

Proposed Services Risers

Overheating analysis was carried out and the results determined that the existing building has very limited provision for controlling the internal environmental conditions and tends to overheat during the summer months.

The proposed MEP design solution includes for a naturally ventilated building with electric radiators serving common areas and additionally the provision of heating and comfort cooling to office areas only. A heating and natural ventilation solution was also considered but determined to be inadequate owing to the findings of a summer overheating analysis, where all of the offices were found to require cooling in order to maintain suitable comfortable conditions.

The cooling requirements and energy reduction will be met by providing new VRF heat recovery, heat pump systems with the external unit being located at roof level; where previously refrigeration condensing units were located. The VRF indoor units will comprise floor mounted fan coil unit concealed within custom joinery as appropriate. The VRF system external units will be located at roof level to comply with the external noise criteria in the most discreet location possible.

Mechanical and Electrical Services Risers

In order to optimise the arrangement of Mechanical services risers consideration has been given to the location of the plant. It is proposed that by utilising the basement plant room for cold water services and the roof for the VRF condensing plant the mechanical services pipework is optimised so as to provide the minimum width and depth riser arrangement in one location.

New electrical distribution will be required for the building and establishment of an electrical riser using new riser route, which is to minimise impact on the existing building fabric. This mimics the Mechanical riser and accommodates the distribution boards allowing the original riser and distribution that compromised spaces and windows to be removed. Data will be distributed via the existing services riser in Stair 1 stairwell.

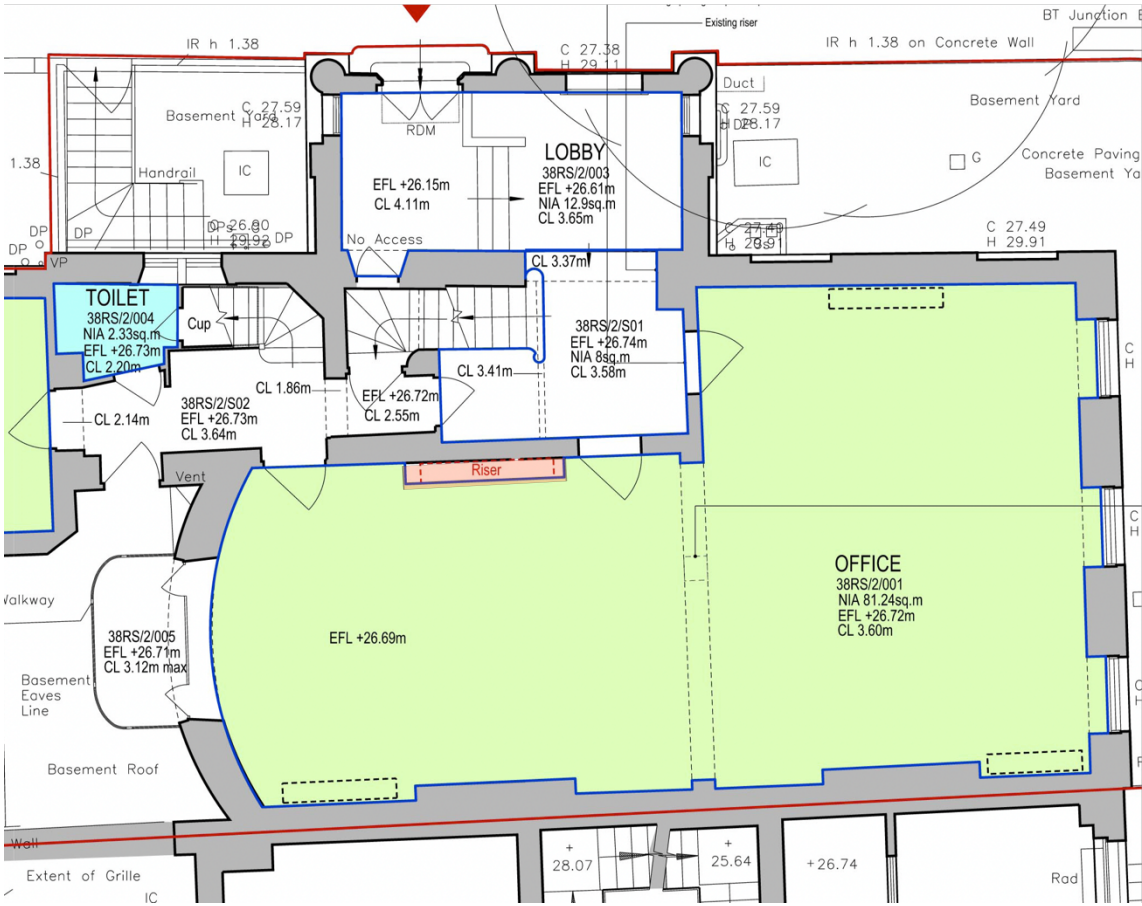
The key considerations for the new risers location are outlined below:

- Preserve the character and historic value of the spaces;
- Minimise loss of historic fabric;
- Provide uninterrupted vertical services distribution;
- Keep the footprint of the risers to a minimum;
- Make the risers an integral part of the space they are in.

