# 7.0 Key Findings & Conclusion

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# 7.0 Key Findings & Conclusion

## 7.1 Key findings

**Key Findings**

- When seeking to assess the sustainability of development options for a site such as Selkirk House, **a host of factors** including carbon emissions, economic and social contributions such as affordable housing delivery and contribution to the urban environment and experience **should be taken into account.**
  - Local and regional Planning policy establishes a framework for a holistic approach to sustainability.

- **The Selkirk House site sits in an area with high public transport connectivity (PTAL rating 6B) and in an area identified for growth in local planning policy.** A drive to optimise use of land in sustainable locations is reflected in both local, regional and national planning policy. This is in part due to the high carbon impact of travel to less well served locations.

- **New build development options offer more efficient land use through an uplift in floorspace quantum and quality. These options are also able to more fully deliver public and operational benefits** such as public realm design improvements, affordable homes (both through improved viability and optimising the site plan) and direct and indirect economic uplift by accommodating a higher number of workers. The scale and design of the new-build options also enables them to be more operationally energy efficient per square meter of floorspace.

- **The existing Selkirk House building has significant limitations.** These including low floor to ceiling heights across the car park and Selkirk House that would result in 2.35m or lower head height, below minimuim guidance for refurbishments. The structure also has a limited loading capacity alongside sloping floors in the car park and inflexible structural elements. In the retention scenarios, substantial temporary support works would be required while redevelopment is carried out. These generate additional upfront carbon emissions.

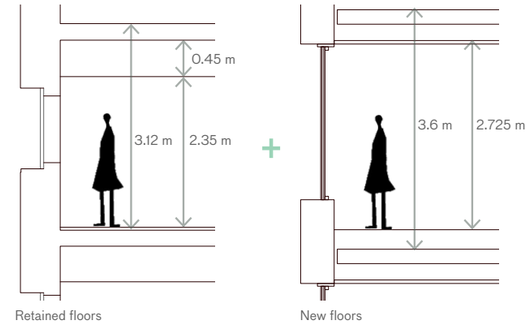
- **Option 1 has been assessed for completeness, however can only be safely occupied at less than half the density of a standard office due to limitations on the fire escapes.** This constraint severely limits the usefulness of the space and demand from occupiers, making it economically unsustainable.

- **Option 2 has been included as a retention baseline. It incorporates major modifications to elements including the cores to allow the safe occupation in line with current codes.** However, the investment and area loss required to incorporate the modifications required to bring the building's capacity up to a market standard occupational capacity would require substantive additional NIA to be delivered to enable a viable development.

- **Demolition of existing buildings and replacement with new buildings incurs a meaningful upfront embodied carbon impact when compared to options that retain existing structures.** This is to be expected given that the building structures typically represent a substantive proportion of the upfront embodied carbon associated with construction. This is reflected in the carbon assessment which finds that option 1 represents 42% less upfront embodied carbon that option 4.
  - Recent London Plan Planning guidance seeks that developers to fully consider retaining buildings before demolition is proposed.

- **When taking in account the overall embodied carbon associated with a building across a standard 60 year lifespan, the gap between the level of emissions of retained and new build options per m2 of space narrows substantively.** Using a standard methodology (RICS) this report found that option 4 generates a moderately higher level of overall embodied carbon per m2 than options 1-3 by between 8-14%, however, it generates 6% less than option 5.

- When compared to **industry benchmarks** the overall embodied carbon emissions per m2 associated with **option 4 is 1,163 kgCO2e/m2, below the GLA benchmark of 1,400.**




Retained (typical floors) vs New Build Floor to Ceiling Height

# 7.0 Key Findings & Conclusion

## 7.1 Key findings

**Key Findings**

- **Retain the existing structure significantly impacts the capacity, quality and flexibility of the finished building.** These factors contribute to additional embodied carbon that is not captured by RICS methodology. Poorer quality workspace is let on shorter leases to less stable tenants. **The resulting turnover increases likelihood of regular major refurbishment to keep up with market demand and a greater frequency of tenant fit-out activity. This incurs additional embodied carbon across the buildings' lifetime**. The impact of an substantially shorter average tenancy options 1-3 compared option 4 and 5 results in double the level of associated carbon per m2 over a 60 year period from the increased quantm of Cat-B fit-outs. Taking into account more frequent refurbishment cycles results in the WLC emissions per m2 for the retention options being 11-13% higher than for option 4.

