# The O2 Centre Masterplan S73 Submission

## Sustainability Statement (incl. WLCA) Addendum

Buro Happold

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# O2 Masterplan S73 Sustainability Statement (incl. WLCA) Addendum

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| Subject | Sustainability Statement Addendum |
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| 01 | Draft issue for comment | RA | 24/12/2024 | |
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## 1 Introduction

This Sustainability Statement Addendum (including Whole Lifecycle Carbon Assessment) has been prepared by Buro Happold on behalf of LS (Finchley Road) Limited ("the Applicant"), to support a Section 73 application which seeks to vary planning permission ref. 2022/0528/P, granted on 20 December 2023, in respect of the O2 Masterplan Site ("the Site") within the London Borough of Camden ("LBC"). This addendum should be read in conjunction with the approved Sustainability Statement P02 December 2022 (O2 Revised Sustainability Statement December 2022) produced by Buro Happold (the "approved Sustainability Statement").

Whilst the Section 73 application will grant a new planning permission for the entire Site, amendments are only proposed to the Detailed Element. The Outline Elements will be unaffected by the proposed except for a reduction in the maximum residential floor area proposed.

The Site is subdivided into 10 Development Plots (N1, N2, N3, N3-E, N4, N5, N6, N7, S1 and S8). These are identified on Parameter Plan ref. 19066_X_(02)_102. The 10 plots sit within three indicative phases.

The proposed Section 73 amendments relate to Development Plots N3E, N4 and N5, and the associated landscaping, access roads and infrastructure. These plots are located in the centre of the Site and are approved in detail as they form the first phase of the development – the "Detailed Element". The Detailed Element of the Site extends to 1.79ha.

Development Plots S8, N7 and N6 located in the west of the Site are approved in outline and form "Outline Element West". Development Plots N3, N2, N1 and S1 located in the east of the Site are approved in outline and form "Outline Element East". These plots together are referred to as the "Outline Elements." The Outline Elements are not affected by the amendments proposed as part of this Section 73 application except for a reduction in the maximum residential floor area proposed.

The amendments proposed as part of this Section 73 application are herein referred to as the "Proposed Development".

In summary, the Section 73 design amendments relate principally to the Detailed Element and involve adjustments to the height, massing and footprints of the buildings; the replacement of Block N4D with a two storey community centre; new landscaping and additional public realm; revisions to architecture; and revisions to unit mix and internal layouts. Overall, there is an increase in floorspace of 5,766 sqm (GIA) for the Detailed Element compared with the Approved Scheme, an increase of 43 residential units, an increase in the size of the community centre and a slight reduction in commercial floorspace (-8sqm GIA). The affordable housing provision remains the same at 36% of the floorspace (GIA).

While there is an increase in the floorspace proposed in the Detailed Element, there is a corresponding reduction in floorspace in the Outline Elements such that overall, there is no change proposed to the total floorspace permitted for the O2 Masterplan as a whole, apart from an 8sqm (GIA) reduction in commercial floorspace from the Detailed Element.

The Proposed Description of development is as follows:

*"Application under Section 73 of the Town and Country Planning Act 1990 (as amended) to vary Conditions I4 (Severability Condition), AD1 (Approved Drawings - Masterplan), AD2 (Approved Drawings - Reserved Matters), AD3 (Approved Drawings - Phase 1), RM1 (Parameter Plans and Development Specification), RM6 (Phasing Plan), RM11 (Reserved Matters – Access Statement), RM21 (Reserved Matters – Total floorspace), D20 (Photo-voltaic Cells), D21 (Phase 1 Long Stay Cycle Parking), D22 (Phase 2 Short Stay Cycle Parking), D24 (Phase 1 Disabled Car Parking), D26 (Phase 1 Fire Safety Implementation of Approved Measures), and M28 (Phase-Wide Lighting Strategy) and the removal of Conditions M6 (Enabling Works) and M7 (Major Utilities Infrastructure) of planning permission ref. 2022/0528/P dated 20 December 2023 for 'Detailed planning permission for Development Plots N3-E, N4, and N5 and Outline planning permission for Development Plots N1, N2, N3, N6, N7, S1 and S8, including demolition of all existing structures and associated works, and redevelopment to include residential development (Class C3), commercial, business and service uses (Class E), local community uses (Class F2), and Sui Generis leisure uses (including cinema and drinking establishments) together with all landscaping, public realm, cycle parking and disabled car parking, highway works and infrastructure within and associated with those Development Plots, in accordance with the Development Specification. For the avoidance of doubt, the Detailed and Outline planning permission are separate and severable for each of the Plots shown on plan P011 and the description of development on any decision notice issued pursuant to the application would reflect that', to allow for amendments to the Detailed Element (Plots N3-E, N4 and N5) including additional height, alterations to the design, massing and footprint of the buildings; the replacement of Block N4D with the relocated community centre; additional residential floorspace (and corresponding reduction in floorspace within Outline Elements); revisions to unit mix and internal layouts; additional community (Class F2) floorspace, reduction in retail (Class E,a) floorspace, reduction in professional services (Class E,c) floorspace, additional blue badge parking and cycle parking; revised landscaping and additional public realm; and associated works".*

Full details and scope of the Section 73 application are described in the submitted Planning Statement Addendum, prepared by Newmark and the Design and Access Statement prepared by GRID.

# 2 Sustainability Commitments

This report is an addendum to the report entitled O2 Masterplan Site, Finchley Road - Sustainability Statement Revision P02 (19/12/2022) as approved by London Borough of Camden (LBC) as part of planning permission ref. 2022/0528/P and should be read in conjunction with the approved document.

The scope of this addendum is to provide confirmation of the sustainability commitments made for the consented scheme in response to the design amendments associated with the Section 73 application as described above. The original commitments to sustainability principles are described below, and an update on current targets is given where there is variation.

