SITE INVESTIGATION & BASEMENT IMPACT ASSESSMENT REPORT

6 Nutley Terrace
London NW3

Client: Mrs Shafi

Engineer: Elliott Wood

J11158B

April 2015




GEA Geotechnical & Environmental Associates

Document Control

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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 site investigation carried out by Geotechnical and Environmental Associates Limited (GEA) on the instructions of Elliott Wood, on behalf Mrs Shafi, with respect to the proposed demolition of the existing house and construction of a new four-storey multi-unit dwelling with a double level basement. The purpose of the investigation has been to research the history of the site with respect to possible contaminative uses, to determine the ground conditions and hydrogeology, to assess the extent of any contamination and to provide information to assist with the design of suitable foundations and retaining walls. The ground investigation was carried out at the site in 2011 and the information from the investigation has been used in preparation of an updated and revised report, and includes information required to comply with the London Borough of Camden (LBC) Planning Guidance CPG4, relating to the requirement for a Basement Impact Assessment (BIA) including a ground movement assessment.

SITE HISTORY

The earliest map studied, dated 1871, shows the site to be occupied by fields with a line of trees in the north of the site running south-west to north-east. This map also shows the outline of the Belsize Tunnel immediately to the north of the site. The next map, dated 1896, shows significant development of the area with a number of houses having been constructed, although the site itself comprised three garden plots associated with the houses to the west. The existing house was built at some time between 1935 and 1946 and can be seen on the aerial photograph dated 1946. The site and surroundings have remained essentially unchanged since that time.

GROUND CONDITIONS

Beneath a surface covering of paving or topsoil, made ground was encountered overlying the London Clay Formation to the full depth of the investigation of 20 m. The made ground comprised orange-brown silty sandy clay with fine gravel, brick, charcoal fragments and rootlets and was encountered to depths of between 0.20 m (73.10 m OD) and 1.2 m (73.71 m OD). A weathered zone of soft or firm orange-brown mottled brown and grey silty sandy clay extended to depths of between 4.75 m (69.57 m OD) and 5.50 m (69.68 m OD). This upper weathered material is sandier than would be expected for London Clay and could partly represent soliflucted material derived in part from the overlying Claygate Member which is present upslope of the site. Firm dark brownish grey silty fissured clay extended to depths of between 14.0 m (60.32 m OD) and 14.3 m (60.88 m OD) whereupon stiff grey fissured silty clay with lenses of fine grey sand was encountered to the full depth of the investigation of 20.0 m (55.18 m OD). Groundwater was not encountered during the investigation.

Monitoring of the standpipes in 2015 has been found the depth to groundwater to range between 1.00 m (73.32 m OD) and 1.70 m (72.62 m OD). Elevated concentrations of lead were recorded in the made ground.

RECOMMENDATIONS

It is proposed by Elliott Wood, the consulting engineers, that the 7.6 m deep double basement will be supported by a secant piled retaining wall and structural loads carried by piled foundations. On the basis of the observations to date, groundwater will be encountered within the depth of the proposed basement excavation. Consideration will need to be given to any possible effect of the proposed development on the nearby railway tunnel. The excavation of the basement will remove the entire thickness of made ground and hence no potential sources of contamination will remain following redevelopment.

BASEMENT IMPACT ASSESSMENT

The BIA has not indicated any concerns with regard to the effects of the proposed basement on the site and surrounding area. It has been concluded that the impacts identified can be mitigated by appropriate design and standard construction practice. A ground movement analysis is currently being carried out and will be reported separately.

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 (GEA) was previously been commissioned by Elliott Wood in 2011, on behalf of Mrs Shafi, to carry out a desk study and ground investigation at 6 Nutley Terrace, London NW3 5BX (ref J11158 Issue 2, dated 11 October 2011) with respect to excavation of a 4.2 m deep basement. GEA has now been commissioned to prepare a Basement Impact Assessment (BIA) report, which will be in support of a planning application.

A Groundwater Impact Assessment has been carried out separately by Chord Environmental Ltd (ref 1103/R1 Issue 4, dated 26th March 2015) and is appended to this report and referred to where appropriate.

1.1 Proposed Development

It is understood that it is now proposed to demolish the existing house and construct a new four-storey multi-unit dwelling with a double level basement. The basement will extend to a maximum depth of 7.6 m below existing ground level and will extend beneath the entire existing building footprint and partly into the existing rear garden.

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

1.2 Purpose of Work

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

- to check the history of the site and surrounding areas with respect to previous contaminative uses;
- to determine the ground conditions and their engineering properties;
- to review the possible impact of the proposed development on the local hydrogeology;
- to provide advice with respect to the design of suitable foundations and retaining walls;
- to provide an indication of the degree of soil contamination present; and
- to assess the risk that any such contamination may pose to the proposed development, its users or the wider environment.

1.3 Scope of Work

In order to meet the above objectives, a desk study was carried out, followed by a ground investigation. The desk study comprised:

- a review of readily available geological and hydrogeological maps;
- a review of historical Ordnance Survey (OS) maps and environmental searches sourced from the Envirocheck database; and
- a walkover survey of the site carried out in conjunction with the fieldwork.

In light of the desk study, an intrusive ground investigation was carried out which comprised, in summary, the following activities:

- three cable percussion boreholes advanced to a depths of 20.00 m;
- standard penetration tests (SPTs), carried out at regular intervals in the boreholes, to provide additional quantitative data on the strength of the soils;
- installation of standpipe piezometers to a depth of 6 m to facilitate future monitoring of groundwater levels;
- a series of five shallow window sample boreholes to provide additional coverage of the site;
- laboratory testing of selected soil samples for geotechnical purposes and for the presence of contamination; and
- provision of a report presenting and interpreting the above data, together with our advice and recommendations with respect to the proposed development.

The report includes a contaminated land assessment which has been undertaken in accordance with the methodology presented in Contaminated Land Report (CLR) 11[1] and involves identifying, making decisions on, and taking appropriate action to deal with, land contamination in a way that is consistent with government policies and legislation within the United Kingdom. The risk assessment is thus divided into three stages comprising Preliminary Risk Assessment, Generic Quantitative Risk Assessment, and Site-Specific Risk Assessment.

1.3.1 Basement Impact Assessment

The work carried out also includes a Hydrological and Land Stability Assessment (also referred to as Slope Stability Assessment), all of which form part of the BIA procedure specified in the London Borough of Camden (LBC) Planning Guidance CPG4[2] and their Guidance for Subterranean Development[3] prepared by Arup. The aim of the work is to provide information on surface water, land stability and groundwater and in particular to assess whether the development will affect neighbouring properties or groundwater movements and whether any identified impacts can be appropriately mitigated by the design of the development.

The Groundwater Impact Assessment has been carried out separately by Chord Environmental Ltd and a copy of the report is appended.

1 *Model Procedures for the Management of Land Contamination* issued jointly by the Environment Agency and the Department for Environment, Food and Rural Affairs (DEFRA) Sept 2004
2 London Borough of Camden Planning Guidance CPG4 *Basements and lightwells*
3 Ove Arup & Partners (2010) *Camden geological, hydrogeological and hydrological study. Guidance for Subterranean Development.* For London Borough of Camden November 2010

1.3.2 Qualifications

The land stability element of the Basement Impact Assessment (BIA) has been carried out by Martin Cooper, a BEng in Civil Engineering, a chartered engineer (CEng), member of the Institution of Civil Engineers (MICE), and Fellow of the Geological Society (FGS) who has over 20 years' specialist experience in ground engineering. The surface water and flooding assessment has been carried out by Rupert Evans, a hydrologist with more than ten years consultancy experience in flood risk assessment, surface water drainage schemes and hydrology / hydraulic modelling. Rupert Evans is a Chartered Environmentalist, Chartered Water and Environmental Manager and a Member of CIWEM.

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 over 25 years' experience in geotechnical engineering and engineering geology.

All assessors meet the qualification requirements of the Council guidance.

1.4 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 and the number of locations where the ground was sampled. 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

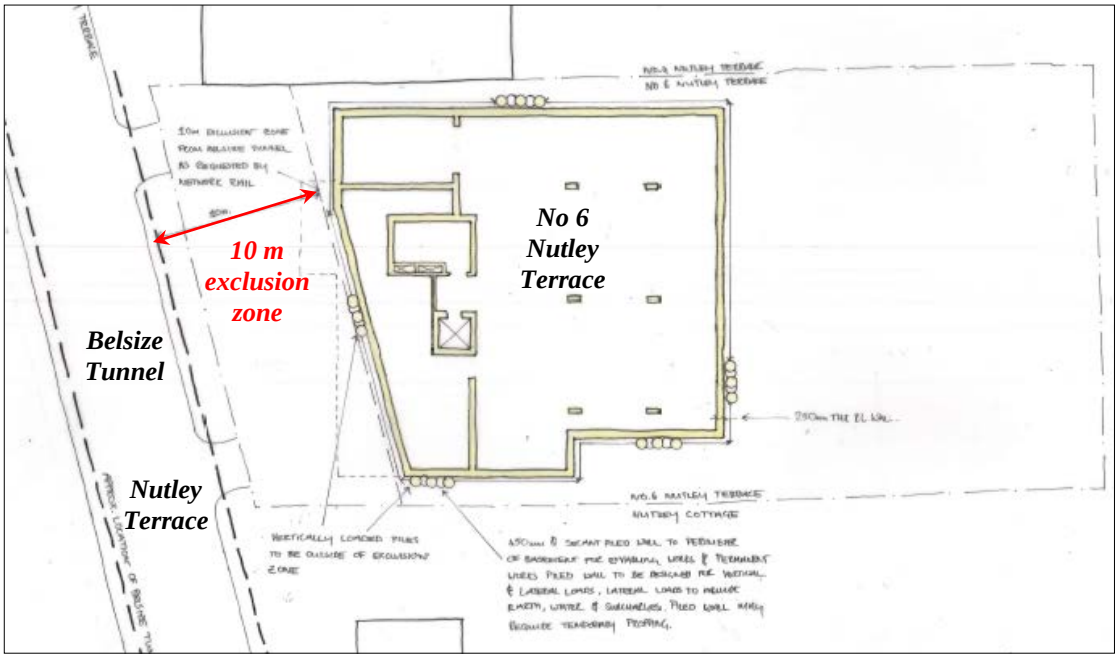
The site is located approximately 400 m to the north-east of Finchley Road London Underground station. It fronts onto Nutley Terrace to the north and is bounded by private gardens to the south, east and west.

The site may be additionally located by National Grid Reference 526659, 184995, as shown on the map overleaf.

The site is roughly rectangular in shape, measuring approximately 30 m by 60 m and is occupied by the existing two-storey L-shaped house, located on the northern part of the site. A brick paved parking area is present to the front of the house, adjacent to Nutley Terrace. A small grassed area with planted borders and two deciduous trees approximately 20 m high are present to the east of the house.

To the south of the house the rear garden comprises a terraced lawn with a number of mature trees on the eastern and western boundaries; species include ash, beech and poplar. The site slopes gently down towards the south in a series of terraces, from a level of 75.47 m OD at the northern boundary to 73.58 m OD at the southern boundary.

The site is also located immediately to the south of the Network Rail's Belsize Tunnel which carries the Midland Mainline service.



It is understood that the tunnel is approximately 23 m below pavement level and an exclusion zone of 10 m from the tunnel edge should be maintained at all times.

2.2 Site History

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

The earliest map studied dated 1871, shows the site to be occupied by fields with a line of trees in the north of the site running south-west to north-east. This map also shows the outline of the Belsize Tunnel to the north of the site. The surrounding area appears predominantly undeveloped, with the exception of "Belsize Farm" approximately 100 m to the south-east of the site and a ventilating shaft of the tunnel approximately 100 m to the north-east of the site.

The next map, dated 1896, shows significant development of the area with a number of houses having been constructed, although the site itself comprises three garden plots associated with the houses to the west. The existing house was built at some time between 1935 and 1946 and can be seen on the aerial photograph dated 1946. The Belsize Tunnel is labelled on the 1954 map, running adjacent and parallel to the northern edge of the site, beneath Nutley Terrace. The site has remained essentially unchanged to the present day.

2.3 Other Information

A search of public registers and databases has been made via the Envirocheck database and relevant extracts from the search are appended. Full results of the search can be provided if required.

The search has revealed no records of any landfills, waste management or transfer sites within 500 m of the site. However, there are two waste treatment or disposal sites listed within 500 m. On closer inspection this appears to be two entries for the same goods yard and is unlikely to have had a detrimental impact on the site.

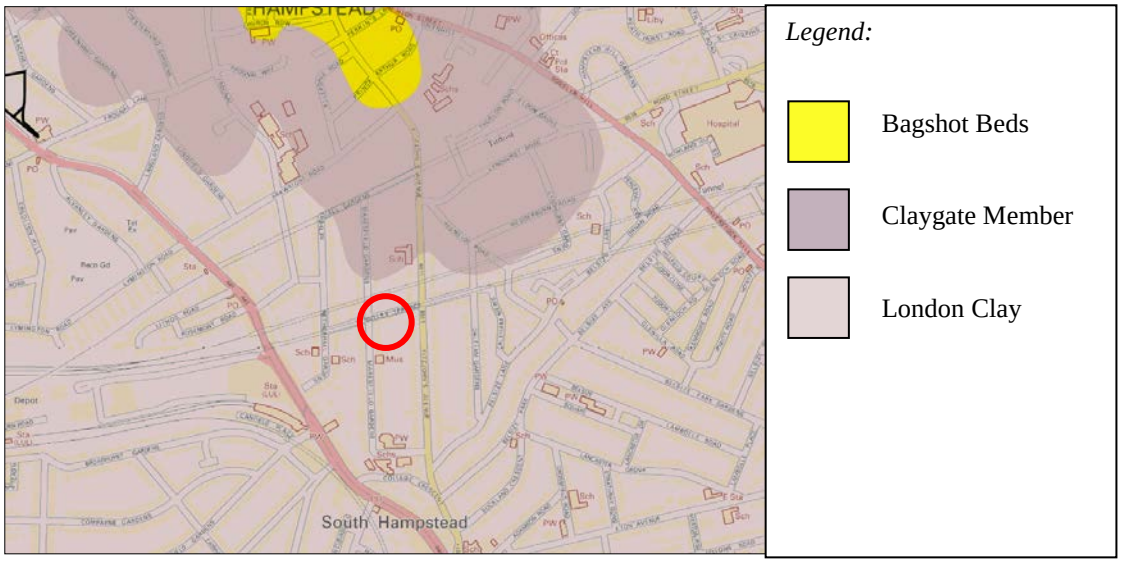
The report indicates that the site has a moderate potential for shrinking or swelling clay ground stability hazards, and a very low potential for landslide stability hazards.

The search has indicated that 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.

According to information provided by Network Rail, the Belsize Tunnel is located at a depth of approximately 23 m below Nutley Terrace.

2.4 Geology

The Geological Survey map of the area (BGS sheet 256: North London) indicates that the site should be underlain by London Clay, with the Claygate Member overlying the London Clay approximately 50 m to the north of the site. The area is also shown as having a "Head Propensity".



The London Clay Formation is homogenous, slightly calcareous silty clay to very silty clay, with some beds of clayey silt grading to silty fine grained sand. According to the BGS map, dated 2006, the Head propensity is based on the geotechnical properties of the London Clay and head may occur close to the Claygate Member / London Clay boundary. Head propensity is shown on the BGS map as areas denoted as most likely to be covered by Quaternary Head Deposits as interpreted from digital slope analysis and confirmed by borehole data. These are not mapped and have not been verified by fieldwork.

2.5 Hydrology and Hydrogeology

The bedrock aquifer of the site is classified by the Environment Agency (EA) as "Unproductive Strata", which are rock or drift deposits with low permeability that have negligible significance for water supply or river base flow. The Claygate Member to the north of the site is classed as a Secondary A Aquifer by the EA, which is defined as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

There are no Environment Agency designated Source Protection Zones (SPZs) on the site, but there is a SPZ II, within 1 km of the site.

Groundwater is likely to be present within the Claygate Member, and other 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 north and northeast of the current site, mostly at the base of the Bagshot Beds.

The nearest existing surface water features are the "Hampstead Ponds", which are located approximately 1.2 k m to the northeast of the site.

Historically the Tyburn River[4] rose approximately 150 m to the northwest of the site. It is shown on the map dated 1871 rising from a pond near to what is annotated as Shepherd's Well, although is no longer shown on maps dated after 1874, after the construction of Fitzjohns Avenue. The stream flowed in a southerly direction, passing the site at a distance of

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

approximately 75 m, where it merged with another tributary just north of Regent's Park and flowed into a large lake that is still present today. From there the river then flowed through central London and into the Thames, although due to the fact that the Tyburn was only a small stream, the exact course of the lower part of the river is relatively known.

Given the location of the source of the Tyburn, it is likely that it was formed by a spring issuing from within the Claygate Beds close to the boundary with the London Clay, which is located approximately 50 m to the south of the source. The direction of groundwater flow within the London Clay beneath the site is likely to be controlled by the local topography and is therefore likely to be in a southerly direction, in the direction that the former river flowed.

Any groundwater flow within the London Clay will be at a very slow rate, due to its negligible permeability; the permeability will be predominantly secondary, through fissures in the clay. Published data for the permeability of the London Clay indicates the horizontal permeability to generally range between 1 x 10^{-11} m/s and 1 x 10^{-9} m/s, with a lower vertical permeability.

The site is not located within a Flood Zone as defined by the Environment Agency. In addition, Nutley Terrace 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.

The site lies outside the catchment of the Hampstead Heath chain of ponds.

2.6 Preliminary Risk Assessment

Part IIA of the Environmental Protection Act 1990, which was inserted into that Act by Section 57 of the Environment Act 1995, provides the main regulatory regime for the identification and remediation of contaminated land. The determination of contaminated sites is based on a "suitable for use" approach which involves managing the risks posed by contaminated land by making risk-based decisions. This risk assessment is carried out on the basis of a source-pathway-receptor approach.