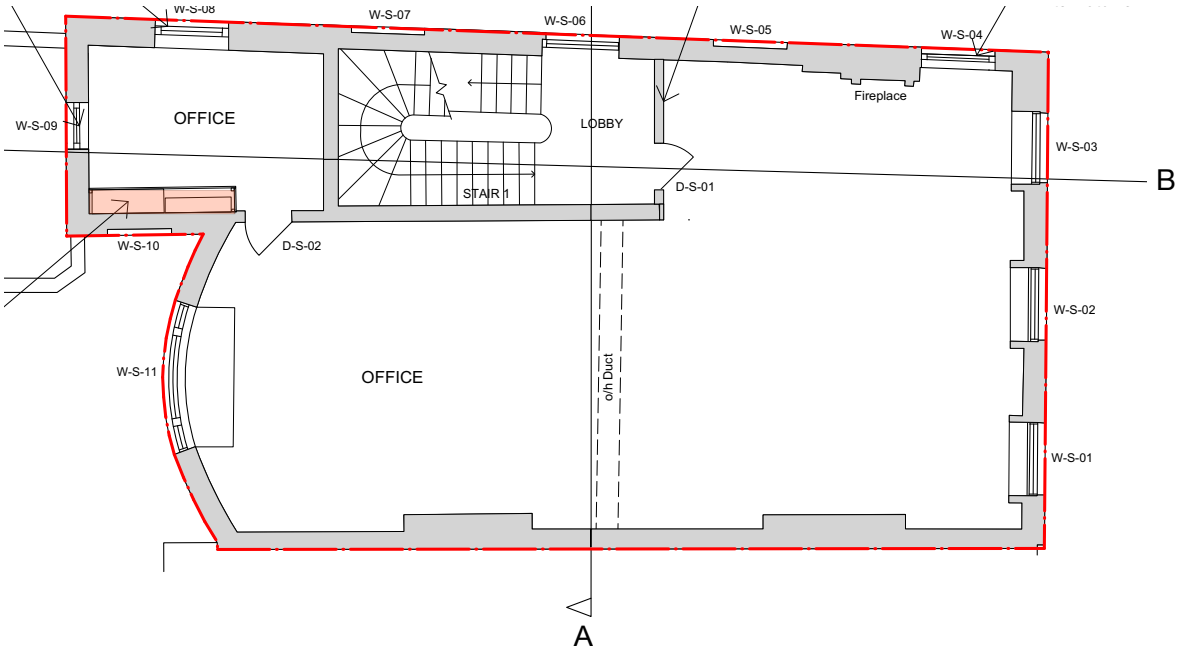
A number of possible riser locations have been carefully considered but dismissed, as they did not satisfy the above criteria.

In the early stages of design an option was explored for providing a combined mechanical and electrical riser through all floors. This riser was located in the rear area of the main house as a reflection of the chimney breast on the opposite wall. For reference, please see image 1.

Another option was considered where the secondary Stair 2 was removed and the floors on all levels reinstated. This provided opportunity for locating the vertical risers in the stairwell. Please see image 2.



Top: Image 1. Riser reflecting the chimney breast opposite.
Below: Image 2. Riser located in the former Stair 2 stairwell.



The Design Team has developed an alternative proposal for the new risers location. This option explores separating the Mechanical and Electrical risers and locating them symmetrically within purpose made ‘nibs’ in the area of the original spinal wall between the two main spaces on each floor.

A benefit of this layout is that it preserves the character of the historic spaces and enhances the perception of having a primary and secondary room on each level.

Another advantage is that the services distribution can be provided in a fairly straightforward way without having to divert services in floor or ceiling voids, which would minimise the amount of structural interventions for openings.

The proposed mechanical services route begins at roof level where the new VRF unit will be located and connects to the Third floor through the existing roof void.

The riser on Third floor is set out clear of the existing steel beam.

On the Second floor the services can achieve a straight run. There are no decorative cornices or plasterwork that will be compromised on Second and Third floors.

When the services reach Ground and First floors care is taken to retain as much building fabric as possible.

Three options for the risers have been explored in detail of which one is to be implemented on all floors with decorative cornices. Please see the drawings on the following pages in this document.

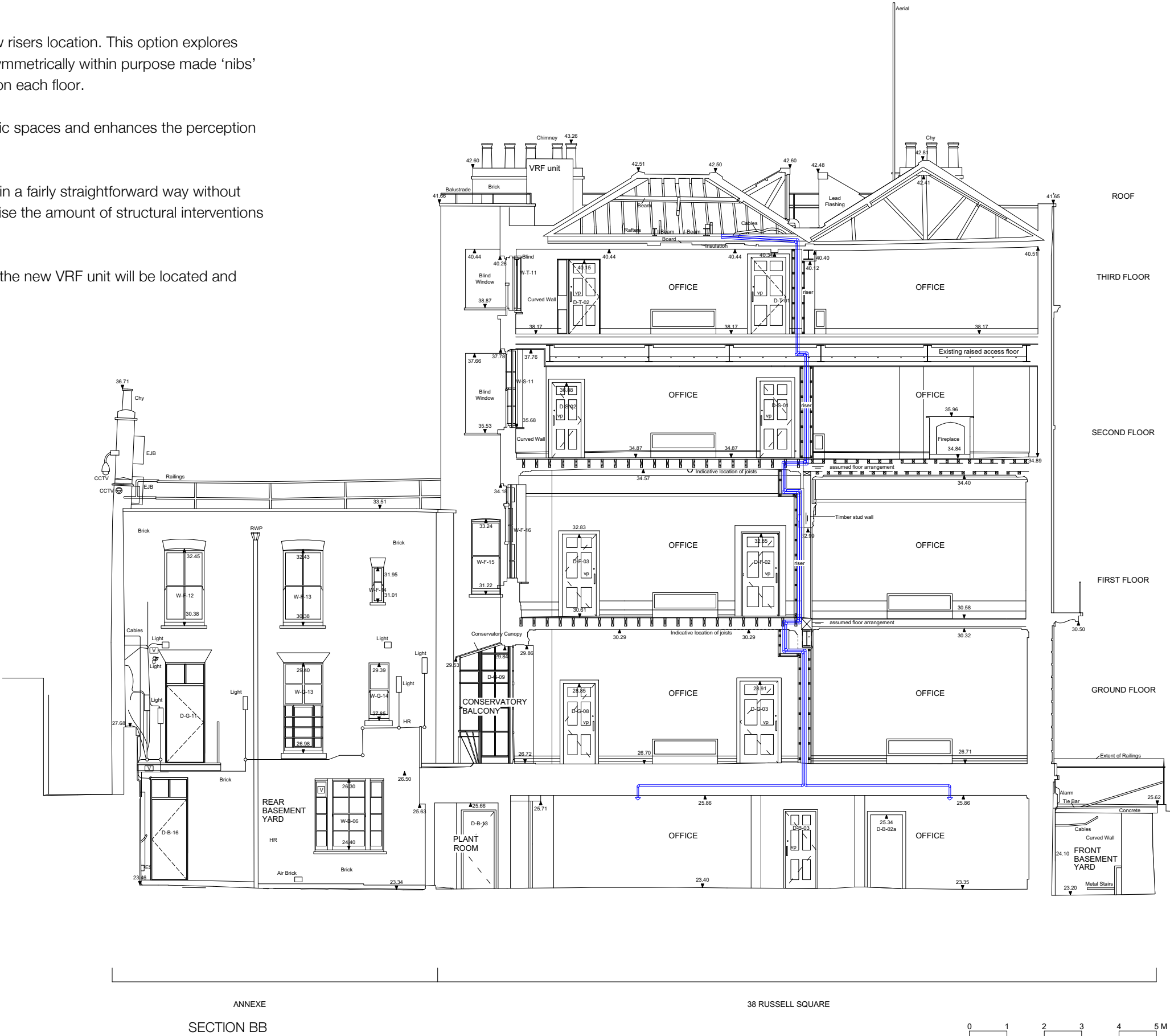
Once the services reach Basement level they are diverted within the ceiling void to connect to ceiling mounted fan coil units.

