

		Our ref: HGY/2022/3858 Contact: James Mead Date: 16/02/2023
Town and Country Act 1990 (As amended)		
Location:	Wat Tyler House, Boyton Road, Hornsey, London, N8 7AU	
Proposal:	Redevelopment of the car park adjacent to Wat Tyler House to provide 15 new Council rent homes in a part 4, 5 and 7 storey building. Provision of associated amenity space, cycle and refuse/recycling stores, a wheelchair parking space on Boyton Road and enhancement of existing communal areas and play space to the rear on the Campsbourne Estate.	

Carbon Management Response 18/01/2023

In preparing this consultation response, we have reviewed:

- Energy Assessment prepared by Eight Versa (dated 6 October 2022)
- Overheating Analysis (prepared by Eight Versa (dated 6 October 2022)
- Lifetime Carbon Assessment prepared by JAW (dated 20 October 2022)
- Sustainability Statement prepared by Eight Versa (dated 28 September 2022)
- Relevant supporting documents.

1. Summary

The development achieves a reduction of 84% carbon dioxide emissions on site, which is supported in principle. However, this application was submitted before 1st January 2023, so the strategy and the carbon reduction figures should be calculated under Part L 2013 and SAP10 carbon factors to be policy compliant.

Some further minor clarifications must be provided with regard to the Energy Strategy. Planning conditions have been recommended to secure the benefits of the scheme and deal with the outstanding information in the Energy Strategy.

The proposed biodiversity and climate change adaptation benefits are supported in this application.

2. Energy – Overall

Policy SP4 of the Local Plan Strategic Policies, requires all new development to be zero carbon (i.e. a 100% improvement beyond Part L (2013)). The London Plan (2021) further confirms this in Policy SI2.

The overall predicted reduction in CO₂ emissions for the development shows an improvement of approximately 84% in carbon emissions with SAP10.2 carbon factors, from the Baseline development model (which is Part L 2021 compliant). This represents an annual saving of approximately 12.5 tonnes of CO₂ from a baseline of 14.9 tCO₂/year.

London Plan Policy SI2 requires major development proposals to calculate and minimise unregulated carbon emissions, not covered by Building Regulations. The calculated unregulated emissions are: 18.52 tCO₂.

<i>Residential (SAP10.2 emission factors)</i>			
	Total regulated emissions (Tonnes CO₂ / year)	CO₂ savings (Tonnes CO₂ / year)	Percentage savings (%)
Part L 2021 baseline	14.89		
Be Lean	13.16	1.74	11.7%
Be Clean	13.16	0	0%
Be Green	2.39	10.77	72.3%

Cumulative savings		12.51	84%
Carbon shortfall to offset (tCO₂)	2.39 (TBC)		

Energy – Lean

The applicant has proposed a saving of 1.74 tCO₂ in carbon emissions (11.7%) through improved energy efficiency standards in key elements of the build. This goes beyond the minimum 10% in principle, but this should be achieved with SAP2012 carbon factors.

The following u-values, g-values and air tightness are proposed:

Floor u-value	0.10 W/m ² K
External wall u-value	0.16 W/m ² K
Roof u-value	0.10 W/m ² K
Door u-value	1.30 W/m ² K
Window u-value	1.10 W/m ² K
G-value	0.45
Air permeability rate	3 m ³ /hm ² @ 50Pa
Ventilation strategy	Mechanical ventilation with heat recovery (MVHR 94% efficiency; 0.4-0.43 W/l/s Specific Fan Power) Natural ventilation
Thermal bridging	Accredited Construction Details
Low energy lighting	100% with 100Lm/W; PIR sensors
Heating system (efficiency / emitter)	Gas boiler (baseline); 89.5% efficiency
Thermal mass	High
Space heating requirement	9 kWh/m ² /year
Improvement from the target fabric energy efficiency (TFEE)	2% improvement, from 42.2 to 43 MWh/year
Primary Energy	66% improvement, from 26.4 to 77.5 MWh/year

Overheating is dealt with in more detail below.

