Energy and Sustainability Statement

Medical Team Limited

FOR THE SITE AT:
335 Euston Road
London
NW1 3AD
London Borough of Camden

SRE

Version	Revision	Date	Author	Reviewer	Project Manager
1	A	12.07.2024	Joshua Handley	Findlay Matheson	Jiale Li
1	B	29.11.2024	Alisha Pinheiro	Sophie Hopwood	Jiale Li
1	C	06.12.2024	Alisha Pinheiro	-	Jiale Li

The figures within this report may be based on indicative modelling and an assumed specification outlined within the relevant sections. Therefore, this modelling may not represent the as built emission or energy use of the Proposed Development and further modelling may need to be undertaken at detailed design stage to confirm precise performance figures. Please contact SRE should you have any questions, or should you wish further modelling to be undertaken post planning.

SRE Registered Office | 3 London Square

Cross Lanes | Guildford | GU1 1UJ

01730 710044

info@sre.co.uk

www.sre.co.uk

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Executive Summary

The Energy and Sustainability Statement has been written in support of an application for a minor medical development in Camden known as Regents Park Medical Centre (Proposed Development). The Proposed Development involves the demolition of an existing single-storey building to create a three-storey medical facility including a basement level. The Statement has been written to demonstrate the measures in the design of the Proposed Development, which will deliver lower energy and water use, lower global warming potential (GWP), carbon dioxide equivalent (CO_2e) emissions and operational costs, than a 2021 Building Regulations compliant design, in line with local policy requirements.

The Proposed Development consists of the erection of a new building comprising medical facilities (Use Class C2) and associated refuse storage. The building has been designed to accommodate up to 3 storeys as well as a basement. The Proposed Development is to be built upon brownfield land, previously occupied by Euston Shoes & Repairs.

The energy strategy has been developed by following the Energy Hierarchy of Lean, Clean, Green and Seen. The chosen energy strategy includes lean passive and active design measures and green Low and Zero Carbon (LZC) technologies to reduce the GWP and CO_2e emissions as far as practical and viable in line with Building Regulations 2021 Part L V2 and the local planning policy.

The proposed energy strategy is summarised below:

- Enhanced building fabric in line with Building Regulations 2021 Part L V2
- High efficiency light-emitting diode (LED) lighting with passive infrared (PIR) automatic on-off controls and daylight sensors
- Mechanical Ventilation with Heat Recovery (MVHR)
- High efficiency variable refrigerant flow (VRF) system (air-to-air heat pumps) to provide space heating
- Instantaneous electric hot water system
- Photovoltaics (PV)

Table 1 summarises the CO_2e savings and the cumulative improvements that can be achieved by applying the Energy Hierarchy.

Energy Hierarchy Category	CO_2e emissions (t/yr)	Cumulative Improvement (%)
Baseline	1.06	
Lean	0.78	26.00
Clean	0.78	0.00
Green	0.53	32.00

Table 1 - Summary of the site-wide CO_2e emissions and cumulative improvement

Table 2 and Figure 1 summarise the overall performance and associated CO_2e savings and show that by applying the Energy Hierarchy, it is possible for the Proposed Development to achieve a 50% improvement in annual CO_2e emissions over the Baseline.

Energy Hierarchy Category	CO_2e emissions (t/yr)	Improvement over Baseline (%)
Baseline	1.06	
Lean	0.78	26.00
Clean	0.78	26.00
Green	0.53	50.00

Table 2 - Summary of the site-wide CO_2e emissions and improvement over Baseline

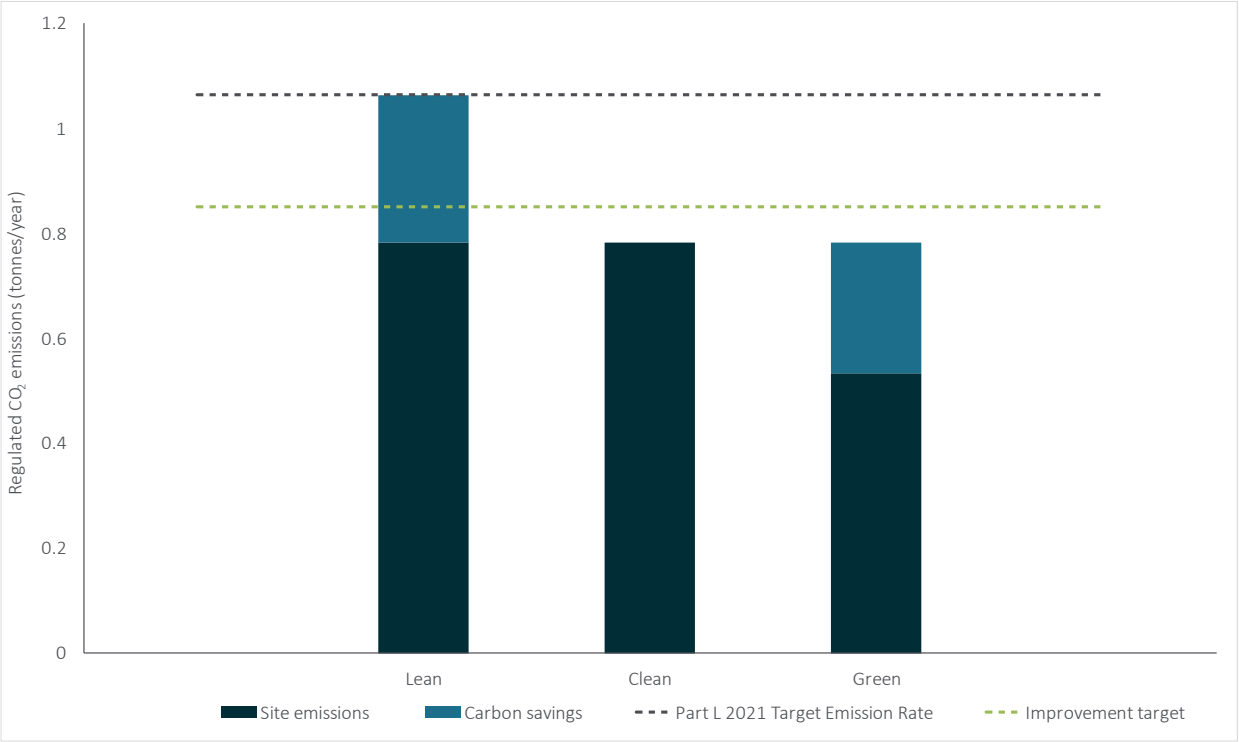


Figure 1 - Summary of regulated CO_2e savings

As per the Camden Local Plan, developments of five or more dwellings and/or more than 500 m^2 of any gross internal floorspace are expected to achieve a 20% reduction in CO_2e emissions from on-site renewable energy generation (which can include sources of site related decentralised renewable energy), unless it can be demonstrated that such provision is not feasible.

Although the Proposed Development has a gross internal floor area of < 500 m^2, the threshold of 20% reduction in CO_2e emissions from on-site renewable energy generation has been considered in the Proposed Development's energy strategy. By applying the Energy Hierarchy, it is possible for the Proposed Development to achieve a 32% improvement in annual CO_2e emissions (Table 1) in the Green scenario over the Lean from on-site renewable energy generation (ASHP and rooftop PV array).

Introduction

1.0 Introduction

The Energy and Sustainability Statement has been written in support of an application for a minor development in Camden.

The Proposed Development seeks the demolition of an existing single-storey building for replacement with a medical facility and associated parking and landscaping. The Statement has been written to demonstrate the measures in the design of the Proposed Development, which will deliver lower energy and water use, lower global warming potential (GWP), carbon dioxide equivalent (CO_2e) emissions and operational costs, than a 2021 Building Regulations compliant design, in line with local policy requirements.

The statement compares the predicted actual building energy requirement with a Building Regulations compliant design, outlines passive and active design measures, and assesses the suitability of Low and Zero Carbon (LZC) technologies specific to this site to address the relevant planning policy requirements.

The statement analyses how the Proposed Development will integrate with its surrounding environment within the context of sustainability to ensure it benefits the surrounding area socially, environmentally, and economically.

1.1 Proposed Development

The Proposed Development consists of the erection of a new building comprising medical facilities (Use Class C2) and associated refuse storage, parking and landscaping. The building has been designed to accommodate up to 3 storeys as well as a basement. The Proposed Development is to be built upon brownfield land, previously occupied by Euston Shoes & Repairs.

The site plan for the Proposed Development is shown in Figure 2. Please refer to Appendix A for further architectural details of the Proposed Development.