- **When comparing operational energy, the new build options 4 and 5 perform best** with an 11% lower level of operational carbon than option 1 per m2. This is due to enhanced operational efficiency associated with deeper floorplates of a new build option.

- **Options which increase the density and productivity of the site are associated with commensurate uplifts in public benefits.** In terms of affordable housing delivery, option 2 would be required to deliver around 1,928sqm GIA of additional residential floorspace of which 38% would be required to be affordable equating to 733sqm GIA. Option 4 would be required to deliver over double the amount of affordable residential floorspace (1,787sqm GIA).

** Whitelee Windfarm in Eaglesham Moor holds 215 turbines (source: https://www.whitelee-windfarm.co.uk/). With 2-3MW capacity these turbines produce an estimated 6 million kwh electricity per annum, equivalent to about 1,398tCO2e*

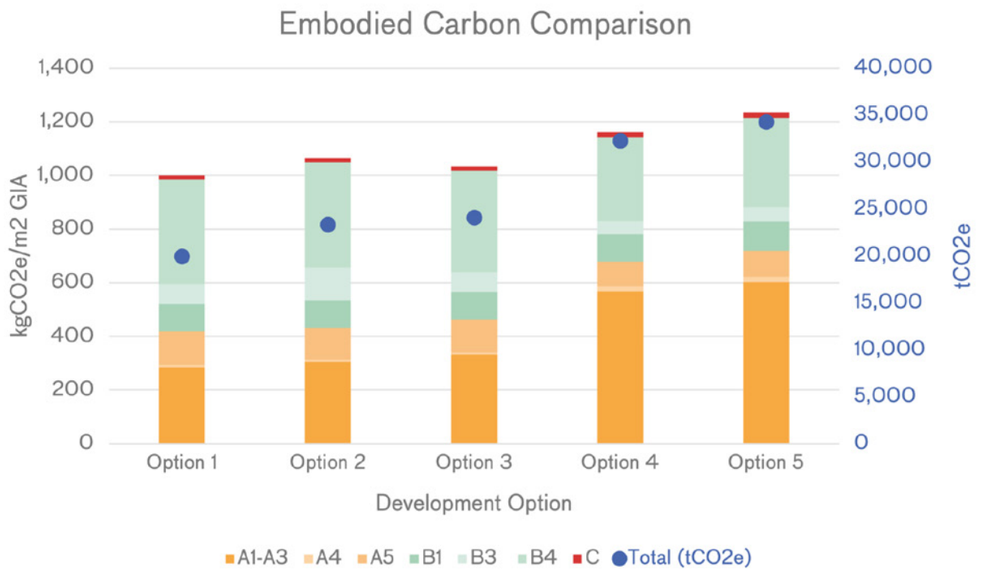
- With an occupation density ratio of 1:10 applied to options 2-5, **options 4 and 5 would accommodate over 500 more people (1,571)** compared to option 3 (1,037). This uplift in employment offers direct local benefits in terms of employment opportunities, as well as indirect benefits of local spend.

- Factoring in the **number of employees accommodated and the annual carbon produced by the development option 4 performs the best** with 7% lower annual emissions per person than option 2.

