

		Our ref: HGY/2023/0630 Contact: Kwaku Bossman-Gyamera Date: 29/09/2023
Town and Country Act 1990 (As amended)		
Location:	26 Sheldon Avenue, Hornsey, London, N6 4JT	
Proposal:	Demolition of the existing house and erection of a new two-storey detached house with basement and loft areas. New front boundary treatment.	

Carbon Management Response 08/08/2023

In preparing this consultation response, we have reviewed:

- Design and Access Statement and Heritage Statement prepared by qR Architects
- Relevant supporting documents.

1. Summary

The sustainability section included in the Design and Access statement is very high level and does not include the energy assessment required to report on the carbon reduction. Energy and Sustainability reports were not submitted with the application. **We, therefore, object to this application.**

The development does not currently meet London Plan Policy SI2 and Local Plan Policy SP4 to achieve a zero-carbon development on site. Further information needs to be provided to address this objection, in relation to the Energy and Sustainability Strategy. This should be addressed prior to the determination of the 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 (2021). The London Plan (2021) further confirms this in Policy SI2.

No Energy assessment was undertaken; therefore, the development is not policy compliant.

<i>Residential (SAP10.2 emission factors)</i>			
	Total regulated emissions (Tonnes CO ₂ / year)	CO ₂ savings (Tonnes CO ₂ / year)	Percentage savings (%)
Baseline			
Be Lean			%
Be Clean			%
Be Green			%
Cumulative savings			%
Carbon shortfall to offset (tCO ₂)			
Carbon offset contribution	£95 x 30 years x tCO ₂ /year = £		

Action:

- Please submit an Energy Strategy for the proposed development (using the GLA's guidance: https://www.london.gov.uk/sites/default/files/gla_energy_assessment_guidance_april_2020.pdf)
- Please submit the GLA's Carbon Emission Reporting Spreadsheet
- Please submit SAP sheets for a representative selection of dwellings for the Baseline, Be Lean and Be Green scenarios.

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.

Building type	EUI (kWh/m ² /year)	Space Heating Demand (kWh/m ² /year)	Methodology used

Actions:

- What is the calculated Energy Use Intensity (excluding renewable energy)? How does this perform against GLA benchmarks, i.e. at 35 kWh/m²/year? Please submit the information in line with the GLA's reporting template.
- What is the calculated space heating demand? How does this perform against the GLA benchmark of 15 kWh/m²/year? Please submit the information in line with the GLA's reporting template.

Energy – Lean

The u-values, g-values and air tightness are not clear. Please fill in the table below:

Floor u-value	TBC
External wall u-value	TBC
Roof u-value	TBC
Door u-value	TBC
Window u-value	TBC
G-value	TBC
Air permeability rate	TBC
Ventilation strategy	MVHR, efficiency?
Thermal bridging	Accredited Construction Details
Low energy lighting	TBC
Heating system (Be Lean only)	TBC
Thermal mass	TBC
Fabric energy efficiency improvement	TBC

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.

The applicant proposed to use air conditioning unit for comfort cooling which is not supported.

Actions:

- Please specify the gross efficiency figure of the gas boiler used in the Baseline and Be Lean modelling scenarios.
- Please identify on a plan where the MVHR units will be located within the dwellings. The units should be less than 2m away from external walls. This detail can also be conditioned.
- What is the proportion of glazed area? Consider following the LETI Climate Emergency Design Guide principles in façade design.
- Demonstrate the cooling hierarchy has been followed, and specify which overheating mitigation measures are proposed to reduce the overheating risk within the proposed design:
 - o Internal heat generation, i.e. heat distribution infrastructure
 - o Heat entering building, i.e. shutters, trees, vegetation, blinds
 - o Manage heat through thermal mass and high ceilings

- Passive ventilation, i.e. openable windows, shallow floorplates, dual aspect, stack effect
- Mechanical ventilation, i.e. free cooling from outside air in shade, by-pass for summer mode

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 proposed the installation of air source heat pumps (ASHPs). Further details are required.

