AXIOM
STRUCTURES

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Structural Engineers

Planning Statement for Sub-terrain Basement Works

to

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Introduction:
The client wishes to construct a new basement at the front of their property. This will require a small excavation to the front of an existing Victorian property. The building is formed in traditional construction materials of load bearing masonry and cut timber floors.

The works involve a single storey basement that is located in the front left hand side of the property. The Architectural plans show the extent and the proposal of the works.

Axiom Structures have been employed to provide a structural design on the proposed basement works. We have also been employed to undertake the alterations that have taken place at the rear of the property.

Loads Taken:
External Communal Areas: Imposed = 3.0kN/m2, Snow = 0.75 kN/m2, Road = 10kN/m2
Materials: Brick walls at 20kN/m3, Concrete: 25kN/m3, Soil: 18kN/m3.

References
The subsequent calculations make use of some or all of the following documents:

- BS 649: Material Weights
- BS 6399-1:1996: Loadings for Buildings – Part 1: Code of Practice for Dead and Imposed Loads
- BS 6399-2:1997: Loadings for Buildings – Part 2: Code of Practice for Wind Loads
- BS 6399-3:1988: Loadings for Buildings – Part 3: Code of Practice for Imposed Roof Loads
- BS 5268-2:2002: Structural Use of Timber – Part 2: Code of Practice for Permissible Stress Design, Materials and Workmanship
- BS 5628-1:2005: Code of Practice for Use of Masonry – Part 1: Structural Use of Unreinforced Masonry
- BS 5950-1:2000: Structural Use of Steelwork in Building – Part 1: Code of Practice for Design – Rolled and Welded Sections
- BS 5977-1:1981: Lintels – Part 1: Method for Assessment of Load

Lateral Stability, Load Path & Disproportionate Collapse:
Disproportional collapse Building Class = no change (2A)

Lateral Stability against sliding of the basement is provided by being restrained against the existing building. The force applied to the existing structure will not increase due to the formation of the new underground basement structure.

Soil Type & Foundation:
Trail pits have been undertaken on site at the rear of the property that enabled us to the see the founding soil at the proposed basement formation level.

The trial pits confirmed that the founding soil in London Clay and no water was present in the trial pit. This is also confirmed by reviewing the British Geological Survey information. Based on this we have assumed a conservative allowable bearing pressure of 100kN/m2.

The methodology of constructing the basement will initially start by removing the existing access stair and creating a temporary access landing to the property. The excavation is then undertaken in a typical underpinning sequence with reinforced concrete retaining walls that is tied into a reinforced concrete base that is formed at the same time. The walls have been designed to act as un-propped cantilevers.

A new stair entrance will then be formed from reinforced concrete and a new roof structure formed from cut timber roof rafters.