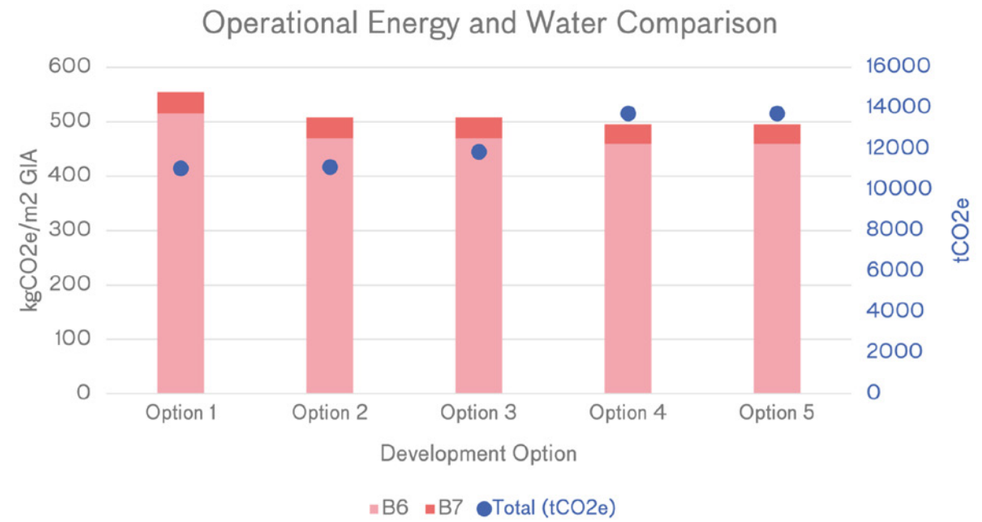
- **Options 2 and 3 perform reasonably well against some of the sustainability factors** and provide an uplift in area. However, these options to not address the fundamental limitations of the building. **They result in a compromised outcome that would generate additional embodied carbon through its life-span and are not able to secure the majority of the wider benefits of options 4 and 5.**

- **When taking holistic sustainability factors into account option 4 in the planning submission in represents the best outcome against the criteria for redevelopment of the Selkirk House site**. This option produces 7% higher whole life carbon per m2 than the lowest carbon option (1) and 5% higher than option 2 using the RICS methodology. Over a 60 year lifespan is the equivalent to the carbon displaced by around 2.6 weeks by Whitelee Windfarm*. However when considering the carbon produced other relevant factors option 4 (and 5) performs better than the retention options.

- **WLC emissions of option 4 per m2 are also 6% lower than option 5 through the through the retention of the existing basement.**




Embodied Carbon Comparison - refer to the Life Cycle Modules diagram (included on section 5.0) for details on the scope of the different modules




Operational Carbon Comparison - refer to the Life Cycle Modules diagram (included on section 5.0) for details on the scope of the different modules

## 7.2 Conclusion

**Conclusion**

This report sets out to assess whether it is appropriate to retain the existing Selkirk House in full or in part, or whether a new build scheme represents a better use of the site. It distils a huge amount of work by the design team over an extended period of time to review a far wider range of options and individual decisions and it represents these in the form of five options. The criteria against which theses should be judged are set out, and a rigorous and transparent methodology adopted for their assessment.

Whilst carbon emitted in creating the development and in use is given appropriate focus, wider considerations must be taken into account to assess wholistically the environmental price and the resulting benefits of the scheme. The carbon accounting for the production of the building does not consider how and by how many people the development will be used, nor how they will get there and use it. It does not consider the quality and enduring appeal of the resulting product and therefore its utility and inevitable adaptation over time.

A review of the site shows that the existing building has a number of significant limitations, even before considering the age of the structure and the modifications that have taken place over time. The sloping and deep floors for car park, constrained headroom on the tower and small cores for lifts and fire escape mean that it is not possible to bring the building back into use without major modifications and temporary support. Option 1 is therefore not a workable option.

The analysis finds then that inevitably new build results in greater carbon invested up front, but that the difference between the options on a m2 basis, even on the relatively narrow RICS criteria is modest on a Whole Life Carbon basis. The difference between option 4, the planning application scheme, and option 2, the lowest carbon practical retention scheme is only 5%.

In absolute terms the carbon emitted is materially greater for the larger options, but this is principally the result of creating more built area. This is supported by planning policy, and it is this additional density on the site that allows a number of the benefits to be delivered. Those most closely linked being housing (including affordable) and employment. If we consider there is a growing demand for space, the strong conclusion of planning policy and of the application team is that doing this on previously developed sites well served by public transport is far preferable to more remote or greenfield sites. Whilst it is outside the scope if this report, the carbon emitted for occupier journeys to and from any development through its life are material to the wider sustainability of our built environment.

