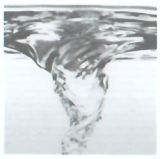

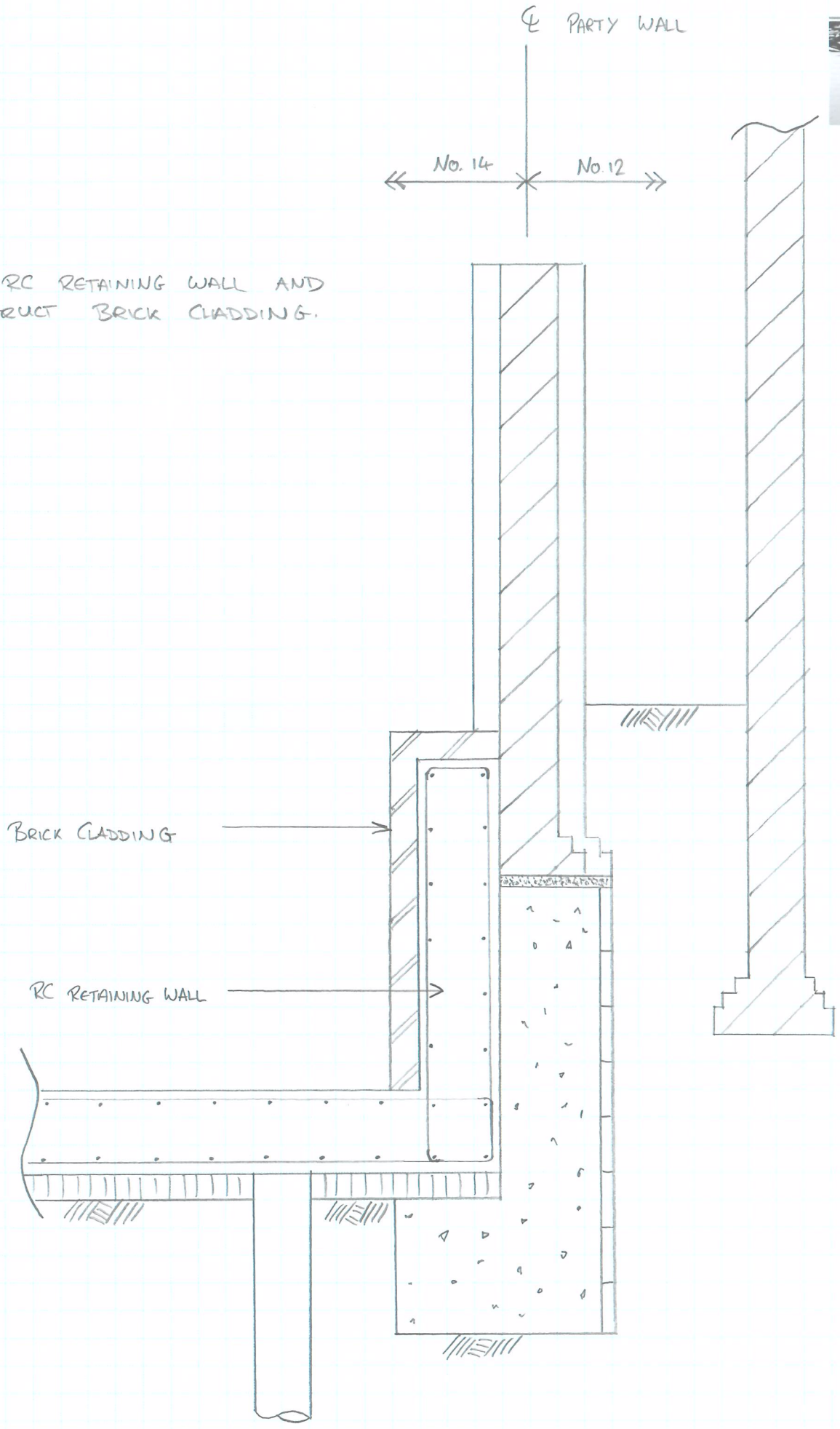

(10) CAST RC RETAINING WALL AND CONSTRUCT BRICK CLADDING.

Project: NETHERHALL GARDNS
Title: RETAINING WALL CONSTRUCTION SEQUENCE
Job No. 23959 Date: 12/14 Drn By: BS
Sheet No. 10 REV: Chk By:

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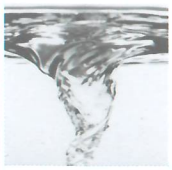
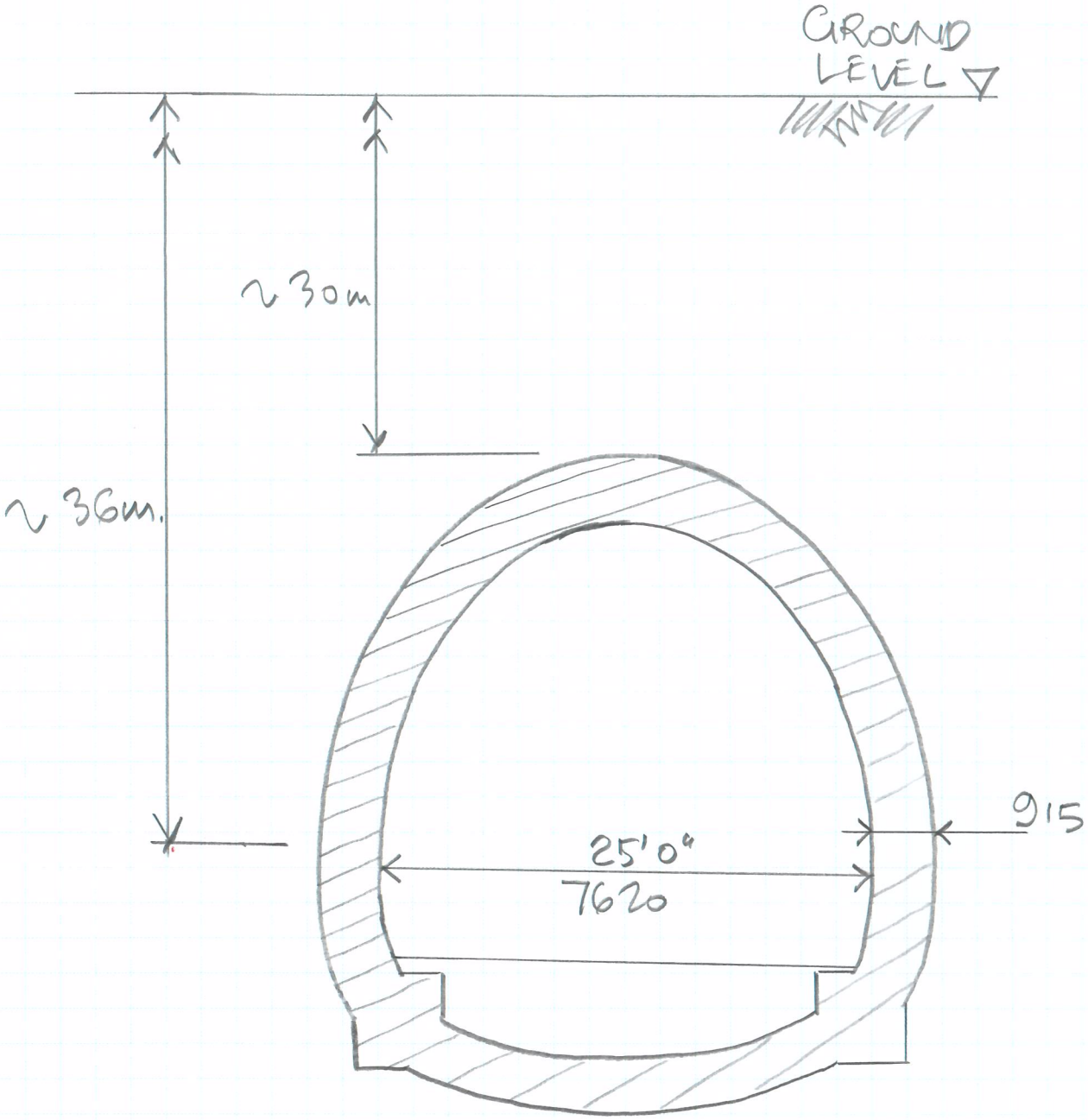
Email: [firstname]@fluidstructures.com Web: www.fluidstructures.com

Appendix C Tunnel Loading Calculation

CHECK EXTG TUNNEL





CHECK BRICK STRESS AS EXTG FOR 1000mm LENGTH OF TUNNEL AT 36m BGL

Project: HETHERSALL GDNS.
Title: TUNNEL
Job No. 23959 Date: 10/14 Drn By: ZG
Sheet No. T1 REV: Chk By: BS

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TOTAL LOAD ABOVE TUNNEL

$\approx 30 \times 20 KN/m^3 \times (7.620 + 0.915 \times 2)$

$= 5670 \ KN/m.$

BRICK STRESS, $\sigma = \frac{5670 \times 10^3}{2(915 \times 1000)} = 3.1 \ N/mm^2.$

CONSIDER EFFECT OF BASEMENT EXCAVATION.

FROM SHT NO. 3

EXCAVATION DEPTH ≈ 3.6m.

REDUCTION DUE EXCAVATION = $18 \times 3.6 = 65 \ KN/m^2.$

INCREASE DUE BASEMENT SLAB = $10 \ KN/m^2.$

INCREASE DUE GROUNDFLOOR SLAB = $6.5 \ KN/m^2.$

WEIGHT OF BLOCK ABOVE GROUND REMAINS THE SAME.

∴ REDUCTION DUE EXCAVATION = $65 - 10 - 6.5$

$= 48.5 \ KN/m^2.$

CALCULATE EFFECTIVE REDUCTION AT TUNNEL CROWN LEVEL

BASEMENT AREA ≈ $52m \times 22m = 1144 m^2$

AFFECTED AREA AT CROWN LEVEL

$= (52+60) \times (22+60)$ (DUE 45° SPREAD)

$= 9184 \ m^2$

Project: NETHERHALL GDNS
Title: TUNNEL
Job No. 2395a Date: 10/14 Drn By:
Sheet No. T.2 REV: Chk By: BS

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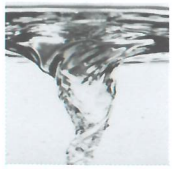

TOTAL LOAD REDUCTION

$= 48.5\ kN/m^2 \times 1144$

$= 55484\ kN.$

EFFECTIVE REDUCTION AT CROWN LEVEL

$= \frac{55484}{9184\ m^2} = 6.0\ kN/m^2.$

∴ TOTAL LOAD ACTING ON TUNNEL

$\approx (30 \times 20\ kN/m^3 - 6) \times (7.620 + 0.915 \times 2)$

$= 5613\ kN/m$ (1% CHANGE)

BRICK STRESS, $\sigma = \frac{5613 \times 10^3}{2(915)(1000)} = 3.1\ N/mm^2.$

∴ EFFECT OF EXCAVATING NEW BASEMENT WILL HAVE NEGLIGIBLE EFFCT ON TUNNEL

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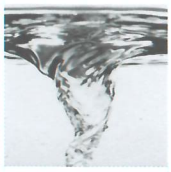
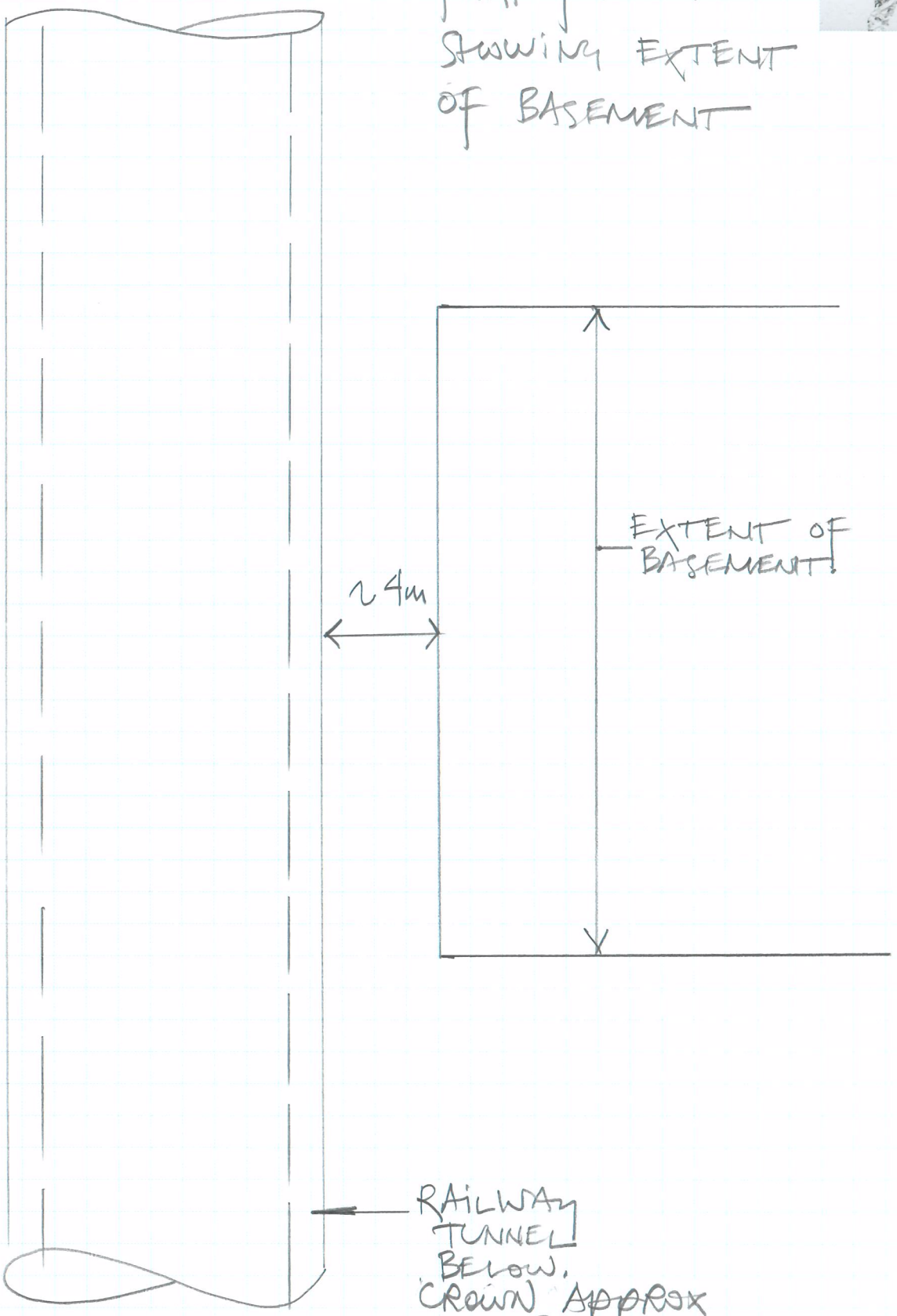


