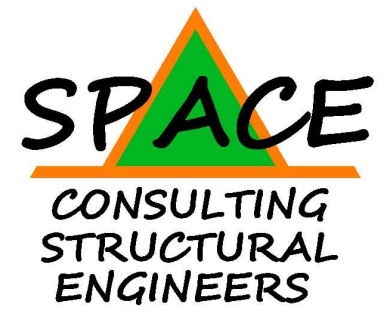


STRUCTURAL CALCULATIONS

**11 Ermine Road,
London,
N15 6DB**

Basement Impact Report



Signature etc redacted

CONTENT

1	Preamble	2
2	Observations	4
3	Conclusions / Recommendations	5
4	Photographs	10

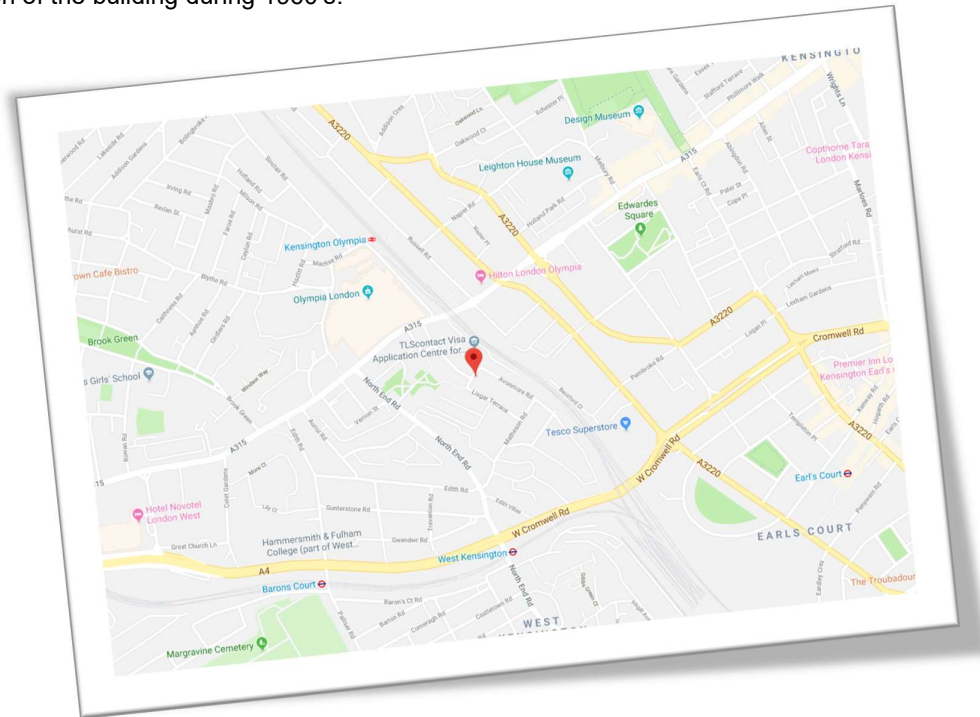
This document has been prepared by Space Consulting Structural Engineers Ltd. for the titled project and should not be relied upon or used for any other project. Space Consulting Structural Engineers Ltd accepts no responsibility or liability for the consequences of this document being used for any purpose other than the purpose for which it was commissioned. Any person using or relying on the document for such other purpose agrees, and will by such use or reliance be taken to confirm his agreement to indemnify Space Consulting Structural Engineers Ltd for all loss or resultant damage. Space Consulting Structural Engineers Ltd accepts no responsibility or liability for this document to any party other than the person by whom it was commissioned.

1 Preamble

Space Consulting Structural Engineers Ltd were appointed on the 03/04/23 to compile a visual structural survey (basement assessment) to 11 Ermine Road, London, N15 6DB. The Structural Engineer surveying the property was Kevin Jeetun.

The inspection was carried out on the 3rd April 2023 at around 11am for the purpose of outlining the feasibility of a basement extension.

The property is located within South Tottenham walking distance from the railway station and local amenities. The property is situated within a heavily residential area, and would assume the construction of the building during 1960's.



Location Plan – Image from Google maps

The building is within a terrace consisting of 3 levels, built of cavity wall construction supporting timber truss roof and timber upper floors. Internal walls are bricks (140/100mm) for both loadbearing and non-loadbearing walls. The second floor consists of non-load bearing timber framed walls as the roof truss is spanning from front to rear wall.

The existing foundations are unknown at this stage but assumed to be 1m deep and at least 600mm wide (given the high loads). The ground conditions are also unknown but assumed to be stiff London Clay based on findings within other similar projects in the area.

