	Planning
Drawing No.	5835 - 04
Approved	

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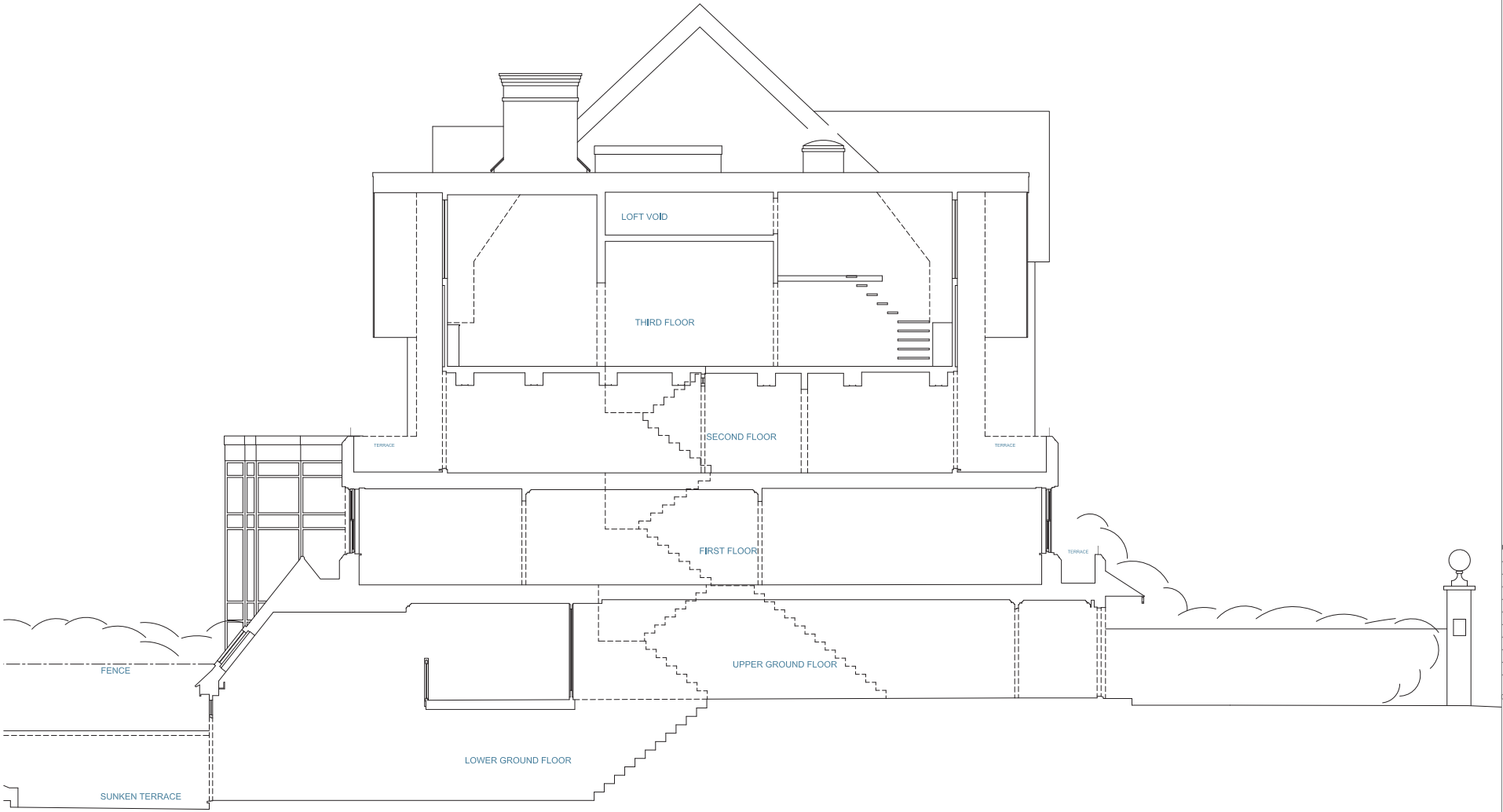

1 Section A-A

Notes:

Do not scale from the drawings except for planning purposes. The contractor is to verify dimensions on site prior to the commencement of work. Any discrepancies are to be reported to the designer. If in doubt - seek clarification.

Rev.	Date	Remarks

Project	45 Maresfield Gardens
Drawing	Existing Section
Scale	1:50
Date	15-02-13
Rev	
Status	Planning
Drawing No.	5835 - 06
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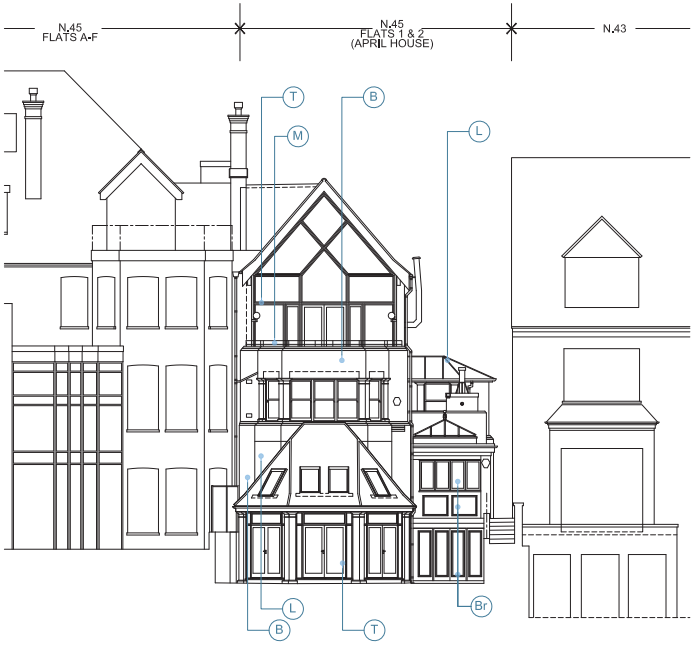
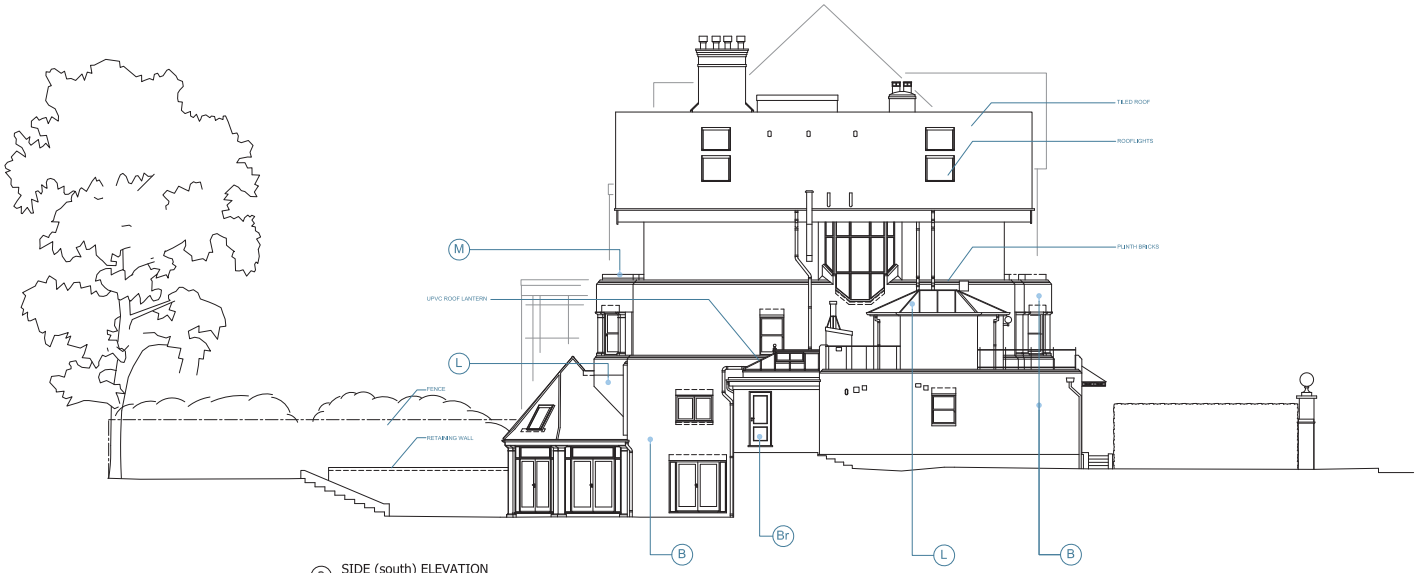
1 FRONT (east) ELEVATION



2 REAR (west) ELEVATION



3 SIDE (south) ELEVATION

Notes:

Do not scale from the drawings except for planning purposes. The contractor is to verify dimensions on site prior to the commencement of work. Any discrepancies are to be reported to the designer. If in doubt - seek clarification.

MATERIAL SCHEDULE

- B — FACING BRICKWORK
- S — RECONSTITUTED STONE COPINGS / STING COURSES
- L — LEAD SHEET ROOFING/ CLADDING
- Br — BROWN STAINED FINISH GLAZED WINDOWS AND DOORS AND PLY PANELED CLADDING
- T — TIMBER WINDOWS WHITE PAINT FINISH
- M — METAL BALUSTRADE

Rev.	Date	Remarks

Project	45 Maresfield Gardens
Drawing	Existing Elevations
Scale	1:100
Date	15-02-13
Rev	
Status	Planning
Drawing No.	5835 - 08
Approved	