## 2.1 Operational Energy and Carbon

### 2.1.1 Fabric First

**Approved Sustainability Strategy**

*Fabric first approach ('Be Lean'), exploring passive design optimisations and energy efficiency measures across the detailed plots on the site, achieving a regulated energy carbon reduction of:*

- *13% reduction in residential areas*
- *17% reduction in non-residential areas*

**S73 Addendum (2025)**

There are slight changes to the 'Fabric First' strategy, with an increase to carbon savings in residential areas and a minor decrease in commercial areas within the Detailed Element. The proposed updated development is anticipated to still meet the London Plan targets by achieving at least 10% and 15% reduction in $CO_2$ emissions for the residential and non-residential parts of the scheme respectively, prior to the consideration of any low or zero-carbon (LZC) technologies. The regulated energy carbon reductions at the Be Lean stage are as follows:

- 13.9% reduction in residential areas
- 14.9% reduction in non-residential areas

For more details, please refer to the Energy Strategy Addendum, Section 3.2.

**Summary: Change -** Carbon saving targets within the London Plan continue to be achievable, with minor changes to the predicted percentage reductions in the residential and commercial areas within the Detailed Element.

### 2.1.2 All-electric strategy

**Approved Sustainability Statement**

*Heat pumps to meet all heating, cooling and hot water demands (i.e. no combustion on site); combined with 645m$^2$ rooftop PV. Across the detailed plots, achieve:*

- *66% total regulated carbon reduction ('Be Green' - Residential)*
- *2.6% achieved from the solar PV.*

**S73 Addendum (2025)**

The aim of an 'all-electric' strategy is unchanged and heat pump systems are proposed to provide all heating and hot water demand across the scheme. The contribution to carbon reduction from renewables differs due to the reduced capacity of the PV array. The newly proposed areas for PV provide space for approximately ~237m$^2$ of photovoltaic panel arrays (excluding areas for access and maintenance).

The main reduction in PV array area available has come from the removal of the standalone core on block N4 as part of the amendments to the massing of the Detailed Elements. Additionally, there is greater level of detail available for the roof mounted heat pump and smoke extract plant resulting in further reduction in available PV array area. For more details, please refer to the Energy Strategy Addendum.

The new reduction figures achieved in the Detailed Elements are:

- 61% regulated carbon reduction ('Be Green').
- 1.3% achieved from the solar PV alone.

**Summary: No Change -** The 'all-electric' strategy remains, with heating and hot water provided by electric air source heat pumps throughout. There is reduction in the carbon reduction contribution from solar PV but the revised scheme remains compliant with the relevant policy commitments identified in the approved Sustainability Statement.

### 2.1.3 Solar PV

**Approved Sustainability Statement**

*Optimised solar photovoltaics aligned with the rooftop plan, the ecology strategy, and the requirements and aspirations for amenity space.*

**S73 Addendum (2025)**

Solar photovoltaic array areas have been maximised where feasible. The propposed S73 application provides PV in all available areas not used for MEP plant, smoke ventilation shafts or amenity spaces. Based on the updated and more developed design at this stage, a reduction in the available roof area for PV has been identified.

The main reduction in PV array area available has come from the removal of the standalone core on block N4 as part of the amendments to the massing of the Detailed Elements. Additionally, there is greater level of detail available for the roof mounted heat pump and smoke extract plant resulting in further reduction in available PV array area. For more details, please refer to the Energy Strategy Addendum.

**Summary: Change -** There is reduction in the carbon reduction contribution from solar PV but the revised scheme remains compliant with the relevant policy commitments identified in the approved Sustainability Statement.

### 2.1.4 Climate Change Resilience

**Approved Sustainability Statement**

*Internal environments to be designed to ensure comfort and resilience to climate change. Homes to be resilient to changing climates and designed to balance:*

- *Energy performance*
- *Provide good internal daylighting levels*
- *Minimise overheating risk taking into account future climate change (meet CIBSE TM59 and BREEAM Hea04 requirements for current and future climate change scenarios to 2040)*

**S73 Addendum (2025)**

There are changes to the Climate Change Resilience Strategy. This is due to the introduction of new requirements from Approved Document Part O since the production of the approved Sustainability Statement. A greater number of apartments in the Detailed Element were tested within the updated overheating risk assessment conducted for this S73 application. Part O requires does not allow the use of internal blinds for

compliance assessments and stipulates acoustic restrictions on the opening of windows for natural ventilation overnight. Due to the site is adjacent to multiple noisy train lines, additional mitigation measures were adopted to achieve compliance and avoid overheating in current and future climate scenarios.

These alternative measures include active cooling strategies of MVHR units with trim cooling in dwellings in Block N4 and active cooling in dwellings in Blocks N5 and N3E. The analysis conducted for the Detailed Elements for the S73 application confirmed full compliance with CIBSE TM59 and Approved Document Part O for predominantly mechanically ventilated spaces, ensuring comfortable thermal conditions against the mandatory DSY1 2020s weather file and the more onerous weather files of DSY2 and DSY3 making sure that the solutions proposed are future proofed against extreme weather conditions.

The passive design principles implemented in the revised scheme remains similar to the approved Sustainability Statement, with optimised U-values, triple glazing, low y-values and g-value, low window-to-wall ratio, recess glazing and effective balcony design to reduce solar gains and cooling demands.

Please refer to the Energy Strategy Addendum for further details.

**Summary: Change -** The updated Climate Change Resilience Strategy is more robust in response to the introduction of more stringent requirements from Approved Document Part O.

### 2.1.5 Offset Carbon Emissions

**Approved Sustainability Statement**

*Regulated carbon emissions that are remaining following onsite carbon reduction measures are to be offset at £2,850/tonne $CO_2$, paid to LBC for each phase to facilitate local carbon reduction projects.*

**S73 Addendum (2025)**

There are no changes to the carbon offset approach, although the amount of carbon to be offset has reduced. Refer to the Energy Strategy Addendum for further details.

**Summary: Change** – Reduction in regulated carbon offset required

### 2.1.6 Certification

**Approved Sustainability Statement**

*BREEAM New Construction 2018 target of 'Excellent' for commercial spaces.*

**S73 Addendum (2025)**

There are no changes to the BREEAM target.

