

**BIA Stage 1 Screening &
Stage 2 Scoping Report**

Project Name: The Grove Lawn Tennis Club,
Cascade Avenue

Location: Haringey, London, N10 3PY

Client: Rok Enterprises One Ltd.

Project ID: J15256

Report ID: J15256-1

Report Date: 02 November 2022

Report Issue: 1

SUMMARY

The site is located between Cascade Avenue and The Chine in Haringey, London and comprises disused tennis courts (asphalt surfacing) which occupy the majority of the site and a small brick built pavilion building to the north of the site. It is proposed to redevelop the site with eight new three-storey properties with additional single-storey basement levels.

Geological records indicate the site to be underlain by London Clay Formation, which is classified as unproductive strata. The site is also mapped within an area of Head propensity which indicates an area most likely covered by quaternary head deposits. Information from nearby BGS boreholes (within the mapped London Clay Formation) indicate a thin covering of superficial Made Ground soil overlying silty clay of the London Clay Formation. An intrusive ground investigation should be undertaken to confirm the ground conditions beneath the site.

No groundwater levels are recorded for beneath the site. Three BGS boreholes within 325m of the site did not record groundwater up to 15m depth. One borehole located around 540m from the site recorded water at 21.3mbgl. The measurement of groundwater levels beneath the site would generally require long term monitoring and would need to be established as part of a Ground Investigation.

From the Envirocheck Report, the site is not shown within an area mapped at being at risk from groundwater, surface water fluvial or reservoir flood risk. However, no formal flood risk assessment has been carried out for the site and specialist advice should be sought in relation to potential flooding issues.

A desk study was carried out and indicated from the earliest mapping (1864) the site is shown as open land and part of Imperial Park. From 1913-1935 mapping the area surrounding the site underwent significant development with housing and from 1935 mapping the site itself is shown as tennis courts and a small building along the northern boundary; this is a similar layout to the current site layout. The tennis courts are now disused and slightly overgrown.

An Unexploded Ordnance (UXO) risk assessment was supplied to us prior to the ground investigation works being undertaken. The northernmost section of the site has been assessed as Medium Risk from German and anti-aircraft unexploded ordnance. There is also an assessed negligible risk from allied ordnance across the site.

A scoping exercise is provided in Section E and provides details on items that will require further investigation to assess their potential impacts on the proposed development.

Detailed information on the proposed development, such as detailed final layout, loadings and serviceability limits was not provided. Accordingly, where geotechnical design advice is provided it is on the prescriptive basis allowed for by Eurocode 7: employing conventional and conservative design rules.

The report was conducted and this report has been prepared for the sole internal use and reliance of Rok Enterprises One Ltd. and their appointed Engineers. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Southern Testing Laboratories Ltd. If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill.

The findings and opinions conveyed via this investigation report are based on information obtained from a variety of sources as detailed within this report, and which Southern Testing Laboratories Ltd. believes are reliable. Nevertheless, Southern Testing Laboratories Ltd. cannot and does not guarantee the authenticity or reliability of the information it has obtained from others.

Author	Vicky Francis BSc MSc FGS	
Check / Review	J N Race BSc MSc CGeol FGS	

DOCUMENT HISTORY AND STATUS

Issue No.	Date	Purpose or Status	Author	Check / Review
1	02/11/2022	First Issue	VF	JNR

TABLE OF CONTENTS

A	INTRODUCTION	1
1	Authority	1
2	Location	1
3	Proposed Construction	1
4	Object	1
5	Scope	1
B	DESK STUDY AND WALKOVER SURVEY	2
6	Desk Study	2
7	Site Walkover Survey	6
8	Underground Structures	7
C	PRELIMINARY SITE MODELS	7
9	Conceptual Engineering Geological Ground Model	7
D	SCREENING EXERCISE	9
10	Screening Framework	9
11	Subterranean Groundwater Flow	9
12	Land Stability	11
13	Surface Flow and Flooding	13
E	STAGE 2 – SCOPING EXERCISE	14

TABLE OF APPENDICES

APPENDIX A

Site Plans and Exploratory Hole Logs

APPENDIX B

Photographs

APPENDIX C

Phase 1 Desk Study – Historical Mapping

APPENDIX D

Phase 1 Desk Study – Environmental Database Search Results and Mapping

A INTRODUCTION

1 Authority

Our authority for carrying out this work is contained in a completed Southern Testing project order form signed by Mr G Borukhov on behalf of Rok Enterprises One Ltd., dated 2nd September 2022, in relation to our quotation STL ref. Q221118, dated 26th August 2022.

