FLOOD RISK ASSESSMENT

10 PRIMROSE HILL STUDIOS
CAMDEN

LBHGEO

LBH4601fra

February 2020

DOCUMENT CONTROL			
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THIRD PARTY INFORMATION

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1. INTRODUCTION

1.1 BACKGROUND

It is proposed to excavate a basement beneath the entire footprint of the existing Grade II listed building at No. 10 Primrose Hill Studios.

Camden Local Plan policy A5 on basements is understood to be that the Council will not normally allow habitable rooms and other sensitive uses for self-contained basement flats and other underground structures in areas at risk of flooding.

This Flood Risk Assessment (FRA) has been prepared alongside a Basement Impact Assessment, to accompany a planning application for the proposed basement development at this site and to provide a basis for further discussion of the proposed development at this site.

1.2 REQUIREMENT FOR A FLOOD RISK ASSESSMENT

The London Borough of Camden requires all applications for a basement extension within flood risk areas identified in the LB Camden Flood Risk Management Strategy to include a Flood Risk Assessment.

The site lies within the designated Primrose Hill Flood Risk Area. As a result, a Flood Risk Assessment is required.

1.3 GUIDANCE FOR FLOOD RISK ASSESSMENT

The Ministry of Housing, Communities and Local Government have published their online guidance for Flood Risk and coastal change that supersedes the National Planning Policy Framework Technical Guidance of March 2012.

A Flood Risk Assessment is required to assess the potential for the development to increase flood risk elsewhere through excavation and construction of the basement, in addition to assessing the site vulnerability to flooding from other sources including groundwater and overland runoff, rivers and the sea.

This report identifies the sources of flooding which may affect the site, and includes the following:-

- An appraisal of the availability and adequacy of existing information
- A qualitative appraisal of the flood risk posed to the site, and potential impact of the development on flood risk elsewhere
- An appraisal of the scope of possible measures to reduce the flood risk to acceptable levels

The assessment has been based on existing reports and archive information together with information from historical maps and photographs.

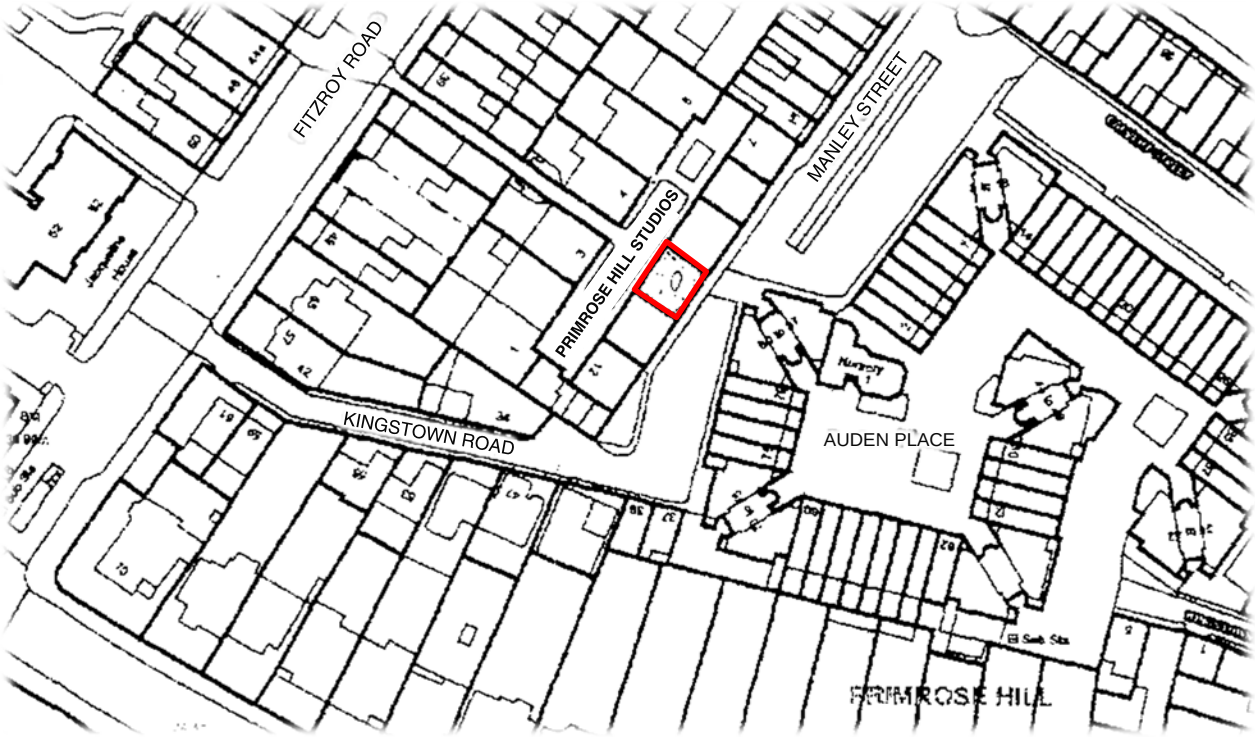
1.4 REPORT STRUCTURE

The report initially describes the site characteristics including the topographical, geological and hydrological setting of the site, following which consideration is given to flood risk.

