PROOF OF EVIDENCE BY DR JULIE GODEFROY ON BEHALF OF SAVE BRITAIN'S HERITAGE

TOWN AND COUNTRY PLANNING ACT 1990

PLANNING APPLICATION CALLED IN BY SECRETARY OF STATE

456-472 OXFORD STREET, LONDON W1C 1AP

APPLICATION REF: 21/04502/FUL

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1. INTRODUCTION

1.1. My name is Dr Julie Godefroy, PhD, Chartered Engineer. I have been working as sustainability consultant for 15 years, first in a large consultancy and since 2016 as independent consultant.

1.2. My relevant professional experience, and most of my work, is related to building performance, energy efficiency and carbon reduction. I have worked on construction projects from the early stages through to planning applications, construction, and post-occupancy evaluation. This included developing a large number of energy and carbon strategies for construction projects in various sectors, on new and existing buildings.

1.3. My experience includes consultancy services to CIBSE, the Chartered Institution of Building Services Engineers, as Head of Sustainability. Recent activities in this role of relevance to this Proof of Evidence (PoE) include:

1.3.1. I led the working group and edited the 2022 revision of CIBSE TM54 Evaluating Operational Energy Use at the Design Stage

1.3.2. I lead on CIBSE responses to consultations and policy engagement related to building decarbonisation, including the London Plan and associated guidance. I am on the DLUHC advisory group for non-domestic Part L and was on the BEIS working group for operational ratings of buildings.

1.3.3. I am on the technical steering group for CIBSE TM65 and associated guidance on embodied carbon in building services, and on the technical steering group for the revision of the RICS Professional Statement

1.3.4. I was the main CIBSE author of the CIBSE-LETI Net Zero FAQs, and am CIBSE representative on the Technical Steering Group of Net Zero Carbon Buildings Standard.

1.4. I am acting as an independent expert witness on behalf of SAVE Britain's Heritage which has registered as a Rule 6 Party at this Public Inquiry. This Proof of Evidence represents my independent professional opinion and is correct to the best of my knowledge.

1.5. My Proof of Evidence covers the Whole Life Carbon (WLC) assessment submitted by the applicant, and the arguments they have put forward to justify their proposals on the basis of carbon emissions impacts. It is to be read alongside the evidence of Mr Simon Sturgis and provides a more detailed interrogation of the WLC assessment.

2. POLICY AND GUIDANCE ON CLIMATE CHANGE MITIGATION FROM DEVELOPMENT PROPOSALS

2.1. The mitigation of climate change through reduction of carbon emissions (used here as shorthand for greenhouse gas emissions, in carbon emissions equivalent) from development is guided by legislation, policy and guidance at national, regional and local level, listed in the Proof of Evidence submitted by Simon Sturgis and therefore not repeated here.

2.2. Specific elements of this legislation, policy and guidance which this PoE relies on are referred to where relevant.

3. OVERVIEW APPRAISAL OF THE APPLICANT'S SUBMISSION, FOCUSING ON CARBON AND RESOURCE USE IMPACTS

3.1. It is my professional opinion that the whole life carbon (WLC) assessment submitted in support of the planning application:

3.1.1. Does not use the required methodology and as such is in breach of policy, specifically London Plan 2021 policy SI2 (CD 6.02) and associated guidance on WLC assessments (CD 6.32).

3.1.2. Does not provide a robust basis for decision making on the carbon impacts of the proposals, and potential alternatives to minimise greenhouse gas emissions in line with policy.

3.2. This opinion is based on the following:

3.2.1. The assessment of operational carbon emissions from energy use in the New Build scenarios (Stage 2 and Potential) uses a methodology, Building Regulations Part L, which is not appropriate for this purpose and which is not intended to provide a realistic assessment of energy use and carbon emissions. Using this methodology is in breach of London Plan policy. This argument is developed in §4.1-4.13.

3.2.2. The reports submitted on the WLC assessment (CD 1.22, CD 1.36) have a number of inconsistencies and flaws which raise significant doubt about the thoroughness of the assessment and its conclusions, and about the likely carbon impacts of the proposed development. It is my opinion that as a result, the information is not a robust basis for decision making when assessing compliance with policy, especially London Plan policy SI2. These inconsistencies are of several types:

3.2.2.1. It is my understanding that there is a significant error in the graphical representation of whole life carbon emissions scenarios, Figure 16 on page 22 of the WLC assessment report (CD 1.22). This error leads to significantly under-representing the total emissions of the New Build scenarios. This point is developed in §4.14-4.18 and illustrated in Appendix JG-1.

3.2.2.2. The WLC assessment report includes a number of inconsistencies and possible errors, which altogether raise further doubts about its results and conclusions. This point is developed in §4.19-4.28.

3.2.2.3. Subsequent to the planning submission, on request from the GLA in their Stage 1 report (JG1), the WLC assessment was submitted in another form (Excel), using the GLA reporting template (CD 1.36). For the avoidance of doubt, to differentiate both submitted WLC assessments, in this PoE the latter submission, in Excel spreadsheet format, is referred to as "GLA template submission", while the first report, included within the main

planning submission, is referred to as "submitted report". There are a number of differences between both, which cast further doubt on the assessment of carbon impacts, and on the robustness of the planning decision with regards to policy compliance. This point is covered in summary in §4.29-4.31 and developed in Appendix JG-2.