PART PLAN 1:200
SHOWING EXTENT
OF BASEMENT



Project: NETHERHALL GDNS.
Title:
Job No. 23959
Sheet No. T4
Date: 10/14
REV:
Drn By: JL
Chk By: BS

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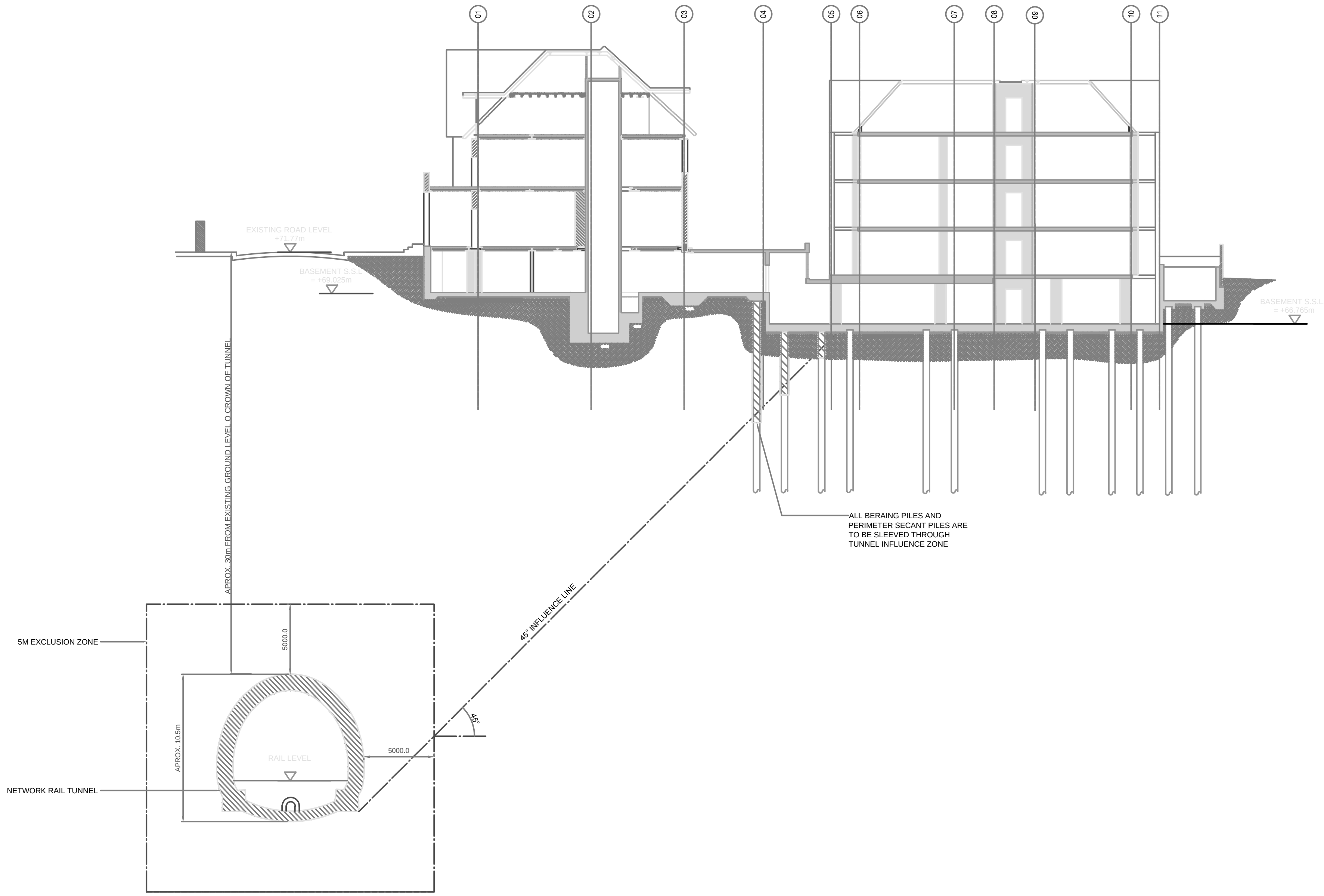

NOTES:

1. DRAWING IS TO BE READ IN CONJUNCTION WITH THE GENERAL NOTES DRAWING GN01.
2. DO NOT SCALE FROM THIS DRAWING.
3. ALL DIMENSIONS ARE IN mm U.N.O.
4. DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS BY THE ARCHITECT, SERVICES ENGINEER, STRUCTURAL ENGINEER, TRANSPORT ENGINEER AND THAMES WATER LIMITED.
5. ALL LEVELS ARE TO THE ARCHITECT'S DRAWINGS
6. SITE WELDING WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES WITHOUT PRIOR WRITTEN AUTHORISATION FROM THE ENGINEER.
7. ALL CONCRETE IS TO BE GRADE C40.
8. MIN LAP OF REINFORCING BARS IS 40xbarØ.
9. U BARS TO ALL SLAB EDGES, COLUMN EDGES, WALL AND COLUMN INTERSECTIONS, EDGES AND TOPS.
10. RC MEMBERS LIST:
    - ALL PERIMETER LINING WALLS ARE 250mm THICK U.N.O.
    - ALL RC WALLS ARE 200 THICK U.N.O.
    - ALL INTERNAL COLUMNS ARE 200mm THICK x 600mm LONG U.N.O.
11. MINIMUM COVER TO REINFORCEMENT:
    - 20mm INTERNAL FACE
    - 40mm EXTERNAL FACE
12. ALL SLAB PENETRATIONS 150mm Ø AND SMALLER ARE NOT SHOWN ON FLUID DRAWINGS. CONTRACTORS SHOULD REFER TO ARCHITECTS AND M&E DRAWINGS FOR FURTHER DETAILS AND PROVIDE A PRICE PER PENETRATION.
13. ALL STEELWORK EXPOSED AND/OR IN A CAVITY IS TO BE PAINTED WITH RIW TOUGHSEAL BITUMINOUS PAINT.
14. ALL STEELWORK, EXCEPT IN THE ROOF, IS TO BE PAINTED WITH INTUMESCENT PAINT TO ACHIEVE ONE HOUR FIRE RATING.
15. ALL TIMBER IS GRADE C24.
16. ANCON CHANNELS TO BE CAST INTO ALL CONCRETE WALLS AND COLUMNS TO ALLOW BLOCKWORK/BRICKWORK TIES TO BE INSTALLED AS SHOWN ON DRAWINGS No. SKBW01 TO SKBW03. THE TOP OF ALL INTERNAL WALLS MUST BE TIED AT HEAD LEVEL AS SHOWN ON DRAWINGS No. SKBW01 TO SKB203.
17. ALL FINISHES, WEATHERING, WATERPROOF MEMBRANES, DAMP PROOF COURSES AND FIREPROOFING ARE TO ARCHITECT'S DETAILS.
18. THE CONSTRUCTION SEQUENCE INDICATED ON DRAWINGS IS AN OUTLINE SEQUENCE AND THE CONTRACTOR IS RESPONSIBLE FOR PREPARING AND EXECUTING A DETAILED SEQUENCE WITH RELEVANT TEMPORARY WORKS CALCULATIONS AND DRAWINGS DESIGNED SUITABILITY QUALIFIED AND EXPERIENCED TEMPORARY WORKS ENGINEER.
19. THE CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY APPROVALS FROM NETWORK RAIL TO ALLOW WORKS ON SITE TO PROCEED.
20. THE TOP OF PILES WITHIN THE NETWORK RAIL INFLUENCE ZONE ARE TO BE SLEEVED SO THAT THE PILES DO NOT SURCHARGE THE TUNNEL REFER TO DRAWINGS S01_NWR.
25. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL STEEL TO STEEL CONNECTION DESIGN AND REINFORCEMENT DETAIL DRAWINGS.

STAGE E REPORT ISSUE

T1	ISSUED FOR STAGE E	DRN: DB	CHK: SB	01/12/14

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E-mail: [firstname]@fluidstructures.com
Web: www.fluidstructures.com

Project: 14 NETHERHALL GARDENS

Title: SECTION A-A WITH NETWORK RAIL TUNNEL

Job No:	23959	DRN:	DB	Date:	SEP`14
Scale:	1:200 @A1; 1:400@A3	CHK:	SB	DRG. No.:	S01_NWR T1

Appendix D J12015 - Site Investigation & Basement Impact Assessment Report

Site Investigation and Basement Impact Assessment Report

14 Netherhall Gardens
London NW3

Client	Netherhall Developments Limited
Engineer	Heyne Tillett Steel

J12015

April 2012




GEA Geotechnical & Environmental Associates

Document Control

Project title	14 Netherhall Gardens, London NW3 5TQ	**Project ref**	J12015
Report prepared by	Rosemary Rafferty BSc MSc DIC FGS		
Land Stability Assessment completed by	Martin Cooper BEng CEng MICE		
Groundwater Impact Assessment completed by	John Evans MSc FGS CGeol		
Report checked and approved for issue by	Steve Branch BSc MSc CGeol FGS FRGS MIEnvSc		

Issue No	Status	Date	Approved for Issue
1	Draft for comment	9 February 2012	
2	Final	22 February 2012	
3	Revised	3 April 2012	

This report has been issued by the GEA office indicated below. Any enquiries regarding the report should be directed to the office indicated or to Steve Branch in our Herts office.

✓	Hertfordshire	tel 01727 824666	mail@gea-ltd.co.uk
	Nottinghamshire	tel 01509 674888	midlands@gea-ltd.co.uk

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CONTENTS

EXECUTIVE SUMMARY

This executive summary contains an overview of the key findings and conclusions. No reliance should be placed on any part of the executive summary until the whole of the report has been read. Other sections of the report may contain information that puts into context the findings that are summarised in the executive summary.

BRIEF

This report describes the findings of a desk study and Basement Impact Assessment (BIA) carried out by Geotechnical and Environmental Associates Ltd (GEA), on the instructions of Heyne Tillett Steel Ltd, on behalf of Netherhall Developments Ltd, with respect to the redevelopment of this site through refurbishment and demolition of the existing buildings, and the construction of a new four-storey building and a basement beneath the new and retained buildings. The purpose of the investigation has been to research the history of the site, to assess the potential for contamination, to assess the soil and hydrogeological conditions, and to provide preliminary information to assist with the design of the basement and suitable foundations for the proposed development. The report also includes a Land Stability Impact Assessment and Subterranean Flow Assessment, which form part of the Basement Impact Assessment procedure in accordance with guidelines from London Borough of Camden in support of a planning application. A separate Surface Flow and Flooding Assessment has been compiled by Potamos Ltd (ref. 0041/LH/02-2012/0038, dated February 2012), a copy of which is provided in the Appendix. The site has previously been the subject of a ground investigation by Soils Ltd; the discussion in this report is based on the results of this previous ground investigation and a copy of the Soils Ltd Ground Investigation Report is provided in the appendix. GEA were also provided with a copy of a report on measures to address recurring subsidence by vkhp-consulting (undated Report ref. AS/763610), which is referred to where relevant in this report.

DESK STUDY FINDINGS

The site and immediately surrounding area remained undeveloped until some time between 1874 and 1895, when the existing building was constructed within the northern part of the site, together with Netherhall Gardens to the west and Nutley Terrace to the north. The building within the southern part of the site was constructed at some time between 1957 and 1960 and the site has remained essentially unaltered from that time.

The River Westbourne and River Tyburn historically flowed in a roughly southwards direction towards the River Thames, approximately 250 m west and 250 m east of the site respectively.

The Envirocheck report does not list any landfills within 250 m of the site and there are no contaminated land register entries or notices or pollution incidents recorded within 1 km of the site. Network Rail's Belsize Tunnel runs along the line of Nutley Terrace immediately north of the site, at a depth of approximately 30 m.

GROUND CONDITIONS

The British Geological Survey map of the area indicates the site to be underlain by London Clay. This was confirmed by the ground investigation by Soils Ltd, which encountered a nominal thickness of made ground overlying London Clay comprising firm to stiff dark brown to grey occasionally fissured silty clay with occasional partings of fine sand, which was proved to the maximum depth investigated of 10.0 m. Groundwater was not encountered during the investigation.

CONTAMINATION RISK ASSESSMENT

On the basis of the desk study findings, the contamination risk has been assessed as very low. It would, however, be prudent to carry out a ground investigation to provide a preliminary assessment of the presence of contamination.

FOUNDATIONS

The formation level for the new basement will extend into the London Clay. Foundations will need to be deepened in the vicinity of trees to bypass any desiccated soil and it is likely that piles will be appropriate for the support of the basement excavation and to provide structural support. Groundwater is not expected within the basement excavation.

BASEMENT IMPACT ASSESSMENT

A Land stability assessment, subterranean flow assessment and a surface water and flooding assessment have been carried out following the information and guidance published by the London Borough of Camden. It is concluded that the proposed development is unlikely to result in any specific land or slope stability issues, or cause harm to neighbouring properties or flooding. The proposed development will result in an unacceptable increase in runoff rates from the site to the sewers, which could be dealt with through a SuDS scheme comprising underground aquacell surface water storage crates.

Part 1: INVESTIGATION REPORT

This section of the report details the objectives of the investigation, the work that has been carried out to meet these objectives and the results of the investigation. Interpretation of the findings is presented in Part 2.

1.0 INTRODUCTION

Geotechnical and Environmental Associates Ltd (GEA) has been commissioned by Heyne Tillett Steel, on behalf of Netherhall Developments Ltd, to carry out a desk study and review of a ground investigation carried out by others at 14 Netherhall Gardens, London, NW3 5TQ. This report also forms part of a Basement Impact Assessment (BIA), which has been carried out in accordance with guidelines from the London Borough of Camden (LBC) in support of a planning application. As part of the BIA, a Surface Water Assessment has been completed by Potamos Consulting (ref. 0041/LH/02-2012/0038, dated February 2012), a copy of which is provided in the Appendix.