The proposed electrical services route begins at Basement level where the existing electrical intake cupboard is located.

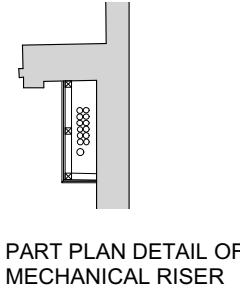
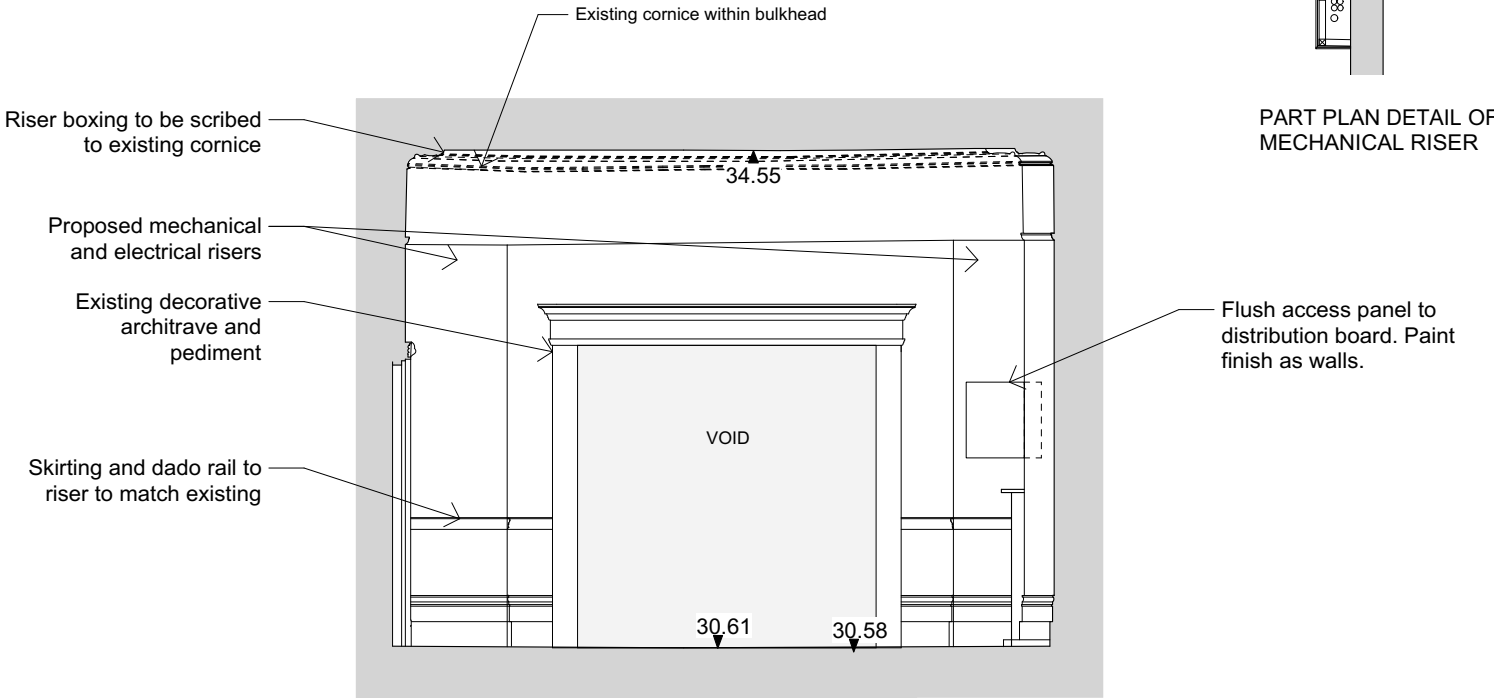
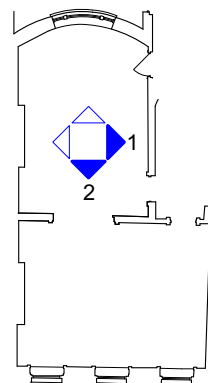
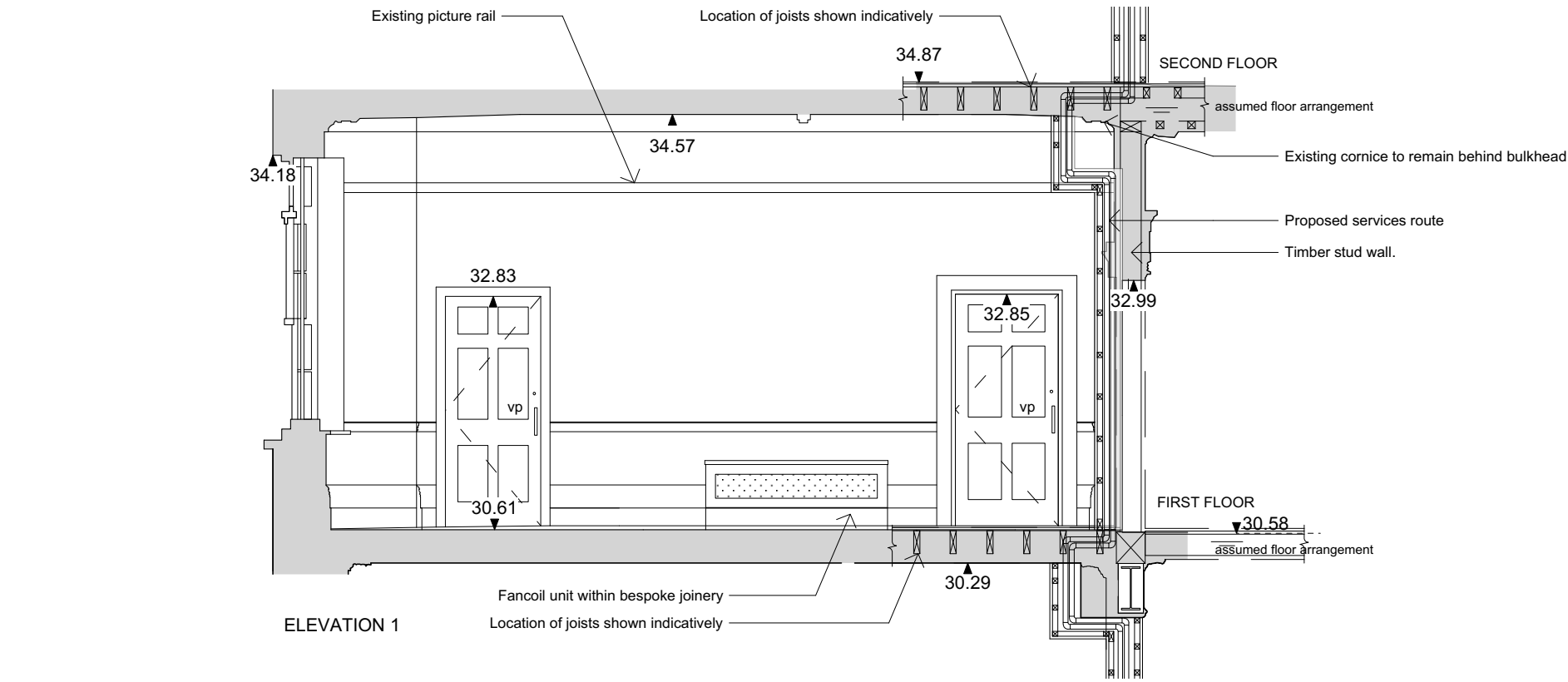
The services are diverted within the ceiling void to the Ground floor ‘nib’ riser opposite the mechanical one.