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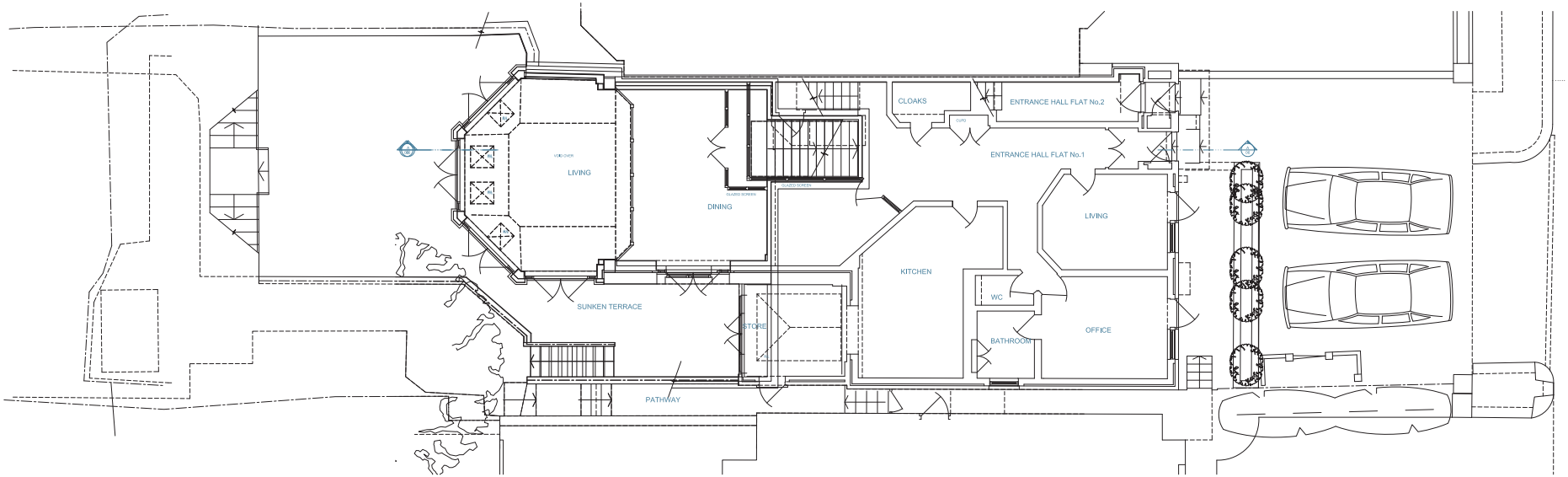
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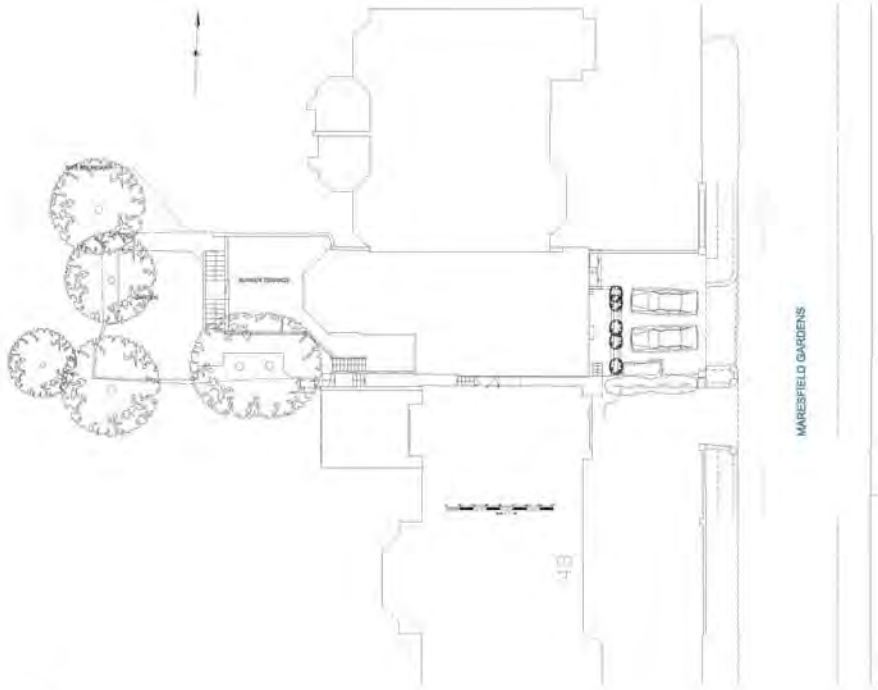
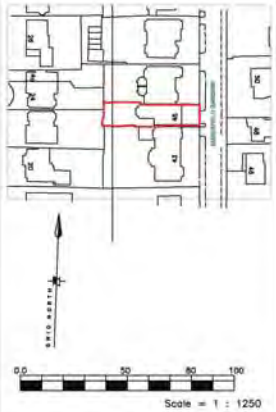
ENTRANCE HALL FLAT No.1
LIVING
DINING
LIVING
KITCHEN
WC
BATHROOM
OFFICE
SUNKEN TERRACE
STORE
PATHWAY
Scale - 1 : 50



1 SITE PLAN - AS EXISTING

Notes:

Do not scale from this drawings except for planning purposes. The contractor is to verify dimensions on site prior to the commencement of work. Any discrepancies are to be reported to the designer. If in doubt - seek clarification.



3 SITE LOCATION PLAN

Rev.	Date	Remarks

Project	45 Maresfield Gardens
Drawing	Site Layout Details
Scale	1:200
Date	21-02-14
Rev	
Status	Planning
Drawing No.	5835 - 201
Approved	

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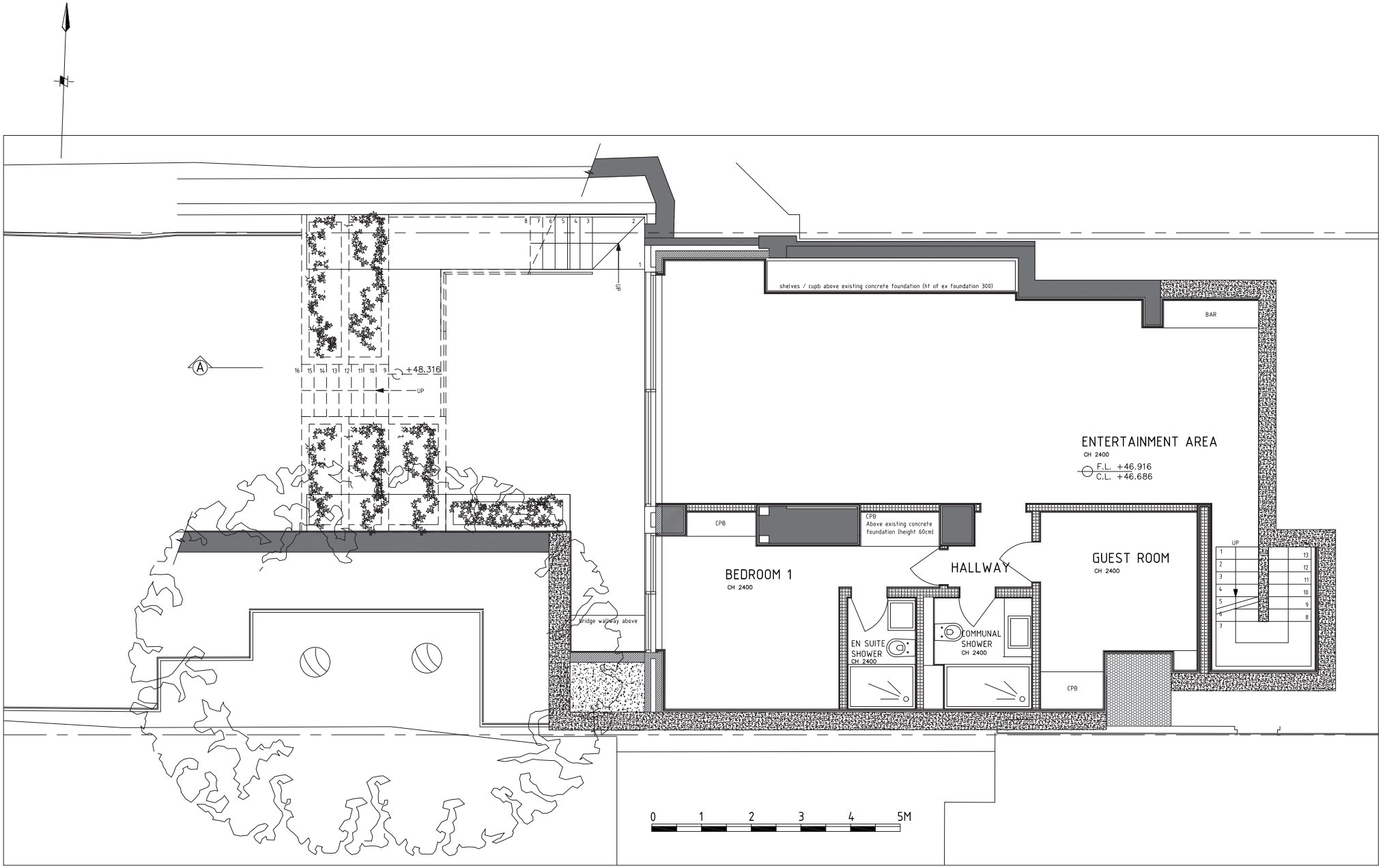

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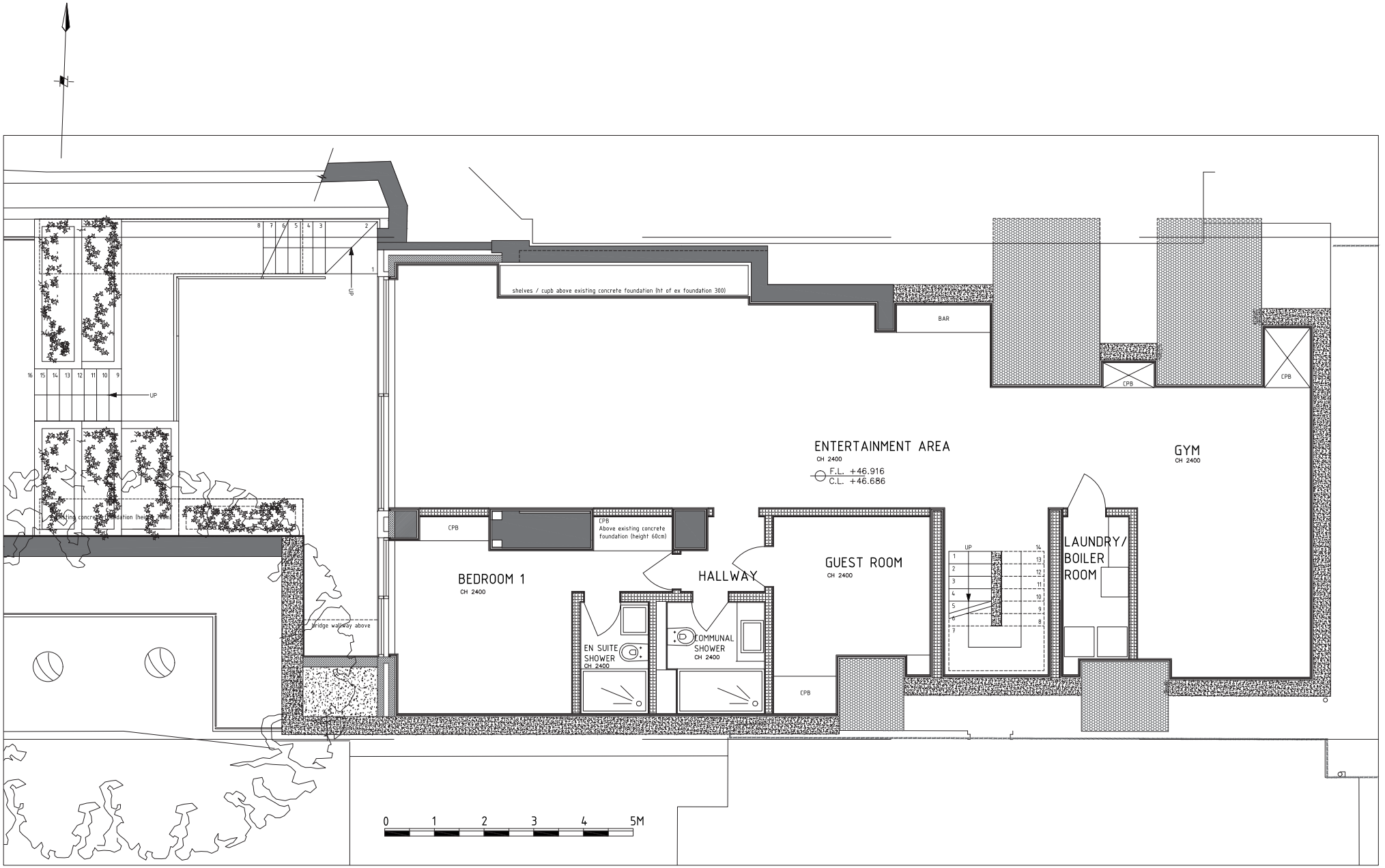