The site has previously been the subject of a ground investigation by Soils Ltd (Report Ref. J12146/SI, dated January 2011); the discussion in this report is based on the results of this previous ground investigation and a copy of the Soils Ltd Ground Investigation Report is provided in the appendix.

The site has also previously been the subject of a report on measures to address recurring subsidence by vkhp-consulting (undated Report Ref. AS/763610); a copy of this report has been provided by the Consulting Engineer and is referred to where relevant in this report.

1.1 Proposed Development

Consideration is being given to the redevelopment of this site through the demolition of the 1950s building and construction of a new four-storey building at the rear of the site, together with refurbishment of the existing three-storey buildings and construction of a new basement beneath the entire footprint of the retained building and under the majority of the site at the rear. The rear section of the basement will contain plant, storage, car parking and a vehicular ramp. The front section of the basement will be used as residential accommodation, with new lightwells at various locations. There will be a drop in the level of the basement floor of 1.8 m between the northern and southern parts and the basement will extend to a depth of between 3 m and 4 m below existing ground level.

This report is specific to the proposed development and the advice herein should be reviewed if the development proposals are amended.

1.2 Purpose of Work

The principal technical objectives of the work carried out were as follows:

- to determine the history of the site and surrounding area, particularly with respect to any previous or present potentially contaminative uses;
- to research the geology and hydrogeology of the site;
- to check records of data on groundwater, surface water and other publicly available environmental data;

- to use the information obtained in the above searches to carry out a qualitative risk assessment with respect to subsurface contamination;
- to provide preliminary advice with respect to the design of suitable foundations and retaining walls;
- to provide a preliminary assessment of the impact of the proposed development on land stability and local hydrogeology; and
- to provide a preliminary assessment of the impact of the proposed development on surface water and flooding.

1.3 Scope of Work

In order to meet the above objectives, a desk study was carried out, followed by a review of the ground investigation carried out by Soils Ltd in January 2011. The desk study comprised the following activities:

- a walkover survey;
- a review of readily available geological maps;
- a review of publicly available environmental data sourced from the Landmark Envirocheck database;
- a review of historical Ordnance Survey (OS) maps supplied by Landmark;
- a review of the ground investigation previously carried out at the site by Soils Ltd; and
- provision of a report presenting and interpreting the above data, together with our advice and recommendations with respect to the proposed development.

The intrusive investigation carried out by Soils Ltd comprised, in summary, the following activities:

- two cable percussion boreholes, advanced to depths of 10.0 m, by means of a cable percussion drilling rig;
- standard penetration tests (SPTs), carried out at regular intervals in the cable percussion boreholes, to provide additional quantitative data on the strength of the soils;
- the installation of a single groundwater monitoring standpipe in one of the boreholes, to a depth of 10.0 m;
- laboratory testing of selected soil samples for geotechnical purposes; and
- provision of a report presenting and interpreting the above data, together with their advice and recommendations with respect to the proposed development.

The Soils Ltd investigation did not include a desk study or analysis or recommendations in respect of contamination.

1.3.1 Basement Impact Assessment

The Basement Impact Assessment (BIA) comprises a subterranean (groundwater) flow assessment, a land stability assessment (also referred to as slope stability assessment) which has been prepared by GEA and is reported, and a surface water and flooding risk assessment, which has been prepared for this site by Potamos Consulting and is provided in the Appendix. These assessments form part of the Basement Impact Assessment (BIA) procedure specified in the London Borough of Camden Planning Guidance CPG4[1] and their Guidance for Subterranean Development[2] prepared by Arup.

The aim of the assessment is to provide information on land stability and in particular to assess whether the development will affect the stability of neighbouring properties. In addition, the assessment will identify potential groundwater impacts that the development may have and how any identified impacts can be appropriately mitigated by the design of the development.

1.4 Qualifications

The land stability assessment has been carried out by Martin Cooper, a BEng in Civil Engineering, a chartered engineer (CEng) and member of the Institution of Civil Engineers (MICE), who has over 20 years specialist experience in ground engineering. The groundwater assessment has been prepared by John Evans, a qualified Hydrogeologist, Chartered Geologist (CGeol) and Fellow of the Geological Society of London (FGS). The surface water and flooding risk assessment has been prepared by Laura Hatch BSc (Hons) MSc AIEMA of Potamos Consulting. The assessments have been made in conjunction with Steve Branch, a BSc in Engineering Geology and Geotechnics, MSc in Geotechnical Engineering, a Chartered Geologist (CGeol) and Fellow of the Geological Society (FGS) with 25 years experience in geotechnical engineering and engineering geology. All assessors meet the Geotechnical Adviser criteria of the Site Investigation Steering Group and satisfy the qualification requirements of the Council guidance.

1.5 Limitations

The conclusions and recommendations made in this report are limited to those that can be made on the basis of the investigation. The results of the work should be viewed in the context of the range of data sources consulted, the number of locations where the ground was sampled and the number of soil, gas or groundwater samples tested; no liability can be accepted for information in other data sources or conditions not revealed by the sampling or testing. Any comments made on the basis of information obtained from the client or other third parties are given in good faith on the assumption that the information is accurate; no independent validation of such information has been made by GEA.

2.0 THE SITE

2.1 Site Description

The site is located in the London Borough of Camden, approximately 200 m northeast of Finchley Road London Underground Station and 300 m southeast of Finchley Road and Frognal Rail Station. It is roughly rectangular in shape, measuring approximately 33 m east to west by 60 m north to south, and is bounded by Netherhall Gardens to the west and Nutley

1 London Borough of Camden Planning Guidance CPG4 *Basements and lightwells*
2 Ove Arup & Partners (2010) *Camden geological, hydrogeological and hydrological study. Guidance for Subterranean Development.* For London Borough of Camden November 2010

Terrace to the north. A three-storey building occupied by a school bounds the site to the south and a two-storey brick-built house is present to the east. The site may be additionally located by National Grid Reference 526370, 184890.

A walkover survey of the site was carried out by a geotechnical engineer from GEA on 1 February 2012. The site is occupied by a roughly square shaped three-storey brick built building in the north, which is linked by internal corridors at each floor level to a rectangular shaped brick-built building in the south, which is aligned north-south. The building is currently in use as a block of flats.

A wall screens the land to the east of the northern building from the front drive area and fills the gap between the building and the garage of the neighbouring house to the east. There is a paved driveway to the north of the building, fronting onto Nutley Terrace, and a small paved patio immediately south of the northern building, to the west of the linking corridor. There are grassed garden areas to the east and west of the building, with some planted beds and numerous trees, including mature London plane trees up to 25 m, high particularly along the west of the site. An approximately 1.2 m high brick retaining wall forms the western site boundary, alongside Netherhall Gardens.

The site lies at an approximate elevation of 71 m OD and the area immediately surrounding the site slopes down towards the south and west. Netherhall Gardens slopes down gently southwards alongside the site, such that the elevation of the site reduces by approximately 2 m over a distance of 60 m; an average slope of 2°. The slope of Netherhall Gardens becomes steeper immediately south of the site such that the elevation reduces by 5 m over a distance of approximately 40 m. The site itself is essentially level, with stepped drops of approximately 0.5 m, where there is a wall in the garden and internal stairs in the linking corridor between the older and newer buildings, and a further drop of approximately 1.5 m at the southern end of the garden. Information provided by the Consulting Engineer indicates that the site is considered to be within a wider hillside setting in which the general slope is greater than 7°.

2.2 Site History

The site history has been researched by reference to historical Ordnance Survey (OS) maps sourced from the Envirocheck database.

The earliest map studied, dated 1850, shows the site to be undeveloped. More detailed subsequent maps, dating from 1871, show a field boundary to pass through the site, running roughly north-northwest to south-southeast, and a railway tunnel along the northern boundary of the site leading to Finchley Road Station approximately 100 m to the west.

The area surrounding the site became built-up during the period between 1874 and the next map, dated 1895. By this time the existing building had been constructed within the northern end of the site and the roads Nutley Terrace and Netherhall Gardens were in their current positions along the northern and western boundaries of the site respectively. Buildings had also been constructed immediately to the south and east of the site. According to the vkhp report, the original building was built as a substantial private house in 1885 and subsequently converted for use as a residential home. Reference to London Post Office Street Directories dated 1905 and 1921 indicate 14 Netherhall Gardens to have had residential occupants at that time.

At some time between 1957 and 1960 the building was extended with the addition of the existing building in the southern part of the site, linked to the original building by a corridor. This building is labelled as “Otto Schiff House” on the map dated 1960. The vkhp report

indicates this to have initially been a two-storey building, with the third storey added in 1999, at the same time as the single-storey sun room was built on the original building. On the map dated 1971 the building immediately south of the site was labelled as South Hampstead Junior School. Subsequent maps do not indicate any significant changes to the layout of the site. The site and surrounding area have remained essentially unaltered from this time.

The Lost Rivers of London[3] shows the River Westbourne and River Tyburn to have historically been situated roughly 250 m west and 250 m east of the site respectively. Both of these "lost rivers" rose in the Hampstead area, before flowing in a roughly southerly direction towards the River Thames. The Tyburn now flows through the King's Scholars' Pond Sewer and the Westbourne through the Ranelagh Sewer.

2.3 Other Information

The Envirocheck report does not list any landfills within 250 m of the site. A historical landfill is listed 285 m west of the site. A waste transfer site is listed 172 m southwest of the site, the licence for which expired in 1992.

There are no contaminated land register entries or notices listed and no pollution incidents have been recorded within 1 km of the site.

The site is located in an area where less than 1% of homes are affected by radon emissions; which is the lowest classification given by the Health Protection Agency (HPA) and therefore no radon protective measures will be necessary.

The site is not within any environmentally sensitive areas, such as sites of special scientific interest.

According to the vhkp report, recurring subsidence damage has been affecting the property, with subsidence damage noted at various times since at least 1976. The original building has foundations at a depth of 1.1 m below ground level. The rear addition has what has been described as a raft foundation formed at a depth of 1.4 m below ground level. In 1999, the western side of the rear wall of the main house and part of the west flank wall of the rear addition were underpinned to a depth of up to 5 m. Underpinning to this depth was also carried out to the sun room, which had previously been underpinned in 1976/1977 to a depth of 2.6 m. The repeated damage to the building appears to occur in periods of drought conditions. vkhp attribute the cause of the recurring damage to the building to the desiccation and shrinkage of the clay content of the subsoil due to moisture extraction by roots of nearby large trees, possibly exacerbated by leakage from any nearby water surface pipework or underground drainage pipework.

Belsize Tunnel, a Network Rail tunnel, runs along the line of Nutley Terrace from Finchley Road & Frognal station to the west of the site to Hampstead Heath station to the east. The results of an enquiry to Network Rail, a copy of which has been provided to GEA, indicate the crown of the tunnel to be approximately 30 m below ground level.

2.4 Geology

The Geological Survey map of the area (sheet 256) indicates that the site should be underlain by London Clay. The Claygate Member overlies the London Clay roughly 125 m north of the site. According to the BGS memoir, the London Clay is slightly calcareous silty clay to very silty clay, with some beds of clayey silt grading to silty fine grained sand. The London Clay is underlain by the Cretaceous Chalk at a depth of over 100 m beneath the site.

3 Nicholas Barton (2000) *London's Lost Rivers.* Historical Publications Ltd

2.5 Hydrology and Hydrogeology

The Envirocheck report lists the nearest surface water feature as 666 m southeast of the site. There are no surface water features marked on current Ordnance Survey mapping (1:25,000 scale) within 1km of the site. The site is not located within a Flood Zone as defined by the Environment Agency, and Netherhall Gardens has not been identified as a street at risk of surface water flooding as a result of sewer surcharging within the London Borough of Camden.

Investigations carried out around the area of Hampstead Heath indicate that spring lines are present at the interface of the Bagshot Beds and the Claygate Member and, at a lower level, near the boundary between the Claygate Member and the underlying essentially impermeable London Clay. These springs have been the source of a number of London's "lost" rivers, notably the Fleet, Westbourne and Tyburn, which generally rose on Hampstead Heath, to the northwest and northeast of the current site, mostly at the base of the Bagshot Beds. The site lies within the surface water catchment of the upper Westbourne stream, a tributary of the River Thames, and outside of the catchment of the Hampstead Heath chain of ponds. Historical maps indicate the Westbourne flowed approximately 250 m to the west of the site. The Westbourne is entirely covered and culverted and forms part of the surface water sewerage system, running beneath South Hampstead to where it discharges into the Thames to the west of Chelsea Bridge.

The Environment Agency classifies the London Clay as Unproductive Strata (formerly Non Aquifer), i.e. not capable of providing useable quantities of water; however this classification may not take into account local geological variations within the sandier upper unit of the London Clay Formation. The Cretaceous Chalk is classified as a Principal (formerly Major) Aquifer although it is highly confined beneath over 100m of London Clay. The site lies approximately 300 m north of a Source Protection Zone as designated by the Environment Agency; this is for a licensed public water supply abstraction from the Chalk.

A figure provided in the BGS memoir showing groundwater contours in 1965 indicates groundwater beneath the site to be at a level of -70 m OD (i.e. approximately 140 m below ground level). This reflects the level of groundwater within the chalk aquifer at depth; the London Clay effectively acts as a barrier to flow between the lower (chalk) aquifer and superficial groundwater. However a more recent contour map of groundwater levels provided by the Environment Agency[4] indicates that by 2009, groundwater in the London area had risen by approximately 40 m and is more likely to be at around -30 m OD, currently 100 m below ground level.

Groundwater within the London Clay beneath the site is considered to be dominated by fissure flow through Unit D of the upper London Clay. Due to the very low permeability of the London Clay, any groundwater flow will be at very low rates. Published data for the permeability of the London Clay indicates the horizontal permeability to generally range between 1×10^{-10} m/s and 1×10^{-8} m/s, with an even lower vertical permeability. Without evidence to the contrary, groundwater flow beneath the site is anticipated to follow topographic contours toward the south.

2.6 Preliminary Risk Assessment

The historical usage of the site that has been established by the desk study and the site walkover indicates that the site does not have a potentially contaminative history by virtue of it having been occupied by a residential property for its entire developed history. There are

4 Environment Agency Status Report (2009) *Management of the London Basin Chalk Aquifer*

thus no obvious likely sources of contamination on the site or in its immediate vicinity and no potential sources of soil gas have been identified in the vicinity of the site.

