

BASEMENT IMPACT ASSESSMENT REPORT

71 Avenue Road
London
NW8 6HP

14 APRIL 2022

Prepared by

Mr. Manoj Pun BEng (Hons)

Revision A

Checked by:

Mehrdad Bahari BEng, MSC, PhD, CIOB





71 AVENUE ROAD, LONDON, NW8 6HP

Contents

- 1. Introduction.....1
- 2. Proposed Development and Site History.....1
- 3. Scope of Work3
- 4. Limitations.....3
- 5. Site Description.....4
- 6. Ground Condition / Geology5
- 7. Groundwater Condition7
- 8. Surface Water Flooding.....7
- 9. Screening.....8
 - 9.1. Subterranean (groundwater) Screening Assessment9
 - 9.2. Stability Screening Assessment9
 - 9.3. Surface Flow and Flooding Screening Assessment.....11
 - 9.4. Potential Impacts.....12
- 10. Basement Impact Assessment.....13
- 11. Conclusion14

1. Introduction

Mr Patrick Urbanski contacted Adkins Consultants Ltd wishing to carry out a Basement Impact Assessment of 71 Avenue Road, London. Mr. David King from Adkins Consultants Ltd visited the property on 22 December 2021 and examined the property in respect of the details.

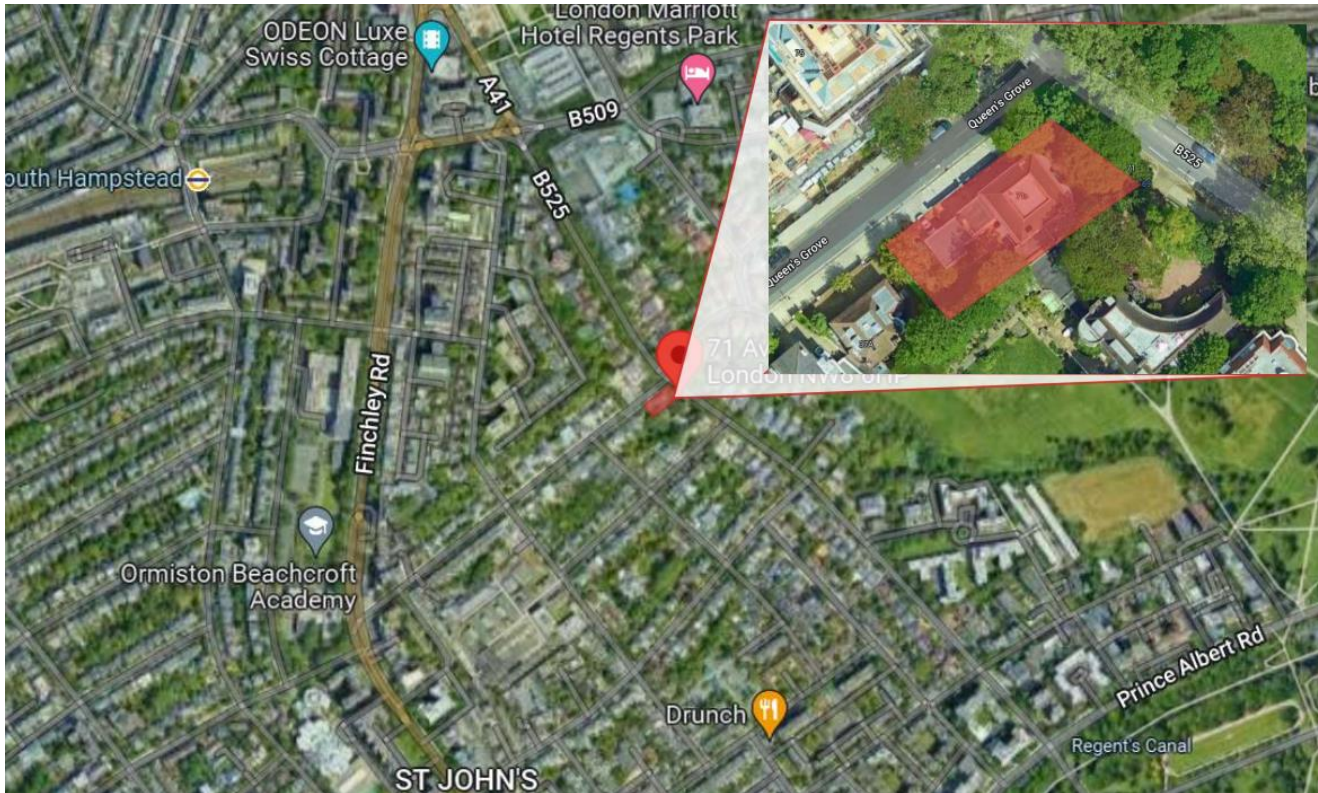


Figure 1. Location Plan of the Property (Google Maps)

2. Proposed Development and Site History

- The existing property was a detached house built before 1871, the property is not listed as a historic building.
- The property was in poor condition. The house was of masonry construction with facing brickwork and a tiled roof. During the property's life, alterations had been made.
- It appears that the client plans to demolish the property, as it will enable the construction of a property which will have long-term viable uses and will be constructed at a proportionate cost considering its potential lifespan.