2. THE SITE

2.1 SITE LOCATION

The site may be located approximately by postcode NW1 8TR or by National Grid Reference 528070, 183905.



SITE LOCATION PLAN

2.2 TOPOGRAPHICAL SETTING

The site lies on the southeastern slopes of Primrose Hill, falling towards the Regent's Canal and generally towards the valley of the now culverted River Fleet.

2.3 GEOLOGICAL INFORMATION

The British Geological Survey (BGS) records indicate that the site is directly underlain by the London Clay Formation.

Less than one metre of made ground is present, resting upon the London Clay.

2.4 HYDROGEOLOGICAL / HYDROLOGICAL INFORMATION

The London Clay Formation may be considered virtually impermeable; hence no significant groundwater flow is expected to occur beneath the site.

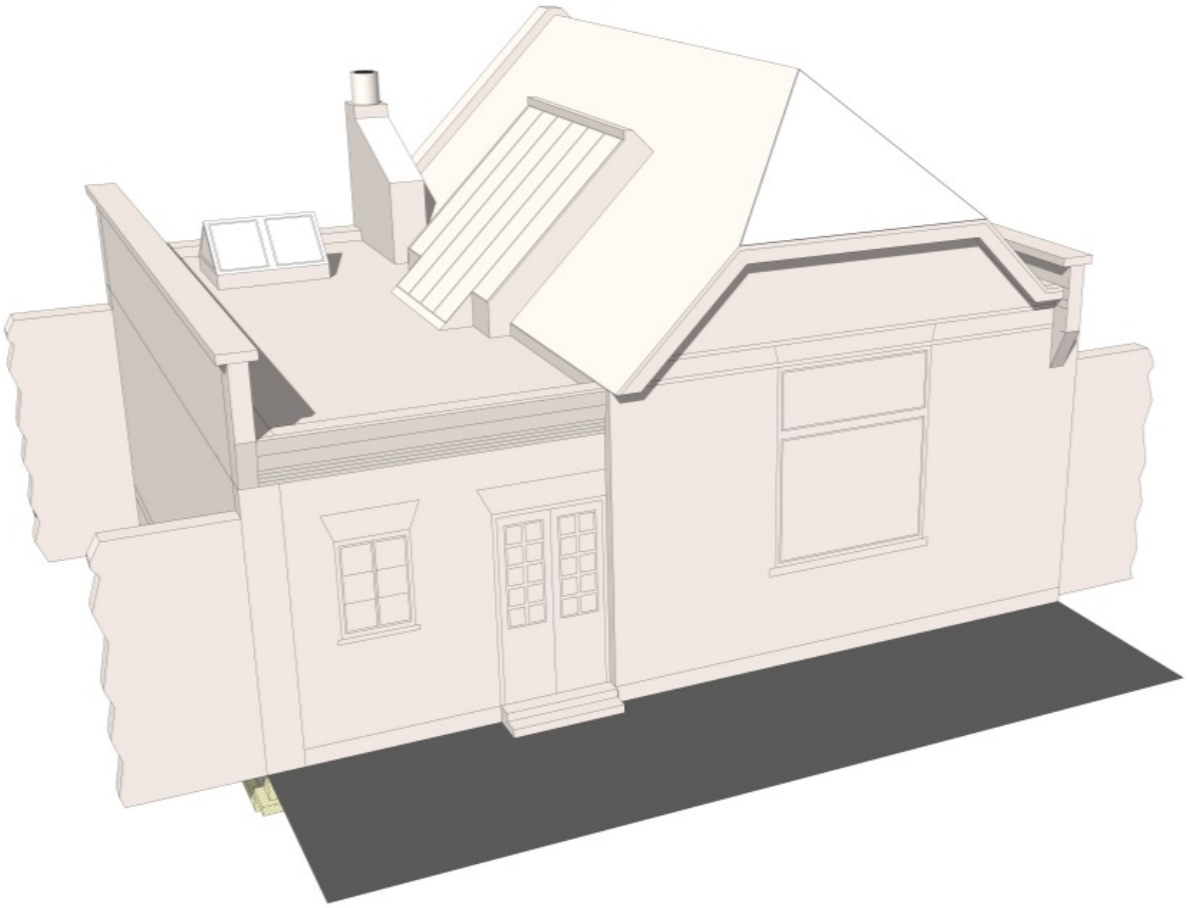
The closest surface water feature to the site is the culverted River Fleet, which flows through Camden Town some distance to the east of the site.

