

# Lamorna, Dartmouth Park

## Basement Impact Assessment Screening Report



Image taken from ©Google Earth

Prepared for HGG London Limited

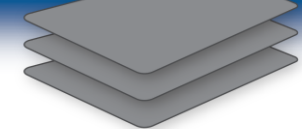
Ref. TAL121

**ABSTRACT:** Basement Impact Assessment Screening Report for a new-build residential development with lower ground floor living space, in support of a proposed Planning Application.

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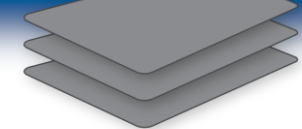
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## EXECUTIVE SUMMARY

HGG London Limited is proposing to redevelop a residential property at Lamorna, Dartmouth Park, London NW5, to provide a residential development comprising five storeys plus lower ground floor living. The proposed development is to include the demolition of the existing two-storey residential structure, construction of the basement box structure and five storeys above, with associated hard landscaping and pedestrian access. The basement construction will involve excavation being advanced to approximately 3m below current site levels, between two adjacent dwellings on adjoining property. A residential road lies immediately beyond the boundary to the front of the site, with private residential gardens present beyond the rear boundary.

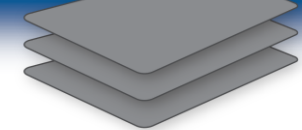
The proposed excavation to create the lower ground floor will result in the local authority requirement to undertake a basement screening assessment to determine potential adverse impacts arising from the construction. The proposed reduced level excavation will occupy a slight increase in the footprint of the existing dwelling but will not significantly alter the area of low permeability/hard cover due to the majority of the site already comprising hard surfacing and building cover.

Maddox Planning Limited, acting on behalf of HGG London Limited, has commissioned Talon Consulting Limited to prepare this Basement Impact Assessment Screening Report in support of an anticipated planning application. This report provides a screening assessment, in line with local authority guidance, which incorporates the findings of a desk-based study and considers anticipated construction methods. In the absence of site-specific ground investigation data, the screening assessment utilises available site investigation data for a nearby site and considers potential impact to surface water infiltration and through flow of groundwater. However, the published geology and other readily available sources of information indicate groundwater is not likely to be present below the site and will therefore not be

influenced by the proposed construction. On this basis, impacts on surface waters and groundwater are considered negligible.

In addition, although it is not appropriate to undertake a ground movement assessment and full Basement Impact Assessment at this stage (due to the absence of site-specific data and the early stage of design), supplementary information has been provided within this report in relation to anticipated ground movements and construction related impacts in the form of a preliminary basement impact assessment. It is anticipated that this will be sufficient to address potential construction related concerns based on the identified ground conditions and anticipated construction.

This report has been prepared in support of an anticipated planning submission and to provide information for consideration within the preliminary design.



## 1. INTRODUCTION

Talon Consulting Limited has been commissioned by Maddox Planning Limited, acting on behalf of HGG London Limited, to prepare this report comprising a screening assessment and preliminary basement impact assessment in support of a planning application for a proposed residential development at Lamorna, Dartmouth Park, London NW5, within the London Borough of Camden.

The proposed development is for the creation of residential dwellings through the demolition of the existing two storey residential building and construction of a new five storey plus lower ground floor level residence occupying the approximate footprint of the previous dwelling. The site level is at approximately 50m above Ordnance Datum, with the proposed lower ground floor formation level approximately 3.0m below current site level.

Due to the proposed lower ground floor level excavation, an initial screening assessment is necessary, which has been undertaken in line with planning guidance<sup>1,2</sup> issued by various London Boroughs to assess potential impacts from the proposed construction. Due consideration is also given to other guidance in relation to Basement Impact Assessments for information purposes, including Local Plan Policy LP11 and CPG4, Basements and Lightwells<sup>3</sup>.

This report undertakes the screening process incorporating desk-based data and assesses potential impacts arising from the proposed construction. An intrusive investigation has not yet been undertaken and it is therefore not appropriate to undertake a detailed ground movement assessment at this stage. It is considered that appropriate foundation design and precautions to be taken during construction will adequately mitigate potential movements associated with shallow excavations and the lower ground floor level excavation. The proposed

development will be progressed such that it will not adversely affect structural stability of adjacent buildings, property or infrastructure.