Energy – Clean

London Plan Policy SI3 calls for major development in Heat Network Priority Areas to have a communal low-temperature heating system, with the heat source selected from a hierarchy of options (with connecting to a local existing or planned heat network at the top). Policy DM22 of the Development Management Document supports proposals that contribute to the provision and use of Decentralised Energy Network (DEN) infrastructure. It requires developments incorporating site-wide communal energy systems to examine opportunities to extend these systems beyond the site boundary to supply energy to neighbouring existing and planned future developments. It requires developments to prioritise connection to existing or planned future DENs.

The applicant is not proposing any Be Clean measures. The site is not within reasonable distance of a proposed Decentralised Energy Network (DEN). A Combined Heat and Power (CHP) plant would not be appropriate for this site.

Energy – Green

As part of the Be Green carbon reductions, all new developments must achieve a minimum reduction of 20% from on-site renewable energy generation to comply with Policy SP4.

The application has reviewed the installation of various renewable technologies. The report concludes that air source heat pumps (ASHPs) and solar photovoltaic (PV) panels are the most viable options to deliver the Be Green requirement. A total of 10.77 tCO₂ (72.3%) reduction of emissions are proposed under Be Green measures.

The solar array peak output would be 15.18 kWp, which is estimated to produce around 13,110 kWh/year of renewable electricity per year, equivalent to a reduction of 1.8 tCO₂/year. The array of 46 panels would be mounted on a roof area of around 90 m², at a 30° angle, facing south.

The communal air-to-water ASHP system (min. SCOP of 2.80) will provide hot water and heating to the dwellings through underfloor heating for 80% of demand (with an electric immersion heater providing the remaining 20%). A distribution loss of less than 1.1 should be achieved.

Actions:

- How will the solar energy be used on site (before surplus is exported onto the grid)?
- Please identify on the plans where the air source heat pumps will be located and how the units will be mitigated in terms of visual and noise impact.

Energy – Be Seen

London Plan Policy SI2 requests all developments to 'be seen', to monitor, verify and report on energy performance. The GLA requires all major development proposals to report on their modelled and measured operational energy performance. This will improve transparency on energy usage on sites, reduce the performance gap between modelled and measured energy use, and provide the applicant, building managers and occupants clarity on the performance of the building, equipment and renewable energy technologies.

The applicant should install metering equipment on site, with sub-metering by dwelling.

- Demonstrate that the planning stage energy performance data has been submitted to the GLA webform for this development: (<https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/london-plan-guidance/be-seen-energy-monitoring-guidance/be-seen-planning-stage-webform>)

3. Carbon Offset Contribution

A carbon shortfall of 2.39 tCO₂/year remains based on SAP10.2 factors. The remaining carbon emissions will need to be offset at £95/tCO₂ over 30 years. This generates an indicative offset contribution of £6,805 but will need to be recalculated.

4. Overheating

London Plan Policy SI4 requires developments to minimise adverse impacts on the urban heat island, reduce the potential for overheating and reduce reliance on air conditioning systems. Through careful design, layout, orientation, materials and incorporation of green infrastructure, designs must reduce overheating in line with the Cooling Hierarchy.

In accordance with the Energy Assessment Guidance, the applicant has undertaken a dynamic thermal modelling assessment in line with CIBSE TM59 with TM49 weather files, and the cooling hierarchy has been followed in the design. The report has modelled 48 habitable rooms, 15 homes and 0 corridors under the London Weather Centre files.

Results are listed in the table below.

	Number of habitable rooms pass TM59
DSY1 2020s	48/48
DSY2 2020s	23/48
DSY3 2020s	20/48
DSY2 2020s (with mitigation)	23/48
DSY3 2020s (with mitigation)	23/48

All rooms pass the overheating requirements for 2020s DSY1. In order to pass this, the following measures will be built:

- Natural ventilation, with openable areas of 60% with secure night-time vents at ground floor for openable windows
- MVHR with summer bypass
- Glazing g-value of 0.45
- Fixed shading: side fins and external louvres
- No active cooling

Proposed future mitigation measures include:

- Reduce g-value to 0.2
- Further external shading

The submitted overheating strategy is considered acceptable.

5. Sustainability

Policy DM21 of the Development Management Document requires developments to demonstrate sustainable design, layout and construction techniques. The sustainability section in the report sets out the proposed measures to improve the sustainability of the scheme, including transport and connectivity, health and wellbeing, materials and waste, water efficiency, flood risk mitigation and SuDS, adaptation to climate change, energy and CO2 emissions and land use and ecology.