2 Location

The site is currently tennis courts located on Cascade Avenue in the London Borough of Haringey, approximately 1.1km north-east of Highgate Underground Station. The approximate National Grid Reference of the site is TQ 29067 89202. The site location is indicated on Figure 1 within Appendix A.

3 Proposed Construction

It is proposed to construct eight new three-storey properties with additional single-storey basement levels. Proposed development plans are provided in Appendix A.

4 Object

The object of the investigation was to produce a Desk Study and Walkover Survey in support of a Basement Impact Assessment (BIA) as part of the Client's planning application in accordance with the London Borough of Haringey. In addition to the Envirocheck report (Appendix D) and Historical Ordnance Survey Mapping (Appendix C), reference has been made to the following documents:

- Haringey Council Strategic Flood Risk Assessment (Draft Report) [1]
- Haringey Council Planning Regeneration & Economy; Draft Basement Development Guidance Note [2]

The purpose of the BIA is to enable the London Borough of Haringey to consider a scheme's potential impact on local drainage and flooding and on the structural stability of neighbouring properties through its effect on groundwater conditions and ground movement in accordance with their planning policies

5 Scope

This report presents our desk study findings and our interpretation of these data.

A UXO risk assessment supplied to us in advance of the investigation works being undertaken.

Contamination issues are not considered in this report.

The findings and opinions conveyed via this investigation report are based on information obtained from a variety of sources as detailed within this report, and which Southern Testing Laboratories Ltd. believes are reliable. Nevertheless, Southern Testing Laboratories Ltd. cannot and does not guarantee the authenticity or reliability of the information it has obtained from others.

The investigation was conducted and this report has been prepared for the sole internal use and reliance of Rok Enterprises One Ltd. and their appointed Engineers. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Southern Testing Laboratories Ltd. If an unauthorised third party comes into possession of this report they rely on it at their peril and the authors owe them no duty of care and skill.

The recommendations contained in this report may not be appropriate to alternative development schemes.

Detailed information on the proposed development, such as detailed final layout, loadings and serviceability limits was not provided. Accordingly, where geotechnical design advice is provided it is on the prescriptive basis allowed for by Eurocode 7: employing conventional and conservative design rules.

B DESK STUDY AND WALKOVER SURVEY

6 Desk Study

A desk study has been carried out. Reference has been made to the following information sources.

- Online Geological Maps Ref [3] & Ref [4]
- Online Hydrogeological Maps Ref [5]
- Aerial Photographs
- Historical Ordnance Survey Maps
- Environmental Databases
- BGS Online Historical Borehole Records Ref [6]
- Search on Local Authority Planning Portal for planning history
- MAGIC website mapping Ref [7]
- Environment Agency / Gov.UK Website Flood Risk Ref [8]
- Bomb Maps
- UK Radon Ref [9] and BRE Radon Ref [10]
- Google Earth (for old aerial photographs)

The environmental databases search report compiled for this desk study contains site-specific environmental data drawn from data sets that comprise publicly available information together with data from third parties, some of which is under review. Accordingly, Southern Testing Laboratories Limited does not warrant its accuracy, reliability or completeness.

The full report is included in Appendix C and D, a summary of the salient features is included in the following sections of this report.

6.1 Geology

The British Geological Survey Map No. 256 (North London) indicates that the site geology consists of London Clay Formation. The site is also mapped within an area of Head propensity which denotes an area most likely covered by quaternary head deposits.

6.1.1 Head

Head is a superficial deposit comprising a poorly sorted and poorly stratified material formed mostly by solifluction and/or hillwash and soil creep. This is a polymict deposit of gravel, sand and clay depending on the local upslope geology, from which it is derived.