**Summary: No Change**

## 2.2 2.2 Biodiversity and Landscape Design

### 2.2.1 Light

**Approved Sustainability Statement**

*Site massing designed around maximising sunlight or daylight to public realm.*

**S73 Addendum (2025)**

The sunlight strategy is unchanged. GRID have confirmed this in the following statement.

*Sunpath & Orientation*

*The height strategy allows maximum sunlight penetration into the public realm and built form. The site benefits from the large distances to adjacent neighbours to the south and north. Overshadowing tests have been carried out as detailed within the Environmental Impact Assessment.*

*The public realm is positioned to the south of the Site to enjoy the best possible aspect enjoying sunlight during the vast majority of the day including sunrise to the east and sunset to the west.*

*Daylight to homes*

*The arrangement of many of the residential plots in an open courtyard typology ensures that the majority of the homes benefit from an good average daylight factor even at lower levels of the buildings. In addition, the open courtyards benefit from both well sunlit and shaded areas for those that prefer not to be in direct sunlight."*

Outside the bounds of the site there are slight changes to the effect on surrounding areas daylight access, which are deemed to be marginal. For more details please refer to chapter 6.7 DSO of the Environmental Statement.
**Summary: No Change**

### 2.2.2 Public Realm

**Approved Sustainability Statement**

*>50% public realm space across the site. Community gardens in public realm, for stewardship by residents and local groups. Outdoor meeting/retail/restaurant spaces in proposals. ~28.5% of site to be parks, squares and play space.*
**S73 Addendum (2025)**

There is an increase to the Public Realm space. The Detailed Element now contains 55% public realm. There is also an increase to ~29.1% of the site to be parks, squares and play space. The play space is distributed throughout the Detailed Element, in both public areas and in rooftop garden spaces. For more details, please refer to both the Design and Access Statement and the Open and Landscape Addendum.

**Summary: Change –** There is an increase in the area allocated for the public realm and in the area for parks, squares and play.

### 2.2.3 Biodiversity Net Gain

**Approved Sustainability Statement**

*~165% increase in BNG, with 50% native species.*

**S73 Addendum (2025)**

The BNG has improved in comparison to the values reported in the approved Sustainability Statement. The Detailed Elements of the site now achieve a ~282% increase compared to the baseline conditions. For further information please refer to Section 4 of the BNG Report. There is a significant amount of native species planting proposed that will contribute to the Masterplan target.

**Summary: Change -** There is a significant increase to BNG beyond the values reported in the approved Sustainability Statement. Native species planting has been provided throughout the landscaping.

### 2.2.4 Urban Greening Factor

**Approved Sustainability Statement**

*0.33 UGF for overall site. For this specific Element the UGF was 0.37.*

**S73 Addendum (2025)**

The Detailed Element of the revised scheme is achieves an Urban Green Factor score of 0.37 as per previously consented scheme. For more details, please refer to the Design and Access Statement.

**Summary: No Change**

### 2.2.5 Growing Opportunities

**Approved Sustainability Statement**

*On-site food growing opportunities worked into landscape design.*

**S73 Addendum (2025)**

There are no changes to the Growing Opportunities strategy. These opportunities will be linked to the community centre.

**Summary: No Change**

### 2.2.6 Functional Landscaping

**Approved Sustainability Statement**

*Tree planting to protect against sun, wind and rain.*

**S73 Addendum (2025)**

The functional landscaping has been enhanced by adding more functions including creating seasonal interest through native species planting, improvements to local biodiversity, wind discomfort mitigation, nature-based play areas and elements acting as location markers for wayfinding. For more details, please refer to the Design and Access Statement.

**Summary: Change –** The landscaping has been enhanced with more functions.

## 2.3 2.3 Water Use and Sustainable Urban Drainage

### 2.3.1 Water consumption

**Approved Sustainability Statement**

*Water efficient fittings and design solutions to reduce internal water consumption below 105 litres/person/day.*

**S73 Addendum (2025)**

There are no changes to the Water Consumption strategy.

**Summary: No Change**

### 2.3.2 Drainage Strategy

**Approved Sustainability Statement**

*Holistic storm water management strategy built into the natural environment, including 40% additional rainfall allowance for climate change and:*

- *~5,700m² of green roofs across the site;*
- *Permeable paving to 44% of open space;*
- *Swales, rain gardens and bioretention strips in landscaped areas; and*
- *Tanked storage as a last step.*

**S73 Addendum (2025)**

There are no changes to the Drainage Strategy. While the landscaping targets refer to the wider masterplan there are provisions within the Detailed Element to contribute to the wider target. The 40% additional rainfall allowance for climate change has been applied within the Detailed Element drainage calculations.

**Summary: No Change**

### 2.3.3 Water Run Off

**Approved Sustainability Statement**

*Run off rates to be <50% of the existing site rate.*

**S73 Addendum (2025)**

After the finalisation and submission of the approved Sustainability Statement, the drainage strategy of the consented scheme was required to achieve run-off rates aligned to a greenfield site. Subsequently, the rates included in drainage strategy for the consented scheme are a significant improvement compared to the commitment made in the approved Sustainability Statement. This S73 amendment aligns with the consented scheme strategy so there is no proposed change from the consented scheme.

The proposed drainage strategy is based on restricting surface water runoff rates to greenfield rates. This will deliver a significantly greater reduction than 50% in comparison to existing runoff, the consented scheme and S73 scheme are both in line with a >95% reduction compared to the existing site.

Whilst overall volume of run-off does not reduce, the runoff volumes are controlled to manage water on site limiting its impact on the downstream network. For more information, please refer to the Flood Risk chapter of the Environmental Statement.

**Summary: No Change –** No change in surface water run-off rate from the consented proposals. There is a significant improvement in the run off rate compared to the existing site rate.

