

## D Phase 1 Preliminary Risk Assessment

# Site Analytical Services Ltd.

Site Investigations, Analytical & Environmental Chemists, Laboratory Testing Services.



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Your Ref:

Our Ref: **13/20821-1**  
**August 2013**

**50 AVENUE ROAD,  
CAMDEN, LONDON NW8 6HS**

## PHASE 1 PRELIMINARY RISK ASSESSMENT

Prepared for

**Elliott Wood Partnership LLP**

Acting on behalf of

**The Shri Krishna Trust**

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Site Analytical Services Ltd.

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**EXECUTIVE SUMMARY**

|  |  |
|--|--|
| <b>Site Location</b>                   | 50 Avenue Road, Camden, London, NW8 6HS  |
| <b>Client</b>                          | The Shri Krishna Trust C/O HSBC Trustee (C.I.) Limited   |
| <b>Consulting Engineers</b>            | Elliott Wood Partnership LLP   |
| <b>Proposed Development</b>            | It is proposed to construct a new two storey basement beneath the footprint of the property and part of the garden and rebuild a three storey house over. The basement in the garden will be up to two and a half storeys below the existing garden due to a swimming pool at lower basement level   |
| <b>Historic and Current Activities</b> | From a review of the historical maps it would appear that the site was occupied by a large a large detached building with front and rear gardens from 1871 (the date of the earliest available OS map) and has not changed in use to the present day, although rebuilding and/or extensions are evident to the main building in circa 1954-1967.   |
| <b>Environmental Setting</b>           | The 1:50000 Geological Survey of Great Britain (England and Wales) covering the area (Sheet 256, 'North London', Solid & Drift Edition) indicates the site to be underlain by Eocene London Clay Formation. However, Superficial Head Deposits are located to the east and west of the site.<br><br>The BGS 1:625000 Solid Geology Deposits indicate the site to be underlain by the Eocene London Clay Formation.<br><br>The site has been classified as being situated above a Non Aquifer and within a Zone II (Outer Groundwater Protection Zone)<br><br>The nearest surface water is recorded as a pond, 490m north-west of the site. |
| <b>Potential Contamination Sources</b> | No potential sources   |
| <b>Previous Investigations</b>         | It is our understanding that no previous reports have been developed relating to the site.   |
| <b>Potential Risks</b>                 | There have not been any potential unacceptable risks identified on-site and therefore further investigation is not considered necessary.   |



**1.0 INTRODUCTION**

**1.1 Project Objectives**

At the request of the Elliott Wood Partnership LLP, Consulting Engineers, acting on behalf of the The Shri Krishna Trust C/O HSBC Trustee (C.I.) Limited, a preliminary risk assessment was carried out to develop an outline conceptual model and to establish whether or not there are any potentially unacceptable risks arising from potential contamination at the above site.

The information was required for a qualitative risk assessment of the potential for contamination at the site and to evaluate whether any remediation may be required for the protection of the end-user and other sensitive receptors from the presence of potential contamination.

The investigation is required by Camden Council and The Environment Agency under planning regulations.

The project objectives include the following aims:

- To assess the presence, extent and nature of potential risk of pollution to end-users of the site, controlled waters and other potentially sensitive receptors.
- To undertake a qualitative environmental risk assessment of the site and surroundings.
- To identify further works, if any, needed to further assess, manage or mitigate any potential risks.
- To provide information relevant for planning approval.

**1.2 Scope of works**

A preliminary risk assessment comprising a Phase 1 Land Quality Assessment (a desk study and site survey) has been undertaken and is summarised as follows:

- A review of current activities and conditions at the site based on information from the Client, regulatory data and the results of a site walkover survey.
- A review of the history of the site and surrounding area from historical maps and available anecdotal information.
- An assessment of geological, hydrological and hydrogeological information pertaining to the site.
- The development of a site conceptual model identifying potential sources, pathways, receptors and linkages, a preliminary qualitative risk assessment and identification of unacceptable risks.
- Recommendations for further works if necessary.





The recommendations and comments given in this report are based on the information contained from the sources cited and may include information provided by the Client and other parties including anecdotal information. It must be noted that there may be special conditions prevailing at the site which have not been disclosed by the investigation and which have not been taken into account in the report. No liability can be accepted for any such conditions.

This report does not constitute a full environmental audit of either the site or its immediate environs.