3.2.3. As a result, it is my opinion that the points above invalidate the claim of a "payback" period of 17 years:

3.2.3.1. It is not clear from the applicant's submission whether this "payback" period is calculated against the existing building as it is (i.e. unimproved), or against a light touch-refurbishment: the submitted information seems inconsistent.

3.2.3.2. However, in any case, the claim is invalid due to the choice of methodology (Part L) and the inconsistencies and errors listed above. While it is not possible to assess this is in detail with the given information, my understanding is that such a "payback", if it even happened, would be much longer, most likely over 30 years, or it may not even be achieved within the standard 60-year assessment period. This "17 year payback" claim has been repeated by the applicant (CD 1.07A) and in the committee's report justifying the decision (JG2): it is then of material importance that the claim is, in my opinion, not valid.

3.2.3.3. These points are developed in §4.33-4.46.

3.3. In addition, it is my professional opinion that the WLC assessment does not sufficiently appraise the options to refurbish the building, and the carbon emissions benefits this could offer. This is in my opinion in breach of London Plan policy SI2 Minimising Greenhouse Gas Emissions (CD 6.02), London Plan policy SI7 Reducing Waste and Promoting Circular Economy Principles (CD 6.02), Westminster City Plan policy 38(D) Sustainable Design (CD 6.03), and guidance associated with these policies. This is developed in section 5.

4. APPRAISAL OF THE APPLICANT'S WHOLE LIFE CARBON ASSESSMENTS

The assessment of operational carbon emissions from energy use in the New Build scenarios (Stage 2 and Potential) uses a methodology which is not appropriate for this purpose and which does not follow London Plan policy and associated guidance.

4.1. The assessment of operational carbon emissions from energy use in the New Build scenarios (Stage 2 and Potential) is based on the Building Regulations Part L methodology. This methodology is not intended nor suitable for this purpose, and its use in WLC assessments for non-domestic buildings does not follow London Plan policy. It is also against industry good practice.

4.2. At the time of the application, emerging London Plan Guidance was already available on how to comply with the SI(2) policy requirement for a WLC assessment. This made it clear that operational energy use and associated carbon emissions should be estimated using CIBSE TM54 methodology, not Part L:

4.2.1. A pre-consultation draft (April 2020) of the Whole Life Carbon Assessment Guidance was available (JG3), which was already referred to in the London Plan Energy Assessment Guidance (JG4). It included the following requirement when completing module B6 i.e. when evaluating operational energy use and associated carbon emissions: §2.15 "*This should reflect the estimated figures calculated as part of the SAP and CIBSE TM54 analyses for domestic and non-domestic uses respectively*." (JG3, §2.15, page 12)

4.2.2. The consultation draft (October 2020), which had already been consulted upon (October 2020-January 2021). The above requirement from the draft remained unchanged. (JG5, §3.5.9, page 11)

4.2.3. The applicant was aware of this emerging guidance, since they reference embodied carbon benchmarks from that guidance to compare their WLC assessment results against (CD 1.22, Figure 1, page 2: "GLA DNLP current" and "GLA DNLP aspirational").

4.2.4. The final Whole Life-Cycle Carbon Assessments, London Plan Guidance was adopted on 25 March 2022, and the requirement above, from the draft, remains unchanged. (CD 6.32, §2.4.4 page 12 and §2.5.14, page 17).

4.3. At the time of the application, emerging London Plan Guidance on how to comply with the 'Be Seen' requirement of London Plan policy SI2 was already available as consultation draft (October 2020), and the consultation on it had been held (October 2020-January 2021):

4.3.1. This consultation draft stated: §4.2.5 "*Additionally, CIBSE TM54 analysis, which recommends using a tailored Part L model for the estimates of regulated and unregulated loads, should be undertaken and its findings should be reported in the 'be seen' spreadsheet. A TM54 analysis gives more accurate predictions of a building's energy use. This approach also aligns with the reporting requirements under the GLA's Whole Life-Cycle Carbon (WLC) Assessment Guidance. The CIBSE TM54 findings should therefore also be used to represent the regulated and unregulated energy requirements for non- residential uses of Module B6, in line with the WLC requirements*." (JG6)

4.3.2. The final 'Be Seen' London Planning Guidance was published in September 2021 (CD 6.29), and it was therefore material consideration by the time of the planning decision, as stated by the GLA in their March 2022 Stage 2 report (JG7). This 'Be Seen' Guidance states that TM54 should be used to estimate energy use and associated emissions, rather than Part L, with an almost identical statement as in the draft: "*Additionally, analysis guided by CIBSE TM54, which recommends using a tailored Part L model for the estimates of regulated and unregulated loads, should be undertaken and its findings should be reported in the 'be seen' reporting webform. A TM54 analysis gives more accurate predictions of a building's energy use. This approach also aligns with the reporting requirements under the GLA's Whole Life-Cycle Carbon (WLC) Assessment Guidance. The CIBSE TM54 findings should therefore also be used to represent the regulated and unregulated energy requirements*

for non- residential uses of Module B6 (operational energy use) of BS EN 15978, in line with the WLC requirements." (CD 6.29, §3.2.6, page 12).