### 2.3.4 Irrigation

**Approved Sustainability Statement**

*Drought resistant planting and careful water management to reduce irrigation needs*

**S73 Addendum (2025)**

There are no changes to the Irrigation Strategy.

**Summary: No Change**

## 2.4 2.4 Sustainable Transport

### 2.4.1 Access to Public Transport

**Approved Sustainability Statement**

*Site wide sustainable transport strategy to encourage healthy lifestyles in accordance with a PTAL score of 6 for majority of site. New bus stop to be provided at new community green, next to new health care centre.*

**S73 Addendum (2025)**

There are no changes to the Public Transport Strategy. A manual assessment reflecting the actual existing routes available at the time of writing, and routes that will be available once the Masterplan is complete indicates a PTAL score of 6a – 6b ('Excellent') throughout. The health centre and bus stop are a part of the greater masterplan and not within the scope of this Detailed Element.

**Summary: No Change**

### 2.4.2 Pedestrian Safety

**Approved Sustainability Statement**

*Segregation of vehicular access and pedestrian routes through site, to increase safety and ensure a pleasant walking environment for families. Dedicated pedestrian access from West End Lane to Finchley Road.*

**S73 Addendum (2025)**

There are no changes to the Pedestrian Safety strategy.

**Summary: No Change**

### 2.4.3 Cycling Provision

**Approved Sustainability Statement**

*Dedicated cycle routes for ease of commuter access. Significant cycle storage across the site, with 1064no. long-stay cycle parking spaces and 100no. short stay spaces.*

**S73 Addendum (2025)**

There is now an increase in the number of cycle parking spaces. The cycle routes remain the same however the amount of cycle parking is now 1,159no. long-stay cycle parking spaces and 106no. short stay spaces.

**Summary: Change -** There is an increase in the number of cycle parking spaces to align with the revised mix and number of homes.

### 2.4.4 Car Parking

**Approved Sustainability Statement**

*3% of homes to be provided with blue badge parking. Of these spaces, 20% will be provided with active electric vehicle charging points and 80% will be passive. Pick-up and drop-off points made available for taxis and private hire.*

**S73 Addendum (2025)**

There are minor changes to the Car Parking Strategy. In response to the revised mix and number of homes in the proposed S73 scheme the number of parking spaces has increased by 1no. Also, the EV charging has moved outside of the podium in response to updated fire regulations.

**Summary: Change -** There is a slight increase in the number of parking spaces to align with the revised mix and number of homes.

## 2.5 2.5 Health, Safety and Wellbeing

### 2.5.1 Dual-aspect dwellings

**Approved Sustainability Statement**

*90% of low-cost rent units are dual-aspect dwellings in Detailed Element.*

**S73 Addendum (2025)**

As shown in Figure 2—1, the percentage of dual aspect dwellings across all buildings in the Detailed Elements has decreased by approximately the same proportion for market rent and affordable. Within the affordable housing mix, the number of low-cost rent units that are dual-aspect has decreased whereas the number of dual aspect intermediate rent dwellings has increased. Refer to the S73 Design and Access Statement for further details.

| Tenure | Planning Approved | | S73 Proposal | |
|---|---|---|---|---|
| All Tenures | 368 | 60.5 % | 370 | 56.8% |
| Market Rent | 232 | 55.7 % | 226 | 51.4 % |
| Affordable (Combined) | 136 | 70.8 % | 144 | 67.9 % |
| Low Cost Rent | 95 | 88.7 % | 86 | 74.8 % |
| Intermediate Rent | 41 | 48.2 % | 58 | 59.8 % |

**Figure 2—1 Extract from S73 DAS – dual aspect dwellings by tenure**

**Summary: Change –** There is an equivalent decrease in the percentage of dual-aspect dwellings for both affordable and market rent.

### 2.5.2 Community space

**Approved Sustainability Statement**

*~19,500sqm of community and commercial floor space to be provided including new multi-disciplinary health centre.*

**S73 Addendum (2025)**

The 19,500 sqm area is in reference to the masterplan. Within the Detailed Element, minor changes have been made, including an increase of the size of the community centre to 314sqm GIA and a slight reduction of 8sqm GIA in commercial floorspace.

**Summary: Change -** Increase to the size of the community centre and minor reduction in commercial floorspace.

### 2.5.3 Affordability

**Approved Sustainability Statement**

*The masterplan 35% affordable housing with 60% low-cost rent and 40% intermediate by GIA.*

**S73 Addendum (2025)**

There are negligible changes to the Affordable Housing Strategy. The Detailed Element provides 36% affordable housing by GIA, comprised of a 40% / 60% split between intermediate and low-cost rent respectively.

**Summary: Negligible Change**

### 2.5.4 Ventilation

**Approved Sustainability Statement**

*Ventilation strategy combining MVHR and openable windows to allow for purge ventilation providing occupants with control over their internal environments. Enable MVHR-only when acoustic conditions require this.*

**S73 Addendum (2025)**

There are no changes to the Ventilation Strategy. Please also refer to the Energy Statement Addendum.

**Summary: No Change**

### 2.5.5 Employment

**Approved Sustainability Statement**

*Construction and end-use employment opportunities to be made available.*

**S73 Addendum (2025)**

There are no changes to the Employment Strategy.

**Summary: No Change**

### 2.5.6 Access to Nature

**Approved Sustainability Statement**

*Increase access to nature and green spaces, and dedicated children's play space.*

**S73 Addendum (2025)**

There are no changes to the Access to Nature Strategy. Nature based play areas have been included throughout the Detailed Element landscaping.

**Summary: No Change**

### 2.5.7 Air Quality

**Approved Sustainability Statement**

*Contractors to connect to electricity grid to avoid diesel emissions, and to adopt a Construction Management Plan (CMP)/ and Construction Logistic Plan (CLP).*

**S73 Addendum (2025)**

There are no changes to the Air Quality Strategy.

**Summary: No Change**

### 2.5.8 Art

**Approved Sustainability Statement**

*Public art strategy and public events programme to be secured through the Estate Management Plan.*

**S73 Addendum (2025)**

There are no changes to the Art Strategy.