Actions:

- It is recommended to make use of solar PV that can further reduce the on-site emissions.
- A living roof should be installed under the solar PV, or if this is not feasible, the roof should be light coloured to reduce solar heat gains and to improve efficiency of the solar panels.
- Please identify on the plans where the internal and external parts of the air source heat pumps will be located and how the 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?

3. Carbon Offset Contribution

Carbon Offset contribution cannot be calculated in absence of energy assessment and associated carbon reduction value.

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 is very high level and needs further details in regards to 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:

- 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.)
- What electric vehicle charging points are proposed? This allows the future-proofing of the dwelling/development by ensuring the required power has been installed.
- Specify the location and 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 water demand will be reduced, e.g. rainwater harvesting, grey water system.
- Set out how surface water runoff will be reduced, that it will be separated from wastewater and not discharged into the sewer.

Sustainability – Urban Greening and Biodiversity

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

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, and at least 250mm deep for intensive roofs (these are often roof-level amenity spaces) 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.

5. Conclusion

Overall, it is considered that the application **cannot currently be supported** from a carbon management and sustainability point of view.

Carbon Management Response 12/09/2023

In preparing this consultation response, we have reviewed:

- Energy Statement prepared by Green Tiger Sustainability (dated 1st September 2023)
- Relevant supporting documents.

1. Summary

The development achieves a reduction of 72.3% carbon dioxide emissions on site, which is supported in principle. However, Carbon Management cannot currently support this application. The development does not currently meet: London Plan Policy SI2: Be Green – maximising opportunities for renewable energy by producing, storing and using renewable energy on-site; Local Plan SP4: 20% carbon dioxide emission reduction from on-site renewable energy generation; and Policy DM21: demonstrate sustainable design, layout and construction techniques.

Some clarifications must be provided with regard to the Energy Strategy and Sustainability Strategy. Appropriate planning conditions will be recommended once this information has been provided.

2. Energy – Overall

The overall predicted reduction in CO₂ emissions for the development shows an improvement of approximately 72.3% 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 4.05 tonnes of CO₂ from a baseline of 5.6 tCO₂/year.

<i>Residential (SAP10.2 emission factors)</i>			
	Total regulated emissions (Tonnes CO ₂ / year)	CO ₂ savings (Tonnes CO ₂ / year)	Percentage savings (%)
Baseline	5.6		
Be Lean	4.7	0.9	16.2%
Be Clean	4.7	0.0	0%
Be Green	1.55	3.14	56.1%
Cumulative savings		4.05	72.3%
Carbon shortfall to offset (tCO₂)	1.55		
Carbon offset contribution	£95 x 30 years x 1.55tCO ₂ /year = £		

Action:

- The applicant should report their baseline CO₂ emissions and savings in tCO₂/year, not kgCO₂/m².
- Please submit the GLA's Carbon Emission Reporting Spreadsheet
- Please re-submit SAP sheets for a representative selection of dwellings for the Baseline, Be Lean and Be Green scenarios.

Energy Use Intensity / Space Heating Demand

The applicant has not reported the Energy Use Intensity and Space heating demand of the development.

Building type	EUI (kWh/m ² /year)	Space Heating Demand (kWh/m ² /year)	Methodology used

Actions:

- What is the calculated Energy Use Intensity (excluding renewable energy)? How does this perform against GLA benchmarks, i.e. at 35 kWh/m²/year? Please submit the information in line with the GLA's reporting template.
- What is the calculated space heating demand? How does this perform against the GLA benchmark of 15 kWh/m²/year? Please submit the information in line with the GLA's reporting template.

Energy – Lean

The applicant has proposed a saving of 0.9 tCO₂ in carbon emissions (16.2 %) through improved energy efficiency standards in key elements of the build, based on SAP10.2 carbon factors which is supported.

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

Floor u-value	0.10 W/m ² K
External wall u-value	0.15 W/m ² K
Roof u-value	0.11 W/m ² K
Door u-value	1.00 W/m ² K
Window u-value	0.95 W/m ² K
G-value	0.57
Air permeability rate	3 m ³ /hm ² @ 50Pa
Ventilation strategy	Mechanical ventilation with heat recovery
Thermal bridging	Accredited Construction Details
Low energy lighting	100%
Heating system Be Lean only	Individual gas boiler (90% efficient), underfloor / radiators
Fabric energy efficiency improvement	%

The applicant proposed active cooling which is not supported.