### 1.3 Details of research undertaken

A number of database searches have been undertaken, soliciting information of the current and historical uses of the site and surrounding area in order to complete a qualitative risk assessment associated with the development of the site. These include:

- Environmental Data Search 1:10000
- Environmental Data Search 1:2500
- Site Sensitivity Maps and Data Sheets
- Historical Maps
- Local Council consultation
- Consultation with the Client / Architect / Site representatives.



## 2.0 SITE DETAILS

(National Grid Reference: TQ 270 837)

### 2.1 Site Location

The site is situated at an existing residential property at 50 Avenue Road, London, NW8 6HS; a site location plan is shown in Appendix A. The existing usage of the site is an existing large detached house and extensive rear garden and covers an area of approximately 0.13 hectares with the general area being under the authority of Camden Council.

### 2.2 Surrounding land uses

The site is bordered by Avenue Road to the south-west and further residential properties to the west, east and north. Primrose Hill is situated further to the east and the general area is essentially residential in use with some schools in the local area.

### 2.3 Site Walkover

The site was attended on 31<sup>st</sup> July 2013 for the purposes of conducting the site walkover.

The site comprises of an extensive three-storey detached house with a large rear garden and gated driveway from Avenue Road. The rear garden is mainly set to lawn space and flower beds and small shrubs. The garden is bordered by a low brick wall with some large trees present at the end of the garden. A small wooden summer house is present at the end of the garden. The main house has a large gated driveway at the front, including a small raised lawn and hedge.

The site itself is essentially flat, although there is a general slight slope across the site from north-west to south-east away from Primrose Hill down towards the Thames Basin.

There were no potentially contaminating activities on the site and the house and garden appeared to be well managed.

### 2.4 Details of intended future uses of the site

It is proposed to construct a new two storey basement beneath the footprint of the property and part of the garden.

### 2.5 References of planning applications

The most recent planning application for the site was made to Camden Council under Application Number 2007/2148/T dated 8<sup>th</sup> May 2007 concerned with works to trees on the site.





### 3.0 INFORMATION ON HISTORICAL AND CURRENT ACTIVITIES ON-SITE AND SURROUNDING AREA

#### 3.1 Historical Maps

The site history was compiled from information available from a series of past Ordnance Survey maps (scale 1:1056, 1:2500 and 1:10000), details of which are presented in Appendix C.

- 1871** The first available map of the area indicates that the site is occupied by a large detached residential building with front and rear garden areas. The general area is residential in nature and the local streets (including Avenue Road) are in place. A pond is detailed 100m east of the site.
- 1896** The site remains essentially unchanged since 1871 although a small outbuilding, possibly a shed, is detailed in the garden area. The pond is no longer labelled to the east of the site and has presumably been infilled. An air shaft is detailed 200m north of the site associated with the underlying (existing) Primrose Hill tunnels.
- 1915** The small outbuilding is no longer detailed on the site. The majority of the open ground to the north and east of the site has now been developed with the construction of large mainly detached houses and the extension of Elsworthy Road.
- 1935** The site and general area is relatively unchanged as of 1915.
- 1954** The building on-site has been either rebuilt or extended to the north-west, although the general area is relatively unchanged since 1915. Primrose Hill tunnels are now indicated about 150m north of the site passing from east to west and include the air shaft previously shown. Much of the housing from about 90m west of the site around St Johns Wood Park is indicated as ruins, presumably as a result of bomb damage during World War II.
- 1960** The site remains essentially the same as of 1954. The buildings to the north of the site are shown to have been demolished. Schools are now located from about 200m north of the site.
- 1967** The building on-site has been rebuilt into its existing 'square-shaped' layout. The redevelopment of housing on land from to the west of the site has been completed.



- 1991** The site and immediate areas experience only minor changes since 1967.
- 2011** The site remains unchanged as of 1991 and there has been very little change to the general area.

From a review of the historical maps it would appear that the site was occupied by a large a large detached building with front and rear gardens from 1871 (the date of the earliest available OS map) and has not changed in use to the present day, although rebuilding and/or extensions are evident to the main building circa 1954-1967.

#### 3.2 Present Use and Activities

There are no entries in the contemporary trade directories on-site or within 250m of the site, 16 within 500m and 128 within one kilometre of the site.