Urban Greening / Biodiversity

All development sites must incorporate urban greening within their fundamental design and submit an Urban Greening Factor Statement, in line with London Plan Policy G5. London Plan Policy G6 and Local Plan Policy DM21 require proposals to manage impacts on biodiversity and aim to secure a biodiversity net gain. Additional greening should be provided through high-quality, durable measures that contribute to London's biodiversity and mitigate the urban heat island impact. This should include tree planting, shrubs, hedges, living roofs, and urban food growing. Specifically, living roofs and walls are encouraged in the London Plan. Amongst other benefits, these will increase biodiversity and reduce surface water runoff.

The development achieves an Urban Greening Factor of 1.73, which far exceeds the interim minimum target of 0.4 for predominantly residential developments in London Plan Policy G5. The proposed extensive landscaping with flood risk mitigation and climate change adaptation benefits is supported.

No Biodiversity Net Gain calculation can be found. This should be submitted against the 10% requirement as set out in the Environment Act 2021.

Living roofs

All development sites must incorporate urban greening within their fundamental design, in line with London Plan Policy G5.

The development is proposing an extensive living roof in the development. All landscaping proposals and living roofs should stimulate a variety of planting species. Mat-based, sedum systems are discouraged as they retain less rainfall and deliver limited biodiversity advantages. The growing medium for extensive roofs must be 120-150mm deep to ensure most plant species can establish and thrive and can withstand periods of drought. Living walls should be rooted in the ground with sufficient substrate depth. Living roofs are supported in principle, subject to detailed design. Details for living roofs will need to be submitted as part of a planning condition.

Whole Life-Cycle Carbon Assessments

Policy SI2 requires developments referable to the Mayor of London to submit a Whole Life-Cycle Carbon Assessment and demonstrate actions undertaken to reduce life-cycle emissions.

This application is not required to submit a full statement. However, the total calculated emissions based on the GIA (without grid decarbonisation) is estimated at:

	Estimated carbon emissions	GLA benchmark
Modules A-C (excl B6, B7 and incl. sequestration)	721.8 kgCO ₂ e/m ²	Meets GLA target (<1200 kgCO ₂ e/m ²) and the aspirational benchmark (<800 kgCO ₂ e/m ²).

6. Planning Obligations Heads of Terms

- Estimated carbon offset contribution (and associated obligations) of £6,805 (indicative), plus a 10% management fee (based on £2,850 per tonne of carbon emissions)

7. Planning Conditions

To be secured:

Energy Plan

(a) Prior to the commencement of development, a revised Energy Statement shall be submitted and approved by the Local Planning Authority. This shall be based on the submitted Energy Assessment prepared by Eight Versa (dated 6 October 2022) with high fabric efficiencies, solar photovoltaic panels and air source heat pumps. The revised strategy shall include the following:

- *Confirmation of how this development will meet the zero-carbon policy requirement following the Energy Hierarchy in line with Building Regulations Part L 2013 with SAP10 carbon factors;*
- *A minimum 15.18 kWp solar photovoltaic array and how the energy will be used on-site before exporting to the grid;*
- *A maximum average space heating demand of 15 kWh/m²/year, aiming for 9 kWh/m²/year;*
- *A site-wide carbon reduction of 10% under Be Lean with SAP 2012 carbon factors;*
- *Calculations showing how thermal bridging will be reduced;*
- *Specification and location of the proposed ASHPs and the top-up electric immersion heaters, their seasonal coefficient of performance, seasonal performance factor for heating, seasonal energy efficiency ratio for cooling (non-domestic units only), with plans showing the ASHP pipework and layout;*
- *Details of the PV, demonstrating the roof area has been maximised, with the following details: a roof plan; the number, angle, orientation, type, and efficiency level of the PVs; how overheating of the panels will be minimised; their peak output (kWp);*
- *Specification and efficiency of the proposed Mechanical Ventilation and Heat Recovery (MVHR), with plans showing the rigid MVHR ducting and location of the unit;*
- *A metering strategy.*

(b) The solar PV arrays and air source heat pump(s) must be installed and brought into use prior to first occupation of the relevant block. Six months following the first occupation of that block, evidence that the solar PV arrays have been installed correctly and are operational shall be submitted to and approved by the Local Planning Authority, including photographs of the solar array, installer confirmation, an energy generation statement for the period that the solar PV array has been installed, and a Microgeneration Certification Scheme certificate.