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<sup>1</sup> Lambeth. *Design Guide Part 5. Basements*. London Borough of Lambeth, March 2022.

<sup>2</sup> *Basement Assessment User Guide*. London Borough of Richmond Upon Thames.

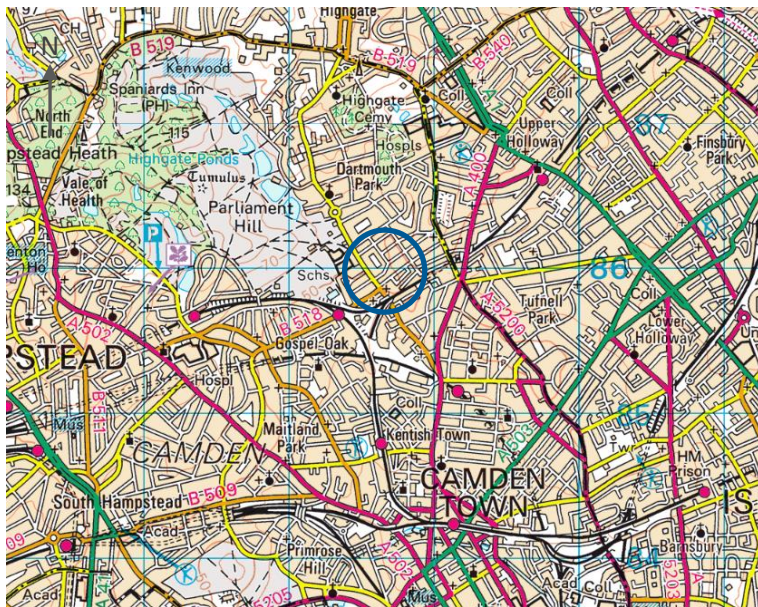
<sup>3</sup> *Basements and Lightwells*. CPG4. Camden Planning Guidance. March, 2018.



## 2. SITE PARTICULARS

### 2.1 Site location

The site, known as Lamorna, is located off Dartmouth Park Road, London, NW5 1SU, with the grid reference for the site being TQ286859. The property is to the south of Dartmouth Park and is approximately 1.8km north of Camden Town. The site location is presented in Figure 1.



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Figure 1: Site location

### 2.2 Site description

The site is currently occupied by a 1920's two-storey dwelling, with associated hardstanding. The dwelling occupies most of the site footprint. Prior to this, the site had not been previously developed other than as part of a landscaped private residential garden. The site

is generally level at an elevation of approximately 50m above Ordnance Datum (mAOD) covering an area of approximately 0.02ha. Access is via a paved driveway at the front (north west) of the site. The building is set back slightly from Dartmouth Park Road but has been constructed to the plot boundaries with adjacent neighbours. A converted garage is present along the south western boundary. The layout is presented in Figure 2, with further plans included as Appendix A.