6.1.2 London Clay

The London Clay mainly comprises blue-grey or grey-brown fissured clay and silty clay, which weathers to brown near the surface. It commonly contains thin courses of carbonate concretions ('cementstone nodules'), selenite crystals and disseminated pyrite. It also includes a few thin beds of shells and fine sand partings or pockets of sand, which commonly increase towards the base and towards the top of the formation.

Although slopes will stand in the clay at steep angles in the short term, the long-term stable slope angle is about 7° for grassed, or cleared slopes, and a few degrees more for wooded slopes.

This formation is known to contain pyrite.

6.2 Historical Borehole Records

A search of previous exploratory hole records both from the online British Geological Survey database [6] and Southern Testing in-house records, revealed numerous records within the near vicinity of this site, all from the BGS source.

Information from nearby BGS boreholes (within the mapped London Clay Formation) indicate a thin covering of superficial Made Ground soil overlying silty clay of the London Clay Formation. The London Clay was noted to be thinly laminated, fissured and have lenses or bands of medium sand to fine gravel sized selenite crystals, silt partings and occasional shell debris. One borehole located 650m south-east of the site recorded occasional claystone layers.

No groundwater was encountered within the nearest three boreholes drilled to 15mbgl. One deep borehole (located 540m north-east) recorded water at 21.3mbgl.

BGS BH Reference	Final Depth (mbgl)	Distance from site (m) & Direction	Remarks
TQ28NE261	15m	230m NE	Cable Percussive Borehole. Soils recorded as: MADE GROUND (firm Clay) to 1.3m, over firm, becoming stiff, thinly laminated fissured silty CLAY (LONDON CLAY), lenses/bands of selenite crystals noted. No groundwater encountered
TQ28NE260	15m	240m NE	Cable Percussive Borehole. Soils recorded as: MADE GROUND (firm Clay) to 0.9m, over firm, becoming stiff, thinly laminated fissured silty CLAY (LONDON CLAY), lenses/bands of selenite crystals and silt partings noted, to 11.5m, over stiff to very stiff thinly laminated fissured CLAY (LONDON CLAY). No groundwater encountered
TQ28NE259	15m	325m NE	Cable Percussive Borehole. Soils recorded as: MADE GROUND (ash, concrete & soil) to 1.1m, over firm, becoming stiff, thinly laminated fissured silty CLAY (LONDON CLAY), lenses/bands of selenite crystals and silt partings noted, to 11m over stiff to very stiff thinly laminated fissured CLAY with shell debris (LONDON CLAY). No groundwater encountered
TQ28NE9	68.6m+	540m NE	MADE GROUND to 0.61m, LONDON CLAY to 46.9m, READING BEDS/THANET SAND to 68.6m, over UPPER CHALK. Water recorded to have rose to within 21.3m of surface.
TQ28NE312	12.6m	650m SE	Cable Percussive Borehole. Soils recorded as: MADE GROUND to 0.3m over CLAY with crystals and occasional layers of claystone (LONDON CLAY).

[BGS GeolIndex Onshore Website accessed 12 Sept 2022]

6.3 Geological Hazards and Mining Activities

Data from various sources relating to potential geological hazards at the site are summarized below. The Hazard Potentials listed for the BGS data are as presented in the Envirocheck report, derived from various generic BGS sources, **which are not considered as site-specific**. It is important that this information is considered in context of the actual site topography, ground conditions encountered during future investigation, and development proposals.

Data Source	Hazard	Hazard Potential to Site	Remarks
BGS	Potential for Collapsible Ground Stability Hazard	Very Low	
	Potential for Compressible Ground Stability Hazard	No Hazard	

Data Source	Hazard	Hazard Potential to Site	Remarks
	Potential for Ground Dissolution Stability Hazard	No Hazard	
	Potential for Landslide Ground Stability Hazard	Very Low	
	Potential for Running Sand Ground Stability Hazard	Very Low	
	Potential for Swelling or Shrinkage Clay Ground Stability Hazard	Moderate	This site is mapped as being underlain by London Clay which may have high volume change potential (VCP). Atterberg testing should be undertaken as part of a ground investigation to classify the VCP.
	Shallow Mining Hazard	Very Low	
	BGS recorded mineral site	Very Low	None recorded within 1km of the site.
ARUP [Ref [11]]	Mining Instability	Very Low	None recorded within 1km of the site.
CCS [Ref [12]] KURG [Ref [13]]	Underground Openings	Very Low	Nearest underground opening recorded as approximately 1km south-west (Highgate Wood) as railways/tramways.
PBA	Natural & Mining Cavities	Very Low	None recorded within 1km of the site.