Actions:

- Please identify on a plan where the MVHR units will be located within the dwellings. The units should be less than 2m away from external walls. This detail can also be conditioned.
- What is the proportion of glazed area? Consider following the LETI Climate Emergency Design Guide principles in façade design.

Energy – Clean

No further comments.

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. However, solar photovoltaic is not proposed as a Be Green measure which is not supported.

A total of 3.14 tCO₂ (56.1%) reduction of emissions are proposed with the installation of air source heat pumps (ASHPs).

Actions:

- All new development must achieve a minimum 20% reduction from on-site renewable energy generation to comply with Policy SP4. Please details on the viability of the available roof space and how much of the roof space can be used to install solar PV.
- It is recommended to make use of solar PV that can further reduce the on-site emissions.
- A living roof should be installed under the solar PV, or if this is not feasible, the roof should be light coloured to reduce solar heat gains and to improve efficiency of the solar panels.
- Please identify on the plans where the internal and external parts of the air source heat pumps will be located and how the units will be mitigated in terms of visual and noise impact.

3. Carbon Offset Contribution

A carbon shortfall of 1.55 tCO₂/year remains. The remaining carbon emissions will need to be offset at £95/tCO₂ 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 is very high level and needs further details in regards to 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:

- 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.)
- What electric vehicle charging points are proposed? This allows the future-proofing of the dwelling/development by ensuring the required power has been installed.
- Specify the location and 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 water demand will be reduced, e.g. rainwater harvesting, grey water system.
- Set out how surface water runoff will be reduced, that it will be separated from wastewater and not discharged into the sewer.

Sustainability – Urban Greening and Biodiversity

Living roofs proposed in the Design and Access Statement and Heritage Statement are supported in principle, subject to detailed design. Details for living roofs will need to be submitted as part of a planning condition.

5. Conclusion

Overall, it is considered that the application **cannot currently be supported** from a carbon management and sustainability point of view.

Carbon Management Response 29/09/2023

In preparing this consultation response, we have reviewed:

- Energy and Sustainability Statement Rev 2 prepared by Green Tiger Sustainability (dated 22nd September 2023)
- 26 Sheldon – Part L 2021 GLA Carbon Emission reporting spreadsheet v2.0 Final
- Relevant supporting documents.

1. Summary

A revised energy and sustainability statement has been submitted which shows the development achieves a reduction of 81.2% carbon dioxide emissions on site. The development now includes provision for installation of solar PV for on-site renewable energy generation, which is supported. Planning conditions have been recommended to secure the benefits of the scheme.

2. Energy – Overall

The revised energy statement shows an overall improvement in the predicted CO₂ emissions reduction for the development of approximately 81.2% 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 4.54 tonnes of CO₂ from a baseline of 5.6 tCO₂/year. The revised carbon emission table is as follows:

<i>Residential (SAP10.2 emission factors)</i>			
	Total regulated emissions (Tonnes CO ₂ / year)	CO ₂ savings (Tonnes CO ₂ / year)	Percentage savings (%)
Baseline	5.6		
Be Lean	4.7	0.55	10%
Be Clean	4.7	0.0	0%
Be Green	1.55	3.99	71.2%
Cumulative savings		4.54	81.2%
Carbon shortfall to offset (tCO ₂)	1.066		
Carbon offset contribution	£95 x 30 years x 1.066 tCO ₂ /year = £3,038		

Energy Use Intensity / Space Heating Demand

The applicant has reported the Energy Use Intensity and Space heating demand of the development as follows. The reported values are within the GLA benchmarks.

Building type	EUI (kWh/m ² /year)	Space Heating Demand (kWh/m ² /year)	Methodology used
Residential	24.45	13.14	Part L1 - SAP 10.2 & none dwellings / & Landlord Circulation

Energy – Lean

The applicant has proposed a saving of 0.55 tCO₂ in carbon emissions (10 %) through improved energy efficiency standards in key elements of the build, based on SAP10.2 carbon factors which is supported.