4.4. Therefore the use of Part L calculations in the WLC assessment is in breach of policy guidance.

4.5. Industry guidance is also available as context on how to implement policy. In particular, London Plan policy SI2 guidance refers to the RICS Professional Statement (PS) as nationally recognised methodology (CD 6.32, §2.44, page 12). While the RICS PS allows a range of methods to be used for the assessment of operational carbon emissions from energy use, it essentially refers to the judgement of the professional carrying out the assessment (JG8, §3.5.6 page 24).

4.6. The professional body providing authoritative guidance on operational energy and carbon assessments is CIBSE. CIBSE guidance has been clear for a number of years that Part L assessments are not suitable for the assessment of operational energy use and carbon emissions; CIBSE TM54, first published in 2013 (JG9), provides a recommended approach and includes the following statements:

- *"In the UK, energy models are used at the design stage to compare design options and to check compliance with Building Regulations. These energy models are not intended as predictions of energy use, but are sometimes mistakenly used as such."* (JG9, §4.1, page 1)
- *"the calculation methodology for Building Regulations compares the proposed building design with a 'notional' building rather than trying to predict energy use."* (JG9, §4.1, page 2)

4.7. CIBSE TM54 has been increasingly recognised and used for a number of years. It has recently been adopted in Building Regulations Approved Document L2, 2021, as a means to meet the requirement to provide the owner with "a *forecast of the actual energy use of the building",* applying to all new non-domestic buildings with a total useful floor area over 1000m^2. (JG10, §9.4)

4.8. Not only is the use of the Part L methodology in the WLC assessment in breach of policy, it also raises doubts about the results of the assessment and therefore could have a material impact on decision making: Part L assessments are not appropriate as they do not, and are not meant to, provide a likely representation of how a particular building will perform. Instead they are meant as a standardised assessment against a target, under set assumptions. For example, factors such as occupancy density and hours are standardised, rather than being a reflection of the likely operation of the given building. This is recognised in Building Regulations Approved Document L2, 2021:

4.8.1. "*The compliance outputs of SBEM or other Building Regulations compliance tools are not suitable for direct use as energy forecasting estimates for any size of building."* (JG10, §9.4)

4.9. In addition, the use of the Part L methodology in the WLC assessment could have a material impact on carbon outcomes: because Part L assessments are not meant as a design tool and performance assessment, opportunities to reduce energy use and carbon emissions can be missed as they are not considered, or not considered appropriately, under a Part L assessment.

4.10. ARUP themselves advocate for the use of CIBSE TM54 or similar performance assessments, rather than Part L calculations, both as a means of correctly assessing energy use and associated emissions, and of identifying opportunities to minimise carbon emissions: in their public report Net Zero Carbon Buildings: Three Steps To Take Now, ARUP lay out for industry their key

recommendations to achieve Net Zero buildings. They are clear that Part L assessments should not be relied on to design buildings and identify carbon saving opportunities, but instead that "*advanced energy modelling methods*" (commonly understood by industry as method such as CIBSE TM54 or NABERS, by opposition to Part L compliance methods) should be used:

4.10.1. *"For too long, design success has been measured by compliance outcomes, including BREEAM ratings and Part L. Designing for operational performance requires a different approach and a much deeper understanding of how buildings will operate and perform in practice.*

MODELLING SUCCESS: Designing for net zero performance makes advanced energy modelling an absolute necessity as well as its seamless integration within the design process. The design develops in response to modelling outcomes." (JG11)

4.11. The applicant's submitted Sustainability Statement seems to acknowledge the limitations of their own assessment by stating "*advanced energy modelling for a detailed operational energy prediction will take place in the next stage*" (CD 1.23, p9). However, as stated by ARUP in the previous paragraph, such modelling should inform the design development. While carrying out more detailed performance modelling at later stages is still useful, many design factors will be set, particularly if the scheme has planning approval, which will limit opportunities. ARUP have advocated for the use of TM54 modelling from the early design stages, and have used it for example in the recent 80 Charlotte Street project where "*At the outset of the project, Arup conducted a CIBSE TM54 study to get an idea of the expected performance of the building*" (JG12, pages 7-8).

4.12. As a result, the current assessment submitted by the applicant cannot be taken as evidence that opportunities to minimise energy use and carbon emissions have been comprehensively reviewed and that carbon emissions will be minimised, as required by London Plan policy SI2.

4.13. Altogether, on the basis of the current information it is therefore my opinion that:

4.13.1. the current assessment does not follow London Plan policy SI2 and associated guidance;

4.13.2. there is considerable doubt as to whether the operational carbon emissions of the New Build scenarios (Stage 2 and Potential) estimated by the applicant would be met in practice. Because the claimed carbon benefits from the New Build scheme are heavily dependent on operational carbon savings in the longer term (to "payback" the original carbon expenditure compared to retaining and refurbishing the building), this means there is considerable doubt as to whether the New Build scheme would deliver carbon benefits. This is compounded by other issues with the WLC assessment, which are explored in detail in §4.14-4.26;

4.13.3. there is considerable doubt that the operational carbon emissions in the New Build scenario have been minimised, as required by London Plan policy SI2.