6.4 Hydrology and Hydrogeology

Data from the Environment Agency and other information relating to controlled waters is summarised below.

Data		Remarks
Aquifer Designation	Superficial Deposits	None mapped across the site.
	Bedrock	London Clay Formation – Unproductive Strata
Abstractions	Surface Water	None within 1km of the site.
	Groundwater	None within 1km of the site.
Source Protection Zones		The site is not located within a source protection zone.
Surface Watercourses		Nearest surface water feature is recorded as 324m north-east of the site, which appears to relate to a small pond associated with Holmewood School (potentially man-made).
Watercourses		Figures 2-1 and 2-2 of Haringey Council's Strategic Flood Risk Assessment shows that culverted tributaries of the Moselle Brook runs approximately west to east around 110m north in line with St James's Lane and 150m south, following Cranley Gardens highway. From a review of the available historic maps, and the books 'London's Lost Rivers' (P. Talling, 2011), and 'Haringey's Hidden Streams Revealed' (A. Pinching and D. Dell, 2008), the tributaries for the Moselle Brook, or other underground rivers, do not appear to run under the subject site.

Data	Remarks
Groundwater Flood Risk*	The site is not shown within or adjacent to an area mapped as being at risk.
Surface Water Flood Risk*	The site is not shown within an area mapped as being at risk. Cascade Avenue, which bounds the site to the east, is mapped as a low to high risk of surface water flooding. GOV.UK flood mapping records the site as very low risk.
Marine / Fluvial Flood Risk*	The site is not shown within or adjacent to an area mapped as being at risk. GOV.UK flood mapping records the site as very low risk.
Reservoir Flood Risk*	From the GOV.uk flood mapping, the site is not shown within or adjacent an area mapped as being at risk.

* These sections are provided for information only, this report does not constitute a formal flood risk assessment and specialist advice should be sought in relation to potential flooding issues.

The site is mapped as being underlain by London Clay Formation which is classified as unproductive strata. From a nearby BGS borehole (located approximately 540m north-east) the London Clay is anticipated to be around 47m thick.

Groundwater flow is assumed to follow the local topography, which slopes towards the south-east.

Groundwater flow within the London Clay is likely to be dominated by fissure flow and in general, due to the predominately cohesive nature of this strata, groundwater flow through these soils is anticipated to be slow. Data for the London Clay Formation indicates that the horizontal permeability generally ranges between about 1×10^{-9} m/s and 1×10^{-14} m/s, with an even lower vertical permeability.

No groundwater levels are recorded for beneath the site. Three BGS boreholes within 325m of the site did not record groundwater up to 15m depth. One borehole located around 540m from the site recorded water at 21.3mbgl. The measurement of groundwater levels beneath the site would generally require long term monitoring and would need to be established as part of a Ground Investigation.

From the Envirocheck Report, the site is not shown within an area mapped as being at risk from groundwater, surface water fluvial or reservoir flood risk. However, no formal flood risk assessment has been carried out for the site and specialist advice should be sought in relation to potential flooding issues.

6.5 Historical Ordnance Survey Maps

Copy extracts of historical Ordnance Survey plans dating from 1864 to 2021 were obtained and are presented in Appendix C.

From earliest mapping (1864) the site is shown as open land and part of Imperial Park. From 1913-1935 mapping the area surrounding the site underwent significant development with housing and from 1935 mapping of the site itself is shown as tennis courts and a small building along the northern boundary; this is a similar layout to the current site layout. The tennis courts are now disused and slightly overgrown.

6.6 Planning Application History

A search of the London Borough of Haringey planning website shows a few planning applications associated with the subject site. These applications are summarised in the table below and appear to be in relation to tree works and indicate that there are chestnut trees at the site subject to tree protection orders.