**Summary: No Change**

## 2.6 2.6 Circular Economy, Material Efficiency & Waste

### 2.6.1 Excavation, Demolition and Construction waste

**Approved Sustainability Statement**

*Minimum 95% (by tonnage) to beneficial use/diversion from landfill in line with policy and BREEAM.*

**S73 Addendum (2025)**

The 95% target will be met, there are no expected changes in waste due to the design change.

**Summary: No Change**

### 2.6.2 Deconstruction targets

**Approved Sustainability Statement**

*Minimum >50% (with stretch target of 70%) of the embodied carbon of the O2 Centre retained, reused or recycled on site. These targets are set for the most carbon intensive existing building materials on site. Conduct Pre-Demolition Audit of Homebase at pre-commencement and O2 Centre at time of future RMA submissions.*

**S73 Addendum (2025)**

The minimum target of >50% of embodied carbon retention, reuse and recycling will not change due to the changes in the design, and is outside of the scope of this Detailed Element.

A Pre-Demolition Audit has been conducted and the Homebase Structural Steel has been identified as suitable for reuse. Contractors have begun the process of deconstructing the existing buildings on site with an approach that minimises waste and enables material reuse. 35 tonnes of the existing steels from the previous Homebase building have so far been reclaimed and sold to a steel merchant. This will enable the reuse of the materials directly on other projects and will avoid the need for reprocessing and downcycling. This demonstrates the applicant's commitment to material reuse and the prevention of waste creation through the redevelopment of the site.

**Summary: No Change**

### 2.6.3 Reused Material

**Approved Sustainability Statement**

*Ambition to supply new building elements with 20% reused material in line with GLA Circular Economy requirements.*

**S73 Addendum (2025)**

There is no change to the ambition of 20% of new building elements to be reused materials.

**Summary: No Change**

### 2.6.4 Operational Waste

**Approved Sustainability Statement**

*Operational waste storage to provide sufficient capacity for the following weekly dwelling generation rates: 120L general waste storage, and 140L mixed dry recycling.*

**S73 Addendum (2025)**

There are no changes to the operational waste strategy. Further evidence will be provided at a detailed design stage.

**Summary: No Change**

# 3 Whole Lifecycle Carbon Assessment

## 3.1 Overview

An update to the whole lifecycle carbon (WLC) assessment has been completed for the Detailed Elements to align with the proposed changes included in the S73 application. The results are presented to provide a comparison with the approved Sustainability Statement and the GLA whole life cycle carbon benchmarks.

It should be noted that, since the WLC assessment reported in the approved Sustainability Statement, there have been notable regulatory changes, trends in construction and updated industry guidance documents which influence the WLC result beyond the control of the applicant. A summary of these changes is set out below;

**Regulation forcing design change:**

- Introduction of Part O and the need for cooling systems.
- Building Safety Act 2022 and additional stair cores.

**Market supply & demand and political trends**

- Industry challenges to reducing concrete slab thickness.
- Limits on commitment to using higher levels of (GGBS) cement replacement.

**Industry guidance and maturity**

- RICS WLCA Guidance 2nd edition introduces contingency factors to account for uncertainty and unknown elements to help close the embodied carbon performance gap between design and post-construction.
- Higher emissions associated with internal walls & partitions and construction works seen on live projects than originally anticipated.

The Applicant and Buro Happold have conducted a dedicated study to assess the collective impact of these changes on the upfront embodied carbon for residential buildings. The outcome of the study suggested that the changes could collectively result in an increase of upfront embodied carbon [modules A1-A5] of up to ~230 kgCO2/m2.

To overcome this significant carbon uplift, the Applicant and Buro Happold have subsequently identified the series of carbon savings opportunities, which can be implemented on all residential apartment buildings. Additional savings opportunities adopted for the proposed S73 amendment include:

- Place stair cores back-back to reduce core wall required
- Reduce typical slab thickness to 225mm and fix column grid
- Reduce concrete mix $CO_2$ intensity equivalent to 40% GGBS in super- and 50% in sub-structure. (LGGC 2024 rating ~2.4)
- Avoid duplication of equipment by combining heating and cooling generators (reversible ASHP) and emitters (smart radiators).

## 3.2 Methodology

The WLCA has been completed in accordance with the GLA Whole Life Carbon Assessment Guidance (April 2020) and RICS Whole Life Carbon Assessment for the Built Environment, 1st edition. These are not the latest versions of the guidance but they align with the methodology for the approved Sustainability Statement and are still mandated by the GLA so have been adopted to for consistency and to allow direct comparison.

## 3.3 LCA software

The software used in this study was One Click LCA. The software has been third party verified for compliancy with the following LCA standards: EN 15978, ISO 21931–1 and ISO 21929, and data requirements of ISO 14040 and EN 15804.

## 3.4 LCA scope

The scope of the LCA set out in Table 3—1 aligns with the assessment completed for the approved Sustainability Statement.

**Table 3—1 LCA scope**

| Element | Sub-element | In scope | Out of scope |
|---|---|---|---|
| **Demolition/ Facilitating works** | | Formwork | Demolition of existing structures |
| **Substructure** | | Included | - |
| **Superstructure** | Frame | Included | - |
| | Upper floors | Included | - |
| | Roof | Included | - |
| | Stairs | Included | - |
| | External wall | Included | - |
| | Windows and external doors | Included | - |
| | Internal walls and partitions | Included | - |
| **External works** | | Hard Landscaping materials & associated subbases | External furniture and fixtures |
| **Services** | | Included | - |
| **Internal finishes** | | Included | - |
| **Fittings, furnishing and equipment** | | Included | - |
| **Construction Works** | | Included | - |

## 3.5 Inputs and assumptions

Table 3—2 below sets out the source of information or assumptions used in the life cycle assessment.