ERROR IN THE GRAPHICAL REPRESENTATION OF WHOLE LIFE CARBON EMISSIONS COMPARING NEW BUILD AND LIGHT TOUCH REFURBISHMENT SCENARIOS

4.14. Figure 16 on page 22 of the WLC report (CD 1.22) shows the cumulative emissions of the 3 scenarios considered by the applicant (New Build Stage 2, New Build Potential, and Light Touch Refurbishment). It is my understanding that this Figure is erroneous, showing the

cumulative WLC emissions of the New Build Stage 2 and Potential scenarios significantly below what they should be:

4.14.1. The graph shows Day 0 emissions of 650 and 500 $kgCO_2/m^2GIA$ for the New Build and Build Potential scenarios respectively. This is consistent with the figures elsewhere in the report for Module A1-A5 emissions.

4.14.2. The graph shows Total Year 60 WLC emissions (i.e. A-C + B6-7) of approximately 1,100 and 900 $kgCO_2/m^2GIA$ for the New Build Stage 2 and New Build Potential scenarios, respectively. It is my understanding that these are incorrect and should be significantly higher:

- Table 9 page 12 gives Total Year 60 WLC emissions (A-C + B6-7 or B6 (the report is inconsistent about this: see §4.20.1) of 133,887,895 $kgCO_2$. Total GIA is 60,777m^2 which gives a total WLC of 2,203 $kgCO_2/m^2GIA$ i.e. significantly higher than the approximate figure of 1,100 $kgCO_2/m^2GIA$ on the graph.

- The figure of 2,200 $kgCO_2/m^2GIA$ is aligned with other parts of the report. In particular, it is consistent with the statement on page 22 that operational emissions represent 60% of total WLC emissions, and embodied emissions represent 40%: A-C total is 870 $kgCO_2/m^2GIA$ for the new build, which is 39.5% of 2,203 $kgCO_2/m^2GIA$.

4.15. Therefore, according to the applicant's calculations, the total 60-year WLC emissions for the New Build scenario should be around 2,200 $kgCO_2/m^2GIA$, around twice the level (1,100 $kgCO_2/m^2GIA$) shown on the graph. This is illustrated in Appendix JG-1: New Build Stage 2 – Corrected Estimate 1. There should be a similar increase for the New Build Potential scenario, compared to the curve plotted by the applicant on Figure 16.

4.16. Based on the information available from the applicant, it appears that a similar error has been made in the presentation of the Light Touch Refurbishment scenario. This is difficult to ascertain due to a lack of information and a lack of clarity on how the cumulative 60-year operational carbon emissions were calculated (as further detailed in §4.19-4.26). However, an estimate was made based on the information available, and this is also illustrated in Appendix JG-1: Light Touch Refurbishment – Corrected Estimate.

4.17. The corrected estimates show that, while emissions of the Light Touch Refurbishment scenario are likely to be higher than currently shown, so are those of the New Build Scenarios: the whole life carbon emissions from the New Build scenario should be twice as high as currently represented. This is clearly significant and of material impact on decision making.

4.18. This error also has a very significant material impact on the claimed "payback" period, which is very much put in doubt. This is explored in more detail in §4.33-4.46.

INCONSISTENCIES AND LACK OF CLARITY IN THE APPLICANT'S WLC ASSESSMENT

WLC assessment - Submitted report: Inconsistencies in the assessment of operational carbon emissions in the New Build scenario

4.19. As illustrated in the previous section, the assessment of operational carbon emissions is crucial to establish the absolute and the relative carbon impact of possible development proposals for the site:

4.19.1. Operational carbon emissions are a significant part of the new building's whole life carbon emissions: 60%, according to the applicant (CD 1.22, page 12).

4.19.2. Their assessment influences the relative impacts and benefits of refurbishment vs new build scenarios, and potential "payback" periods.

4.20. The applicant states that the total operational carbon emissions over 60 years is 81,001,584 $kgCO_2$ (CD 1.22, Table 9, page 12). It is not clear what this figure covers, as the report is inconsistent on two important points:

4.20.1. Emissions from energy use, or from energy and water use: Table 9 associates these emissions with energy use (i.e. module B6 in a WLC assessment). This is also what is stated in Figure 6 underneath that Table. However, including only module B6 would not be compliant with policy, nor with the RICS Professional Statement which the applicant states has been followed. The first paragraph on the same page refers to operational carbon emissions covering B6 as well as B7 (i.e. emissions from water use). Various statements in the report also refer to B7 being included.

4.20.2. Emissions from regulated energy use, or from regulated and unregulated energy use: The first paragraph on page 22 refers to "regulated" operational carbon. However, the third paragraph on that same page states that both regulated and unregulated emissions are covered. For policy compliance, both regulated and unregulated emissions have to be included in the WLC assessment (CD 6.02, London Plan SI2, §9.2.11).

4.21. The applicant's WLC assessment report states that, for the New Build Stage 2 scheme, operational carbon emissions were calculated from the Part L assessment. As explored in detail in §4.1-4.13, the use of Part L assessments is not appropriate for this purpose. However, even assuming its use, it is not clear how the figure of 81,001,584 $kgCO_2$ was arrived at. From the submitted energy strategy and associated Part L assessments (CD 1.17, CD 1.18, CD 1.19, CD 1.20), the annual operational carbon emissions from energy use as estimated by the applicant are:

4.21.1. Using GLA Current carbon factors: total 2,507,754 $kgCO_2$/year, made up of 936,499 $kgCO_2$/year regulated emissions + unregulated 1,571,255 $kgCO_2$/year, i.e. over 60 years: total 150,465,229 $kgCO_2$, made up of 56,189,929 $kgCO_2$ regulated + 94,275,300 $kgCO_2$ unregulated emissions.