[<http://www.planningservices.haringey.gov.uk/>, accessed 12 Sept 2022]

Application Number	Decision Date	Proposal Details / Comments	Decision
HGY/2021/1338	29/07/2021	Works to mature Horse Chestnut tree (T11) protected by a TPO located at the Grove Lawn Tennis Club (The Chine frontage) to reduce tree canopy to 1m from the previous topping cuts,	Granted

Application Number	Decision Date	Proposal Details / Comments	Decision
HGY/2006/1945	21/11/2006	Tree works to include felling of 1 x Horse Chestnut tree next to road.	Granted
HGY/1994/0709	16/08/1994	Crown reduction by no more than 25% of 4 No. Horse Chestnut trees. (Subject to T.P.O.)	Granted
HGY/1993/0530	10/08/1993	Crown thinning not exceeding 25% to 2 Horse Chestnut tree.	Granted

Applications for nearby properties are generally for the renovation or alteration to existing properties. The planning applications do not identify basement levels within the adjacent properties.

6.7 UXO Risk Management

The possibility of unexploded ordnance (UXO) being encountered on a site falls within the category of a potentially significant risk and should be addressed as a legal duty under the Construction (Design and Management) Regulations by the Client as early as possible in a project.

The CIRIA publication C681 Ref [14] has been developed to provide a consistent framework for the management of potential risks posed by UXO during site investigation and groundwork phases of construction. The process adopts a tiered approach, divided into four distinct stages; Preliminary risk assessment, Detailed risk assessment, Risk mitigation and Implementation.

A detailed UXO risk assessment was provided by the client, the reader is referred to this report for more detail. This was prepared by 1st Line Defence (report ref. DA15877-00, dated 04/07/2022) and assess that the risk on site is not homogeneous. The majority of the site boundary has been assessed as low risk. The northernmost section of the site has been assessed as Medium Risk from German and anti-aircraft unexploded ordnance. There is also an assessed negligible risk from allied ordnance across the site.

1st Line Defence recommend all works have a UXO Risk Management Plan and site specific UXO awareness briefing to all personnel conducting intrusive works. Within the medium risk areas, open intrusive works (trial pits, service pits open excavation, shallow foundations etc.) should have attendance by a UXO specialist and boreholes or piled foundations should have an intrusive magnetometer survey down to maximum bomb penetration depth.

7 Site Walkover Survey

A site walkover was carried out on 13th September 2022.

7.1 General Site Description and Boundaries

The site is located between Cascade Avenue and The Chine in Haringey, London and comprises disused tennis courts (asphalt surfacing) which occupy a majority of the site and a small brick built pavilion building to the north of the site. The perimeter of the site, particularly along the northern boundary, and around the pavilion is overgrown.

7.2 Topography and Drainage

The site itself is on two levels, separated by a retaining wall. The lower level to the east is approximately 1m lower than the western level.

A majority of the site was covered with hard standing (asphalt/concrete) or the existing pavilion building. There was no evidence of water pooling on the surface at the time of the investigation.

7.3 Vegetation

A number of large trees (including chestnut trees) are located around the perimeter of the site. Along the western boundary a few areas of the asphalt surfacing has been disturbed by roots.

The perimeter of the site, particularly the northern boundary, of the site is overgrown with shrubs and brambles.

7.4 Buildings and Land Use on Site and Nearby

The surrounding area is generally residential housing.

No evidence of cracking was noted on the pavilion building or neighbouring buildings, which could be associated with poor ground conditions.

7.5 Inaccessible Site Areas

No access was available to the existing pavilion building onsite.

7.6 Site Photographs

A series of photographs showing the site is included in Appendix B.

8 Underground Structures

8.1 Existing Basements

The pavilion building on site does not have an existing basement. There were no obvious signs of basements within the neighbouring properties.

8.2 Transport, Utilities and Other Infrastructure

Cascade Avenue is located to the east of the site with a small public footway adjacent to the site boundary. Similarly, the Chine is located adjacent to the western site boundary.

Utility inspection covers were noted within the surrounding highways.