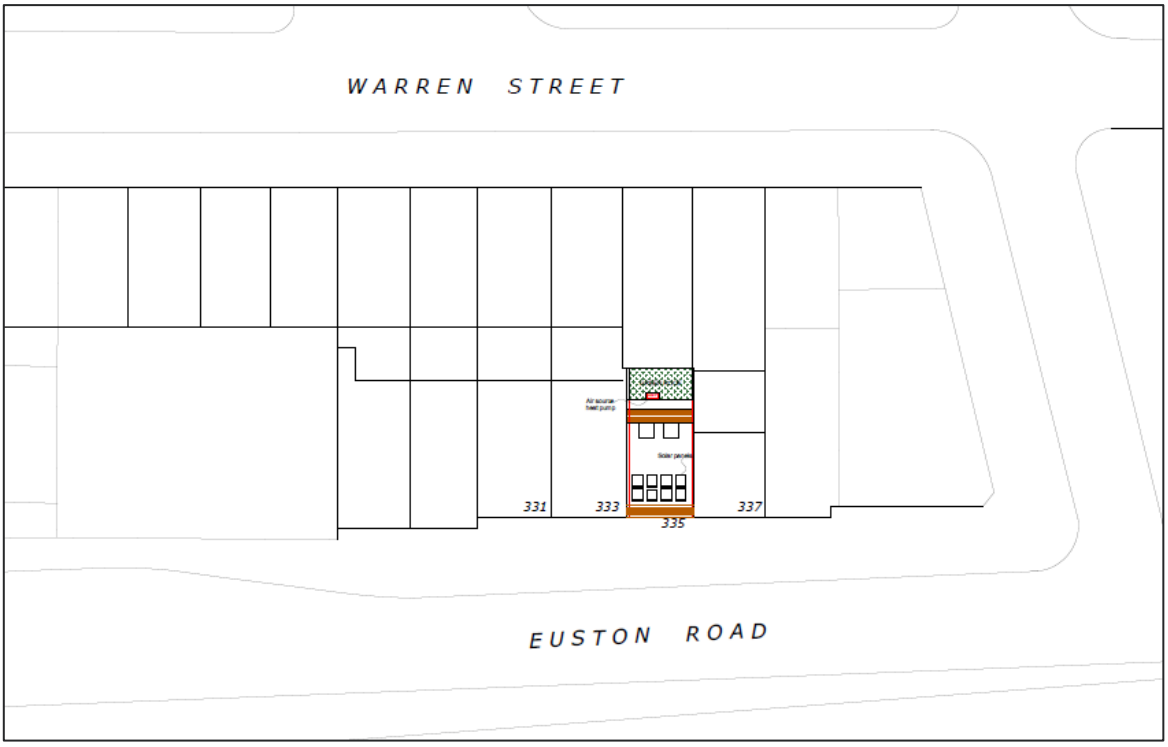


Figure 2 – Proposed site plan (The Gillett Macleod Partnership)

1.2 Planning Policies

The Proposed Development is located within the London Borough of Camden therefore the following Planning Policies shown in Table 3 are applicable to the site.

Planning Policy	Requirement
Camden Local Plan 2017	<u>Policy CC1 Climate change mitigation:</u> The Council will require all development to minimise the effects of climate change and encourage all developments to meet the highest feasible environmental standards that are financially viable during construction and occupation. We will: a. promote zero carbon development and require all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy; b. require all major development to demonstrate how London Plan targets for carbon dioxide emissions have been met; c. ensure that the location of development and mix of land uses minimise the need to travel by car and help to support decentralised energy networks; d. support and encourage sensitive energy efficiency improvements to existing buildings; e. require all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building; and f. expect all developments to optimise resource efficiency.
Camden Local Plan 2017	<u>Policy CC2 Adapting to climate change:</u> The Council will require development to be resilient to climate change. All development should adopt appropriate climate change adaptation measures such as: a. the protection of existing green spaces and promoting new appropriate green infrastructure; b. not increasing, and wherever possible reducing, surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems (SuDS); c. incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and d. measures to reduce the impact of urban and dwelling overheating, including the application of the cooling hierarchy.
Camden Local Plan 2017	<u>Policy CC3 Water and flooding:</u> The Council will seek to ensure that development does not increase flood risk and reduces the risk of flooding where possible. We will require development to: a. incorporate water efficiency measures; b. avoid harm to the water environment and improve water quality; c. consider the impact of development in areas at risk of flooding (including drainage); d. incorporate flood resilient measures in areas prone to flooding; e. utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible; and

Planning Policy	Requirement
	f. not locate vulnerable development in flood-prone areas. Where an assessment of flood risk is required, developments should consider surface water flooding in detail and groundwater flooding where applicable.
Camden Local Plan 2017	<u>Policy CC4: Air quality</u> The Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough. The Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality. Consideration must be taken to the actions identified in the Council's Air Quality Action Plan. Air Quality Assessments (AQAs) are required where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission unless measures are adopted to mitigate the impact. Similarly, developments that introduce sensitive receptors (i.e. housing, schools) in locations of poor air quality will not be acceptable unless designed to mitigate the impact. Development that involves significant demolition, construction or earthworks will also be required to assess the risk of dust and emissions impacts in an AQA and include appropriate mitigation measures to be secured in a Construction Management Plan.
Camden Local Plan 2017	<u>Policy CC5: Waste</u> The Council will seek to make Camden a low waste borough. We will: a. aim to reduce the amount of waste produced in the borough and increase recycling and the reuse of materials to meet the London Plan targets of 50% of household waste recycled/composted by 2020 and aspiring to achieve 60% by 2031; b. deal with North London's waste by working with our partner boroughs in North London to produce a Waste Plan, which will ensure that sufficient land is allocated to manage the amount of waste apportioned to the area in the London Plan; c. safeguard Camden's existing waste site at Regis Road unless a suitable compensatory waste site is provided that replaces the maximum throughput achievable at the existing site; and d. make sure that developments include facilities for the storage and collection of waste and recycling.

Table 3 - Summary of local planning policy requirements

1.3 Applicability to Proposed Development

The Proposed Development is deemed to be a minor development by the Local Authority due to the overall size of the new construction. Therefore, it is exempt from the London Plan 2021 however it must comply with the sustainability and carbon aspirations set by the London Borough of Camden, the following standards are proposed to be met:

- Mitigate climate change through energy efficient measures and optimisation of resources,
- Protect green spaces around the site,
- Implement SuDs where necessary,
- Incorporate water efficient measures,
- Reduce any overheating risks through application of the cooling hierarchy,

- Ensure the development does not impact the local air quality,
- Reduce waste produced and ensure proper recycling

The Proposed Development will exceed the on-site requirements as set out in the local planning documentation through the provision of a robustly sustainable, energy-efficient development. This will be shown through the additional improvements such as:

- Strategy designed in accordance with the Lean, Clean, Green and Seen energy hierarchy,
- Lean passive measures through a fabric-first approach ensuring good insulation and air tightness through high-quality construction materials and methodology,
- High-efficiency low-energy lighting throughout with PIR and daylight sensors,
- Low-to-zero carbon technologies on site: Photovoltaics (PV), air source heat pumps (ASHPs),
- Reduce emissions resulting from construction and lifetime usage of the building.

Energy

2.0 Energy

2.1 Method

The energy strategy design follows national policy guidance[1] and seeks to be lean, clean, green and seen, as shown in Figure 3.

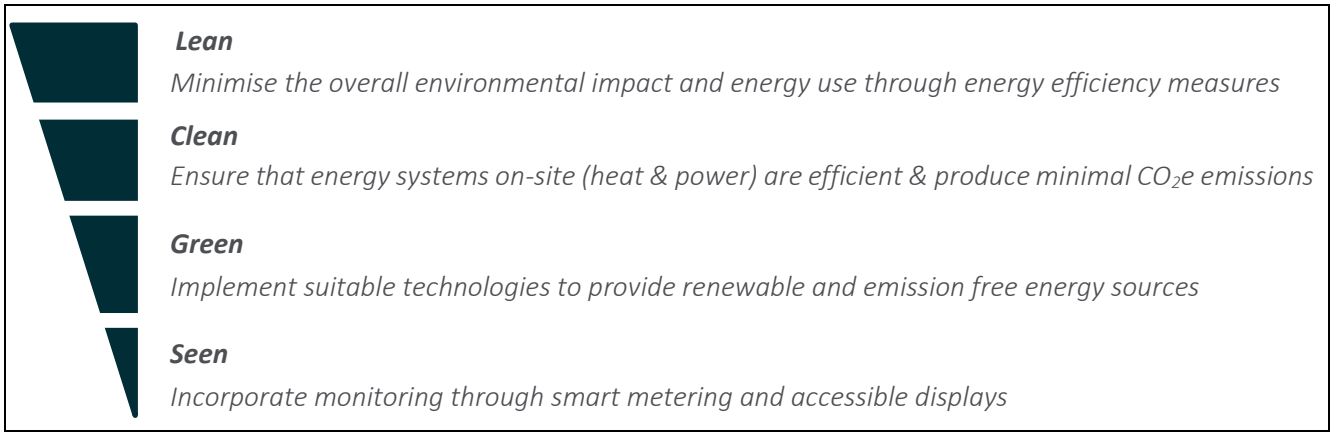


Figure 3 - The Energy Hierarchy

As a new build construction, the scheme is to be assessed under Building Regulations 2021 Part L V2 and the energy modelling has been calculated using the Integrated Environmental Solutions Virtual Environment (IES VE) 2023 software.