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CLIENT NAME: -	PROJECT STAGE:	DRAWN:		
	VERSION:	SCALE 1 : 100	SIZE: A2	DATE: 10 SEPT 2014

APPENDIX B

Photographs – Existing Site

Photographs

45 Maresfield Gardens

Septemver 18th 2014

Doyle Town Planning + Urban Design

Drwg. Ref 131.1 MAR REV. A

APPENDIX C

Ground Investigation Records

Knapp Hicks Window Sampler Borehole logs (September 2014)

HAND AUGER BOREHOLE LOGS

BH1	(Located in basement floor, towards rear of site)
GL – 2.00m	Firm to stiff damp reddish brown clayey SILT
2.00m - 3.00 m	Firm to stiff/stiff damp dark grey clayey SILT
3.90 m	*End of Borehole*

- Upon completion groundwater level was monitored as follows:
- 0mins: 2.95mbgl; 25mins: 2.10mbgl; 1hr55mins: 1.07m; 2hrs20mins: 0.89mbgl; and 22hrs: 0.835mbgl
- No roots or rootlets were noted.
- Pocket Penetrometers were carried out at varying depths in the window sample – please see separate sheet for results. The results confirmed the soils were typicall firm to stiff or stiff to the full depth of the hole. Resistance to augering was also encountered as the auger was advanced.

BH2	(Located front left of site, adjacent pavement)
Ground Level to 1.90m	MADE GROUND: Generally firm to stiff greyish brown silty CLAY with occasional fragments of brick and sandy lenses.
1.90m to 3.80m	Stiff greyish brown silty CLAY 2.50m becomes more damp
3.80m to 4.10m	Recovered as soft to firm greenish grey SILT with pockets of grey clay.
4.10m to 4.50m	Stiff dark grey CLAY with fine sandy partings.
4.50 m	*End of Borehole*

- Upon completion the borehole was dry. The hole was left open overnight and the groundwater was measured at 4mbgl at 20 hours after the borehole was completed.
- No roots or rootlets encountered below 1.00 m.
- Pocket Penetrometers were carried out at varying depths in the window sample – please see separate sheet for results.

APPENDIX D

Thames Water Records

Asset Location Search

Jennifer Sturman
Knapp Hicks & Partners Ltd
ASHFORD
TN24 0GP

Search address supplied

45
Maresfield Gardens
London
NW3 5TE

Your reference N/A

Our reference ALS/ALS Standard/2014_2864830

Search date 16 September 2014

You are now able to order your Asset Location Search requests online by visiting
www.thameswater-propertysearches.co.uk

searchcode

Asset Location Search

Search address supplied: 45, Maresfield Gardens, London, NW3 5TE

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This searchprovides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0845 070 9148, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk
Web: www.thameswater-propertysearches.co.uk

Asset Location Search

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and

Asset Location Search

pressure test to be carried out for a fee.

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

An invoice is enclosed. Please send remittance to Thames Water Utilities Ltd., PO Box 3189, Slough, SL1 4WW.

Asset Location Search

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0845 850 2777
Email: developer.services@thameswater.co.uk

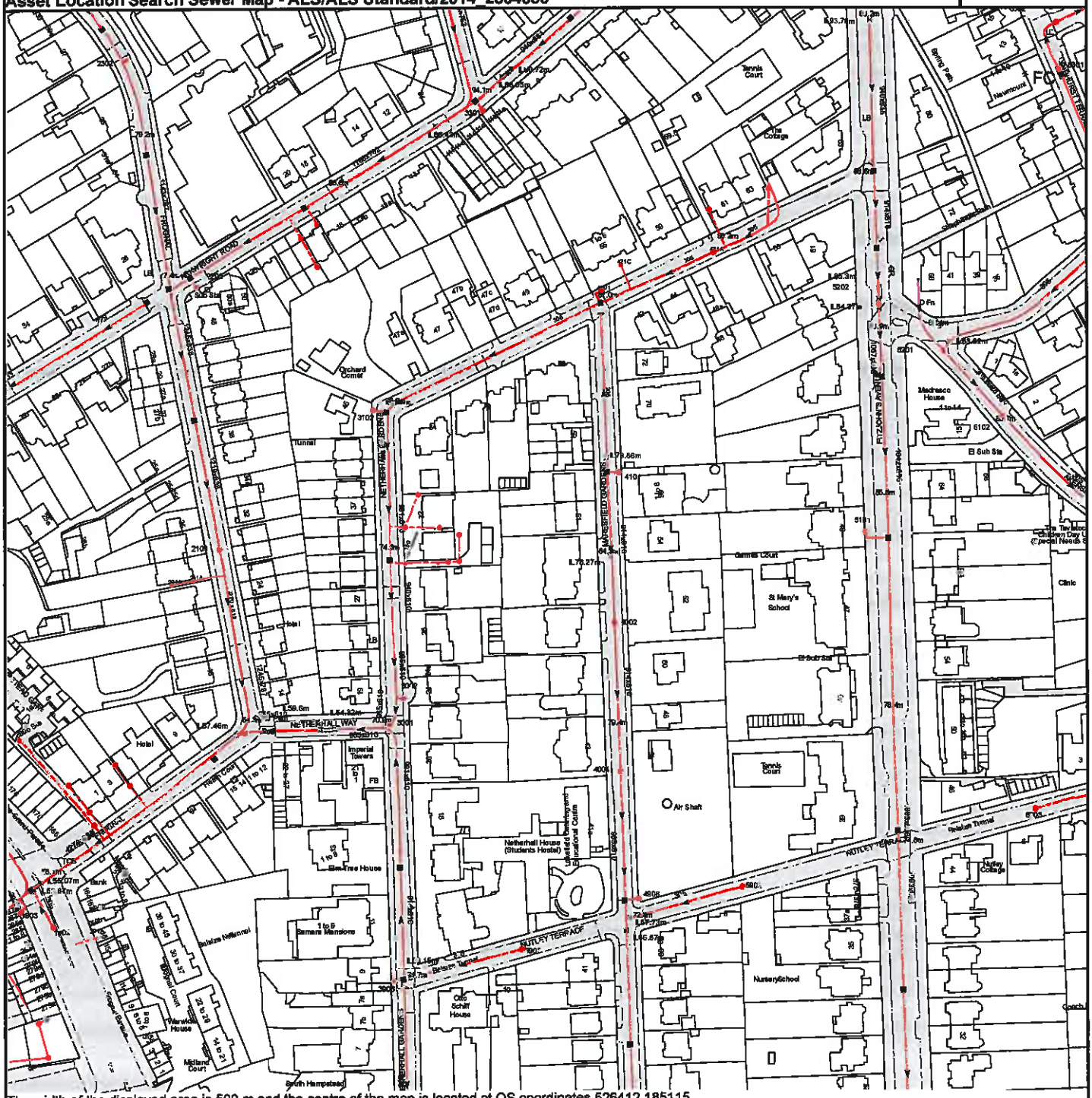
Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0845 850 2777
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2014_2864830



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 526412,185115

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
5202	89.33	n/a
4201	n/a	n/a
2203	n/a	n/a
421C	n/a	n/a
3201	n/a	n/a
421A	n/a	n/a
2210	n/a	n/a
3202	n/a	n/a
4206	n/a	n/a
5211	n/a	n/a
3301	n/a	n/a
2302	n/a	n/a
6301	96.56	n/a
6302	96.97	91.28
5902	73.36	69.41
6903	75.62	71.38
5101	n/a	n/a
6102	85.7	80.58
5201	87.83	83.39
1916	n/a	n/a
2901	n/a	n/a
291A	n/a	n/a
2007	n/a	n/a
2008	n/a	n/a
201A	n/a	n/a
211A	n/a	n/a
2101	69.04	62.55
3102	n/a	n/a
3001	70.81	64.89
3906	n/a	n/a
3002	n/a	n/a
3106	n/a	n/a
3112	n/a	n/a
3105	n/a	n/a
3111	n/a	n/a
3107	n/a	n/a
3110	n/a	n/a
3108	n/a	n/a
3109	n/a	n/a
3903	72.04	69.19
4002	82.58	76.52
4101	n/a	n/a
4001	76.82	71.76
4906	n/a	n/a
1004	n/a	n/a
1903	n/a	n/a
18AE	n/a	n/a
18AF	n/a	n/a
18AD	n/a	n/a
1902	57.86	54.02
1005	n/a	n/a

ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

Trunk Surface Water

Trunk Foul

Storm Relief

Trunk Combined

Vent Pipe

Bio-solids (Sludge)

Proposed Thames Surface Water Sewer

Proposed Thames Water Foul Sewer

Gallery

Foul Rising Main

Surface Water Rising Main

Combined Rising Main

Sludge Rising Main

Proposed Thames Water Rising Main

Vacuum

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

Air Valve

Dam Chase

Fitting

Meter

Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

Control Valve

Drop Pipe

Ancillary

Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

Outfall

Undefined End

Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

Public/Private Pumping Station

Change of characteristic indicator (C.O.C.I.)

Invert Level

Summit

Areas

Lines denoting areas of underground surveys, etc.

Agreement

Operational Site

Chamber

Tunnel

Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

Foul Sewer

Surface Water Sewer

Combined Sewer

Gulley

Culverted Watercourse

Proposed

Abandoned Sewer

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.

2) All measurements on the plans are metric.