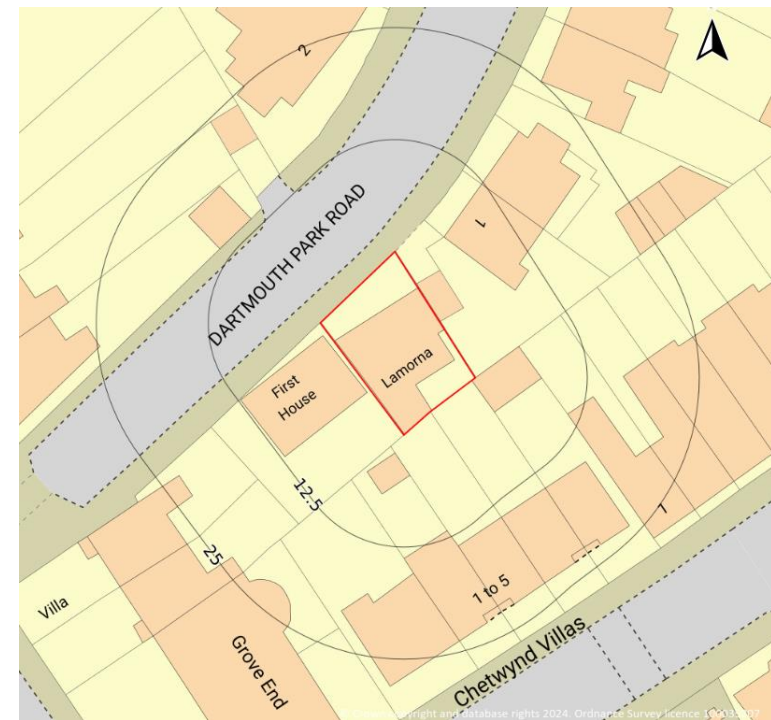


Figure 2: Site layout

The surrounding land use is residential, mainly comprising three and four storey properties. The site is bounded by residential properties and private gardens, with a number of trees and bushes present within the rear gardens to the south east. An aerial image dated 2020 is presented as Figure 3.



Figure 3: Aerial photograph (GoogleEarth, 2020)

There is little buried infrastructure in the immediately surrounding area of the proposed development, with adjoining land being formed of private residences and gardens. Highway and mains drainage, other domestic supplies and public access roads are unlikely be affected by the proposed basement development. Adjoining dwellings will need to be given due consideration due to their proximity. There are not known to be any subterranean tunnels, railways or overground infrastructure of significance within influence of the proposed development.

## 2.3 Proposed development

The proposed development is for the demolition of the single dwelling and the creation of a number of dwellings through the construction of a new five storey property plus lower ground floor. The proposed ground floor layout is shown indicatively in Figure 4, and the lower ground floor layout in Figure 5, with further development plans in Appendix B.

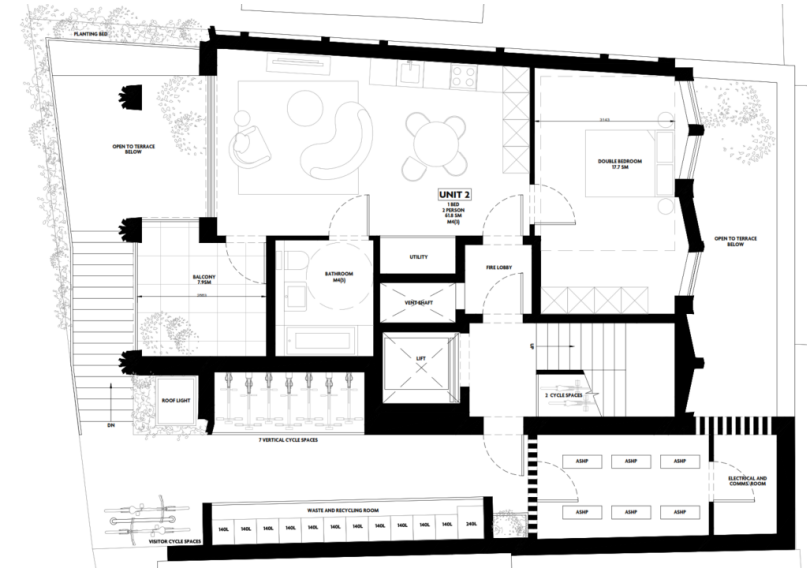


Figure 4: Proposed development layout (ground floor)