- It will also enable the construction of a property which will look in keeping with the neighboring properties.
- It is proposed to be constructed of new dwelling with basement and 3 storeys above including the loft area.

The new basement will be accessed by the new internal stair off the ground floor hallway as well as a new external stair at the front of the property as shown on the proposed drawing. Natural day light will be passed through the basement at the front and rear of the property by the way of glazed units within the floor.

- The new basement will comprise of a new kitchen and shower room with bedrooms.

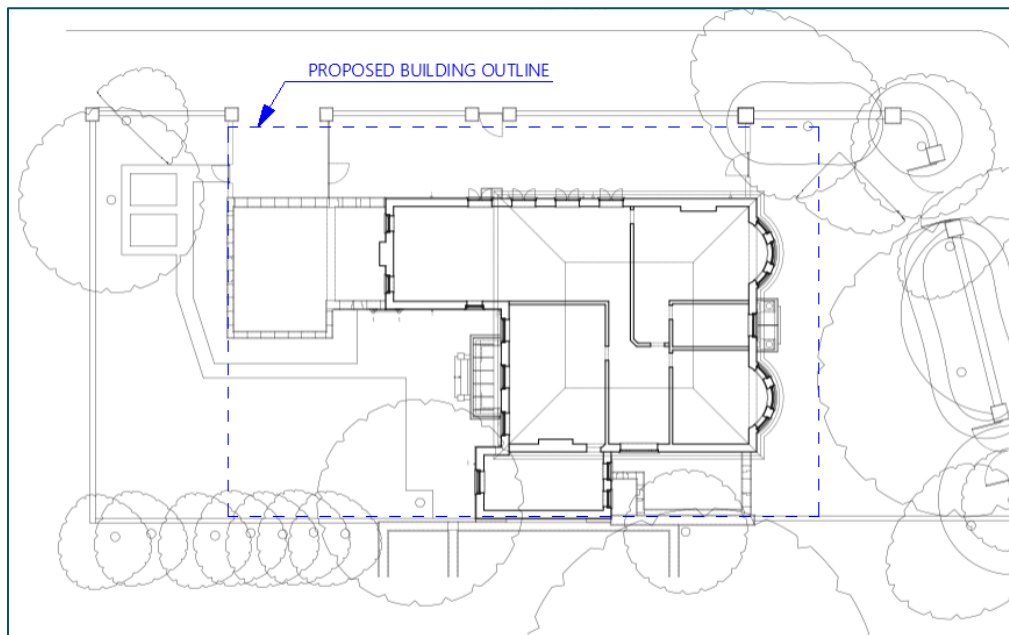


Figure 2. Proposed building outline over existing

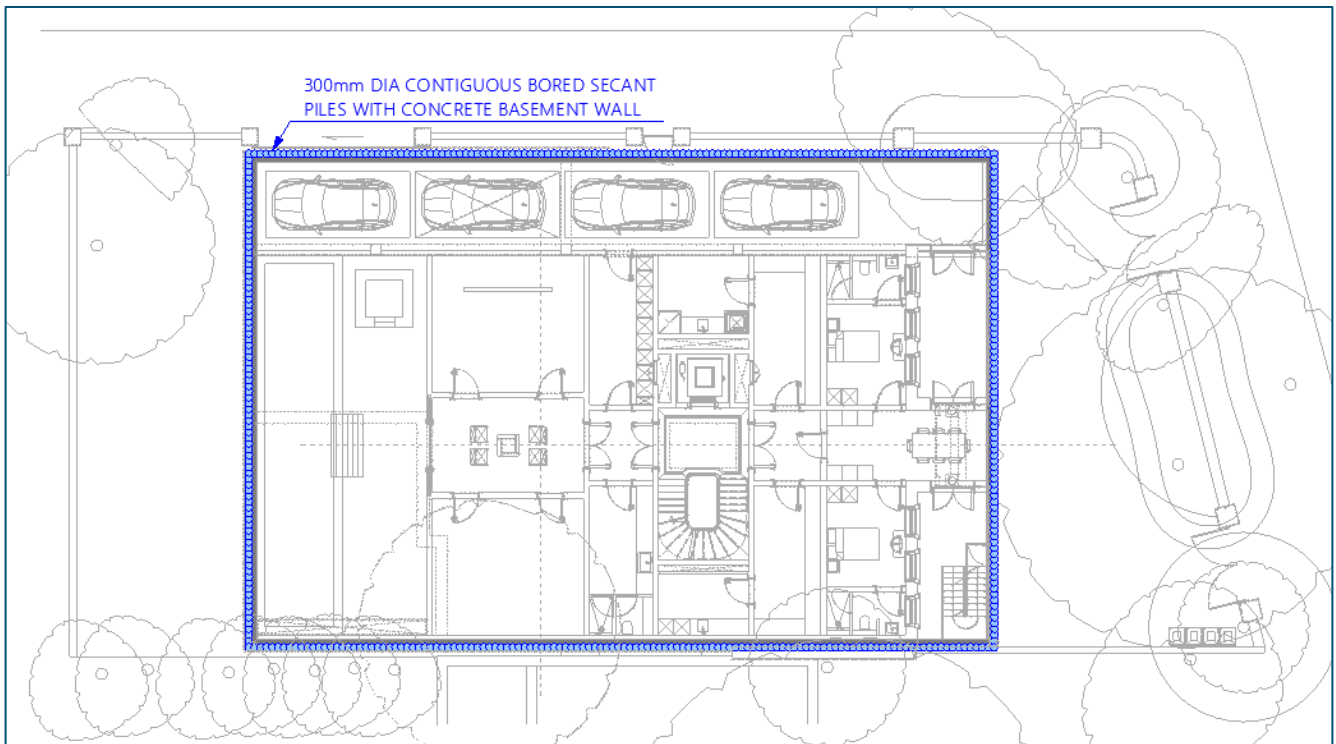


Figure 3. Basement plan showing piling

3. Scope of Work

The work carried out comprises a Basement Impact Assessment which is in accordance with procedures specified in the Camden Planning Guidance.

The aim of the work is to assess if the proposed partial basement will have a detrimental impact on the surroundings with respect to groundwater and land stability and to assess whether the development will affect the stability of neighbouring properties, local and regional hydrogeology and whether any identified impacts can be appropriately mitigated by the design of the development.

4. Limitations

The conclusions and recommendations made in this report are limited to those that can be made based on the research carried out. The results of the research should be viewed in the context of the work that has been carried out and no liability can be accepted for matters outside the stated scope of the research. Any comments made based on information obtained from third parties are given in good faith on the assumption that the information is accurate. No independent validation of third-party information has been made by Adkins.

A Desk Study and Ground Investigation are being completed by specialist contractors and will be referred once the reports are issued.

5. Site Description

The site is located at junction Avenue Road and Queens Grove. On East and South No.69 Avenue Road and 37A Queens Grove is located respectively. 69 Avenue Road proposed basement and structure alteration has been granted. Avenue Road and Queens Grove makes Northern and Western site boundary respectively. The property contains several significant trees which are to be kept.