Kevin Jeetun Qualifications

BEng (Hons)

MSC

CEng

MIStructE

Career Summary – Previous Employers

Kevin Jeetun started his professional career at Royal BAM (Graduate/Project Engineer) in 2002. During his time with BAM, he worked in retail, residential and commercial sectors with ranging structural components and materials. Structural elements included concrete and steel frames, flat slabs, post-tensioning, bridges, and large-scale extensions. He managed fees, staff and design, delivering projects on time and within budget. Clients list includes Tesco Ltd, ASDA, Sainsbury's, Abbeygate, Helical Bar, Berkeley Homes, Pfizer and Crawley council PFI.

Kevin then moved to Gyoury Self Partnership in 2007 (Senior Engineer) working as a team leader. Kevin managed many projects simultaneously, focusing on budget, staff, and client satisfaction. He managed projects with a team of technicians and draftsman, aiming to maintain high levels of communication and performance. He had been the lead engineer of projects from large £3m warehouses to small domestic extensions, dealing with a full range of materials and foundation types. This role also included reporting on crack damage, subsidence and general structural surveys for homeowners, estate agents, and mortgage lenders.

Kevin then moved to Pinnacle in 2009 where he became an Associate. He Managed internal design teams with production of buildable value engineered designs, including checking and approving of designs. Other responsibilities included,

- Performance reviews on other members of the design team.
- Mentoring graduate and project engineers with designs and institutional affairs.
- Establishing contracts with client and novation agreements.
- Arranging site investigations and building/land surveys for pre-development works.
- Providing a friendly direct contact for the client to resolve general design issues and offer advice.
- Communication with other disciplines externally to ensure flow of information.
- Safe designs focusing on CDM aspects
- Cost management
- Structural reports and investigations

Kevin's current position is managing director of Space Consulting Structural Engineers Ltd where he undertakes designs and manages workload. He continues and is regularly involved with reports on crack damage and subsidence for legal representatives and feasibility reports.

2 Observations

Upon inspecting the perimeter of the building, no significant cracks were noticed which is normally seen around window lintels. The lintels to this property appeared to be suitable with no noticeable damage or decay. At the time of the survey, all the ceilings and wall coverings hindered any condition survey although no cracks had penetrated through any coverings. From a visual inspection from ground floor, the roof structure appeared to be in adequate condition. The roof truss rafters were inspected with no signs of decay.

At ground floor, the rear garden was hard landscaped consisting of paving stones and patches of concrete. The area appeared to be level with no significant gradients or falls.

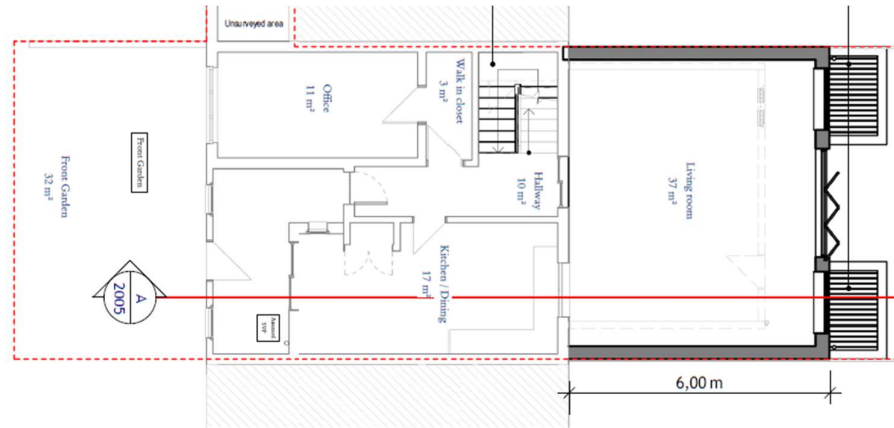
Existing foundations are assumed to be c.1m deep mass concrete with a width of c.600mm. We do not know the exact bearing capacity of the ground but should allow for around 125KN/m² for bearing into stiff London Clay as per British Standards 8004:1994.

The building includes a ground floor extension built after its original construction. The current Kitchen is located within the flat roof extension and appears to be over a concrete floor. The walls were cavity filled 270mm wide, suggesting its construction post 1960's.