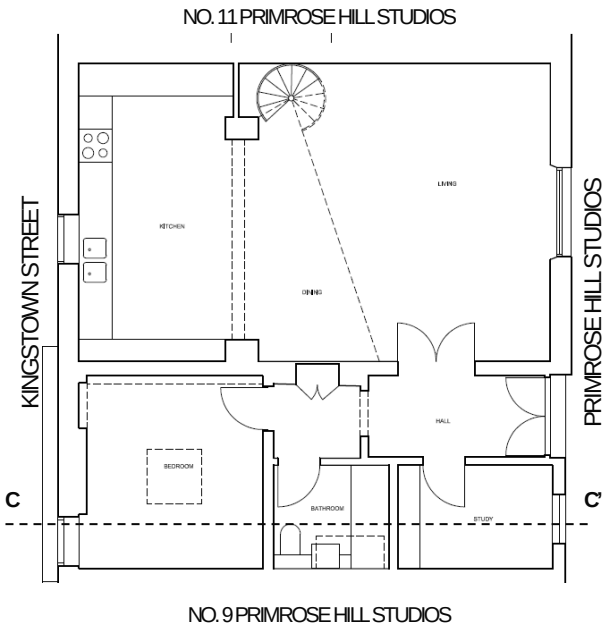
2.5 SITE DESCRIPTION

The site is occupied entirely by a late 19th Century part single and part two-storey studio building adjoining similar buildings at Nos. 9 and 11 Primrose Hill Studios. The existing ground floor level at the site is set approximately 0.2m above the street level of the Primrose Hill Studios, with the street level of Kingstown Street to the rear approximately 1m lower than that at the front.

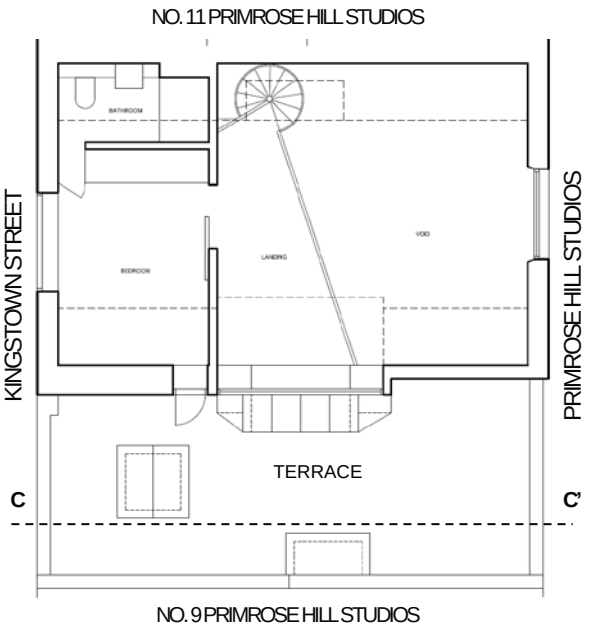
The existing structure comprises a two storey main part of the building with a pitched roof, which accommodates a mezzanine floor at first floor level, allowing a double height ground floor level at the front of the property. The single storey part of the building is flat roofed and contains the entrance and amenities.

A limited crawlspace / void is present below the entire ground floor. The void is indicated to increase in height towards the rear elevation of the building, where it appears to reach approximately 1m in height.