On the floors above, the services follow the same route as the mechanical riser and terminate on Third floor.

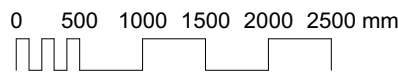
The electrical riser contains cable trays for lighting, power, fire alarm, access control and security. A discreet access panel will be provided to each riser for maintenance and inspection.



Riser Option 1

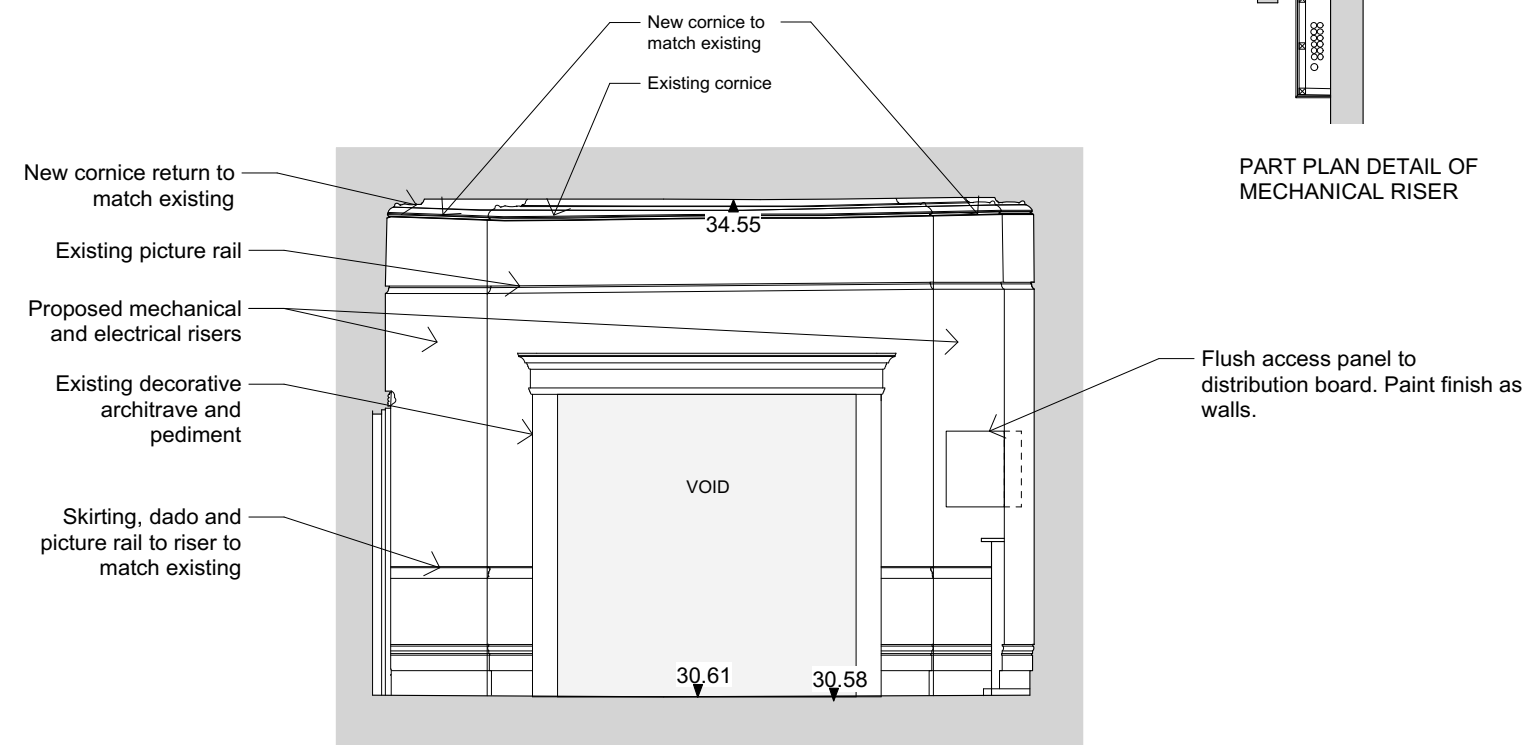
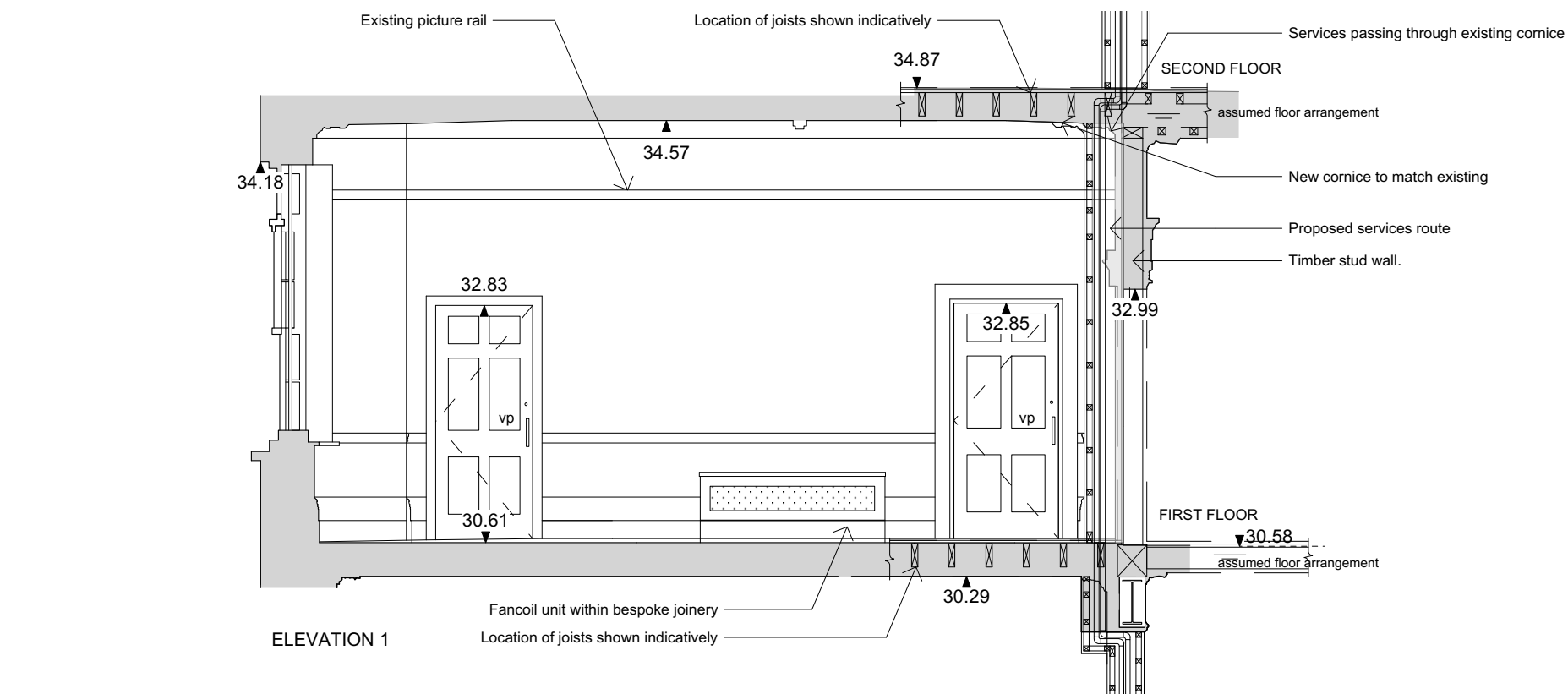


Precedent image of riser scribed to cornice.
Royal Academy of Arts, London

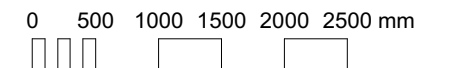
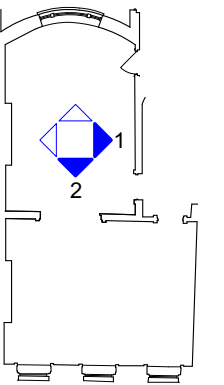


PLANNING				
Drawing Status				
BRITISH MUSEUM 38 Russell Square				
Dannatt, Johnson Architects Unit 1 The Wireworks, 77 Great Suffolk Street, London SE1 0BU Telephone (020) 7357 7100 Fax (020) 7357 7200				
Title First Floor Internal Elevations Nib Risers Option 1				
Drawing Number 581 BD0-27-01				
Drawn JG	Checked YN	Scale 1:50 @ A3	Date May 18	Revision P

