

Our ref: T8479 – REV 1 (19th March 2021)

Date: 18th March 2021

Re: Structural feasibility statement pursuant to the proposed vertical extension to 18 Stukeley St.

Executive Summary

The proposed scheme is to construct a two-storey extension to an existing five-storey building, with a basement. The original construction of the building consisted of load bearing masonry walls, with suspended concrete floors. Recent refurbishment works consisted of a single-storey vertical extension, basement lowering and existing floor replacement. A majority of the existing concrete floors were replaced with a steel and timber joist solution. To limit the increase in building load, a lightweight framing system is proposed for the extension, with timber floors supported on a steel framed system. A modular, off-site fabrication method preferred at this stage.

Initial calculations confirm that strengthening works to the existing structure will likely be required. At foundation level, traditional corbelled masonry foundations will require underpinning to increase their load bearing capacity. At fifth floor level, the existing extension is to be demolished and a new structure is to be erected, covering the full building footprint. The new two storey extension will then be constructed off this new level. To ascertain the exact scope of these works, intrusive structural investigations are to be carried out during future design stages.

The below ground drainage systems have recently been upgraded as part of the refurbishment works. It is therefore proposed that the existing drainage and connections are reused.

Existing Building

The building comprises of a refurbished basement, ground, first, second, third and extended fourth floor in a 17.5 x 5m rectangular footprint. At fourth floor, the building steps back to accommodate a recent extension of a smaller footprint on all sides. The building comprises residential flats at all levels. External facades comprise traditional brickwork.

Proposed Extension

A vertical extension is proposed above the existing fifth floor roof, creating an additional two storeys of residential space. At both extension levels, the floor area reduces, with the building stepping back to suit. To facilitate the current proposals, the existing single storey extension is to be demolished as part of the main works. A new fifth floor will cover the full building footprint, with the following two-storey extension stepping back to suit.

The initial solution has been developed in hot-rolled steelwork to support the steps. As the scheme progresses, modular construction specialists are to be consulted regards the feasibility of producing a similar structural shape using off site manufacturing.

Below Ground Drainage & SuDS

At basement level, the existing building footprint currently occupies the entire site area, formed of a ground bearing reinforced concrete slab. The existing drainage was upgraded during the recent

refurbishment, and comprises a gravity drainage system, connected into the existing Thames Water sewer beneath Stukeley Street. To the best of our knowledge, there are no flow controls on the surface nor foul water drainage.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable:

- Directly into the ground (infiltration)
- To a surface water body
- To a surface water sewer, highway drain or another drainage system
- To a combined sewer

The existing drainage at lower level are to remain in use during the works. As a result, it is proposed that existing drainage, inclusive of rainwater pipes, soil vent pipes, and sewer connections are reused. any additional drainage from the extension levels will be connected to existing foul wate pipes and rainwater pipes.

Due to the lower levels remaining unchanged throughout the works, there is limited scope to introduce SuDS measures to this building. It should be noted however that there will be no increase in surface water flows, nor will there be a strain on the existing drainage system from the negligible net increase in foul flows.

Yours sincerely,
SIMPSON | TWS

A handwritten signature in black ink, appearing to read "Sam Margrave-Jones".

SAM MARGRAVE-JONES
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