2.6.1 Source

The historical usage of the site that has been established by the desk study indicates that the site has not had a contaminative history by virtue of it having been occupied by gardens and then a house. Thus no sources of contamination have been identified by the desk study.

2.6.2 Receptor

The redevelopment of the site as a house and garden is considered a high sensitivity end-use. Buried services are likely to come into contact with any contaminants present within the soils through which they pass and site workers are likely to come into contact with any contaminants present in the soils during demolition and construction works. Being underlain by unproductive strata, groundwater may be considered as a low sensitivity receptor.

2.6.3 Pathway

There will be limited potential contaminant exposure pathways as the building will effectively form a barrier between any contaminants within the near-surface soils and end-users or infiltration of surface water. Buried services will be exposed to any contaminants present within the soil through direct contact and site workers will come into contact with the soils during demolition and construction works. The presence of negligibly permeable London Clay beneath the site will limit the potential for groundwater percolation, therefore there is a low potential for a pathway. There is thus considered to be a low potential for a contaminant pathway to be present between any potential contaminant source and a target for the particular contaminant.

2.6.4 Preliminary Risk Appraisal

On the basis of the above it is 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.

3.0 SCREENING

The London Borough of Camden guidance suggests that any development proposal that includes a subterranean basement should be screened to determine whether or not a full Basement Impact Assessment (BIA) required.

3.1 Screening Assessment

A number of screening tools are included in the Arup report and for the purposes of this report reference has been made to Appendix E which includes a series of questions within a screening flowchart for three categories: groundwater flow, land stability and surface water flow. Responses to the questions are tabulated on the following pages.

3.1.1 Subterranean (groundwater) Screening Assessment

The assessment carried out by Chord Environmental Ltd identified the following potential issues that need to be assessed:

Q1b: The basement structure would extend beneath monitored groundwater levels within the London Clay.

Q2: The Site lies within 100m of the now culverted Tyburn stream.

Q4: The hard surfaced area will be significantly increased in the form of building footprint and hard standing areas.

3.1.2 Stability Screening Assessment

Question	Response for 6 Nutley Terrace
1. Does the existing site include slopes, natural or manmade, greater than 7°?	No
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°?	No not according to the slope angle map (figure 16) in the Arup report
5. Is the London Clay the shallowest strata at the site?	*Yes*
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 – some trees are proposed to be felled. No - no works are proposed within the root protection zones of the trees to be retained.*
7. Is there a history of seasonal shrink-swell subsidence in the local area and / or evidence of such effects at the site?	*Yes –this area is prone to these effects due to the presence of shrinkable London Clay and abundant mature trees.*
8. Is the site within 100 m of a watercourse or potential spring line?	*Yes - the site lies within 100m of the now culverted Tyburn stream.*
9. Is the site within an area of previously worked ground?	No.

Question	Response for 6 Nutley Terrace
10a. Is the site within 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.
10b. Will the proposed basement extend beneath the water table such that dewatering may be required during construction?	*Yes - the basement structure would extend beneath monitored groundwater levels within the London Clay.*
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 Nutley Terrace.*
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	*Yes – the development will increase foundation depths in the centre of the site to in excess of 7.6 m deep but the depths of foundations of adjacent properties are not known.*
14. Is the site over (or within the exclusion zone of) any tunnels, eg railway lines?	*Yes – the site is within about 2 m laterally of Network Rail tunnels, which are at a depth of about 22 m below ground level.*

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

Q5 London Clay is the shallowest strata at the site.
Q6 Some trees are proposed to be felled, although no works are proposed within the root protection zones of the trees to be retained.
Q7 The site is in an area likely to be affected by seasonal shrink-swell.
Q8 The site is within 100 m of London's "lost river", the River Tyburn.
Q10b The basement structure would extend beneath monitored groundwater levels within the London Clay.
Q12 The site is within 5 m of a public highway.
Q13 The development will increase the foundation depths relative to the neighbouring properties.
Q14 the site is within about 2 m laterally of Network Rail tunnels, which are at a depth of about 22 m below ground level.

3.1.3 Surface Flow and Flooding Screening Assessment

Question	Response for 6 Nutley Terrace
1. Is the site within the catchment of the pond chains on Hampstead Heath?	No. Figure 14 of the Arup report confirms that the site is not located within this catchment area.
2. As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?	No – any additional surface water generated from an increased hardstanding area will be attenuated to ensure they are not increased or altered. The basement will be beneath the footprint of the new dwelling therefore the 1m distance between the roof of the basement and ground surface as recommended by Chapter 5 of the Arup report, does not apply across these areas.
3. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	Yes – there will be an increase in building footprint across existing permeable areas.
4. Will the proposed basement development result in changes to the profile of the inflows (instantaneous and long term) of surface water being received by adjacent properties or downstream watercourses?	No – it is proposed to allow for new attenuation to control how water is stored from additional hardstanding areas. The attenuation size will be based upon peak surface water flows and discharge rates into existing sewers will be agreed with Thames Water. The basement will be beneath the footprint of the dwelling therefore the 1m distance between the roof of the basement and ground surface as recommended by Chapter 5 of the Arup report does not apply across these areas.

Question	Response for 6 Nutley Terrace
5. Will the proposed basement result in changes to the quantity of surface water being received by adjacent properties or downstream watercourses?	No - the proposed basement is very unlikely to result in any changes to the quality of surface water being received by adjacent properties or downstream watercourses. It is proposed to allow for new attenuation to control how water is stored from additional hardstanding areas. The basement will be beneath the footprint of the dwelling therefore the 1m distance between the roof of the basement and ground surface as recommended by Chapter 5 of the Arup report does not apply across these areas.
6. Is the site in an area known to be at risk from surface water flooding such as South Hampstead, West Hampstead, Gospel Oak and Kings Cross, or is it at risk of flooding because the proposed basement is below the static water level of a nearby surface water feature?	No The Camden Flood Risk Management Strategy dated 2013, together with Figures 3iv, 4e and 5a of the SFRA dated 2014, and Environment Agency online flood maps show that the site has a low flooding risk from surface water, internal sewer flooding, reservoirs and fluvial/tidal watercourses. Nutley Terrace is not identified on Figure 3iv of the SFRA to have flooded in 1975 or 2002. The basement is likely to be constructed within the water table, however, the mitigation measures outlined in this BIA such as tanking the basement will reduce the risk to acceptable levels. Figure 5b of the SFRA dated 2014 indicates that there has been only one external sewer flooding event in the wider area and not directly at the site. The site is located within the Critical Drainage Area number GROUP3-005 as identified in the Camden SWMP. Therefore, a flood risk assessment may be required.

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

Q3 The proposed basement development result in a change in the proportion of hard surfaced / paved areas.

Q6 The site is located within the Critical Drainage Area number GROUP3-005 as identified in the Camden SWMP. Therefore, a flood risk assessment may be required.

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 and subterranean flow will need to be dealt with in separate assessments, such that the following section focuses on the potential impacts that may have an impact on slope stability.

4.1 Potential Impacts

The following potential impacts have been identified.

Potential Impact	Consequence
The basement structure would extend beneath monitored groundwater levels within the London Clay.	The proposed basement level may be below the water table and this could increase flow paths and/or raise groundwater levels locally.
The hard surfaced area will be significantly increased in the form of building footprint and hard standing areas.	The proportional increase in hardstanding could potentially reduce rates of recharge reducing groundwater flow to a nearby watercourse.

Potential Impact	Consequence
London Clay is the shallowest stratum at the site.	The London Clay is prone to seasonal shrink-swell (subsidence and heave).
Some trees are proposed to be felled, although no works are proposed within the root protection zones of the trees to be retained.	Removal of trees in the vicinity of the proposed basement will change the quantity of water uptake in that area
Seasonal shrink-swell can result in foundation movements.	If a new basement is not 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.
Site within 5 m of a highway or pedestrian right of way.	Excavation of a basement may result in structural damage to the road or footway.
Founding depths relative to neighbours.	If not designed and constructed appropriately, the excavation of a basement may result in structural damage to neighbouring buildings and structures.
The site is located within 100 m of former watercourse.	This may affect flow to former watercourses.
The site is within about 2 m laterally of Network Rail tunnels, which are at a depth of about 22 m below ground level.	If not designed and constructed appropriately, the excavation of a basement may result in structural damage to nearby tunnels.

These potential impacts have been investigated through the site investigation, as detailed in Section 9.0.

4.2 Exploratory Work

In order to meet the objectives described in Section 1.2 and to address the potential impacts identified by the scoping, three cable percussion boreholes were advanced to a depth of 20.0 m by means of a dismantlable cable percussion drilling rig. Standard Penetration Tests (SPTs) were carried out at regular intervals and disturbed and undisturbed samples were recovered for subsequent laboratory examination and testing.

These boreholes were supplemented by five window sample boreholes, advanced to depths of between 2.80 m and 6.00 m, in order to provide additional coverage of the site.

A selection of the samples recovered from the boreholes was submitted to a soil mechanics laboratory for a programme of geotechnical testing and an analytical laboratory for a programme of contamination testing.

The borehole and window sampling records and results of the laboratory analyses are appended together with a site plan indicating the exploratory positions.

A selection of the samples recovered from the boreholes and trial pits were submitted to a soil mechanics laboratory for a programme of geotechnical testing and an analytical laboratory for a programme of contamination testing.

The borehole and trial pit records and results of the laboratory analyses are appended together with a site plan indicating the exploratory positions. The Ordnance Datum (OD) levels shown on the borehole records have been interpolated from spot heights shown on a site survey drawing (ref NUT-020, dated September 2011) provided by the consulting engineers.

4.3 Sampling Strategy

The cable percussion borehole locations were specified by the consulting engineers and the window samples positioned on site by GEA to provide optimum coverage of the site with due regard to the proposed development, whilst avoiding the areas of known services. In view of the presence of the Belsize Tunnel to the north of the site, all exploratory holes were positioned outside a 10 m exclusion zone around the tunnel.

Standpipe piezometers were installed in the cable percussion boreholes to a depth of 6.00 m (69.18 m OD) in each of Borehole Nos 1 and 3, and to 6.20 m (68.12 m OD) in Borehole No 2. They were monitored on two occasions, approximately two and ten weeks after completion of the site work. Subsequently, the standpipes were monitored twice in 2015, in March and April, approximately three weeks apart. During the latter groundwater monitoring visits it was apparent that the groundwater monitoring standpipe within Borehole No 1 had been removed.

Four samples recovered from the made ground were subjected to analysis for a range of common industrial contaminants and contamination indicative parameters. For this investigation the analytical suite for the soil included a range of metals, speciation of total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), total cyanide and monohydric phenols. The contamination analyses were carried out at a MCERTs accredited laboratory with the majority of the testing suite accredited to MCERTS standards.

The soil samples were selected to provide a general view of the chemical conditions of the soils that are likely to be involved in a human exposure and to provide advice in respect of re-use or for waste disposal classification.

5.0 GROUND CONDITIONS

The investigation has broadly confirmed the expected ground conditions in that, beneath a variable thickness of topsoil or made ground, London Clay was encountered and proved to the full depth of the investigation, of 20.00 m (55.18 m OD).

5.1 Made Ground

The made ground comprised dark brown silty sandy clay with fine gravel, brick, charcoal with variable amounts of rootlets and concrete fragments and was encountered to depths of between 0.20 m (73.10 m OD) and 1.2 m (73.71 m OD).

No evidence of contamination was observed within these soils, although a number of samples of the made ground were analysed for a range of contaminants and the results are summarised in section 4.4.

5.2 London Clay

This stratum initially comprised a weathered zone of soft becoming firm orange-brown mottled brown and grey silty sandy clay which extended to depths of between 4.75 m (69.57 m OD) and 5.50 m (69.68 m OD). This upper weathered material is sandier than would be expected for London Clay and could represent a soliflucted material derived in part from the overlying Claygate Member to the north of the site, but it is not considered to represent insitu Claygate as it would mean that the base of the Member would be some 10 m lower than that shown by the geology map and found in other investigations in the Hampstead area.

Firm dark brownish grey silty fissured clay then extended to depths of between 14.0 m (60.32 m OD) and 14.30 m (60.88 m OD), whereupon stiff grey fissured silty clay with lenses of fine grey sand was encountered to the full depth of the investigation of 20.00 m (55.18 m OD).

Selenite crystals were noted throughout the clay and carbonaceous deposits were recorded in the shallow soils.

Desiccation was observed to a depth of up to 2.50 m (72.41 m OD) in Borehole No 5 in close vicinity of the mature deciduous trees.

5.3 Groundwater

Groundwater was not encountered during drilling of any of the boreholes. Groundwater monitoring standpipes were installed in each of the three cable percussion boreholes and have been monitored on four occasions as shown in the table below.

Date	Borehole No	Depth to water m {Level m OD)
19/08/11	1	1.24 [73.94]
	2	6.14 [68.18]
	3	DRY
13/10/11	1	2.4 [72.73]
	2	5.4 [68.86]
	3	5.2 [69.07]
12/03/15	1	Standpipe not found
	2	1.0 [73.32]
	3	1.43 [72.89]
02/04/15	1	Standpipe not found
	2	1.70 [72.62]
	3	1.23 [73.09]

Relative groundwater levels indicate the direction of groundwater flow to the south, as expected on the basis of the topography.

5.4 Soil Contamination

The use of a risk-based approach, which is presented in Part 2 of this report, means that it is not appropriate to determine the significance of contamination test results by simply comparing individual contaminant concentrations to a single “trigger” or “target” concentration. The significance of the results is therefore considered in more detail in Part 2, whilst the table below sets out the range of values measured within four samples.

Determinant	Maximum concentration recorded (mg/kg)	Minimum concentration recorded (mg/kg)	Number of samples below detection limit	Normalised upper bound US95
Arsenic	21	14	None	22
Cadmium	0.81	0.23	None	0.78
Chromium	58	27	None	55
Copper	110	38	None	99
Mercury	1.6	0.3	None	1.7
Nickel	93	16	None	81
Lead	**520**	61	None	**478**
Selenium	19	0.2	1	16
Zinc	1100	130	None	961
Total Cyanide	0.5	0.5	All	0.5
Total Phenols	0.3	0.3	All	0.3
Sulphide	1.9	0.67	None	1.79
Total PAH	12	4.9	None	12.2
Benzo(a)pyrene	3.3	0.53	None	3.5
Naphthalene	0.1	0.1	All	0.1
TPH	25	10	1	23
Total organic carbon %	3.7	2	None	4.1

Note: The use of the normalised upper bound for 95th percentile confidence aims to remove some of the uncertainty associated with calculation of an arithmetic sample mean of a relatively small number of samples. The US_{95} value is the upper bound of the range within which it can be stated with 95% confidence that the true mean concentration of the data set will fall.
Figure in **bold** indicates concentration in excess of risk-based soil guideline values, as discussed in Part 2 of this report

Since completion of the previous investigation the screening values for a number of contaminants have been reviewed as part of the Category 4 Screening Level (C4SL) Project. When comparing the results from the contamination testing to those in the Soil Screening Values and Generic Screening Values, the analyses have revealed a normalised upper bound US_{95} concentration for lead within the samples of made ground tested, in excess of the generic risk-based screening value for a residential end use. No US_{95} values for any other contaminants were found to be elevated above their respective guideline values.

5.4.1 Generic Quantitative Risk Assessment

The use of a risk-based approach has been adopted to provide an initial screening of the test results to assess the need for subsequent site-specific risk assessments. Contaminants of concern are those that have values in excess of a generic human health risk based guideline values which are either that of the CLEA[5] Soil Guideline Value where available, or is a Generic Screening Value calculated using the CLEA UK Version 1.06[6] software assuming a residential end use with plant uptake, or is based on the DEFRA Category 4 Screening values[7]. The key generic assumptions for this end use are as follows:

5 *Updated Technical Background to the CLEA Model (Science Report SC050021/SR3) Jan 2009* and Soil Guideline Value reports for specific contaminants; all DEFRA and Environment Agency.
6 *Contaminated Land Exposure Assessment (CL|EA)* Software Version 1.06 Environment Agency 2009
7 CL:AIRE (2013) *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination* Final Project Report SP1010 and DEFRA (2014) *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination* Policy Companion Document SP1010

- that groundwater will not be a critical risk receptor;
- that the critical receptor for human health will be young female children aged zero to six years old;
- that the exposure duration will be six years;
- that the critical exposure pathways will be direct soil and indoor dust ingestion, skin contact with soils and indoor dust, and inhalation of indoor and outdoor dust and vapours; and
- that the building type equates to a two-storey small terraced house.

It is considered that these assumptions are acceptable for this generic assessment of this site. The tables of generic screening values derived by GEA and an explanation of how each value has been derived are included in the Appendix.

Where contaminant concentrations are measured at concentrations below the generic screening value it is considered that they pose an acceptable level of risk and thus further consideration of these contaminant concentrations is not required. However where concentrations are measured in excess of these generic screening values there is considered to be a potential that they could pose an unacceptable risk and thus further action will be required which could include;

- additional testing to zone the extent of the contaminated material and thus reduce the uncertainty with regard to its potential risk;
- site specific risk assessment to refine the assessment criteria and allow an assessment to be made as to whether the concentration present would pose an unacceptable risk at this site; or
- soil remediation or risk management to mitigate the risk posed by the contaminant to a degree that it poses an acceptable risk.

This assessment is based upon the potential for risk to human health, which at this site is considered to be the critical risk receptor.

The chemical analyses have revealed elevated concentrations of lead within two of the four samples of made ground tested. These concentrations could thus pose a potentially unacceptable risk to human health through direct contact, accidental ingestion or inhalation of soil or soil derived dust.

The significance of these results is considered further in Part 2 of the report.

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 foundations, contamination issues and the basement excavation.

6.0 INTRODUCTION

It is understood that it is proposed to demolish the existing house and construct a new four-storey multi-unit dwelling with a double level basement. The basement will extend to a maximum depth of 7.6 m below existing ground level and will extend beneath the entire existing building footprint and partly into the existing rear garden. It is understood the new double level basement will be formed by means of secant piled walls with piled foundations.

7.0 GROUND MODEL

The desk study has revealed that the site has not had a potentially contaminative historical use as it has been occupied by the existing house for its entire known developed history, and on the basis of the fieldwork, the ground conditions at this site can be characterised as follows.