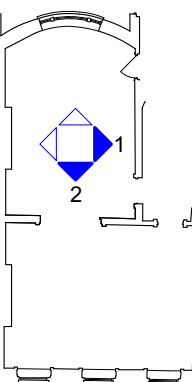
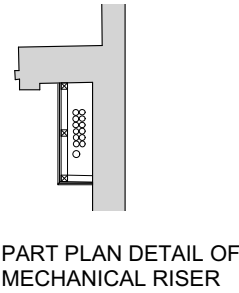
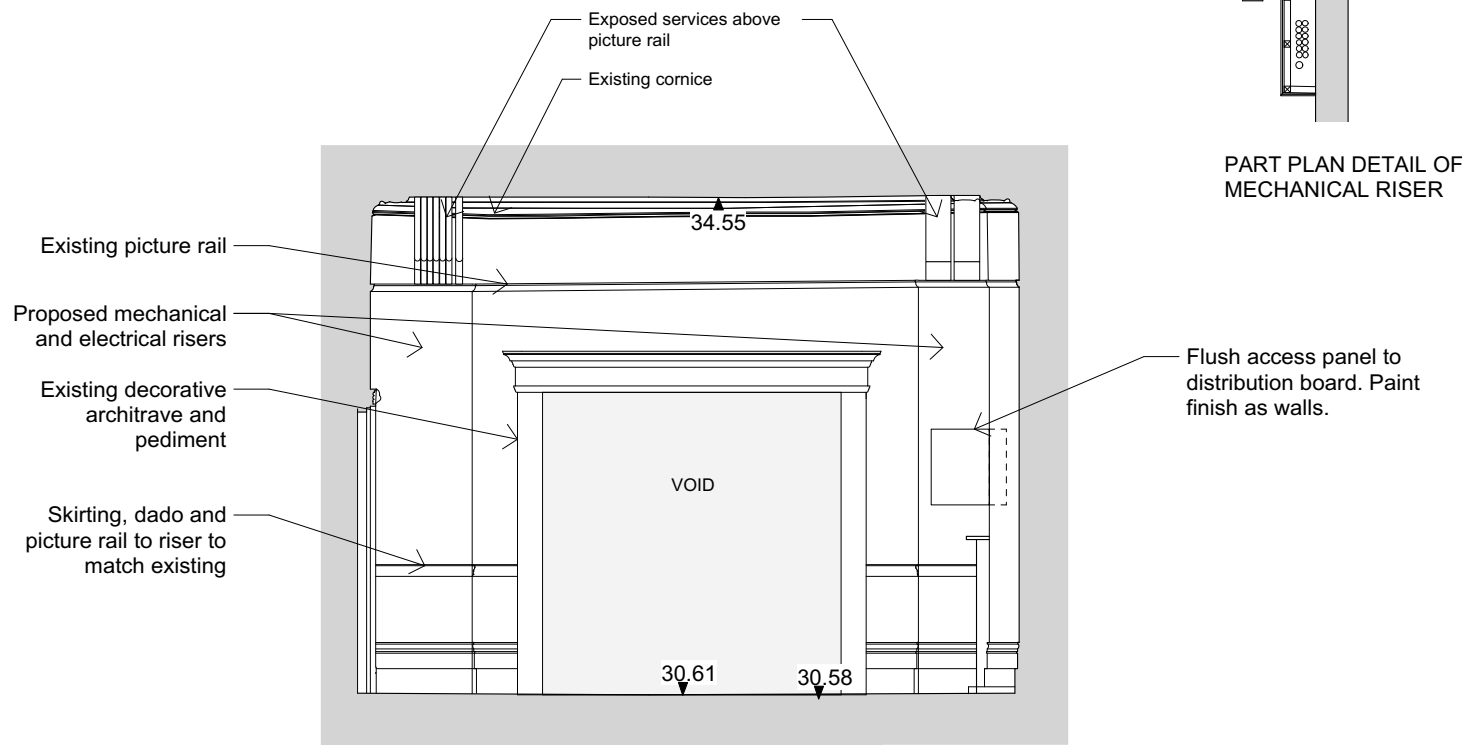
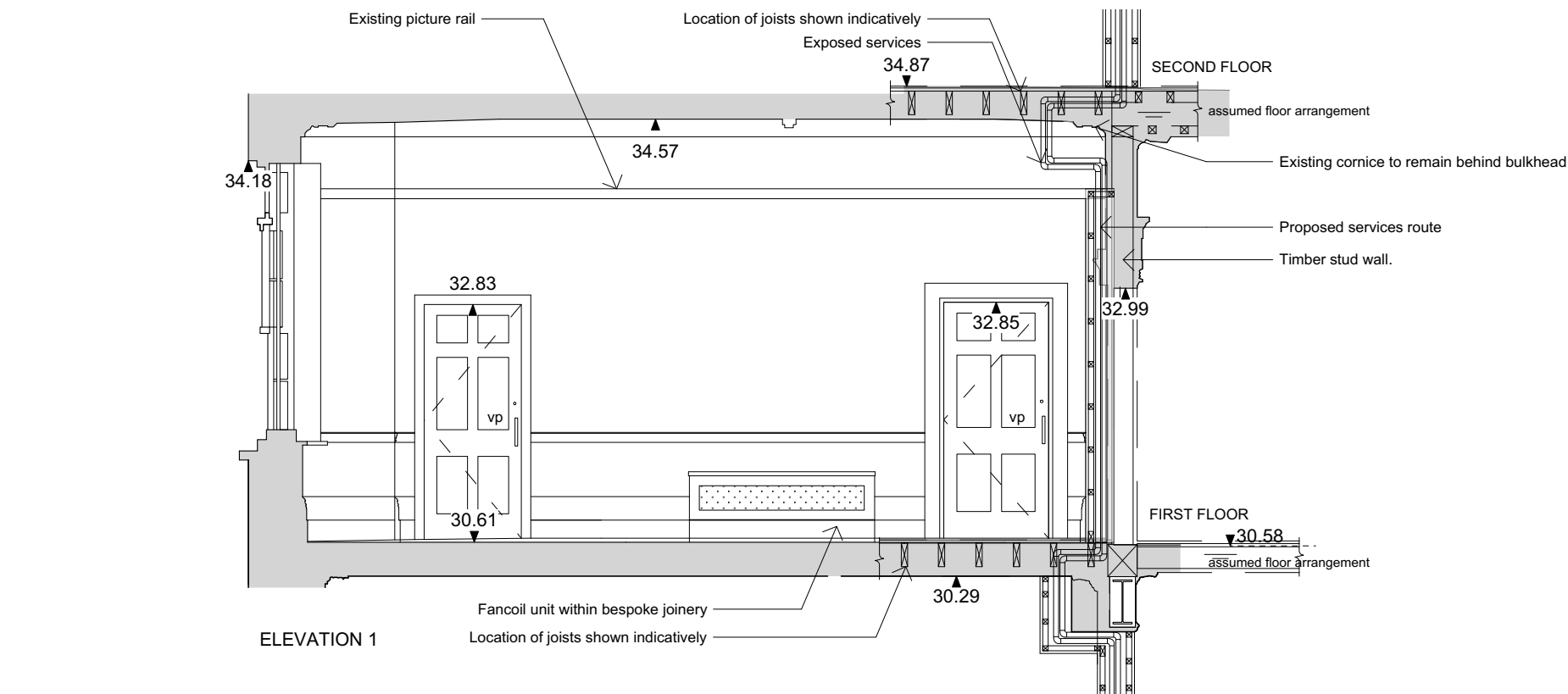
Riser Option 2



