	Our ref: HGY/2024/0455 **Contact: Eunice Huang** **Date: 22/04/2024**

Town and Country Act 1990 (As amended)	
Location:	The plot of land before number 1 Wroxham Gardens, Wood Green, London, N11 2AY (Also to the rear of 10-12 Bidwell Gardens)
Proposal:	Construction of 3/4 bedroom and 2 bathroom family dwelling.

Carbon Management Response 22/04/2024

In preparing this consultation response, we have reviewed:

- Energy Report prepared by EnergyTest (dated 10/01/2024)
- Relevant supporting documents
- Sustainability Strategy and the Carbon emission reporting spreadsheet have not been included as part of the submission

1. Summary

The development achieves a reduction of 86% carbon dioxide emissions on site, which is supported in principle. Some clarifications must be provided with regard to the Energy Strategy and Overheating Strategy. Sustainability Strategy and carbon emission reporting spreadsheet have not been submitted as part of the application and they must be provided.
Appropriate planning conditions will be recommended once this information has been provided.

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 (2021)). The London Plan (2021) further confirms this in Policy SI2.

The overall predicted reduction in CO_2 emissions for the development shows an improvement of approximately 86% in carbon emissions, from the Baseline development model (which is Part L 2021 compliant). This represents an annual saving of approximately 1.6 tonnes of CO_2 from a baseline of 1.9 tCO_2/year.

Residential (SAP10 emission factors)			
	Total regulated emissions (Tonnes CO_2 / year)	CO_2 savings (Tonnes CO_2 / year)	Percentage savings (%)
Part L 2021 baseline	1.9		
Be Lean	1.6	0.3	18%
Be Clean	1.6	-	-
Be Green	0.3	1.3	68%
Cumulative savings		1.6	86%
Carbon shortfall to offset (tCO_2)	0.3		
Carbon offset contribution	£95 x 30 years x 0.3 tCO_2/year = £855		

Action:

- Please submit the GLA's Carbon Emission Reporting Spreadsheet. Energytest = Attached

- In the baseline SAP worksheet the roof U-value has been modelled as 0.13 W/m2K, but the notional U-value for roof in Part L 2021 is 0.11 W/m2K. Please can the applicant clarify or revise the SAP worksheet as required, confirm the new reduction % for all scenarios and resubmit the baseline SAP worksheet.

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Energy Use Intensity / Space Heating Demand

Applications are required to report on the total Energy Use Intensity and Space Heating Demand, in line with the GLA Energy Assessment Guidance (June 2022). The Energy Strategy should follow the reporting template set out in Table 5 of the guidance, including what methodology has been used. EUI is a measure of the total energy consumed annually, but should exclude on-site renewable energy generation and energy use from electric vehicle charging.

	Proposed Development	GLA Benchmark
Building type	Residential	Residential
EUI	25.41 kWh/m^2/year	<35 kWh/m^2/year
Space Heating Demand	13.66 kWh/m^2/year	<15 kWh/m^2/year
Methodology used	SAP 10	

Actions:

- The EUI and the space heating demand of the proposal are in line with the GLA benchmark which is be supported in principle.
- How has the space heating demand been calculated? The SAP sheet notes a different figure of 39.8 kWh/m2/year in Be Green SAP sheet and 29.96 kWh/m2/year in Be Lean SAP sheet?

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see attached

Energy – Lean

The applicant has proposed a saving of 0.3 tCO_2 in carbon emissions (18%) through improved energy efficiency standards in key elements of the build. This goes beyond the minimum 10% set in London Plan Policy SI2, so this is supported.

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

Floor u-value	0.12 W/m^{2}K
External wall u-value	0.16 W/m^{2}K
Roof u-value	0.12 W/m^{2}K
Door u-value	1.20 W/m^{2}K
Window u-value	1.20 W/m^{2}K
G-value	TBC
Air permeability rate	5 m^3/hm^2 @ 50Pa
Ventilation strategy	Applicant to confirm ventilation strategy (TBC)
Thermal bridging	Target Y-value of 0.05 (care and continuity of insulation at all junctions)
Low energy lighting	100%
Heating system Be Lean only	Gas boiler
Thermal mass	Low/Medium/High (TBC)
Space heating requirement	TBC
Fabric energy efficiency improvement (DFEE/TFEE)	4.18%

Actions:

- Please confirm the ventilation strategy; it appears the Part F requirements are exceeded, but how?

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- The air permeability rate is currently in line with Part L, but a target rate better than the Part L should be encouraged. If the air tightness of the scheme is improved, mechanical ventilation with heat recovery could be proposed to further reduce heat losses.
- The proposed scheme has a relatively large amount of South-facing glazing. Consider following the LETI Climate Emergency Design Guide principles in façade design. In the cooling hierarchy, one of the mitigation strategies has proposed the use of glazing with a G-value of 0.45. Applicant should also consider the potential use of external shading / awning which can provide shading to the South facing glazing and terrace.
- Applicant to confirm the use of low/medium/high thermal mass; higher thermal mass is better in regulating temperatures inside.

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Energy – Clean

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 size of development.

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 1.3 tCO_2 (68%) reduction of emissions are proposed under Be Green measures.

The solar array peak output would be 2.80kWp on South-West elevation and 1.40kWp on South-East elevation equivalent to a reduction of 1.3 tCO_2/year. The applicant may use solar tiles instead of solar panels.

