technical note

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Job name:	66/67 Guilford Street	Made by:	Mark Innes
Subject:	Part A - Structures		

The below proposed works are essential to meet the requirements of the part A of the building regulations. All calculations have been carried out to the latest Eurocodes.

Lower Ground Floor

The existing timber/concrete slab on the LGF will be removed. The ground will then be prepared and compacted to achieve 175kN/m2 with a minimum 50mm blinding layer. A 150mm thick concrete slab will be laid reinforced with A393 mesh top and bottom. The waterproofing of the LGF slab will be as per the architect details. The LGF will be approximately 100mm lower than original, trial pits indicated that no undermining of foundations are to be expected, however underpinning will be carried out if local areas require it.

Ground and First Floor

The existing timber joists are to be retained if structurally sound, within deflection limits and rot free. A timber survey has been carried out to advise where decay is, but will be confirmed on site. The intention is to reuse timber joists where possible and scarfed with new timber as per conservation requirements. The floor build up will be as per the architect's details.

Second Floor to Third Floor

The existing floor plate will be removed and replaced with 203UC steel beams spanning onto the party walls with new C24 200x50mm joists that will span onto the front fade wall and steel beams. Where salvageable, existing joists will be reused. The floor build up will be as per the architect's details

Fourth Floor

The existing floor plate will be removed and replaced with 152UC steel beams spanning onto the party walls with new C24 150x50mm joists that will span onto the front fade wall and steel beams. Where salvageable, existing joists will be reused. The floor build up will be as per the architect's details.
Due to the additional storey added to 66 the fourth floor behaves as a strong floor designed to carry the roof load in event of a collapse.

Roof

The roof will be constructed with a steel frame and timber joists and finished as per the architects details.

Walls

All walls will be repaired to ensure additional loads from the steel beams can be taken. The additional loads will not have an adverse effect on the existing corbeled foundations. All façade walls will be tied back to the party walls.

Vaults

The vaults are currently in poor condition with all brick arches failing and radial cracks parallel to the span. There is evidence of soil building up on the floor in 67 Vault 1 at the back of the vault, where water from the pavement/road has been tracking through and eroding away the fill above, creating a void above the vault. The vaults have been temporarily propped to avoid collapse. If the masonry arches are to be repaired they will need to be rebuilt, which will require closing the pavement and part of the road, removing the fill over the arch, demolishing the arch, constructing formwork, rebuilding the arch, back filling and reinstating the pavement and road. The preferred option, which has minimal disruption (both to site and programme) is spray a concrete liner inside the vault, that once cured will perform as a new arch, safely taking the loads back to ground.

In addition 3 of the 5 vault floors will be lowered by approximately 350mm. The vaults will be underpinned as per the approved AIP and then a new 150mm thick concrete ground bearing slab will poured.