**Table 3—2 LCA inputs**

| Building Element | Assumption |
|---|---|
| Foundations & Lowest floors | Based on quantities taken from latest Cost Plan and specification from latest structural design information |
| Ground slabs | Based on quantities taken from latest Cost Plan and specification from latest structural design information |
| Floor slabs | |
| Columns | Based on quantities taken from latest Cost Plan and specification from latest structural design information |
| Load bearing int walls | Based on quantities taken from latest Cost Plan and specification from latest structural design information |
| Balconies | Quantities taken from Cost Plan. A Generic EPD was used to represent these in OneClick LCA. |
| Staircases | Based on quantities taken from latest Cost Plan and specification from latest structural design information |

| Building Element | Assumption |
|---|---|
| External walls | Quantities taken from Cost Plan. General façade compositions produced by Buro Happold were used to represent these in OneClick LCA. |
| Windows | Quantities taken from Cost Plan. |
| External doors | Quantities taken from Cost Plan. |
| Roof slab | Quantities taken from Cost Plan. A Generic EPD was used to represent these in OneClick LCA. |
| Roofs | Quantities taken from Cost Plan. General roof compositions produced by Buro Happold were used to represent these in OneClick LCA. |
| Internal walls | Quantities taken from Cost Plan. General internal wall and partitions compositions produced by Buro Happold were used to represent these in OneClick LCA. |
| Floor finishes | Quantities taken from Cost Plan. General finish types were selected by Buro Happold to represent these in OneClick LCA.<br>TBC at later stages of design. |
| Ceiling finishes | |
| Wall finishes | |
| GIA ($m^2$) | From Area Schedule issued by GRID |
| Building lifespan | 60 years *(in line with best practice guidance)* |

## 3.6 Results

### 3.6.1 Upfront Embodied Carbon [A1-A5]

The results from the WLC assessment of the Detailed Elements for the upfront embodied carbon (LCA modules A1- A5) are set out in Table 3—3, Table 3—4 and Figure 3—1. At early design stages, it is typically good practice to apply contingency factor to all modules and lifecycle stages of the LCA result to account for uncertainty and unknowns. A contingency factor of +15% has been applied in accordance with RICS Whole Life Carbon Assessment For The Built Environment 2nd Edition guidance. This was not done for the results reported in the approved Sustainability Statement but has applied to the results for both the consented and revised scheme in the tables below enable more accurate comparison between results.

**Table 3—3 Detailed Elements upfront embodied carbon breakdown**

| Building elements | Upfront embodied carbon [A1-A5] (tCO2e) | | | Upfront embodied carbon [A1-A5] (kgCO2e/m2 GIA) | | |
|---|---|---|---|---|---|---|
| | N3E | N4 | N5 | N3E | N4 | N5 |
| Substructure | 526 | 1,518 | 2,581 | 72 | 66 | 76 |
| Superstructure | 1,572 | 5,188 | 7,299 | 215 | 225 | 214 |
| Façade | 1,108 | 3,210 | 4,537 | 152 | 139 | 133 |
| Internal Finishes | 265 | 797 | 1,277 | 36 | 35 | 38 |
| FFE | 189 | 353 | 529 | 26 | 15 | 16 |
| Services/MEP | 742 | 1,966 | 3,166 | 102 | 85 | 93 |
| Other Site Emissions | 285 | 800 | 1,272 | 39 | 35 | 37 |
| External Works | 37 | 115 | 170 | 5 | 5 | 5 |
| Total | 4,724 | 13,945 | 20,830 | 647 | 605 | 612 |
| **Total (+15% contingency)** | **5,433** | **16,037** | **23,954** | **744** | **696** | **704** |

**Table 3—4 Detailed Elements upfront embodied carbon comparison**

| Building elements | Upfront embodied carbon [A1-A5] (kgCO2e/m2 GIA) | | | | | |
|---|---|---|---|---|---|---|
| | Approved Sustainability Statement (2022) | | | S73 Addendum (2025) | | |
| | N3E | N4 | N5 | N3E | N4 | N5 |
| Total (+15% contingency) | 662 | 608 | 624 | 744 | 696 | 704 |
| % increase | - | - | - | 12% | 14% | 13% |