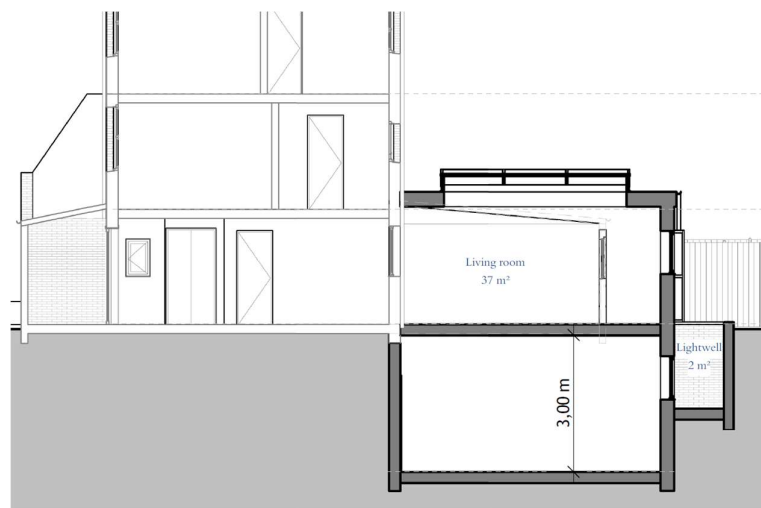
The building appears to be well maintained and built over good ground.

3 Conclusions / Recommendations

The proposal is to construct a basement extension below the existing rear extension footprint (see **pic 1**). Access to the basement is proposed within the main house where the existing staircase is currently located.



Pic 1 – Architectural Basement Plan



Pic 2 – Architectural Section

The new basement will incorporate 2No. light wells bringing natural light into the basement property. This will be via openings within the ground floor and covered with grills enabling ventilation although unclear if it will form a means of escape.

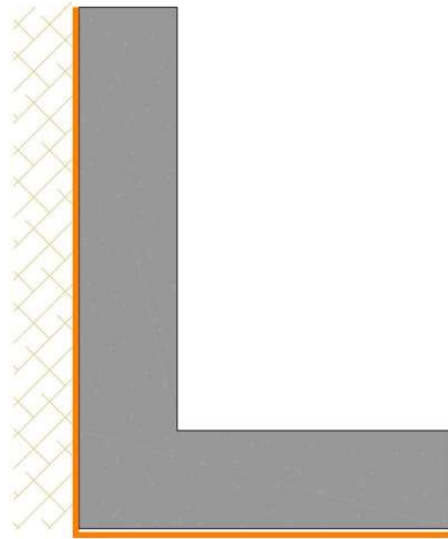
The proposed architectural drawings show the floor to ceiling height of 3m. This therefore sets the level for the retaining walls, underpinning and basement slab. The existing extension would need to be demolished and rebuilt over the new basement footprint. Having the existing single storey extension removed, reduces the extent of the underpinning, and simplifies the build.

However, there will need to be underpinning to the existing main building where the new basement extension meets the main house. The underpinning will need to be sequenced as follows,

1. Excavations to be dug by machine or by hand to the required depth 1m section width at a time.
2. The main house foundations should be fully exposed and cleaned prior to casting new concrete.
3. Formwork and shuttering should be installed and braced for stability. New reinforcement laid ready for concrete.
4. The excavation will need to be left open until the Building Control inspector has been to site to inspect (subject to any agreement with the inspector) and given their approval.
5. Once Building Control have given the approval (if required), the excavation should be filled, using waterproof C40 concrete as specified with the technical drawings.
6. Adjacent underpinning bays cannot be excavated until 48hours after placing of dry-packing which in turn cannot be placed until 24 hours after pouring concrete
7. Adjacent underpin excavations to have 2 bay clearances between each other
8. Shear key to be provided between adjacent pins using horizontal dowel bars H16 (200c/c.) 1000mm long
9. Dry packing to comprise of 1:3 cement/sharp sand mixed semi dry and rammed between existing and new foundations

The new basement walls will be designed to be monolithic with the basement slab for structural stability and economy. This works include concrete reinforcing bars ensuring all the joints are robust. The basement walls must be tanked and protected from water ingress, designed by the architect but can either one of the below.

Type A is a tanked protection. This construction consists of a water-resistant layer in the form of a membrane, usually installed to the external face of the structure. There are many variations of type A constructions. This form of basement construction does not have integral protection against water penetration and therefore completely relies on the waterproofing membrane.