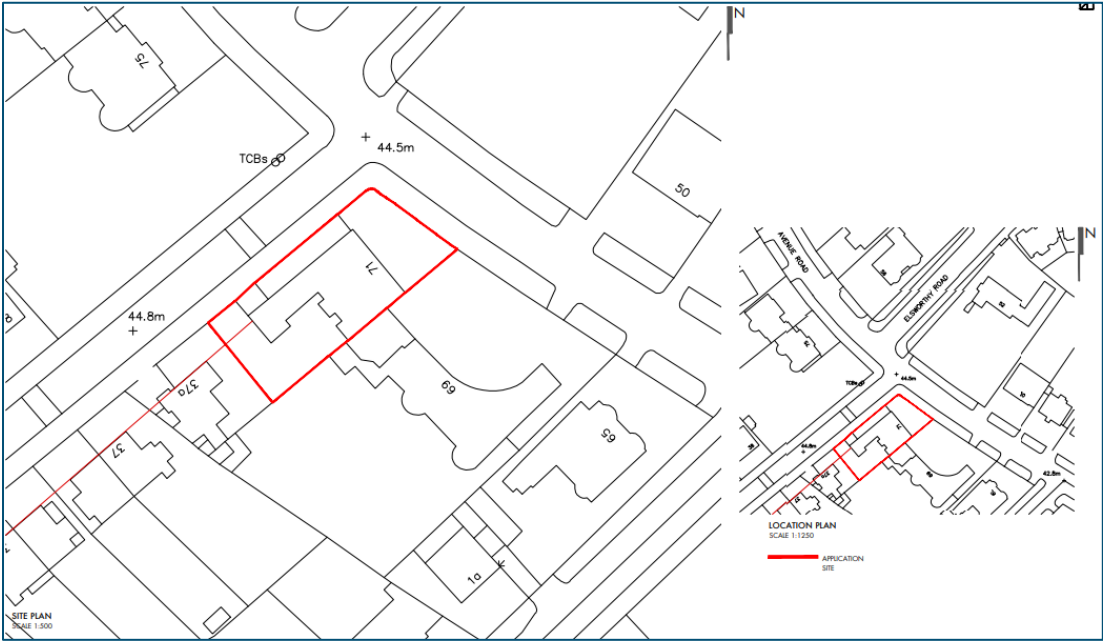


Figure 4. Site plan and Location Plan

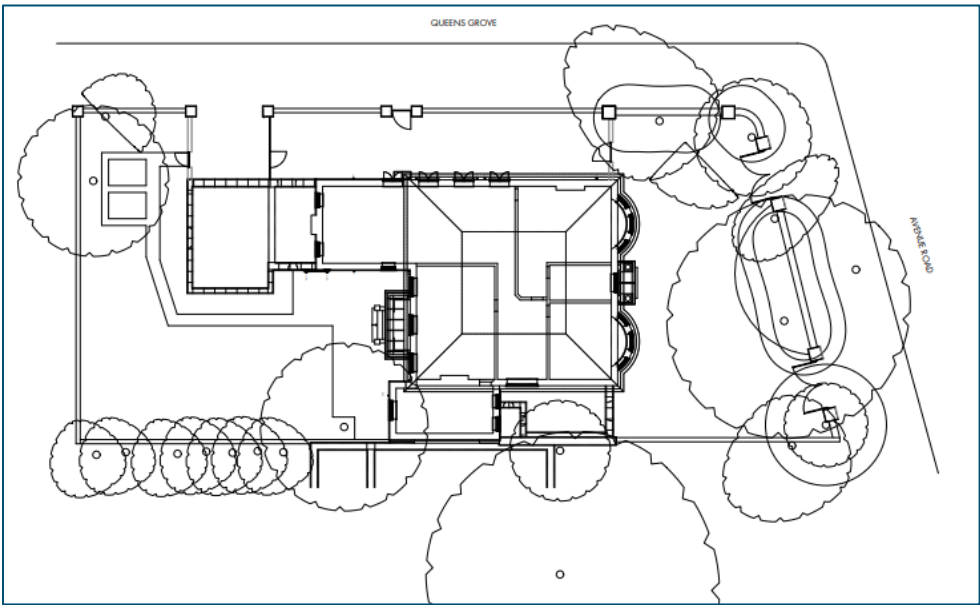


Figure 5. Site Plan showing trees around the property

6. Ground Condition / Geology



Figure 6. Geology of Site (BGS)

The British Geological Survey Maps were accessed to gain an understanding of the geological properties under the property. The maps indicate the property is founded on London Clay formations, which is generally comprised of clay, silt and sand. Borehole logs available nearby of the property were studied and confirmed that the soil below is dominantly clay. Clays will be encountered approximately 0.5m below ground level. No ground water was found on the borehole logs. Most of the site is generally levelled ground without any cut in hills or valleys. Therefore, slope instability will not be considered in design.

N.G.S. 2720.835D

TQ 28 SE / 733

CONTRACT & Location		ST. JOHNS WOOD TERRACE, N.W.8.		1" : 256		BOREHOLE No.: 1	
CLIENT		CITY OF WESTMINSTER		Consulting Engineers: HARRIS AND SUTHERLAND		REPORT No.: 892/KB	
Method of Boring		Shell and Auger 200 mm diameter		Boring Started: 22.4.74		Boring Finished: 23.4.74	
GROUND WATER				Date	23.4.74		
Water Strikes	Rate of Inflow:	Sealed off at:	Time	08.00			
1st: 2.50	Seepage	3.00	B/hole Depth	5.00			
2nd:			Casing Depth	3.00			
3rd:			Water Level	4.50			
Remarks: Chiselling on claystone from 2.50 to 3.50 m							
Samples		Depth (m)	S.P.T. (N)	Scale: 20mm = 1m		O.D. = 38.48	Description
Ref. No.	Type			Legend	Depth		
					0.50		Made ground (topsoil, bricks, stones, roots and ashes)
6754 J		0.70					
6755 U		0.9 - 1.35			1.20		Firm brown and grey mottled clay with many stones
6756 J		1.40					
6757 U		2.0 - 2.45					
6758 J		3.0					
6759 J		3.40					
6760 U		3.5 - 3.95					Firm becoming stiff brown fissured clay with blue staining on the fissures in upper levels and light brown staining at depth. Selenite crystals throughout.
6761 U		4.3 - 4.75					Claystone from 2.50 to 3.50 m
6762 J		4.90					
6763 U		5.0 - 5.45					
6764 J		6.0					
6765 U		7.0 - 7.45					
6766 J		7.5			8.0		
6767 J		8.2					
6768 U		8.5 - 8.95					
6769 J		9.70					Very stiff blue-grey fissured clay with dustings of silt and fine sand in some fissures.