Part IIA of the Environmental Protection Act 1990, which was inserted into that Act by Section 57 of the Environment Act 1995, provides a regulatory regime for the identification and remediation of contaminated land. As part of the new regime local authorities are required to carry out inspections of their area to identify sites that may be contaminated. The determination of contaminated sites is based on a "suitable for use" approach which involves investigating the risks posed by contaminated land by making risk-based decisions. This risk assessment is carried out on the basis of establishing one or more "pollution linkages"; a pollution linkage requires a source of contamination, a sensitive target or receptor that is at risk from the contamination and a pathway by which the contamination can travel from the source to the target.

For this site no sources of pollution have been identified and no new targets are at risk, it is therefore considered that there is a VERY LOW risk of there being a significant contaminant linkage at this site which would result in a requirement for major remediation work. Furthermore as there is no evidence of filled ground within the vicinity and as it is anticipated to be underlain by cohesive soils at shallow depth, there is not considered to be a significant potential for hazardous soil gas to be present on or migrating towards the site: there should thus be no need to consider soil gas exclusion systems.

3.0 SCREENING

The LBC guidance suggests that any development proposal that includes a subterranean basement should be screened to determine whether or not a full BIA is required. A number of screening tools are included in the Arup document and for the purposes of this report reference has been made to Appendix E.

3.1 Slope Stability Screening Assessment

Reference has been made to Appendix E of the Arup document, which includes 14 questions within a slope stability screening flowchart. Responses to the questions are tabulated below.

Question	Response for 14 Netherhall Gardens
1. Does the existing site include slopes, natural or manmade, greater than 7°?	*Yes. The site level changes in two places. However, these level changes are already supported by retaining structures.*
2. Will the proposed re-profiling of landscaping at the site change slopes at the property boundary to more than 7°?	*No.*
3. Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7°?	*No.*
4. Is the site within a wider hillside setting in which the general slope is greater than 7°?	*Yes*
5. Is the London Clay the shallowest strata at the site?	*Yes. Beneath a nominal thickness of made ground the site is underlain by London Clay.*
6. Will any trees be felled as part of the proposed development and / or are any works proposed within any tree protection zones where trees are to be retained?	*Yes. Works are to be carried out within tree root protection zones and some trees are to be removed.*
7. Is there a history of seasonal shrink-swell subsidence in the local area and / or evidence of such effects at the site?	*Yes. The London Clay is assessed as having a high potential for swelling clay subsidence and episodes of subsidence damage have been recorded at the site.*

Question	Response for 14 Netherhall Gardens
8. Is the site within 100 m of a watercourse or potential spring line?	*No.*
9. Is the site within an area of previously worked ground?	*No.*
10. Is the site within an aquifer?	*No.*
11. Is the site within 50 m of Hampstead Heath ponds?	*No.*
12. Is the site within 5 m of a highway or pedestrian right of way?	*Yes. The site fronts onto public roads to the north (Nutley Terrace) and west (Netherhall Gardens).*
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	*Yes. The development will increase the foundation depths relative to the neighbouring properties to a relatively significant extent.*
14. Is the site over (or within the exclusion zone of) any tunnels, eg railway lines?	*Yes. Network Rail's Belsize Tunnel is located beneath Nutley Terrace, immediately north of the site.*

The above assessment has identified the following potential issues that need to be assessed:

Q1 The site includes slopes greater than 7° with low retaining structures.
Q4 The site is within a wider hillside setting in which the general slope is greater than 7°.
Q5 The London Clay is the shallowest stratum at the site.
Q6 Some trees will be felled as part of the proposals and works are proposed within tree root protection zones.
Q7 There is a history of shrink-swell subsidence at the site.
Q12 The site is within 5 m of a public highway.
Q13 The development will increase the foundation depths relative to neighbouring properties to a relatively significant extent.
Q14 The site is immediately adjacent to Network Rail's Belsize Tunnel.

The potential issues that need to be assessed are discussed further in Part 2 of this report.

3.2 Subterranean (Groundwater) Flow Screening Assessment

Reference has been made to Appendix E of the Arup document, which includes 6 questions within a subterranean (groundwater) flow screening flowchart. Responses to the questions are tabulated below.

Question	Response for 14 Netherhall Gardens
1a. Is the site located directly above an aquifer?	*No. The site is underlain by the London Clay which is designated as Unproductive Strata by the Environment Agency and cannot store and transmit usable amounts of water.*
1b. Will the proposed basement extend beneath the water table surface?	*Yes. Based on the findings of the desk study, the basement may extend beneath the winter water table surface (ie saturated London Clay). The proposed basement formation level would extend to a depth of approximately 3.0m below existing ground level.*
2. Is the site within 100m of a watercourse, well (used/disused) or potential spring line?	*No. Historical maps indicate the River Westbourne flowed 250m to the west of the Site. This watercourse is not present at surface and has been culverted to form part of the local surface water sewer.*
3. Is the site within the catchment of the pond chains on Hampstead Heath?	*No. The site is located approximately 1.2 km southwest of Hampstead Heath and is outside of the River Fleet catchment*

Question	Response for 14 Netherhall Gardens
	which includes the ponds on Hampstead Heath.
4. Will the proposed development result in a change in the proportion of hard surfaced / paved area?	*Yes. The proposed building footprint would increase by c.13% from 706m^2 to 801m^2 whilst the areas of hard landscaping are proposed to increase from 276m^2 to 670m^2.*
5. As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to ground (e.g. via soakaways and/or SUDS)?	*No. The low permeability of the London Clay strata is unsuitable for receiving discharge to the ground.*
6. Is the lowest point of the proposed 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 (not just the pond chains on Hampstead Heath) or spring line?	*No. There are no local ponds or spring lines present within 100m of the Site.*

The above assessment has identified the following potential issues that need to be assessed:

Q1b There is a possibility the proposed basement structure may extend into saturated London Clay formation during winter conditions.
Q4 An additional c. 490 m^2 of hard surfaced area will be created in the form of increased building footprint and hard standing areas.
Q5 SuDS are proposed to reduce the surface water runoff rates and volumes being released from the site to the local sewer

The potential issues that need to be assessed are discussed further in Part 2 of this report.

3.3 Surface Flow and Flooding Screening Assessment

The site is not in an area known to be at risk from surface water flooding. The surface flow and flooding screening Assessment by Potamos, full details of which are provided in the appended report, identified the following potential issues that need to be assessed:

- The development proposals will result in a change to surface cover

The potential issues that need to be assessed are discussed further in Part 2 of this report.

4.0 SCOPING AND SITE INVESTIGATION

The purpose of scoping is to assess in more detail the factors to be investigated in the impact assessment. Potential impacts are assessed for each of the identified potential impact factors.

The potential impacts of the proposed development on surface flow and flooding have been dealt with in the separate assessment completed by Potamos Consulting, such that the following section focuses on the potential impacts that may have an impact on slope stability and subterranean flow.

4.1 Potential Impacts

4.1.1 Slope Stability Scoping Assessment

The following potential impacts have been identified that may have an impact on slope stability.

Screening Issue	Potential Impact
Site includes slopes greater than 7°	Local instability within the site and adjoining sites may occur
The site is within a wider hillside setting in which the general slope is greater than 7°	Local instability within the site and adjoining sites may occur
London Clay is the shallowest strata at the site	London clay is prone to seasonal shrink-swell (subsidence and heave)
Trees will be felled and works are to be carried out within tree root protection zones	A report will be completed by Simon Pryce Arboriculture to assess the impact
There is evidence of shrink-swell subsidence at the site	Seasonal shrink-swell can result in foundation movements and in particular if a new basement is dug to below the depth likely to be affected by tree roots this could lead to damaging differential movement between the subject site and adjoining properties
The site is within 5 m of a public highway	Excavation of a basement may result in structural damage to the road or footway.
Founding depths relative to neighbours	Excavation may lead to structural damage to neighbouring buildings and structures if there is a significant differential depth between adjacent properties.
Site within exclusion zone of Network Rail Tunnel	Excavation for a basement and associated foundations may result in damage to the tunnel

These potential impacts have been investigated through the site investigation, as detailed below.

4.1.2 Subterranean (Groundwater) Flow Scoping Assessment

The following potential impacts have been identified that may have an impact on subterranean flow.

Screening Issue	Potential Impact
The basement structure may extend into saturated ground during winter conditions.	The groundwater flow regime may be altered by the proposed basement. Changes in flow regime could potentially cause the groundwater level within the zone encompassed by the new flow route to increase or decrease locally. For existing nearby structures the degree of dampness or seepage may potentially increase as a result of changes in groundwater level.
The proposal will increase the hardstanding area by 490m^2 through a larger building footprint and hard landscaping areas.	The sealing of the ground surface to rainfall, by increasing the building area, will result in decreased recharge to the underlying ground. In areas underlain by an aquifer, this may impact on groundwater flow or levels.

These potential impacts have been investigated through the site investigation, as detailed below.

4.1.3 Surface Flow and Flooding Scoping Assessment

Full details of the surface flow and flooding scoping assessment are provided in the appended report by Potamos. Due to the change in the proportion of hard surfaces on the site the proposed development, if un-managed, would result in an increase in peak runoff rates and volumes from the site. However, London Borough of Camden LDF policies DP22 and DP23 require that developments reduce the pressure on the local sewer network and manage the effects of climate change by reducing surface water runoff.

4.2 Exploratory Work

During the Soils Ltd ground investigation two cable percussion boreholes were advanced to depths of 10.0 m. A single groundwater monitoring standpipe was installed to a depth of 10.0 m in one of the boreholes, although no subsequent monitoring is known to have been carried out. Standard Penetration Tests were carried out at regular intervals in the boreholes and disturbed and undisturbed samples were recovered for subsequent laboratory geotechnical testing.

A copy of the Soils Ltd report, including the borehole records and results of the laboratory analyses, is appended.

5.0 GROUND CONDITIONS

The Soils Ltd investigation confirmed the expected ground conditions in that, beneath a nominal thickness of made ground, London Clay was encountered and proved to the full depth of the investigation.

5.1 Made Ground

The made ground comprised dark brown sandy clay with occasional to abundant brick fragments and was encountered to depths of 0.45 m and 0.65 m.

No visual or olfactory evidence of contamination was reported within these soils.

5.2 London Clay

The London Clay comprised firm to stiff dark brown to grey occasionally fissured silty clay with occasional partings of fine sand and scattered traces of selenite. Roots were observed to a maximum depth of 3.0 m in the boreholes.

Laboratory classification tests undertaken on samples of the clay indicated it to be of high volume change potential. Quick unconsolidated undrained triaxial tests undertaken on undisturbed samples of the clay indicated an undrained shear strength increasing from 49 kN/m^2 at a depth of 3.0 m to 119 kN/m^2 at a depth of 9.0 m.

These soils were observed to be free of any evidence of soil contamination.

5.3 Groundwater

Groundwater was not encountered during the ground investigation. However, no subsequent groundwater monitoring has been undertaken. Groundwater levels within constructed pitzometers within the London Clay often take several weeks to reach equilibrium and boreholes are commonly dry on drilling, reflecting the very low permeability of the strata.

Part 2: DESIGN BASIS REPORT

This section of the report provides an interpretation of the findings detailed in Part 1, in the form of a ground model, and then provides advice and recommendations with respect to foundation options and other aspects of the development.

6.0 INTRODUCTION

The proposed redevelopment of the site includes the demolition of the southern building, to be replaced by construction of a new four-storey building, together with the construction of a basement beneath the footprint of the retained and new buildings. On the basis of the information provided, the formation level of the new basement is anticipated to be roughly 3 m to 4 m below existing ground level and will, therefore, extend into the London Clay. The foundation loads for the proposed new building are anticipated to be light to moderate. Previous subsidence damage related to volume changes of the clay has been recorded at the site.

7.0 GROUND MODEL

The desk study has revealed that the site has not had a potentially contaminative history, having apparently been occupied by the existing residential property for the entirety of its developed history and on the basis of the fieldwork, the ground conditions at this site can be characterised as follows.

- Beneath a nominal thickness of made ground, London Clay was proved to the maximum depth investigated of 10.0 m;
- the made ground extends to depths of between 0.45 m and 0.65 m;
- the underlying London Clay comprises firm to stiff dark brown to grey occasionally fissured silty clay with occasional partings of fine sand and scattered traces of selenite; and
- groundwater was not encountered during the ground investigation.

8.0 ADVICE AND RECOMMENDATIONS

Detailed advice with respect to the design of suitable foundations and retaining walls for the proposed development is outside the scope of this report. However, some information is provided in the following section and also within the appended Soils Ltd Ground Investigation Report.

8.1 Basement Excavation

It is understood that the new basement will be excavated to a depth of approximately 3 m to 4 m below existing ground level. Therefore, formation level is likely to be within the firm to stiff clay of the London Clay.

Groundwater is not expected to be encountered within the basement excavation, although it is recommended that further investigation through installation and monitoring of standpipes is carried out to determine the extent of any seasonal fluctuations and confirm this. The permeability of the London Clay is likely to be very low, with horizontal permeability ranging between 1 x 10^{-10} m/s and 1 x 10^{-8} m/s and an even lower vertical permeability. On this basis, if water is encountered inflow rates into the excavation are expected to be slow. As the basement excavation will cover a much larger area than that covered by the investigation, it is possible that larger pockets or inter-connected layers of groundwater could be encountered, within fissures in the clay. If the adopted method of temporary support during excavations is not watertight, it would be prudent for the chosen contractor to have a contingency plan in place to deal with more significant inflows as a precautionary measure. It would also be prudent, once access is available, to carry out a number of trial excavations, to depths as close to the full basement depth as possible, to provide an indication of the likely ground water conditions.

The design of basement support in the temporary and permanent conditions needs to take account of the need to maintain the stability of the excavation, the existing slope, the surrounding structures, namely the neighbouring properties to the east and south, and to protect against groundwater inflows.

8.1.1 Slope Stability

The screening assessment has identified the site to be within a wider hillside setting in which the general slope is greater than 7° and the site includes slopes greater than 7°, where two level changes occur, although the overall slope of the site is under 7°. The level changes are already supported by retaining structures and the existing slopes show no sign of instability. It is understood that the proposed development will not introduce any new slopes or involve any steepening of the existing slope. Additionally, the proposed development, which will include the construction of new retaining walls as part of the basement structure, will provide additional support to that already in place and further assessment is not deemed necessary at this stage.