No underground tunnels are noted within 50m of the site. The Northern Line runs approximately north-west to south-east around 1.6km west of the site. The Piccadilly Line runs approximately north to south around 2.5km east of the site.

C PRELIMINARY SITE MODELS

9 Conceptual Engineering Geological Ground Model

From the desk study information and walkover undertaken at this site the following conceptual ground model has been formulated.

Data Source	Comments
Geology	The recorded soils beneath the site comprise London Clay, possibly with a superficial covering of Head deposits. Nearby BGS boreholes indicate the soils to comprise a silty clay (London Clay). The nearby boreholes do not indicate any superficial head deposits. A ground investigation should be carried out in order to confirm the ground conditions beneath the site.
Former Site Use	From earliest mapping (1864) the site was previously vacant land, as part of Imperial Park before being developed into a Tennis Court (shown from 1935 mapping). As there has been previous development on site, shallow Made Ground soils are likely to be encountered. Subsurface obstructions could be encountered in the form of old foundations, drain runs etc. accordingly, allowances should be made for their removal/breaking out when carrying out excavations.

Data Source	Comments
Groundwater	The depth of groundwater is currently unknown. Groundwater monitoring should be carried out in order to confirm the groundwater levels beneath the site. Three nearby BGS boreholes note that groundwater was not encountered to 15mbgl. Another BGS borehole recorded groundwater at around 21mbgl. Based on the information to date inflow of groundwater into excavations is not anticipated within the London Clay. The overlying Made Ground will have higher and variable permeability values. Seepages should be managed with simple pumping methods.
Surface Water	The site is mapped within an area of very low risk from surface water flooding. Suitable surface water drainage will need to be considered for the proposed development. Given the anticipated low permeability soils beneath the site infiltration rates are likely to be low and may prove insufficient for conventional soakaways. A positive drainage system piping surface water off site may need to be considered for surface water disposal.
Potential Geo-hazards	The Made Ground and gravel materials will be prone to instability in open excavations, particularly during wet weather or where seepages are encountered. Shrinkable clay soils were encountered beneath the site and are subject to changes in volume as their moisture content is altered. Soil moisture contents vary from season to season and can be influenced by a number of factors including the action of roots. The resulting shrinkage or swelling of the soil can cause subsidence or heave damage to foundations, the structures they support and services. Hence foundation deepening particularly within the zone of influence of trees may be required. Consideration should be given to potential ground movements arising from the installation of new retaining walls. A ground investigation should be carried out in order to confirm the ground conditions beneath the site and provide parameter for basement design.
Other Comments	From the detailed UXO Risk Assessment a majority of the site boundary has been assessed as low risk. The northernmost section of the site has been assessed as Medium Risk. Risk mitigation measures will need to be considered during the development works.

On the basis of the available information the geotechnical categorization for the proposed structure(s) is considered to fall within Geotechnical Category 2 – Conventional structure with no exceptional risk or difficult ground or loading conditions; Eurocode 7 Ref [15].

D SCREENING EXERCISE

10 Screening Framework

We understand that it is proposed to construct eight two-storey residential properties, all with additional single-storey basement levels.

Guidance from the London Borough of Haringey through its development and planning documents require that new build development proposal (where planning permission is required) which include a subterranean basement, should be screened in order to determine whether there is a requirement for a full Basement Impact Assessment (BIA) to be carried out.

Using the information contained within the Desk Study, a 'Screening' process has been undertaken. The questions contained within this section are adapted from those outlined within the planning requirements of London Borough of Camden (CPG Basements, Ref [1]). It is considered that the adapted questions are pertinent to this Basement Impact Assessment.

The information in this section is based on the information in the supporting documents. A review of any issues identified is included in later sections of this report.