The final agreed energy strategy shall be installed and operation prior to the first occupation of the development. The development shall be carried out strictly in accordance with the details so approved and shall be operated and maintained as such thereafter. The solar PV array shall be also installed with monitoring equipment prior to completion and shall be maintained at least annually thereafter.

Reason: To ensure the development reduces its impact on climate change by reducing carbon emissions on site in compliance with the Energy Hierarchy, and in line with London Plan (2021) Policy SI2 and Local Plan (2017) Policy SP4.

Sustainability Review

Prior to the occupation of the relevant building, an assessment should be provided to be approved in writing by the Council which shall include an as built detailed energy assessment of the Development prepared in accordance with London Plan and Council policies which:

- *explains and provides evidence to demonstrate whether or not the Development has been constructed and completed in accordance with the Approved Energy Plan in particular whether the 100% CO₂ emission reduction target has been met;*
- *explains and provides evidence to demonstrate whether or not the Development following Occupation complies with London Plan and Council policies;*

- calculates and explains the amount of the Additional Carbon Offsetting Contribution (if any) to be paid by the Owners to the Council where the Development has not been constructed and completed in accordance with the Energy Plan;
- provides evidence to support (a) to (c) above including but not limited to photographic evidence, air tightness test certificates and as-built energy performance certificates; and
- such other information reasonably requested by the Council.

Reason: To ensure the development reduces its impact on climate change by reducing carbon emissions on site in compliance with the Energy Hierarchy, and in line with London Plan (2021) Policy SI2, and Local Plan (2017) Policies SP4 and DM22.

Occupant Energy Use

Within one year of first occupation, evidence shall be submitted to and approved by the Local Planning Authority to demonstrate how the development has performed against the approved Energy Strategy and to demonstrate how occupants have been taken through training on how to use their homes and the technology correctly and in the most energy efficient way and that issues have been dealt with. This should include energy use data for the first year and a brief statement of occupant involvement to evidence this training and engagement.

Reason: To ensure the development reduces its impact on climate change by reducing carbon emissions on site in compliance with the Energy Hierarchy, and in line with London Plan (2021) Policy SI2, and Local Plan (2017) Policies SP4 and DM22.

Be Seen

(a) Prior to the completion of the superstructure a detailed scheme for energy monitoring has been submitted to and approved in writing by the Local Planning Authority. This shall include details of suitable automatic meter reading devices for the monitoring of energy use and renewable/low carbon energy generation. The monitoring mechanisms approved in the monitoring strategy shall be made available for use prior to the first occupation of each building.

(b) Prior to each Building being occupied, the Owner shall provide updated accurate and verified 'as-built' design estimates of the 'Be Seen' energy performance indicators for each Reportable Unit of the development, as per the methodology outlined in the 'As-built stage' chapter / section of the GLA 'Be Seen' energy monitoring guidance.

(c) Within one year of first occupation, evidence shall be submitted to and approved by the Local Planning Authority to demonstrate how the development has performed against the approved Energy Strategy and to demonstrate how occupants have been taken through training on how to use their homes and the technology correctly and in the most energy efficient way and that issues have been dealt with. This should include energy use data for the first year and a brief statement of occupant involvement to evidence this training and engagement.

(d) Upon completion of the first year of Occupation or following the end of the Defects Liability Period (whichever is the later) and at least for the following four years after that date, the Owner is required to provide accurate and verified annual in-use energy performance data for all relevant indicators under each Reportable Unit of the development as per the methodology outlined in the 'In-use stage' chapter / section of the GLA 'Be Seen' energy monitoring guidance document (or any document that may replace it).

All data and supporting evidence should be submitted to the GLA using the 'Be Seen' reporting webform (<https://www.london.gov.uk/what-wedo/planning/implementing-london-plan/london-plan-guidance-and-spgs/be-seen-energy-monitoring-guidance>).) If the 'In-use stage' evidence shows that the 'As-built stage' performance estimates have not been or are not being met, the Owner should investigate and identify the causes of underperformance and the potential mitigation measures and set these out in the relevant comment box of the 'Be Seen' in-use stage reporting webform. An action plan comprising measures shall be submitted to and approved in writing by the GLA, identifying measures which would be reasonably practicable to implement and a proposed timescale

for implementation. The action plan and measures approved by the GLA should be implemented by the Owner as soon as reasonably practicable.

