

Scoping Assessment

The screening assessment has identified a number of aspects of the development that require consideration in the basement impact assessment. The table below outlines the potential consequences associated with these aspects.

Aspects identified	Possible consequences
The proportion of paved / hard surfaced areas on the site will increase	The runoff rate from the site will increase resulting in an increased peak flow rate into the existing main sewer
The existing site includes slopes greater than 7°	Stability of slope will need to considered during design.
The proposed basement may extend below the foundation level of the adjacent structure to the South	Excavation for a basement may result in structural damage to neighbouring properties if there is a significant differential depth between adjacent foundations.
Existing house occupies the site	Remnants of the existing foundations and/or backfilled basements or cellars are likely to be encountered during the excavation for the basement.

The above risks have been mitigated through the design as indicated in the following section.

Basement Impact Assessment

The proportion of paved / hard surfaced areas on the site will increase:

The building footprint increases from approximately 112 sqm to 154 sqm. This will result in a significant increase in runoff into the main sewer. There is no suitable location for a soakaway system on the site. The preferable alternative will be to consider an attenuation tank so that the peak flow rate of the proposed development is reduced to 50% of the current peak flow rate.

The existing site includes slopes greater than 7°

The site slopes down eastwards from the front of the existing property to Lawn Road. The proposed basement excavation will provide a retaining wall towards the top of this slope. This will increase the stability of the slope as it will no longer have to laterally resist surcharge from the existing building as this will be carried down to the bottom of the basement. There will be no effect on the wider landscape as the slope is local to the site.

Excavation of basement below adjacent foundation level resulting in structural damage to neighbouring properties:

The neighbouring properties to the West and East are of sufficient distance away from the proposed basement dig so as not to be of concern. No adverse impacts are anticipated to these structures.

The neighbouring property to the South is next to the proposed basement dig. The neighbouring property to the North is 1.0m from the proposed basement dig. The form and level of the foundations, and the presence of a basement, have been investigated by Southern Testing. London Clay Formation is found approximately 0.5m under a covering Made Ground and the water table is not found in boreholes during siteworks.

As the proposed basement is next to the neighbouring building, it is expected that the neighbouring building will apply a surcharge loading to the proposed basement. The basement will be formed by underpinning the existing foundations. Significant temporary works will be required to prevent any significant movement of the adjacent property.

The Party Wall Act will definitely apply to the property to the south and is very likely to be required to the north since the excavation is within 3m of the neighbouring property and likely to be deeper than the neighbour's foundations.

Existing foundations of the current house will be encountered during the excavation of the basement:

Contractor to ensure the existing property is properly supported at all times during the excavation of the basement. Contractor will have to be careful when excavating around where existing services are expected.

Ground investigation

A site investigation is has been carried out by Southern Testing. Interpretative report is attached to this document.

## Construction

### General

Codes and Standards

- EN 1990 Basis of structural design
- EN 1991 Actions on structures
- EN 1992 Design of concrete structures
- EN 1993 Design of steel structures
- EN 1997 Geotechnical design

### Proposed Construction

The alterations to 77 Lawn Road consist mainly of excavating down beneath the property to add an additional storey to the property.

There will be a single storey kitchen extension to the North and a two storey garden room/bedroom extension to the West. There will also be several alterations to internal walls, where existing walls are removed and replaced with steel beams over new openings.

The existing stairs to both the 1st floor and loft space will be altered to provide a single open staircase, rather than two separate enclosed staircases.

The loft will be converted adding a new flat roof dormer to the rear and rearranging the internal space.

### Basement construction

The basement will be formed by undermining the existing perimeter walls using U-shaped reinforced underpins that extend to increase the size of the basement. The party wall will need to have additional mass concrete underpinning.

There will be ground floor structural elements that will need to be resupported on new steel beams to span openings at basement level. This may require needling of the walls to accommodate the change in basement wall layout. The ground floor itself will need to be replaced with a new suspended ground floor slab to prop the retaining walls.

### Foundations

The new basement will form the foundations of the structure. It will have a ground bearing slab designed to resist the vertical loading, and also the effects of pore water pressure and heave.

### Floataction

An assessment will be made of the hydrostatic water pressures acting on the basement. The self weight of the structure will be checked to see whether uplift is a possibility. If uplift outweighs download, then consideration will have to be made to either increase the weight of the basement slab construction or to include tension piles.

### Waterproofing

Proposals for the basement water proofing systems have yet to be agreed. BS8102:2009 will be used to define the requirements for the waterproofing to the structure. It is likely the water proofing will include a drained cavity and a second system, such as water proof concrete.

### Adjacent structures

The stability of the adjacent structures has been considered as the proposed basement is to be constructed beneath the party wall of the property to the South. The underpinning will need to be carefully designed and sequenced to ensure that there is no damage to the adjoining property.

The basement will also be within 2m of the property to the North. This will be taken into consideration when checking the surcharge loading on the retaining walls.

The principle of the construction method adopted is aimed to minimise ground movement, particularly at depth by having no opening excavations and a series of temporary works to minimise lateral movements of the proposed structures.