Actions:

- The proposed scheme utilizes only the two South facing roofs for PV panel installation, please provide some commentary on how the available roof space has been maximised to install solar PV, or explain why the use of other roof surfaces cannot be maximized.
- Please provide the amount of renewable electricity per year generated from PV panels.
- Please confirm the angles for both South-East and South-West roofs.
- Please provide the specification of the ASHP and thermal storage, and confirm its SCOP.
- Please identify on the plans where the internal parts of the air source heat pumps will be located and how the external units will be mitigated in terms of visual and noise impact.
- How much of the heating/hot water demand will be met by the proposed type of heat pump? If this cannot be met fully, how will this be supplemented?
- Applications should demonstrate how they might take a demand-side response to reducing energy use. Confirm if battery storage for the solar PV system been considered, or justify why this is not proposed.

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3. Carbon Offset Contribution

A carbon shortfall of 0.3 tCO_2/year remains. The remaining carbon emissions will need to be offset at £95/tCO_2 over 30 years.

4. Overall 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, health and wellbeing, materials and waste, water consumption, flood risk and drainage, biodiversity, climate resilience, energy and CO2 emissions and landscape design.

Action:

- Please submit Sustainability Statement to include the following information:

- Set out what urban greening and biodiversity enhancement measures will be proposed (e.g. green infrastructure, bird boxes, bat boxes etc to connect to the green spaces around the site, living roofs, living walls, etc.)
- Will an electric vehicle charging point be installed? This allows the future-proofing of the dwelling/development by ensuring the required power has been installed.
- Cycle parking spaces have been identified on the proposed drawing, applicant to confirm the exact number of safe, covered, and accessible cycle parking spaces.
- A target (%) for responsible sourced, low-impact materials used during construction.
- Set out how any demolition materials can be reused.
- Set out how surface water runoff will be reduced and provide a commentary on how the discharge of surface water into the existing public sewer has been minimized.

Sustainability – Urban Greening and Biodiversity

All development sites must incorporate urban greening within their fundamental design, 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.

Action:

- Applicant to provide details on how to achieve the required Biodiversity net gain.

5. Conclusion

Overall, it is considered that the application **can currently be supported** in principle from a carbon management and sustainability point of view.

Planning Obligations Heads of Terms

- Payment of carbon offset contribution prior to the above ground construction works at £855, based on £95 per tonne of carbon emissions over 30 years.

Planning Conditions

To be secured with amendments expected to the wording below once the revised information has been submitted.

Energy Strategy

The development hereby approved shall be constructed in accordance with the Energy Report by EnergyTest Ltd (dated 10/01/2024) delivering a minimum 86% improvement on carbon emissions over 2021 Building Regulations Part L, with high fabric efficiencies, air source heat pumps (ASHPs) and a minimum 4.2 kWp solar photovoltaic (PV) array.

(a) Prior to above ground construction, details of the Energy Strategy shall be submitted to and approved by the Local Planning Authority. This must include:

- *Confirmation of how this development will meet the zero-carbon policy requirement in line with the Energy Hierarchy;*
- *Confirmation of the necessary fabric efficiencies to achieve a minimum 18% reduction, including details to reduce thermal bridging;*
- *Location, specification and efficiency of the proposed ASHPs (Coefficient of Performance, Seasonal Coefficient of Performance, and the Seasonal Performance Factor), with plans showing the ASHP pipework and noise and visual mitigation measures;*
- *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)*

The development shall be carried out strictly in accordance with the details so approved prior to first operation and shall be maintained and retained for the lifetime of the development. The solar PV array shall be installed with monitoring equipment prior to completion and shall be maintained at least annually thereafter.

(b) The solar PV arrays/ air source heat pump(s) must be installed and brought into use prior to first occupation of the development. Six months following the first occupation of the development, 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.

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.

Overheating
Prior to above ground construction, a statement shall be submitted to and approved by the Local Planning Authority to demonstrate how the overheating risk has been minimised and mitigated on site in line with the London Plan Cooling Hierarchy. Details and specification of the mitigation measures shall be provided in support of this statement.

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.

Water butts
No dwelling shall be occupied until details of the location of a water butt of at least 350L internal capacity to be installed to intercept rainwater draining from the roof of each dwelling has been submitted to and approved in writing by the Local Planning Authority and subsequently provided at each dwelling. The approved facilities shall be retained.

Reason: To reduce the risk of flooding and demand for water, increase the level of sustainability of the development and in line with Haringey Local Plan Policy SP5, DM21, DM24 and DM25.

Sustainability
Prior to above ground commencement of development, details of the sustainability strategy shall be submitted to and approved by the Local Planning Authority. This shall include specifications, plans and sections that demonstrate sustainable design, layout, construction techniques and proposed measures to improve the sustainability of the scheme including but not limited to sustainable transport, health and wellbeing, reduction of material use and waste, water consumption, and flood risk, drainage improvements, and biodiversity enhancement.

The report shall include:
- *Urban greening and biodiversity enhancement measures;*
- *A target percentage for responsibly sourced, low-impact materials used during construction;*
- *Details on how any demolition materials can be reused;*
- *Details on how surface water runoff will be reduced and overall sustainable drainage strategy;*
- *Climate Change mitigation measures to be considered for the external spaces and the impact of the increase in severity and frequency of weather events on the building structures.*

Reason: To ensure the development provides the maximum provision towards increasing the level of sustainability in line with London Plan (2021) policies G6, SI7 and Haringey Local Plan Policy SP4, DM21, DM25, and DM29.