The u-values, g-values and air tightness are same as reported previously, the air permeability and Y-value is now proposed to be as follows:

Air permeability rate	2.5 m ³ /hm ² @ 50Pa
Thermal bridging	Accredited Construction Details with Y-value of 0.06

Active cooling has been removed.

Energy – Clean

No further comments.

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. The solar array peak output would be 7.02 kWp, with a large 13.8 kWp battery. An individual air-to-water ASHP system (min. efficiency of 294.8%) with Duty-point 500 litre cylinder is proposed that provides hot water and heating to the dwellings through underfloor heating.

A total of 3.99 tCO₂ (71.2%) reduction of emissions are proposed with the installation of air source heat pumps (ASHPs) and Solar PV.

3. Carbon Offset Contribution

A carbon shortfall of 1.05 tCO₂/year remains. The remaining carbon emissions will need to be offset at £95/tCO₂ 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 measures to improve the sustainability of the scheme, including water consumption, Lifecycle carbon and materials, waste management, circular economy, transport, health and wellbeing, flood risk and drainage, biodiversity, climate resilience, energy and CO₂ emissions and landscape design.

Bird and at boxes are specified in the garden area to increase local animal populations on site as presented in drawing no.26SA-PA-03-B, attached with the Energy statement. The rear 1st floor flat roof is proposed to be a living green roof, further increasing urban greening, and attracting local wildlife.

Cycle storage is proposed on site to sufficient requirements, moving away from localised use of cars. An internal, secure, and covered space is identified that can accommodate six cycles. Two electrical vehicle charging hook up is proposed to be installed, for clean transport energy use and lower pollution. The POS solo and Easee one units will be installed to cover all electrical vehicle types. These are presented on drawing no. 26SA-PA-03-B, attached to the energy statement.

The following are the site targets for waste management and circular economy:

- a Sustainable Procurement Plan,
- a bespoke Site Waste Management Plan,
- 20% of demolition waste into new scheme,
- a target to divert 95% of construction waste and 95% of the demolition/excavation waste from going into the landfill.
- a benchmark target for a resource efficiency of 13.3m³ (or 11.1 tonnes) of waste per 100m² of GIA; Potentially aspiring for a target of 7.5 m³ (or 6.5 tonnes) of waste per 100m² GIA.

Sustainability – Urban Greening and Biodiversity

Living roofs proposed in the Design and Access Statement and Heritage Statement are supported in principle, subject to detailed design. Details for living roofs will need to be submitted as part of a planning condition.

5. Conclusion

Overall, it is considered that the application **can be supported** 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 £3,038, based on £2,850 per tonne of carbon emissions.

Planning Conditions

Energy Strategy

The development hereby approved shall be constructed in accordance with the Energy and Sustainability Statement Rev 2 prepared by Green Tiger Sustainability (dated 22nd September 2023) delivering a minimum 81.2% improvement on carbon emissions over 2021 Building Regulations Part L, with SAP10.2 emission factors, high fabric efficiencies, air source heat pumps (ASHPs) and a minimum 7.02 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 10% reduction in SAP10.2 carbon factors, 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;*
- *Specification and efficiency of the proposed Mechanical Ventilation and Heat Recovery (MVHR), with plans showing the rigid MVHR ducting and location of the unit;*
- *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); battery capacity.*
- *Specification of any additional equipment installed to reduce carbon emissions.*

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 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.

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.

Water butts

No dwelling shall be occupied until details of the location of a water butt of at least 120L 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.

Living Roofs

(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 roofs 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 roofs will be located;*
 - ii) A section demonstrating settled substrate levels of no less than 120mm for extensive living roofs (varying depths of 120-180mm), and no less than 250mm for intensive living roofs (including planters on amenity roof terraces);*
 - 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.*
 - viii) A section showing the build-up of the blue roof and confirmation of the water attenuation properties, and feasibility of collecting the rainwater and using this on site;*
- (b) Prior to the occupation of 90% of the dwelling, 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.