REASON: To ensure the development can comply with the Energy Hierarchy in line with London Plan 2021 Policy SI 2 and Local Plan Policy SP4 before construction works prohibit compliance.

Overheating

Prior to occupation of the development, details of the external shading and secure ventilation panels must be submitted for approval by the local planning authority. This should include the fixing mechanism and specification. Overheating modelling for the corridors must also be undertaken in line with CIBSE TM59 with the London Weather Centre file.

The following overheating measures must be installed prior to occupation and be retained for the lifetime of the development to reduce the risk of overheating in habitable rooms in line with the Overheating Analysis (prepared by Eight Versa (dated 6 October 2022):

- Minimum 60% of free openable area of windows with secure ventilation panels for accessible habitable rooms;*
- External shading fins and louvres;*
- G-values of 0.45;*
- Mechanical ventilation with heat recovery and a summer bypass;*
- No active cooling*
- Hot water pipes insulated to high standards with maximum heat losses as modelled.*

If the design of the building is amended and will impact on the overheating risk of any units, a revised Overheating Strategy must be submitted as part of the amendment application.

Reason: In the interest of reducing the impacts of climate change and mitigation of overheating risk, in accordance with London Plan (2021) Policy SI4, and Local Plan (2017) Policies SP4 and DM21.

Living Roof

(a) Prior to the above ground commencement of development, details of the living roof must be submitted to and approved in writing by the Local Planning Authority. Living roof must be planted with flowering species that provide amenity and biodiversity value at different times of year. Plants must be grown and sourced from the UK and all soils and compost used must be peat-free, to reduce the impact on climate change. The submission shall include:

- i) A roof plan identifying where the living roof will be located;*
- ii) A section demonstrating settled substrate levels of no less than 120mm for extensive living roof (varying depths of 120-180mm);*
- iii) Roof plans annotating details of the substrate: showing at least two substrate types across the roof, annotating contours of the varying depths of substrate*
- iv) Details of the proposed type of invertebrate habitat structures with a minimum of one feature per 30m² of living roof: substrate mounds and 0.5m high sandy piles in areas with the greatest structural support to provide a variation in habitat; semi-buried log piles / flat stones for invertebrates with a minimum footprint of 1m², rope coils, pebble mounds of water trays;*
- v) Details on the range and seed spread of native species of (wild)flowers and herbs (minimum 10g/m²) and density of plug plants planted (minimum 20/m² with roof ball of plugs 25m³) to benefit native wildlife, suitable for the amount of direct sunshine/shading of the different living roof spaces. The living roof will not rely on one species of plant life such as Sedum (which are not native);*
- vi) Roof plans and sections showing the relationship between the living roof areas and photovoltaic array; and*
- vii) Management and maintenance plan, including frequency of watering arrangements.*

(b) Prior to the occupation of the development, evidence must be submitted to and approved by the Local Planning Authority that the living roof has been delivered in line with the details set out in point (a). This evidence shall include photographs demonstrating the measured depth of substrate, planting and biodiversity measures. If the Local Planning Authority finds that the living roof has not been delivered to the approved standards, the applicant shall rectify this to ensure it complies with

the condition. The living roof shall be retained thereafter for the lifetime of the development in accordance with the approved management arrangements.

Reason: To ensure that the development provides the maximum provision towards the creation of habitats for biodiversity and supports the water retention on site during rainfall. In accordance with London Plan (2021) Policies G1, G5, G6, SI1 and SI2 and Local Plan (2017) Policies SP4, SP5, SP11 and SP13.

Biodiversity

(a) Prior to the commencement of development, details of ecological enhancement measures and ecological protection measures shall be submitted to and approved in writing by the Council. This shall detail the biodiversity net gain, plans showing the proposed location of ecological enhancement measures, a sensitive lighting scheme, justification for the location and type of enhancement measures by a qualified ecologist, and how the development will support and protect local wildlife and natural habitats.