The closest contemporary entry to the site relates to inactive waste disposal services located 399m south of the site. The remaining entries were all over 400m from the site and consist mainly of dry cleaning services, automotive services, small scale light industrial and retail businesses and are unlikely to generate sufficient levels of mobile contamination to impact on the site.

There have been four fuel station entries within one kilometre of the site, the closest being located 608m west of the site and is classified as obsolete.

There are no Control of Major Accident Hazards (COMAH) sites, Explosive sites or Notification of Installations Handling Hazardous Substances (NIHHS) sites, Planning Hazardous Substance Consents or Enforcements within one kilometre of the site.

There have been 19 local authority pollution prevention and controls found within one kilometre of the site. However, only two local authority pollution prevention and controls have been located within 500m and relate to dry cleaning services 436m south-west and 481m south of the site.

#### 3.3 Landfill Sites and Waste

There are no BGS Recorded Landfill Sites, Historical Landfill Sites, Integrated Pollution Control Registered Waste Sites, Licensed Waste Management Facilities, Local Authority Recorded Landfill Sites, Registered Landfill Sites, Registered Waste Transfer Sites and Registered Waste Treatment or Disposal Sites within 1km of the site.

#### 3.4 Radon

The National Radon Protection Board states that less than one percent of homes are above the Action Level (200Bqm<sup>-3</sup>). The British Geological Survey recommends that no Radon protection measures are necessary at the location of the site.





### 3.5 Pollution Incidents and Discharge Consents

There have been three pollution incidents to controlled waters within 1km of the site. The nearest incident was located 642m south of the site and was classified as a minor incident relating to an oil pollutant with the other two incidents also classified as minor incidents.

There have been six registered radioactive substances located within 1km of the site, all being located between 706m and 846m south of the site and associated with the Wellington Hospital.

There is only one discharge consent within 1km of the site being located 592m south-east of the site. This incident related to the discharge of trade effluent into a fresh water stream.

The listed incidents are not expected to have an impact on the site.

### 3.6 Identification of potential contaminants of concern and source areas

| Dates  | Feature       | Distance and Direction from the site (m) | Potential Contaminants | Potential impact on the site?                                       |
|--------|---------------|--|------------------------|---|
| 1890's | Infilled Pond | 100m E                                   | Land gas               | Due to the age of the infilled pond the risk is seen as negligible. |

## 4.0 ENVIRONMENTAL SETTINGS

### 4.1 Geology

The 1:50000 Geological Survey of Great Britain (England and Wales) covering the area (Sheet 256, 'North London', Solid & Drift Edition) indicates the site to be underlain by the Eocene London Clay Formation. However, Superficial Head Deposits are located to the east and west of the site.

The BGS 1:625000 Solid Geology Deposits indicate the site to be underlain by the Eocene London Clay Formation.

The records of the British Geological Survey indicate that the site is at no risk from compressible ground stability hazards, mining instability, ground dissolution stability hazards and running sand ground stability hazards and at very low risk from collapsible or landslide ground stability hazards. The site is classified as being at moderate risk from shrinking and swelling clay ground stability hazards.



### 4.2 Hydrogeology

The Environment Agency Groundwater Protection Policy uses aquifer designations that are consistent with the Water Framework Directive. These designations reflect the importance of aquifers in terms of groundwater as a resource (drinking water supply) and also their role in supporting surface water flows and wetland ecosystems.

The bedrock geology underlying the site has been given a classification as unproductive.

The site has been classified as being situated above unproductive (negligibly permeable) formation that is generally regarded as containing insignificant quantities of groundwater. However, groundwater flow through such rocks, although unnoticeable, does take place and needs to be evaluated in assessing the risk associated with persistent pollutants.

The site is located within a Zone II (Outer Protection Zone) and 301m west of a Zone 1 (Inner Protection Zone) Groundwater Source Protection Zone which relates to a groundwater source 598m east of the site.

There are three groundwater abstractions located within 1km of the site and one within 500m. The nearest groundwater abstraction point is located 486m north-west of the site and relates to spray irrigation. The closest potable abstraction to the site is located 592m east and is operated by Thames Water Utilities Limited and relates to water supply being abstracted by means of deep boreholes down to the chalk.

It is considered that the possibility of persistent pollutants being present on-site could potentially impact on the development due to the location of the site above a Zone II Groundwater Source Protection Zone that could impact on the protected groundwater.