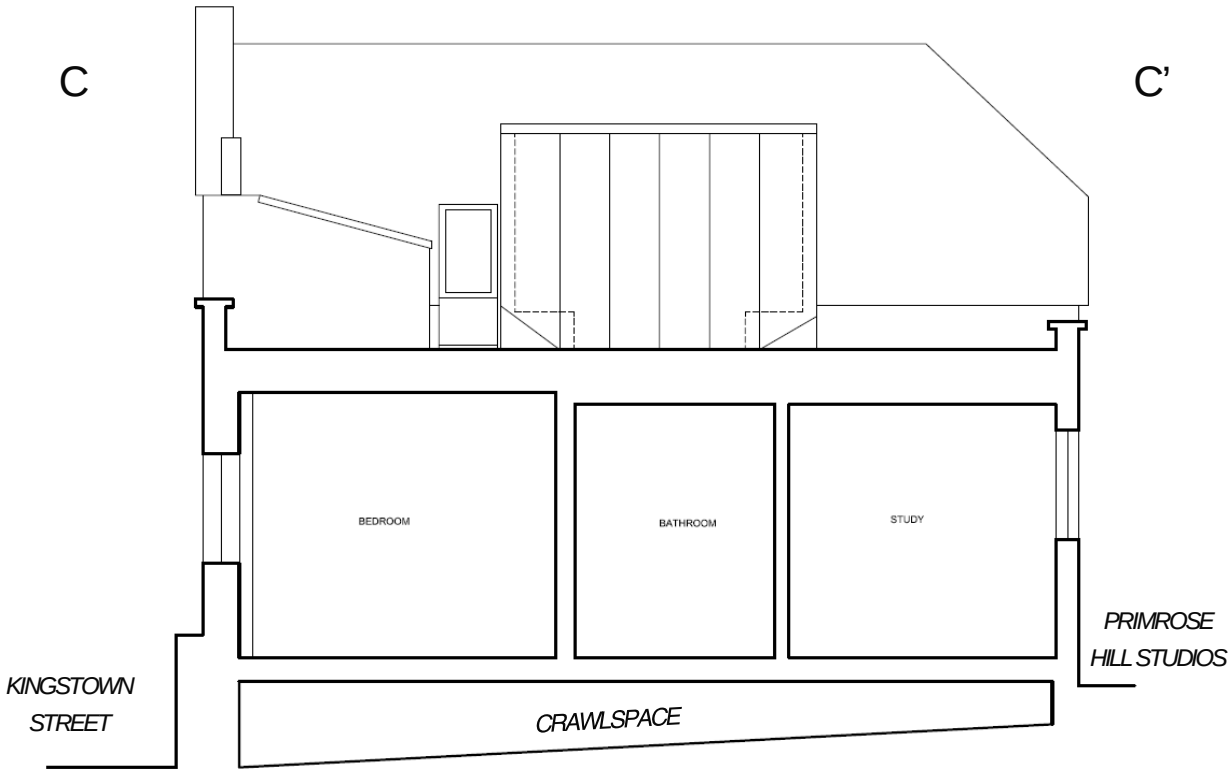




EXISTING GROUND FLOOR PLAN



EXISTING FIRST FLOOR PLAN

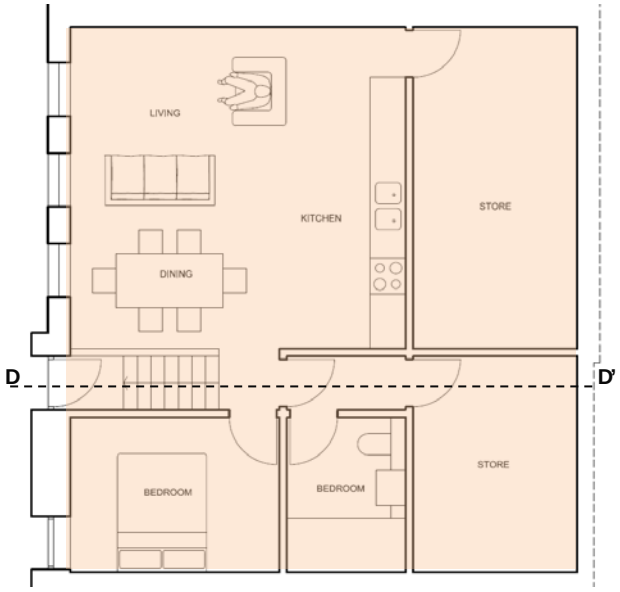


EXISTING SECTION C-C'
(SHOWING THE EXISTING CRAWLSPACE)