Key: U = Undisturbed
B = Bulk

Wembley Laboratories Limited

Figure 7. Borehole log nearby site (BGS)

7. Groundwater Condition

Site Check Report generated on Wednesday April 13 2022

You selected the location: Centroid Grid Ref: TQ26968379

The following features have been found in your search area:

Aquifer Designation Map (Bedrock) (England)

Typology

Unproductive

Groundwater Vulnerability Map (England)

Classification

Unproductive

Aquifer Designation Map (Superficial Drift) (England)

No Features found

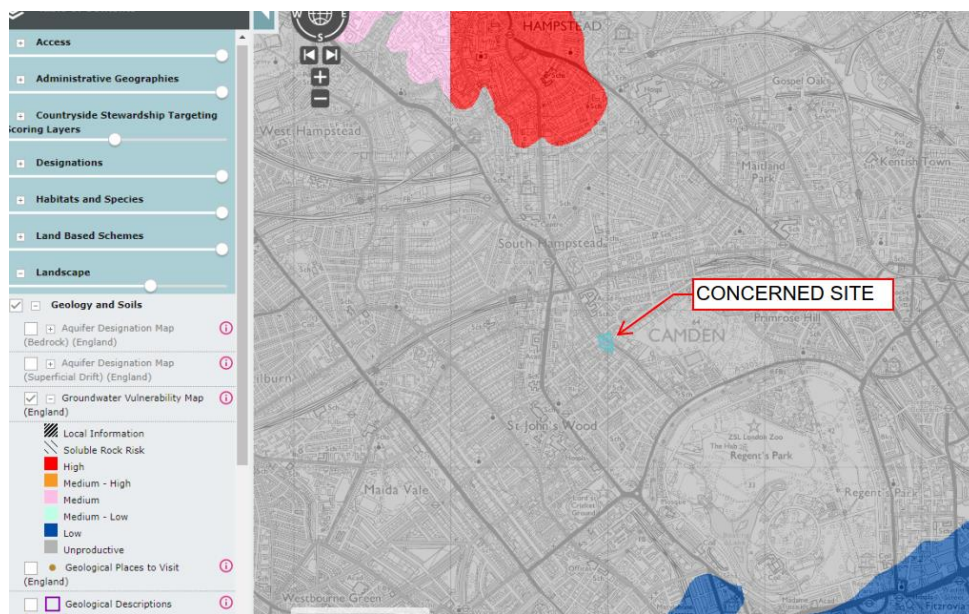


Figure 8. Groundwater vulnerability map (DEFRA)

8. Surface Water Flooding

The proposed site lies in very low risk zone for flooding from rivers and seas with likeliness of flooding 0.1%. There are no risks of flooding from reservoir and groundwater flooding. However, risk of surface water flooding is high at 3.3%. It is recommended to provide control measures to divert or pump out surface water accumulation.