- Beneath a surface covering of topsoil, a variable thickness of made ground is present, overlying the London Clay which was proved to the full depth of the investigation, of 20.0 m (55.18 m OD);
- the made ground comprises dark brown silty sandy clay, with variable amounts of brick, charcoal and concrete fragments and was encountered to depths of between 0.20 m (73.10 m OD) and 1.2 m (73.71 m OD);
- the upper part of the London Clay comprises soft becoming firm orange-brown silty sandy fissured clay with selenite crystals and carbonaceous material, which extended to depths of between 4.75 m (69.57 m OD) and 5.50 m (69.68 m OD) and may comprise a soliflucted soil;
- stiff dark brownish grey silty fissured clay extends to depths of between 14.0 m (60.32 m OD) and 14.3 m (60.88 m OD), whereupon stiff grey fissured silty clay with lenses of fine grey sand was encountered;
- monitoring in 2015 has found the depth to groundwater to range in depth between 1.00 m (73.32 m OD) and 1.70 m (72.62 m OD);
- the contamination analyses have indicated elevated concentrations of lead which could pose a risk to human health; and
- a Network Rail tunnel passes immediately adjacent to the northern boundary of the site.

8.0 ADVICE AND RECOMMENDATIONS

Excavations for the basement structure will require temporary support to maintain stability and prevent any excessive ground movement. On the basis of the groundwater observations to date, groundwater will be encountered in the basement excavation and a requirement for groundwater control should be envisaged, although monitoring of the standpipes should be continued to determine the equilibrium level.

In view of the anticipated light to moderate loads, spread foundations constructed from basement level may be suitable for the proposed development. Alternatively, piled foundations could be considered. Consideration should also be given to the close proximity of the tunnel to the north and liaison with Network Rail will be required with respect to the effect of the new buildings on the tunnel. It is understood that an exclusion zone of 10 m from the tunnel edge should be maintained at all times, similarly, any vertically loaded piles should be constructed outside the exclusion zone.

8.1 Basement Excavation

It is understood that it is proposed to form a double level basement, which will extend beneath the proposed new buildings to a depth of approximately 7.60 m (67.40 m OD). Formation level is expected to be within the weathered London Clay.

Monitoring of the standpipes in 2015 has found the depth to groundwater to range between 1.00 m (73.32 m OD) and 1.70 m (72.62 m OD) and on this basis, groundwater will be encountered within the depth of the proposed basement excavation. This information indicates that groundwater is likely to be encountered within the basement excavation. Monitoring of the standpipes should however be continued.

Groundwater may be present within the weathered London Clay as discrete pockets of water rather than in continuous layers. Each individual pocket may therefore be of relatively low volume and individual inflows may cease once the pocket is emptied. On this basis inflows may not be significant and could be adequately dealt with through sump pumping. However, 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. It would therefore be prudent for the chosen contractor to have a contingency plan in place to deal with more significant or prolonged 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. It is likely that the rate of inflow will be relatively slow within the London Clay.

There are a number of methods by which the sides of the basement excavation could be supported in the temporary and permanent conditions. The choice of wall may be governed to a large extent by the requirement to prevent ground water inflows and whether it is to be incorporated into the permanent works and have a load bearing function.

It is understood that the preferred method of basement construction is by means of secant piled retaining walls and these will provide support in both the temporary and permanent conditions.

Alternatively, a sheet piled wall could be used as a temporary measure, prior to the construction of a permanent structure following the completion of the basement excavation, However the noise and vibrations associated with the installation of sheet piles may be unacceptable given the close proximity of the tunnel and the neighbouring houses, unless a

"silent" installation method is adopted; the use of water jetting to assist with installation should however be carefully considered, as it may induce ground movements in nearby structures if not properly controlled.

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, 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. GEA has commenced a ground movement analysis for the proposed basement construction and the results of the analysis will be issued separately to this report.

8.1.1 Basement Retaining Walls

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	28
London Clay	2000	Zero	25

The monitoring has indicated that groundwater will be encountered within the excavation and monitoring should be continued in order to establish equilibrium levels. At this stage, it is recommended that the basement is designed with a water level assumed to be 1 m below ground level. It may however be possible to review this requirement following additional investigation by means of trial excavations and further monitoring and the advice in BS8102:2009[8] should be followed in this respect.

8.1.2 Basement Heave

The excavation of the basement may result in some heave of the underlying clay, which would comprise short term elastic movement and longer term swelling that will continue over a number of years. This movement will be mitigated to some extent by the weight of the proposed structures and will be addressed in the aforementioned ground movement analysis.

8.1.3 Basement Floor Slab

Following the excavation of the basement, it should be possible to adopt a ground bearing floor slab, bearing on the natural soils. It would be prudent to proof roll the stratum with any soft spots being removed and replaced with suitably compacted granular fill.

As with all basement structures, consideration may need to be given to designing the slab to accommodate heave movements and water pressures and this should be considered in more detail once the levels and magnitude of any slab loading are known.

8.2 Spread Foundations

The excavation of the proposed basement is likely to result in formation level within the London Clay and it should be possible to adopt moderate width pad or strip foundations in the firm to stiff clay, designed to apply a net allowable bearing pressure of 180 kN/m^2 below the level of the proposed basement floor. This value should be checked once the levels have been finalised.

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

The recommended bearing pressure provides an adequate factor of safety and should ensure that settlement remains within normal tolerable limits. All foundations should bypass the made ground and depths should be checked against NHBC requirements with respect to trees once the layout and depth of the basement is known.

8.3 Piled Foundations

For the ground conditions at this site a driven or bored pile could be adopted. A driven pile would have the advantage of minimising the spoil that is generated, but consideration would need to be given to the effects of noise and vibrations on neighbouring sites. Some form of bored pile may therefore be the most appropriate type. A conventional rotary augered pile may be suitable but casing will be required to maintain stability and prevent any groundwater inflows within the silty sandy clay, bored piles installed using continuous flight auger (cfa) techniques are therefore likely to be the most appropriate technique.

The following table of ultimate coefficients may be used for the preliminary design of bored piles and is based on the measured SPT (N60) and Cohesion depth graph in the appendix. Groundwater has been assumed at a level of approximately -0.5 m OD and the pile design has been given relative to a ground floor level of approximately 3.5 m OD.

Ultimate Skin Friction		**kN/m^2**
Basement Excavation	GL to 7.5 m	Ignore
London Clay (α = 0.5)	7.5 m to 20 m	Increasing linearly from 45 to 72
Ultimate End Bearing		**kN/m^2**
London Clay	15 m to 20 m	1080 to 1305

In the absence of pile tests, guidance from the London District Surveyors Association[9] (LDSA) suggests that a factor of safety of 2.6 should be applied to the above coefficients in the computation of safe theoretical working loads and to apply a limiting value of 110 kN/m^2 to the average ultimate shaft friction.

On the basis of the above coefficients, applying a factor of safety of 2.6, it has been estimated that a 450 mm diameter pile extending to a depth of 15 m below existing ground level should provide a safe working load of about 275 kN, whereas a 20 m should provide a safe working load of about 475 kN.

The above examples are not intended to constitute any form of recommendation with regard to pile size or type, but merely serve to illustrate the use of the above coefficients. Specialist piling contractors should be consulted with regard to the design of an appropriate piling scheme and the need for additional deeper investigation. Their attention should be drawn to the possible presence of groundwater and silt and sand layers within the London Clay.

Consideration will need to be given to the possible effects of piled foundations on the nearby tunnel once the proposals have been finalised and should be the subject of discussions with Network Rail and will be addressed as part of the ground movement analysis that is currently in preparation.

[9] LDSA (2009) *Foundations No 1 – Guidance notes for the design of straight shafted bored piles in London Clay*. LDSA Publications

8.4 Excavations

On the basis of the borehole findings it is considered that shallow excavations for foundations and services that extend through the made ground and into the underlying clay should remain generally stable in the short term. Where personnel are required to enter excavations, a risk assessment should be carried out and temporary lateral support or battering of the excavation sides considered 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, although such inflows should be suitably controlled by sump pumping.

8.5 Effect of Sulphates

Chemical analyses of selected samples of the London Clay have revealed generally low concentrations of soluble sulphate and near neutral pH conditions, corresponding to Class DS-3 and ACEC AC-3 of Table C2 of BRE Special Digest 1 Part C (2005). The guidelines contained in the above digest should be followed in the design of foundation concrete.

8.6 Site Specific Risk Assessment

The site is not considered to have had a potentially contaminative history, having been occupied by undeveloped land and private gardens until the existing house was built at some time between 1935 and 1946.

The chemical analyses have revealed elevated concentrations of lead in excess of the generic risk-based screening values for a residential end-use with plant uptake. The source of this contamination has not been identified, but is most likely to be due to fragments of extraneous material within the made ground. However, the made ground will be entirely removed by the basement excavation and no potential sources of contamination will remain. Consideration should however be given to the protection of site workers handling the soil.

End users will be effectively isolated from direct contact with the identified contaminants by the extent of buildings and areas of external hardstanding. However, end users could conceivably come into direct contact with the contaminated soils in garden areas only and suitable precautions may need to be taken in these areas to protect end users and to allow successful plant growth. It is recommended that additional sampling and testing is carried out in areas to remain as soft landscaped areas to confirm the absence of other contamination.

8.6.1 Site Workers

Site workers should be made aware of the contamination and a programme of working should be identified to protect workers handling any soil. The method of site working should be in accordance with guidelines set out by HSE[10] and CIRIA[11] and the requirements of the Local Authority Environmental Health Officer.

8.6.2 Buried Services

Consideration may need to be given to the protection of buried plastic services laid within the made ground. Details of the proposed protection measures for buried plastic services will in any case need to be approved by the EHO and the relevant service authority prior to the adoption of any scheme. It is possible that barrier pipe will be required or additional testing will need to be carried out.

10 HSE (1992) HS(G)66 *Protection of workers and the general public during the development of contaminated land* HMSO

11 CIRIA (1996) *A guide for safe working on contaminated sites* Report 132, Construction Industry Research and Information Association

8.7 Waste Disposal

Any spoil arising from excavations or landscaping works, which is not to be re-used in accordance with the CL:AIRE guidance[12], will need to be disposed of to a licensed tip. Under the European Waste Directive, waste is classified as being either Hazardous or Non-Hazardous and landfills receiving waste are classified as accepting hazardous or non-hazardous wastes or the non-hazardous sub-category of inert waste in accordance with the Waste Directive. Waste going to landfill is subject to landfill tax at either the standard rate of £80 per tonne (about £145 per m^3) or at the lower rate of £2.50 per tonne (roughly £5 per m^3). However, the classification for tax purposes is not the same as that for disposal purposes. Currently all made ground and topsoil is taxable at the 'standard' rate and only naturally occurring rocks and soils which are accurately described as such in terms of the 2011 Order[13] would qualify for the 'lower rate' of landfill tax.

Based upon on the technical guidance provided by the Environment Agency[14] it is considered likely that the made ground from this site, as represented by the chemical analyses carried out, would be classified as a NON-HAZARDOUS waste under the waste code 17 05 04 (soils and stones not containing dangerous substances) and would be taxable at the standard rate. It is likely that the natural soils, if separated out, could be classified as an INERT waste also under the waste code 17 05 04. This material would be taxable at the lower rate, if accurately described as naturally occurring sand and gravel in terms of the 2011 Order on the waste transfer note. As this site has not had a contaminative history there should be no requirement for WAC leaching analyses to confirm that this material is suitable for landfilling, although this would require confirmation from the receiving site.

Under the requirements of the European Waste Directive all waste needs to be pre-treated prior to disposal. The pre-treatment process must be physical, thermal, chemical or biological, including sorting. It must change the characteristics of the waste in order to reduce its volume, hazardous nature, facilitate handling or enhance recovery. The waste producer can carry out the treatment but they will need to provide documentation to prove that this has been carried out. Alternatively, the treatment can be carried out by an approved contractor. The Environment Agency has issued a position paper[15] which states that in certain circumstances, segregation at source may be considered as pre-treatment and thus excavated material may not have to be treated prior to landfilling if the soils can be segregated onsite prior to excavation by sufficiently characterising the soils insitu prior to excavation.

The above opinion with regard to the classification of the excavated soils and its likely landfill taxable rate is provided for guidance only and should be confirmed by the receiving landfill once the soils to be discarded have been identified.

The local waste regulation department of the Environment Agency should be contacted to obtain details of tips that are licensed to accept the soil represented by the test results. The tips will be able to provide costs for disposing of this material but may require further testing.

12 CL:AIRE (2011) *The Definition of Waste: Development Industry Code of Practice* Version 2, March 2011
13 *Landfill Tax (Qualifying Material) Order 2011*
14 Environment Agency (2013) *Hazardous Waste: Interpretation of the definition and classification of hazardous waste. Technical Guidance* WM2 Third Edition, August 2013
15 Regulatory Position Statement (2007) *Treating non-hazardous waste for landfill - Enforcing the new requirement* Environment Agency 23 Oct 2007

9.0 BASEMENT IMPACT ASSESSMENT

The screening identified a number of potential impacts. The desk study and ground investigation information has been used to review the potential impacts, to assess the likelihood of them occurring and the scope for reasonable engineering mitigation.

The table below summarises the previously identified potential impacts and the additional information that is now available from the previous site investigation in consideration of each impact and includes information from the Chord Environmental report.

The site investigation indicates that the site is directly underlain by the London Clay, which is classified as unproductive strata, although the upper part of the clay may have been reworked.

Potential Impact	Site Investigation Conclusions
The basement structure would extend beneath monitored groundwater levels within the London Clay.	The investigation has indicated that the basement will extend below the water table. Although the London Clay is classified as an Unproductive Aquifer, the investigations carried out at the site have shown this stratum to predominantly comprise silty sandy clay of relatively low permeability. Consequently there is very little potential for groundwater flow beneath the site and the London Clay cannot support baseflow to watercourses. Therefore the proposed basement would not present an effective barrier to flow or impact upon groundwater sensitive features.
The hard surfaced area will be significantly increased in the form of building footprint and hard standing areas.	The sealing of the ground surface to rainfall, by increasing the building area, would result in decreased recharge to the underlying ground, although the low permeability of the underlying London Clay would result in a low recharge in any case and consequently there would be little or no effect on groundwater.
London Clay is the shallowest stratum at the site.	The London Clay is prone to seasonal shrink-swell (subsidence and heave).
Some trees are proposed to be felled, although no works are proposed within the root protection zones of the trees to be retained.	The London Clay is prone to seasonal shrink-swell and can cause structural damage. Desiccation was encountered during the investigation to a depth of 2.5 m and may be present within close proximity to other existing trees. The proposed basement will extend to a depth of 7.6 m in general, therefore new foundations will bypass any desiccated soils.
Seasonal shrink-swell can result in foundation movements.	The London Clay is prone to seasonal shrink-swell and can cause structural damage. Desiccation was noted to a depth of 2.50 m during the fieldwork and desiccation may be present within close proximity to existing trees elsewhere on site. The proposed basement will extend to a general depth of about 7.60 m, such that new foundations would be expected to bypass any desiccated soils present.
Site within 5 m of a highway or pedestrian right of way.	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, although a high groundwater level was recorded at the front of the property and best practice in design and construction will ensure the stability of the highway.
Founding depths relative to neighbours.	The retention system will ensure the stability of the excavation and neighbouring properties at all times.

Potential Impact	Site Investigation Conclusions
The site is located within 100 m of former watercourse.	The site investigation did not establish the presence of alluvial deposits beneath the site which indicated any hydraulic continuity with saturated alluvial deposits associated with the Tyburn stream.
The site is within about 2 m laterally of Network Rail tunnels, which are at a depth of about 22 m below ground level.	The retention system will ensure the stability of the nearby tunnels at all times.

9.1 BIA Conclusion

A Basement Impact Assessment has been carried out following the information and guidance published by the London Borough of Camden. Information from a Site Investigation has been used to assess potential impacts identified by the screening process.

It is concluded that the proposed development is unlikely to result in any specific land or slope stability issues, groundwater or surface water issues.

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 is considered to 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.

Further groundwater monitoring should be carried out to confirm that groundwater will not be encountered during basement excavation or ideally trial excavations are undertaken, to depths as close to the full basement depth.

It is assumed that the basement will extend beneath the depth of any potential desiccation, but foundations should be inspected by a suitably qualified engineer.

If during ground works any visual or olfactory evidence of contamination is identified it is recommended that further investigation be carried out and that the risk assessment is reviewed. These areas of doubt should be drawn to the attention of prospective contractors and further investigation will be required or sufficient contingency should be provided to cover the outstanding risk.