The CO_2e Conversion Factors shown in Table 4 are from the Building Regulations 2021. However, within the IES VE 2023 dynamic modelling, the CO_2e conversion factor for electricity varies over the course of the year due to the changing mix of inputs to the electricity grid, i.e., increased photovoltaic (PV) generation in the summer months.

Energy Source	CO_2e Conversion Factor ($kgCO_2e/kWh$)
Electricity (mains)	0.136
Electricity (offset)	-0.136
Gas (mains)	0.210

Table 4 - CO_2e conversion factors by energy source

The Target Emission Rate (TER) from the 'Lean' scenario is taken as the energy baseline and is the exact size and shape of the Proposed Development but is based on notional U-values and heating specifications outlined in Approved Document L and the National Calculation Methodology (NCM) modelling guide for non-domestic developments. The baseline CO_2e emissions and primary energy rate (PER) are shown in Table 5.

[1] The London Plan https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan

Scenario	CO_2e emissions (t/yr)	Primary Energy Rate (kWh/yr)
Baseline	1.06	67.48

Table 5 - Baseline CO_2e emissions

2.2 Unregulated Energy

The unregulated energy use within a development is the energy used within the Proposed Development which has not been accounted for within Building Regulations compliance modelling. This includes auxiliary equipment such as computers, printers etc and process loads.

Category	Energy use (kWh/yr)
Unregulated energy	33859.15

Table 6 – Unregulated energy use

2.3 LEAN – Demand Reduction

'Lean' active and passive design measures have been maximised where feasible, including highly efficient building fabric with proposed U-values outlined in Section 2.3.1 and high-efficiency light emitting diodes (LED) lighting with average efficacies of 125 lm/W with PIR and daylight sensors. The Lean scenario achieves a 1% improvement in CO_2e emissions compared to a Building Regulations 2021 compliant design as shown in Table 7.

Scenario	CO_2e emissions (t/yr)	Improvement (%)
Baseline	1.06	-
Lean	0.78	26.00

Table 7 - Lean CO_2 emissions and improvement over Baseline

2.3.1 Passive Design Measures

Passive design measures have been enhanced where possible throughout the site to maximise building efficiency within the confines of the site constraints and budget requirements. The building has been positioned within the site to maximise the usable space given the small area of the site. The Proposed Development will maximise solar gains where possible within the confines of the site. The unit will have double low emissivity (Low-E) glazing to control the solar gains.

The exact construction method is yet to be determined and will be decided upon during detailed design stage however it is likely to be traditional masonry. The building will be very well insulated through all external elements and have a low infiltration rate. The U-values will meet and exceed Building Regulations Part L V2

requirements and the proposed U-values are provided in Table 8 with further details outlined in the summary specification sheet in Appendix B.

Element	Limiting U-Values	Proposed U-Values
Ground Floor	0.18	0.14
External Walls	0.26	0.18
Roof (Flat)	0.18	0.14
Roof (Flat Green)	0.18	0.10
Roof (Flat)	0.16	0.14
Windows	1.60	1.20 ($G\text{-value}_{(glazing)}$ = 0.40)
Rooflights	2.20	1.20 ($G\text{-value}_{(glazing)}$ = 0.40)
Glazed Door	1.60	1.20 ($G\text{-value}_{(glazing)}$ = 0.40)
Additional Element	**Limiting Measure**	**Proposed Measure**
Air Tightness @ 50 Pa	8.00	5.00

Table 8 – Proposed U-Values

The high-quality design of the Proposed Development will help reduce the overall energy demand of the building, thus reducing the operational cost to the building owner.

2.3.2 Active Design Measures

The Proposed Development will utilise 100% LED lighting in excess of Building Regulation requirements. External lighting, where installed, will also be energy efficient and will be positioned to avoid excessive light pollution and be supported by PIR and/or daylight sensors and time controls to reduce operation times and subsequent energy use and emissions. Internal lighting will have PIR auto-on-off sensors throughout.

Following on from Section 2.1, the medical unit has been modelled using the notional building system type and performance values[2]. A notional variable refrigerant flow (VRF) system has been modelled to provide space heating, and a notional instantaneous hot water system to supply hot water as part of the Lean scenario.

In modern air-tight buildings, careful consideration needs to be given to the specification of ventilation systems to ensure moisture is removed from the building, ventilation standards are met and a healthy standard of internal air is maintained.

Mechanical Ventilation with Heat Recovery (MVHR) is proposed for the building to provide continuous air changes with minimal heat loss. MVHR removes the warm, damp air from wet rooms and passes this over a heat exchanger whereby incoming fresh air is prewarmed and distributed to the occupied spaces within the building. The system will run continuously and will be automatically controlled through a humidistat sensor for any purge ventilation and boost ventilation rates when needed. A summer bypass is also proposed whereby the heat exchanger is bypassed at times of high internal temperatures to provide fresh air directly to the habitable

[2] National Calculation Methodology Modelling Guide
https://www.uk-ncm.org.uk/filelibrary/NCM_Modelling_Guide_2021_Edition_England_15Dec2021.pdf

rooms without being pre-warmed. Details of the systems used in the modelling are specified in the specification sheet in Appendix B.

2.3.1 Cooling Hierarchy

The cooling hierarchy has been used to ensure that passive building design has been optimised to reduce overheating within the Proposed Development, as shown in Table 9.

Cooling Hierarchy	Potential Design Measures
Minimising internal heat generation through energy efficient design	All primary pipework to be insulated, therefore low system losses. High-specification point-of-use water heaters installed with low heat loss. High-efficacy low energy lighting in the form of LED throughout with minimal heat output.
Reducing the amount of heat entering the building in summer	Low E glass windows with a g-value of 0.40 are proposed. All new external walls are to be well insulated with a high level of air tightness to reduce heat entering the building.
Use of thermal mass and high ceilings to manage the heat within the building	Thermal mass is anticipated to be medium-high.
Passive Ventilation	Operable windows proposed.
Mechanical Ventilation	MVHR with summer bypass is proposed.

Table 9 - Design measures following the cooling hierarchy

2.4 CLEAN – Heating Infrastructure

A VRF system and an instantaneous hot water system are proposed as part of the heating and hot water strategy. As heat pumps are considered a green technology, the associated reduction in CO_2e emissions will be discussed in the Green section of the report – under Section 2.5. Therefore, no further improvements have been recorded.

2.4.1 District Heating

Connection to a district heating network has been discounted for the Proposed Development. A district heating network relies on connection to a wet system, since a VRF system is the favoured strategy to reduce operational CO_2e emissions, connection to such a network would not be suitable. Additionally, there are no district heating networks in the surrounding areas. Therefore, no further improvement over the 'Clean' scenario has been recorded.

2.5 GREEN – Low Carbon and Renewable Energy

The addition of 'Green' technologies can provide a significant reduction in CO_2e emissions and enable the new unit to show improvement over the Baseline. The proposed strategy includes VRF for space heating and the addition of rooftop PV arrays. The improvements in CO_2e and PER over the Baseline are shown below in Table 10 and Table 11 respectively.

Scenario	CO_2e Emissions (t/yr)	Improvement (%)
Baseline	1.06	
Green	0.53	50.00

Table 10 - Green CO_2e emissions and improvement over Baseline

Scenario	Primary Energy Rate (kWh/yr)	Improvement (%)
Baseline	67.48	
Green	32.77	51.00

Table 11 - Building Primary Energy Rate and improvement over Baseline

2.5.1 Heat Pumps

All Heat Pump (HP) systems consume electricity to operate - the Coefficient of Performance (CoP) of the system is the ratio of electrical energy consumed, to heat energy emitted. Generally, a CoP of 3 or 4 can be achieved, meaning 3 or 4 units of thermal energy are produced for each unit of electricity consumed.

Heat pumps will only deliver low-grade heat (up to circa 50°C) efficiently, and therefore HP systems alone are generally relatively inefficient in providing hot water, as this requires additional electrical input (immersion or increased compressor use).