It is recommended that there should not be any unsupported excavations and that the basement retaining walls are suitably designed to maintain the stability of the existing slope, as discussed below. Consideration could be given to the use of ground anchors in association with retaining walls, in order to add further stability to the slope and reduce the requirement for internal propping on this relatively small site.

8.1.2 Basement Retaining Walls

The noise and vibrations associated with the installation of sheet piles may be unacceptable to neighbouring properties, so they are not considered likely to be a suitable option.

The use of a bored pile wall is likely to be the best method of constructing and supporting the basement excavation, which could have the advantage of being incorporated into the permanent works and will be able to provide support for structural loads.

Whilst the investigation carried out to date would suggest that groundwater inflow is unlikely and any inflow that does occur would be very slow, such that it may be possible to adopt a contiguous bored pile wall with the use of sump pumping to deal with any groundwater inflows, the secant piled option will remove the requirement for any dewatering, which if carried out could conceivably have a negative impact on the site and surrounding area by causing ground settlement. A secant bored pile wall would also have the advantage of maximising the usable space within the basement area as it should overcome the requirement for any secondary groundwater protection in the permanent works.

The ground movements associated with the basement excavation will depend on the method of excavation and support and the overall stiffness of the basement structure in the temporary condition. Thus in addition to the above, a suitable amount of propping will be required to provide the necessary rigidity. In this respect the timing of the provision of support to the wall will have an important effect on movements.

The following parameters are suggested for the design of the permanent basement retaining walls.

Stratum	Bulk Density (kg/m^3)	Effective Cohesion (c' – kN/m^2)	Effective Friction Angle (φ' – degrees)
Made Ground	1700	Zero	27
London Clay	1900	Zero	25

The design groundwater level should be determined on the basis of monitoring of standpipes and the advice in BS8102:2009[5] should be followed with respect to waterproofing.

The retaining walls will need to be designed to take account of the overall stability of the slope and this will need to be considered in more detail once the layout has been finalised.

8.1.3 Basement Heave

The demolition of the existing building and subsequent excavation of approximately 3 m to 5 m of soil will result in an unloading of approximately 80 kN/m^2. This unloading will result in heave of the underlying London Clay, which will comprise short term elastic movement and longer term swelling that will continue over a number of years. These movements will be mitigated to some extent by the continued pressure applied by the retained building and construction of the new building, although a detailed analysis of the possible heave should be carried out once the basement design has been finalised.

8.2 Foundations

The excavation to form the basement level will result in a formation level in the London Clay at a depth of approximately 3 m to 4 m below existing ground level. It should be possible to adopt moderate width pad or strip foundations in the firm clay at this level, designed to apply a net allowable bearing pressure of 150 kN/m^2 below the level of the proposed basement floor. This value incorporates an adequate factor of safety against bearing capacity failure and should ensure that settlement remains within normal tolerable limits. The screening assessment has identified the London Clay to be prone to seasonal shrink-swell and part of the proposed basement to be within zones affected by trees. Foundations must be extended to sufficient depth to be below the zone affected by volume changes to the clay, taking into account the presence of trees at the site and in accordance with NHBC guidelines. Foundation excavations should be checked by a suitably qualified engineer to confirm they are below the depth of desiccation.

Alternatively, piled foundations would also provide a suitable solution. For the ground conditions at this site some form of bored pile is likely to be the most appropriate type. A conventional rotary augered pile may be appropriate, or consideration could be given to the use of bored piles installed using continuous flight auger (cfa) techniques. The final choice of pile type will be largely governed by the access restrictions and working area. The appended Soils Ltd Report should be referred to for preliminary load capacities for piles; however, it is likely that further investigation to a greater depth will be required to provide sufficient information for the design of piles.

5 BS8102 (2009) *Code of practice for protection of below ground structures against water from the ground*

8.3 Shallow Excavations

On the basis of the boreholes, it is considered likely that it will be feasible to form relatively shallow excavations that extend through the made ground and terminate within the underlying London Clay without the requirement for lateral support, although localised instabilities may occur from within the made ground. Where personnel are required to enter excavations, a risk assessment should be carried out and temporary lateral support or battering of the excavation sides will be required in order to comply with normal safety requirements.

Inflows of groundwater into shallow excavations are not generally anticipated, although seepages may be encountered from perched water tables within the made ground, particularly within the vicinity of existing foundations. Such inflows should be suitably controlled by sump pumping.

8.4 Basement Floor Slabs

Following the excavation of the basement, it is likely that the floor slab for the proposed basement will need to be suspended over a void to accommodate the anticipated heave and any potential uplift forces from groundwater pressures unless the slab can be suitably reinforced to cope with these movements. This should be reviewed once the levels and loads are known.

8.5 Effect of Sulphates

Chemical analyses of selected soil samples have revealed generally low concentrations of soluble sulphate and near neutral pH, corresponding to Class DS-2 and AC-1S of Table C2 of BRE Special Digest 1:2005. The guidelines contained in the above digest should be followed in the design of any new foundation concrete.

9.0 BASEMENT IMPACT ASSESSMENT

The current development proposal includes the demolition of the southern building, to be replaced by construction of a new four-storey building, together with the construction of a basement beneath the footprint of the retained and new buildings, which will extend to a depth of roughly 3 m to 4 m. Formation level will therefore be within the London Clay.

The land stability screening identified eight potential impacts and the subterranean flow screening identified two potential impacts. In addition, the surface flow and flooding screening identified a single potential impact, relating to the development proposals resulting in a change to surface cover; the appended report by Potamos Consulting should be referred to for details in this respect.

The desk study and ground investigation information has been used below to review the potential impacts identified by the land stability screening and subterranean flow screening, to assess the likelihood of them occurring and the scope for reasonable engineering mitigation.

9.1 Slope Stability Impact Assessment

Potential Impact	Site Investigation Conclusions
Site includes a man-made slope greater than 7° - local instability within the site and adjoining sites may occur	The existing slopes show no sign of any instability and are supported by retaining walls. The proposed development will not introduce any new slopes or involve any steepening of this existing slope. Additionally the proposed development, which will include the construction of new retaining walls as part of the new basement structure, will provide additional support to that already in place and further assessment is not deemed necessary at this stage. The design of basement support in the temporary and permanent conditions needs to take account of the need to maintain the stability of the existing slope.
The site is within a wider hillside setting in which the general slope is greater than 7° - local instability within the site and adjoining sites may occur	
London Clay is the shallowest strata at the site – London Clay is prone to seasonal shrink-swell (subsidence and heave)	Foundations must be extended to sufficient depth to be below the zone affected by volume changes of the clay, taking into account the presence of trees at the site in accordance with NHBC guidelines, and inspected to ensure they are below the depth of any desiccation
Trees will be felled and works are to be carried out within tree root protection zones	A report will be completed by Simon Pryce Arboriculture to assess the impact
There is evidence of shrink-swell subsidence at the site - seasonal shrink-swell can result in foundation movements and in particular if a new basement is dug to below the depth likely to be affected by tree roots this could lead to damaging differential movement between the subject site and adjoining properties	The subject property is not structurally linked to adjacent properties, other than the wall filling the gap between the property and neighbouring garage.
The site is within 5 m of a public highway - excavation of a basement may result in structural damage to the road or footway	The investigation has not indicated any specific problems, such as weak or unstable ground or voids, that would make working within 5 m of public infrastructure particularly problematic at this site. The design of basement support in the temporary and permanent conditions needs to take account of the need to maintain the stability of the excavation and the surrounding structures at all times.
Founding depths relative to neighbours - excavation may lead to structural damage to neighbouring buildings and structures if there is a significant differential depth between adjacent properties	The design of the basement support in the temporary and permanent conditions needs to take account of the need to maintain the stability of the excavation and the surrounding structures at all times.
Site within exclusion zone of Network Rail Tunnel - excavation for a basement and associated foundations may result in damage to the tunnel	The design of the basement support and associated foundations needs to take into account the need to protect the rail tunnel and Network Rail should be liaised with to ensure that their requirements are met.

The screening and scoping stages have identified potential adverse impacts relating to land stability associated with the proposed development. However, the proposed development is unlikely to result in any specific land or slope stability issues; the design of the foundations and of basement support in the temporary and permanent conditions for the proposed development must take into account the need to maintain the stability of the excavation, the existing slope, the surrounding structures, and to protect against groundwater inflows. Liaison with Network Rail will be required in relation to the nearby Belsize Tunnel and the report by Simon Pryce Arboriculture must be consulted in relation to the impact of the felling of trees and works in the tree root zones.

9.2 Subterranean (Groundwater) Flow Impact Assessment

Potential Impact	Site Investigation Conclusions
The basement structure may extend into saturated ground during winter conditions - the groundwater flow regime may be altered by the proposed basement. Changes in flow regime could potentially cause the groundwater level within the zone encompassed by the new flow route to increase or decrease locally. For existing nearby structures the degree of dampness or seepage may potentially increase as a result of changes in groundwater level.	The ground investigation has confirmed the presence of London Clay beneath the Site. However groundwater levels within the London Clay formation were not established. The London Clay is not considered to be an aquifer and will not store or transmit significant quantities of groundwater. Should the basement formation level extend beneath high winter groundwater levels beneath the site, it is not considered that this would result in a significant change to the groundwater flow regime in the vicinity of the proposal. The basement will not form a barrier to groundwater flow.
The proposal will increase the hardstanding area by 490m^2 through a larger building footprint and hard landscaping areas - the sealing of the ground surface to rainfall, by increasing the building area, will result in decreased recharge to the underlying ground. In areas underlain by an aquifer, this may impact on groundwater flow or levels.	The site is underlain by the London Clay, which is Non Productive strata and which does not receive significant recharge.

The screening and scoping stages have identified potential adverse impacts relating to subterranean flow associated with the proposed development. However, site specific information on the geology and hydrogeology beneath the site has established that the site is underlain by Non Productive strata (London Clay) which is not capable of storing and transmitting water in usable amounts and receives very low levels of annual recharge due to its lowly permeable nature. The proposal is therefore not likely to have a significant impact on either the groundwater flow regime beneath the site nor on the amount of annual recharge into the London Clay. The proposed basement will not effectively close a gap between underground structures and as such will not form a barrier to groundwater flow.

9.3 Surface Flow and Flooding Impact Assessment

In order to mitigate the impacts of the proposed development, and meet the requirements of the relevant policies relating to surface water runoff, it is proposed to incorporate a SuDS scheme. Infiltration-based SuDS techniques are not suitable for this site due to the low permeability of the London Clay. Therefore, the preferred surface water management option for the site is to attenuate rainwater in storage crates (aquacells) beneath the garden area for controlled discharge to Thames Water's sewers. Further details are provided within the appended report by Potamos Consulting.

10.0 OUTSTANDING RISKS AND ISSUES

This section of the report aims to highlight areas where further work is required as a result of limitations on the scope of this investigation, or where issues have been identified by this investigation that warrant further consideration. The scope of risks and issues discussed in this section is by no means exhaustive, but covers the main areas where additional work may be required.

The ground is a heterogeneous natural material and variations will inevitably arise between the locations at which it is investigated. This report provides an assessment of the ground conditions based on the discrete points at which the ground was sampled, but the ground conditions should be subject to review as the work proceeds to ensure that any variations from the Ground Model are properly assessed by a suitably qualified person.

An issue that requires careful consideration at this site is the extent to which groundwater will affect the basement excavation in the temporary condition and the level of the water table to be adopted in the permanent design. It would be prudent to carry out groundwater monitoring of the existing standpipe as a minimum, but it is important that the contractor is able to deal with inflows of groundwater that may be locally more significant than anticipated.

Consideration will also need to be given to measures to guard against heave as a result of the basement excavation. It is likely that the floor slab for the proposed basement will need to be suspended over a void to accommodate the anticipated heave unless the slab can be suitably reinforced to cope with these movements.

On the basis of the research carried out there is considered to be a VERY LOW risk of contamination at this site. However, no contamination investigation is understood to have been undertaken and it would be prudent to carry out chemical analyses on samples of the near-surface soil in order to determine whether any contaminants are present and to provide an assessment of classification for waste disposal purposes.

The expected ground conditions at the site indicate that piled foundations bearing on the London Clay should be a suitable solution for the anticipated light to moderate loads. However, further investigation may be required to confirm the ground conditions at the site to a greater depth than the existing ground investigation, to obtain information on the strength of the soil for the purposes of piled foundation and retaining wall design and to confirm the absence of groundwater.

APPENDIX

Envirocheck Report

Historical Maps

Soils Ltd Ground Investigation Report

Potamos Surface Flow and Flooding Assessment Report

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
37369747_1_1

Customer Reference:
J12015

National Grid Reference:
526370, 184890

Slice:
A

Site Area (Ha):
0.19

Search Buffer (m):
1000

Site Details:

14 Netherhall Gardens
LONDON
NW3 5TQ

Client Details:

Mr S Branch
GEA Ltd
Tyttenhanger House
Coursers Road
St Albans
Herts
AL4 0PG

Prepared For:

Netherhall Developments Ltd

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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Radon Potential dataset Copyright Notice

Information supplied from a joint dataset compiled by The British Geological Survey and the Health Protection Agency.