APPENDIX

Borehole Records

Trial Pit Records

Laboratory Geotechnical Test Results

Revised SPT (N60) v Cohesion Plot

Chemical Analyses (soil)

Revised Risk-based Generic Guideline Values

Envirocheck Extracts

Historical Maps

Site Plan

Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	**Site** 6 Nutley Terrace, London, NW3 5BX	**Borehole Number** **BH1**

Boring Method	**Casing Diameter**	**Ground Level (mOD)**	**Client**	**Job Number**
Cable Percussion	150mm cased to 170.00m	75.18	Mr & Mrs Shafi	J11158
	Location	**Dates** 02/08/2011- 03/08/2011	**Engineer** Elliott Wood	**Sheet** 1/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							Topsoil		
0.30	D1					(0.55)			
0.50	D2				74.63	0.55			
							Soft becoming firm, orange-brown silty sandy fissured CLAY with selenite crystals and carbonaceous material		
1.00-1.45	SPT N=7			1,1/1,2,2,2					
1.00-1.45	D3								
1.85	D4								
2.00-2.45	U1								
2.75	D5								
3.00-3.45	SPT N=11			1,2/2,3,3,3		(4.95)			
3.00-3.45	D6								
3.75	D7								
4.00-4.45	U2								
4.75	D8								
5.00-5.45	SPT N=15			1,2/3,3,4,5					
5.00-5.45	D9								
					69.68	5.50	Firm dark brownish grey slightly silty fissured CLAY with selenite crystals		
6.00	D10								
6.50-6.95	U3								
7.50	D11								
8.00-8.45	SPT N=17			2,3/3,4,4,6					
8.00-8.45	D12								
9.00	D13								
9.50-9.95	U4								
						(8.80)			

Remarks
Man-handled drilling equipment onto site for 3 hours.
Service inspection pit excavated to 1.2 m for 1 hour.
Standpipe installed to a depth of 6.0 m and monitoring measured at 1.24 m in standpipe on 19 August 2011

Scale (approx)	**Logged By**
1:50	AV

Figure No.
J11158.BH1

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	**Site** 6 Nutley Terrace, London, NW3 5BX	**Borehole Number** **BH1**
Boring Method Cable Percussion	**Casing Diameter** 150mm cased to 170.00m	**Ground Level (mOD)** 75.18	**Client** Mr & Mrs Shafi	**Job Number** J11158
	Location	**Dates** 02/08/2011- 03/08/2011	**Engineer** Elliott Wood	**Sheet** 2/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.50	D14								
11.00-11.45	SPT N=23			4,4/5,5,6,7					
11.00-11.45	D15								
12.00	D16					(8.80)			
12.50-12.95	D17								
13.50	D18								
14.00-14.45	SPT N=25			3,4/5,6,6,8					
14.00-14.45	D19				60.88	14.30	Stiff dark brown grey slightly silty fissured CLAY with lenses of fine grey sand and rare selenite crystals		
15.00	D20								
15.50-15.95	U5								
16.50	D21								
17.00-17.45	SPT N=31			6,7/7,7,8,9					
17.00-17.45	D22					(5.70)			
18.00	D23								
18.50-18.95	U6								
19.50	D24								
20.00-20.45	SPT N=35			5,6/7,8,9,11	55.18	20.00			

Remarks

Scale (approx)	Logged By
1:50	AV

Figure No.
J11158.BH1

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	**Site** 6 Nutley Terrace, London, NW3 5BX	**Borehole Number** **BH1**

Boring Method	**Casing Diameter**	**Ground Level (mOD)**	**Client**	**Job Number**
Cable Percussion	150mm cased to 170.00m	75.18	Mr & Mrs Shafi	J11158
	Location	**Dates** 02/08/2011- 03/08/2011	**Engineer** Elliott Wood	**Sheet** 3/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
20.00-20.45	D25						Complete at 20.45m		

Remarks	**Scale (approx)**	**Logged By**
	1:50	AV
	Figure No.	J11158.BH1

Geotechnical & Environmental Associates	Tyttenhanger House, Coursers Road, St Albans, AL4 0PG	Site: 6 Nutley Terrace, London, NW3 5BX	Borehole Number: BH2

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 170.00m	74.32	Mr & Mrs Shafi	J11158
	Location	**Dates** 04/08/2011	**Engineer** Elliott Wood	**Sheet** 1/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						(0.55)	Topsoil		
0.20	D1								
0.30	D2								
0.50	D3				73.77	0.55			
							Soft becoming firm orange-brown silty sandy fissured CLAY with selenite crystals		
1.20-1.65	CPT N=8			1,0/1,2,3,2					
1.20-1.65	D4								
1.85	D5								
2.00-2.45	U1								
2.75	D6								
3.00-3.45	SPT N=10			1,2/2,3,3,2		(4.95)			
3.00-3.75	D7								
4.00-4.75	U2								
4.75	D9								
5.00-5.45	SPT N=15			2,2/3,3,4,5					
5.00-5.45	D10								
					68.82	5.50			
							Firm dark brownish grey silty sandy fissured CLAY with occasional selenite crystals		
6.00	D11								
6.50-6.95	U3								
7.50	D12								
8.00-8.45	SPT N=36			6,7/8,9,10,9					
8.00-8.45	D13								
9.00	D14								
9.50-9.95	U4					(8.50)			

Remarks
Standpipe installed to a depth of 6. 20 m and monitoring measured at 6.14 m in standpipe on 19 August 2011
Services inspection pit excavated to 1.2 m for 1 hour.

Scale (approx)	Logged By
1:50	AV

Figure No. J11158.BH2

Geotechnical & Environmental Associates	Tyttenhanger House, Coursers Road, St Albans, AL4 0PG	Site: 6 Nutley Terrace, London, NW3 5BX	Borehole Number: BH2

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	150mm cased to 170.00m	74.32	Mr & Mrs Shafi	J11158
	Location	**Dates** 04/08/2011	**Engineer** Elliott Wood	**Sheet** 2/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							... as previous		
10.50	D15								
11.00-11.45	SPT N=20			2,2/3,5,6,6					
11.00-11.45	D16								
12.00	D17					(8.50)			
12.50-12.95	U5								
13.50	D18								
14.00-14.45	SPT N=24			3,5/6,5,6,7	60.32	14.00	Stiff dark brownish grey silty sandy fissured CLAY with lenses of fine grey sand with occassional selenite crystals		
14.00-14.45	D19								
15.00	D20								
15.50-15.95	U6								
16.50	D21								
17.00-17.45	SPT N=33			5,6/7,8,9,9		(6.00)			
18.00	D23								
18.50-18.95	U7								
				slow seepage(1) at 19.00m.					▽1
19.50	D24								
20.00-20.45	SPT N=36			6,7/8,9,10,9	54.32	20.00			

Remarks

Scale (approx)	Logged By
1:50	AV

Figure No. J11158.BH2

Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	**Site** 6 Nutley Terrace, London, NW3 5BX	**Borehole Number** **BH2**

Boring Method	**Casing Diameter**	**Ground Level (mOD)**	**Client**	**Job Number**
Cable Percussion	150mm cased to 170.00m	74.32	Mr & Mrs Shafi	J11158
	Location	**Dates** 04/08/2011	**Engineer** Elliott Wood	**Sheet** 3/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
20.00-20.45	D25						Complete at 20.45m		

Remarks	**Scale (approx)**	**Logged By**
	1:50	AV
	Figure No.	
	J11158.BH2	

GEA Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	**Site** 6 Nutley Terrace, London, NW3 5BX	**Borehole Number** **BH3**

Boring Method	**Casing Diameter**	**Ground Level (mOD)**	**Client**	**Job Number**
Dismantleable rig	0.150mm cased to m	74.32	Mr & Mrs Shafi	J11158
	Location	**Dates** 03/08/2011	**Engineer** Elliott Wood	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	D1				74.02	(0.30)	Topsoil		
0.30	D2					0.30			
0.50	D3						Soft becoming firm, orange-brown silty sandy fissured CLAY with occasional selenite crystals		
1.00-1.45	CPT N=8			1,1/1,2,2,3					
1.00-1.45	D4								
1.75	D5								
2.00-2.45	U1					(4.45)			
2.75	D6								
3.00-3.45	SPT N=10			1,1/2,2,3,3					
3.00-3.45	D7								
3.75	D8								
4.00-4.45	CPT N=13			10,5/4,3,3,3					
4.00-4.45	D9								
4.75	D10				69.57	4.75	Firm becoming stiff dark brownish grey silty sandy fissured CLAY with rare selenite crystals		
5.00-5.75	U2								
5.50-6.95	D12								
6.00	D11								
6.50-6.95	SPT N=16			2,3/3,4,4,5					
7.50	D13								
8.00-8.45	U3								
9.00	D14					(9.25)			
9.50-9.95	SPT N=18			2,3/3,4,5,6					
9.50-9.95	D15								

Remarks
Standpipe was dry on 19.8.11
Groundwater monitoring standpipe installed to a depth of 6 m on completion.
Services inspection pit excavated to 1.2 m for 1 hour.

Scale (approx)	**Logged By**
1:50	AV

Figure No.
J11158.BH3

Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	Site 6 Nutley Terrace, London, NW3 5BX	Borehole Number BH3

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Dismantleable rig	0.150mm cased to m	74.32	Mr & Mrs Shafi	J11158
	Location	**Dates** 03/08/2011	**Engineer** Elliott Wood	**Sheet** 2/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.50	D16								
11.00-11.45	U4								
12.00	D17					(9.25)			
12.50-12.95	SPT N=23			3,4/5,6,6,6					
12.50-12.95	D18								
13.50	D19								
14.00-14.45	U5				60.32	14.00	Stiff dark brownish grey slightly silty fissured CLAY with lenses of fine grey sand and rare selenite crystals		
15.00	D20								
15.50-15.95	SPT N=26			6,5/6,7,6,7					
15.50-15.95	D21								
16.50	D22								
17.00-17.45	U6					(6.00)			
18.00	D23								
18.50-18.95	CPT N=37			5,7/7,30					
18.50-18.95	D24								
19.25	D25								
19.55-20.00	SPT N=36			6,7/8,8,9,11					
19.55-20.00	D26								
					54.32	20.00			

Remarks

Scale (approx)	Logged By
1:50	AV

Figure No.
J11158.BH3

Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	**Site** 6 Nutley Terrace, London, NW3 5BX	**Number** **BH4**
Excavation Method Drive-in Window Sampler	**Dimensions**	**Ground Level (mOD)** 75.06	**Client** Mr & Mrs Shafi	**Job Number** J11158
	Location	**Dates** 03/08/2011	**Engineer** Elliott Wood	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.30	D1				(0.70)	Made Ground (topsoil over dark brown silty sandy clay with fine gravel, brick, and charcoal)		
				74.36	0.70			
					(0.30)	Made Ground (orange-brown silty sandy clay with fine gravel, brick and charcoal)		
1.00	D2			74.06	1.00			
1.20	D3					Firm orange-brown mottled grey fissured sandy CLAY		
			(p) 1.75					
			(p) 1.5		(1.80)			
2.20	D4		(p) 1.25					
2.80	D5			72.26	2.80	Stiff brown mottled grey silty sandy CLAY		
3.30	D6				(1.20)			
			(p) 1.6					
				71.06	4.00	Stiff mottled grey slightly silty slightly fissured CLAY		
			(p) 3.2		(1.00)			
				70.06	5.00			
			(p) 3			Complete at 5.00m		

Remarks
Groundwater not encountered

Scale (approx)	Logged By
1:50	AV

Figure No.
J11158.BH4

Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	**Site** 6 Nutley Terrace, London, NW3 5BX	**Number** **BH5**
Excavation Method Drive-in Window Sampler	**Dimensions**	**Ground Level (mOD)** 74.91	**Client** Mr & Mrs Shafi	**Job Number** J11158
	Location	**Dates** 03/08/2011	**Engineer** Elliott Wood	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	D1				(0.75)	Made Ground (dark brown silty sandy clay with roots, concrete, brick & charcoal)		
				74.16	0.75			
					(0.45)	Made Ground (orange-brown mottled brown silty sandy clay with roots, brick and charcoal)		
1.20	D2		(p) 4	73.71	1.20			
1.60	D3		(p) 3.8 (p) 4.6		(1.30)	Firm orange-brown mottled grey silty CLAY with partings of fine sand, some rootlets and black carbonaceous material. Desiccated soil.		
			(p) 2.2	72.41	2.50			
2.60	D4		(p) 1.6 (p) 1.25			Firm orange-brown mottled grey silty sandy CLAY		
3.00	D5				(1.40)			
			(p) 1.25					
3.90	D6		(p) 2.0	71.01	3.90	Stiff grey fissured CLAY with fine selenite crystals		
			(p) 2.25					
4.50	D7		(p) 2.5					
4.90	D8		(p) 3.6		(2.10)			
			(p) 3.8	68.91	6.00			
						Complete at 6.00m		

Remarks
Groundwater not encountered

Scale (approx)	Logged By
1:50	AV

Figure No.
J11158.BH5

GEA Geotechnical & Environmental Associates

Tyttenhanger House
Coursers Road
St Albans
AL4 0PG

Site
6 Nutley Terrace, London, NW3 5BX

Number
BH6

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Drive-in Window Sampler		73.04	Mr & Mrs Shafi	J11158
	Location	**Dates** 03/08/2011	**Engineer** Elliott Wood	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	Made Ground (topsoil over dark brown silty sandy clay with brick fragmants, gravel, charcoal and rootlets)		
0.20	D1			72.64	0.40			
0.50	D2					Firm orange-brown silty sandy CLAY with carbonaceous material and rootlets		
			(p) 2.5		(0.85)			
1.25	D3		(p) 2.7	71.79	1.25	Firm orange-brown mottled grey silty sandy CLAY with carbonaceous material		
			(p) 2					
					(1.15)			
2.00	D4		(p) 2.25					
2.40	D5			70.64	2.40	Stiff brown mottled grey silty CLAY with fine selenite crystals		
3.00	D6				(1.46)			
3.30	D7		(p) 2.7					
3.86	D8			69.18	3.86	Stiff brown mottled grey silty sandy CLAY with selenite crystals		
					(0.84)			
4.70	D9			68.34	4.70			
					(0.30)	Stiff dark brown mottled orange-brown fissured silty CLAY with fine selenite crystals		
				68.04	5.00			
						Complete at 5.00m		

Remarks
Groundwater not encountered

Scale (approx)	**Logged By**
1:50	AV

Figure No.
J11158.BH6

Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	**Site** 6 Nutley Terrace, London, NW3 5BX	**Number** **BH7**
Excavation Method Drive-in Window Sampler	**Dimensions**	**Ground Level (mOD)** 73.30	**Client** Mr & Mrs Shafi	**Job Number** J11158
	Location	**Dates** 03/08/2011	**Engineer** Elliott Wood	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				73.10	(0.20) 0.20	Made Ground (topsoil over dark brown silty sandy clay with brick fragments, gravel and rootlets)		
0.20	D1				(0.50)	Firm, locally stiff orange-brown mottled grey silty CLAY with rootlets and carbonaceous fragments. Partially desiccated soil.		
0.70	D2		(p) 3.5	72.60	0.70			
					(0.60)	"Stiff" orange-brown mottled grey silty CLAY with rootlets and carbonaceous fragments. Partially desiccated soil.		
1.20	D3		(p) 5	72.00	1.30			
1.80	D4		(p) 3.25 (p) 3			Stiff brown mottled grey fissured CLAY with partings of orange-brown silt		
2.30	D5							
2.80	D6		(p) 2.7 (p) 2.5		(3.60)			
3.50	D7							
4.50	D8			68.40	4.90			
						Complete at 4.90m		

Remarks
Groundwater not encountered

Scale (approx)	Logged By
1:50	AV

Figure No.
J11158.BH7

Geotechnical & Environmental Associates	Tyttenhanger House Coursers Road St Albans AL4 0PG	**Site** 6 Nutley Terrace, London, NW3 5BX	**Number** **BH8**
Excavation Method Drive-in Window Sampler	**Dimensions**	**Ground Level (mOD)** 71.86	**Client** Mr & Mrs Shafi	**Job Number** J11158
	Location	**Dates** 03/08/2011	**Engineer** Elliott Wood	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	Made Ground (topsoil overlying dark brown silty sandy CLAY with brick fragments, gravel and rootlets)		
0.40	D1			71.46	0.40			
					(0.30)	Firm orange-brown silty CLAY occasional gravel and rootlets		
0.70	D2		(p) 2.7	71.16	0.70			
					(0.70)	Firm orange-brown silty CLAY with carbonaceous material		
			(p) 2.3	70.46	1.40			
1.60	D3					Firm brown mottled grey fissured CLAY		
			(p) 3.7					
2.00	D4		(p) 3.7		(1.40)			
2.80	D5		(p) 4.6	69.06	2.80			
						Complete at 2.80m		

Remarks
Groundwater not encountered
Becoming stiff with increasing depth

Scale (approx)	Logged By
1:50	AV

Figure No.
J11158.BH8

PROJECT NAME	**6 NUTLEY TERRACE, LONDON NW3 5BX**	Date	31/08/2011
	Job Number J11158	Approved	*Simon Burke*
PROJECT NO:	**GEO / 17273**	Page	1 of 4

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression Tests			Chemical Tests			
Borehole No.	Depth (m)	No.	Type	Description	MC (%)	LL (%)	PL (%)	PI	<425 mic (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Cell Pressure (kPa)	Deviator Stress (kPa)	Shear Stress (kPa)	pH	2:1 W/S SO4 (g/l)	Ground Water SO4 (g/l)	Other tests and comments
BH1	2.00	U1	U	Firm brown slightly sandy silty CLAY	29					1.89	1.47	40	101	51				
BH1	2.75	D5	D	Dark orange-brown and grey fine sandy CLAY	29	53	22	31	100									
BH1	4.00	U2	U	Firm to stiff fissured dark brown silty CLAY	30					1.98	1.52	80	166	83				
BH1	6.50	U3	U	Stiff fissured grey silty CLAY	27					2.03	1.60	130	236	118				
BH1	9.50	U4	U	Stiff fissured grey silty CLAY	28					2.02	1.58	190	223	111				
BH1	10.50	D14	D	Dark grey-brown silty CLAY	27	59	25	34	100									
BH1	15.50	U5	U	Stiff fissured grey silty CLAY	27					2.02	1.60	310	248	124				
BH1	18.50	U6	U	Stiff fissured dark grey-brown silty CLAY	29					1.97	1.53	370	248	124				
BH2	2.00	U1	U	Firm to stiff mottled brown and grey slightly sandy silty CLAY	25					1.95	1.57	40	153	77				
BH2	4.00	U2	U	Firm brown mottled grey silty CLAY	32					1.95	1.48	80	136	68				
BH2	6.50	U3	U	Firm to stiff fissured grey silty CLAY	29					2.00	1.54	130	155	78				
BH2	9.50	U4	U	Firm to stiff fissured grey silty CLAY	28					2.00	1.56	190	172	86				