The use of a centralised VRF system has been proposed as a 'Green' LZC technology to provide space heating via an air-to-air heat pump system. The system will serve all spaces except for the plant room.

ASHPs efficiently extract energy from the external air and transfer it to internal air/water for heating. ASHPs tend to generate some noise and therefore will be located in a concealed area to prevent visual impact and noise disturbances to the building's occupants and neighbours. The final VRF unit chosen will comply with the minimum standards outlined in the Enhanced Capital Allowances (ECA) product criteria and other relevant issues as outlined in the Microgeneration Certification Heat Pump Product Certification Requirements documents[3].

2.5.2 Photovoltaics

PV panels convert energy from daylight into direct electrical current (DC), which is then converted to alternating electrical current (AC) via an inverter, or a series of inverters subject to the size of the array. The panels are generally roof mounted and provide electrical generation which can either be utilised directly on-site (or

[3] http://www.microgenerationcertification.org

nearby) by HPs, lighting and other electrical equipment, stored in batteries, or exported back to the National Grid using export meters.

Noise will not be an issue since a PV array does not feature moving parts and is silent during operation.

The installation of PV is proposed in order to further reduce the on-site carbon emissions and offset some of the electrical demand within the Proposed Development with any excess being fed back into the National Grid.

The main flat roof is proposed to be a solar roof. The current proposal is to install a solar PV array of 6 no. 405W monocrystalline panels (~1.7m^2 in area) per panel, equivalent to a 2.43 kWp array with a pitch angle of 10°. Details of the proposed PV installation are detailed in Table 12.

Proposed Array (kWp)	Approximate no. Panels @405W	Active area (m^2)	Pitch (degrees)	Orientation	Estimated Annual Generation (kWh/yr)
2.43	6	10.2	10	South-east (147° azimuth)	1838.05

Table 12 - Proposed PV Array Summary

3.0 Conclusion

The Proposed Development will deliver energy demand reduction measures along with LZC technologies in order to reduce energy demand and associated CO_2e emissions resulting from the Proposed Development's operation.

In delivering the Green energy strategy, the Proposed Development provides:

- Enhanced building fabric in line with Building Regulations 2021 Part L V2
- High efficiency light-emitting diode (LED) lighting with passive infrared (PIR) automatic on-off controls and daylight sensors
- Mechanical Ventilation with Heat Recovery (MVHR)
- High efficiency variable refrigerant flow (VRF) system (air-to-air heat pumps) to provide space heating
- Instantaneous point-of-use water heaters supplying domestic hot water
- Rooftop PV array

With the energy strategy above, the Proposed Development can achieve a 50% improvement in CO_2e emissions compared to a Building Regulation Part L V2 compliant design, as shown in Table 13 and Figure 4. Given the Proposed Development is considered to be minor, no carbon offset payment is required.

Energy Hierarchy Category	CO_2e Emissions (t/yr)	Improvement over Baseline (%)
Baseline	1.06	
Lean	0.78	26.00
Clean	0.78	0.00
Green	0.53	50.00

Table 13 - Summary of the site-wide CO_2e emissions and improvements over Baseline from GLA carbon emission reporting spreadsheets

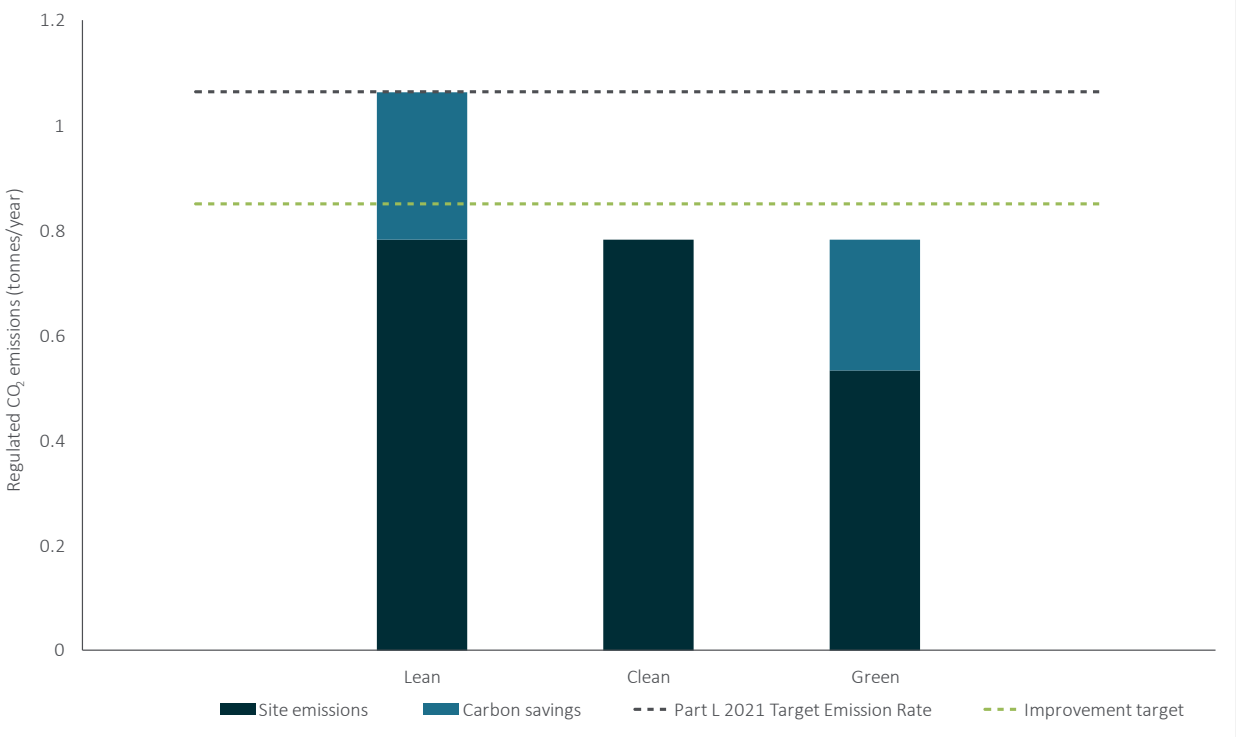


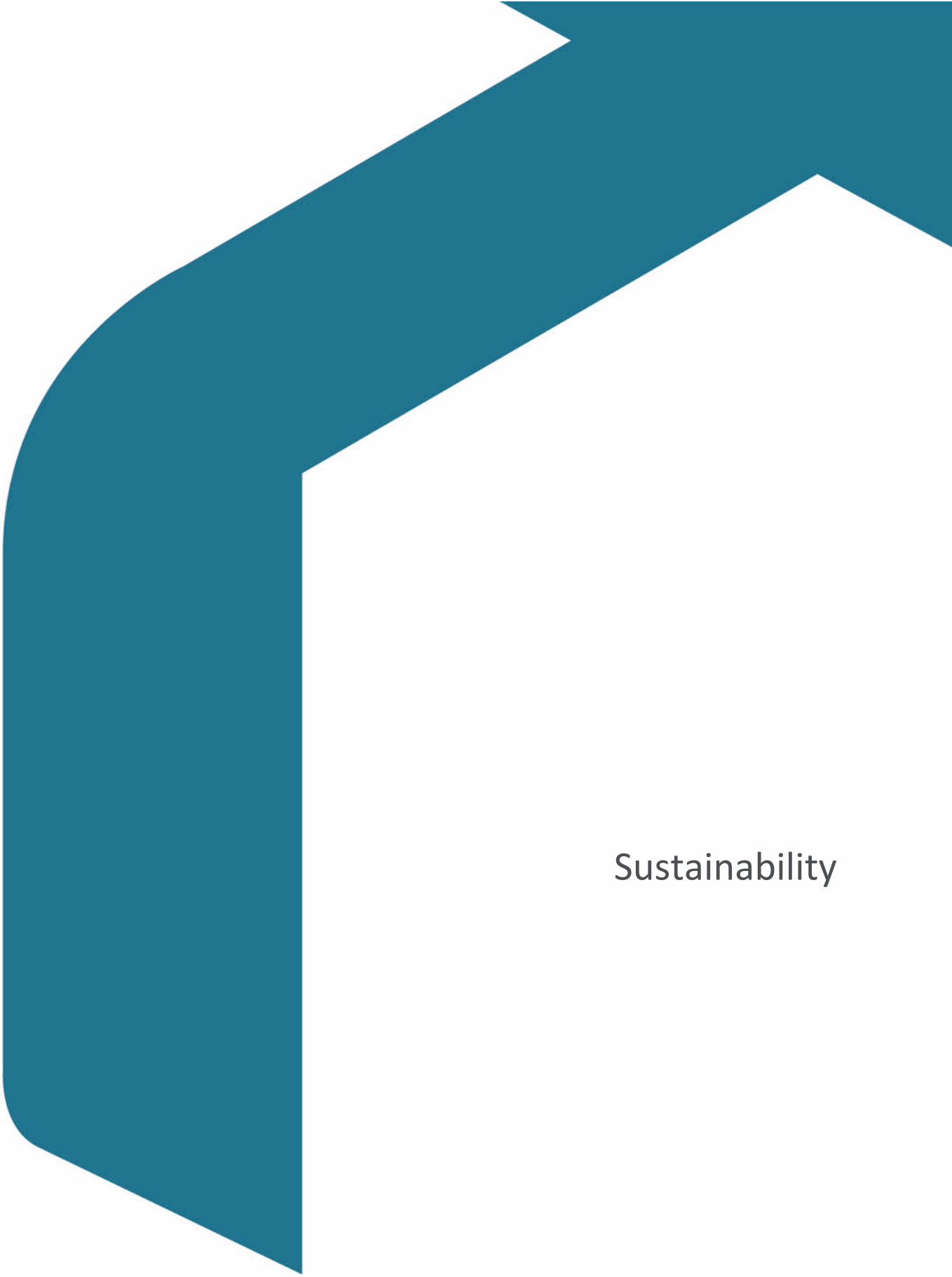
Figure 4 - Summary of regulated CO_2e savings