Report Version v47.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
Contaminated Land Register Entries and Notices					
Discharge Consents					
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 1		3	3	12
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 3				Yes
Pollution Incidents to Controlled Waters					
Prosecutions Relating to Authorised Processes					
Prosecutions Relating to Controlled Waters					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 3				1 (*2)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 4	Yes	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 4	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones	pg 4			1	
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites	pg 5			1	
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Recorded Landfill Sites					
Registered Landfill Sites					
Registered Waste Transfer Sites	pg 5		2		1
Registered Waste Treatment or Disposal Sites					

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					
Geological					
BGS Recorded Mineral Sites					
BGS 1:625,000 Solid Geology	pg 7	Yes	n/a	n/a	n/a
Brine Compensation Area			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 7	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 7	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 7		Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 7	Yes	Yes	n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 8		26	n/a	n/a
Fuel Station Entries	pg 10			1	3

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Local Authority Pollution Prevention and Controls** Name: Hampstead Express Dry Cleaning Location: 279a Finchley Road, London, Nw3 6lt Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC6 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A13NW (W)	174	1	526178 184902
1	**Local Authority Pollution Prevention and Controls** Name: Janets Hand Laundry Ltd Location: 281a Finchley Road, London, Nw3 6nd Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC14 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A13NW (W)	186	1	526167 184924
2	**Local Authority Pollution Prevention and Controls** Name: Is Dry Cleaners Location: 6 Canfield Gardens, London, Nw6 3bs Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC18 Dated: 5th February 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A13SW (SW)	217	1	526257 184662
3	**Local Authority Pollution Prevention and Controls** Name: B P Harmony Location: 104a Finchley Road, London, NW3 5EY Authority: London Borough of Camden, Pollution Projects Team Permit Reference: Not Given Dated: 1st July 1999 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Authorised** Positional Accuracy: Automatically positioned to the address	A13SE (S)	315	1	526471 184554
3	**Local Authority Pollution Prevention and Controls** Name: Bp Harmony Location: 104a Finchley Road, LONDON, NW3 5EY Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC18 Dated: 1st July 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A13SE (S)	315	1	526471 184554
4	**Local Authority Pollution Prevention and Controls** Name: Pyramid Cleaners Location: 52 Besize Lane, London, Nw3 5ar Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC8 Dated: 1st January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A14NW (E)	493	1	526872 184985
5	**Local Authority Pollution Prevention and Controls** Name: Swiss Cottage Dry Cleaners Location: 121 Finchley Road, London, Nw3 6hy Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC10 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A8NE (SE)	635	1	526626 184270

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
6	**Local Authority Pollution Prevention and Controls** Name: Kings Location: 25 Winchester Road, London, E4 Authority: London Borough of Waltham Forest, Environmental Health Department Permit Reference: DC05 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A9NW (SE)	694	2	526812 184310
7	**Local Authority Pollution Prevention and Controls** Name: Sqweaky Clean Professional Dry Cleaners Location: 13 Fairhazel Gardens, London, Nw6 3qe Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC37 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A8SW (S)	731	1	526237 184134
7	**Local Authority Pollution Prevention and Controls** Name: Connoisseur Dry Cleaners Location: 3-5 Fairhazel Gardens, London, Nw6 3qe Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC11 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A8SW (S)	742	1	526262 184119
8	**Local Authority Pollution Prevention and Controls** Name: Perkins Dry Cleaners Location: 40 Heath Street, London, Nw3 6te Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC9 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A18NE (N)	805	1	526374 185724
9	**Local Authority Pollution Prevention and Controls** Name: Shamrock Express Cleaners Location: 210 West End Lane, London, Nw6 1uu Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC33 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A12NW (W)	846	1	525517 185048
10	**Local Authority Pollution Prevention and Controls** Name: William J Humpage Location: 12-13 West Hampstead Mews, LONDON, NW6 3BB Authority: London Borough of Camden, Pollution Projects Team Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: Part B process (no specific reference) **Status: Application Withdrawn** Positional Accuracy: Manually positioned to the address or location	A7NW (SW)	846	1	525567 184544
11	**Local Authority Pollution Prevention and Controls** Name: Masterclean Dry Cleaners Location: 6 Langtry Walk, London, Nw8 0du Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC38 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A8SW (S)	852	1	526352 184004

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	**Local Authority Pollution Prevention and Controls** Name: Madame George Dry Cleaners Location: 227 West End Lane, London, Nw6 1xj Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC15 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A12SW (W)	854	1	525499 184882
13	**Local Authority Pollution Prevention and Controls** Name: Belsize Park Service Station Location: 215 Haverstock Hill, LONDON, NW3 4RE Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC21 Dated: 2nd January 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	860	1	527187 185227
14	**Local Authority Pollution Prevention and Controls** Name: Perkins Dry Cleaners Location: 171 Haverstock Hill, London, Nw3 4qs Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC7 Dated: 12th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A14NE (E)	968	1	527342 185055
14	**Local Authority Pollution Prevention and Controls** Name: Swan Dry Cleaners Location: 163 Haverstock Hill, London, Nw3 4qt Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC42 Dated: 24th January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A14NE (E)	994	1	527371 185032
	Nearest Surface Water Feature	A9NW (SE)	666	-	526760 184307
15	**Water Abstractions** Operator: London Borough Of Camden Licence Number: 28/39/39/0219 Permit Version: 1 Location: Swiss Cottage Open Space- Borehole Authority: Environment Agency, Thames Region Abstraction: Municipal Grounds: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Swiss Cottage Open Space, Winchester Road, London. Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	711	3	526800 184280
	Water Abstractions Operator: Thames Water Utilities Ltd Licence Number: 28/39/39/0231 Permit Version: 1 Location: Barrow Hill Pumping Station - Borehole Authority: Environment Agency, Thames Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Barrow Hill Pumping Station Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 2007 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A5NW (SE)	1714	3	527640 183690

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Thames Water Utilities Ltd Licence Number: 28/39/39/0202 Permit Version: 1 Location: Barrow Hill Pumping Station - Borehole Authority: Environment Agency, Thames Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Barrow Hill Pumping Station Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 26th September 2002 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A5NW (SE)	1714	3	527640 183690
	Groundwater Vulnerability Soil Classification: Not classified Map Sheet: Sheet 39 West London Scale: 1:100,000	A13SE (NE)	0	3	526370 184886
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Desination: Unproductive Strata	A13SE (NE)	0	4	526370 184886
	Superficial Aquifer Designations No Data Available				
16	**Source Protection Zones** Name: Barrow Hill Source: Environment Agency, Head Office Reference: Th405 Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A9NW (SE)	464	3	526716 184532
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
17	**Historical Landfill Sites** Licence Holder: Not Supplied Location: London NW6 Name: Canfield Place Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD12043 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: DON009	A13SW (W)	285	3	526072 184813
	Local Authority Landfill Coverage Name: London Borough of Camden - Has no landfill data to supply		0	6	526370 184886
	Local Authority Landfill Coverage Name: Westminster City Council - Has supplied landfill data		962	7	526417 183896
18	**Registered Waste Transfer Sites** Licence Holder: P B Donoghue Licence Reference: DL140 Site Location: BR Goods Yard at 269 Finchley Road, CAMDEN, London, NW3 Operator Location: As Site Address Authority: Environment Agency - Thames Region, North East Area Site Category: Transfer Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st February 1992 Preceded By Licence: DL140 Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Lwra Cat. A = Inert Wastes; Lwra Cat. Bi Gen.Non-Putresc; Max.Waste Permitted By Licence-Stated Prohibited Waste: Clinical - As In Coll/Disp.Regs Of '88; Liquid/Slurry/Sludge Wastes; Poisonous, Noxious, Polluting Wastes; Special Wastes; Waste N.O.S.	A13SW (SW)	172	3	526200 184780
18	**Registered Waste Transfer Sites** Licence Holder: P B Donoghue Licence Reference: DL140 Site Location: BR Goods Yard, 269 Finchley Road, CAMDEN, London, NW3 Operator Location: As Site Address Authority: Environment Agency - Thames Region, North East Area Site Category: Transfer Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Record supersededSuperseded Dated: 1st August 1983 Preceded By Licence: Not Given Superseded By Licence: DL140 Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Commercial Waste; Construction Ind. Wastes; Max.Waste Permitted By Licence(Stated) Prohibited Waste: Clinical Waste -Clause 2 & 4 Hsc 1982; Notifiable Wastes; Putrescible Waste; Special Wastes	A13SW (SW)	172	3	526200 184780

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
19	**Registered Waste Transfer Sites** Licence Holder: L.B. of Camden Licence Reference: DL137 Site Location: 152 West End Lane, CAMDEN, London, NW6 Operator Location: Old Town Hall, Haverstock Hill, CAMDEN, London, NW3 4QP Authority: Environment Agency - Thames Region, North East Area Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st August 1983 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the road within the address or location Boundary Quality: Not Supplied Authorised Waste: Asbestos Elect.Capacitors Cont'G Pcb Fluid Prohibited Waste: Biodegradable/Putrescible Waste Clinical Wastes Notifiable Wastes Special Wastes	A12SW (W)	827	3	525530 184790

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: London Clay	A13SE (NE)	0	4	526370 184886
	Coal Mining Affected Areas In an area which may not be affected by coal mining				
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	4	526370 184886
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	81	4	526370 185000
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	4	526370 184886
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	81	4	526370 185000
	Potential for Ground Dissolution Stability Hazards No Hazard				
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	4	526370 184886
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	80	4	526319 184784
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	81	4	526370 185000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	4	526370 184886
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	81	4	526370 185000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	131	4	526426 185043
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	4	526370 184886
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	81	4	526370 185000
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	4	526370 184886
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	4	526370 184886

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	**Contemporary Trade Directory Entries** Name: Ampersand Location: 37c, Maresfield Gardens, London, NW3 5SG Classification: Lampshade Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	41	-	526425 184896
21	**Contemporary Trade Directory Entries** Name: Hairaway Location: 128, Finchley Road, London, NW3 5HT Classification: Electrolysis **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	107	-	526308 184759
21	**Contemporary Trade Directory Entries** Name: Wilkinson Freed (Veneers) Ltd Location: 124, Finchley Road, London, NW3 5HT Classification: Veneer Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SW (S)	122	-	526319 184738
22	**Contemporary Trade Directory Entries** Name: S E Ltd Location: 8, Frognal, London, NW3 6AJ Classification: Textile Manufacturing **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	126	-	526253 184987
23	**Contemporary Trade Directory Entries** Name: American Wheels Location: 16, Frognal Parade, London, NW3 5HH Classification: Car Customisation & Conversion Specialists **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (W)	148	-	526207 184939
24	**Contemporary Trade Directory Entries** Name: Gerald Wise & Co Ltd Location: 225a, Finchley Road, London, NW3 6LP Classification: Metal Industries - Primary **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	157	-	526286 184714
24	**Contemporary Trade Directory Entries** Name: Quicksilver Refiners Ltd Location: 225a, Finchley Road, London, NW3 6LP Classification: Metal Industries - Primary **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	157	-	526286 184714
24	**Contemporary Trade Directory Entries** Name: Colorama Location: Flat 1, 223, Finchley Road, London, NW3 6LP Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	164	-	526293 184703
24	**Contemporary Trade Directory Entries** Name: Capacity Uk Ltd Location: 1-3, Canfield Place, London, NW6 3BT Classification: Clothing & Fabrics - Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	195	-	526251 184691
24	**Contemporary Trade Directory Entries** Name: L T C Distribution Location: 1-3, Canfield Place, London, NW6 3BT Classification: Distribution Services **Status: Active** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	195	-	526251 184691
24	**Contemporary Trade Directory Entries** Name: Oil & Gas Services Group Ltd Location: 4-6, Canfield Place, London, NW6 3BT Classification: Oil & Gas Exploration Supplies & Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	216	-	526222 184685
24	**Contemporary Trade Directory Entries** Name: Esquire Location: 6, Canfield Gardens, London, NW6 3BS Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	218	-	526255 184661

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**Contemporary Trade Directory Entries** Name: Clothes Clinic Location: 279a, Finchley Road, London, NW3 6LT Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (W)	179	-	526174 184901
25	**Contemporary Trade Directory Entries** Name: Clothes Clinic Location: 279a, Finchley Road, LONDON, NW3 6LT Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (W)	179	-	526174 184901
26	**Contemporary Trade Directory Entries** Name: Ariana Hand Laundry Location: 281a, Finchley Road, London, NW3 6ND Classification: Laundries & Launderettes **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (W)	189	-	526164 184922
26	**Contemporary Trade Directory Entries** Name: Printing Works The Location: 287, Finchley Road, London, NW3 6ND Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A13NW (W)	198	-	526157 184941
26	**Contemporary Trade Directory Entries** Name: Multiload Technology Ltd Location: 2, Rosemont Road, London, NW3 6NE Classification: Lighting Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (W)	210	-	526145 184945
26	**Contemporary Trade Directory Entries** Name: Ron'S Garage Location: 6, Rosemont Road, London, NW3 6NE Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (W)	232	-	526122 184934
27	**Contemporary Trade Directory Entries** Name: Timberwise (Uk) Ltd Location: 176, Finchley Road, London, NW3 6BT Classification: Damp & Dry Rot Control **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A13NW (NW)	209	-	526169 185011
27	**Contemporary Trade Directory Entries** Name: Accel Pest Control Location: 176, Finchley Road, London, NW3 6BT Classification: Pest & Vermin Control **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	209	-	526169 185011
27	**Contemporary Trade Directory Entries** Name: A Professional Domestic Service Location: 176, Finchley Road, London, NW3 6BT Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	209	-	526169 185011
27	**Contemporary Trade Directory Entries** Name: 1st Damp Line Ltd Location: 176, Finchley Road, London, NW3 6BT Classification: Damp & Dry Rot Control **Status: Active** Positional Accuracy: Manually positioned to the address or location	A13NW (NW)	209	-	526169 185011
27	**Contemporary Trade Directory Entries** Name: Diamond Location: 190, Finchley Road, London, NW3 6BX Classification: Laundries & Launderettes **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	245	-	526143 185037
27	**Contemporary Trade Directory Entries** Name: T & T Cleaning Services Location: 190, Finchley Road, London, NW3 6BX Classification: Cleaning Services - Domestic **Status: Active** Positional Accuracy: Manually positioned to the address or location	A13NW (NW)	245	-	526143 185037

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
28	**Contemporary Trade Directory Entries** Name: Cross Weir Ltd Location: Barkat House, 116-118, Finchley Road, London, NW3 5HT Classification: Valve Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (S)	210	-	526376 184647
28	**Contemporary Trade Directory Entries** Name: Synpart Location: Charles House, 108-110, Finchley Road, London, NW3 5JJ Classification: Manufacturers **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A13SE (S)	240	-	526395 184617
29	**Fuel Station Entries** Name: Hampstead Connect Location: 104a, Finchley Road, London, NW3 5EY Brand: BP Premises Type: Petrol Station **Status: Open** Positional Accuracy: Automatically positioned to the address	A13SE (S)	315	-	526471 184554
30	**Fuel Station Entries** Name: Belsize Park Self Serve Location: Belzier Park Service Station, 215, Haverstock Hill, London, NW3 4QE Brand: BP Premises Type: Petrol Station **Status: Open** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	860	-	527187 185227
31	**Fuel Station Entries** Name: Boundary Road Service Station Location: 150 Loudon Road, St Johns Wood, LONDON, NW8 0DH Brand: Total Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Automatically positioned to the address	A8SE (S)	897	-	526423 183961
32	**Fuel Station Entries** Name: Cavendish Motors Location: West End Lane, LONDON, Greater London, NW6 1XF Brand: OBSOLETE Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Manually positioned to the road within the address or location	A12NW (W)	983	-	525412 185197