SUMMARY OF GEOTECHNICAL TESTING

GEOLABS®

PROJECT NAME **6 NUTLEY TERRACE, LONDON NW3 5BX**
Job Number J11158
PROJECT NO: **GEO / 17273**

Date	31/08/2011
Approved	Simon Burke
Page	2 of 4

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression Tests			Chemical Tests			
Borehole No.	Depth (m)	No.	Type	Description	MC (%)	LL (%)	PL (%)	PI	<425 mic (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Cell Pressure (kPa)	Deviator Stress (kPa)	Shear Stress (kPa)	pH	2:1 W/S SO4 (g/l)	Ground Water SO4 (g/l)	Other tests and comments
BH2	12.50	U5	U	Firm to stiff fissured grey silty CLAY	25					2.05	1.64	250	184	92				
BH2	15.50	U6	U	Firm to stiff fissured grey silty CLAY with rare shell fragments	28					2.01	1.57	310	179	89				
BH2	18.50	U7	U	Stiff fissured grey silty CLAY	27					2.01	1.58	370	240	120				
BH3	2.00	U1	U	Firm mottled grey and brown sandy CLAY with rare rootlets	24					1.95	1.57	40	140	70				
BH3	5.00	U2	U	Firm to stiff fissured grey silty CLAY	29					1.98	1.53	100	176	88				
BH3	8.00	U3	U	Firm to stiff fissured grey silty CLAY with rare shell fragments	29					2.00	1.55	160	195	97				
BH3	11.00	U4	U	Stiff fissured grey silty CLAY	27					2.00	1.57	220	212	106				
BH3	14.00	U5	U	Stiff fissured grey silty CLAY	29					2.01	1.56	280	215	107				
BH3	17.00	U6	U	Stiff fissured grey silty CLAY	28					2.00	1.55	340	202	101				
BH4	1.20	D3	D												7.7	0.045		
BH5	1.20	D2	D	Mottled orange-brown and grey slightly fine sandy CLAY with rare rootlets	22													
BH5	1.60	D3	D	Mottled orange, brown and grey slightly fine sandy silty CLAY	22	61	21	40	100									

SUMMARY OF GEOTECHNICAL TESTING

GEOLABS®

PROJECT NAME **6 NUTLEY TERRACE, LONDON NW3 5BX**
Job Number J11158
PROJECT NO: **GEO / 17273**

Date	31/08/2011
Approved	Simon Burke
Page	3 of 4

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression Tests			Chemical Tests			
Borehole No.	Depth (m)	No.	Type	Description	MC (%)	LL (%)	PL (%)	PI	<425 mic (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Cell Pressure (kPa)	Deviator Stress (kPa)	Shear Stress (kPa)	pH	2:1 W/S SO4 (g/l)	Ground Water SO4 (g/l)	Other tests and comments
BH5	2.60	D4	D	Dark orange and grey fine sandy silty CLAY	24													
BH5	3.00	D5	D	Brown and grey fine sandy silty CLAY	26	49	21	28	100									
BH5	3.90	D6	D	Brown and grey fine sandy silty CLAY	26										7.8	0.14		
BH5	4.50	D7	D	Brown with rare grey silty CLAY	29													
BH6	1.25	D3	D	Mottled brown, range and rare grey fine sandy silty CLAY	22	53	21	32	100									
BH6	3.30	D7	D												7.2	1.7		
BH7	0.70	D2	D	Mottled dark orange, brown with rare grey sine sandy silty CLAY	21													
BH7	1.20	D3	D	Mottled dark orange, brown with rare grey sine sandy silty CLAY	21													
BH7	1.80	D4	D	Mottled dark orange, brown with rare grey sine sandy silty CLAY	27	53	21	32	100									
BH7	2.30	D5	D	Brown and grey silty CLAY	28													
BH7	2.80	D6	D	Brown and grey silty CLAY	29													
BH7	3.50	D7	D	Brown silty CLAY	29													

SUMMARY OF GEOTECHNICAL TESTING

GEOLABS®

PROJECT NAME **6 NUTLEY TERRACE, LONDON NW3 5BX**
Job Number J11158
PROJECT NO: **GEO / 17273**

Date	31/08/2011
Approved	Simon Burke
Page	4 of 4

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression Tests			Chemical Tests			
Borehole No.	Depth (m)	No.	Type	Description	MC (%)	LL (%)	PL (%)	PI	<425 mic (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Cell Pressure (kPa)	Deviator Stress (kPa)	Shear Stress (kPa)	pH	2:1 W/S SO4 (g/l)	Ground Water SO4 (g/l)	Other tests and comments
BH8	0.70	D2	D	Dark orange-brown with rare grey slightly fine sandy silty CLAY	25													
BH8	1.60	D3	D	Dark orange-brown silty CLAY	28													
BH8	2.00	D4	D	Brown with rare orange and grey silty CLAY	27													
BH8	2.80	D5	D	Brown silty CLAY	26													

SUMMARY OF GEOTECHNICAL TESTING

GEOLABS®

BS1377 : Part 7 : Clause 8 : 1990

Quick Undrained Triaxial Test

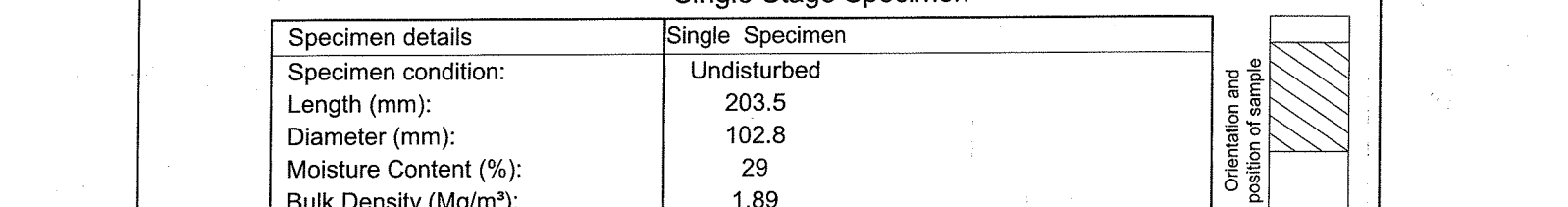
Borehole Number:	BH1
Sample Number:	U1
Depth (m):	2.00

Description:
Firm brown slightly sandy silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	203.5
Diameter (mm):	102.8
Moisture Content (%):	29
Bulk Density (Mg/m³):	1.89
Dry Density (Mg/m³):	1.47
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	1.1
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	40
Strain at failure (%):	20.0
Maximum Deviator Stress (kPa):	101
Shear Stress Cu (kPa):	51

Orientation and position of sample



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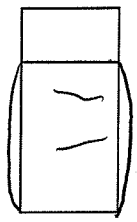

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Date: 31/08/2011

Project Number: **GEO / 17273**

Project Name: **6 NUTLEY TERRACE, LONDON NW3 5BX**

Job Number J11158

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Quick Undrained Triaxial Test

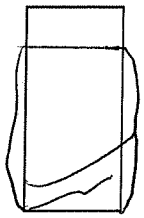
Borehole Number:	BH1
Sample Number:	U2
Depth (m):	4.00

Description:
Firm to stiff fissured dark brown silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	202.0
Diameter (mm):	102.0
Moisture Content (%):	30
Bulk Density (Mg/m³):	1.98
Dry Density (Mg/m³):	1.52
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.9
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	80
Strain at failure (%):	15.8
Maximum Deviator Stress (kPa):	166
Shear Stress Cu (kPa):	83

Orientation and position of sample



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6 NUTLEY TERRACE, LONDON NW3 5BX

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Quick Undrained Triaxial Test

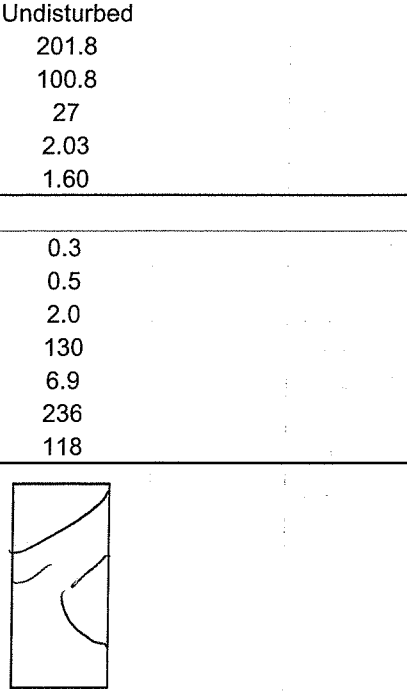
Borehole Number:	BH1
Sample Number:	U3
Depth (m):	6.50

Description:
Stiff fissured grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.8
Diameter (mm):	100.8
Moisture Content (%):	27
Bulk Density (Mg/m³):	2.03
Dry Density (Mg/m³):	1.60
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.5
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	130
Strain at failure (%):	6.9
Maximum Deviator Stress (kPa):	236
Shear Stress Cu (kPa):	118

Orientation and position of sample



Mode of failure:

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Job Number J11158

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Quick Undrained Triaxial Test

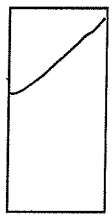
Borehole Number:	BH1
Sample Number:	U4
Depth (m):	9.50

Description:
Stiff fissured grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.7
Diameter (mm):	101.8
Moisture Content (%):	28
Bulk Density (Mg/m³):	2.02
Dry Density (Mg/m³):	1.58
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.5
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	190
Strain at failure (%):	7.4
Maximum Deviator Stress (kPa):	223
Shear Stress Cu (kPa):	111

Orientation and position of sample



Mode of failure:

Checked and Approved	Project Number:	
Initials: SB	Project Name:	GEO / 17273
Date: 31/08/2011		6 NUTLEY TERRACE, LONDON NW3 5BX
		Job Number J11158

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Quick Undrained Triaxial Test

Borehole Number:	BH1
Sample Number:	U5
Depth (m):	15.50

Description:
Stiff fissured grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.9
Diameter (mm):	101.5
Moisture Content (%):	27
Bulk Density (Mg/m³):	2.02
Dry Density (Mg/m³):	1.60
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.6
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	310
Strain at failure (%):	7.9
Maximum Deviator Stress (kPa):	248
Shear Stress Cu (kPa):	124

Orientation and position of sample

Mode of failure:

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Initials: SB

Date: 31/08/2011

Project Number: GEO / 17273

Project Name: 6 NUTLEY TERRACE, LONDON NW3 5BX

Job Number J11158

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Quick Undrained Triaxial Test

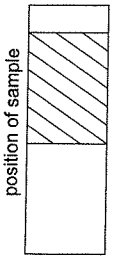
Borehole Number:	BH1
Sample Number:	U6
Depth (m):	18.50

Description:
Stiff fissured dark grey-brown silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.8
Diameter (mm):	103.3
Moisture Content (%):	29
Bulk Density (Mg/m³):	1.97
Dry Density (Mg/m³):	1.53
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.5
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	370
Strain at failure (%):	6.4
Maximum Deviator Stress (kPa):	248
Shear Stress Cu (kPa):	124

Orientation and position of sample



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Project Number: **GEO / 17273**

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Job Number J11158

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Quick Undrained Triaxial Test

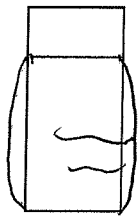
Borehole Number:	BH2
Sample Number:	U1
Depth (m):	2.00

Description:
Firm to stiff mottled brown and grey slightly sandy silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.3
Diameter (mm):	102.0
Moisture Content (%):	25
Bulk Density (Mg/m³):	1.95
Dry Density (Mg/m³):	1.57
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.9
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	40
Strain at failure (%):	14.9
Maximum Deviator Stress (kPa):	153
Shear Stress Cu (kPa):	77

Orientation and position of sample



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Job Number J11158

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Quick Undrained Triaxial Test

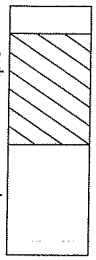
Borehole Number:	BH2
Sample Number:	U2
Depth (m):	4.00

Description:
Firm brown mottled grey silty CLAY

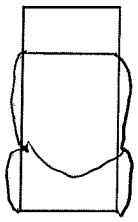
Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.6
Diameter (mm):	102.2
Moisture Content (%):	32
Bulk Density (Mg/m³):	1.95
Dry Density (Mg/m³):	1.48
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.9
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	80
Strain at failure (%):	14.4
Maximum Deviator Stress (kPa):	136
Shear Stress Cu (kPa):	68

Orientation and position of sample



Mode of failure:



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BS1377 : Part 7 : Clause 8 : 1990

Quick Undrained Triaxial Test

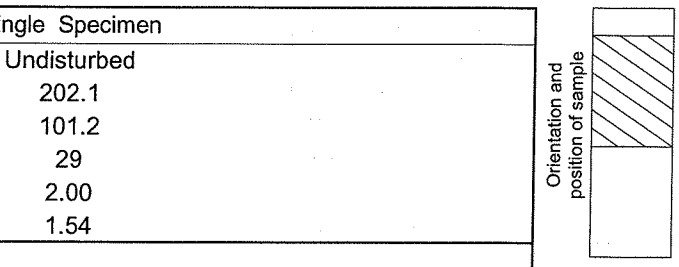
Borehole Number:	BH2
Sample Number:	U3
Depth (m):	6.50

Description:
Firm to stiff fissured grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	202.1
Diameter (mm):	101.2
Moisture Content (%):	29
Bulk Density (Mg/m³):	2.00
Dry Density (Mg/m³):	1.54
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	1.3
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	130
Strain at failure (%):	9.9
Maximum Deviator Stress (kPa):	155
Shear Stress Cu (kPa):	78

Orientation and position of sample



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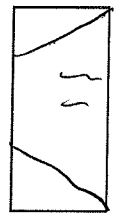

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Job Number J11158

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Quick Undrained Triaxial Test

Borehole Number:	BH2
Sample Number:	U4
Depth (m):	9.50

Description:
Firm to stiff fissured grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.9
Diameter (mm):	101.7
Moisture Content (%):	28
Bulk Density (Mg/m³):	2.00
Dry Density (Mg/m³):	1.56
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.3
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	190
Strain at failure (%):	4.5
Maximum Deviator Stress (kPa):	172
Shear Stress Cu (kPa):	86

Orientation and position of sample

Mode of failure:

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Initials: SB

Date: 31/08/2011

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6 NUTLEY TERRACE, LONDON NW3 5BX

Job Number J11158

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Quick Undrained Triaxial Test

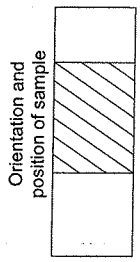
Borehole Number:	BH2
Sample Number:	U5
Depth (m):	12.50

Description:
Firm to stiff fissured grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.8
Diameter (mm):	101.3
Moisture Content (%):	25
Bulk Density (Mg/m³):	2.05
Dry Density (Mg/m³):	1.64
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	1.1
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	250
Strain at failure (%):	19.8
Maximum Deviator Stress (kPa):	184
Shear Stress Cu (kPa):	92

Orientation and position of sample



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Quick Undrained Triaxial Test

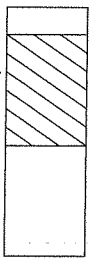
Borehole Number:	BH2
Sample Number:	U6
Depth (m):	15.50

Description:
Firm to stiff fissured grey silty CLAY with rare shell fragments

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.1
Diameter (mm):	101.4
Moisture Content (%):	28
Bulk Density (Mg/m³):	2.01
Dry Density (Mg/m³):	1.57
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.4
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	310
Strain at failure (%):	5.5
Maximum Deviator Stress (kPa):	179
Shear Stress Cu (kPa):	89

Orientation and position of sample



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Quick Undrained Triaxial Test

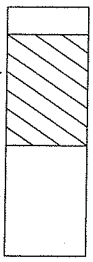
Borehole Number:	BH2
Sample Number:	U7
Depth (m):	18.50

Description:
Stiff fissured grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.4
Diameter (mm):	101.6
Moisture Content (%):	27
Bulk Density (Mg/m³):	2.01
Dry Density (Mg/m³):	1.58
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.6
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	370
Strain at failure (%):	8.4
Maximum Deviator Stress (kPa):	240
Shear Stress Cu (kPa):	120

Orientation and position of sample



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Job Number J11158

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Quick Undrained Triaxial Test

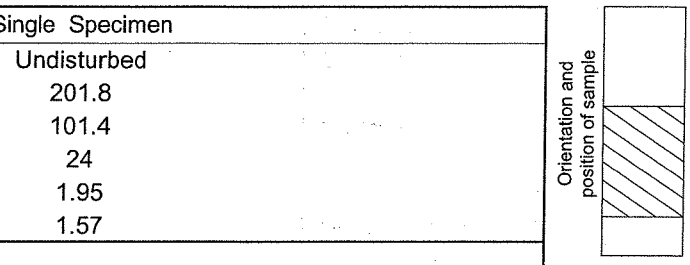
Borehole Number:	BH3
Sample Number:	U1
Depth (m):	2.00

Description:
Firm mottled grey and brown sandy CLAY with rare rootlets

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.8
Diameter (mm):	101.4
Moisture Content (%):	24
Bulk Density (Mg/m³):	1.95
Dry Density (Mg/m³):	1.57
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	1.1
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	40
Strain at failure (%):	19.3
Maximum Deviator Stress (kPa):	140
Shear Stress Cu (kPa):	70

Orientation and position of sample



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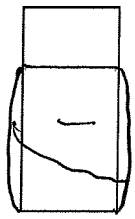

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Quick Undrained Triaxial Test

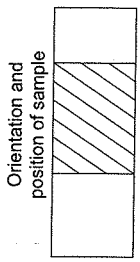
Borehole Number:	BH3
Sample Number:	U2
Depth (m):	5.00

Description:
Firm to stiff fissured grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.3
Diameter (mm):	101.1
Moisture Content (%):	29
Bulk Density (Mg/m³):	1.98
Dry Density (Mg/m³):	1.53
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.6
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	100
Strain at failure (%):	8.4
Maximum Deviator Stress (kPa):	176
Shear Stress Cu (kPa):	88

Orientation and position of sample



Mode of failure:

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Initials: SB

Date: 31/08/2011

Project Number: GEO / 17273

Project Name: 6 NUTLEY TERRACE, LONDON NW3 5BX

Job Number J11158

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Quick Undrained Triaxial Test

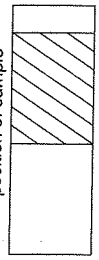
Borehole Number:	BH3
Sample Number:	U3
Depth (m):	8.00