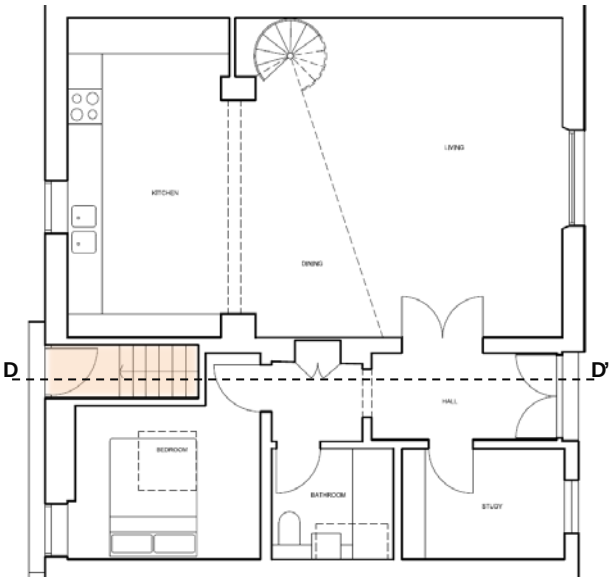
2.6 PROPOSED DEVELOPMENT

It is proposed to construct a single storey basement beneath the footprint of the property. The basement is proposed to comprise a self-contained dwelling accessed from Kingstown Street with a front door and low level windows on this elevation, taking advantage of the existing difference between the ground floor and street level.

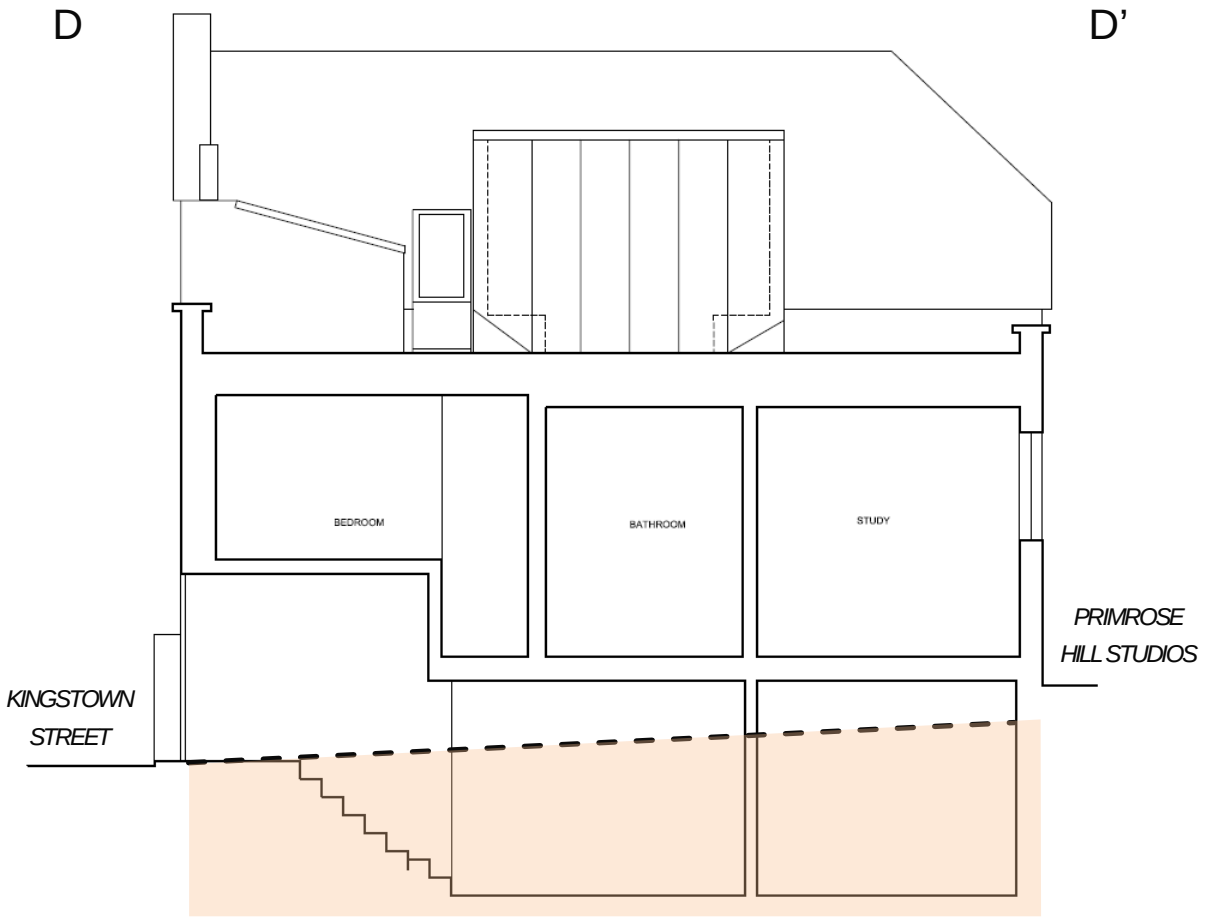
It is understood that the basement will extend to a depth of approximately 3.5m below the existing ground floor level.