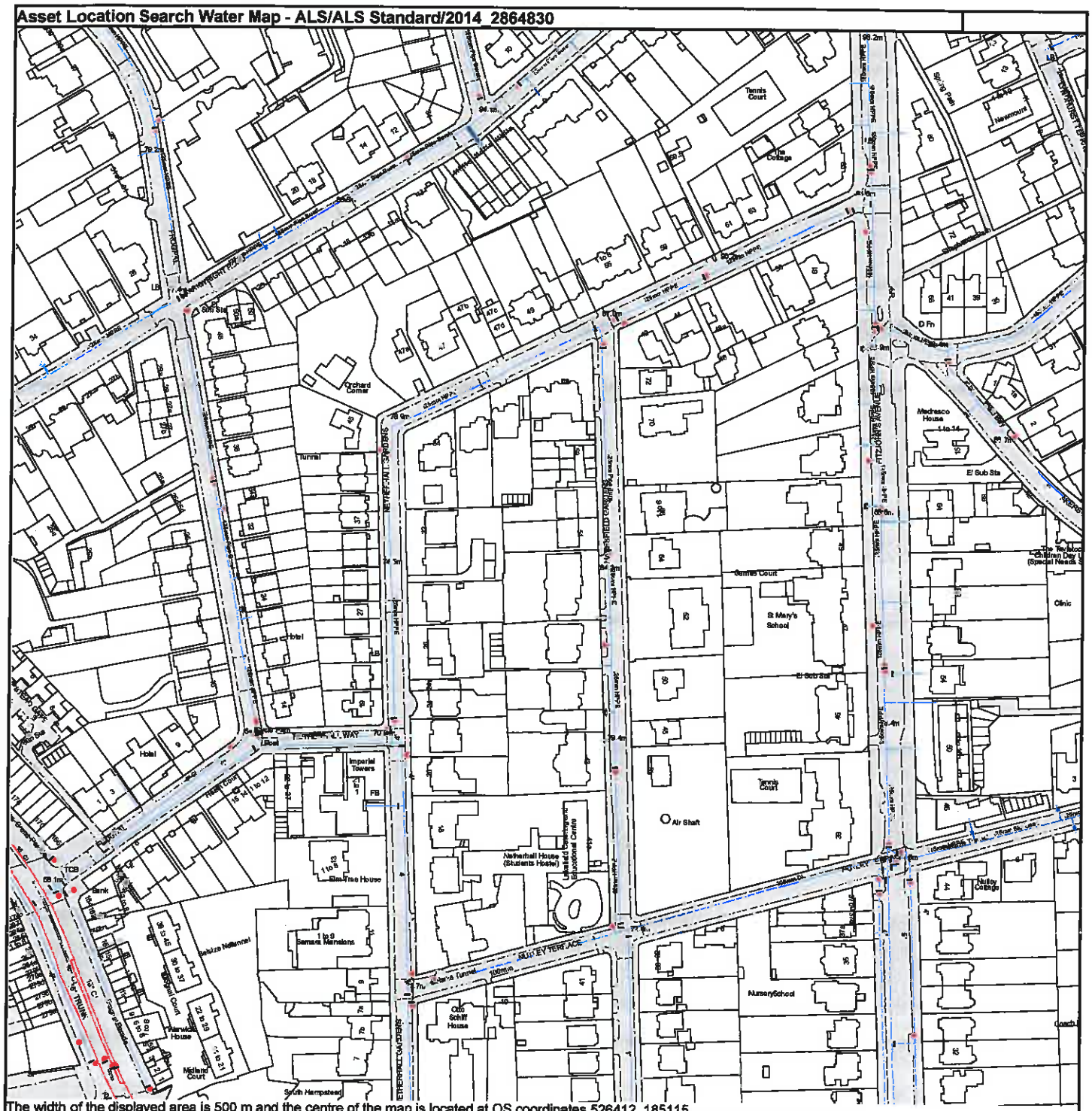
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.

4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

5) 'na' or '0' on a manhole level indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

Asset Location Search Water Map - ALS/ALS Standard/2014_2864830



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 526412, 185115.

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)

Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.

Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.

Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.

Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

Symbol indicating what happens at the end of a water main.

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

Other Symbols

- Data Logger

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Other Water Pipes (Not Operated or Maintained by Thames Water)

Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.

Private Main: Indiates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

APPENDIX E

Groundsure Report

emapsite™

EmapSite

Masdar House, ,
Eversley, RG27 0RP

GroundSure Reference:	EMS-267339_360807
Your Reference:	EMS_267339_360807
Report Date	11 Sep 2014
Report Delivery Method:	Email - pdf

GroundSure EnviroInsight

Address: ,

Dear Sir/ Madam,

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

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

Yours faithfully,

emapsite customer services team

Enc.
GroundSure EnviroInsight

GroundSure EnviroInsight

Address:

Date: 11 Sep 2014

Reference: EMS-267339_360807

Client: EmapSite

NW N NE

W E

SW S SE

Aerial Photograph Capture date: 20-Apr-2013

Grid Reference: 526414,185051

Site Size: 0.12ha

Contents Page

Overview of Findings

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

Section 1: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
1.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
1.1.1 Records of historic IPC Authorisations	0	0	0	0
1.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
1.1.3 Records of Water Industry Referrals (potentially harmful discharges to the public sewer)	0	0	0	0
1.1.4 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters)	0	0	0	0
1.1.5 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
1.1.6 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
1.1.7 Records of Part A(2) and Part B Activities and Enforcements	0	0	1	9
1.1.8 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
1.1.9 Records of Licensed Discharge Consents	0	0	0	0
1.1.10 Records of Planning Hazardous Substance Consents and Enforcements	0	0	0	0
1.2 Records of COMAH and NIHHS sites	0	0	0	0
1.3 Environment Agency Recorded Pollution Incidents				
1.3.1 National Incidents Recording System, List 2	0	0	0	0
1.3.2 National Incidents Recording System, List 1	0	0	0	0
1.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 2: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-5000
2.1 Landfill Sites						
2.1.1 Environment Agency Registered Landfill Sites	0	0	0	0	0	Not searched
2.1.2 Environment Agency Historic Landfill Sites	0	0	0	1	0	0
2.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
2.1.4 GroundSure Local Authority Landfill Sites Data	0	0	0	0	0	0
2.2 Landfill and Other Waste Sites Findings						
2.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	3	Not searched	Not searched
2.2.2 Environment Agency Licensed Waste Sites	0	0	0	0	0	0

Section 3: Current Land Use

	On-site	0-50m	51-250	251-500
3.1 Current Industrial Sites Data	0	0	12	Not searched
3.2 Records of Petrol and Fuel Sites	0	0	0	1
3.3 Underground High Pressure Oil and Gas Pipelines	0	0	0	0

Section 4: Geology

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

Section 5: Hydrogeology and Hydrology

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

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
5.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	4	3
5.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
5.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	3
5.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
5.7 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	0	1	0	0	Not searched	Not searched

	On-site	0-50m	51-250	251-500	501-1000	1000-1500
5.8 Is there any Environment Agency information on river quality within 1500m of the study site?	No	No	No	No	No	No
5.9 Detailed River Network entries within 500m of the site	0	0	0	0	Not searched	Not searched
5.10 Surface water features within 250m of the study site	No	No	No	Not searched	Not searched	Not searched

Section 6: Flooding

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

Section 7: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	1
7.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
7.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
7.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
7.5 Records of Ramsar sites	0	0	0	0	0	0
7.6 Records of Ancient Woodlands	0	0	0	0	0	2
7.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	3
7.8 Records of World Heritage Sites	0	0	0	0	0	0
7.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0
7.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
7.11 Records of National Parks	0	0	0	0	0	0
7.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
7.13 Records of Nitrate Vulnerable Zones	0	0	0	0	0	0

Section 8: Natural Hazards

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

Section 9: Mining

9.1 Are there any coal mining areas within 75m of the study site?	No
9.2 What is the risk of subsidence relating to shallow mining within 150m of the study site?	Negligible
9.3 Are there any brine affected areas within 75m of the study site?	No

Using this report

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

1. Environmental Permits, Incidents and Registers

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

2. Landfills and Other Waste Sites

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

3. Current Land Uses

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

4. Geology

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

5. Hydrogeology and Hydrology

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

6. Flooding

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

7. Designated Environmentally Sensitive Sites

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

8. Natural Hazards

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

9. Mining

Provides information on areas of coal and shallow mining.

10. Contacts

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

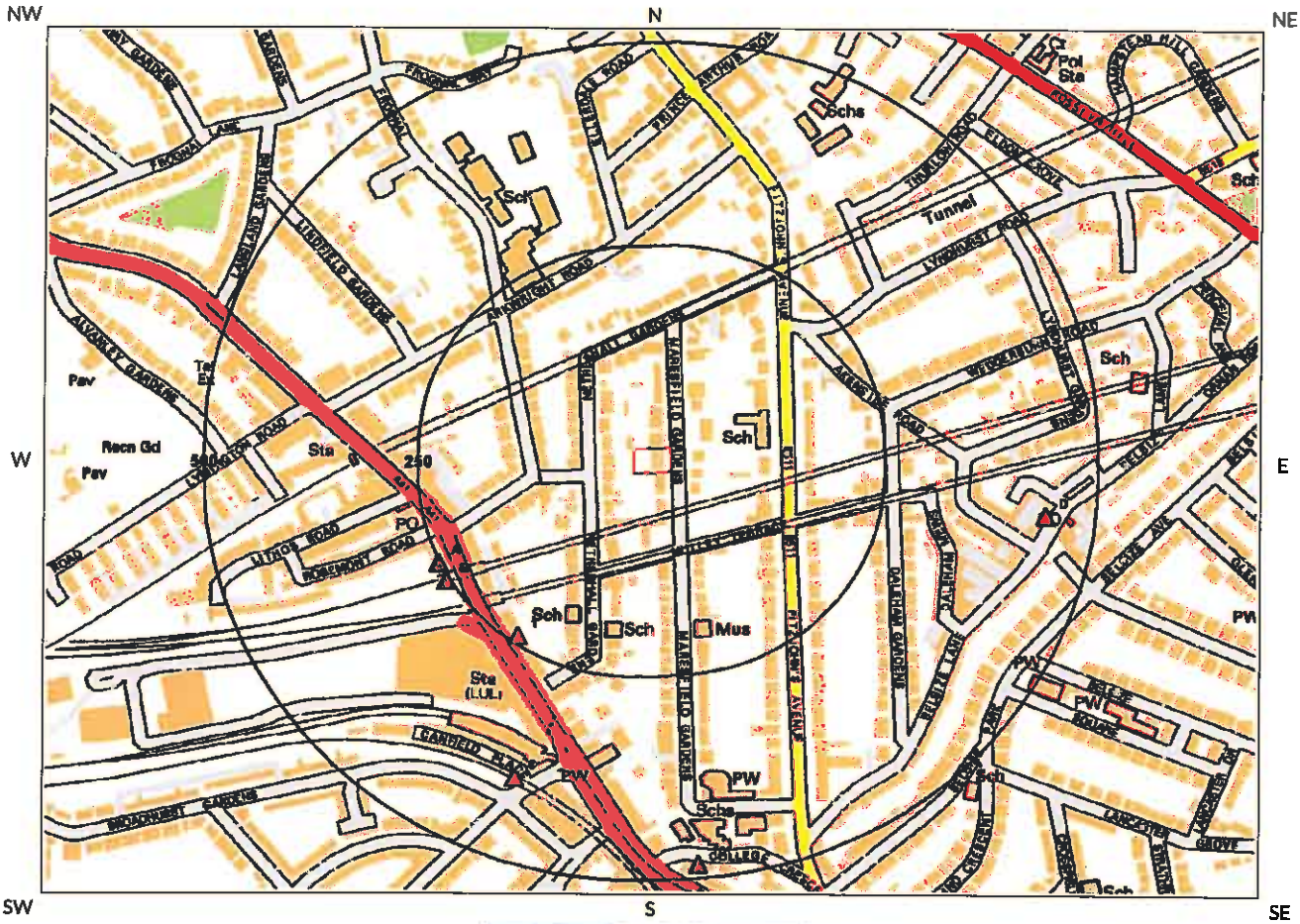
Note: Maps

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

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

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

1. Environmental Permits, Incidents and Registers Map



Environmental Permits, Incidents and Registers Legend

Mapping sourced from Ordnance Survey

- Site Outline
- Search Buffers (m) — 250 / 500
- Recorded Pollution Incident
- Dangerous Substances (List 1)
- Dangerous Substances (List 2)
- Water Industry Referrals
- Licenced Discharge Consents
- Red List Discharge Consents
- RAS 3 & 4 Authorisations
- Part A(1) Authorised Processes and Historic IPC Authorisations
- Part A(2) and Part B Authorised Processes
- COMAH / NIHHS Sites
- Sites Determined as Contaminated Land
- Hazardous Substance Consents and Enforcements