4.21.2. Using GLA Expected Decarbonisation factors: total 1,125,832 kgCO2/year, made up of 420,432 kgCO2/year regulated emissions + unregulated 705,400 $kgCO_2$/year, i.e. over 60 years: total 67,549,901 $kgCO_2$, made up of 25,225,922 $kgCO_2$ regulated + 42,323,979 $kgCO_2$ unregulated emissions.

4.22. It can be seen that none of these 60-year figures matches or even approaches the figure of 81,001,584 $kgCO_2$/yr stated in the submitted report:

4.22.1. Using the GLA Current carbon factors, there is a difference of *minus* 69,463,645 $kgCO_2$ i.e. *minus* 46% compared to the figure obtained from the energy strategy and Part L report.

4.22.2. Using the GLA Expected Decarbonisation carbon factors, there is a difference of *plus* 13,451,683 $kgCO_2$ i.e. *plus* 20% compared to the figure obtained from the energy strategy and Part L report.

4.23. These are very significant differences.

4.24. Given the lack of clarity around the inclusion or not of emissions from water use (B7 – see above §4.20.1), I considered whether this may explain the difference in the total operational emissions. However, I do not think this to be the case: B7 emissions are typically a much smaller part of operational emissions than those related to energy use, and would be very unlikely to explain such large differences. Indeed the GLA template submission (CD 1.36) only attributes 3,465,000 $kgCO_2$ to B7 (over 60 years), much less than these differences.

4.25. I also considered whether the figure of 81,001,584 $kgCO_2$ could be explained if the applicant had used energy consumption figures from the Part L assessment, but different carbon factors than those required by the GLA, for example carbon factors based on the grid decarbonisation scenarios referenced in the RICS Professional Statement (JG8, page 16). i.e. the National Grid "Slow Progression" scenario. However, this is unlikely as this scenario reaches near zero carbon grid content well within the 2020-2080 60-year timeframe of the WLC assessment (JG13), which would mean using lower carbon factors than even the GLA Expected decarbonisation factor, leading to a lower total and therefore an even larger difference.

4.26. Altogether, it has not been possible for me to ascertain how the figure of 81,001,584 $kgCO_2$ was arrived at. Given its significant influence (60%, as assessed by the applicant) on the total whole life carbon emissions of the New Build Stage 2 scenario, this raises serious doubt on the assessment and its conclusions.

WLC assessment - Submitted report: Claims about further savings through design development

4.27. As stated by the applicant, the submitted WLC assessment is subject to a number of assumptions including the quantities of some materials and products (e.g. building services), where they will be sourced from, and their carbon impact per unit (from extraction through to manufacture and transport). Some are unavoidable at this design stage; however, this means that estimates of embodied carbon emissions are this stage of design are often likely to be an under-estimate. Indeed the applicant's report implies as such:

4.27.1. "*if at later stages these quantities increase due to more detailed information being available, the embodied carbon impact of the development may increase in spite of the carbon reduction strategies adopted*" (p8).

4.27.2. About MEP services: "*Further analysis at the next stages will allow for more detailed calculations of the impacts, possibly resulting in a carbon uplift of the overall building's footprint*".

4.28. Therefore, the presentation by the applicant of the Stage 2 New Build scenario as one from which emissions could decrease as the design progresses (as represented by the New Build Potential scenario) is, I believe, subject to doubt. Is just as likely that the estimate of emissions would increase following detailed design and procurement.

Inconsistencies between the WLC assessments in the submitted report and in the GLA template

4.29. In their Stage 1 report (JG1), the GLA requested the WLC assessment to be submitted in a compliant format, following their template. This was submitted by the applicant (CD 1.36).

4.30. To my knowledge, both documents are meant to represent the same assessment of the same scheme, at the same level of design development. However, there are a number of significant differences between both. They are briefly summarised here, and detailed in Appendix JG-2.

4.31. The embodied carbon figures submitted in the GLA template have some unexplained differences with the submitted report (e.g. drastic reductions in carbon emissions from transport to site – A4 - and construction site activities – A5). However, these unexplained differences affect a relatively small part of the total 60-year emissions.

4.32. The main difference between both assessments is in operational carbon emissions. In this regard the figures in the GLA template submission are consistent with other elements of the applicant's submission, including the Part L assessment (CD 1.17, CD 1.18, CD 1.19, CD 1.20), and with the GLA guidance on carbon factors (CD 6.32). As far as I could see this is not the case for the B6 (or B6-B7) figures in the submitted report, as detailed in §4.21-4.26.

THE CLAIM OF A CARBON PAYBACK PERIOD OF 17 YEARS ACHIEVABLE BY THE NEW BUILD SCENARIO IS NOT ROBUST

Unclear basis for the payback

4.33. In the context of buildings, the carbon "payback" period is understood as the time it would take for carbon savings accumulated during operation (typically achieved through improvements in energy use and decarbonisation of the heat supply) to equate and overcome the initial carbon expenditure of the building project (modules A1-A5).