Whilst the carbon emitted in development is significant, the report shows that all the options perform well against benchmarks and the ability to reduce carbon in use for the new build schemes is greater. The project team have a commitment to minimise carbon through the development.

Another point central to the discussion is the quality of the space created. The impacts on its utility over time and the likely cycle of adaptation and re-invention of poor quality space all has a carbon price. The report shows that when these scenarios are taken into account the new build options perform better over time, with an 11-20% improvement on carbon emitted over 60 years from major refurbishments and cat-b fit-outs respectively. The existing building has already seen significant modification and change of use in the tower and the indication is that as the fundamental qualities of the building cannot be changed this cycle will only be maintained and accelerate.

There are a number of other benefits identified in the report that can only be delivered through the new build, reconfiguring of site, public realm, and street activation. These are more difficult to qualify, but are certainly material to the consideration of the options.

Whilst the planning application scheme (option 4) is not the best in every category, on holistic review of all the measures it provides the majority of benefits whilst minimising impacts, including carbon as measured by RICS. Importantly though, in delivering a higher quality, more flexible building with the urban benefits of public realm and active ground floor, it best meets the tests of utility and enduring appeal. This therefore represents the best investment of carbon. Arguably over time, taking into account additional factors such as travel connectivity, and the way it is likely to be adapted and re-fitted over time, will result in the lowest carbon option of all over its life.

The planning application scheme is targeting BREEAM outstanding and Nabers 5* (based on actual energy in use) and the applicant is committed to seeking improvements in both embodied and operational carbon performance from the baseline established in the WLC report submitted.

Amongst the local benefits delivered by the scheme are the 51% of additional residential floorspace as affordable homes, and a substantial improvement in public realm including a new pedestrian route - Vine Lane.

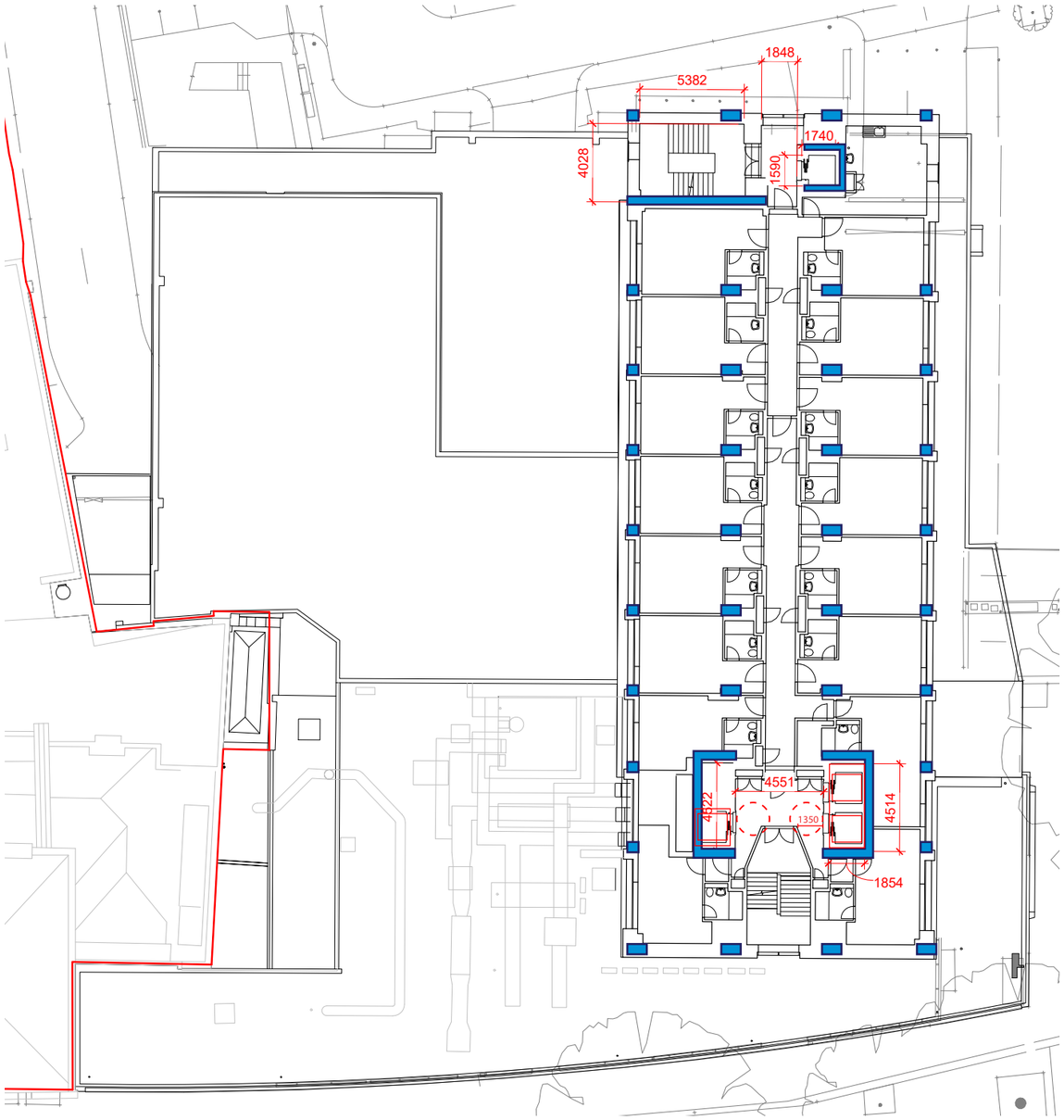
The proposed building would accommodate around 1,500 workers (at 1:10 occupancy), at least 50% more than option 3 and thus provide a substantial economic uplift from a currently vacant and derelict site.