### 4.3 Hydrology and Drainage

The nearest surface water is recorded as pond, 490m north-west of the site.

There are no fluvial or tidal floodplains located within 1km of the site.

The site is located on non aquifer groundwater formations and a potential pathway for pollutants associated with surface run-off and infiltration to migrate to this feature is considered unlikely. Due to the distance of the pond from the site it is considered that any potential risk to the surface water feature would be very low.

### 4.4 Sensitive Land Use

There is a Local Nature Reserve (St. John's Wood Church Grounds) located 745m south of the site.





4.5 Summary of potential environmental receptors

| Receptor Type  | Receptor(s)                                   | Sensitivity | Comments   |
|----------------|---|-------------|--|
| Groundwater    | Unproductive                                  | Low         | Due to the non aquifer groundwater formations on-site, the risk is considered low. However, the site is located within a Source II (Outer Protection Zone) Groundwater Source Protection Zone and as such a potential risk to impact the protected groundwater source on the site cannot be completely discounted. |
| Surface water  | Pond (490m north-west of the site)            | Low         | Due to the distance of the pond from the site it is considered that the risk is Low  |
| Flooding       | On-site                                       | Low         | There are no fluvial or tidal floodplains located within 1km of the site.  |
| Sensitive Land | Local Nature Reserve (745m south of the site) | Low         | Due to the distance of the Local Nature Reserve from the site it is considered that the risk is low  |

5.0 INFORMATION ON SITE DRAINAGE AND MAN MADE POTENTIAL POLLUTANT PATHWAYS

The site is in use as a residential house and as such associated drainage is in place under and surrounding the site buildings. It is considered that the drainage on-site would not lead to a significant vertical migration of potential pollutants on-site, especially if laid in Clay soils.

There was no further information available regarding underground services at the site.



6.0 CONSULTATION WITH THE LOCAL AUTHORITY, THE ENVIRONMENT AGENCY, ETC.

Consultation with the Local Authority was undertaken via the council's online planning portal and did not indicate any further information. The Local Council have also been cited within the information of the Envirocheck report.

Consultation with the Environment Agency has not been undertaken, however the Environment Agency have been cited within the information of the Envirocheck report.

There was no additional consultation with other bodies/sources undertaken.

7.0 REVIEW AND SUMMARY OF PREVIOUS REPORTS

There have not been any previous reports available to us at the time of writing.

8.0 OUTLINE CONCEPTUAL MODEL

In accordance with current UK guidance on land contamination risk assessment (CLR 11, Science Report – SC050021/SR3 and BS10175), the following conceptual site model has been generated for the subject site.

The purpose of the conceptual model is to identify:

- All potential source(s) of contamination at and / or within the immediate vicinity of the site.
- Any potentially sensitive receptor(s) which may be at risk from the above source(s).
- Any potential migration and / or exposure pathways which link the source(s) to the receptor(s).

Only if all three of the above elements are present i.e. a source-pathway-receptor, is a potential risk present. Such a relationship is termed a 'pollutant linkage'. The SCM describes in detail any potentially significant pollutant linkages present and justifies the exclusion of any potential pollutant linkages considered to be non significant.





8.1 Contamination Sources

A review of the current and historical land uses indicated the potential contaminative land uses that may impact the site are similar to the following industries highlighted in DoE industry profiles for potential contaminants of concern.

On site sources:

- No significant sources

Off Site Sources

- No significant sources

8.2 Contaminants of Concern

There are no contamination sources similar to those highlighted in "DoE industry profiles for potential contaminants of concern" within 250m of the site.

8.3 Receptors

The receptors / resources considered to be affected by identified contamination during the assessment included the following:

- Construction workers
Future site residents
Building materials and services
Site flora / fauna

8.4 Pollutant Linkages

There are no hypothesised Source - Pathway - Receptor linkages for exposure to possible contaminants due to an absence of potential contamination sources on site or in the area.



9.0 IDENTIFICATION OF UNACCEPTABLE RISKS

Following the hypothesised Source - Pathway - Receptor linkages for exposure to possible contaminants as identified in the site conceptual model, the following possible unacceptable risks have been identified and further investigation of the site should be undertaken to confirm or refute the risk.