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
London Borough of Hackney - Environmental Health Department	August 2011	Annual Rolling Update
London Borough of Islington - Public Protection	July 2011	Annual Rolling Update
London Borough of Brent - Environmental Health Department	June 2011	Annual Rolling Update
London Borough of Hammersmith And Fulham - Environmental Health Department	June 2011	Annual Rolling Update
London Borough of Haringey - Planning and Environmental Health	March 2011	Annual Rolling Update
Westminster City Council - Environmental Health Department	March 2011	Annual Rolling Update
London Borough of Barnet - Environmental Health Department	May 2011	Annual Rolling Update
London Borough of Camden - Pollution Projects Team	May 2011	Annual Rolling Update
Royal Borough of Kensington And Chelsea - Environmental Services	November 2011	Annual Rolling Update
Discharge Consents		
Environment Agency - Thames Region	October 2011	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Thames Region	January 2012	Quarterly
Integrated Pollution Controls		
Environment Agency - Thames Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control		
Environment Agency - Thames Region	October 2011	Quarterly
Local Authority Integrated Pollution Prevention And Control		
London Borough of Islington - Environmental Health Department	July 2011	Annual Rolling Update
Westminster City Council - Environmental Health Department	July 2011	Annual Rolling Update
London Borough of Hackney - Environmental Health Department	June 2011	Annual Rolling Update
London Borough of Hammersmith And Fulham - Environmental Health Department	March 2011	Annual Rolling Update
London Borough of Barnet - Environmental Health Department	May 2011	Annual Rolling Update
Royal Borough of Kensington And Chelsea - Environmental Health Department	May 2011	Annual Rolling Update
London Borough of Camden - Pollution Projects Team	November 2011	Annual Rolling Update
London Borough of Haringey - Planning and Environmental Health	November 2011	Annual Rolling Update
London Borough of Brent - Environmental Health Department	September 2011	Annual Rolling Update
Local Authority Pollution Prevention and Controls		
London Borough of Waltham Forest - Environmental Health Department	April 2011	Annual Rolling Update
London Borough of Islington - Environmental Health Department	July 2011	Annual Rolling Update
Westminster City Council - Environmental Health Department	July 2011	Annual Rolling Update
London Borough of Hackney - Environmental Health Department	June 2011	Annual Rolling Update
London Borough of Hammersmith And Fulham - Environmental Health Department	March 2011	Annual Rolling Update
London Borough of Barnet - Environmental Health Department	May 2011	Annual Rolling Update
Royal Borough of Kensington And Chelsea - Environmental Health Department	May 2011	Annual Rolling Update
London Borough of Camden - Pollution Projects Team	November 2011	Annual Rolling Update
London Borough of Haringey - Planning and Environmental Health	November 2011	Annual Rolling Update
London Borough of Brent - Environmental Health Department	September 2011	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
London Borough of Islington - Environmental Health Department	July 2011	Annual Rolling Update
Westminster City Council - Environmental Health Department	July 2011	Annual Rolling Update
London Borough of Hackney - Environmental Health Department	June 2011	Annual Rolling Update
London Borough of Hammersmith And Fulham - Environmental Health Department	March 2011	Annual Rolling Update
Royal Borough of Kensington And Chelsea - Environmental Health Department	March 2011	Annual Rolling Update
London Borough of Barnet - Environmental Health Department	May 2011	Annual Rolling Update
London Borough of Camden - Pollution Projects Team	November 2011	Annual Rolling Update
London Borough of Haringey - Planning and Environmental Health	November 2011	Annual Rolling Update
London Borough of Brent - Environmental Health Department	September 2011	Annual Rolling Update
Nearest Surface Water Feature		
Ordnance Survey	September 2011	Quarterly
Pollution Incidents to Controlled Waters		
Environment Agency - Thames Region	September 1999	Not Applicable

Agency & Hydrological	Version	Update Cycle
Prosecutions Relating to Authorised Processes Environment Agency - Thames Region	January 2012	Monthly
Prosecutions Relating to Controlled Waters Environment Agency - Thames Region	January 2012	Monthly
Registered Radioactive Substances Environment Agency - Thames Region	October 2011	Quarterly
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	January 2011	Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	January 2011	Annually
Substantiated Pollution Incident Register Environment Agency - Thames Region - North East Area	October 2011	Quarterly
Water Abstractions Environment Agency - Thames Region	October 2011	Quarterly
Water Industry Act Referrals Environment Agency - Thames Region	October 2011	Quarterly
Groundwater Vulnerability Environment Agency - Head Office	January 2011	Not Applicable
Drift Deposits Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations British Geological Survey - National Geoscience Information Service	September 2011	Annually
Superficial Aquifer Designations British Geological Survey - National Geoscience Information Service	September 2011	Annually
Source Protection Zones Environment Agency - Head Office	July 2011	Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	November 2011	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	November 2011	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	November 2011	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	November 2011	Quarterly
Flood Defences Environment Agency - Head Office	November 2011	Quarterly

Data Currency

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - Thames Region - North East Area	October 2011	Quarterly
Environment Agency - Thames Region - South East Area	October 2011	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Thames Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - Thames Region - North East Area	October 2011	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - Thames Region - North East Area	October 2011	Quarterly
Local Authority Landfill Coverage		
London Borough of Barnet	May 2000	Not Applicable
London Borough of Brent - Environmental Health Department	May 2000	Not Applicable
London Borough of Camden	May 2000	Not Applicable
London Borough of Hackney	May 2000	Not Applicable
London Borough of Hammersmith And Fulham - Environmental Health Department	May 2000	Not Applicable
London Borough of Haringey - Planning Department	May 2000	Not Applicable
London Borough of Islington - Environmental Health Department	May 2000	Not Applicable
Royal Borough of Kensington And Chelsea	May 2000	Not Applicable
Westminster City Council - Environmental Health Department	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
London Borough of Barnet	May 2000	Not Applicable
London Borough of Brent - Environmental Health Department	May 2000	Not Applicable
London Borough of Camden	May 2000	Not Applicable
London Borough of Hackney	May 2000	Not Applicable
London Borough of Hammersmith And Fulham - Environmental Health Department	May 2000	Not Applicable
London Borough of Haringey - Planning Department	May 2000	Not Applicable
London Borough of Islington - Environmental Health Department	May 2000	Not Applicable
Royal Borough of Kensington And Chelsea	May 2000	Not Applicable
Westminster City Council - Environmental Health Department	May 2000	Not Applicable
Registered Landfill Sites		
Environment Agency - Thames Region - North East Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Thames Region - North East Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - Thames Region - North East Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	December 2011	Bi-Annually
Explosive Sites		
Health and Safety Executive	January 2011	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
London Borough of Haringey	April 2011	Annual Rolling Update
Royal Borough of Kensington And Chelsea	December 2011	Annual Rolling Update
Westminster City Council	February 2011	Annual Rolling Update
London Borough of Hackney	January 2012	Annual Rolling Update
London Borough of Hammersmith And Fulham - Environmental Protection	January 2012	Annual Rolling Update
London Borough of Islington	July 2011	Annual Rolling Update
London Borough of Barnet	March 2011	Annual Rolling Update
London Borough of Camden	March 2011	Annual Rolling Update
London Borough of Brent	October 2011	Annual Rolling Update
Planning Hazardous Substance Consents		
London Borough of Haringey	April 2011	Annual Rolling Update
Royal Borough of Kensington And Chelsea	December 2011	Annual Rolling Update
Westminster City Council	February 2011	Annual Rolling Update
London Borough of Hackney	January 2012	Annual Rolling Update
London Borough of Hammersmith And Fulham - Environmental Protection	January 2012	Annual Rolling Update
London Borough of Islington	July 2011	Annual Rolling Update
London Borough of Barnet	March 2011	Annual Rolling Update
London Borough of Camden	March 2011	Annual Rolling Update
London Borough of Brent	October 2011	Annual Rolling Update

Geological	Version	Update Cycle
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	October 2011	Bi-Annually
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
Brine Compensation Area Cheshire Brine Subsidence Compensation Board	November 2002	Not Applicable
Coal Mining Affected Areas The Coal Authority - Mining Report Service	August 2011	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	February 2011	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	As notified
Industrial Land Use	**Version**	**Update Cycle**
Contemporary Trade Directory Entries Thomson Directories	November 2011	Quarterly
Fuel Station Entries Catalist Ltd - Experian	November 2011	Quarterly

Sensitive Land Use	Version	Update Cycle
Areas of Adopted Green Belt		
London Borough of Barnet	May 2011	As notified
London Borough of Haringey	May 2011	As notified
Areas of Unadopted Green Belt		
London Borough of Barnet	May 2011	As notified
London Borough of Haringey	May 2011	As notified
Areas of Outstanding Natural Beauty		
Natural England	September 2011	Bi-Annually
Environmentally Sensitive Areas		
Natural England	September 2011	Annually
Forest Parks		
Forestry Commission	April 1997	Not Applicable
Local Nature Reserves		
Natural England	September 2011	Bi-Annually
Marine Nature Reserves		
Natural England	September 2011	Bi-Annually
National Nature Reserves		
Natural England	September 2011	Bi-Annually
National Parks		
Natural England	September 2011	Bi-Annually
Nitrate Sensitive Areas		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	March 2003	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2011	Annually
Ramsar Sites		
Natural England	September 2011	Bi-Annually
Sites of Special Scientific Interest		
Natural England	September 2011	Bi-Annually
Special Areas of Conservation		
Natural England	September 2011	Bi-Annually
Special Protection Areas		
Natural England	September 2011	Bi-Annually

Data Suppliers

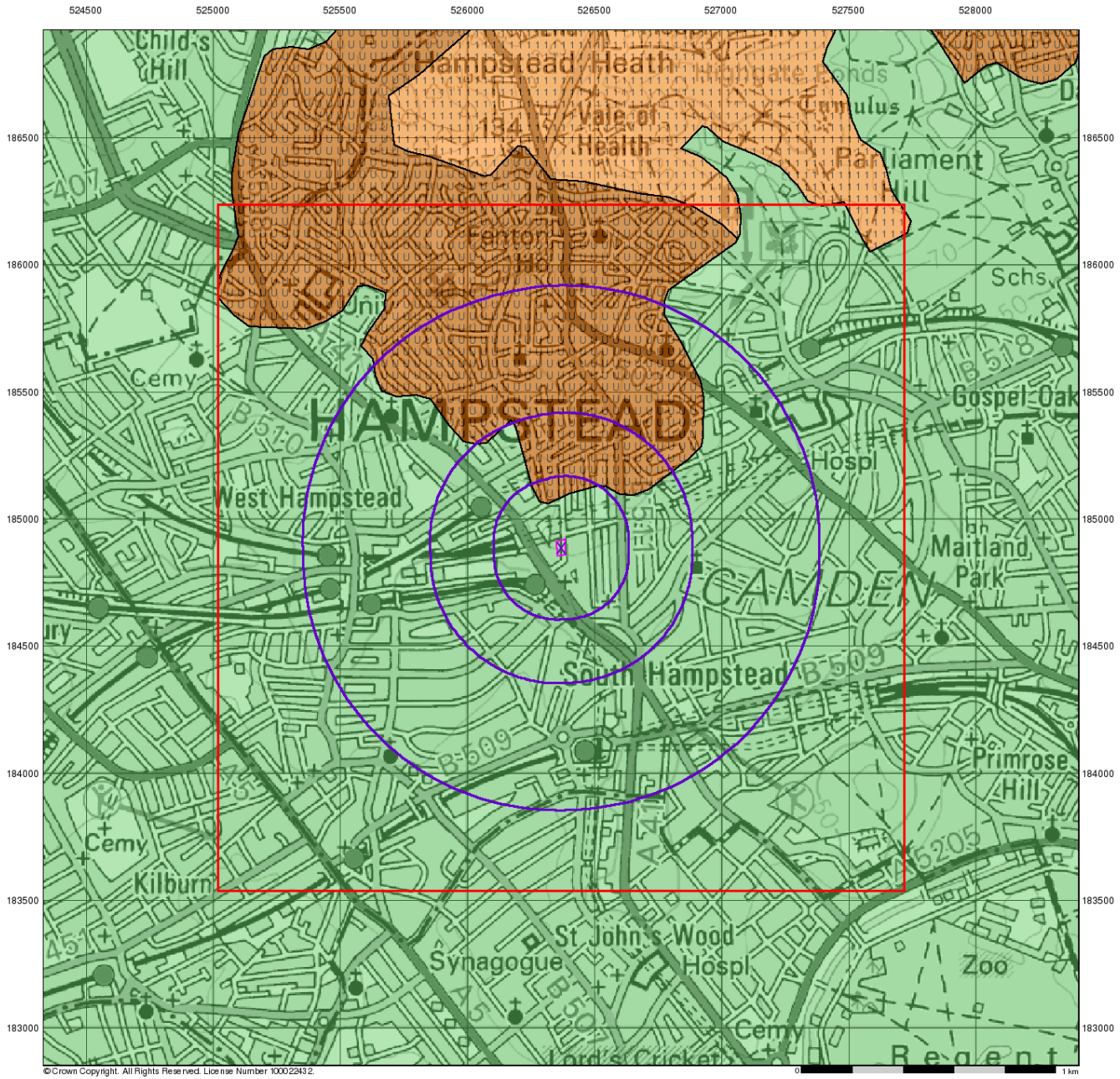
A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Countryside Council for Wales	
Scottish Natural Heritage	
Natural England	
Health Protection Agency	
Ove Arup	
Peter Brett Associates	

Useful Contacts

Contact	Name and Address	Contact Details
1	**London Borough of Camden - Pollution Projects Team** Seventh Floor, Town Hall Extension, Argyle Street, London, WC1H 8EQ	Telephone: 020 7278 4444 Fax: 020 7860 5713 Website: www.camden.gov.uk
2	**London Borough of Waltham Forest - Environmental Health Department** 154 Blackhorse Road, Walthamstow, London, E17 6NW	Telephone: 020 8496 3000 Fax: 0181 524 8960 Website: www.lbwf.gov.uk
3	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
4	**British Geological Survey - Enquiry Service** British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
5	**Natural England** Northminster House, Northminster Road, Peterborough, Cambridgeshire, PE1 1UA	Telephone: 0845 600 3078 Fax: 01733 455103 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
6	**London Borough of Camden** Town Hall, Judd Street, London, WC1H 9JE	Telephone: 020 7974 4444 Fax: 020 7974 6866 Email: info@camden.gov.uk Website: www.camden.gov.uk
7	**Westminster City Council - Environmental Health Department** Council House, Marylebone Road, London, NW1 5PT	Telephone: 020 7641 1317 Fax: 020 7641 1142 Website: www.westminster.gov.uk
-	**Health Protection Agency - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@hpa.org.uk Website: www.hpa.org.uk
-	**Landmark Information Group Limited** The Smith Centre, Henley On Thames, Oxfordshire, RG9 6AB	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / SEPA have a charging policy in place for enquiries.