Subject to planning, the next stage of detailed design and advances in technology offer the opportunity to improve the scheme further in regard to operational and embodied carbon, while retaining the wider benefits that the proposals are able to deliver.

# Appendix

## Typical Floor Plan Diagrams

### Option 1 - Maximum Retention & Retrofit

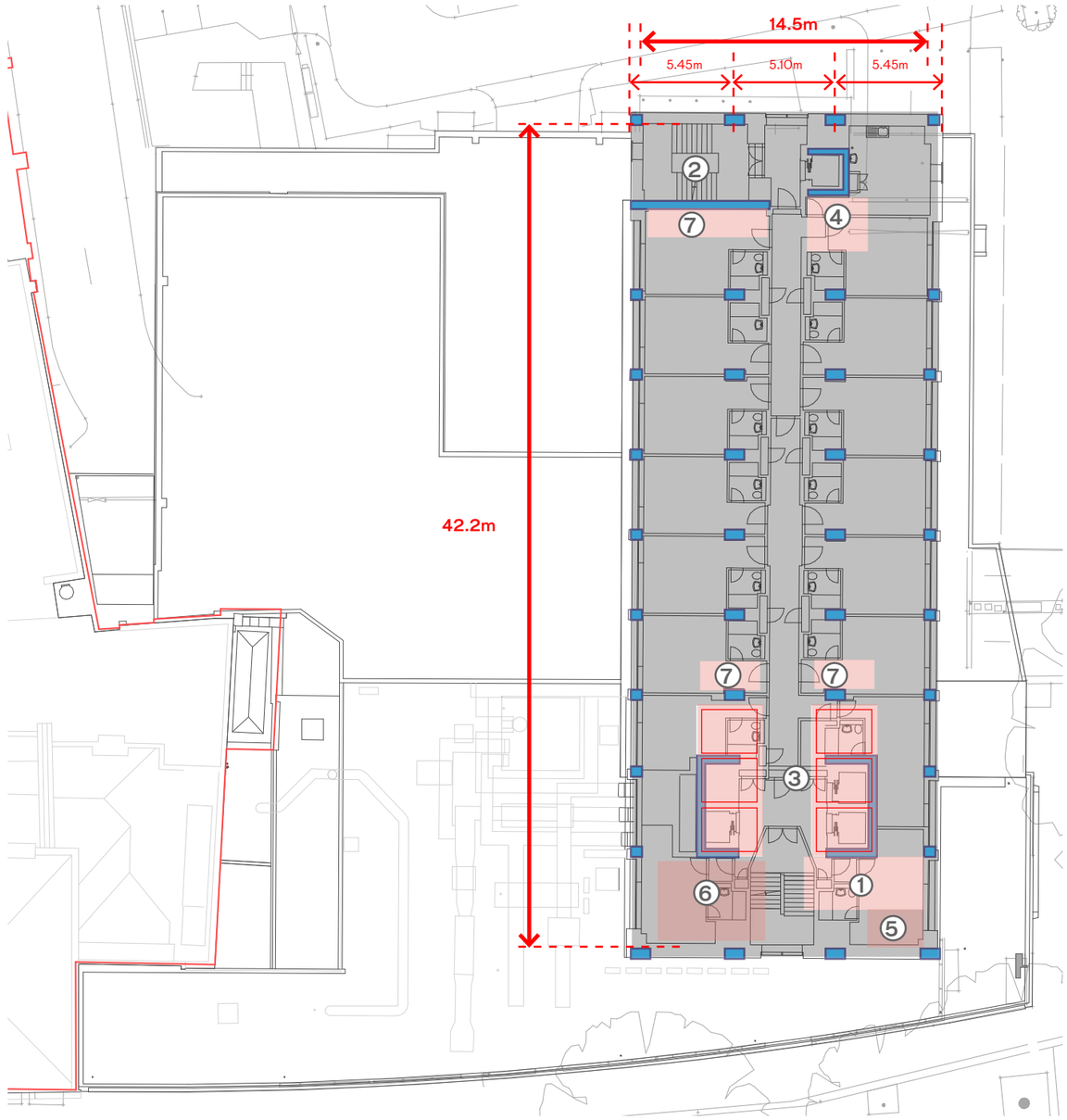



Typical Floor Plan - Option 1

Retained Structure (refer to Structural Review section)