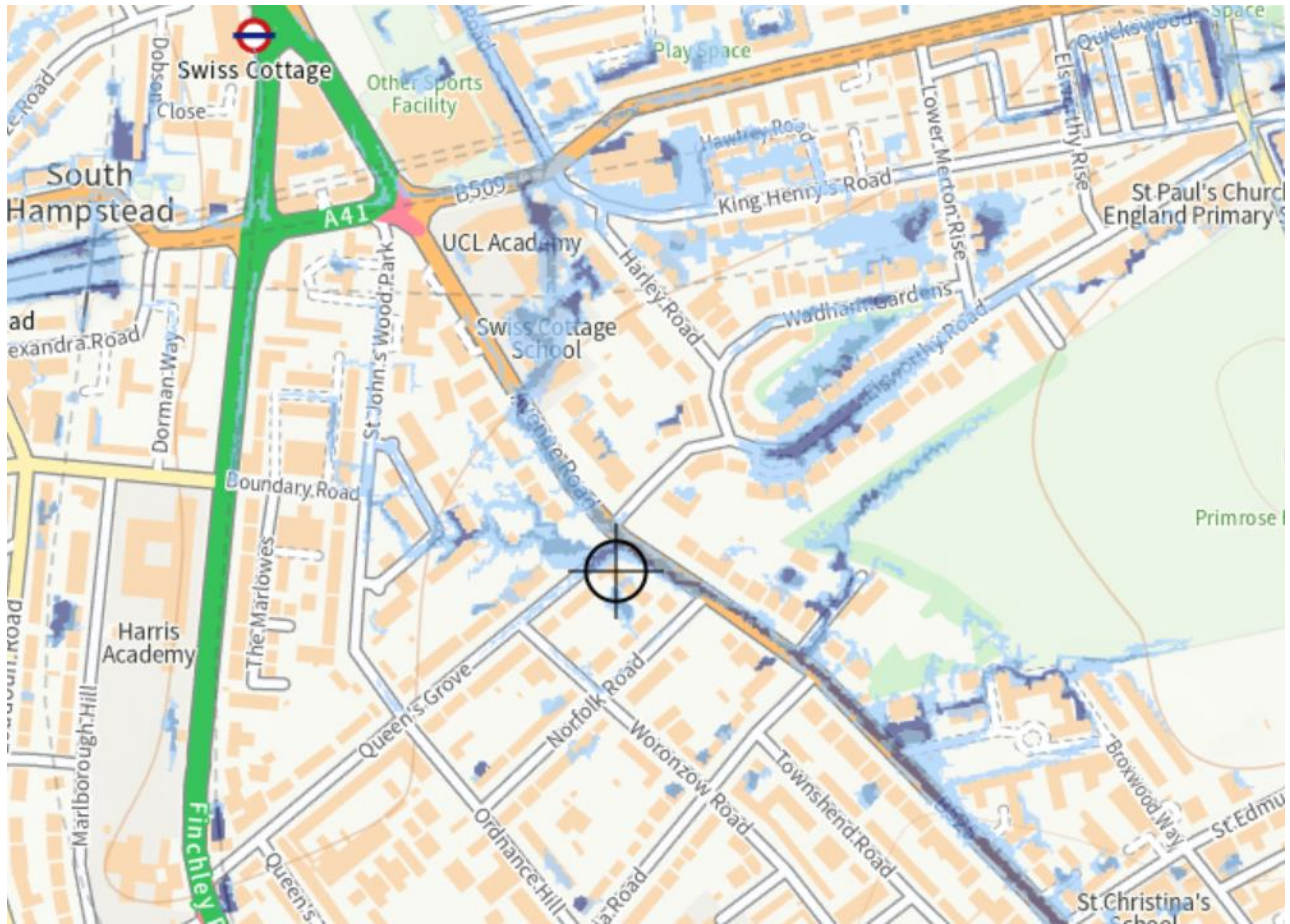


Figure 9. Surface Water Flood Risk Map (Gov)

Existing drainage location needs to be established. CCTV drainage survey can be conducted to check condition of the drainage. However, it is recommended to provide new drainage strategy for the property with surface water and foul water separated. Basement foul water should be pumped to suitable invert level of new foul drainage using sump pump. Thereafter, foul drainage should run under gravity to existing public foul sewer manhole.

9. Screening

The LBC guidance suggests that any development proposal that includes a subterranean basement should be screened to determine whether or not a full BIA is required. DEFRA and Environment Agency tool are utilized to response the questions.

9.1. Subterranean (groundwater) Screening Assessment

Question	Response
1a. Is the site located directly above an aquifer?	No
1b. Will the proposed basement extend beneath the water table surface?	No
2. Is the site within 100 m of a watercourse, well (used/ disused) or potential spring line?	Original River Tyburn could potentially have been located within 100m of structure.
3. Is the site within the catchment of the pond chains?	No
4. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	Yes. The proposed development increases the hard surface area slightly due to increase in the size of the building outline.
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)?	No. Due to presence of London clay, soakaway and SUDs system cannot be implemented and therefore drainage will directly be connected to public drainage.
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?	No