Description:
Firm to stiff fissured grey silty CLAY with rare shell fragments

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.5
Diameter (mm):	101.5
Moisture Content (%):	29
Bulk Density (Mg/m³):	2.00
Dry Density (Mg/m³):	1.55
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.6
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	160
Strain at failure (%):	7.9
Maximum Deviator Stress (kPa):	195
Shear Stress Cu (kPa):	97

Orientation and position of sample



Mode of failure:

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Initials: SB

Date: 31/08/2011

Project Number: GEO / 17273

Project Name: 6 NUTLEY TERRACE, LONDON NW3 5BX

Job Number J11158

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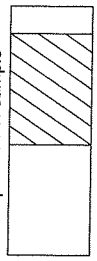
Quick Undrained Triaxial Test

Borehole Number: BH3	Description:
Sample Number: U4	Stiff fissured grey silty CLAY
Depth (m): 11.00	

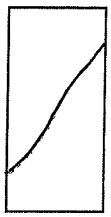
Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.4
Diameter (mm):	101.6
Moisture Content (%):	27
Bulk Density (Mg/m³):	2.00
Dry Density (Mg/m³):	1.57
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.3
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	220
Strain at failure (%):	4.0
Maximum Deviator Stress (kPa):	212
Shear Stress Cu (kPa):	106

Orientation and position of sample



Mode of failure:



Checked and Approved Initials: SB Date: 31/08/2011	Project Number: GEO / 17273 Project Name: 6 NUTLEY TERRACE, LONDON NW3 5BX Job Number J11158	UKAS TESTING 1982 GEOLABS ®

BS1377 : Part 7 : Clause 8 : 1990

Quick Undrained Triaxial Test

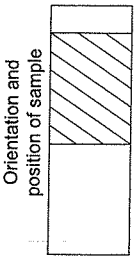
Borehole Number:	BH3
Sample Number:	U5
Depth (m):	14.00

Description:
Stiff fissured grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.3
Diameter (mm):	101.7
Moisture Content (%):	29
Bulk Density (Mg/m³):	2.01
Dry Density (Mg/m³):	1.56
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.3
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	280
Strain at failure (%):	4.5
Maximum Deviator Stress (kPa):	215
Shear Stress Cu (kPa):	107

Orientation and position of sample



Mode of failure:

Checked and Approved

Initials: SB

Date: 31/08/2011

Project Number:

GEO / 17273

Project Name:

6 NUTLEY TERRACE, LONDON NW3 5BX

Job Number J11158

UKAS TESTING 1982

GEOLABS ®

BS1377 : Part 7 : Clause 8 : 1990

Quick Undrained Triaxial Test

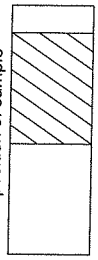
Borehole Number:	BH3
Sample Number:	U6
Depth (m):	17.00

Description:
Stiff fissured grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.1
Diameter (mm):	101.8
Moisture Content (%):	28
Bulk Density (Mg/m³):	2.00
Dry Density (Mg/m³):	1.55
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.1
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	340
Strain at failure (%):	1.7
Maximum Deviator Stress (kPa):	202
Shear Stress Cu (kPa):	101

Orientation and position of sample



Mode of failure:

Checked and Approved

Initials: SB

Date: 31/08/2011

Project Number: GEO / 17273

Project Name: 6 NUTLEY TERRACE, LONDON NW3 5BX

Job Number J11158

UKAS TESTING 1982

GEOLABS ®

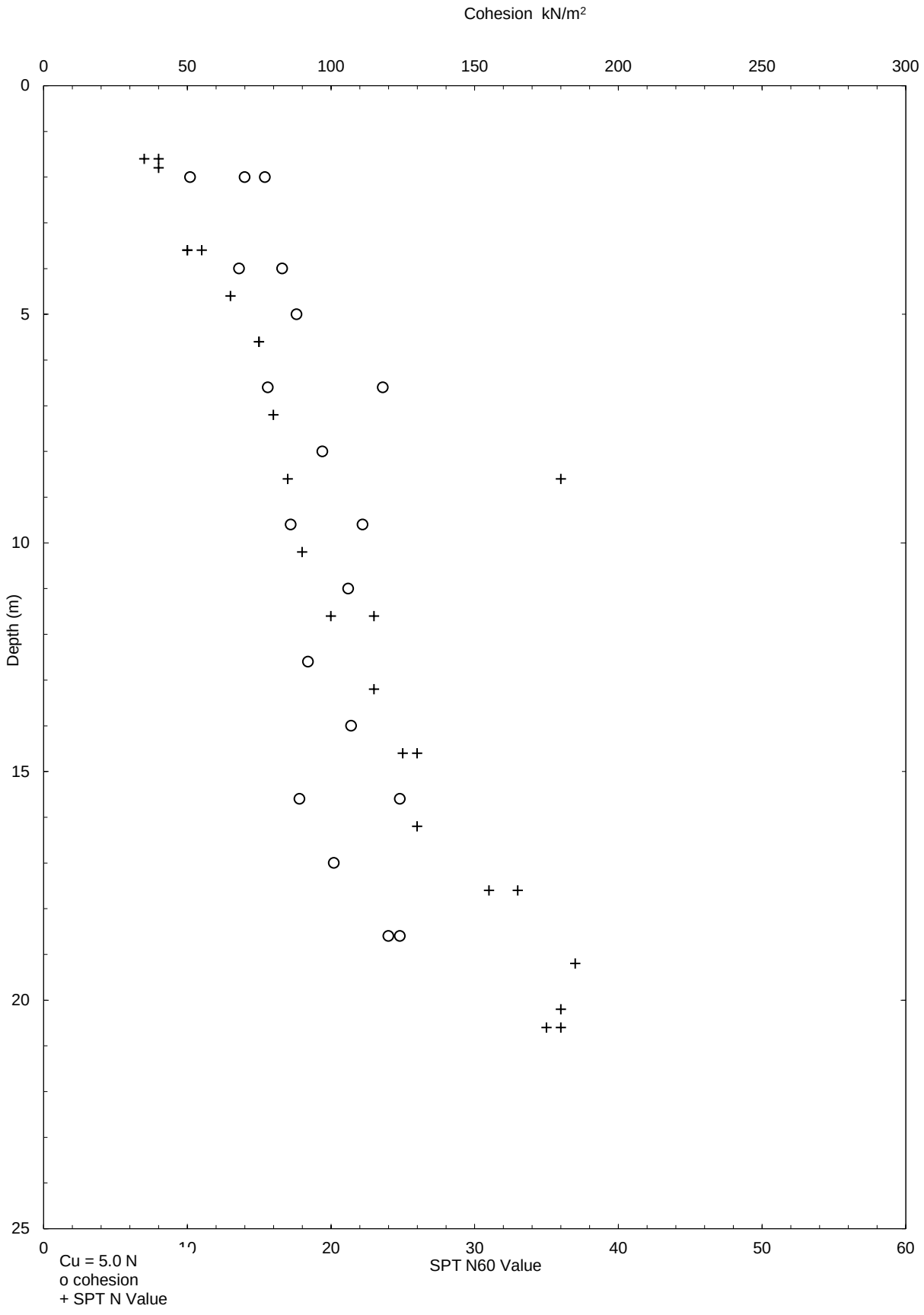
Geotechnical & Environmental Associates
Widbury Barn
Widbury Hill
Ware
Herts SG12 7QE

SPT & Cohesion / Depth Graph

Site	6 Nutley Terrace, London NW3 5BX
Client	Mrs Shafi
Engineer	Elliott Wood

Job Number J11158A

Sheet 1 / 1



Geotechnical & Environmental Associates

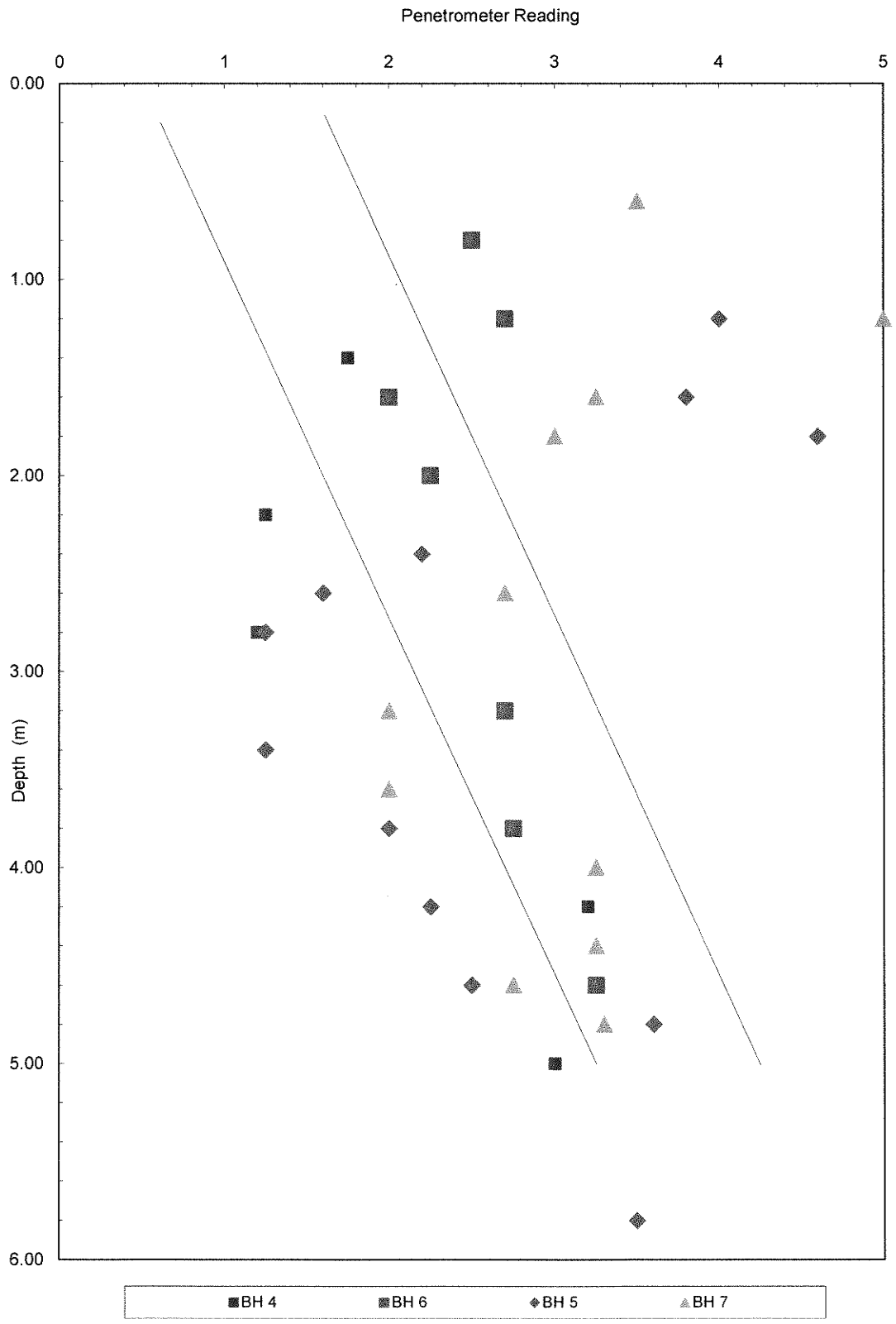
Tyttenhanger House
Coursers Road
St Albans
Herts AL4 0PG

Penetrometer / Depth Graph

Site	6 Nutley Terrace, London, NW3 5BX
Client	Mr Omah Shafi
Engineer	Angelina Varchione / Juliet Fuller

Job Number J11158

Sheet 1 / 1



Solid lines indicate typical equilibrium values for London Clay

GEA
Tyttenhanger House
Coursers Road
St Albans Herts
AL4 0PG

FAO Angelina Varchione

LABORATORY TEST REPORT

Results of analysis of 4 samples
received 15 August 2011

6 Nutley Terrace, London, NW3 5BX J11158

Chemtest
The right chemistry to deliver results

Report Date
23 August 2011

Login Batch No					59285			
Chemtest LIMS ID					AG35417	AG35418	AG35419	AG35420
Sample ID					BH4	BH5	BH6	BH7
Sample No					D1	D1	D1	D1
Sampling Date					12/08/2011	12/08/2011	12/08/2011	12/08/2011
Depth					0.3m	0.2m	0.2m	0.2m
Matrix					*SOIL*	*SOIL*	*SOIL*	*SOIL*
SOP↓	Determinand↓	CAS No↓	Units↓	*				
2300	Cyanide (total)	57125	mg kg^{-1}	M	<0.50	<0.50	<0.50	<0.50
2325	Sulfide	18496258	mg kg^{-1}	M	1.9	0.77	1.2	0.67
2625	Total Organic Carbon		%	M	2.0	3.7	3.4	3.6
2220	Chloride (extractable)	16887006	g l^{-1}	M	<0.010	<0.010	<0.010	<0.010
2430	Sulfate (total) as SO4		mg kg^{-1}		280	320	360	290
2450	Arsenic	7440382	mg kg^{-1}	M	14	21	20	18
	Cadmium	7440439	mg kg^{-1}	M	0.23	0.43	0.81	0.53
	Chromium	7440473	mg kg^{-1}	M	58	42	29	27
	Copper	7440508	mg kg^{-1}	M	110	38	39	49
	Mercury	7439976	mg kg^{-1}	M	0.30	1.4	0.88	1.6
	Nickel	7440020	mg kg^{-1}	M	93	29	21	16
	Lead	7439921	mg kg^{-1}	M	61	140	250	520
	Selenium	7782492	mg kg^{-1}	M	19	0.51	<0.20	6.0
	Zinc	7440666	mg kg^{-1}	M	1100	130	180	300
2676	TPH >C5-C6		mg kg^{-1}	U	< 0.1	< 0.1	< 0.1	< 0.1
	TPH >C6-C7		mg kg^{-1}	U	< 0.1	< 0.1	< 0.1	< 0.1
	TPH >C7-C8		mg kg^{-1}	M	< 0.1	< 0.1	< 0.1	< 0.1
	TPH >C8-C10		mg kg^{-1}	M	< 0.1	< 0.1	< 0.1	< 0.1
	TPH >C10-C12		mg kg^{-1}	M	< 0.1	< 0.1	< 0.1	< 0.1
	TPH >C12-C16		mg kg^{-1}	M	< 0.1	3.9	2.1	1.1
	TPH >C16-C21		mg kg^{-1}	M	< 0.1	4.9	4.4	4.6
	TPH >C21-C35		mg kg^{-1}	M	< 0.1	16	4.4	11
	Total Petroleum Hydrocarbons		mg kg^{-1}	U	< 10	25	11	17
2700	Naphthalene	91203	mg kg^{-1}	M	< 0.1	< 0.1	< 0.1	< 0.1
	Acenaphthylene	208968	mg kg^{-1}	M	< 0.1	0.11	< 0.1	< 0.1
	Acenaphthene	83329	mg kg^{-1}	M	< 0.1	0.1	< 0.1	< 0.1
	Fluorene	86737	mg kg^{-1}	M	< 0.1	< 0.1	< 0.1	< 0.1

All tests undertaken between 15/08/2011 and 23/08/2011

* Accreditation status

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

GEA
Tyttenhanger House
Coursers Road
St Albans Herts
AL4 0PG

FAO Angelina Varchione

LABORATORY TEST REPORT

Results of analysis of 4 samples
received 15 August 2011

6 Nutley Terrace, London, NW3 5BX J11158

Chemtest
The right chemistry to deliver results

Report Date
23 August 2011

					59285			
					AG35417	AG35418	AG35419	AG35420
					BH4	BH5	BH6	BH7
					D1	D1	D1	D1
					12/08/2011	12/08/2011	12/08/2011	12/08/2011
					0.3m	0.2m	0.2m	0.2m
					SOIL	*SOIL*	*SOIL*	*SOIL*
2700	Phenanthrene	85018	mg kg^{-1}	M	0.48	0.44	0.94	0.37
	Anthracene	120127	mg kg^{-1}	M	< 0.1	< 0.1	0.16	< 0.1
	Fluoranthene	206440	mg kg^{-1}	M	1.2	1.4	1.6	0.75
	Pyrene	129000	mg kg^{-1}	M	1.1	1.2	1.7	0.76
	Benzo[a]anthracene	56553	mg kg^{-1}	M	0.62	0.65	0.89	0.51
	Chrysene	218019	mg kg^{-1}	M	0.6	0.66	0.93	0.49
	Benzo[b]fluoranthene	205992	mg kg^{-1}	M	0.57	0.4	0.76	0.37
	Benzo[k]fluoranthene	207089	mg kg^{-1}	M	0.43	0.53	0.61	0.25
	Benzo[a]pyrene	50328	mg kg^{-1}	M	1.7	3.3	2.9	0.53
	Dibenzo[a,h]anthracene	53703	mg kg^{-1}	M	< 0.1	< 0.1	< 0.1	< 0.1
	Indeno[1,2,3-cd]pyrene	193395	mg kg^{-1}	M	0.55	0.56	0.65	0.37
	Benzo[g,h,i]perylene	191242	mg kg^{-1}	M	0.41	0.65	0.77	0.5
	Total (of 16) PAHs		mg kg^{-1}	M	7.7	10	12	4.9
2920	Phenols (total)		mg kg^{-1}	N	<0.3	<0.3	<0.3	<0.3
2010	pH			M	7.5	7.8	7.5	5.3
2030	Moisture		%	n/a	20.8	12.4	18.9	15.6
	Stones content (>50mm)		%	n/a	<0.02	<0.02	<0.02	<0.02
2040	Soil colour			n/a	brown	brown	brown	brown
	Soil texture			n/a	sand	sand	sand	sand
	Other material			n/a	stones	stones	stones	stones

All tests undertaken between 15/08/2011 and 23/08/2011

* Accreditation status

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

GEA Geotechnical & Environmental Associates

Widbury Barn
Widbury Hill
Ware
Herts SG12 7QE

Generic Risk-Based Soil Screening Values

Site	6 Nutley Terrace, London NW3 5BX	**Job Number** J11158A
Client	Mrs Shafi	**Sheet** 1 / 1
Agent	Elliott Wood	