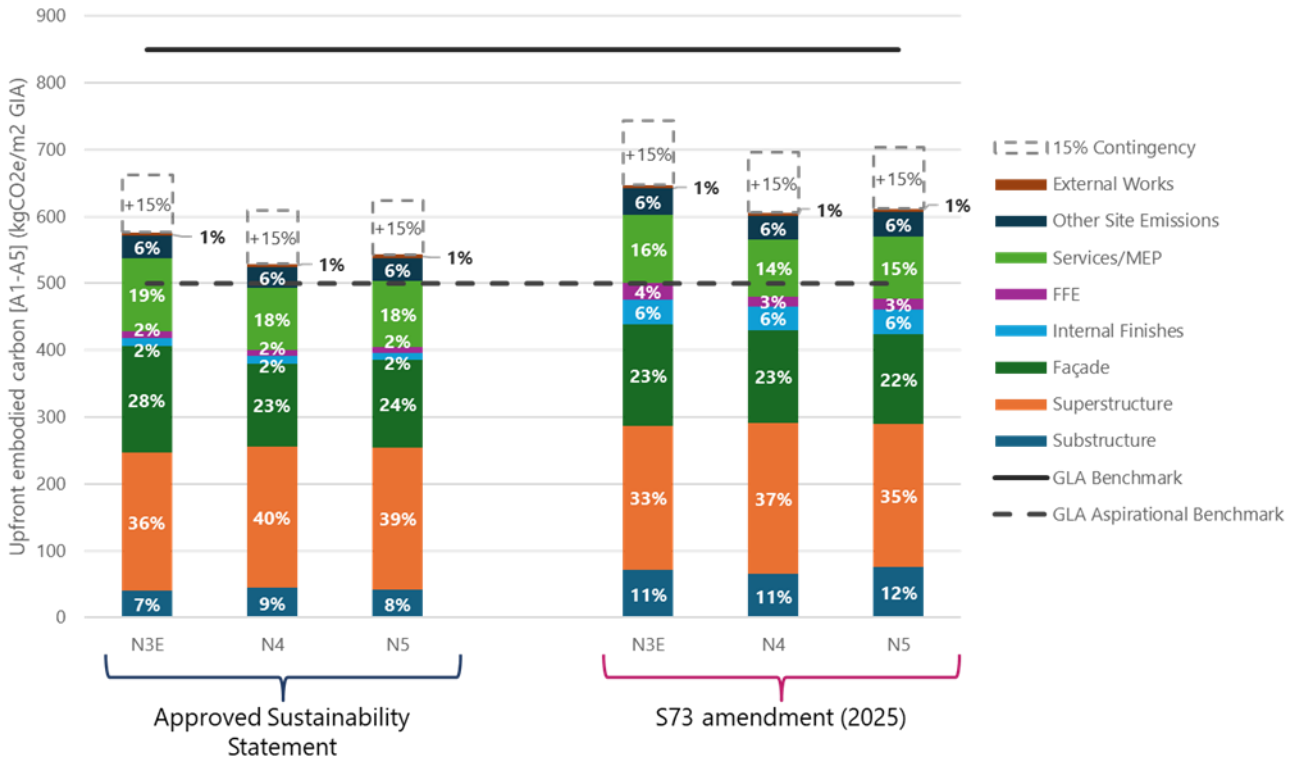


**Figure 3—1 Detailed Elements upfront embodied carbon breakdown**

The updated assessment for the S73 amendment shows a 12-14% increase in embodied carbon in comparison to the approved Sustainability Statement. This is not a direct result of the proposed scheme architectural changes, but is a combination of factors including;

- Additional stair cores as a result of the Building Safety Act (2022).
- Additional cooling systems as a result of the implementation of Part O 2021.
- The cement replacement assumptions in the approved Sustainability Statement have been shown to be unrealistically ambitious based on feedback from industry[1].
- Additional detail included in the cost plan, most notably the coverage of internal finishes and FFE has increased.

All three buildings achieve A1-A5 embodied carbon results below the GLA Benchmark and within ~25% of the GLA Aspirational Benchmark. As part of their corporate sustainability strategy the Applicant has set their own embodied carbon targets so is committed to work with the design team to continue to explore further opportunities to reduce the embodied carbon in future design stages.

[1] https://www.istructe.org/resources/guidance/efficient-use-of-ggbs-in-reducing-global-emissions/

### 3.6.2 Whole Lifecycle Carbon [A-C]

The results from the WLC assessment of the Detailed Elements for the whole lifecycle carbon (LCA modules A-D) are set out in Table 3—5 and Figure 3—2 below.

**Table 3—5 Detailed Elements whole lifecycle carbon breakdown**

| LCA modules | Whole life-cycle carbon | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | tCO2e | | | | kgCO2e / m2 GIA | | | |
| | N3E | N4 | N5 | Total | N3E | N4 | N5 | Average |
| A1-A5 | 4,687 | 13,830 | 20,660 | 39,177 | 642 | 600 | 607 | 609 |
| B1-B5 | 3,657 | 9,662 | 16,170 | 29,489 | 501 | 419 | 475 | 458 |
| C1-C4 | 256 | 713 | 1,194 | 2,163 | 35 | 31 | 35 | 34 |
| Biogenic (sequestration) | -152 | -417 | -726 | -1,296 | -21 | -18 | -21 | -20 |
| Whole life-cycle carbon [A-C, excl. B6 & B7, incl. sequestration] | 8,449 | 23,787 | 37,297 | 69,534 | 1,157 | 1,033 | 1,095 | 1,080 |
| **Whole life-cycle carbon (including +15% contingency)** | **9,716** | **27,355** | **42,892** | **79,964** | **1,331** | **1,188** | **1,260** | **1,242** |
| B6-B7 | 2,529 | 7,055 | 11,802 | 21,386 | 346 | 306 | 347 | 332 |
| D | -811 | -1,557 | -2,637 | -5,005 | -111 | -68 | -77 | -78 |