PROPOSED BASEMENT PLAN



PROPOSED GROUND FLOOR PLAN



PROPOSED SECTION D-D'
(SHOWING THE PROPOSED EXTENT OF EXCAVATIONS)

3. FLOODING BACKGROUND

3.1 EXISTING FLOOD ALLEVIATION MEASURES

No evidence of any existing alleviation measures in the vicinity of the site has been identified.

3.2 FLOOD RISK VULNERABILITY CLASSIFICATION

Table 2 of the online guidance indicates that the proposed basement dwelling will fall into the 'highly vulnerable' flood risk classification.

3.3 THE SEQUENTIAL TEST

The guidance requires that the risk based sequential test should be applied at all stages of planning, which aims to steer new development to areas at the lowest probability of flooding (Flood Zone 1).

It is also recognised that some areas will also be at risk of flooding from sources other than tidal and fluvial.

Camden is entirely located in Flood Zone 1. In addition, the EA flood map of surface water flood risk indicates the site to be at a low risk of surface water flooding.

As a result, it is considered that the Sequential Test is satisfied.

3.4 THE EXCEPTION TEST

Table 3 of the guidance does not require the Exception Test to be applied given that in Flood Zone 1 Highly Vulnerable Development is considered appropriate.

4. HAZARD IDENTIFICATION

4.1 FLOODING FROM RIVERS AND THE SEA

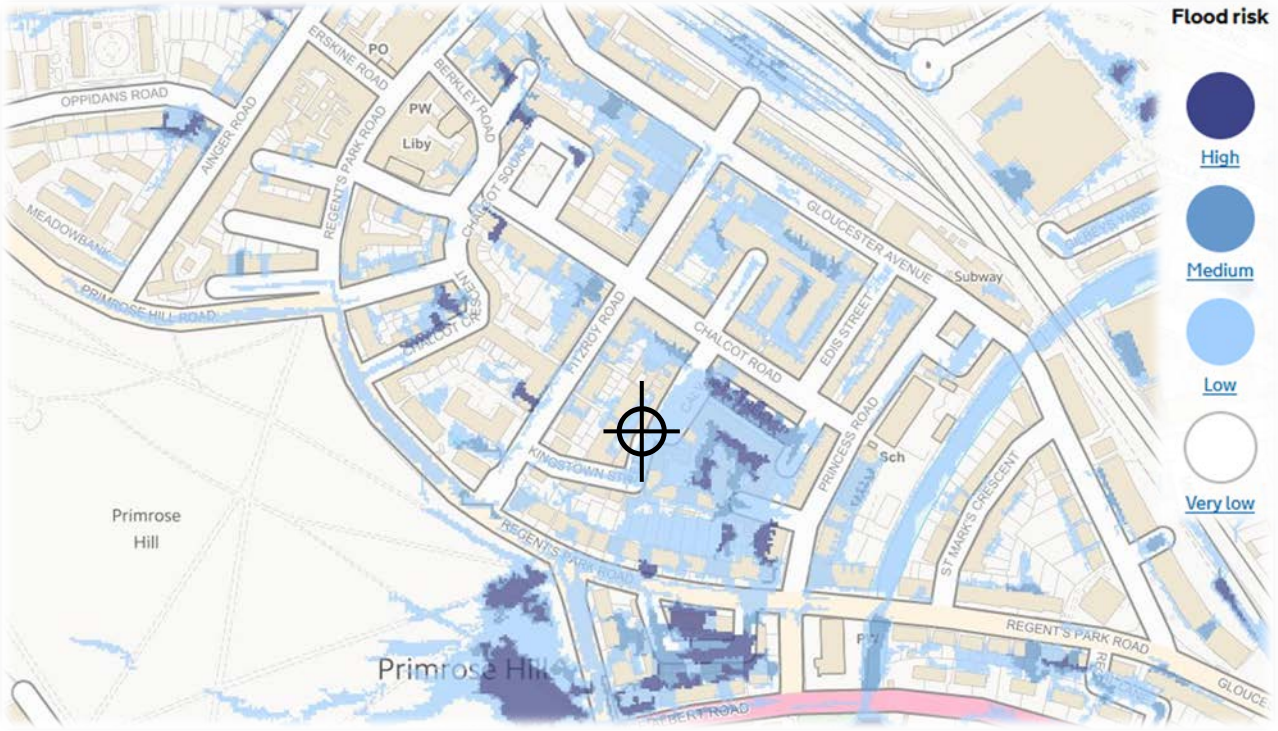
All main rivers located within the London Borough of Camden are culverted and are incorporated into the Thames Water sewer network. As a result, the London Borough of Camden is located entirely within Flood Zone 1. This indicates that the assessed annual probability of flooding at the site is less than 1 in 1000 (<0.1%).