9.2. Stability Screening Assessment

Question	Response
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 neighbor land, including railway cuttings and the like, with a slope greater than 7°?	No
4. Is the site within a wider hillside setting in which the general slope is greater than 7°?	Yes, Parts of the natural hillside setting include slopes greater than 7°.
5. Is the London Clay the shallowest strata at the site?	Yes, Geological maps showed the site is present on London Clay strata.
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. Thinning and bracing is proposed.
7. Is there a history of seasonal shrink-swell subsidence in the local area and / or evidence of such effects at the site?	No. There is a moderate potential for shrinking or swelling due to London clay present. Trees present within site boundary also present subsidence risk.
8. Is the site within 100 m of a watercourse or potential spring line?	Yes. The River Tyburn historically flowed in vicinity of the property.
9. Is the site within an area of previously worked ground?	No
10. Is the site within an aquifer?	No
11. Is the site within 5 m of a highway or pedestrian right of way?	Yes. Queens road is on west of the site boundary.
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighboring properties?	Depth of the adjacent buildings are unknown. Proposed foundation depths might increase depth difference to adjacent foundations.

14. Is the site over (or within the exclusion zone of) any tunnels, e.g., railway lines?	No
--	----

9.3. Surface Flow and Flooding Screening Assessment

Question	Response
1. Is the site within the catchment of the pond chains on Hampstead Heath	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?	No
3. 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?	Yes. Due to presence of London clay, soakaway and SUDs system cannot be implemented and therefore drainage will directly be connected to public drainage.
4. Will the proposed basement result in changes to the quantity of surface water being received by adjacent properties or downstream watercourses?	No
6. Is the site in an area known to be at risk from surface water flooding, or is it at risk of flooding because the proposed basement is below the static water level of a nearby surface water feature?	Yes. Surface water flooding risk is high for the property. Surface water flood protection for basement will be necessary. Waterproofing and tanking will be necessary for the basement.

9.4. Potential Impacts

Potential Impacts	Possible consequences
Proposed basement development may result in a change in the proportion of hard surface / paved external areas	A change in the proportion of hard surfaced or paved areas of a property will affect the way in which rainfall and surface water are transmitted away from the property.
Increase in adjacent building foundation differential depth	Excavation could cause structural damages to adjacent buildings.
London Clay is likely the shallowest strata at the site.	It is likely to be the key potential cause of subsidence and wall deformation. London clay is particularly good at acting like a sponge, holding any water and causing an increase in hydrostatic pressure. The microscopic capillaries and pores present in concrete substrates that aren't watertight will allow the moisture and water to move through walls and floors below ground, resulting in a damp, leaky basement.
Surface water flooding high risk on site	Flooding in basement

10. Basement Impact Assessment

The screening identified a number of potential impacts. DEFRA and Environment Agency tools and information have been used below to review the potential impacts, to assess the likelihood of them occurring and the scope for reasonable engineering mitigation.

The table below summarizes the previously identified potential impacts and the additional information that is now available from the site investigation in consideration of each impact

Potential Impacts	Site Investigation Conclusions
Proposed basement development may result in a change in the proportion of hard surface / paved external areas. London Clay is likely the shallowest strata at the site.	The new basement shall be engineered to be watertight and waterproof with appropriate drainage system to allow clay heaving. Adjacent sites shall be protected by appropriate retentions systems to avoid movements. Drainage system shall be designed to be capable to convey steams, surface and underground water to a safe place e.g., existing sewer system or soakaways. The investigation has indicated that the groundwater level is below the proposed development, such that dewatering should not be necessary, and associated settlement will not occur. However, the proposed construction technique of utilizing a sheet piled wall may provide a barrier to groundwater if required.
	It is likely to be the key potential cause of subsidence and wall deformation. London clay is particularly good at acting like a sponge, holding any water and causing an increase in hydrostatic pressure.

	The microscopic capillaries and pores present in concrete substrates that aren't watertight will allow the moisture and water to move through walls and floors below ground, resulting in a damp, leaky basement.
The development will reduce grassed areas and increase percentage of hard standing	It is understood that extra surface water will be discharged to existing sewers. Some grassed areas will still be in existence, meaning there is a limited impact on local ecosystems.
Increase in differential depths	Adjacent building structure stability will be ensured at all times. Contiguous piling with basement wall design will provide support and during excavation suitable temporary soil retention system will be used.
Surface water flood risk is high	Basement tanking and waterproofing will be placed.

11. Conclusion

Information from DEFRA and Environment Agency 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 issues relating to land or slope stability, the hydrogeology and hydrology of the site. Suitable construction methods will ensure slope stability at the site and there should not be any negative impact on the groundwater.

End of report.

Adkins Consultants Terms and Conditions

1. Additional Services

In the event of additional services being required, the fees will be adjusted by prior agreement between us.