Report Reference: EMS-267339_360807
Client Reference: EMS_267339_360807

1. Environmental Permits, Incidents and Registers

1.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

10

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

ID	Distance	Direction	NGR	Details	
1	242.0	SW	526259 184834	Address: Executive Clean Dry Cleaners, 148 Finchley Road, NW3 5HS Process: Dry Cleaner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
2A	253.0	SW	526167 184923	Address: Ariana Hand Laundry Ltd, 281a Finchley Road, NW3 6ND Process: Dry Cleaner Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
3A	253.0	SW	526167 184923	Address: Ariana Hand Laundry Ltd (Dr Klean), 281a Finchley Road, NW3 6ND Process: Dry Cleaner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
4B	256.0	SW	526176 184901	Address: Hampstead Express Clothes Clinic , 279a Finchley Road, NW3 6LT Process: Dry Cleaner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
5B	256.0	SW	526176 184901	Address: Hampstead Express Dry Cleaning, 279a Finchley Road, NW3 6LT Process: Dry Cleaner Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
6C	400.0	S	526256 184660	Address: I.S.Dry Cleaners, 6 Canfield Gardens, NW6 3BS Process: Dry Cleaner Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
7C	400.0	S	526256 184660	Address: I.S. Dry Cleaners, 6 Canfield Gardens, London, NW6 3BS Process: Dry Cleaner Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
8D	442.0	E	526875 184983	Address: Pyramid Cleaners, 52 Belsize Lane, Belsize Park, NW3 5AR Process: Dry Cleaner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
9D	442.0	E	526875 184983	Address: Pyramid Cleaners, 52 Belsize Lane, NW3 5AR Process: Dry Cleaner Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

ID	Distance	Direction	NGR	Details	
10	485.0	S	526471 184554	Address: BP Hampsted Connect (Harmony), 104a Finchley Road, London, NW3 5EY Process: Petrol Station Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

1.1.8 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

1.2 Dangerous or Hazardous Sites

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

Database searched and no data found.

1.3 Environment Agency Recorded Pollution Incidents

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

0

Database searched and no data found.

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

Database searched and no data found.

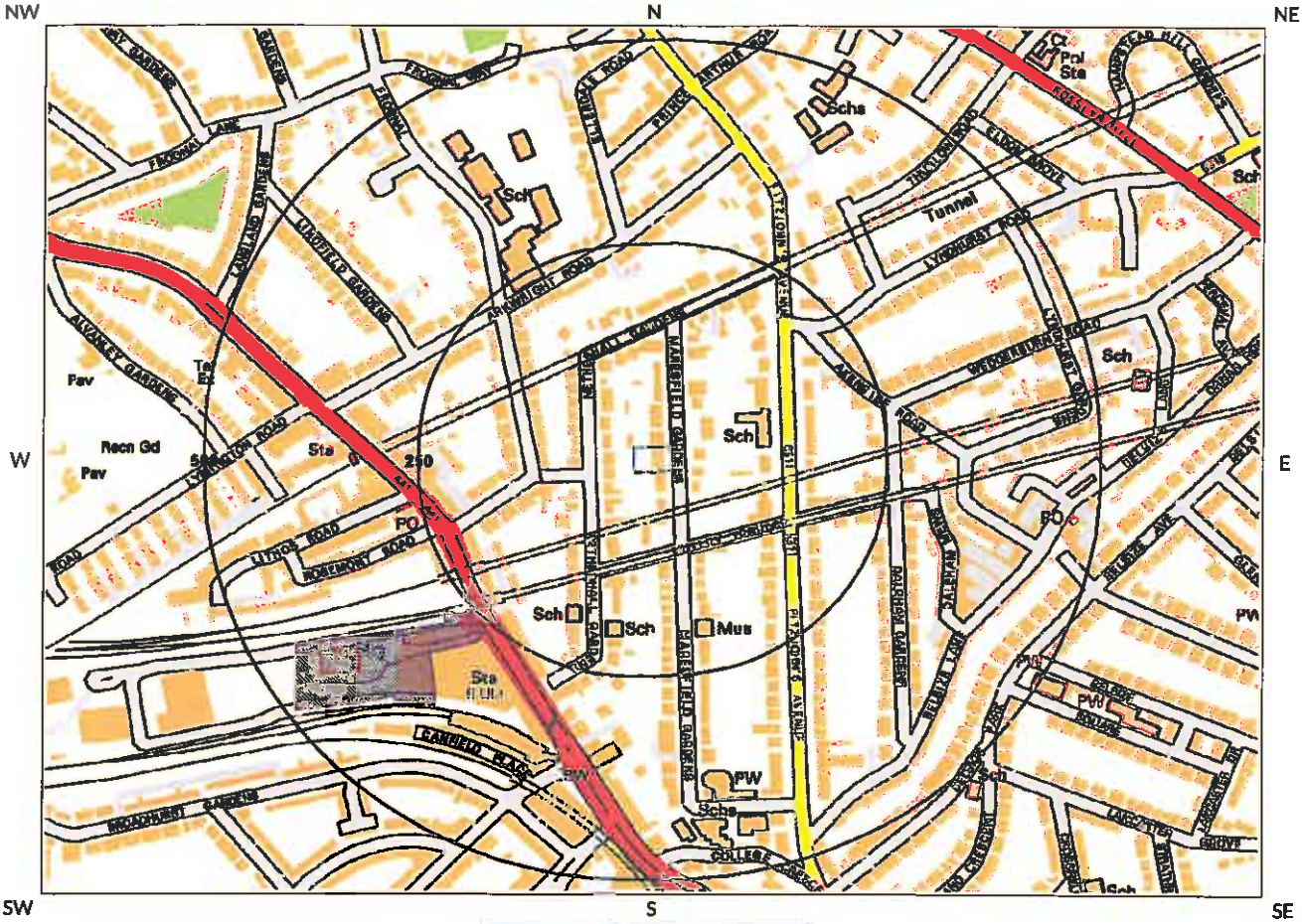
1.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

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

Database searched and no data found.

---

2. Landfill and Other Waste Sites Map



Landfill and Other Waste Sites Legend

Mapping sourced from Ordnance Survey

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

2. Landfill and Other Waste Sites

2.1 Landfill Sites

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

0

Database searched and no data found.

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

1

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

ID	Distance (m)	Direction	NGR	Details	
4	390.0	SW	526000 184800	Site Address: Canfield Place, London NW6 Waste Licence: - Site Reference: DON009 Waste Type: - Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Other Waste Sites

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

3

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

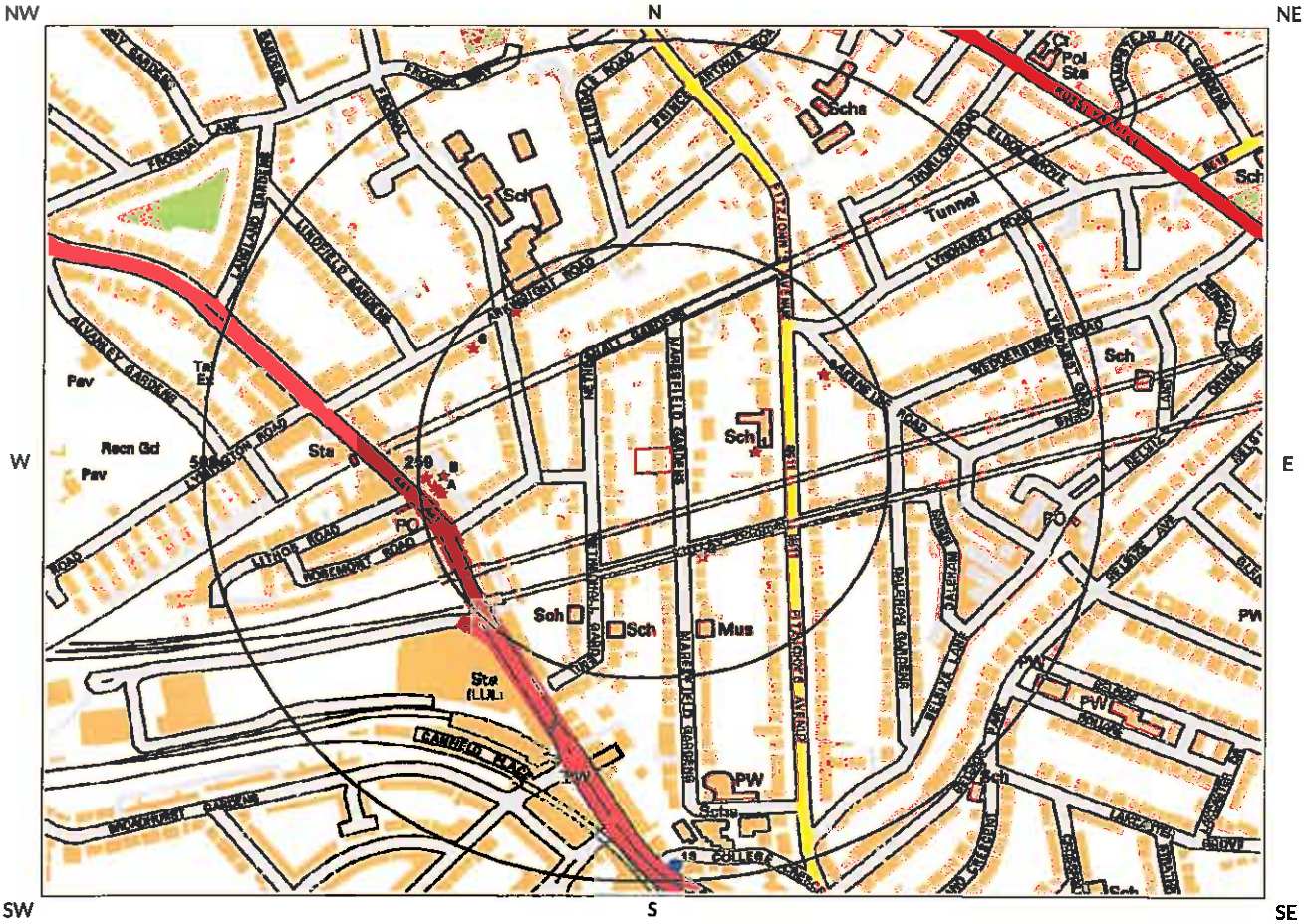
ID	Distance (m)	Direction	NGR	Details		
1	256.0	SW	526109 184831	Type of Site: Refuse Transfer Depot Site Address: N/A	Planning Application Reference: N/A Date: 1970	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
2	257.0	SW	526109 184803	Type of Site: Waste Transfer Station Site Address: N/A	Planning Application Reference: N/A Date: 1994	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
3	264.0	SW	526076 184811	Type of Site: Refuse Transfer Depot Site Address: N/A	Planning Application Reference: N/A Date: 1986	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

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

0

Database searched and no data found.