Table with 3 columns: Receptor, Pathway, Nature of Risk. Rows include Human Health (Inhalation, Direct contact, Workforce), Groundwater (Unproductive), Surface water (490m North West), Site Flora / Ecosystems (Plant uptake), and Buildings / Service Materials (Direct contact). All risks are listed as 'No Risk'.





**10.0 SUGGESTED NEXT STEPS**

The information from the preliminary risk assessment and site conceptual model has not identified any potential unacceptable risks relating to sensitive receptors on-site. As such no further investigation is recommended. This should be agreed with the Local Authority, Environment Agency and any other Interested Parties prior to commencement.

p.p. **SITE ANALYTICAL SERVICES LIMITED**

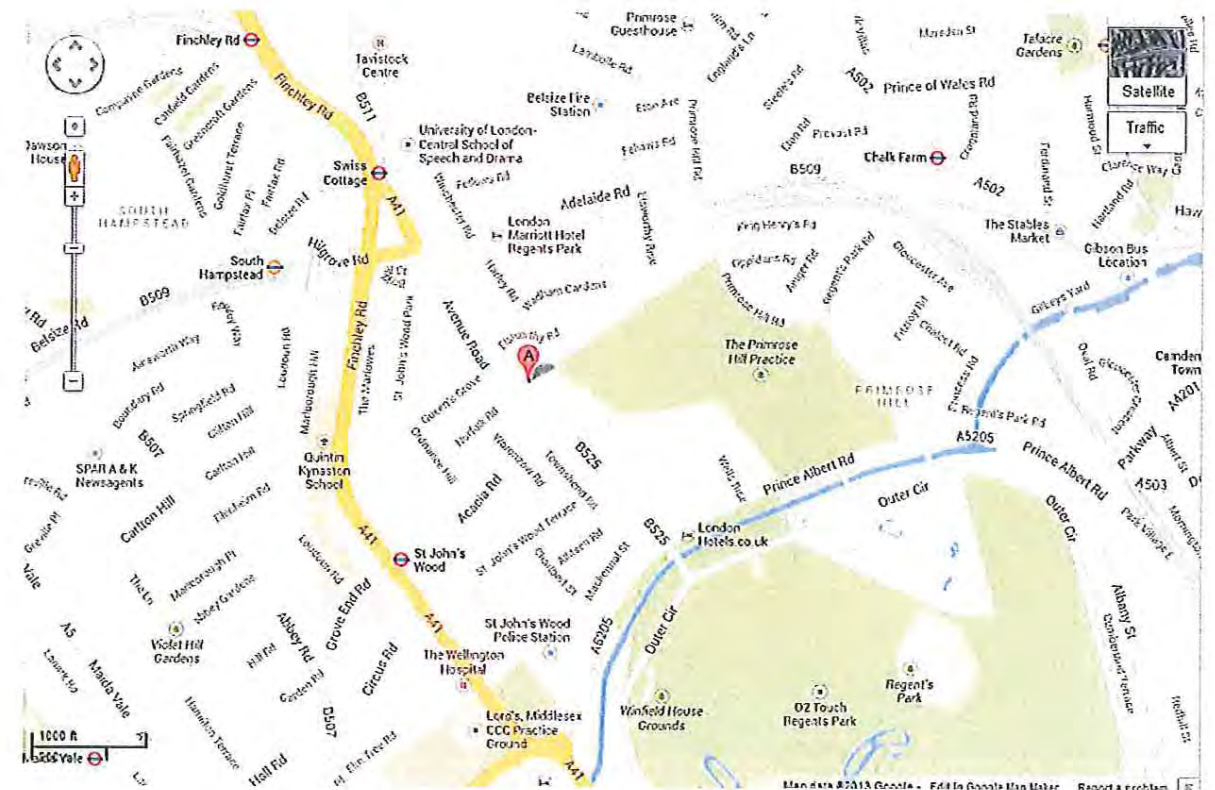
**A P Smith BSc (Hons) FGS  
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Environmental Engineer**



**Appendix A**

**Site location plan**



**50 Avenue Road, Camden, London, NW8 6HS**





Appendix B

Site Photographs

Photo 1- The property as viewed from Avenue Road



Photo 2 – Driveway and front of property adjacent to Avenue Road







Photo 3 – Large rear garden and lawn



Photo 4 – Rear garden bordered by large trees and shrubs