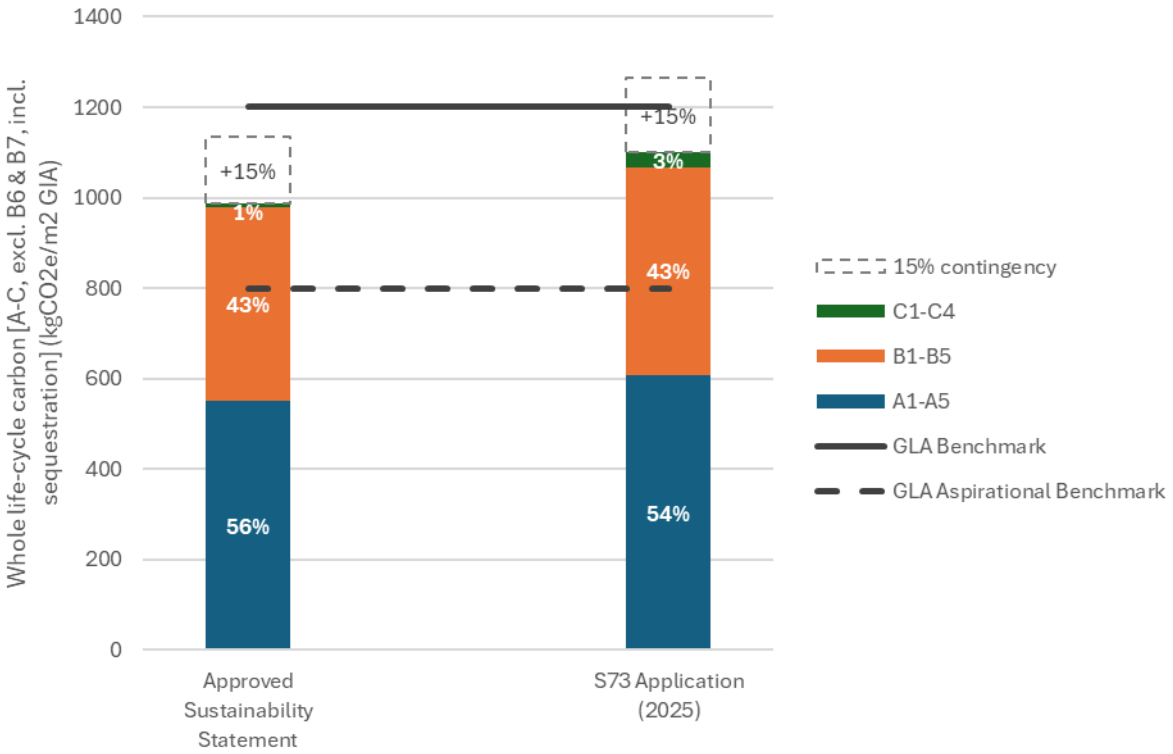


**Figure 3—2 Detailed Elements whole lifecycle carbon breakdown**

The updated assessment for the S73 amendment shows a 5-17% increase in lifecycle carbon in comparison to the approved Sustainability Statement. When including the +15% contingency uplift, the results for the whole lifecycle carbon for the Detailed Elements exceed the GLA Benchmark for lifecycle modules A-C (excluding B6 & B7, including sequestration).

As for the upfront embodied carbon, the increase reported is not a direct result of the proposed scheme architectural changes, but is a combination of factors including;

- Additional stair cores as a result of the Building Safety Act (2022).
- Additional cooling systems as a result of the implementation of Part O 2021.
- The cement replacement assumptions in the approved Sustainability Statement have been shown to be unrealistically ambitious based on feedback from industry[2].
- Additional detail included in the cost plan, most notably the coverage of internal finishes and FFE has increased.

Additionally, many of these upfront embodied carbon uplifts are further exacerbated in the whole lifecycle carbon results as elements are replaced multiple times within the 60 year building lifecycle.

As for the upfront embodied carbon, the Applicant is committed to driving down whole lifecycle carbon and will work with the design team to explore further opportunities to reduce the lifecycle carbon in future design stages and in the maintenance and operation of the buildings.

[2] https://www.istructe.org/resources/guidance/efficient-use-of-ggbs-in-reducing-global-emissions/

# 4 Summary of Changes

Following the aforementioned changes to the buildings within the Detailed Element of the O2 Masterplan Site, a review was conducted to understand the new position on sustainability commitments. The new status of each of the targets and strategies is described in Section 0 and is summarised in the tables below.

**Table 4—1 Summary of changes**

| Building Design | Status | Commentary |
|---|---|---|
| Fabric First | *Change* | There is a slight change to the Fabric First Strategy, with a slight increase to carbon reductions in residential areas and a decrease in commercial areas within the Detailed Element. Overall the S73 scheme still achieves the Be Lean carbon reduction targets required in London Plan policy. |
| All-electric strategy | *No Change* | There is no change to the all-electric strategy, |
| Solar PV | *Change* | The changes to the Detailed Element massing has resulted in a significant reduction of roof area suitable for PV arrays. PV array areas are maximised wherever appropriate in accordance with London Plan policy. |
| Climate Change Resilience | *Change* | The updated Climate Change Resilience Strategy now includes greater resilience for extreme hot weather events as the design includes additional mitigation measures in response to the new requirements from Part O. |
| Offset Carbon Emissions | *No Change* | There is no change. |
| Certification | *No Change* | There is no change. |

| Material Reuse and Circular Economy | Status | Commentary |
|---|---|---|
| Excavation, Demolition and Construction waste | *No Change* | There is no change. |
| Deconstruction targets | *No Change* | There is no change. |
| Embodied Carbon | *Change* | There is an increase in embodied and whole lifecycle carbon due to factors outside the control of the Applicant including changing industry norms (e.g. cement replacement usage) and regulation changes such as Part O and BSA. |
| Reused Material | *No Change* | There is no change. |
| Operational Waste | *No Change* | There is no change. |

| Water Use and Sustainable Urban Drainage | Status | Commentary |
|---|---|---|
| Water Consumption | *No Change* | There is no change. |
| Drainage Strategy | *No Change* | There is no change. |
| Water Run Off | *No Change* | No change in surface water run-off rate from the consented proposals. There is a significant improvement in the run off rate compared to the existing site rate. |
| Irrigation | *No Change* | There is no change. |

| Biodiversity and Landscape Design | Status | Commentary |
|---|---|---|
| Light | *No Change* | There is no change. |
| Public Realm | *Change* | There is an increase in the area allocated for the public realm and in the area for parks, squares and play. |
| Biodiversity Net Gain | *Change* | There is a significant increase to BNG and native species planting has been provided. |
| Urban Greening Factor | *No Change* | There is no change. |
| Growing Opportunities | *No Change* | There is no change. |
| Functional landscaping | *Change* | The landscaping has been enhanced with more functions including nature-based play, wind discomfort mitigation and markers for wayfinding. |

| Sustainable Transport | Status | Commentary |
|---|---|---|
| Access to Public Transport | *No Change* | There is no change. |
| Pedestrian Safety | *No Change* | There is no change. |
| Cycling Provision | *Change* | There is an increase in the amount of cycle parking spaces. |
| Car Parking | *No Change* | There is no change. |

| Health, Safety and Wellbeing | Status | Commentary |
|---|---|---|
| Dual-aspect dwellings | *Change* | The number of dual-aspect dwellings in the Detail Elements has reduced evenly across all tenures. |
| Community space | *Change* | Minor change in Detailed Element to increase the size of the community centre. |

| Health, Safety and Wellbeing | Status | Commentary |
|---|---|---|
| Affordability | *No Change* | There is no change. |
| Ventilation | *No Change* | There is no change. |
| Employment | *No Change* | There is no change. |
| Access to Nature | *No Change* | There is no change. |
| Air Quality | *No Change* | There is no change. |
| Art | *No Change* | There is no change. |