Subterranean Construction
Method Statement

1 Vernon Yard, London, W11 2DX.
Proposed Basement Construction

INTRODUCTION

1 Vernon Yard, London W11 2DX is an existing two storey, single dwelling, Victorian building, adjoined with party walls on both flanks. The property is currently undergoing development works entailing a mansard storey extension to the roof and an internal rearrangement.

This application intends to create additional residential accommodation by excavating the building footprint to form a basement level.

The existing property comprises loadbearing external and party solid brick walls and suspended timber floors and roof.

This structural report describes the investigation and construction method of the proposed basement.

SOIL STRATA AND DESIGN CONSIDERATIONS

We have not yet had an opportunity to excavate trial holes however we have experience locally of both excavating basements and general foundation work, including excavating foundations to the neighbouring property.

The geological map for the area shows it to be overlying London clay. Local borehole records (provided by the British Geological Survey) indicate that the impermeable clay extends ‘to depth’. Surrounding borehole logs either make no mention of encountered water or they record ground water levels at approx. 40m depth below ground level. This supports our experience of not finding ground water on basement builds in this area.

There are no trees adjacent to the property.
FIG 1: Geological Map of the area.

FIG 2: Floor Risk Map of the area.
The Environment Agency flood risk map shows the location is not at risk of flooding.

A property of this age, constructed of loadbearing brickwork, will typically have spread brick footings at a relatively shallow depth below the existing ground floor. In this case they will be founded in the London Clay.

Similar Victorian properties exist to either side and to the rear of number 1. Although we are deepening the foundations to our clients property, there are no adjacent trees or other reasons to cause a change in moisture content and hence a change in volume in this stiff London Clay and so the risk of differential movement between the basement and the neighbour’s shallower foundations, once completed, is negligible.

**EFFECT OF LIGHTWELL CONSTRUCTION ON GROUND WATER**

Although a basement is being constructed, surface water flow only exists because of rainwater. Surface water is already collected by an existing drainage system. Any rainwater on to areas of hard standing – the lightwells, will be collected in the existing rainwater system, via the use of pumps where necessary from the basement. Note that the existing, surrounding surfaces to the front and rear are already paved hardstanding or roofs and so the new construction will not generate additional rainwater runoff into the drainage system. There is little scope for ground water in the adjacent impermeable clay that extends close to the surface.

**BASEMENT DESIGN AND CONSTRUCTION METHOD**

It is intended that the basement will be constructed by a specialist contractor who is experienced in this form of construction and is capable of successfully dealing with the issues that basement construction presents.

Party wall agreements will be prepared for all of the neighbours, in order to protect their interests.

Hoarding will be erected adjacent to the site (in Vernon Yard) to accommodate working space and a skip. As this will be on the small mews road, it will be kept tight to our clients property, to maintain access for cars to the rest of the mews. In the event that this is not adequate, then a skip will not be used. Spoil will be excavated and be stored in bags, to be taken away in occasional 'spoil away' trucks.
FIG 3: Plan of the basement and proposed underpinning.
FIG 4: Typical Section through the property.
The basement retaining walls are designed to follow the floor plan of the existing / proposed walls.

A method will be agreed with the Contractor - based on a 1:3:5:2:4 hit and miss construction sequence for the construction of the new wall lengths. Trenches will be formed to allow these maximum 1200 mm wide lengths to be constructed.

Individually, a void for a section of wall will be excavated; a maximum of 1200 wide and reinforcement (to our design) will be installed. Reinforcing starter bars will be driven into the ground on each side, where the adjacent concrete bays will be cast. Shutters will be constructed to retain the wet concrete.

The top of the new concrete wall will be kept down from the existing cleaned footings by approximately 50 mm’s. After 24 hours, the void will be drypacked to provide support and a further 48 hours will be allowed before any further adjacent excavation is carried out.

For the light well, with no wall over, 72 hours must elapse before any further excavation can be carried out, within two bays of this new retaining wall.

During these works, horizontal propping will be provided to the new sections of retaining wall, until the full ground bearing slab is cast to provide restraint against sliding. A limit of 20% of the adjacent ground can be excavated at any one time.

Waterproofing will be achieved by the use of a waterproof concrete additive and a lining system, taking water to a mechanically pumped sump.

A foreman with experience of basement construction will be in attendance during the works.

The works will be designed by a Chartered Structural Engineer and will comply with current Building Control requirements.

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TYPICAL UNDERPIN BAY

Fig 5 Typical Underpin Detail.