As per the Camden Local Plan, developments of five or more dwellings and/or more than 500 m^2 of any gross internal floorspace are expected to achieve a 20% reduction in CO_2e emissions from on-site renewable energy generation (which can include sources of site related decentralised renewable energy), unless it can be demonstrated that such provision is not feasible.

Although the Proposed Development has a gross internal floor area of < 500 m^2, the threshold of 20% reduction in CO_2e emissions from on-site renewable energy generation has been considered in the Proposed Development's energy strategy. By applying the Energy Hierarchy, it is possible for the Proposed Development to achieve a 32% improvement in annual CO_2e emissions in the Green scenario over the Lean from on-site renewable energy generation (ASHP and rooftop PV array). Please refer to Table 14 for the cumulative improvements.

Energy Hierarchy Category	CO_2e emissions (t/yr)	Cumulative Improvement (%)
Baseline	1.06	
Lean	0.78	26.00
Clean	0.78	0.00
Green	0.53	32.00

Table 14 - Summary of the site-wide CO_2e emissions and cumulative improvement



Sustainability

4.0 Sustainability

The World Commission on Environment and Development (WCED) report: Our Common Future, describes Sustainable Development as development that:

"Sustainable Development - meets the needs of the present without compromising the ability of future generations to meet their own needs." (World Commission on Environment and Development: Our Common Future[4]).

The planning system focuses on three objectives to achieve a sustainable development: economic, social, and environmental. These objectives mutually support each other and have been adapted in this statement to meet the objectives of the London Borough of Camden Local Plan. This planning framework asks that developments make the best use of resources, increase the sustainability of the local communities and are adaptable to climate change. Careful considerations have been taken to ensure the Proposed Development meets these expectations.

4.1 Climate Change

The year 2023 was the warmest year since global records began in 1850, with global temperatures reaching 1.18 °C above the century average.[5] According to the UK Meteorological Office, there is a 98% chance that the next warmest year will be within five years, with there being a two-in-three chance that global average temperature will exceed 1.5°C above pre-industrial levels. [6] Projected annual emissions are only expected to rise, with global temperatures following the same trendline.

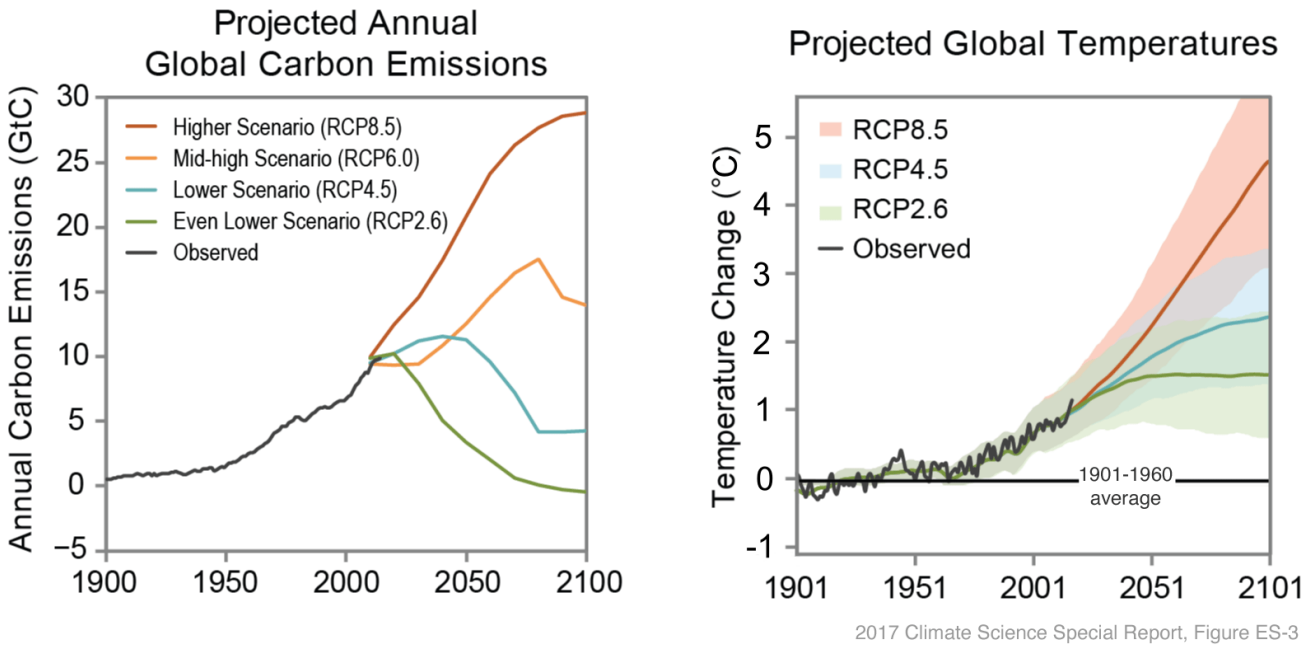


Figure 5 - Project global emissions and temperatures

[4] https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf
[5] Annual 2023 Global Climate Report | National Centers for Environmental Information (NCEI) (noaa.gov)
[6] New global temperature records on the horizon - Met Office

The UK built environment is one of the largest contributors to greenhouse gas (GHG) emissions, contributing approximately 25% to the total share of UK GHG emissions according to the UK Green Building Council[7]. For a sustainable future, a clear pathway to reducing emissions in our homes and businesses is no longer a choice, but a requirement.

Mitigation measures have been considered within the design of the Proposed Development, through the use of highly efficient LZC technologies, including a PV array on the main roof. Please refer to Section 2.0 of this report for more details on the proposed energy strategy.

4.2 Pollution

4.2.1 Air

Camden is an Air Quality Management Area (AQMA) with levels of nitrogen dioxide (NO_2) exceeding the national annual average limit. All developments are expected to include measures to reduce air pollution to within acceptable levels. The Proposed Development will support the surrounding area by limiting its contribution to local air pollution.

Heating and hot water systems which emit no onsite nitrogen oxides (NO_X) emissions have been proposed to limit air pollution. Point-of-use water heaters and VRF system will consume grid electricity. As the NO_X emissions resulting from the production of electricity decrease at the national scale, the resulting theoretical emissions from the Proposed Development will do also. Furthermore, the use of PV panels will decrease the import of electricity from the national grid and replace it with PV electricity which produces no emissions during operation. Figure 6 shows the UK Air Pollution from NO_X in the area of the Proposed Development.