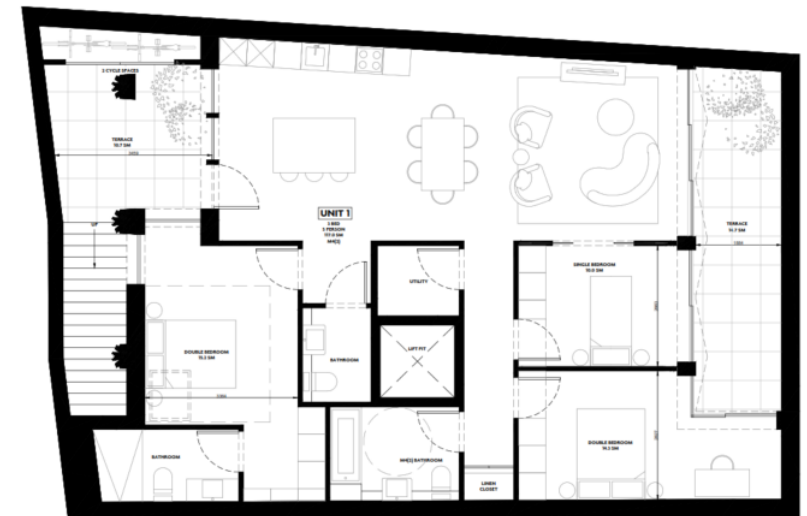


Figure 5: Proposed development layout (lower ground floor)



## 2.4 Geology

<sup>4</sup> British Geological Survey. 1993. North London. England and Wales Sheet 256 Solid and Drift Geology. 1:50,000. (Keyworth, Nottingham: British Geological Survey).

The site is mapped as being underlain by the London Clay Formation. No Superficial Deposits are mapped directly beneath the site, or within the immediately surrounding area.



Published records obtained via the BGS website identify historic borehole records within close proximity of the site, the closest being approximately 50m south west of the site, copies of a selection have been included within Appendix C and summarised below to provide an indication of the expected ground conditions in the area.

<sup>5</sup> British Geological Survey. 1999. Sheet TQ28NE. Hampstead. Solid and Drift Edition. 1:10,000 Series. (Keyworth, Nottingham: British Geological Survey).

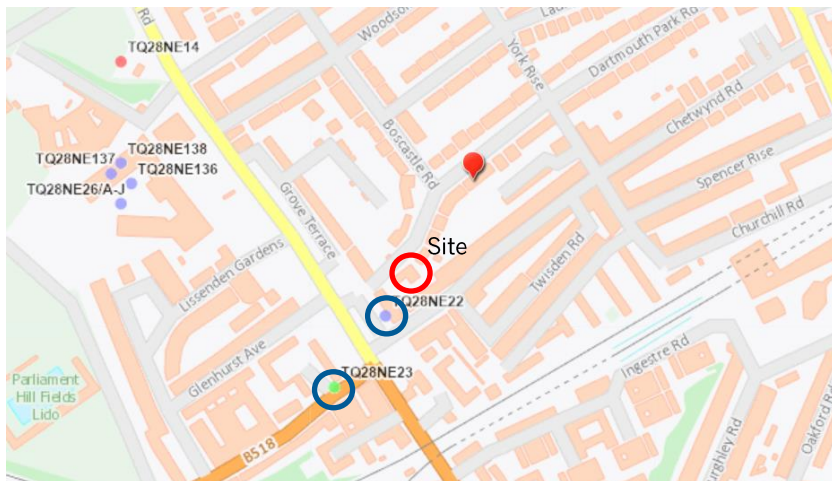
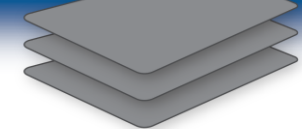


Figure 8: BGS borehole locations

The nearest borehole records indicate a stiff brown or blue clay considered indicative of the London Clay Formation. In one borehole record a thin layer (1 foot thick) of gravel is noted. The boreholes were advanced to a depth of 30 feet and 70 feet (approximately 9m and 21m).

Table 1: Summary of published ground conditions

Stratum	Depth to top of stratum, (mbgl)
London Clay Formation Stiff brown grey CLAY, becoming stiff blue CLAY.	0 (Proven to 21mbgl)

## 2.5 Hydrogeology

Groundwater was noted as not encountered on the historic borehole records, with records noting the strata as being “all dry”. The London Clay is classified by the Environment Agency as Unproductive Strata. The site is not situated within 500m of a Groundwater Source Protection Zone (SPZ) and there are no groundwater abstractions within 1km of the site.

The site is not within a Throughflow Catchment Area nor a Potential Throughflow Catchment Area. The site is not within an area of Increased Potential for Elevated Groundwater (due to permeable superficial deposits). The site is within an area identified as being at negligible risk<sup>6</sup> from groundwater flooding, Figure 9.