(b) Prior to the occupation of development, photographic evidence and a post-development ecological field survey and impact assessment shall be submitted to and approved by the Local Planning Authority to demonstrate the delivery of the ecological enhancement and protection measures is in accordance with the approved measures and in accordance with CIEEM standards.

Development shall accord with the details as approved and retained for the lifetime of the development.

Reason: To ensure that the development provides the maximum provision towards the creation of habitats for biodiversity and the mitigation and adaptation of climate change. In accordance with London Plan (2021) Policies G1, G5, G6, SI1 and SI2 and Local Plan (2017) Policies SP4, SP5, SP11 and SP13.

Carbon Management Response 16/02/2023

In preparing this consultation response, we have reviewed:

- Energy Assessment prepared by Eight Versa (dated 30 January 2023)
- Sustainability Statement prepared by Eight Versa (dated 30 January 2023)

Summary

Revised carbon reduction calculations have been undertaken in line with Part L 2013. The revised performance has been noted below.

<i>Residential (SAP10 emission factors)</i>			
	Total regulated emissions (Tonnes CO ₂ / year)	CO ₂ savings (Tonnes CO ₂ / year)	Percentage savings (%)
Part L 2013 baseline	17.30		
Be Lean	14.14	3.16	18.3%
Be Clean	14.14	0	0%
Be Green	4.17	9.98	57.7%
Cumulative savings		13.14	75.9%
Carbon shortfall to offset (tCO₂)	4.17		
Carbon offset contribution	£95 x 30 years x 4.17 tCO ₂ /year = £11,884.50		

An estimated reduction of emissions of 76% can be achieved on this site.

A carbon offset contribution of **£11,884.50** is due to make this development policy compliant.

Conclusion

The revised information is acceptable and sufficient to support this development.

Planning Condition [Revised]

Energy Plan

(a) Prior to the commencement of development, details of the energy strategy shall be submitted to and approved by the Local Planning Authority. This shall be based on the submitted Energy Assessment prepared by Eight Versa (dated 30 January 2023), achieving a minimum carbon reduction of 76% over Part L 2013 with SAP10 carbon factors, with high fabric efficiencies, solar photovoltaic panels and air source heat pumps. This shall include the following:

- *Confirmation of how this development will meet the zero-carbon policy requirement following the Energy Hierarchy in line with Building Regulations Part L 2013 with SAP10 carbon factors;*
- *A minimum 15.18 kWp solar photovoltaic array and how the energy will be used effectively on-site before exporting to the grid;*
- *A maximum average space heating demand of 15 kWh/m²/year, aiming for 9 kWh/m²/year;*
- *A minimum site-wide carbon reduction of 10% under Be Lean with SAP 2012 carbon factors;*
- *Calculations showing how thermal bridging will be reduced;*
- *Specification and location of the proposed ASHPs and the top-up electric immersion heaters, their seasonal coefficient of performance, seasonal performance factor for heating, with plans showing the ASHP pipework and layout;*
- *Details of the PV, demonstrating the roof area has been maximised, with the following details: a roof plan; the number, angle, orientation, type, and efficiency level of the PVs; how overheating of the panels will be minimised; their peak output (kWp);*
- *Specification and efficiency of the proposed Mechanical Ventilation and Heat Recovery (MVHR), with plans showing the rigid MVHR ducting and location of the units;*
- *A metering strategy.*

(b) The solar PV arrays and air source heat pumps must be installed and brought into use prior to first occupation. Six months following the first occupation, evidence that the solar PV arrays have been installed correctly and are operational shall be submitted to and approved by the Local Planning Authority, including photographs of the solar array, installer confirmation, an energy generation statement for the period that the solar PV array has been installed, and a Microgeneration Certification Scheme certificate.

The final agreed energy strategy shall be installed and operation prior to the first occupation of the development. The development shall be carried out strictly in accordance with the details so approved and shall be operated and maintained as such thereafter. The solar PV array shall be also installed with monitoring equipment prior to completion and shall be maintained at least annually thereafter.

Reason: To ensure the development reduces its impact on climate change by reducing carbon emissions on site in compliance with the Energy Hierarchy, and in line with London Plan (2021) Policy SI2 and Local Plan (2017) Policy SP4.