A full ground movement analysis will be carried out and translated into a damage criteria assessment.

### Potential impact on existing utilities and services

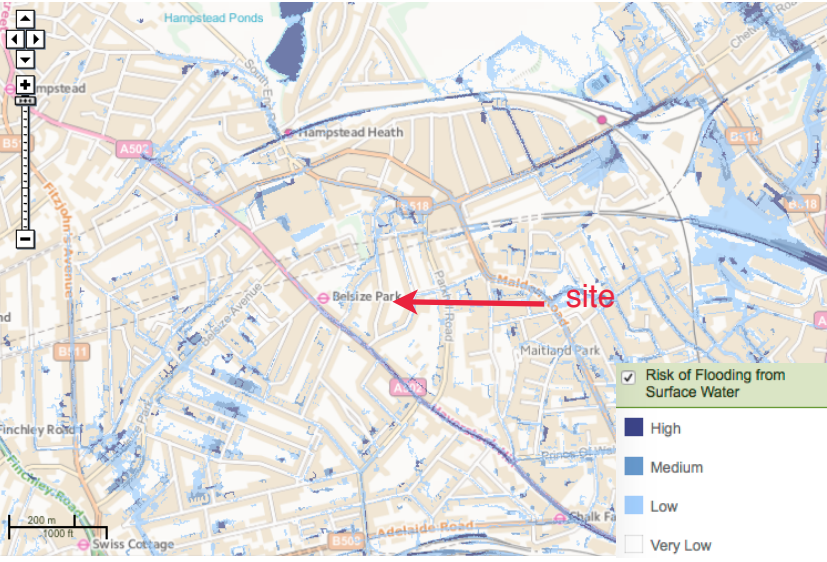
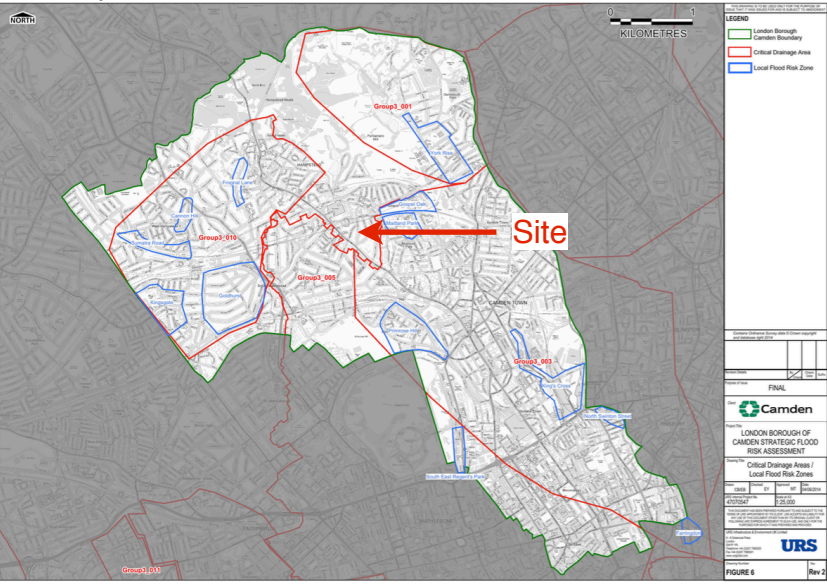
Any services on the site will be maintained or rerouted as necessary. The exact location of these services is not currently known and will not be until the work commences. Given the nature of the proposals and the size of the existing site we do not foresee any significant issues rerouting any existing services if required. If this is required the Contractor will be under a statutory obligation to notify the utility owner to agree the exact methodology prior to any works being undertaken.