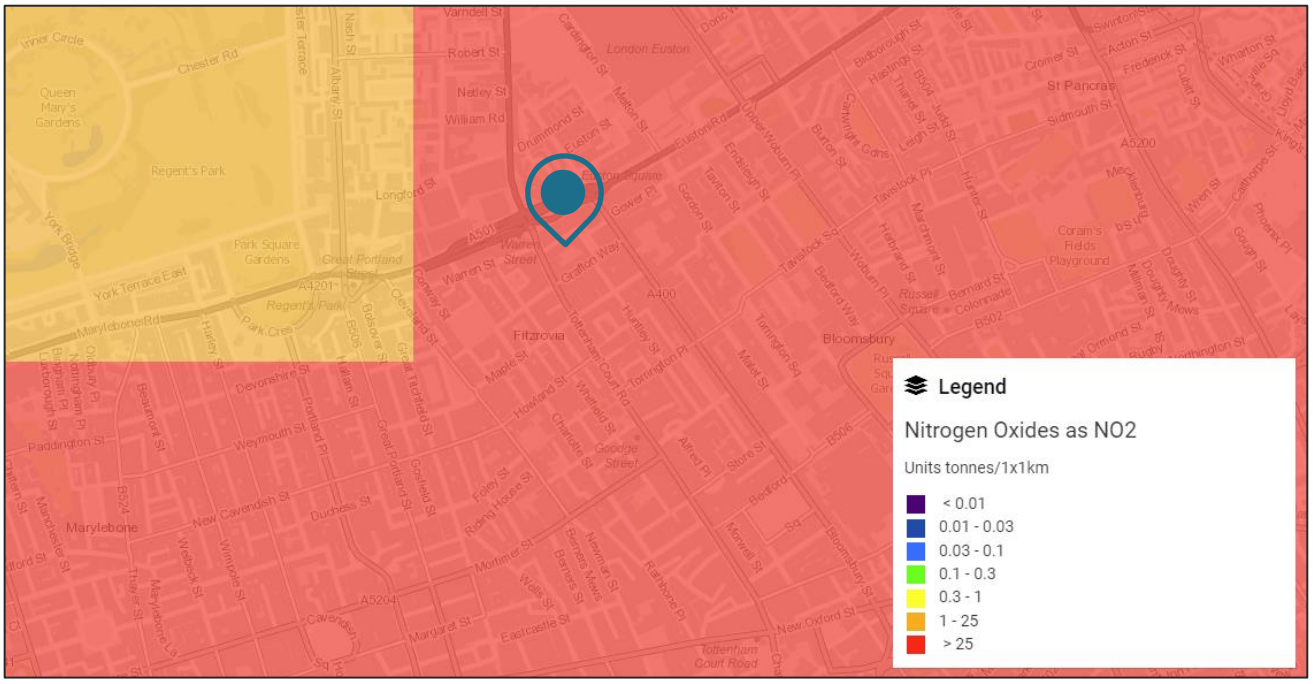


Figure 6 - UK Air Pollution Map showing pollution from NO_X as NO_2 (UK Emissions Interactive Map (beis.gov.uk))

[7] https://ukgbc.org/our-work/climate-change-mitigation/

Monitoring from the air pollution maps shows that the Proposed Development is within poor air quality areas for both NO_x and Particulate Matter (PM_{10}). Air pollution will be reduced as much as practicable during construction and new materials will be sourced locally where possible to reduce air pollution associated with the transport of materials.

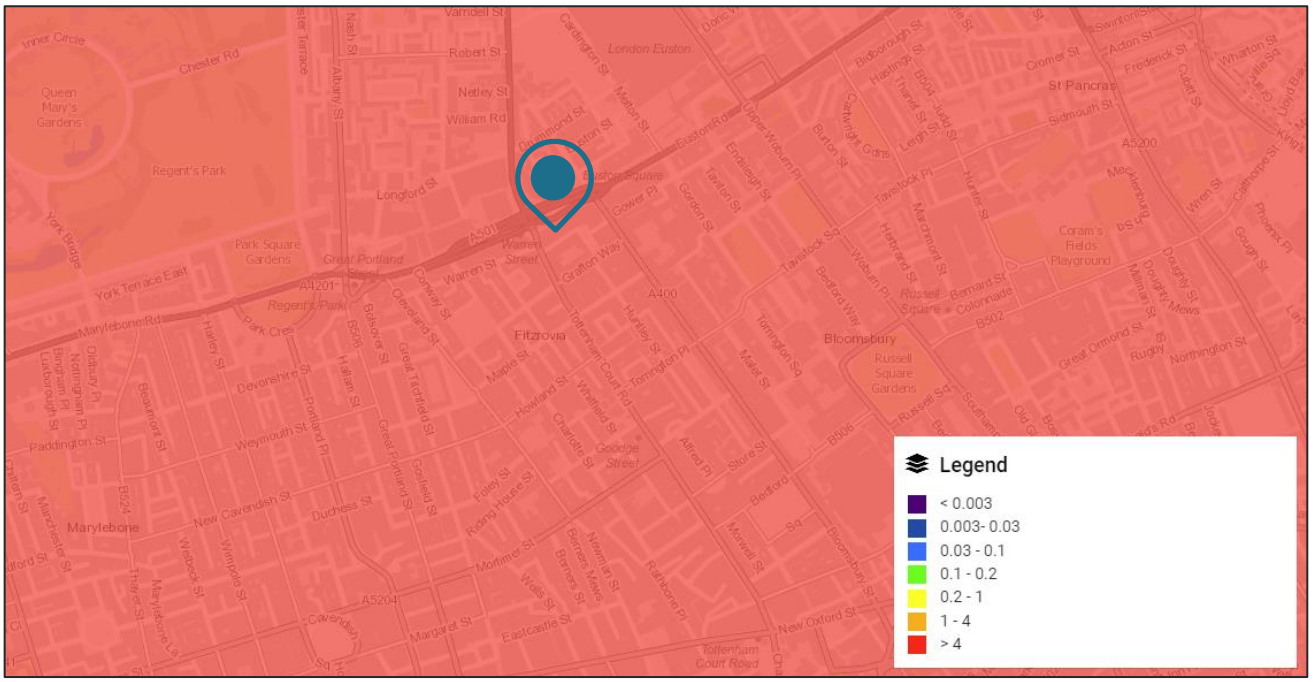


Figure 7 - UK Air Pollution Map showing pollution from PM10 (UK Emissions Interactive Map (beis.gov.uk))

4.2.2 Noise and Vibration

The Proposed Development will be a highly insulated building with excellent airtightness which should limit any noise from inside the building as well as reduce the impact of external noise pollution into the site. Any plant equipment installed will be located in a position to minimise noise disturbance and shielded to prevent potential noise disturbances. The VRF system should be located in a concealed area to avoid disturbance to occupants of the Proposed Development as well as surrounding dwellings.

During the construction phase, quiet equipment and machinery will be deployed wherever possible and monitored to ensure that its quality does not deteriorate. Additional measures including acoustic screening will be implemented if necessary. Construction traffic can also contribute to increased levels of noise pollution. Vehicles travelling to the site will be managed with this in mind, along with working hours and activities conducted on-site.

4.2.3 Light

The design and layout of the site for practical use have been considered while trying to maximise internal daylight levels in the occupied spaces. Light pollution will be minimised where possible through the careful specification and positioning of external lighting around the Proposed Development, ensuring minimal light pollution from the site. Special attention will be given to security lighting (where fitted) to ensure it is appropriately focussed and controlled such that it is only illuminating the intended areas and does not impact its surroundings.

All external space lighting will be provided through low-energy fittings, with security lighting being PIR and daylight/timer controlled. All lamps should not exceed 150W per light fitting, during hours when external lighting is not required, the automatic on-off function will be switched off.

4.3 Flood Risk

The selected site is at very low risk of flooding from rivers and seas (Figure 8) and at low risk of flooding from surface water (Figure 9). While the surrounding area has roads shown as high-medium risk of flooding from surface water this should flow away through the public drainage system and should not affect the site.

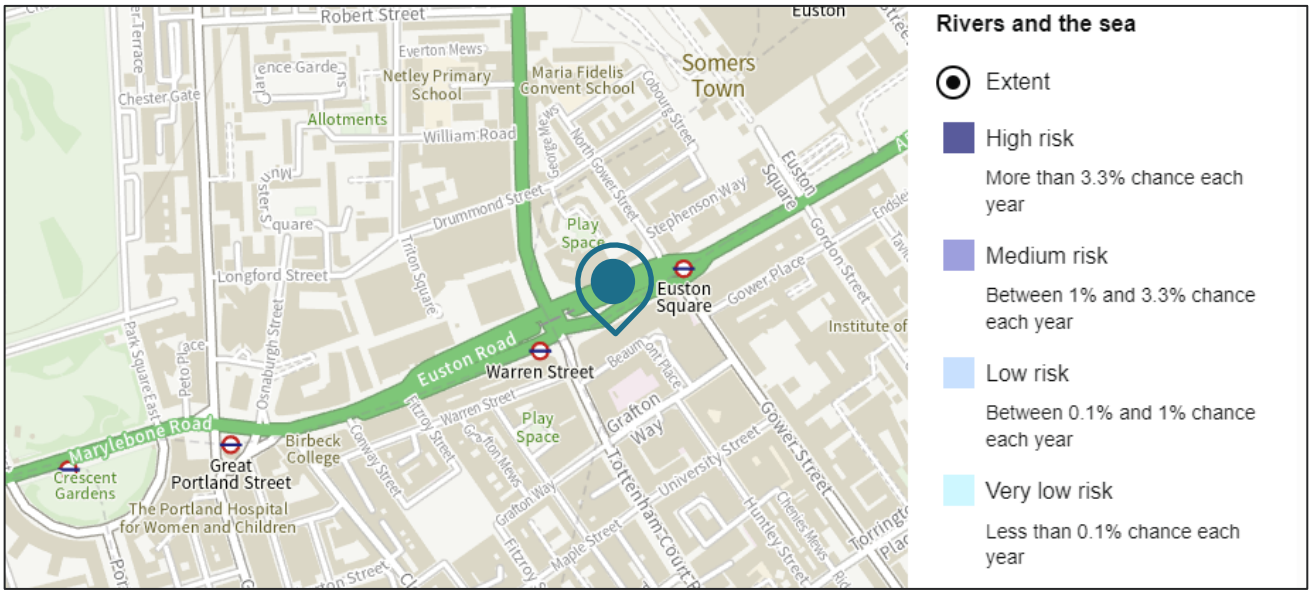


Figure 8 - Flood map showing risk of flooding from rivers or the sea (https://check-long-term-flood-risk.service.gov.uk/risk#)