4.34. In this scheme, the applicant claims that the New Build Stage 2 proposal would payback within 17 years, or possibly 9 years in the case of the New Build Potential scheme. This claim is an important element of the scheme's presentation and of the applicant's argumentation, and in the initial justification for granting approval:

4.34.1. The applicant makes this claim in the Design and Access statement, as part of their short examination of options to retain the existing buildings: "*This leads to a new build proposal having a smaller total carbon footprint (embodied + operational) after c. 15 years post completion in comparison to a light touch refurb*." (CD 1.07A, section 1.10, page 57)

4.34.2. The planning committee report states, in relation to the New Build scheme: "*Whilst it has a higher initial embodied carbon than the refurbishment option as it needs to be built (with a high carbon expenditure) - over its operational lifetime it will require much less maintenance than the refurbishment option and be a more efficient building, providing a betterment from years 15/16*". (JG2)

4.34.3. The applicant has re-iterated this in subsequent public statements, for example: *"We believe the replacement of the three existing buildings at 458 Oxford Street is the right response to the climate emergency, yielding a better overall carbon footprint within 17 years and sustainability benefits that will accrue for the following century."* (JG14, page 3)

4.35. However, it is not clear what the claimed payback is calculated against: some instances imply it is against the Light Touch Refurbishment scenario, others against the existing building.

4.36. The above quoted DAS presents the claim as calculated against the Light Touch Refurbishment scenario, and this is also the way it is referred to in the above quoted Committee report. Figure

16 of the submitted WLC report (CD1.22, page 22) implies that the payback is calculated against the Light Touch Refurbishment scenario: in this Figure, it appears that the cumulative (embodied + operational) carbon emissions of the Light Touch Refurbishment scenario, while initially lower, would overtake those of the New Build Stage 2 scenario approximately at year 17, and of the New Build Potential scenario approximately at year 9, matching the applicant's quoted figures (JG14, page 3, page 4, and page 7). However, as explained in the above §4.14-4.18 and illustrated in Appendix JG-1, it is my understanding that there is a significant error in Figure 16, which very much puts in doubt this payback period.

4.37. The comparison between New Build Stage 2 and Light Touch Refurbishment, from Figure 16 of the WLC assessment report, can be further interrogated using the information submitted in the GLA template (CD 1.36), and the cumulative 60-year emissions of the New Build Stage 2 scheme plotted accordingly. This is included in Appendix JG-1: New Build – Corrected Estimate 2 and 3; for these the GLA Grid Decarbonisation scenario has been used, as apparently the closest match to the applicant's assumption in Figure 16.

4.38. The corrected WLC figures cannot be determined with certainty given the number of inconsistencies and lack of information in the submitted information. However, as illustrated in Appendix JG-1, this does not change the conclusion I reach: the point at which the cumulative emissions of the Light Touch Refurbishment scenario would overtake those of the New Build Stage 2 scenario is likely to be much further in the future than the claimed 17 years. The WLC emissions of the New Build scenarios would remain well above those of the Light Touch Refurbishment scenario for a long period, without crossover at year 17; any crossover point, if it happened, would very likely be over 30 years, and maybe only just be within the assessment period of 60 years, as illustrated in Appendix JG-1.

4.39. This longer payback period undermines the applicant's claims and the robustness of decision making on carbon impacts. It is also, by nature, more uncertain, as more subject to future changes in the assumed operation of the building.

4.40. Furthermore, beyond the technical details of WLC assumptions and methodologies, it is crucial to consider a point of material importance in practice, for the reality of carbon emissions: within 30 years, the UK electricity grid is widely expected to have nearly zero carbon content – indeed, government has committed for this to happen by 2035, well ahead of 2050 and within the early part of the 60-year WLC assessment: for much of the assessment period, grid electricity may credibly be at or very near zero carbon content (JG15). While this may occur a few years earlier or later, the grid is clearly on a decarbonisation trajectory, so payback periods approaching or longer than 30 years are very unlikely to be meaningful and, in my opinion, should not be considered a basis for decision making on carbon impacts: once the grid is decarbonised, the New Build scenario would no longer offer operational carbon savings compared to the Light Touch Refurbishment.

4.41. Another interpretation of how this 17 year payback claim was arrived at is more simply that it is calculated against compared to the existing un-improved building.

4.42. Public information available outside of the planning application states that the existing building uses 253kWh/m^2/year (JG14, page 8), resulting in 58 kgCO_2/m^2/yr when applying the GLA Expected Decarbonisation carbon factor for electricity (i.e. 0.233kgCO_2/kWh/yr), as stated by the applicant (JG14, page 9). This would result 3,582,743 kgCO_2/year when applied to the total area of the new building (60,777 m^2 GIA – using this area is highly theoretical, since the existing building has in fact a smaller GIA, which illustrates the limits of such a comparison with an un-improved building).

4.43. The initial upfront embodied carbon expenditure of the New Build Stage 2 (modules A1-A5) is 39,534 tonCO_2 (using the numbers in the submitted report). Annual operational carbon emissions from energy use of the New Build Stage 2 scenario, using the figures in the Energy Statement report, which are consistent with the submitted GLA template, are 1,125,832kgCO2/year. Based on these numbers from the applicant (which are all subject to inconsistencies and flaws, as described in the previous sections), the annual operational carbon savings from energy use offered in theory by the New Build scheme compared to the existing building would then be 2,456,912 kgCO_2/year, ignoring in-use embodied carbon for simplification as they are a small amount. By these estimates, the initial expenditure would then be "paid back" in just over 16 years. This is the closest explanation I have been able to find to the claim of a 17 year payback, and as explained above it is not convincing since it is subject to many inconsistencies and methodological flaws.