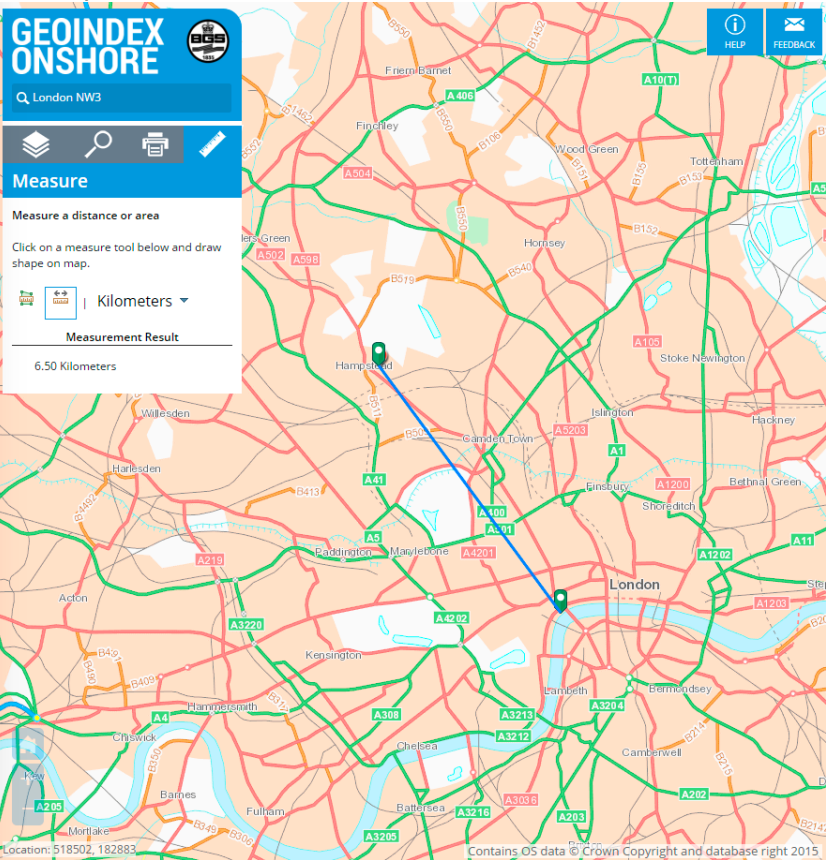
Appendix A

SFRA maps

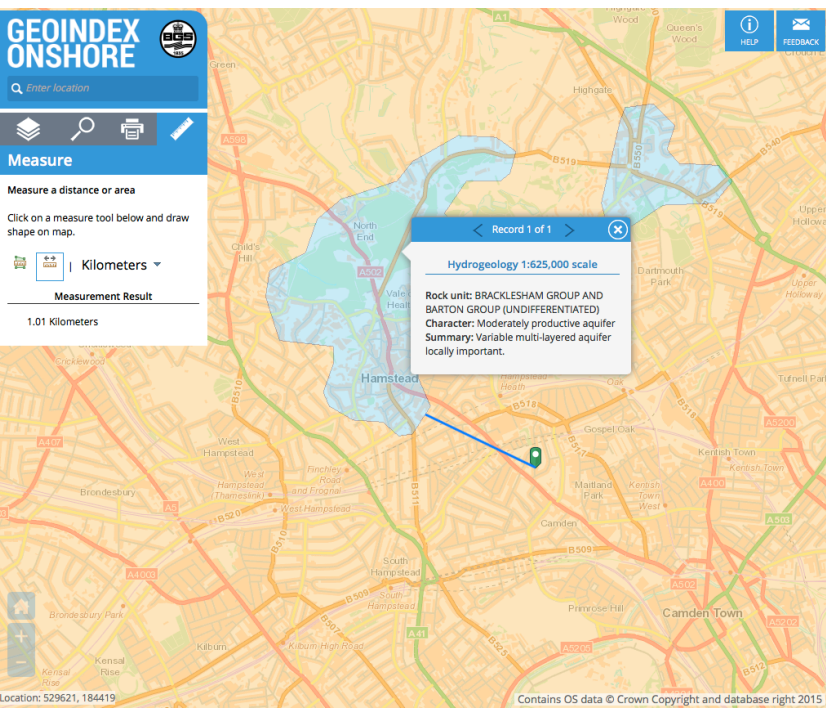


Zone 1: Low probability

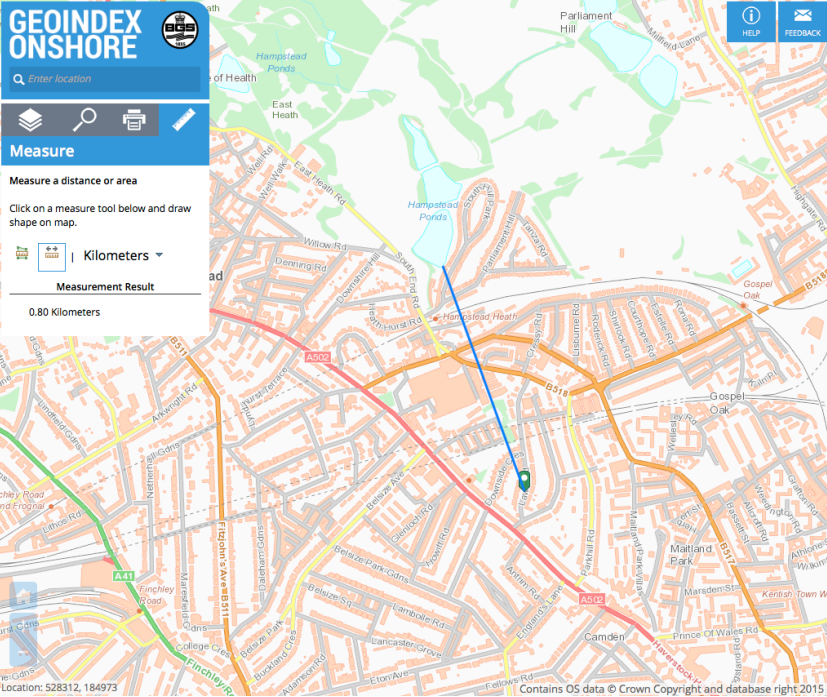
BGS maps



Hydrogeology map showing no water courses within 6500m



Moderate productive aquifer approximately 1km from site



Site is approximately 800m from Hampstead Heath Ponds

OS maps



Topography on OS map shows 10m change in level over approximately 270m length





Map showing railway lines running under Lawn Road approximately 180m North of site



Appendix B

Structural Drawings