Proposed End Use Residential with plant uptake

Soil pH 6

Soil Organic Matter content % 2.5

Contaminant	Screening Value mg/kg	Data Source
Metals		
Arsenic	37	C4SL
Cadmium	26	C4SL
Chromium (III)	3000	LQM/CIEH
Chromium (VI)	21	C4SL
Copper	2,330	LQM/CIEH
Lead	200	C4SL
Elemental Mercury	1	SGV
Inorganic Mercury	170	SGV
Nickel	130	LQM/CIEH
Selenium	350	SGV
Zinc	3,750	LQM/CIEH
Hydrocarbons		
Benzene	0.34	C4SL
Toluene	320	SGV
Ethyl Benzene	180	SGV
Xylene	120	SGV
Aliphatic C5-C6	55	LQM/CIEH
Aliphatic C6-C8	160	LQM/CIEH
Aliphatic C8-C10	46	LQM/CIEH
Aliphatic C10-C12	230	LQM/CIEH
Aliphatic C12-C16	1700	LQM/CIEH
Aliphatic C16-C35	64,000	LQM/CIEH
Aromatic C6-C7	See Benzene	LQM/CIEH
Aromatic C7-C8	See Toluene	LQM/CIEH
Aromatic C8-C10	65	LQM/CIEH
Aromatic C10-C12	160	LQM/CIEH
Aromatic C12-C16	310	LQM/CIEH
Aromatic C16-C21	480	LQM/CIEH
Aromatic C21-C35	1100	LQM/CIEH
PRO (C_5 –C_{10})	646	Calc
DRO (C_{12} –C_{28})	66,490	Calc
Lube Oil (C_{28} –C_{44})	65,100	Calc
TPH	**1000**	Trigger for speciated testing

Contaminant	Screening Value mg/kg	Data Source
Anions		
Soluble Sulphate	0.5 g/l	Structures
Sulphide	50	Structures
Chloride	400	Structures
Others		
Organic Carbon (%)	6	Methanogenic potential
Total Cyanide	140	WRAS
Total Mono Phenols	290	SGV
PAH		
Naphthalene	5.30	Rev. LQM/CIEH
Acenaphthylene	400	LQM/CIEH
Acenaphthene	480	LQM/CIEH
Fluorene	380	LQM/CIEH
Phenanthrene	200	LQM/CIEH
Anthracene	4,900	LQM/CIEH
Fluoranthene	460	LQM/CIEH
Pyrene	1,000	LQM/CIEH
Benzo(a) Anthracene	6.7	Rev. LQM/CIEH
Chrysene	11	Rev. LQM/CIEH
Benzo(b) Fluoranthene	9.5	Rev. LQM/CIEH
Benzo(k) Fluoranthene	14.1	Rev. LQM/CIEH
Benzo(a) pyrene	4.40	C4SL
Indeno(1 2 3 cd) Pyrene	5.6	Rev. LQM/CIEH
Dibenzo(a h) Anthracene	1.27	Rev. LQM/CIEH
Benzo (g h i) Perylene	69	Rev. LQM/CIEH
Screening value for PAH	**62.9**	B(a)P / 0.15
Chlorinated Solvents		
1,1,1 trichloroethane (TCA)	12.9	LQM/CIEH
tetrachloroethane (PCA)	2.1	LQM/CIEH
tetrachloroethene (PCE)	2.1	LQM/CIEH
trichloroethene (TCE)	0.22	LQM/CIEH
1,2-dichloroethane (DCA)	0.008	LQM/CIEH
vinyl chloride (Chloroethene)	0.00064	LQM/CIEH
tetrachloromethane (Carbon tetra	0.039	LQM/CIEH
trichloromethane (Chloroform)	1.3	LQM/CIEH

Notes

Concentrations measured below the above values may be considered to represent 'uncontaminated conditions' which pose 'LOW' risk to human health. Concentrations measured in excess of these valuesindicate a potential risk which require further, site specific risk assessment.

SGV - Soil Guideline Value, derived from the CLEA model and published by Environment Agency 2009

LQM/CIEH - Generic Assessment Criteria for Human Health Risk Assessment 2nd edition (2009)derived using CLEA 1.04 model 2009

C4SL - Defra Category 4 Screening value based on Low Level of Toxicological Risk

Rev LQM/CIEH calculated using C4SL revisions to exposure assessment but LQM/CIEH health croiteria values

Calc - sum of nearest available carbon range specified including BTEX for PRO fraction

B(a)P / 0.15 - GEA experince indicates that Benzo(a) pyrene (one of the most common and most carcenogenic of the PAHs) rarely exceeds 15% of the total PAH concentration, hence this Total PAH threshold is regarded as being conservative

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
35611722_1_1

Customer Reference:
J11158

National Grid Reference:
526640, 184960

Slice:
A

Site Area (Ha):
0.14

Search Buffer (m):
1000

Site Details:

6 Nutley Terrace
LONDON
NW3 5BX

Client Details:

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

Prepared For:

Mr Omar Shafi

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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Natural England Copyright Notice

Ove Arup Copyright Notice

Peter Brett Associates Copyright Notice

Radon Potential dataset Copyright Notice

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		1	5	11
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	pg 3				37
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 10				1 (*2)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 10	Yes	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 10	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones	pg 10			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 12				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 12			2	
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 13	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 13	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 13	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 13		Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 13	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 14		7	32	136
Fuel Station Entries	pg 28			1	2

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	pg 29				1
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: 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	A13NE (E)	224	1	526872 184985
2	**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	A8NW (S)	408	1	526471 184554
2	**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	A8NW (S)	408	1	526471 184554
3	**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	A12SE (W)	447	1	526178 184902
3	**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	A12SE (W)	457	1	526167 184924
4	**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	A12SE (SW)	456	1	526257 184662
5	**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	A14NW (NE)	589	1	527187 185227

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	A8NE (S)	646	2	526812 184310
7	**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	A8SW (S)	663	1	526626 184270
8	**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)	698	1	527342 185055
8	**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)	725	1	527371 185032
9	**Local Authority Pollution Prevention and Controls** Name: The Royal Free Hospital Location: Pond Street, LONDON, NW3 2QG Authority: London Borough of Camden, Pollution Projects Team Permit Reference: Not Given Dated: 24th July 1992 Process Type: Local Authority Air Pollution Control Description: PG5/1Clinical waste incineration processes under 1 tonne an hour **Status: Authorisation revokedRevoked** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	773	1	527296 185410
10	**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	A18NW (N)	781	1	526374 185724
11	**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	A7SE (SW)	888	1	526237 184134

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**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	A7SE (SW)	891	1	526262 184119
12	**Local Authority Pollution Prevention and Controls** Name: Chequers Textile Care Ltd Location: 48 Englands Lane, London, Nw3 4ue Authority: London Borough of Camden, Pollution Projects Team Permit Reference: PPC/DC47 Dated: 5th December 2006 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A9NE (SE)	919	1	527498 184580
13	**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)	968	1	526352 184004
	Nearest Surface Water Feature	A8NE (S)	638	-	526760 184307
14	**Registered Radioactive Substances** Name: Royal Free Hampstead NHS Trust Location: Royal Free Hospital, Pond Street, Hampstead, LONDON, Greater London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: AV8011 Dated: 25th October 1996 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variationSuperseded** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	764	3	527292 185400
14	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, Hampstead, LONDON, Greater London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: AT8398 Dated: 17th January 1996 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variationSuperseded** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	767	3	527292 185405
14	**Registered Radioactive Substances** Name: Royal Free And University College Medical School Of University College London Location: Royal Free Hospital, Pond Street, London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bz9758 Dated: 5th January 2006 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Application has been authorised and any conditions apply to the operatorAuthorised** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	769	3	527299 185399

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
14	**Registered Radioactive Substances** Name: Royal Free And University College Medical School Of University College London Location: Royal Free Hospital, Pond Street, London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: By6010 Dated: 3rd August 2005 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variationSuperseded** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	769	3	527299 185399
14	**Registered Radioactive Substances** Name: Royal Free And University College Medical School Of University College London Location: Royal Free Hospital, Pond Street, London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bw7635 Dated: 1st December 2003 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variationSuperseded** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	769	3	527299 185399
14	**Registered Radioactive Substances** Name: Royal Free And University College Medical School Of University College London Location: Royal Free Hospital, Pond Street, London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: Bj5694 Dated: 14th February 2001 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variationSuperseded** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	769	3	527299 185399
14	**Registered Radioactive Substances** Name: Royal Free Hampstead Nhs Trust Location: Royal Free Hospital, Pond Street, Hampstead, LONDON, Greater London, NW3 2QG Authority: Environment Agency, Thames Region Permit Reference: AR0446 Dated: 12th July 1995 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Substantial variation to authorisation under RSA **Status: Authorisation superseded by a substantial or non substantial variationSuperseded** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	769	3	527292 185410
14	**Registered Radioactive Substances** Name: Anthony Nolan Trust (Ant) Location: Fleet Road, London, NW3 2QR Authority: Environment Agency, Thames Region Permit Reference: CB1915 Dated: 2nd October 2007 Process Type: Registration under S7 RSA for the keeping and use of Radioactive materials (was RSA60 S1) Description: Minor variation to a registration under the Act of an open source which is also the subject of an authorisation **Status: Application has been authorised and any conditions apply to the operatorAuthorised** Positional Accuracy: Manually positioned to the address or location	A19SW (NE)	773	3	527296 185410

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	**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	A8SE (S)	672	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	A4NE (SE)	1591	3	527640 183690
	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	A4NE (SE)	1591	3	527640 183690
	Groundwater Vulnerability Soil Classification: Not classified Map Sheet: Sheet 39 West London Scale: 1:100,000	A13SW (NW)	0	3	526637 184960
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Desination: Unproductive Strata	A13SW (NW)	0	4	526637 184960
	Superficial Aquifer Designations No Data Available				
17	**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.	A8NE (SE)	371	3	526819 184605
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flood Water Storage Areas None				
	Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
18	**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: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: DON009	A12SE (W)	566	3	526071 184814
	Local Authority Landfill Coverage Name: London Borough of Camden - Has no landfill data to supply		0	6	526637 184960
19	**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.	A12SE (W)	451	3	526200 184780
19	**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	A12SE (W)	451	3	526200 184780

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: London Clay	A13SW (NW)	0	4	526637 184960
	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	A13SW (NW)	0	4	526637 184960
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	10	4	526637 185000
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	4	526637 184960
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	10	4	526637 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	A13SW (NW)	0	4	526637 184960
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	10	4	526637 185000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	4	526637 184960
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	10	4	526637 185000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	61	4	526660 185050
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	4	526637 184960
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	10	4	526637 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	A13SW (NW)	0	4	526637 184960
	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	A13SW (NW)	0	4	526637 184960

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	**Contemporary Trade Directory Entries** Name: Continental Autos Location: 10, Daleham Mews, London, NW3 5DB Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	100	-	526749 184917
20	**Contemporary Trade Directory Entries** Name: Daleham Garage Location: 14, Daleham Mews, London, NW3 5DB Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	107	-	526749 184894
20	**Contemporary Trade Directory Entries** Name: Comac Motors Location: 19, Daleham Mews, London, NW3 5DB Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (E)	122	-	526770 184911
20	**Contemporary Trade Directory Entries** Name: Auto Reliant Suspension Co Location: 25, Daleham Mews, London, NW3 5DB Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	128	-	526768 184884
20	**Contemporary Trade Directory Entries** Name: Mr Lewis Cohens Fry Cleaning Co Location: 90, Belsize Lane, London, NW3 5BE Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	148	-	526784 184870
21	**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	A13SW (W)	202	-	526425 184896
22	**Contemporary Trade Directory Entries** Name: Pyramid Location: 52, Belsize Lane, London, NW3 5AR Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (E)	226	-	526874 184984
23	**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)	360	-	526308 184759
23	**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 (SW)	362	-	526319 184738
24	**Contemporary Trade Directory Entries** Name: Clean 4 You Location: 55, Belsize Park, London, NW3 4EE Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (S)	363	-	526650 184571
25	**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	A12NE (W)	371	-	526253 184987
26	**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	A13SW (SW)	379	-	526376 184647

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
27	**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	A12SE (SW)	402	-	526286 184714
27	**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	A12SE (SW)	402	-	526286 184714
27	**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	A12SE (SW)	403	-	526293 184703
28	**Contemporary Trade Directory Entries** Name: Bp Hampstead Service Station Location: A, 104, Finchley Road, London, NW3 5EY Classification: Petrol Filling Stations - 24 Hour **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (S)	408	-	526471 184554
29	**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	A12SE (W)	417	-	526207 184939
30	**Contemporary Trade Directory Entries** Name: Snappy Snaps Location: 189, Finchley Road, London, NW3 6LB Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (SW)	437	-	526365 184581
30	**Contemporary Trade Directory Entries** Name: Robert Dyas Ltd Location: 183, Finchley Road, London, NW3 6LB Classification: Hardware **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (SW)	446	-	526368 184568
30	**Contemporary Trade Directory Entries** Name: H Khan Location: 17, Goldhurst Terrace, London, NW6 3HX Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (SW)	484	-	526333 184546
30	**Contemporary Trade Directory Entries** Name: Silk Dry Cleaner Location: 17, Goldhurst Terrace, London, NW6 3HX Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (SW)	484	-	526333 184546
30	**Contemporary Trade Directory Entries** Name: Silk Dry Cleaning Location: 17, Goldhurst Terrace, London, NW6 3HX Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (SW)	484	-	526333 184546
31	**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	A12SE (SW)	445	-	526251 184691
31	**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	A12SE (SW)	445	-	526251 184691

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
31	**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	A12SE (SW)	458	-	526255 184661
31	**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	A12SE (SW)	472	-	526222 184685
32	**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	A12SE (W)	451	-	526174 184901
32	**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	A12SE (W)	451	-	526174 184901
33	**Contemporary Trade Directory Entries** Name: Kwik-Fit Location: 1, Northways Parade, London, NW3 5EN Classification: Tyre Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (S)	453	-	526596 184482
33	**Contemporary Trade Directory Entries** Name: Speedway Autocare Ltd Location: 1, Northways Parade, London, NW3 5EN Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (S)	453	-	526596 184482
34	**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	A12NE (W)	455	-	526169 185011
34	**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	A12NE (W)	455	-	526169 185011
34	**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	A12NE (W)	455	-	526169 185011
34	**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	A12NE (W)	484	-	526143 185037
34	**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	A12NE (W)	484	-	526143 185037
34	**Contemporary Trade Directory Entries** Name: Clean Line Location: 307c Finchley Rd, London, NW3 6EH Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12NE (W)	501	-	526124 185020

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
35	**Contemporary Trade Directory Entries** Name: Agfa-Digital Photosnap Ltd Location: 171, Finchley Road, London, NW3 6LB Classification: Photographic Processors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (SW)	459	-	526419 184522
36	**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	A12SE (W)	461	-	526164 184922
36	**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	A12SE (W)	467	-	526157 184941
36	**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	A12SE (W)	479	-	526145 184945
36	**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	A12SE (W)	502	-	526122 184934
37	**Contemporary Trade Directory Entries** Name: Trans-World Trading Ltd Location: 24, Northways Parade, London, NW3 5DN Classification: Photographic Equipment & Supplies - Wholesale **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (S)	505	-	526630 184429
37	**Contemporary Trade Directory Entries** Name: Smart Choice Location: 23, Northways Parade, London, NW3 5DN Classification: Dry Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (S)	505	-	526630 184429
38	**Contemporary Trade Directory Entries** Name: Cleanline Location: First Floor, 307, Finchley Road, London, NW3 6EH Classification: Commercial Cleaning Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (W)	515	-	526109 185007
38	**Contemporary Trade Directory Entries** Name: London Crystal Ltd Location: 307c, Finchley Road, London, NW3 6EH Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (W)	515	-	526109 185007
38	**Contemporary Trade Directory Entries** Name: Cleanline Location: 307C, Finchley Road, London, NW3 6EH Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12NE (W)	515	-	526109 185007
38	**Contemporary Trade Directory Entries** Name: Clean Line Location: 307c, Finchley Road, London, NW3 6EH Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12NE (W)	515	-	526109 185007
39	**Contemporary Trade Directory Entries** Name: Bonsai Breakdown Location: Flat 7, Noel House, Harben Road, London, NW6 4RL Classification: Car Breakdown & Recovery Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (S)	522	-	526510 184423