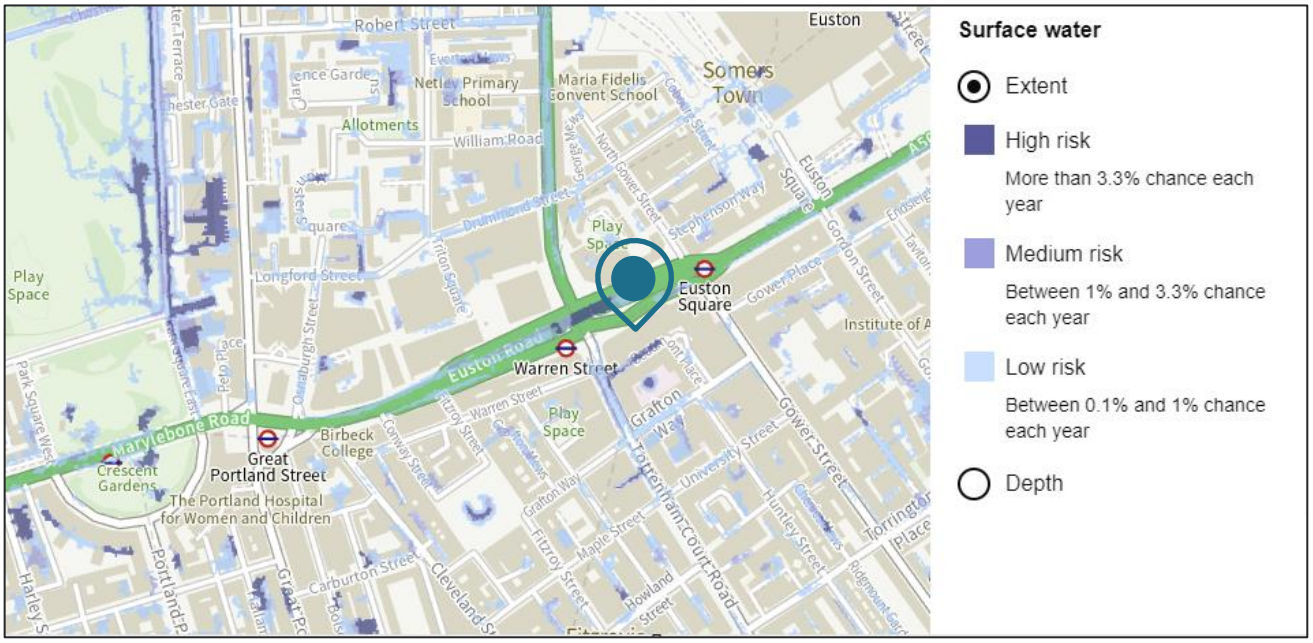


Figure 9 - Flood map showing risk of flooding from surface water (https://check-long-term-flood-risk.service.gov.uk/risk#)

4.4 Transport

Sustainable Transport – "Any efficient, safe and accessible means of transport with overall low impact on the environment, including walking and cycling, ultra-low and zero emission vehicles, car sharing and public transport." (National Planning Policy Framework 2021[8]).

The Proposed Development is located within an urban area with several public services within walking and cycling distance of the site. The Proposed Development has incorporated measures to promote the use of more sustainable means of transport and ensure that the future users of developments will be less reliant on private motor vehicles.

4.4.1 Public Transport

The site has multiple bus stops in the surrounding area such as Warren Street and Great Portland Street with links throughout the local area. Great Portland Street underground station is located a 6-minute walk to the west.

4.4.2 Parking

The Proposed Development will not have any parking associated with the site, this is done to encourage people to use more sustainable travel options and to reduce local pollution levels.

4.4.3 Cycle Storage

Given the location of the site, there will not be any cycle spaces included as part of the Proposed Development however, there will be space within the development for employees to leave their bikes in a secure, sheltered area.

4.5 Biodiversity

Biodiversity is generally considered to be the variety of life forms within a certain ecosystem. The construction industry is very environmentally disruptive to plant species and wildlife. Therefore, it is important to protect and enhance biodiversity onsite where possible.

The Proposed Development is being built upon a site that consists of an existing brownfield site, previously occupied by Euston Shoes & Repairs, and is therefore considered of low ecological value. The Proposed Development consists of a green roof to enhance the biodiversity on site. The development provides a net gain on biodiversity if it is found to be possible through an assessment.

4.6 Resource Efficiency

4.6.1 Construction Phase Waste Management

The Proposed Development will aim to make efficient use of materials, minimising waste and maximising recycling/re-use of materials produced throughout the construction phase.

[8] https://www.gov.uk/government/publications/national-planning-policy-framework--2

A comprehensive Site Waste Management Plan (SWMP) will be implemented from the outset of site works and will follow the principles of the waste hierarchy shown in Figure 10.

The construction waste generated as part of the Proposed Development will be segregated and monitored as per best practice. Suitable construction materials will be recycled as part of this process, either to be reused on-site or introduced back into the supply chain through recycling, by a Licensed Contractor. This will minimise the amount of waste disposed in landfills and will support our transition from a linear to a circular economy.

Reusing materials on site will reduce the embodied energy of the development through the reuse of the energy that exists in that material. Transportation of new material to the site will be reduced, lowering the CO_2e emissions associated with transportation and material manufacture.

Reusing materials on site will reduce the embodied CO_2e (ECO_2e) of the Proposed Development by avoiding the need to manufacture, transport, and construct the new elements that would otherwise be associated with the use of new materials. The transportation of products to the site should be managed in the most efficient way and materials are expected to be responsibly sourced. This includes avoiding over-ordering, arranging 'just in time' delivery of materials or requiring suppliers to participate in 'take-back' schemes where they retrieve packaging and any unused materials for reuse. These measures will reduce the total CO_2e emissions associated with transportation and material manufacture.