4.44. It therefore appears that the claim of a 17 year payback may be based on a comparison against the existing un-improved building (rather than against a Light Touch Refurbishment scenario). In addition to the aforementioned inconsistencies and methodological flaws, this is problematic for two important reasons:

4.44.1. First, because operational carbon emission of the New Build are based on Part L, but it appears that the energy use figure for the existing building is based on actual (i.e. metered) energy use (JG14 pages 8 and 9). This means it is likely to incorporate various inefficiencies, from poor repair and maintenance to non-optimised operation (cumulatively often referred to as the "performance gap"), all of which are largely ignored in a Part L model. From a technical and methodological point of view, comparing Part L numbers (even including un-regulated emissions) with existing metered energy use is deeply flawed.

4.44.2. Second, to appropriately review the potential benefits and impacts of the proposed development, the comparison should be against a well-performing refurbishment scenario, not just against a "do nothing" scenario.

4.45. Therefore, having considered a range of possible justifications for the claimed payback within 17 years, it is my professional opinion that the WLC assessment does not justify this claim. Based on the information available, the payback period is likely to be much longer and subject to very much uncertainty, or may not even happen i.e. I think it is possible that future operational carbon savings compared to the Light Touch Refurbishment scenario would never compensate for the initial embodied carbon expenditure of the New Build scheme.

4.46. This payback claim is prominent in the scheme's presentation, and it was taken into account in the evaluation of policy compliance and decision making process. Therefore, the fact that the claim is invalid does, in my opinion, undermine the basis for decision making.

5. INSUFFICIENT APPRAISAL OF OPTIONS TO REFURBISH THE BUILDINGS, AND THEIR ASSOCIATED CARBON EMISSIONS BENEFITS

5.1. The policy context requires minimisation of greenhouse gas emissions, resource use, and waste. It highlights the importance of limiting demolition and new build and suitably considering refurbishment to achieve these aims. This is extensively covered in the Proof of Evidence submitted by Simon Sturgis; for the purpose of this PoE, key applicable elements of the policy context include:

5.1.1. London Plan SI2, on the "minimisation of greenhouse gas emissions" (CD 6.02)

5.1.2. London Plan policy SI7, on the "reduction of waste and promotion of circular economy principles." (CD 6.02)

5.1.3. Westminster City Plan 2019-40, April 2021, policy 38(D) has the following associated guidance: §38.11: "*As new developments are large consumers of resources and materials, the possibility of sensitively refurbishing or retrofitting buildings should also be considered prior to demolition and proposals for substantial demolition and reconstruction should be fully justified on the basis of whole-life carbon impact, resource and energy use, when compared to the existing building." "All development should ensure the reduction, reuse or recycling of resources and materials including water and wate and minimise energy use and emissions that contribute to climate change.*" (CD 6.03)

5.2. The GLA WLC reporting template provides more guidance on how policy SI2 should be applied. In particular, it sets out 16 WLC reduction principles which applicants are requested to report against, the first of which is: *"1 – Reuse and retrofit of existing buildings" – "Key benefits: significant retention and reuse of structures is carbon efficient and reduces construction costs".* This was not reported against by the applicant, and in practice clearly not followed.

5.3. The refurbishment scenario considered in the submitted WLC assessment of options is, in the applicant's own words, only "light touch" (CD 1.22, page 22). This does not explore the full opportunities to reduce carbon emissions through a more substantial refurbishment, not wider benefits for the functionality, desirability and durability of the buildings.

5.4. It is my professional opinion that in order to follow London Plan policy SI2 Minimising Greenhouse Gas emissions & policy SI7 Reducing Waste and Supporting the Circular Economy, then the review of options should include a proper assessment of a more substantial refurbishment. This more substantial refurbishment scenario would involve higher initial embodied carbon costs but also improve operational performance, as well as offering opportunities to address other issues for the long-term life and desirability of the building.

5.5. In the Design & Access statement (CD 1.07A), the applicant states that a substantial refurbishment scenario was considered. By the applicant's own estimate provided separately from the planning submission (JG14, page 11), the energy use achievable in this refurbishment scenario would be 96 kWh/m^{2}GIA/yr i.e. much lower than the energy use assessed in the Light Touch refurbishment scenario (130 kWh/m^{2}GIA/yr), and very close to that of the new build scenario (88 kWh/m^{2}GIA/yr). By the applicant's own estimate, the initial (A1-A5) embodied carbon associated with the works would be 725 kgCO_2/m^2 of newly provided accommodation (JG14, page 11). That area of newly provided accommodation is not known exactly, but a simple estimate could be that it is the difference between the total GIA of the new build (60,777 m^2 GIA), minus the total GIA of the existing building (35,592 m^2 GIA) i.e. 25,285 m^2 GIA. In that case, the initial embodied carbon (A1-A5) would be around 18,259 tonCO_2: this is significantly lower than the 39,534 tonCO_2 in the New Build Stage 2 scenario or even the 29,945 tonCO_2 in the New Build Potential scenario.

5.6. As illustrated in the previous sections of this PoE, the energy use and associated operational carbon emissions attributed to each scenario are a fundamental assumption behind the stated WLC benefits and "payback" claims. Compared to a substantial refurbishment scenario, because the difference in operational carbon emissions with the New Build scenario would be quite small (and in practice even smaller than using the GLA carbon factors, due to

decarbonisation of the grid), a New Build scenario would have a very long carbon payback period, or quite possibly no payback.