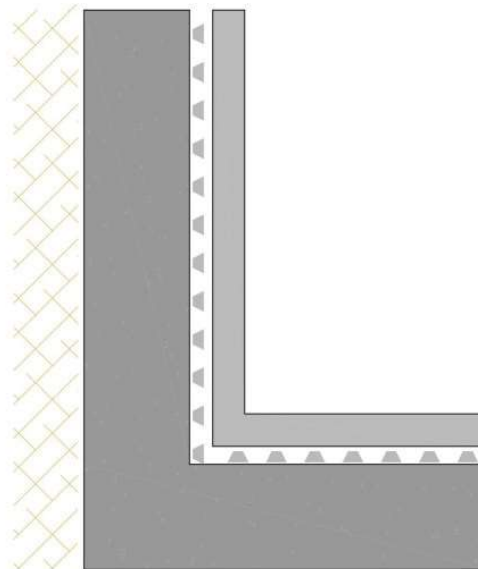
Pic 2 – Tanked waterproof protection

Type B is a structurally integral protection. This is usually a form of prestressed or reinforced concrete that is water resistant. The concrete is not as effective in resistance to water vapour movement so is often incorporated into a Type A or Type C construction.



Pic 3 – Waterproof concrete protection

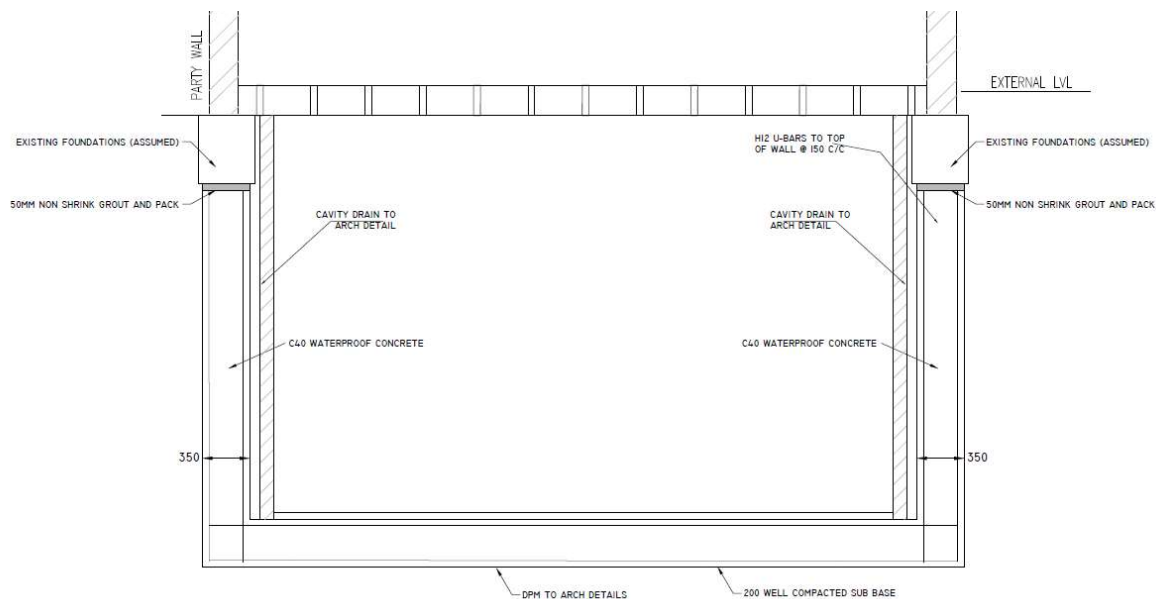
Type C basement construction incorporates a drainage cavity within the structure which collects water and removes it to a pump drainage system.



Pic 4 – Cavity drain waterproofing

The cavity drained system together with Type A or B should be used for the tanking within any new basement for double protection.

Pic 5 shows a typical detail of the new basement walls and slab. This will need to be constructed in segments forming an underpinning sequence as described earlier.



Pic 5 – Typical section through basement

The underpinning and basement shell construction is a slow process and a contractor familiar with basement construction should be sought. We would suggest allowing time for a tendering process together with onsite interviews to ensure the most appropriate contractor is appointed. The contractor should have all the necessary certificates and insurances for such an undertaking together with a health and safety plan/method statement of the proposed works.

A party wall surveyor should be consulted related to boundary works to ensure no issues are encountered during the build.

A soil investigation should be commissioned to advise on the soils and its characteristics such as bearing capacity, sulphate level, radon risk, shrinkability of the clay, and any other contamination risk. The contamination risk is important as the clay will need to be disposed to a licenced location if the risk is high, paying a premium in disposal cost.

In order to obtain robust quotation, the next stage of the process is to undertake the detailed structural designs. This involves designing the individual components, including, concrete walls, basement concrete slab, beams at ground floor level, underpinning details and floor joist trimmers. This phase of work is subject to the initial 'ball park' figure received by the contractors during the tendering process and subsequent financial feasibility of undertaking the works.

4 Photographs



Pic 1 – View to front of property



Pic 2 – Rear of property with rear extension in view



Pic 3 – View to rear boundary



Pic 4 – View of inside extension looking out to rear