11 Subterranean Groundwater Flow

Question		Evidence
1a	Is the site located directly above an aquifer?	Envirocheck Report
	No. The site is mapped as being underlain by London Clay Formation which is classified as unproductive strata.	
1b	Will the proposed basement extend beneath the water table surface?	Historical Borehole Information. Proposed plans from Client.
	Unknown. No site specific groundwater monitoring has been undertaken. Three nearby BGS boreholes note that groundwater was not encountered to 15mbgl. Another BGS borehole recorded groundwater at around 21mbgl.	
2	Is the site within 100m of a watercourse, well (used/disused) or potential spring line?	Walkover survey Envirocheck Report
	No. Nearest surface water feature is recorded as 324m north-east of the site, which appears to relate to a small pond associated with Holmewood School (potentially man-made).	
3	Is the site within the catchment of any known nearby ponds?	Walkover survey Envirocheck Report
	No.	
4	Will the proposed basement development result in a change in the proportion of hard surfaced/paved areas?	Existing and proposed development plans Walkover survey
	Yes. The site is currently covered with hard standing (asphalt/concrete) and the pavilion building. It is understood that gardens are proposed for the new dwelling as such the proportion of hard surfacing/paved areas will decrease.	
5	As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?	Existing and proposed development plans

Question		Evidence
	No. The proportion of hard or covered surfaces present on the site will decrease, as such the volume of surface water produced will decrease.	Walkover survey
6	Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond or spring line?	Walkover survey Envirocheck Report
	No.	

12 Land Stability

Question		Evidence
1	Does the existing site include slopes, natural or manmade, greater than 7 degrees? (approximately 1 in 8)	Walkover survey
	No.	
2	Will the proposed re-profiling of landscaping at site change slopes at the property boundary to more than 7 degs? (approximately 1 in 8)	Existing and proposed development plans
	No.	
3	Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7 degrees? (approximately 1 in 8)	Walkover survey Envirocheck Report OS Maps
	No.	
4	Is the site within a wider hillside setting in which the general slope is greater than 7 degrees? (approximately 1 in 8)	Walkover survey OS Maps
	No.	
5	Is the London Clay the shallowest strata at the site?	Envirocheck Report Historical Borehole information
	Unknown. No site-specific ground investigation has been undertaken. The site is mapped as being underlain by possible Head deposits over London Clay Formation. Nearby borehole indicate London Clay to be the shallowest strata.	
6	Will any tree/s 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? (Note that consent may be required to undertake work to any tree/s protected by a Tree Protection Order or to tree/s in a Conservation Area if the tree is over certain dimensions).	Walkover Survey Existing and proposed development plans
	Yes. All trees within the site are to be retained; only mixed shrubs and Buddleia to be removed to facilitate development. Approximately 9 and 17% of the theoretical root protection areas (T4 & T11 respectively) shall be affected by the development.	
7	Is there a history of seasonal shrink-swell subsidence in the local area, and/or evidence of such effects at the site?	Walkover survey
	No. No evidence of seasonal shrink/swell subsidence was noted to the buildings surrounding the site.	
8	Is the site within 100m of a watercourse or a potential spring line?	Walkover survey Envirocheck Report
	No. Nearest surface water feature is recorded as 324m north-east of the site, which appears to relate to a small pond associated with Holmewood School (potentially man-made).	
9	Is the site within an area of previously worked ground?	Walkover survey Historic Mapping Envirocheck Report
	No. The site is not mapped as being within an area of previously worked ground. However, there is evidence of previous development	

Question		Evidence
	onsite which indicated Made Ground may be present. No intrusive ground investigation has been undertaken to determine the presence or extent of any worked ground.	
10	Is the site within an aquifer? If so, will the proposed basement extend beneath the water table such that dewatering may be required during construction?	Envirocheck Report Historical Borehole Information.
	No. The site is mapped as being underlain by London Clay Formation which is classified as unproductive strata. The depth to the groundwater table is unknown at this stage and therefore dewatering requirements have not been determined. Three nearby BGS boreholes note that groundwater was not encountered to 15mbgl. Another BGS borehole recorded groundwater at around 21mbgl.	
11	Is the site within 50m of the any known nearby ponds?	Walkover survey Envirocheck Report
	No.	
12	Is the site within 5m of a highway or pedestrian right of way?	Walkover survey Existing and proposed development plans
	Yes. Cascade Avenue bounds the site to the east, and The Chine and bounds the site to the west. However, the proposed basements are further than 5m from the highways.	
13	Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	Walkover survey Existing and proposed development plans
	Unknown. However, the neighbouring properties do not have apparent basements or lower ground floor levels.	
14	Is the site over (or within the exclusion zone of) any tunnels, e.g. Railway lines?	Walkover survey OS Mapping Envirocheck Report
	No.	