5.7. Therefore, using the applicant's own numbers it is very likely that the total WLC in this substantial refurbishment scenario would be significantly lower than in the New Build scenarios (Stage 2, and even Potential). Even assuming a more substantial extent of works, it is very likely that this scenario would offer WLC benefits compared to the New Build scenario (Stage 2, and even Potential).

5.8. Precedents and academic literature support this appraisal that, in most cases, substantial refurbishments offer lower carbon options than new builds (JG16).

5.8.1. "*The case studies included* ***eleven refurbishment projects****, in which energy efficient measures and low carbon technologies were retrofitted to existing buildings;* ***for these projects the median product stage impact was found to be just under half that for the new build projects****. While further research is required to compare the operational energy use in the new and refurbished buildings, this suggests that* ***such energy refurbishments have a significantly lower impact than new buildings***." (JG16, p1)

5.9. Similar evidence that refurbishment projects have the potential to offer significant whole life carbon savings compared to new buildings was also found in a report produced by ARUP for the World Business Council for Sustainable Development, which included a number of whole life carbon assessment case studies (JG17). This is examined in more detail in the Proof of Evidence submitted by Simon Sturgis (§11.3.2).

5.10. ARUP themselves have advocated for the refurbishment and adaptation of existing buildings to ensure a sustainable use of resources and reduce carbon emissions, without compromising value and commercial attractiveness. They have presented considerable experience in this domain with project examples in a very wide range of building uses and types of structures (JG18, pages 4 and 5):

5.10.1. "*Demolishing reusable buildings and constructing new ones in their place will only add to stresses on our planet's finite natural resources. It is time for change on a dramatic scale*. "

5.10.2. "*This document has been created to challenge perceptions and show that second hand doesn't mean second rate. Our projects prove that refurbished buildings are some of the most exciting and dynamic places in the built environment. With industry-wide collaboration and a radically different mindset, the opportunities to create great buildings whilst driving down carbon are limitless*."

5.10.3. "*Along with environmental benefits, transforming and reusing existing buildings often delivers greater commercial and social returns than demolishing and reconstructing. It can be far more cost-effective for clients, create characterful places for occupiers and preserve heritage value for communities*."

5.11. My PoE considers the claimed carbon benefits used to argue for demolition and new building, and I consider these claims not to be robust. I understand that the applicant has relied on reasons why this more extensive refurbishment scenario is not being pursued. This is not my area of expertise but has been reviewed by others, and a number of the reasons put forward by the applicant have been put in doubt:

5.11.1. Functionality and desirability: this is examined in the Proof of Evidence submitted by Simon Sturgis (§11.4)

5.11.2. Limited remaining lifetime of the buildings: it is my understanding that no evidence has been submitted to support this statement

5.11.3. Implications of asbestos in the building: this is examined in the Proof of Evidence submitted by Alec Forshaw (§8.7)

5.12. Therefore, from the perspective of responding to policy on the mitigation of climate change and minimisation of greenhouse emissions, and the application of circular economy principles, it is my opinion that by insufficiently addressing refurbishment scenarios, the comparison presented by the applicant is skewed in favour of new build scenarios and does not suitably appraise and maximise opportunities to minimise carbon emissions, resource use and waste. This does not follow London Plan policy SI2 Minimising Greenhouse Gas Emissions, London Plan policy SI7 Reducing Waste and Supporting the Circular Economy, Westminster policy 38(D) and associated policy guidance. Other policies are considered by Simon Sturgis and Alec Forshaw. I agree with their analysis, but I leave those matters to them.

6. CONCLUSIONS

6.1. The applicant's whole life carbon assessment states that it demonstrates the proposal (i.e. demolition and new build) would offer a carbon payback within 17 years. Based on the approach taken and the evidence available, for the reasons given above, I consider this assessment is subject to significant uncertainty and cannot be considered robust evidence; in addition, I consider it does not demonstrate that carbon emissions will be minimised, or that options for a retrofit scheme have been appropriately assessed.

6.2. It is therefore my professional opinion that the submitted WLC assessment, and associated proposals, are in breach of London Plan policy SI2 Minimising Greenhouse Gas Emissions, London Plan policy SI7 Reducing Waste and Supporting the Circular Economy, Westminster policy 38(D) and associated policy guidance.

7. LETTER OF APPOINTMENT

SAVE BRITAIN'S HERITAGE

Julie Godefroy,
Director,
Julie Godefroy Sustainability
Cassland Road,
London,
E9 5AJ

By email to: julie@juliegodefroysustainability.co.uk

1st July 2022

Dear Julie,

M&S Public Inquiry – letter of engagement as a witness

I write to confirm your appointment as a witness on behalf of SAVE Britain's Heritage which is acting as a Rule 6 Party at the upcoming public inquiry into M&S Oxford Street (PINS Ref: APP/X5990/V/22/3301508).

The scope of engagement is focused on evidence pertaining to Carbon and Sustainability and includes the preparation of pre-inquiry evidence and witness representation and potential cross examination at the inquiry itself, which will run from 25th October until 4th November 2022.

We very much look forward to working with you on this project.

Yours sincerely,

Henrietta Billings MRTPI
Director, SAVE Britain's Heritage