In addition, the Camden SFRA records that no flooding has occurred within the borough from fluvial or tidal sources.

4.2 FLOODING FROM LAND

Environment Agency (EA) surface water flood maps indicate that the Primrose Hill Studios square on which the site fronts is at low risk of surface water flooding, which equates to an assessed annual probability of flooding of <1%.

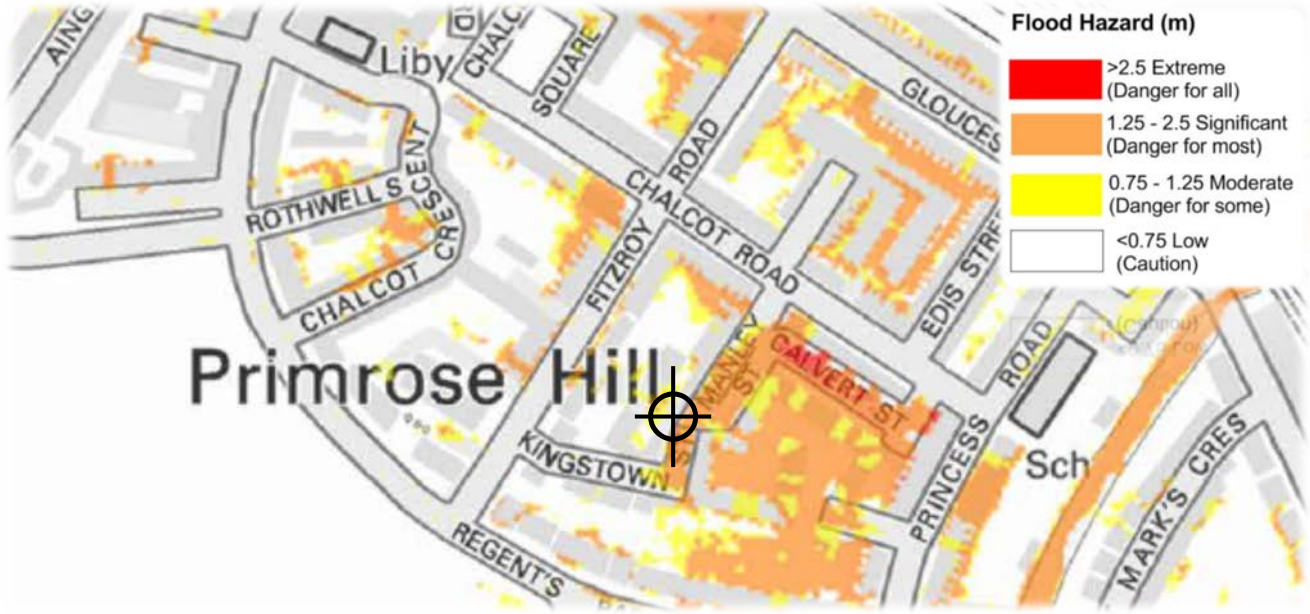
The area to the rear of the site is identified to be mainly at low risk of surface flooding as well, with local areas of medium and high risk of flooding (0.1% to >3.3%) located further along Calvert Street to the east of the site.



EXTRACT OF EA SURFACE WATER FLOOD RISK MAP

Hazard mapping created by the EA indicates the hazard to people following a methodology presented by Defra in its R&D report on Flood Risks to People[1].

The following map indicates that in the event of a 1 in 1000 rainfall event (<0.1% annual probability), the surface water flood hazard within the site itself is classed as Low, although the square to the front is generally classed as Moderate and Kingstown Street to rear is classes as Significant.



EXTRACT OF FIGURE 3 IX: HAZARD 1 IN 1000 YEAR FLOOD EVENT (CAMDEN SFRA, 2014)

Historic flood records indicate that the London Borough of Camden experienced significant flooding in 1975 and 2002. Neither the Primrose Hill Studios square nor Kingstown Street were reported to have been affected by these water flood events.

4.3 FLOODING FROM GROUNDWATER

Groundwater flooding occurs when water levels within the ground rise above surface levels.

The British Geological Survey (BGS) records indicate that the site is underlain by the London Clay Formation, which the Environment Agency (EA) classifies 'Unproductive Strata'.

The intrusive site investigation confirmed that there is no shallow groundwater table present at this site.

It is therefore concluded that the risk of groundwater flooding at the site is negligible.