GEA Geotechnical & Environmental Associates

Groundwater Vulnerability

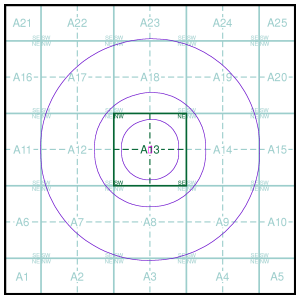
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes	Soil Classes
Major Aquifer (Highly Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Minor Aquifer (Variably Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Non Aquifer (Negligibly Permeable)	
Water or Sea	
Drift Deposit	

Site Sensitivity Context Map - Slice A



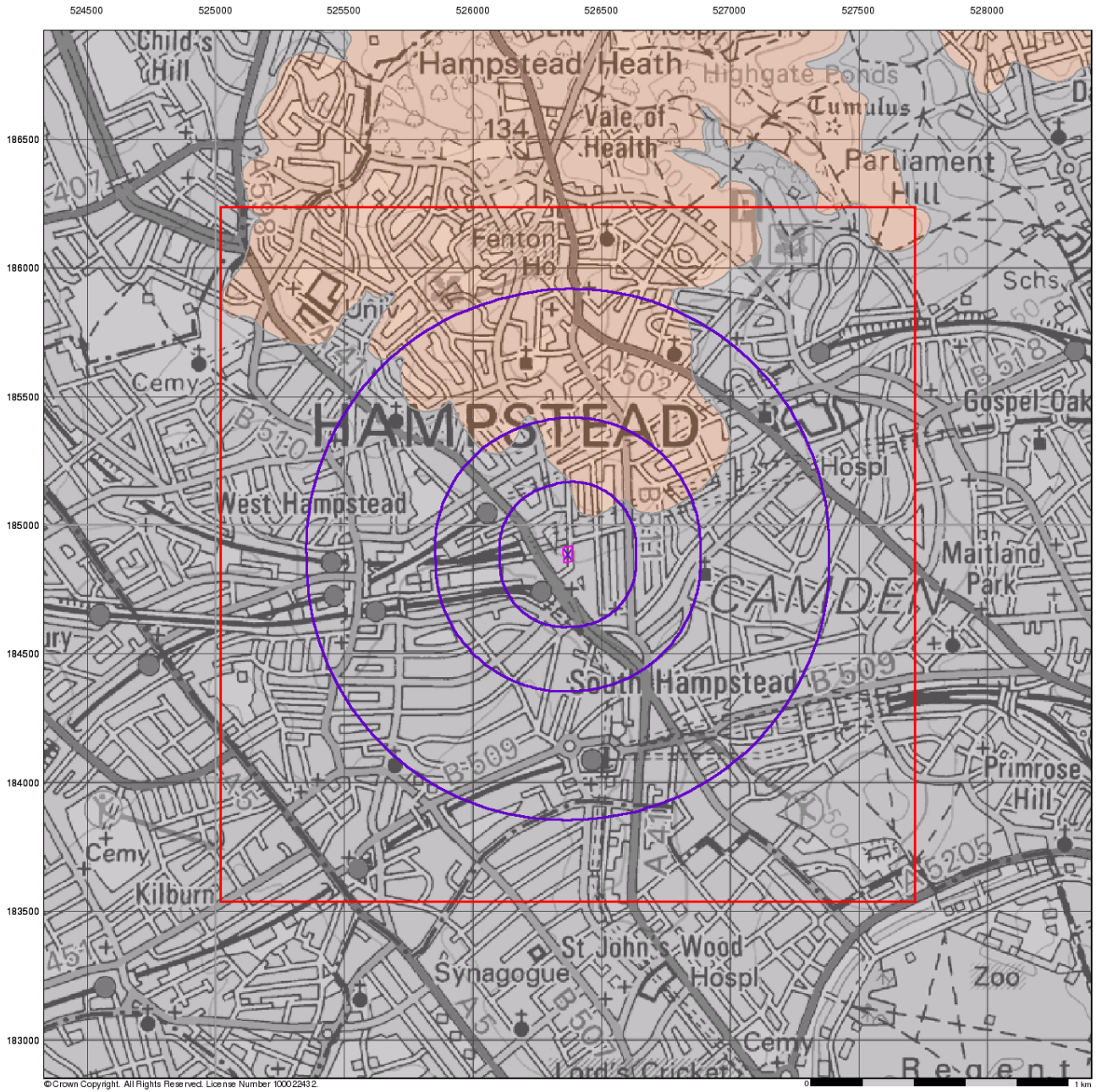
Order Details

Order Number:	37369747_1_1
Customer Ref:	J12015
National Grid Reference:	526370, 184890
Slice:	A
Site Area (Ha):	0.19
Search Buffer (m):	1000

Site Details

14 Netherhall Gardens, LONDON, NW3 5TQ

Landmark® Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



GEA Geotechnical & Environmental Associates

Bedrock Aquifer Designation

General

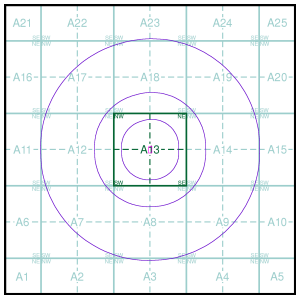
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



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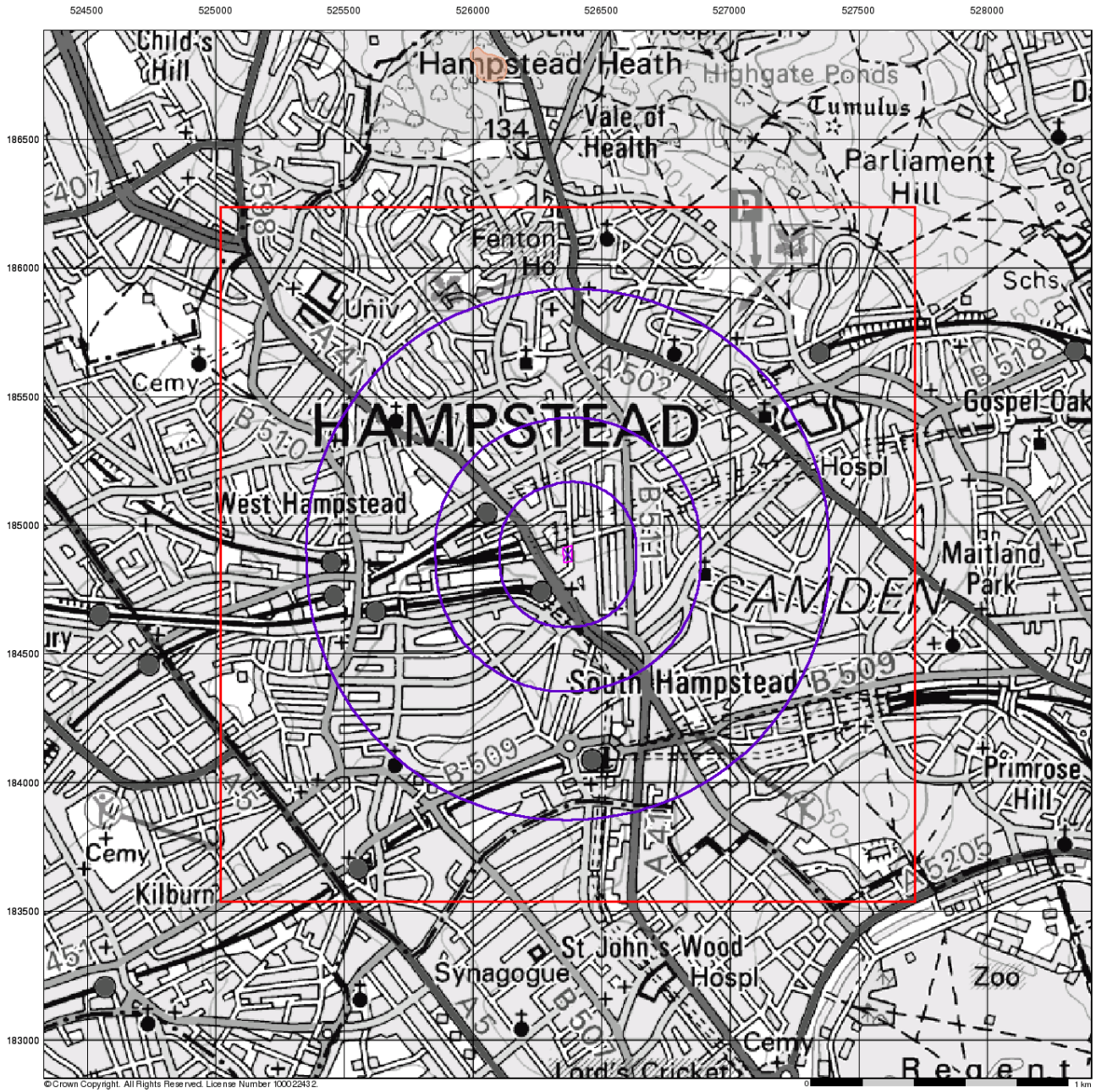

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GEA Geotechnical & Environmental Associates

Superficial Aquifer Designation

General

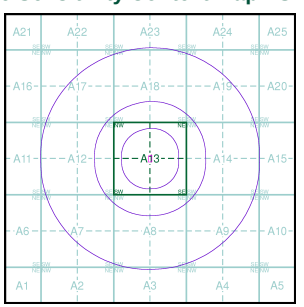
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



Order Details

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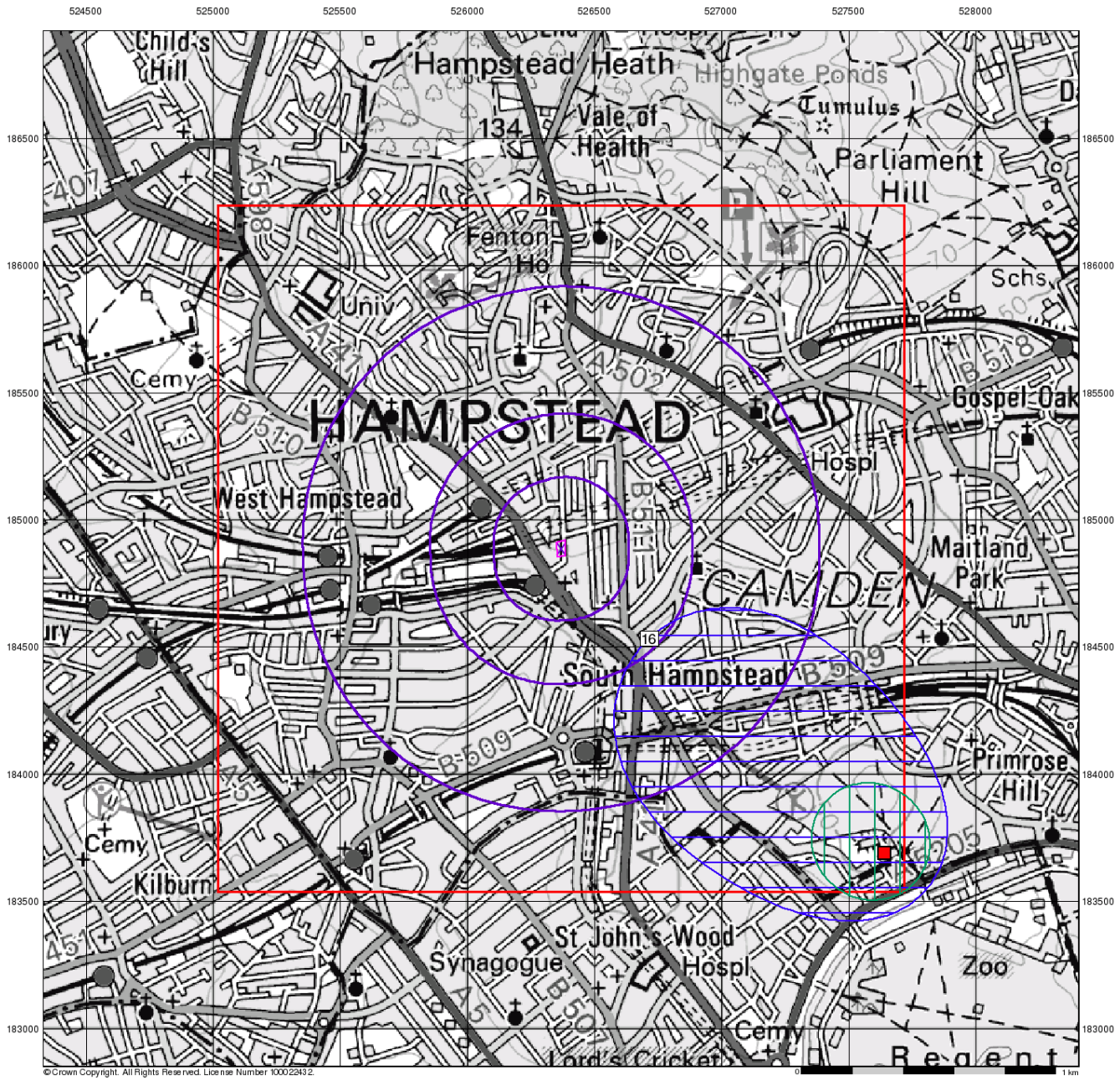
Slice:	A
Site Area (Ha):	0.19
Search Buffer (m):	1000

Site Details

14 Netherhall Gardens, LONDON, NW3 5TQ



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GEA Geotechnical & Environmental Associates

Source Protection Zones

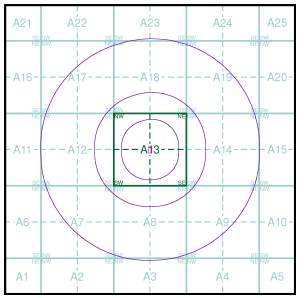
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Agency and Hydrological

Source Protection Zone I
Source Protection Zone II
Source Protection Zone III
Zone of Special Interest
Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A



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