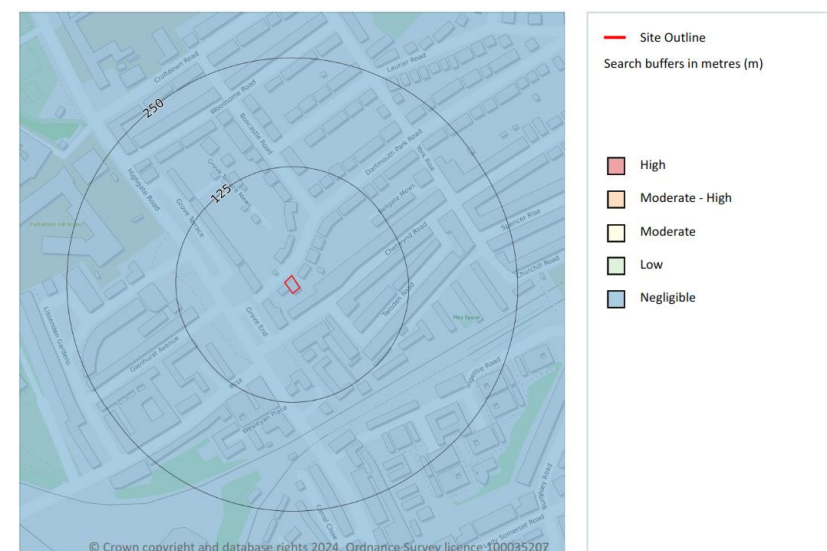
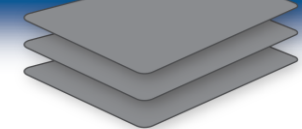


Figure 9: Groundwater flooding

<sup>6</sup> Lamorna, Dartmouth Park Road. Enviro+Geo Insight report. Ref. GS-XR8-QO6-9ML-932 Groundsure, July 2024.





## 2.6 Hydrology

The nearest surface water feature is a surface water drain/ditch adjacent to active and disused railway lines, recorded approximately 200m east of the site. This is not considered to affect the site.

The site is not within an area at risk from river and coastal (fluvial) flooding and there are no recorded entries<sup>6</sup> for historic flood events within 250m of the site. Flood risk data<sup>6</sup> indicates the risk rating due to surface water flooding as being negligible, Figure 10.

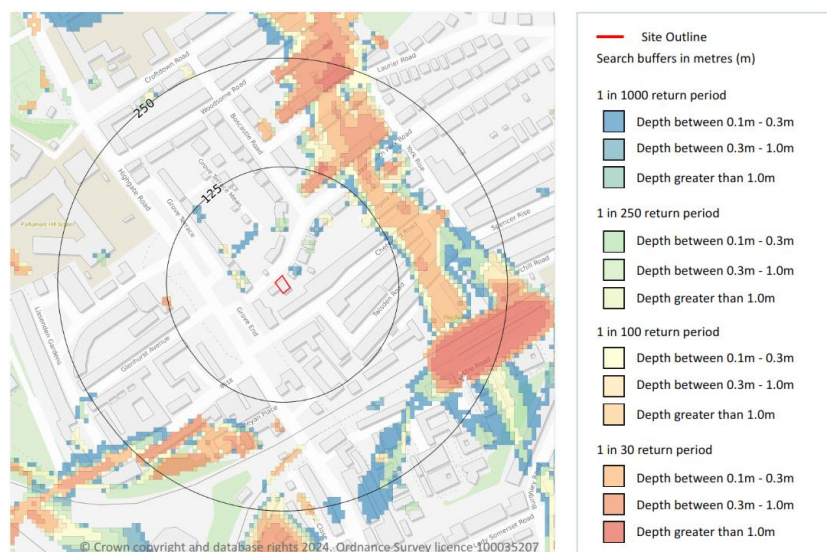
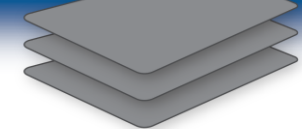


Figure 10: Surface water flooding

## 2.7 Buried infrastructure

There are no known rail or mail tunnels beneath or in proximity of the site, the closest railway tunnel being >150m from the site. Utility plans have not been obtained as part of this study but will be required prior to development. It is anticipated that highway and mains drainage will be present beneath nearby roads, in addition to other domestic services.