[1] *Defra (2006) Defra Guidance Document FD2321/TR2: Flood Risks to People*

4.4 FLOODING FROM SEWERS

Figures 3ii, 5a and 5b of the Camden SFRA (2014) indicate that there have been no sewer flooding incidents affecting the streets immediately surrounding the site

The site is therefore considered to be at a very low risk of sewer flooding.

4.5 FLOODING FROM RESERVOIRS, CANALS AND OTHER ARTIFICIAL SOURCES

The EA's Reservoir Flood Map identifies areas that could be flooded if a large reservoir, canal or other artificial body of water were to fail or release the water it holds. The EA indicates that the site does not lie within an area at risk of reservoir flooding.

The SFRA has not identified any other significant artificial sources of flood risk within the borough that may adversely affect the site.

5. RISK ESTIMATION

5.1 RATE AND DURATION OF FLOODING

No information is available on the predicted duration of any surface water flooding.

The EA surface water flood map shows that, during a 1 in 1000 rainfall event, the flood velocities may exceed 0.25m/s along Kingstown Street and Calvert Street, with slower flows present in the Primrose Hill Studios courtyard to the front of the property.

EXTRACT OF THE EA SURFACE WATER FLOODING MAP SHOWING THE FLOOD VELOCITIES PREDICTED IN THE VICINITY OF THE SITE DURING A 0.1% AEP SURFACE WATER FLOOD EVENT.

The EA surface water flood map further shows that, during a 1 in 1000 rainfall event, the flood water depth is expected to be <900mm along Kingstown Street to the rear of the site, although the map above indicates the flood water to be flowing away from the property.

EXTRACT OF THE EA SURFACE WATER FLOODING MAP SHOWING THE FLOOD WATER DEPTH PREDICTED IN THE VICINITY OF THE SITE DURING A 0.1% AEP SURFACE WATER FLOOD EVENT.

5.2 CLIMATE CHANGE

5.2.1 ADJUSTMENT FOR POTENTIAL FLOODING FROM THE SEA

The site is not considered to be at risk of flooding from tidal sources and no adjustment is required.

5.2.2 ADJUSTMENT FOR POTENTIAL FLOODING FROM THE LAND AND RIVERS

The predicted effects of climate change – more intense summer rainfall events and high winter fall – could increase the risk of surface water flooding.

The EA flood maps and flood zones do not currently take into account the possible future climate change impacts, although it could be said that the potential extent of an extreme flood shown on flood maps might in future become a more frequent occurrence as a result of climate change.

The EA published revised guidance on climate change allowances for flood risk assessment in 2016, anticipating the total percentage change over the next 100 years. The range for the increase in peak rainfall intensity is estimated between 10% and 40% across England, with a range of 25% and 70% for peak river flows in the Thames (using 1961-1990 baseline).

6. RISK EVALUATION

6.1 EXISTING SITUATION

The risk of flooding from various sources has been assessed and the overall risk of flooding at this site is considered to be low.

The main potential source of flooding is expected to be from surface water flooding of the Primrose Hill Studios square to the front and Kingstown Street to the rear. The indications from the flood risk map are that a depth of flood water of between 300mm and 900mm may be expected in both cases.

The existing ground floor level is set approximately 0.2m above the street level of the Primrose Hill Studios and approximately 1.2m above the street level of Kingstown Street to the rear.

It is understood that other properties in Primrose Hill Studios do include basement developments.

6.2 POTENTIAL SITUATION AFTER DEVELOPMENT

It is proposed to construct a single storey basement beneath the footprint of the property; which will extend to approximately 3.5m below the existing ground floor level.

The volume of surface water run-off likely to be generated from the developed site is not expected to change, given that there will not be any increase in impermeable area.

Flood protection measures will be required to mitigate the risk of surface water flood ingress.

7. FLOOD RISK MITIGATION

7.1 OFF-SITE FLOODING

As there is no identified increase in risk resulting from the proposed development, there is not deemed to be a requirement to mitigate flood risk outside of the site.

7.2 ON-SITE FLOODING

Flood protection measures would be required to mitigate the risk of surface water flood ingress to the new basement dwelling. The indications from the flood risk map are that a depth of flood water of between 300mm and 900mm is to be expected.

8. CONCLUSION

Camden Local Plan policy A5 on basements is understood to be that the Council will not normally allow habitable rooms and other sensitive uses for self-contained basement flats and other underground structures in areas at risk of flooding.

This assessment provides a basis for discussion of the proposed development at this site with the local authority, in order to explore whether and how potential future users of the intended development can be provided with an appropriate degree of protection against flood risk.