



## **Risborough Court Muswell Hill London N10 3PP**

Ref: 23.366  
4th October 2023

### **STRUCTURAL STATEMENT**

#### **1.0 Introduction**

This report describes the feasibility stage of structural engineering aspects of the redevelopment proposed to Risborough Court, Muswell Hill.

It should be noted that the information contained in this report is subject to refinement following any new information resulting from further opening up works during the construction phase.

#### **2.0 Proposed Scheme**

The proposal consists of creating a flat in the undercroft area below the ground floor flat to create three storeys along the entire footprint of the building. The site is on a steep gradient sloping down from Muswell Hill allowing adequate height for flats 1 & 2 at Lower ground level along two thirds of the building. The undercroft occupies the final third of the building and will require excavation of the ground to create similar headroom to flats 1 & 2.

### **3.0     Existing Construction**

The property, constructed circa 1950's, is a purpose built block of flats with external solid 225mm brick walls. We were unable to gain access to the property, but could see the floors are timber and supported on a centre spine wall, which in turn supports a timber pitched roof structure. The property is divided into three sections with solid brick party walls between each section and a separate flat on each storey. Two thirds of the property is three storey and the final third is two storey plus undercroft.

Access to the Lower Ground floor flats (1 & 2) is on Alexandra Gardens, access to the ground floor and first floor flats directly above (4, 5, 7 & 8) are from the rear. Access to the ground floor flat above the undercroft (flat 3) is through the flank wall entrance on Muswell Hill.

The existing foundations are 700mm wide mass concrete trench at a depth of approximately 1100mm below Ground level, rising approximately 1400mm around the undercroft area.

### **3.1 Site Investigations**

One trial pit has been excavated to the front wall of the undercroft. The foundations are 1170mm below Ground level. Further Trial pits and a Basement Impact Assessments may be required by the Local Authority.

### **3.2 Geology**

By reference to the One Inch Geological Survey Map of the Area it was established that the property is constructed on a shrinkable clay. This material is known to be affected by cycles of wet and dry weather. The presence of trees growing near to a property can cause damage by the action of tree roots growing below shallow foundations. These can cause extraction of moisture at an enhanced rate during unusually dry weather conditions allowing desiccation of the subsoil to take place and movement of the superstructure. There have been a number of unusually dry periods including 1976, 1983, 1989-1996, 2003 and 2006. We are currently in a dry period akin to 1976, therefore any trees within the zone of influence of a building will require maintenance. In this instance there is a 6 metre tall Cherry tree growing approximately 5 metres from the front wall of the undercroft.

By reference to the NHBC Guidelines; Chapter 4.2: "Building near trees" the minimum foundation depth below ground level required to prevent the tree roots adversely affecting either the foundations directly or the soil below should be less than 1.0m at the front. However, should the tree be allowed to grow to its mature height of 12 metres, the foundations would need to be 1.65 metres deep. The existing foundations are 1170mm deep. Due to the proposed excavation requirement, the new foundation depth will be in excess of 2.6 metres.

### **4.0     Visual Inspection of the Building**

A visual structural inspection of the external areas of the building was carried out on 29th September 2023. Access was not gained to any flats or into the undercroft.

No significant cracking or movement were noted in the Flemish bond external brickwork of the property, all the window sills and lintels appear level. There are a few minor areas that have been repointed but there is no subsequent cracking. The lower ground flats also have a rear entrance into a narrow rear garden area with a retaining wall supporting the driveway beyond. There is no evidence of subsidence or settlement currently affecting the building.

## **5.0 Proposed Alteration**

It is proposed to excavate below flat 3 to convert the undercroft into a habitable flat. The foundations along the outer walls are approximately 1.4 metres higher than the rest of the building. Therefore underpinning with a reinforced concrete stem and base below the Alexandra Gardens and Muswell Hill elevations are required. A reinforced concrete retaining wall would also be constructed at the rear to support the driveway and create a small garden area to allow access to the flat. Internally, the centre spine wall and main rear wall will require re-supporting on steel box frames constructed on new mass concrete trench footings. The new lower ground rear wall will be constructed on new foundations below the existing rear walkway wall.

The new structure will therefore take the existing foundations deeper and therefore be beneficial to the overall stability of the building.

## **5.0 Conclusions**

In summary we are of the opinion that the proposed underpinning works are structurally feasible and will not compromise the strength of the existing structure. The work can be carried out without the need for strengthening the existing structure. The work should be carried out by a specialist underpinning firm with appropriate Professional Indemnity Insurance.

Yours sincerely,



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