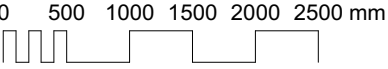
PART PLAN DETAIL OF MECHANICAL RISER



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Title First Floor Internal Elevations Nib Risers Option 2				
Drawing Number 581 BD0-27-02				
Drawn JG	Checked YN	Scale 1:50 @ A3	Date May 18	Revision P



Precedent image of riser with exposed services above.
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Title First Floor Internal Elevations Nib Risers Option 3				
Drawing Number 581 BD0-27-03				
Drawn JG	Checked YN	Scale 1:50 @ A3	Date May 18	Revision P

Roof and Loft Level

- The main roof is accessible via a hatch in the ceiling on the 3rd floor at the top of the main stair hall. It is recommended that a new retractable ladder is fitted to improve access. It is advisable to improve safe access to the outer edges of the roof by extending and refurbishing a Man Safe cable-based fall protection system. This should afford safe access to all areas of the roof. Where the system is fixed, strengthening of the roof/ parapet wall structure may be required.
- Repair works are subject to a specialist condition survey of pitched roofs at roof level and flat roofs at ground and first floor levels.
- New insulation is to be incorporated in the ceiling of the third floor between the existing joists, with new crawl boards incorporated to maintain access.
- The main roof is leaking significantly and needs a structural survey/ roofing survey.
- The slate roofs appear to have been re-roofed relatively recently. Minor repair works are proposed to chimney pots, chimney stacks, flashings, ridge tiles, ridge pointing, slates, valley gutters, copings and render to parapet walls, localised mortar repairs, lead coverings and flashings. Generally the main concerns are slipped tiles, degrading mortar, general debris, discarded cables and removal of redundant roof mounted plant. For more information, please refer to the Roof Condition Survey attached to this document.
- General clean up of the roof will be required to remove moss and general debris.
- All redundant services, plant and cable trays are to be removed.
- Existing joinery is to be refurbished (i.e. roof access hatch)
- Lightning protection may be required. To be advised.
- Existing skylight to be refurbished, repaired, and redecorated. Cracked glass to be replaced. Weather seals and ventilation filters to be replaced with new.
- Remaining plant footings to be removed. Flat roof surface to be repaired or overlaid with new membrane applied over asphalt flat roofing surface.
- New VRF units to be located on roof level behind existing chimney stack to minimise visual impact from long views at street level. A background noise assessment has been carried out informing that acoustic screening to the plant would not be required. Screening to conceal condensing and ventilation external plant units if necessary. Plant mounted on big foot type system.
- Perimeter metal balustrade to be replaced with new.
- Damp repairs to roof structure within loft void to structural engineer's details.
- Repairs and essential maintenance to rain water drainage system as required.
- Render and pointing repairs following results of condition survey.

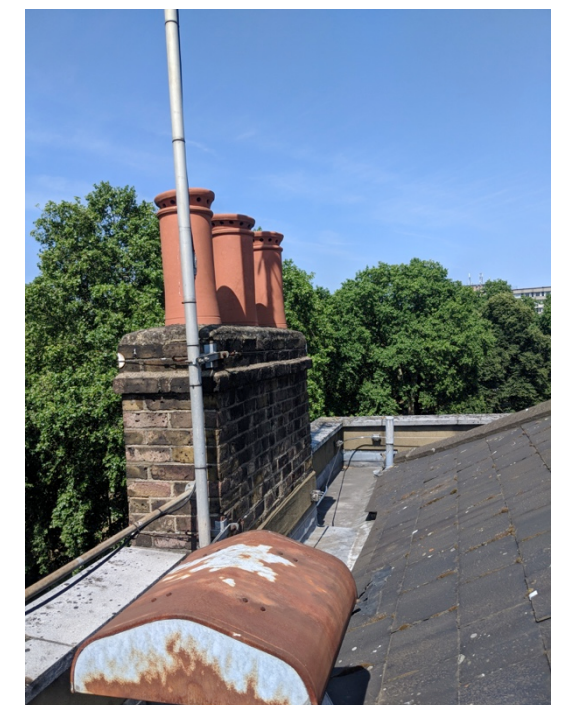
The following pages illustrate a visibility study of two possible plant locations on the roof.



Above: Existing concrete plinths on flat roof area to be removed. New VRF units on 'big foot' system to be located behind existing chimney stack.