## Typical Floor Plan Diagrams

### Option 2 - Maximum Retention & Extension




Typical Floor Plan - Option 02

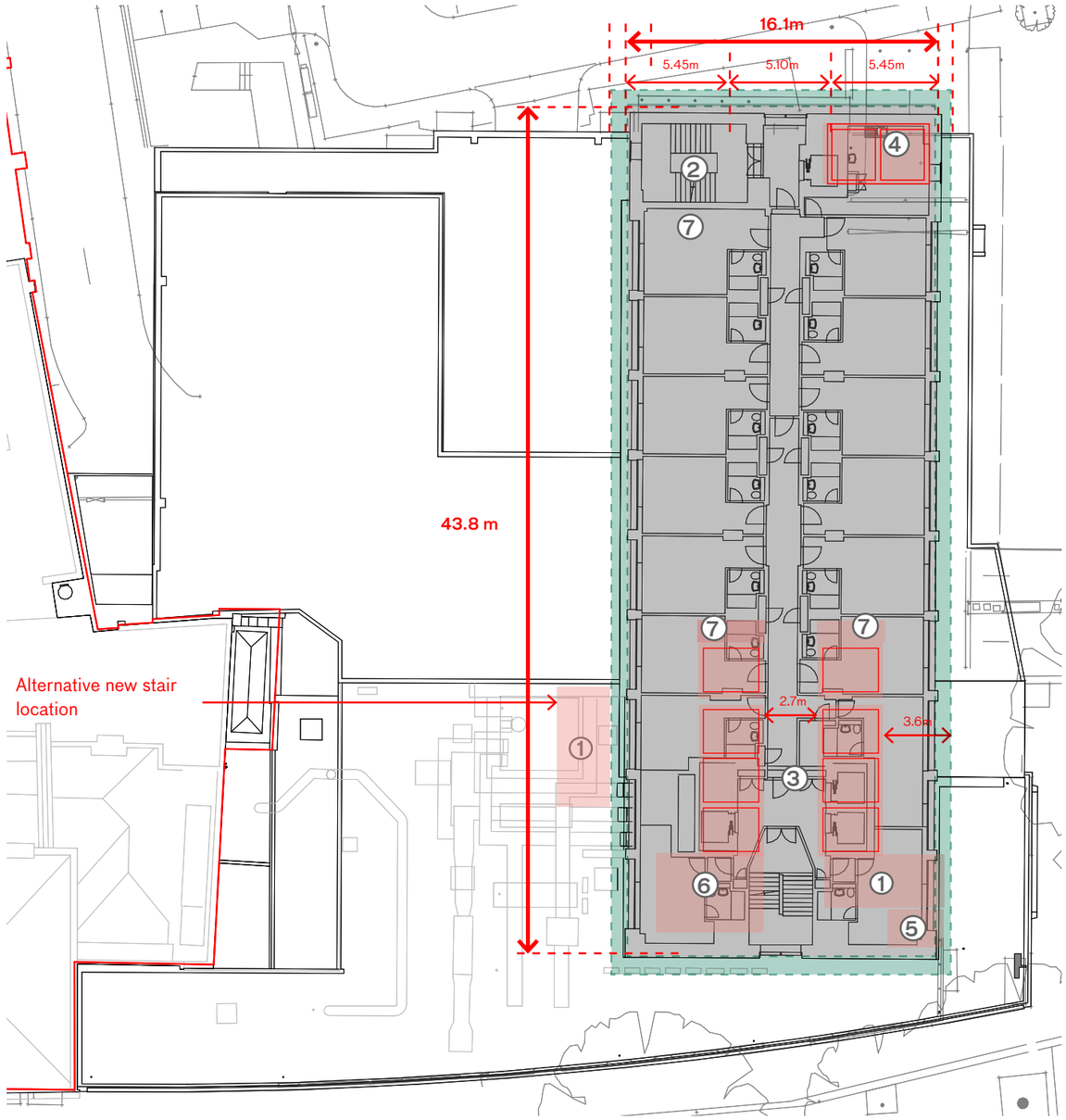
① FOH Stair
② BOH Stair (retained)
③ Primary Lift Core
④ Secondary Lift Core (1 FF lift and 1 Evac lift as per LPG requirements)
⑤ DDA WC
⑥ WCs (assumed 5 WC required based on BS6465 and Occupancy of 1:8)
⑦ Riser (assumed 3% space for risers as per proposed 1MS scheme)
Assumed 800mm perimeter jacket extension

Zone with Structure Retained
Zone with Demolition & New Structure
Zone with New Structure

Note: For detail on existing structure to be retained and to be demolished refer to Structural Review section.