It is not anticipated that utilities will traverse beneath the proposed footprint but will be confirmed prior to development.



### 3. SCREENING ASSESSMENT

#### 3.1 Introduction

The following assessment undertaken by Talon is based on the guidance issued by various London Boroughs<sup>1,2,3</sup>, with the following categories included:

- Subterranean characteristics,
- Land stability,
- Flood risk and drainage.

Responses are provided based on the information collated as part of the desk-based study. The following assumed or anticipated characteristics are based upon published and readily available data. Intrusive investigation may be required following issue of planning permission as part of the detailed design requirement.

#### 3.2 Subterranean characteristics

Table 2: Subterranean characteristics

Impact	Response	Action
Is the site located directly above an aquifer?	No. The London Clay Formation is classed as Unproductive Strata.	None.
Will the proposed basement extend beneath the water table surface?	No. Shallow groundwater is not present.	None.
Is the site within 100m of a watercourse, well (used/disused) or potential spring line?	No. The nearest surface water feature is approximately 200m from the site.	None.
Will the proposed basement development result in a change in the proportion of hard surfaces/ paved areas?	No. The site is almost entirely hard surfaced pre-development.	None.

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. The site is almost entirely hard surfaced and underlain by very low permeability ground.

None.

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. There are no local ponds/spring lines present due to cohesive/very low permeability ground conditions.

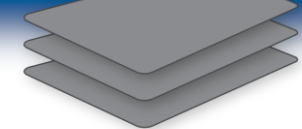
None.

In summary, the site is underlain by the London Clay Formation, which is of very low permeability. Groundwater is not anticipated as being present within the London Clay. Regional groundwater is at significant depth beneath the London Clay Formation. The nearest surface water body is approximately 200m east of the site and will not affect the site. The proposed development will not result in an increase in hard cover and there are not likely to be changes in infiltration to the ground and surface water run-off.

#### 3.3 Land stability

Table 3: Land stability

Impact	Response	Action
Does the existing site include slopes, natural or man-made, greater than 7°?	No. The site is level.	None.
Will the proposed re-profiling of landscaping at the site change slopes at the property boundary to more than 7°?	No. Changes in levels to form the lower ground floor/courtyard garden boundaries will be structurally retained and will not form a slope.	None.
Does the development neighbour land include railway cuttings and the like, with a slope greater than 7°?	No. Surrounding land is at approximately the same level as the site.	None.



Is the site within a wider hillside setting in which the slope is greater than 7°?	No. Surrounding land is approximately level/at a very shallow gradient.	None.
Is the London Clay the shallowest strata at the site?	Yes.	Excavation will be less than 3m. Appropriate design will prevent settlement/heave.
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?	No. No trees are proposed for felling. Tree protection zones, if present, are to be confirmed.	Confirm tree protection zones with arboriculturist. If present, confirm whether zones extend within basement footprint.
Is there a history of seasonal shrink-swell subsidence in the local area, and/or evidence of such effects at the site?	The site is underlain by London Clay. No known evidence of such effects at the site or known for adjacent properties.	Appropriate design will mitigate effects of shrink/swell potential.
Is the site within 100m of a watercourse or a potential spring line?	No. The nearest surface water feature is approximately 200m from the site.	None.
Is the site within an area of previously worked ground?	No. The site has not been previously worked.	None.
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?	No. The London Clay Formation is classed as Unproductive Strata. Groundwater not expected to be present.	None.
Is the site within 5m of a highway or pedestrian right of way?	Yes. The site fronts onto Dartmouth Park Road.	Appropriate design will prevent ground movements affecting adjacent property and/or infrastructure.
Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	Yes, the floor lower ground floor slab will be some 2.9m below current site levels.	Appropriate design will prevent adverse impact on adjacent properties.

Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?	No. There are no tunnels within 100m of the site.	None.
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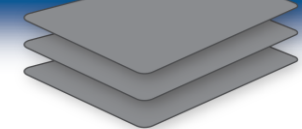
The site is not in an area affected by a significant gradient, nor underlain by tunnels or in the vicinity of railway infrastructure that may be affected by development. The foundation loads for the development will be comparable with the adjoining properties. Foundations will be constructed at a founding level likely to be below adjacent properties and may be piled. Design and construction of new foundations will be in accordance with current design standards such that adjacent property will not be undermined, nor inadequately supported and significant ground movements will be prevented. Intrusive investigation may be required following issue of planning permission prior to commencement of construction to confirm the geotechnical design parameters adopted.

### 3.4 Flood risk and drainage

Table 4: Flood risk and drainage

Impact	Response	Action
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. Hardcover and therefore surface run off is likely to remain similar pre and post construction.	None.
Will the proposed basement development result in a change in the proportion of hard surfaced/paved external areas?	No. The site is currently almost entirely hardcover.	None.
Will the proposed basement result in changes to the profile of the inflows (instantaneous and long term) of surface water being received by	No. There will be no significant change due to the site already being almost entirely hard cover.	None.





adjacent properties or downstream watercourse?

Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?

No. There will be no significant change following development.

None.

Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk of flooding, for example because the proposed basement is below the static water level of nearby surface water features?

No. Surface water flood risk for the site is negligible and construction is not expected to be affected by groundwater.

None.

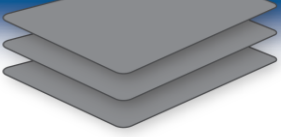
present beneath the site and that works are designed in the temporary and permanent condition such that there will be no significant adverse effects on adjacent property. Intrusive investigation may be required following issue of planning permission as part of the detailed design phase to confirm the geotechnical design parameters.

Although the above assessment does not indicate a full Basement Impact Assessment is required, the following sections provide supplementary information in support of the conclusions thus far.

The underlying geology is expected to be of very low permeability. There will be no significant increase in low permeability cover from the previously developed conditions for the site as the site is already almost entirely hardcover. There will be no significant impact on drainage and the groundwater arising from changes to impermeable cover. Groundwater is not expected below the site. The nearest surface water body is 200m east, and there is negligible flood risk to the site. Assuming the site drainage is designed in accordance with current standards, it is considered there will be no adverse effect on flood potential.

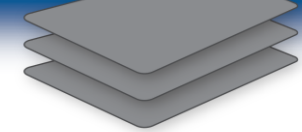
### 3.5 Assessment summary

The above assessment indicates most responses to the standard questions to be 'no', indicating the proposed development does not necessitate a full Basement Impact Assessment. This is based upon the ground conditions beneath the site comprising the London Clay Formation, and being of very low permeability, that groundwater is not



#### 4. GROUND INVESTIGATION - SCOPE

A ground investigation has not been undertaken and is not considered necessary as part of the BIA process due to historic borehole records being available for a location <50m distant from the site. Site investigation may be required following issue of planning permission as part of the detailed design stage for the proposed development to confirm geotechnical design parameters. Data to be obtained during the intrusive investigation may include, for example, information on soil strength and classification, and for buried concrete design.



## 5. PROPOSED DEVELOPMENT IMPACT

The following summarises the potential impacts of the proposed development including the lower ground floor construction based on the identified ground conditions and findings of the screening assessment.

### 5.1 Subterranean flow

Underlying soils are of very low permeability. Groundwater is not anticipated to be present beneath the site. The proposed construction will have no impact on groundwater flow.

### 5.2 Surface flow and flooding

The underlying soils are of very low permeability. There will be no significant increase in hard cover across the site as the site is almost entirely covered in hardstanding/building cover. The development will not significantly affect infiltration. On the basis that site drainage is designed in accordance with current standards and best practice, and incorporates appropriate retention and discharge controls as necessary, it is considered the development will cause negligible/acceptable changes to peak drainage outflows and will have no significant impact on surface flow and flooding.

### 5.3 Ground movement

A detailed movement analysis has not been undertaken. Near surface soils are likely to be of variable, potentially up to high, plasticity, i.e. London Clay Formation, and therefore ground movements could arise from shrinkage/swelling of plastic soils and removal/application of loads during construction (stress changes). Movements of the ground can also arise due to construction processes, due to design requirements, construction methods, etc. although these potential ground movements will be preventable through carefully considered design and planning.