2. Diligence and Care

Adkins Consultants will exercise reasonable care, skill and diligence in the performance of the Services. All dimensions should be checked by the client or client's contractor before ordering any components. The client will be responsible for dealing with Building Control unless agreed otherwise.

3. Disbursements and Expenses

Disbursements and expenses are not included in our quoted fees unless stated to the contrary in our fee proposal.

4. Document Formats

The proposed fees allow for a digital copy usually in PDF format.

Hard copies of documents may be subject to a fee dependent on the type of document. Our printing costs are available upon request.

5. Copyright

Adkins Consultants retain copyright in any document and works they produce; in all cases the copyright will remain vested in Adkins Consultants. The Client, subject to payment of fees and disbursements due under the Agreement, will have a license to copy and use all such documents for any purpose related to the project in question. They will not have a license to use these documents for any other project and no liability will be held by Adkins Consultants.

6. Value Added Tax

All quotations are subject to the addition of VAT at the current rate.

7. Liability

7.1 Excepting the case of death or personal injury you will look to the limited company Adkins Consultants, and not to any individual employee of Adkins Consultants, if you consider that there has been any breach of this Agreement. By agreeing to these conditions, you agree not to pursue any claims against any Individual as a result of them carrying out their obligations under this Agreement at any time.

The liability of Adkins Consultants Ltd to the client, (or any third party claiming through the client) shall in no circumstance (except in case of death or personal injury) exceed the lesser of:

- (a) The amount that can be recovered from our professional indemnity insurance
- (b) Six times our Fee for the relevant works.
- (c) The diminution in value of the property concerned.

7.3 Adkins Consultants shall have no liability to the Client (or to any third party claiming through the Client) whether in contract or in tort (including but not limited to negligence) or for breach of statutory duty or otherwise for any claim arising in connection with: -

- (a) pollution, contamination, terrorism, asbestos or any related risk or
- (b) designs or reports prepared by other professionals and specialist sub- contractors/suppliers.

7.4 The limitation period, before which any claim must commence, is six years.

8. Payments

Payment shall be received in full before Adkins Consultants will release any work, save for clients with an account with Adkins Consultants.

8.1 Where such an account is available our invoices will be issued monthly for the work completed in that month or upon completion of the work, whichever occurs soonest. Payment shall become due on submission of the invoice and the final date of payment shall be 7 days after the invoice date. We reserve the right to charge interest at the statutory rate on any overdue amounts. Please note that all invoices not settled within our payment terms will be referred to our debt recovery agents and will be subject to a surcharge of 15% plus VAT in lieu of our recovery charges.

8.2 If you do not have an account with Adkins Consultants Ltd, then payment is required prior to the release of information, unless agreed otherwise in the quotation, which would be unusual.

8.3 Please note that all invoices not settled within our payment terms will be referred to our debt recovery agents and will be subject to a surcharge of 15% plus VAT in lieu of our recovery charges.

9. CDM Regulations

Under the current CDM Regulations 2015 it is held to be our responsibility to inform you that the aforementioned regulations may be applicable to your project.

10. Changes in Terms and Conditions

Terms and conditions are liable to change without notice. Amended versions will supersede any printed or electronic versions held in the clients' possession. You can find an up-to-date copy of this Terms and Conditions Statement on our website.

11. Terms and Conditions further information

Unless otherwise agreed in writing by the Company these Conditions will override any terms and conditions stipulated or referred to by the Customer in his order or pre-contract negotiations.

12. Cancellations

Adkins Consultants will only accept cancellations at the discretion of Adkins Consultants unless they are within the cooling-off period of 14 days. Acceptance of the cancellation will only be binding on the company if it is sent in writing. Any cost or expenses incurred by the company up to the date of cancellation and all loss and damage resulting from the cancellation will be paid by the customer to the company, including within the cooling-off period if Adkins Consultants have started works during this time, which is a likely course of events given Adkins Consultant's desire to dispatch customer's instructions at a speedy rate .

13. Exclusions

In dispute of any assertion that anything is excluded, all warranties, conditions and other terms, implied, statutory or otherwise, are expressly excluded excepting so far as they are contained in these conditions or otherwise expressly agreed by Adkins Consultants Ltd in writing. If any legislation makes it unlawful to exclude any term from the Contract this clause will naturally not apply to such.

14. Resolutions of Disputes

14.1 The parties will endeavor to resolve any dispute amicably. Each of them shall in good faith consider any proposal by the other that a dispute be referred to mediation.

14.2 Disputes shall be finally resolved by the English Courts.

15. Governing Law

The Agreement shall be solely within the jurisdiction of and governed by English Courts