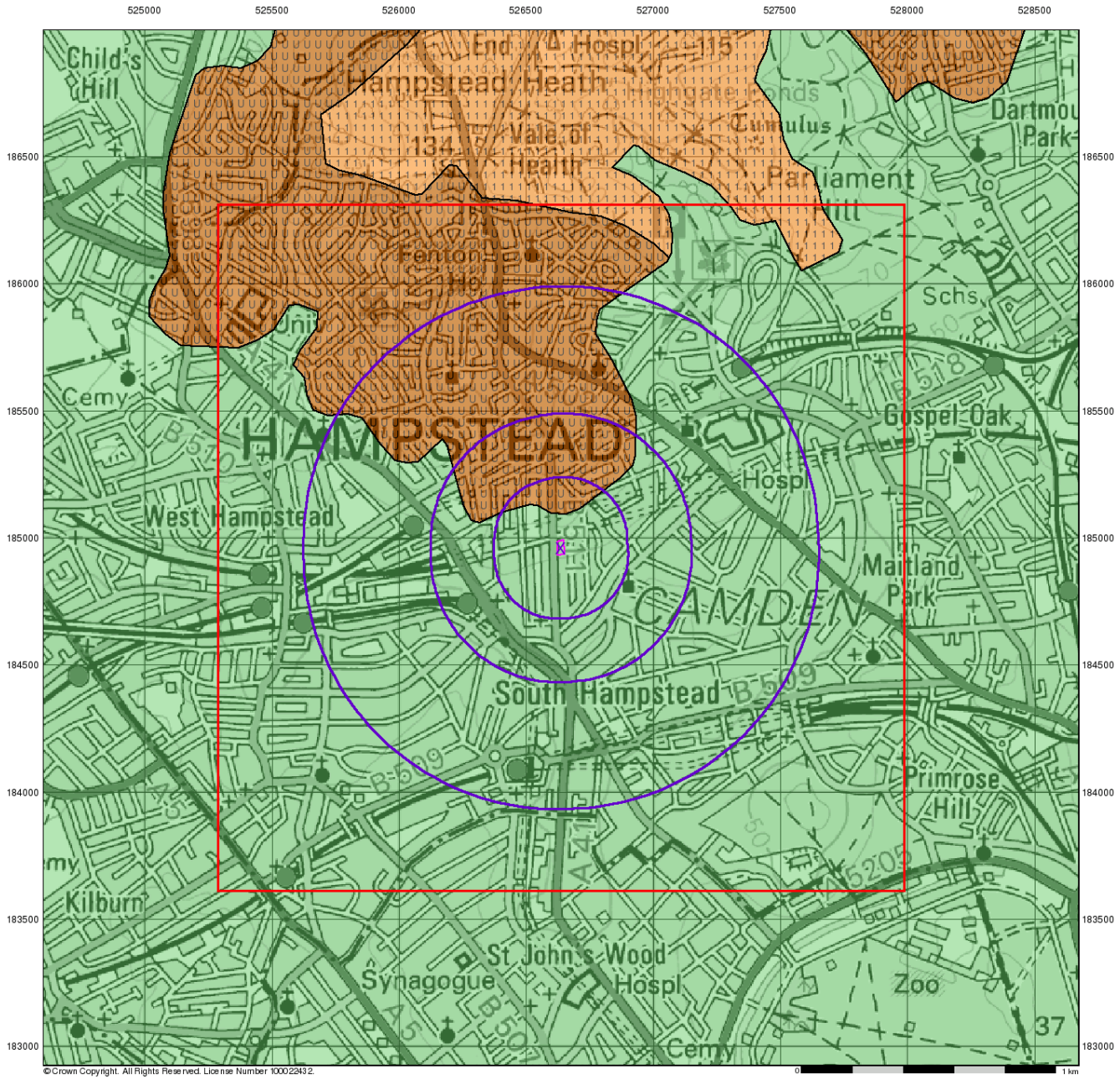
Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
91	**Contemporary Trade Directory Entries** Name: Francis Butlin Location: 73, Loudoun Road, London, NW8 0DQ Classification: Art Restoration & Picture Cleaning **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	977	-	526346 183997
91	**Contemporary Trade Directory Entries** Name: Thorne Henderson Location: 79, Loudoun Road, London, NW8 0DQ Classification: Distribution Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A8SW (S)	977	-	526346 183997
91	**Contemporary Trade Directory Entries** Name: Susan M Moore Fbapcr Location: 73, Loudoun Road, London, NW8 0DQ Classification: Art Restoration & Picture Cleaning **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	977	-	526346 183997
92	**Contemporary Trade Directory Entries** Name: Kronus (Uk) Ltd Location: 6, Park End, London, NW3 2SE Classification: Catering Equipment **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	980	-	527263 185752
93	**Contemporary Trade Directory Entries** Name: Mercedes Benz Location: Blackburn Road, London, NW6 1RZ Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (W)	986	-	525655 184753
94	**Contemporary Trade Directory Entries** Name: Maximus Property Services Ltd Location: 459, Finchley Road, LONDON, NW3 6HN Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A17SW (W)	995	-	525683 185306
94	**Contemporary Trade Directory Entries** Name: Curtains & Blinds Location: 459, Finchley Road, London, NW3 6HN Classification: Blinds, Awnings & Canopies **Status: Active** Positional Accuracy: Automatically positioned to the address	A17SW (W)	995	-	525683 185306
95	**Contemporary Trade Directory Entries** Name: All Rubbish Cleared Location: Redington Rd, London, NW3 7QX Classification: Rubbish Clearance **Status: Active** Positional Accuracy: Manually positioned to the road within the address or location	A17NW (NW)	1000	-	525919 185694
96	**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	A8NW (S)	408	-	526471 184554
97	**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	A14NW (NE)	589	-	527187 185227
98	**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	A8SW (S)	993	-	526423 183961

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
99	**Local Nature Reserves** Name: Belsize Wood Multiple Area: N Area (m2): 2722.98 Source: Natural England Designation Date: 1st October 2004	A14NE (E)	866	5	527479 185232

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
-	**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

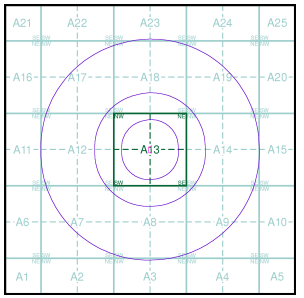
General

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

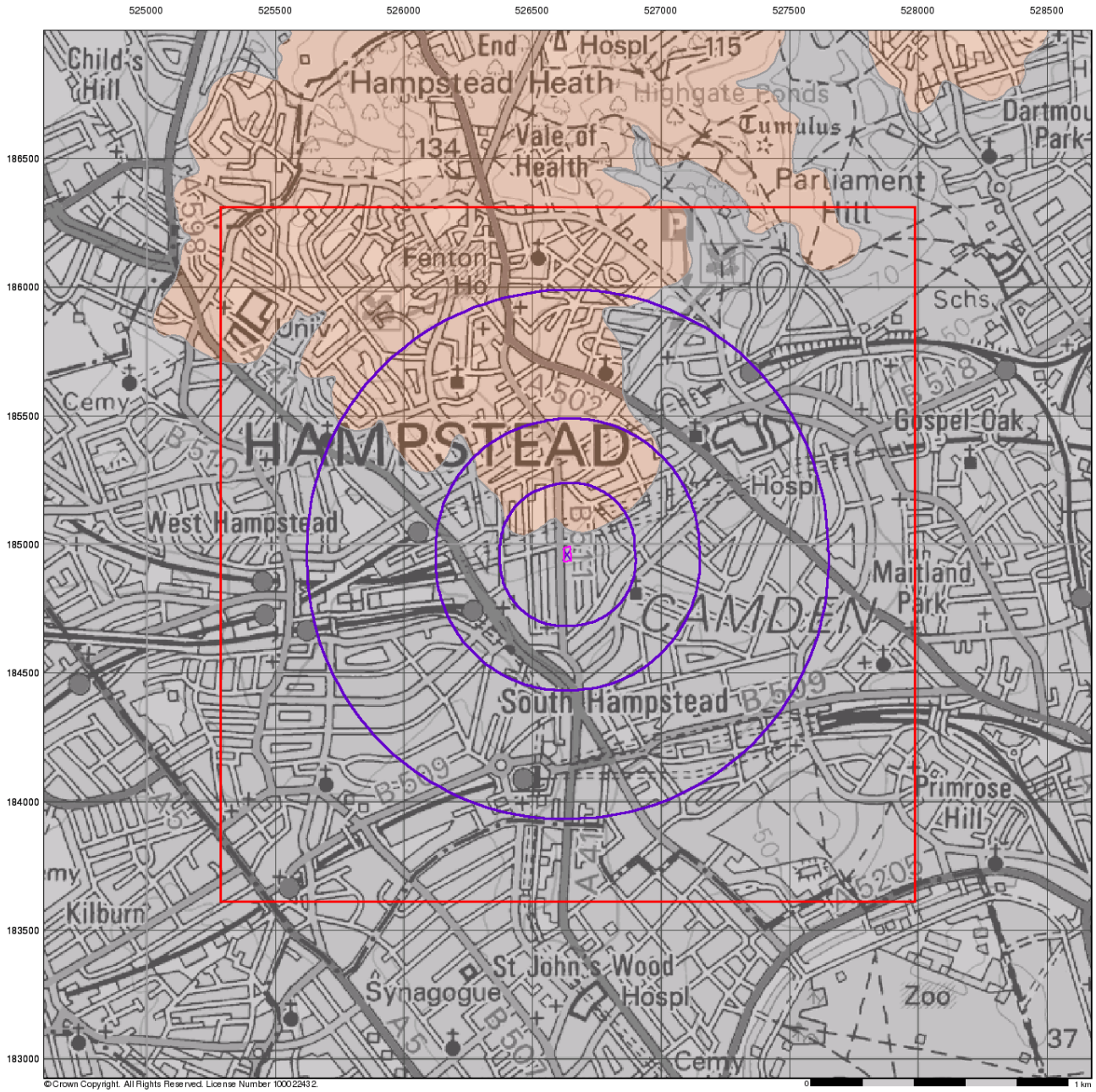


Order Details

Order Number:	35611722_1_1
Customer Ref:	J11158
National Grid Reference:	526640, 184960
Slice:	A
Site Area (Ha):	0.14
Search Buffer (m):	1000

Site Details

6 Nutley Terrace, LONDON, NW3 5BX



GEA Geotechnical & Environmental Associates

Bedrock Aquifer Designation

General

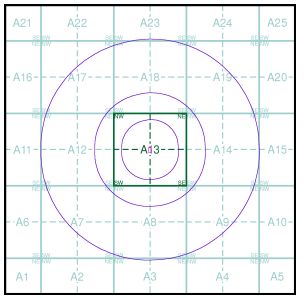
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



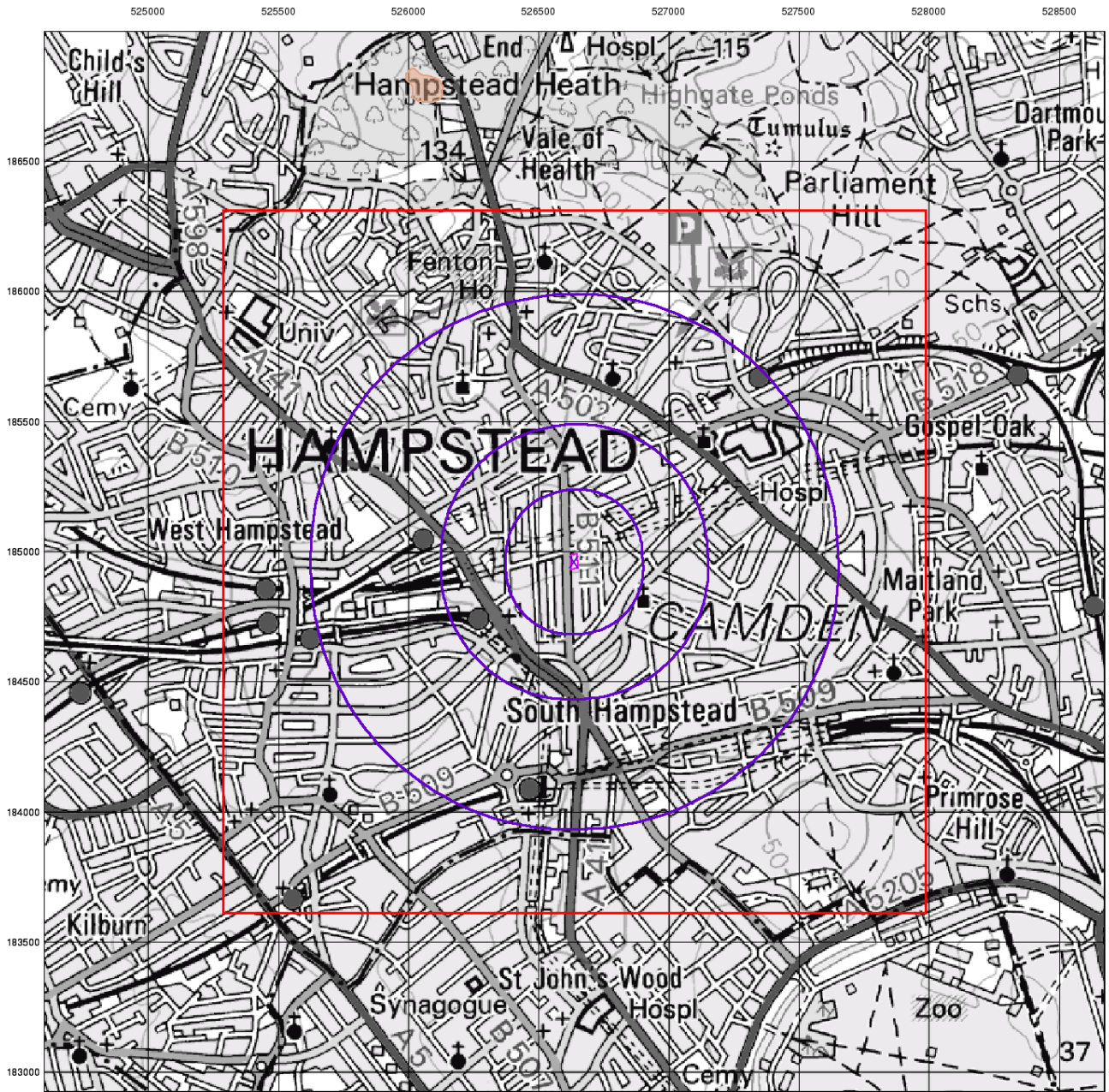
Order Details

Order Number:	35611722_1_1
Customer Ref:	J11158
National Grid Reference:	526640, 184960
Slice:	A
Site Area (Ha):	0.14
Search Buffer (m):	1000

Site Details

6 Nutley Terrace, LONDON, NW3 5BX

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



GEA Geotechnical & Environmental Associates

Superficial Aquifer Designation

General

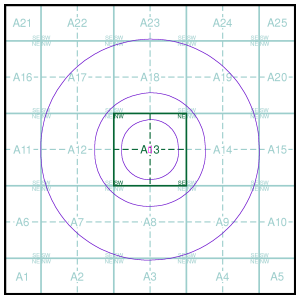
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

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

Order Number:	35611722_1_1
Customer Ref:	J11158
National Grid Reference:	526640, 184960
Slice:	A
Site Area (Ha):	0.14
Search Buffer (m):	1000

Site Details

6 Nutley Terrace, LONDON, NW3 5BX

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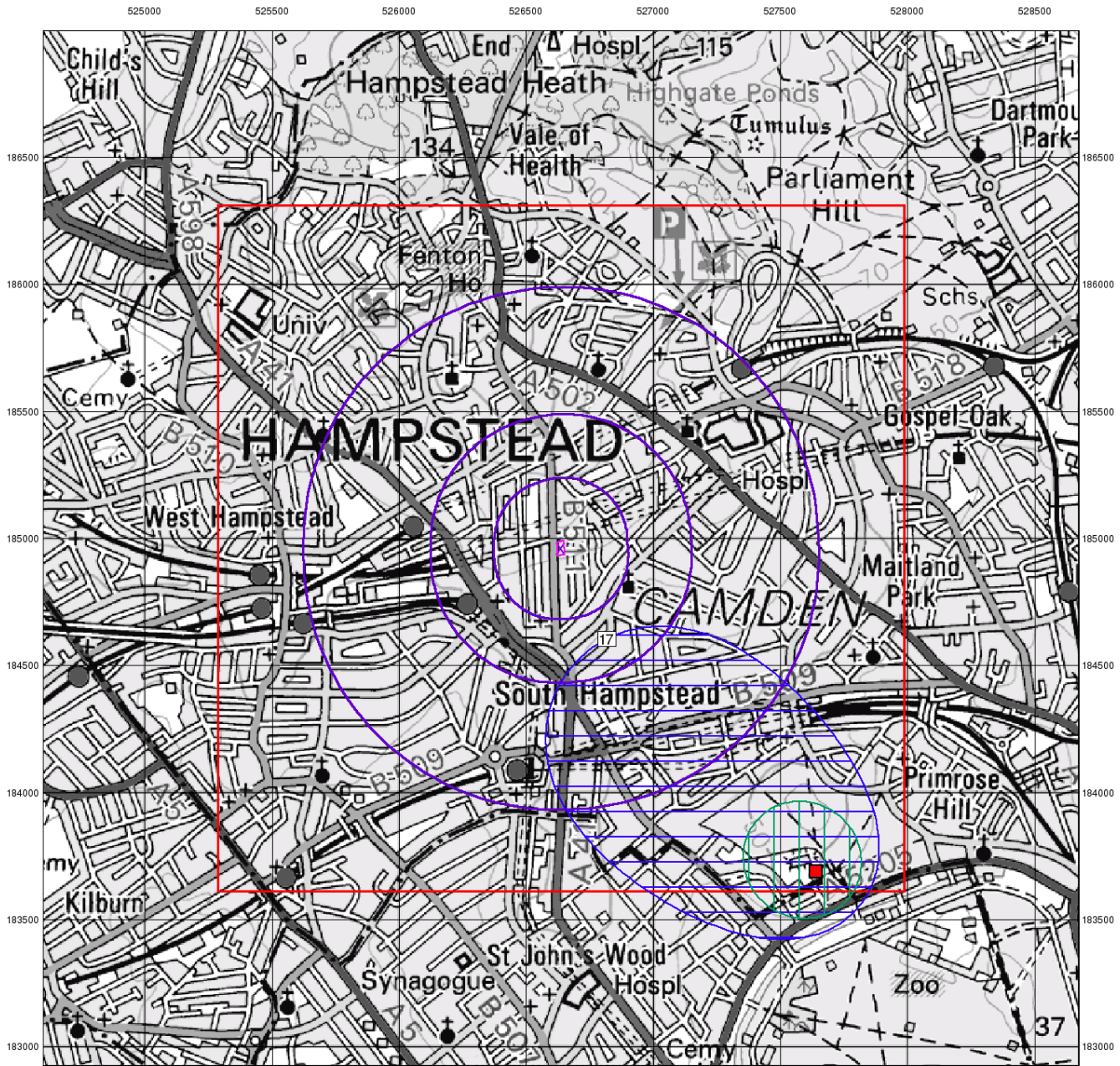


GEA Geotechnical & Environmental Associates

Source Protection Zones

General

Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Agency and Hydrological

Source Protection Zone I

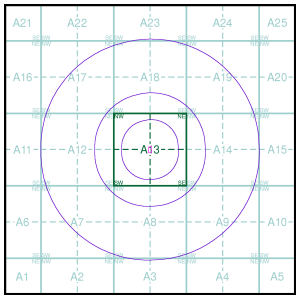
Source Protection Zone II

Source Protection Zone III

Zone of Special Interest

Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A



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