3. Current Land Use Map



Current Land Use Legend

Mapping sourced from Ordnance Survey

Site Outline

Search Buffers (m)

Current Industrial Sites

Petrol & Fuel Sites

Underground High Pressure Oil & Fuel Pipelines

3. Current Land Uses

3.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 12

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	96.0	E	Electricity Sub Station	526531 185062	NW3	Electrical Features	Infrastructure and Facilities
2	110.0	S	Texchange Ltd	526471 184933	32a, Maresfield Gardens, London, NW3 5SX	Electronic Equipment	Industrial Products
3	197.0	NE	Electricity Sub Station	526610 185157	NW3	Electrical Features	Infrastructure and Facilities
4	219.0	NW	Electricity Sub Station	526254 185234	NW3	Electrical Features	Infrastructure and Facilities
5B	222.0	W	Electricity Sub Station	526171 185032	NW3	Electrical Features	Infrastructure and Facilities
6	225.0	NW	Axle Music Ltd	526205 185188	27, Arkwright Road, London, NW3 6BJ	Recording Studios and Record Companies	IT, Advertising, Marketing and Media Services
7A	225.0	W	E-numberplates	526169 185011	176, Finchley Road, London, NW3 6BT	Vehicle Repair, Testing and Servicing	Repair and Servicing
8A	225.0	W	O I A Boiler Workshop Ltd	526169 185011	176, Finchley Road, London, NW3 6BT	Industrial Repairs and Servicing	Repair and Servicing
9A	229.0	W	Chic Flooring Ltd	526165 185014	178, Finchley Road, London, NW3 6BP	Construction Completion Services	Construction Services
10A	232.0	W	Sound & Light Ltd	526161 185018	180, Finchley Road, London, NW3 6BP	Electronic Equipment	Industrial Products
11B	242.0	W	Auto Motive Couture	526150 185030	186, Finchley Road, London, NW3 6BX	Vehicle Parts and Accessories	Motoring
12B	242.0	W	Automotive Couture	526150 185030	186a, Finchley Road, London, NW3 6BX	New Vehicles	Motoring

3.2 Petrol and Fuel Sites

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

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

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
13	482.0	S	526441 184555	BP	Hampstead Connect, 104A, Finchley Road, Finchley Road, Hampstead, London, Greater London, NW3 5EY	No	Open

3.3 Underground High Pressure Oil and Gas Pipelines

Records of high pressure underground pipelines within 500m of the study site: 0

Database searched and no data found.

4. Geology

4.1 Artificial Ground and Made Ground

Database searched and no data found.

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

4.2 Superficial Ground and Drift Geology

Database searched and no data found.

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

4.3 Bedrock and Solid Geology

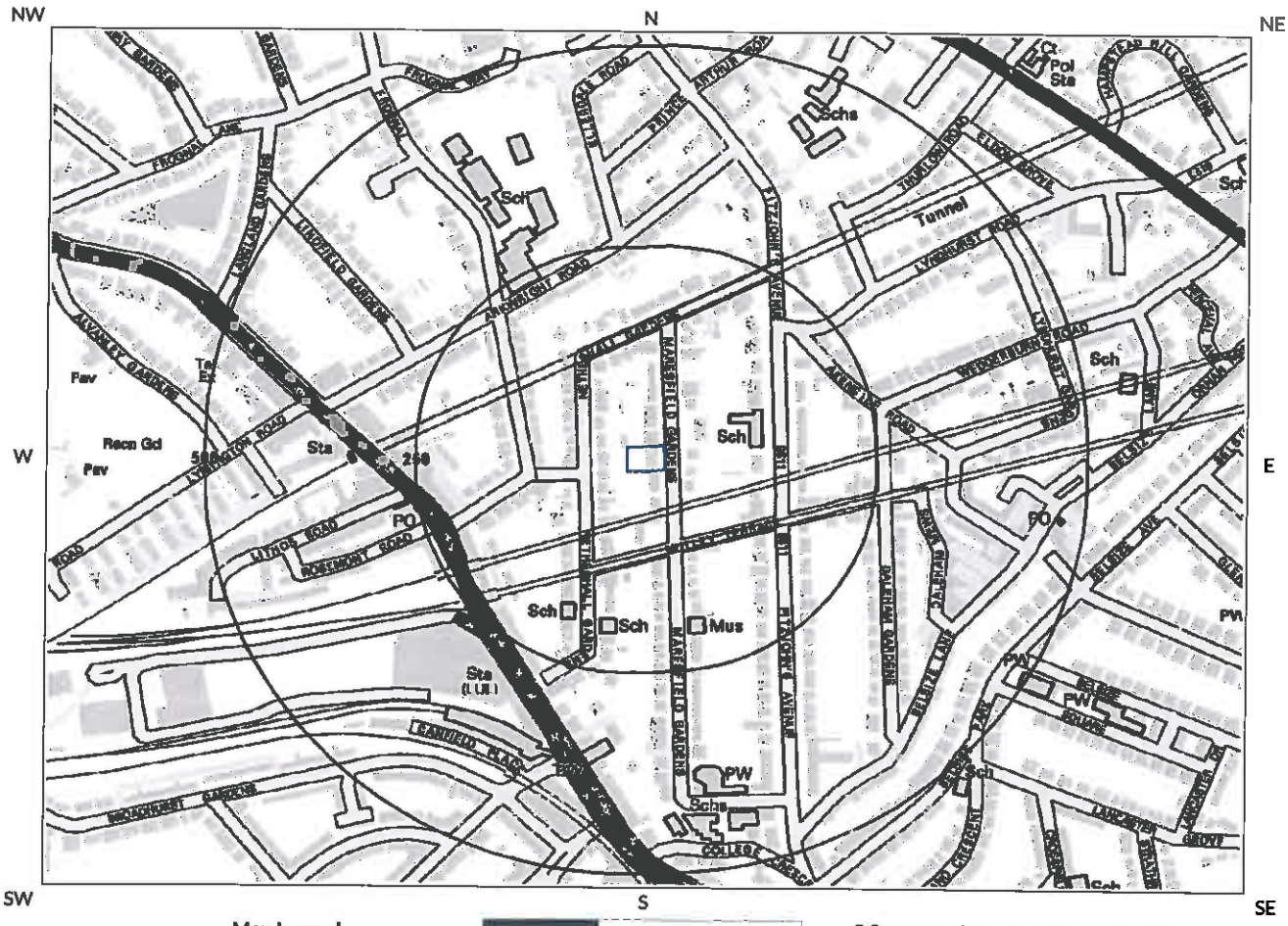
The database has been searched on site, including a 50m buffer.

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

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

5. Hydrogeology and Hydrology

5a. Aquifer Within Superficial Geology



Map Legend

Site Outline

Search Buffers (m) 250 500

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

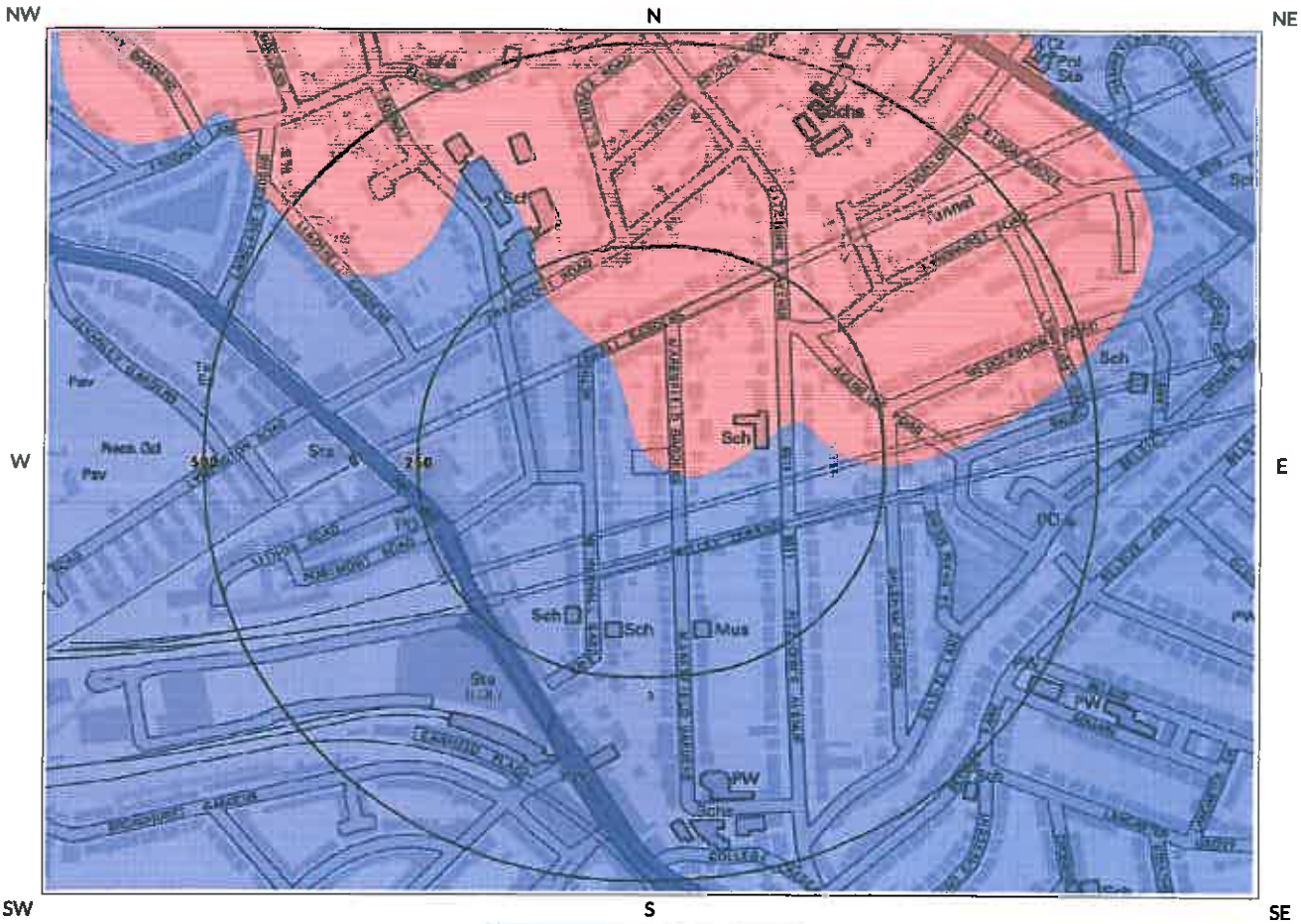
Secondary (B) Aquifer - Lower Permeability Layers

Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

5b. Aquifer Within Bedrock Geology and Abstraction Licenses



Map Legend

Site Outline

250 / 500 Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

Secondary (B) Aquifer - Lower Permeability Layers

Groundwater Abstraction Licence

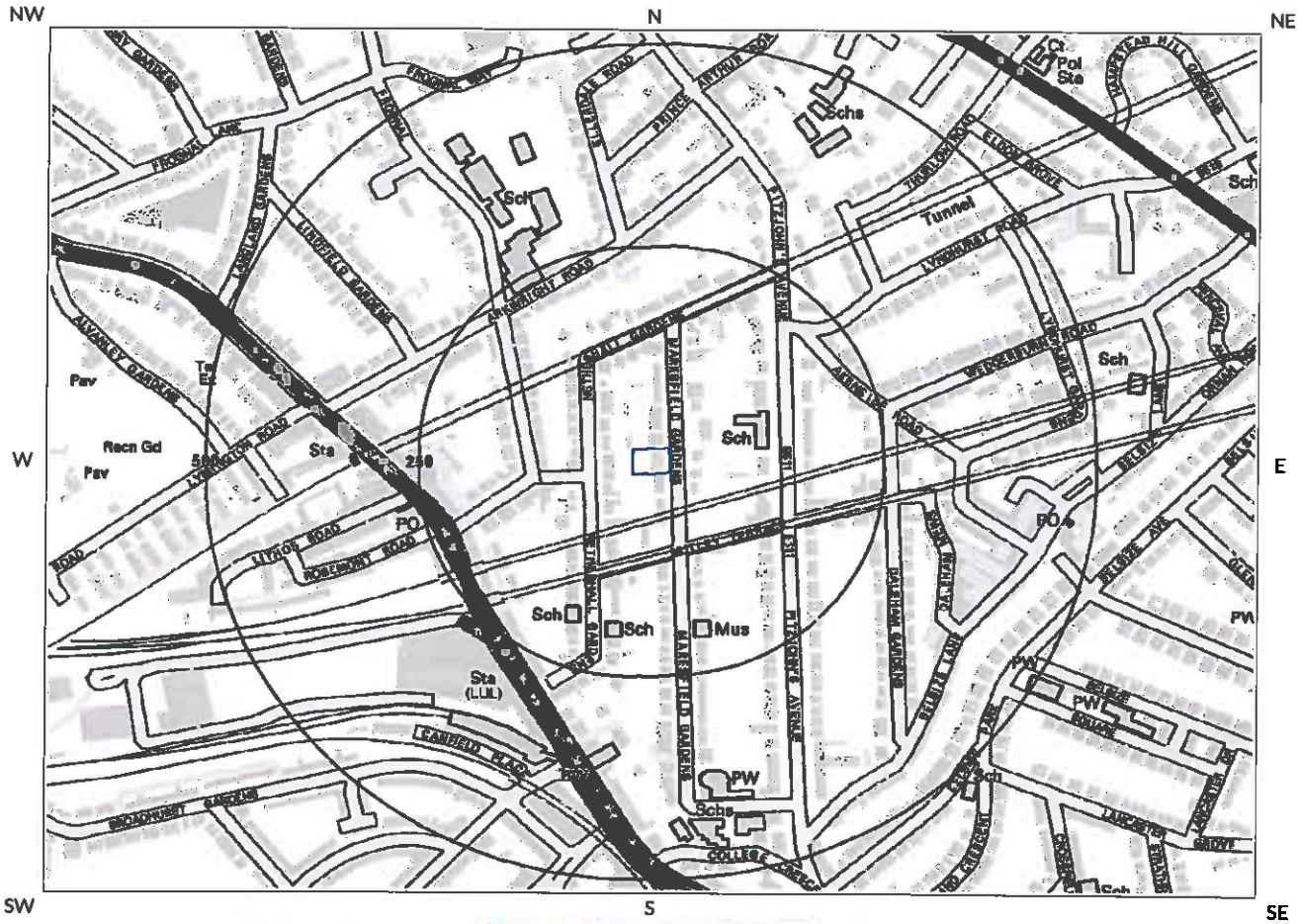
Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

Surface Water Abstraction Licence

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



Map Legend

Site Outline

Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

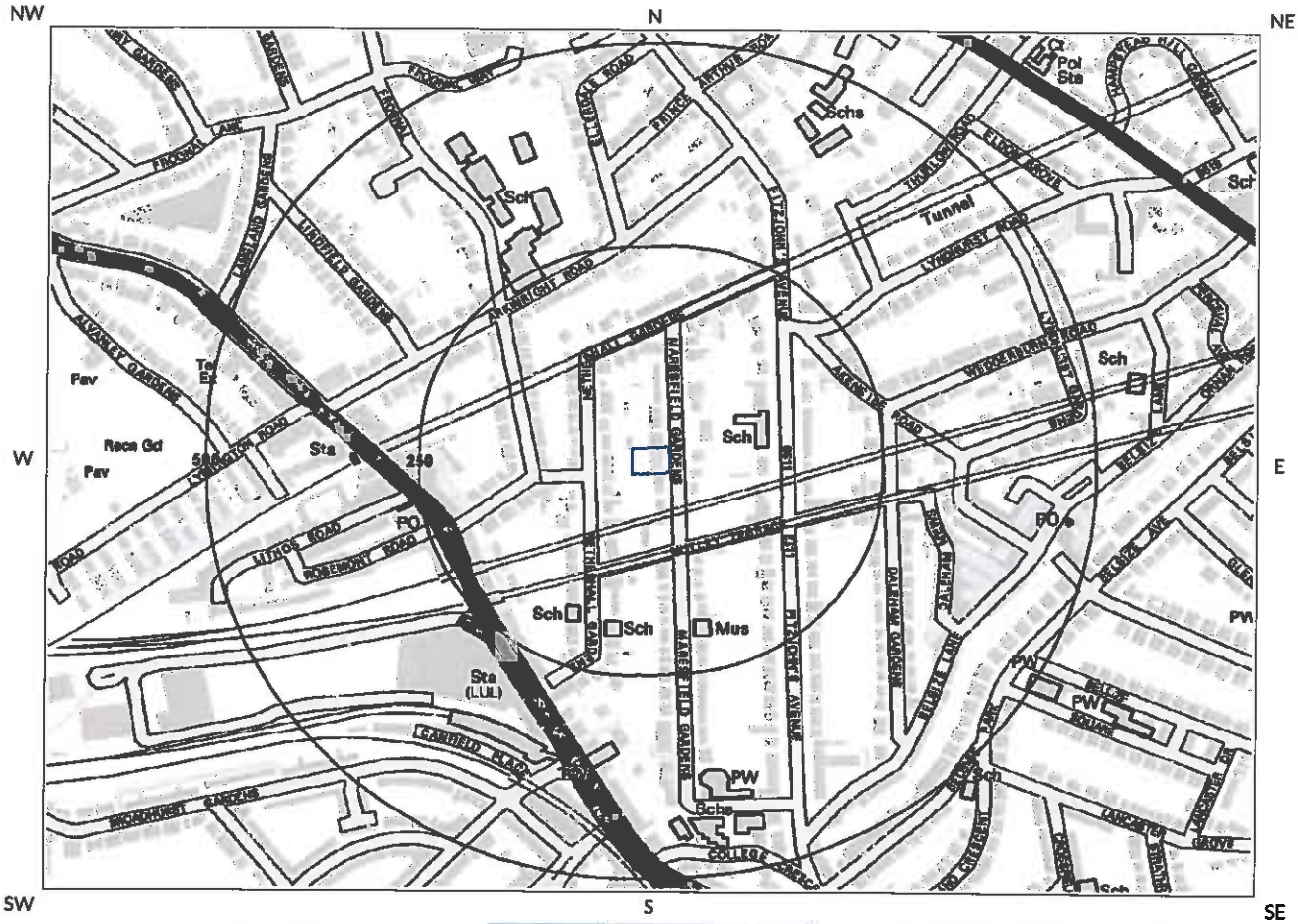
Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

emapsite™

GroundSure

5d. Hydrology – Detailed River Network and River Quality



Map Legend

Mapping sourced from Ordnance Survey

Site Outline

Search Buffers (m)

250

500

Primary River

Secondary River

Tertiary River

Lake/Reservoir

Underground River (inferred)

General Quality Assessment: Biology

General Quality Assessment: Chemistry

Canal

Canal Tunnel

Culvert

Multiple Channel Culvert

Underground River (Potential Sewer)

Underground River (local knowledge)

Report Reference: EMS-267339_360807
Client Reference: EMS_267339_360807

5. Hydrogeology and Hydrology

5.1 Aquifer within Superficial Deposits

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

Database searched and no data found.

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

5.2 Aquifer within Bedrock Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
1	0.0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	0.0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
3	36.0	S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

5.3 Groundwater Abstraction Licences

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

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	838.0	S	526750 184261	Licence No: TH/039/0039/087 Details: Lake & Pond Throughflow Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point	Annual Volume (m^3): 10512 Max Daily Volume (m^3): 28.8 Original Application No: NPS/WR/014567 Original Start Date: 5/12/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 5/12/2013 Version End Date:
Not shown	838.0	S	526750 184261	Licence No: TH/039/0039/087 Details: General Washing/Process Washing Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point	Annual Volume (m^3): 10512 Max Daily Volume (m^3): 28.8 Original Application No: NPS/WR/014567 Original Start Date: 5/12/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 5/12/2013 Version End Date:
Not shown	838.0	S	526750 184261	Licence No: TH/039/0039/087 Details: Spray Irrigation - Direct Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point	Annual Volume (m^3): 10512 Max Daily Volume (m^3): 28.8 Original Application No: NPS/WR/014567 Original Start Date: 5/12/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 5/12/2013 Version End Date:
Not shown	841.0	SE	526800 184280	Licence No: 28/39/39/0219 Details: Spray Irrigation - Direct Direct Source: Thames Groundwater Point: Swiss Cottage Open Space- Borehole Data Type: Point	Annual Volume (m^3): 10512 Max Daily Volume (m^3): 28.8 Original Application No: WRA/N/1407 Original Start Date: 12/8/2005 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: 1/4/2008 Version End Date:
Not shown	1800.0	SE	527636 183697	Licence No: TH/039/0039/058 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Borehole At Barrow Hill Data Type: Point	Annual Volume (m^3): 631000 Max Daily Volume (m^3): 2000 Original Application No: NPS/WR/009229 Original Start Date: 1/4/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: 1/4/2013 Version End Date:
Not shown	1807.0	SE	527640 183690	Licence No: 28/39/39/0231 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Barrow Hill Pumping Station - Borehole Data Type: Point	Annual Volume (m^3): 631000 Max Daily Volume (m^3): 2000 Original Application No: WRA/R/1026 Original Start Date: 1/4/2007 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: 1/4/2007 Version End Date:
Not shown	1807.0	SE	527640 183690	Licence No: 28/39/39/0202 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Barrow Hill Pumping Station - Borehole Data Type: Point	Annual Volume (m^3): 631000 Max Daily Volume (m^3): 2000 Original Application No: WRA/2/2(24) Original Start Date: 26/9/2002 Expiry Date: 31/3/2007 Issue No: 1 Version Start Date: 26/9/2002 Version End Date:

5.4 Surface Water Abstraction Licences

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

Database searched and no data found.

