

Tottenham House and Estate

The Old Stables (Building 2 on the approved Master Plan):

Structural engineering notes on the tunnel basement stairwell and lobby proposals

1.0 Introduction

This note has been prepared by Alan Baxter (Ltd) on behalf of the client, to support the proposed planning submission at The Old Stables to create a new basement stairwell and B03 lobby space under the G23 Guest Hall, which would become the entrance to the new tunnel between the Stables and the Main House. The design proposals are being led by ADAM Architecture.

2.0 Existing structure

The Old Stables is a two-storey building comprising load-bearing masonry construction on corbelled brick foundations. The external walls are faced in stone. The rectangular G23 Guest Hall is located in the southeast corner of the building, and each elevation of the room is load-bearing masonry. Excavations for the previously consented nearby service trench confirmed the footings in this area are approximately 750mm deep below external ground level.

The existing ground floor comprised a concrete slab over flagstones, both of which have now been removed. As part of previously consented works, the first-floor structure over G23 has been reinstated as a modern concrete floor slab supported on steel beams.

3.0 Summary of proposals

It is proposed to construct a rectangular, single-storey basement stairwell and B03 lobby room under the G23 Guest Hall. This will be the entrance lobby to the proposed tunnel, which forms part of the Revised Masterplan applications (refs. PL/2024/09312 and PL/2024/09243). Details of the fit out of the basement lobby will be subject to a separate approval of details application.

To form the basement, it is first proposed to mass concrete underpin the surrounding masonry walls to approximately 4.25m below ground level. Due to the depth of the underpins, stepped transition pins to the walls that adjoin G23 will be cast, to avoid a sudden change in foundation depth, and mitigate the risk of differential settlements. It is expected that openings in the walls that will be underpinned will be temporarily infilled or horizontally propped during the works. This will allow the wall panels to arch over the local excavations, mitigating the risk of movement during the works.

Following the underpinning, the internal volume will be excavated, and it is expected that horizontal temporary propping will be installed to mitigate movement of the structure. Finally, a reinforced concrete basement box will be cast. The walls will be designed to resist the lateral earth pressures, and will be permanently propped by the basement and ground floor slabs. The suspended ground floor slab will be the floor to G23, and will include an opening for a staircase to the basement.

At basement level, an opening through the south wall of the reinforced concrete box and underpins will be formed, creating a doorway to the tunnel. These openings will have reinforced concrete beams above them.

It is expected that a movement monitoring regime will be implemented for the duration of the structural works, with regular monitoring and reporting.