## Typical Floor Plan Diagrams

### Option 3 - Partial Retention & Extension




Typical Floor Plan - Option 03

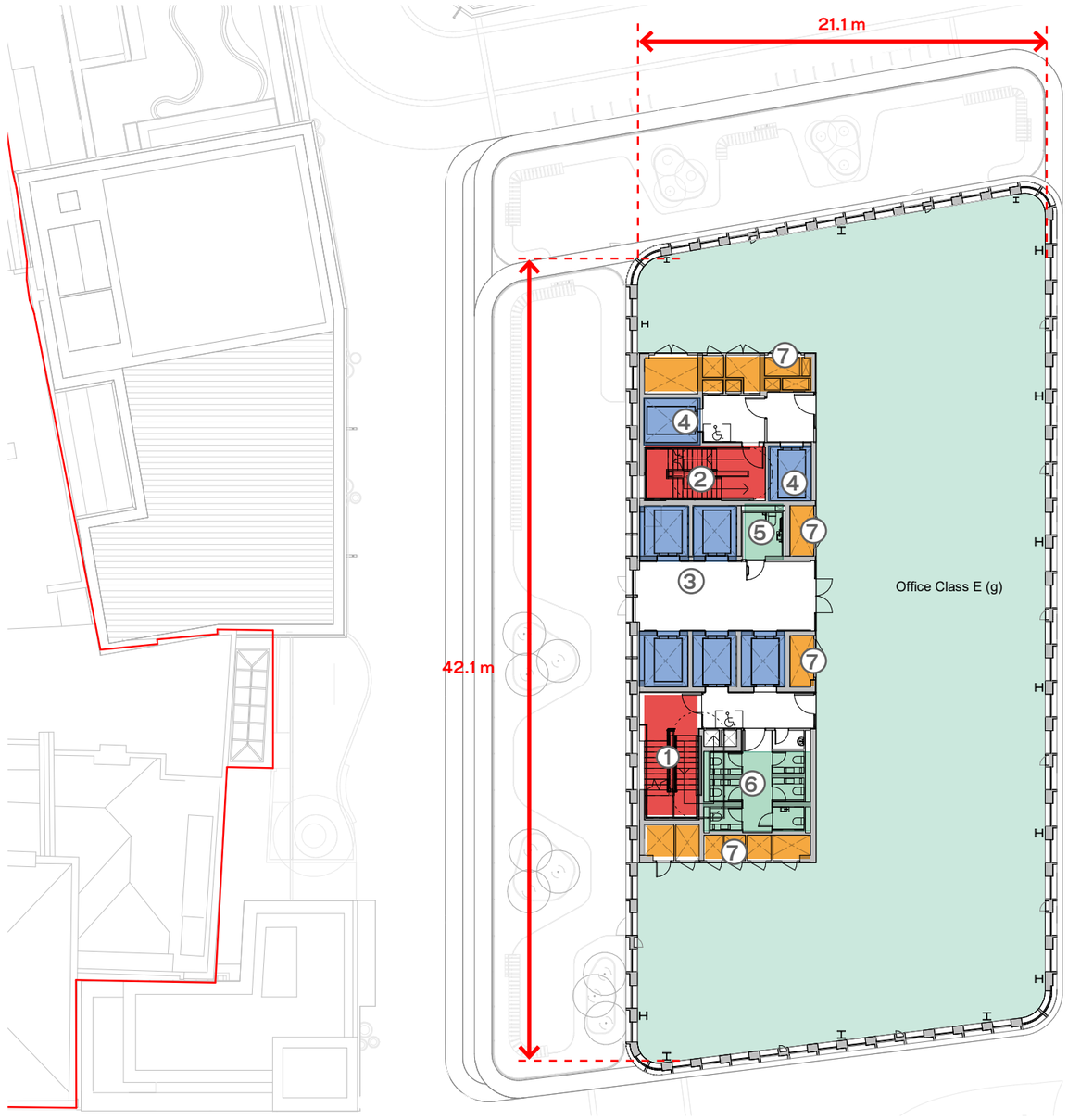
① FOH Stair
② BOH Stair (retained)
③ Primary Lift Core
④ Secondary Lift Core (1 FF lift and 1 Evac lift as per LPG requirements)
⑤ DDA WC
⑥ WCs (assumed 5 WC required based on BS6465 and Occupancy of 1:8)
⑦ Riser (assumed 3% space for risers as per proposed 1MS scheme)
Assumed 800mm perimeter jacket extension

Zone with Structure Retained
Zone with Demolition & New Structure
Zone with New Structure

Note: For detail on existing structure to be retained and to be demolished refer to Structural Review section.

## Typical Floor Plan Diagrams

### Option 4 - Basement Retention & New Build (same for Option 5)




① FOH Stair
② BOH Stair
③ Primary Lift Core
④ Secondary Lift Core (1 FF lift and 1 Evac lift as per LPG requirements)
⑤ DDA WC
⑥ WCs
⑦ Risers

Zone with Structure Retained
Zone with Demolition & New Structure
Zone with New Structure

Typical Floor Plan - Option 04 (New build)