13 Surface Flow and Flooding

Question		Evidence
1	Is the site within the catchment of any known nearby ponds?	Walkover survey Envirocheck Report
	No.	
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?	Existing and proposed development plans
	Unknown. No details have been provided for proposed or existing drainage routes.	
3	Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?	Existing and proposed development plans Walkover survey
	Yes. The site is currently covered with hard standing (asphalt/concrete) and the pavilion building. It is understood that gardens are proposed for the new dwelling as such the proportion of hard surfacing/paved areas will decrease.	
4	Will the proposed basement result in changes to the profile of the inflows (instantaneous and long-term) of surface water being received by adjacent properties or downstream watercourses?	Desk Study Report Existing and proposed development plans
	Unknown. No details have been provided for proposed or existing drainage routes.	
5	Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	Existing and proposed development plans Walkover survey
	No.	
6	Is the site in an area known to be at risk from surface water flooding, or is it at risk from flooding, for example because the proposed basement is below the static water level of a nearby surface water feature?	Envirocheck Report
	No. The Desk Study has not identified a risk of surface water flooding or groundwater flooding of a property situated below ground level. No formal flood risk assessment or site specific groundwater monitoring has been undertaken for the site.	

E STAGE 2 – SCOPING EXERCISE

On the basis of the screening exercise, it is concluded that there are a number of items that will need to be investigated further to assess their potential impacts.

These are as follows:

1. The underlying strata needs to be confirmed. A Stage 3 Ground Investigation should be undertaken to determine the sequence of strata beneath the proposed site.
2. Groundwater levels need assessing at the site. The Stage 3 Ground Investigation should allow for installation of monitoring wells and subsequent groundwater level monitoring. The water table assessment will also be required to confirm construction methods, any dewatering and or waterproofing requirements.
3. A Ground Movement Assessment (GMA) may be required in order to assess the potential damage to neighbouring building/structures.
4. A formal flood risk assessment should be carried out for the site and specialist advice should be sought in relation to potential flooding issues.

REFERENCES

- [1] J. Consulting, "Haringey Council Strategic Flood Risk Assessment (Draft Report)," 2015.
- [2] "Haringey Council Planning Regeneration & Economy Draft Basement Development Guidance Note," 2012.
- [3] British Geological Survey (BGS), "Scanned Maps Portal," [Online]. Available: <http://www.bgs.ac.uk/data/maps/home.html>.
- [4] British Geological Survey (BGS), "Geology of Britain Viewer," [Online]. Available: <http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html>.
- [5] British Geological Survey (BGS), "Hydrogeology Maps of the UK," [Online]. Available: http://www.bgs.ac.uk/research/groundwater/datainfo/hydromaps/hydro_maps_scanviewer.html.
- [6] British Geological Survey (BGS), "Borehole Scans," [Online]. Available: <http://www.bgs.ac.uk/data/boreholescans/home.html>.
- [7] MAGIC partnership organizations, "MAGIC," [Online]. Available: <https://magic.defra.gov.uk/>.
- [8] Environment Agency (GOV.UK website), "Long Term Flood Risk Information," [Online]. Available: <https://flood-warning-information.service.gov.uk/long-term-flood-risk/>.
- [9] Public Health England, "UK Radon Maps," [Online]. Available: <http://www.ukradon.org/information/ukmaps>.
- [10] Building Research Establishment (BRE), "BR211 Radon Guidance on protective measures for new buildings," 2015.
- [11] Ove Arup on behalf of the Department of Environment, "Review Of Mining Instability In Great Britain," 1990.
- [12] Chelsea Spelaeological Society, "Various Records, Journals and Special Publications".
- [13] Kent Underground Research Group, "Various Records, Journals and Special Publications".
- [14] CIRIA, "C681 Unexploded Ordnance (UXO) A guide for the construction industry," 2009.
- [15] BSI Standards, "Eurocode 7 Geotechnical Design," 2013.
- [16] C. o. W. P. & C. Development, "Strategic Flood Risk Assessment," 2010.