5.5 Potable Water Abstraction Licences

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

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	1800.0	SE	527636 183697	Licence No: TH/039/0039/058 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Borehole At Barrow Hill Data Type: Point	Annual Volume (m^3): 631000 Max Daily Volume (m^3): 2000 Original Application No: NPS/WR/009229 Original Start Date: 1/4/2013 Expiry Date: 31/3/2025 Issue No: 1 Version Start Date: Version End Date:
Not shown	1807.0	SE	527640 183690	Licence No: 28/39/39/0231 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Barrow Hill Pumping Station - Borehole Data Type: Point	Annual Volume (m^3): 631000 Max Daily Volume (m^3): 2000 Original Application No: WRA/R/1026 Original Start Date: 1/4/2007 Expiry Date: 31/3/2013 Issue No: 1 Version Start Date: Version End Date:
Not shown	1807.0	SE	527640 183690	Licence No: 28/39/39/0202 Details: Potable Water Supply - Direct Direct Source: Thames Groundwater Point: Barrow Hill Pumping Station - Borehole Data Type: Point	Annual Volume (m^3): 631000 Max Daily Volume (m^3): 2000 Original Application No: WRA/2/2(24) Original Start Date: 26/9/2002 Expiry Date: 31/3/2007 Issue No: 1 Version Start Date: Version End Date:

5.6 Source Protection Zones

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

Database searched and no data found.

5.7 Groundwater Vulnerability and Soil Leaching Potential

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

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
27	NW	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.

5.8 River Quality

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

5.8.1 Biological Quality:

Database searched and no data found.

5.8.2 Chemical Quality:

Database searched and no data found.

5.9 Detailed River Network

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

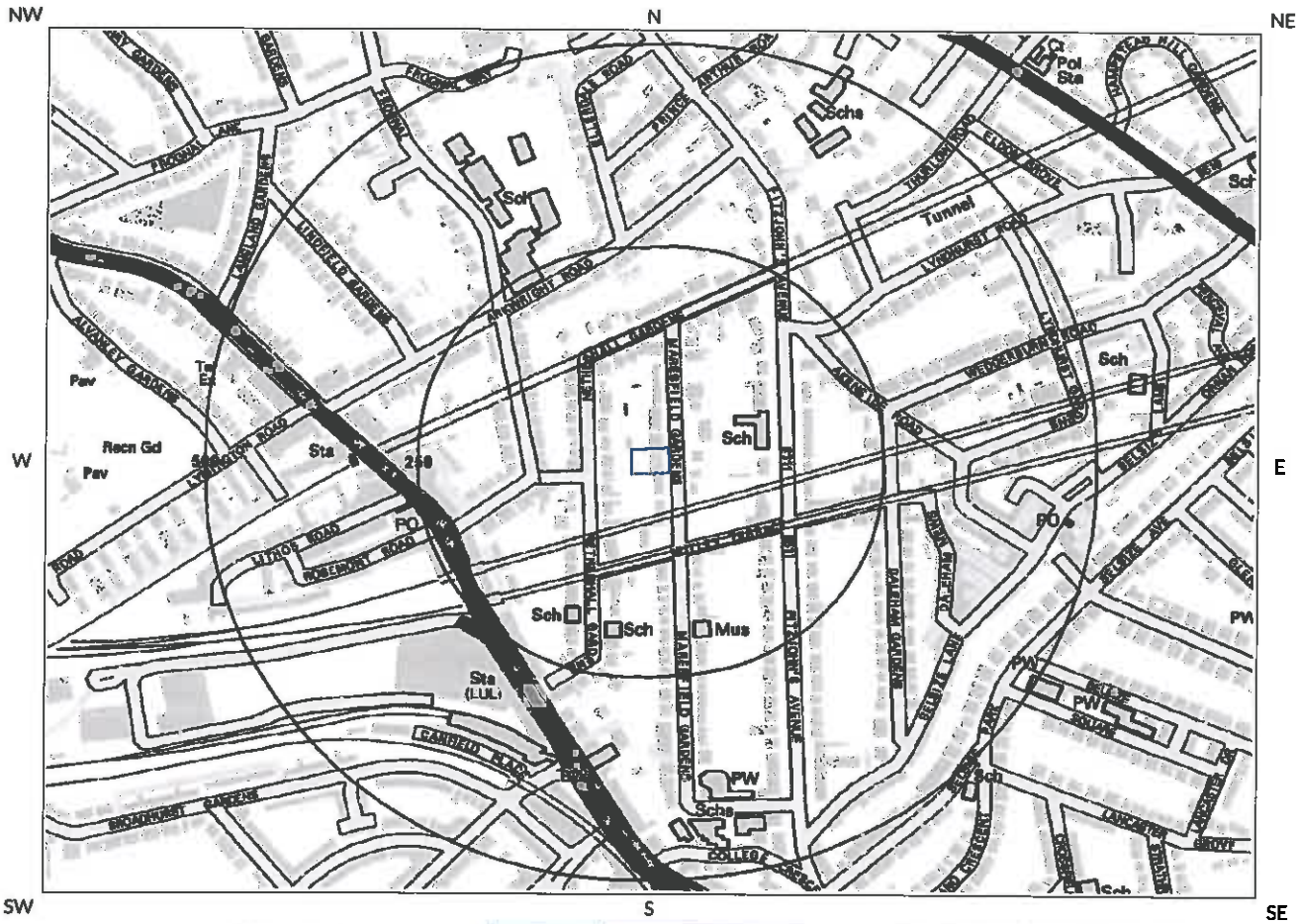
Database searched and no data found.

5.10 Surface Water Features

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

Database searched and no data found.

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



6. Flooding

6.1 Zone 2 Flooding

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

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

Database searched and no data found.

6.2 Zone 3 Flooding

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

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

Database searched and no data found.

6.3 Flood Defences

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

Database searched and no data found.

6.4 Areas benefiting from Flood Defences

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

6.5 Areas benefiting from Flood Storage

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

6.6 Groundwater Flooding Susceptibility Areas

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

Yes

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

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

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

Limited potential

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

6.7 Groundwater Flooding Confidence Areas

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

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

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

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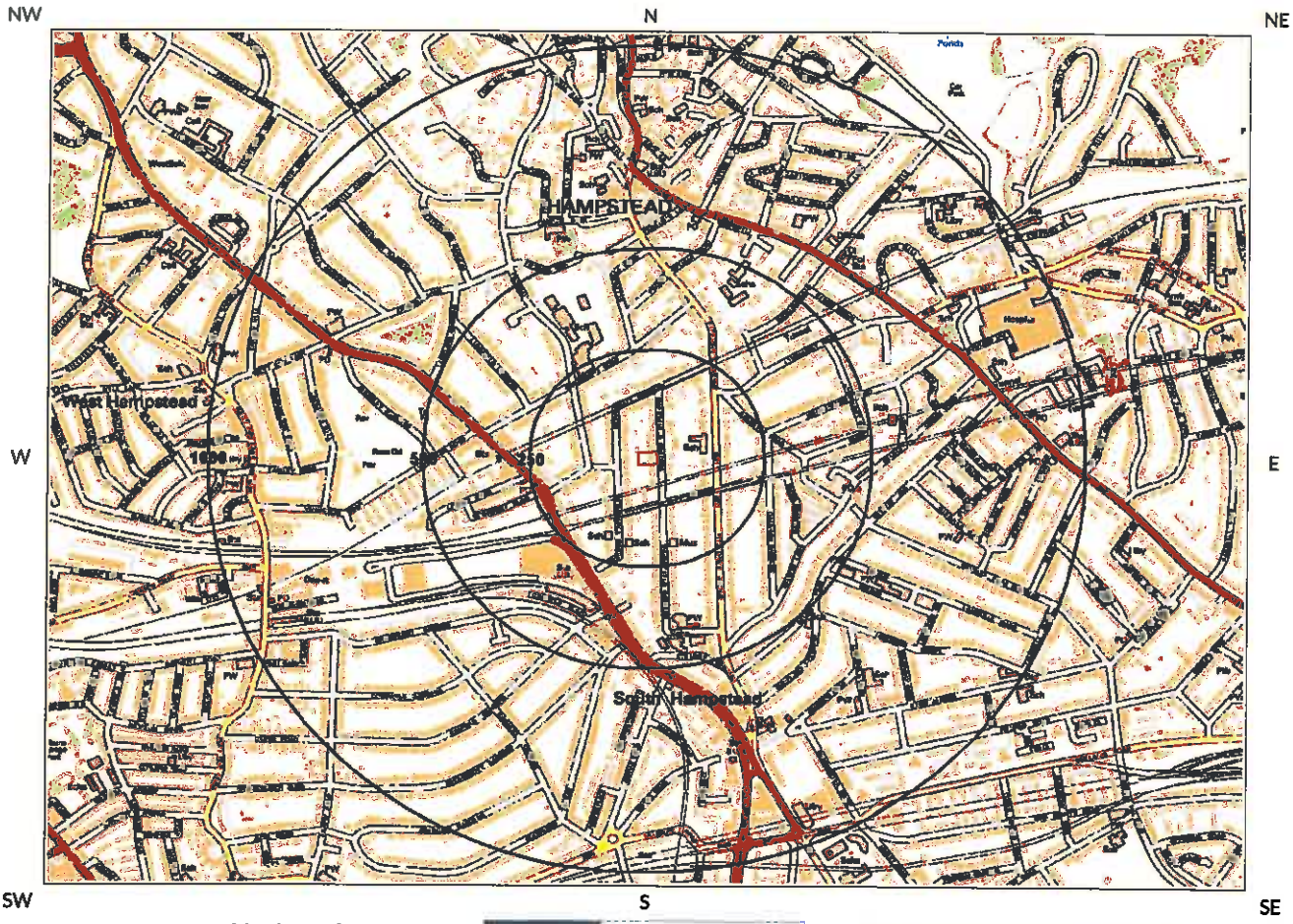
7. Designated Environmentally Sensitive Sites Map



Map Legend

Mapping sourced from Ordnance Survey

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

7. Designated Environmentally Sensitive Sites

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

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

1

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

ID	Distance (m)	Direction	SSSI Name	Data Source
Not shown	1780.0	N	Hampstead Heath Woods	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

2

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

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
Not shown	1529.0	N	BISHOPS WOOD	Ancient and Semi-Natural Woodland
Not shown	1785.0	N	KEN WOOD	Ancient and Semi-Natural Woodland

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

3

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

ID	Distance (m)	Direction	LNR Name	Data Source
2	1057.0	E	Belsize Wood	Natural England
Not shown	1896.0	W	Westbere Copse	Natural England
Not shown	1913.0	W	Westbere Copse	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

8. Natural Hazards Findings

8.1 Detailed BGS GeoSure Data

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

8.1.1 Shrink Swell

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

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

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

8.1.2 Landslides

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

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

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

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

8.1.3 Soluble Rocks

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

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

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

8.1.4 Compressible Ground

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

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

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

8.1.5 Collapsible Rocks

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

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

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

8.1.6 Running Sand

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

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

Hazard
Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

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

9. Mining

9.1 Coal Mining

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

Database searched and no data found.

9.2 Shallow Mining

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

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

9.3 Brine Affected Areas

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

Guidance: No Guidance Required.

Contact Details

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