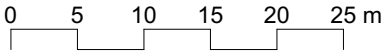
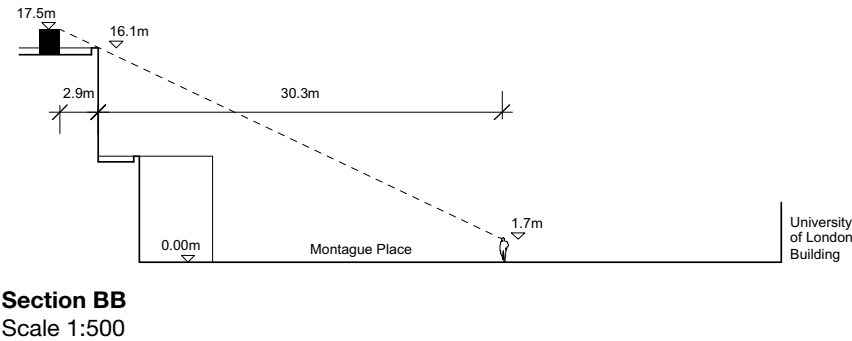
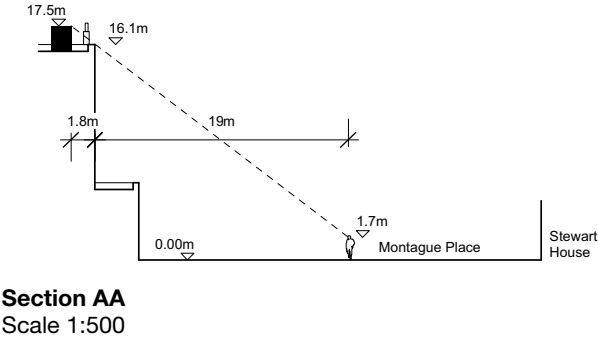
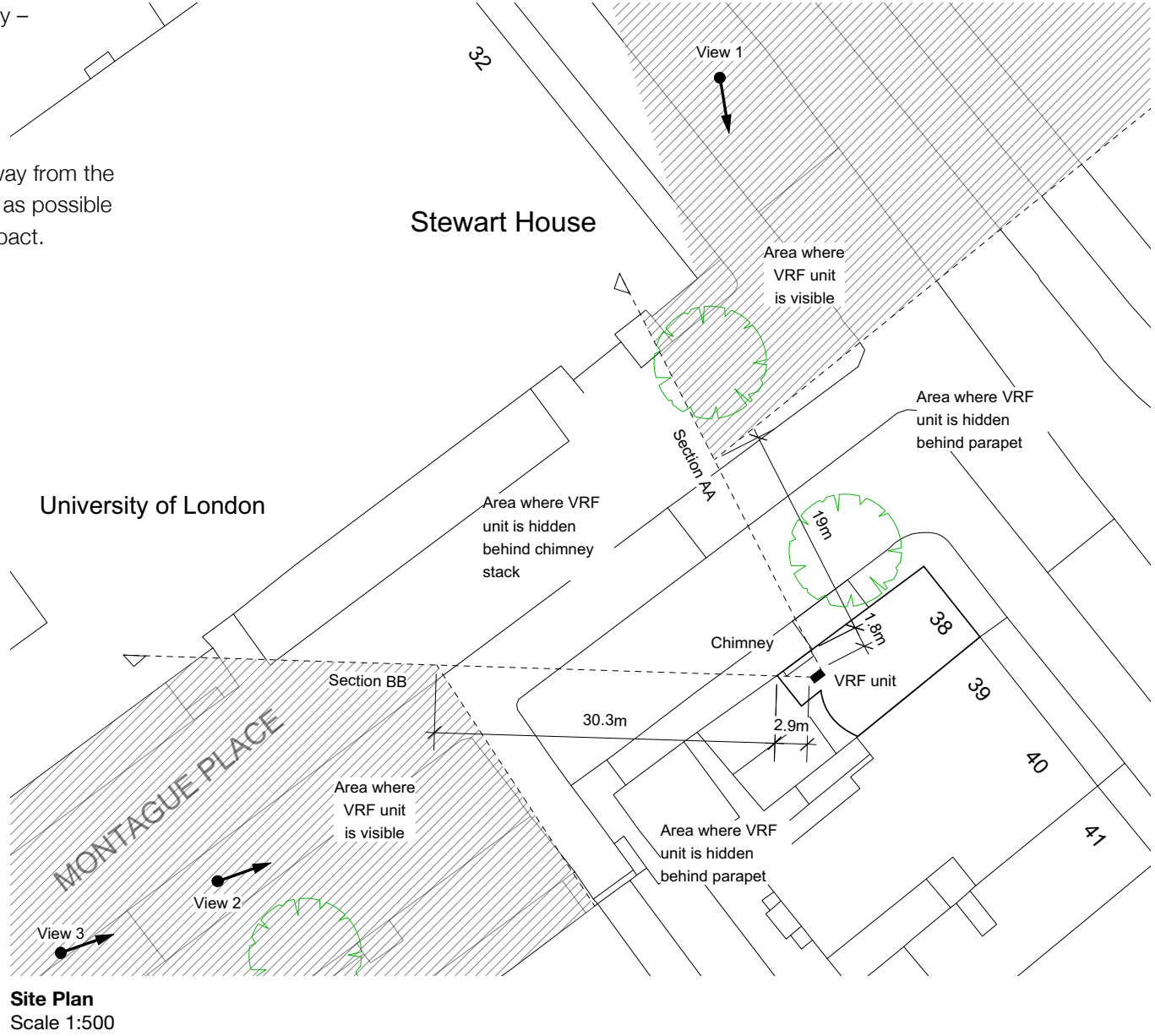
Below Left: Repair works to skylight and roof are essential to achieve waterproofing.

Below Right: Existing man safe system to be tested. If upgrading is required, new system to be provided as a like-for-like replacement.



Rooftop Plant Visibility Study –
Option A

Plant is positioned as far away from the
parapet and chimney stack as possible
in order to reduce visual impact.



**Rooftop Plant Visibility Study
Option A**

British Museum
38 Russell Square

Dannatt Johnson Architects
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