At this early stage, detailed design has not been undertaken, with limited design information provided. However, it is expected that support will be provided to adjacent property (dwellings, gardens and residential roads/pavements) as part of the proposed construction as appropriate. It is expected this may be in the form of a contiguous or secant piled retaining structure. The design and installation methods for the support will prevent significant movements from occurring associated with possible instability of the ground during the construction phase.

The proposed excavation below current site levels is likely to be of the order of 3m deep, which will result in limited stress change due to unloading of the ground (through soil removal). In addition, this will only be a short-term change until construction loads are applied. The net change in stress in the long term will be negligible.

As the proposed redevelopment is for the construction of a five storey residential structure, similar to nearby properties, typical foundation loads are considered likely to be not too dissimilar and within an acceptable range for the underlying ground conditions. Based on the expected ground conditions and anticipated loads, ground movements are likely to be within acceptable limits for development and appropriate design should result in no significant/negligible damage to adjacent property, i.e. anticipated no worse than Damage Category 0 or 1, as defined by the Burland Scale, Table 5.



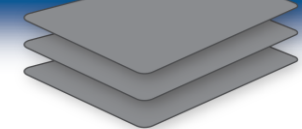
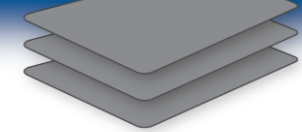


Table 5: Burland Scale

Damage category	Description
0 (Negligible)	Hairline cracks, typically <0.1mm wide.
1 (Very slight)	Fine cracks that can easily be treated during normal decoration (crack width typically <1mm).
2 (Slight)	Cracks easily filled; redecoration probably required. Some repointing may be required externally (crack width typically <5mm)
3 (Moderate)	The cracks require some opening up and can be patched by a mason. Repointing of external brickwork and possibly a small amount of brickwork to be replaced (crack width typically 5 to 15mm or several >3mm)
4 (Severe)	Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows (typical crack width 15mm to 25mm but depends on number of cracks)
5 (Very severe)	This requires a major repair involving partial or complete re-building (crack width usually >25mm but depends on number of cracks)

## 5.4 Construction sequence

Until the substructure design is complete, a construction method statement has not been prepared and the construction sequence cannot be confirmed. In due course, this will be prepared, taking into consideration any relevant site constraints, anticipated piling, proposed lower ground floor excavation and the proximity of the adjoining dwellings. The construction process may also incorporate a programme of monitoring of the site boundary.

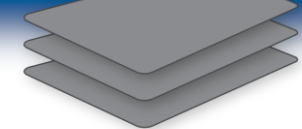


## 6. NON-TECHNICAL SUMMARY

The above screening assessment indicates there is likely to be no significant adverse impact arising from the proposed development, subject to confirmation of the geotechnical design. The published geology indicates the site to be underlain by the London Clay Formation, which is of very low permeability. Groundwater is not expected to be present beneath the site, with regional groundwater at a significant depth within deeper strata. On this basis, impact on throughflow of ground water, and therefore properties situated up and down hydraulic gradient of the site, is concluded as negligible.

In the absence of confirmed geotechnical properties and limited design information, it isn't possible to undertake a detailed movement assessment at this stage. However, based on the identified ground conditions, anticipated loadings and depth of excavation, and through the adoption of good practice during construction, ground movements due to the proposed excavation and construction are considered likely to be maintained within acceptable development limits and are unlikely to cause significant damage to property. The excavation and construction are not considered abnormal and are typical of urban/residential basement developments.


It is recommended that following issue of planning permission, in addition to undertaking intrusive ground investigation as part of the detailed geotechnical design, a monitoring strategy is implemented during development.



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I Cutler MEng, CEng, MICE Director		14/10/2024





## **APPENDIX A**

### **CURRENT SITE LAYOUT PLANS**



## **APPENDIX B**

### PROPOSED DEVELOPMENT PLANS



## **APPENDIX C**

### BGS BOREHOLE RECORDS