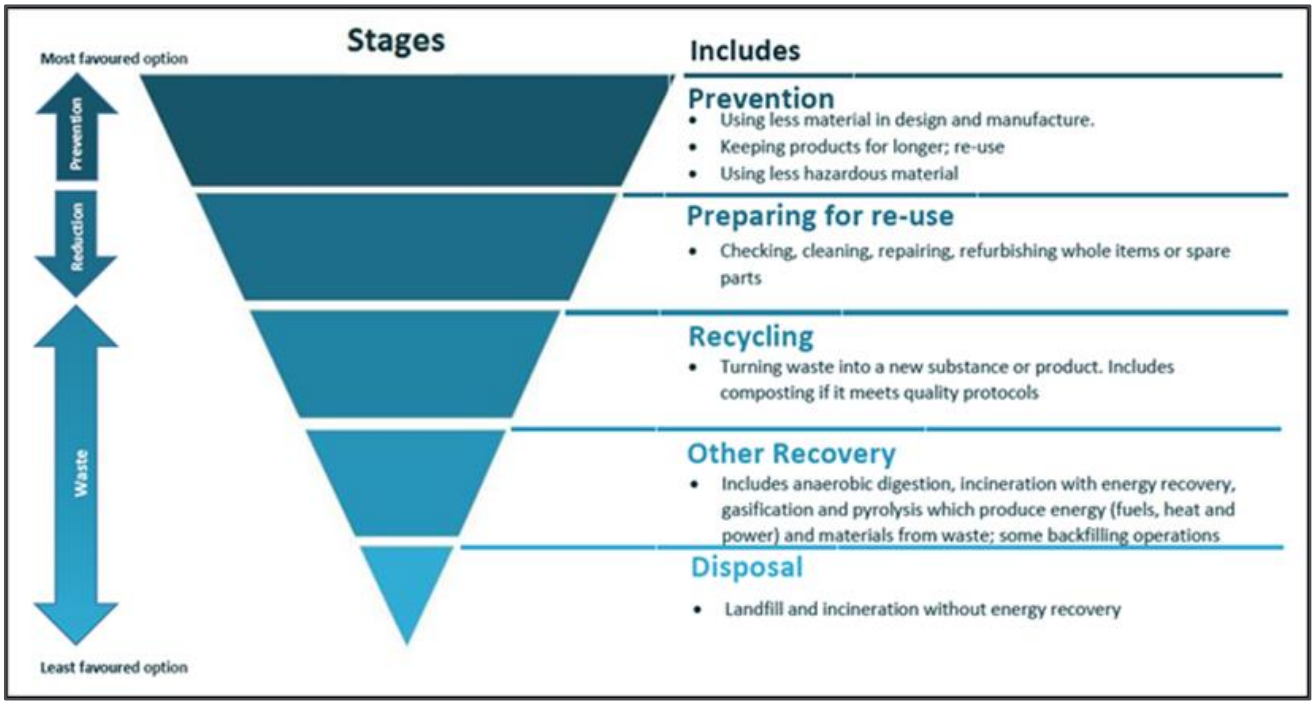


Figure 10 - The waste hierarchy

4.6.2 Resource Management

Policies will be put in place for the management of site impacts such as air and water pollution in line with industry best practices. Monitoring and reporting on CO_2e emissions and water use from site related activities will take place in line with national benchmarks.

The overall management of the construction waste will be monitored through the Considerate Constructors Scheme as part of Best Practice Site Management.

The building design will apply Circular Economy Design principles – taking the linear 'take-make-waste' approach and transforming it into re-using and recycling. The design will focus on ensuring the adaptability of the building which would allow future re-configuration from residential/retail to another use with the basic frame and elevations remaining intact in their original format as long as possible.

4.6.3 Materials

The Proposed Development is to use high-quality, low-impact materials in order to minimise the overall impact on the environment as far as possible.

The form of construction is anticipated to be a concrete foundation and floor slab with a traditional masonry structure. The UK Concrete Standards BS 8500 (Part 1 and Part 2) are currently being updated and new ternary blend cements utilising limestone powder will be available. Compared to a standard CEM I they offer up to a 65% reduction in ECO_2e per cubic metre of concrete delivered to the site.

All timber and timber-based products used on-site will be legally sourced from a reputable forest certification scheme, such as the Forest Stewardship Council (FSC) with appropriate Chain of Custody certification to confirm this.

All other materials are sourced from suppliers who have an accredited Environmental Management System (EMS) certified through ISO 14001 or the Eco-Management and Audit Scheme (EMAS) ensuring that any environmental impacts caused are managed and reduced. BES 6001 certification should also be considered to ensure products have been made with constituent materials that have been responsibly sourced.

As standard industry best-practice, all insulation on the site will have an Ozone Depletion Potential (ODP) of zero, and a GWP of <5, further minimising the Proposed Development's effect on global Climate Change.

4.6.4 Water

Southeast England has been declared an area of 'serious water stress' by the Environment Agency[9]. Water is a vital resource and also has an associated CO_2e footprint with $0.344kgCO_2e/m^3$, arising for mains water and efficient usage should be encouraged in all new buildings. The Proposed Development aims to reduce mains water use through a combination of efficiency measures, including the use of fittings with a low capacity or flow restrictors.

London relies on water from the rivers Thames and Lee for most of its water with the remaining from groundwater underneath London[10]. However, being the most densely populated part of the country with the population only growing and water consumption above the natural average, London's water supply is at risk of water shortages, particularly during periods of drought. With the increasingly frequent dry summers and heatwaves, the Environmental Agency has warned that within just 25 years, the southeast of England could run out of water[11].

Internal water use will be reduced in line with BREEAM NC V6 WAT 01 to reduce water usage by 40% and incidences of water stress at times of peak demand, and/or minimal supply.

The specification outlined below sets out the maximum flow rates that can be fitted to individual components to meet these requirements:

- WCs: 3.75 litres effective flush volume

[9] https://www.gov.uk/government/publications/water-stressed-areas-2021-classification

[10] https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/climate-change/climate-adaptation/water-resources

[11] BBC News, Climate change: Water shortages in England 'within 25 years', March 2019

- Wash-hand basin taps: 5 litres/minute
- Kitchenette taps: 6 litres/minute
- Showers: 6 litres/minute
- Urinal (1 urinal only): 2 litres/bowl/hour
- Waste disposal unit: 0 litres/minute
- Dishwasher: 1.25 l/place setting

4.7 Sustainability Conclusions

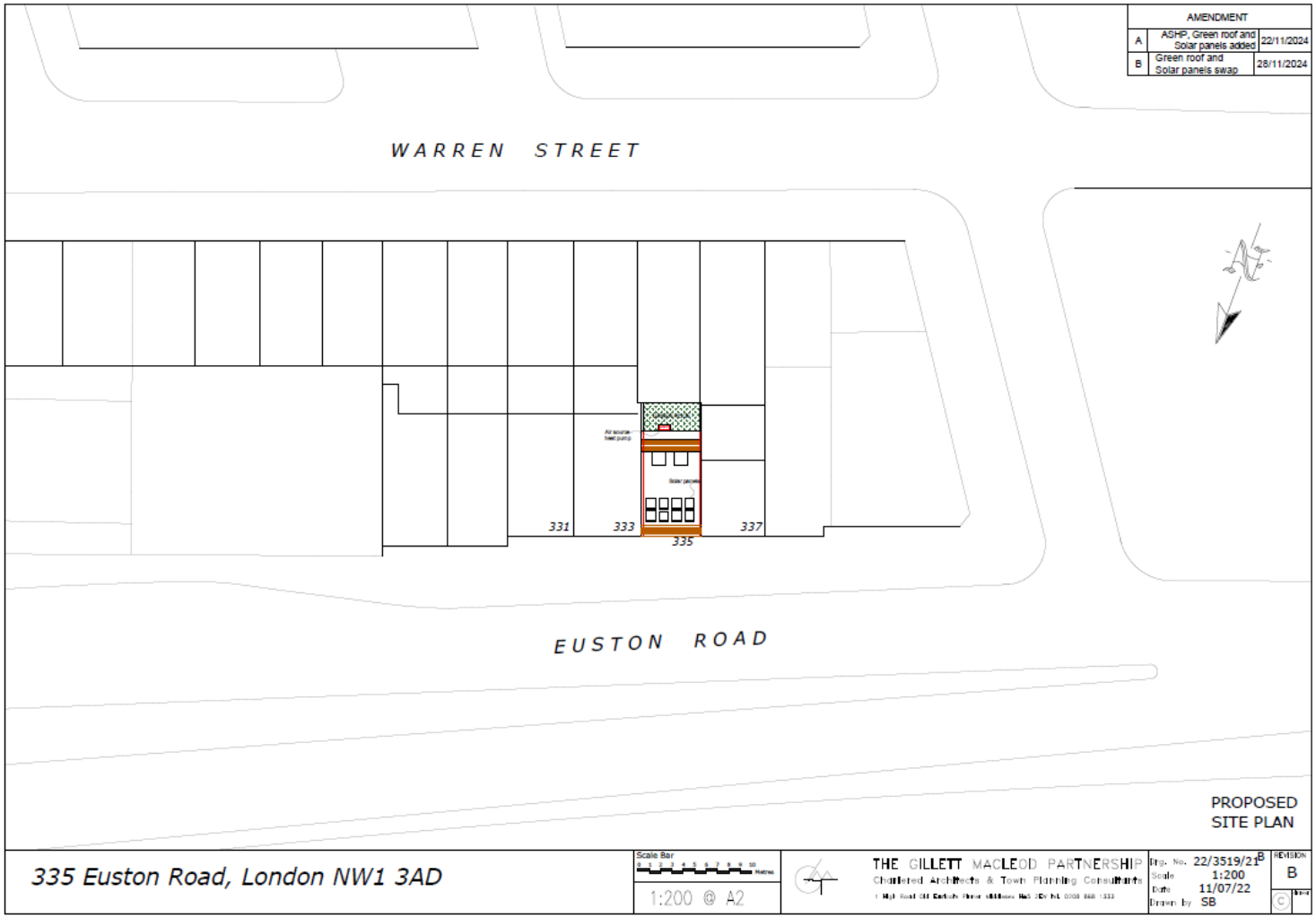
Through a considered approach to sustainability in the early design stages, the Proposed Development will reduce its impact on the environment at both construction and operational stages and will provide a sustainable medical facility that responds positively to its surroundings, and local and regional policy.

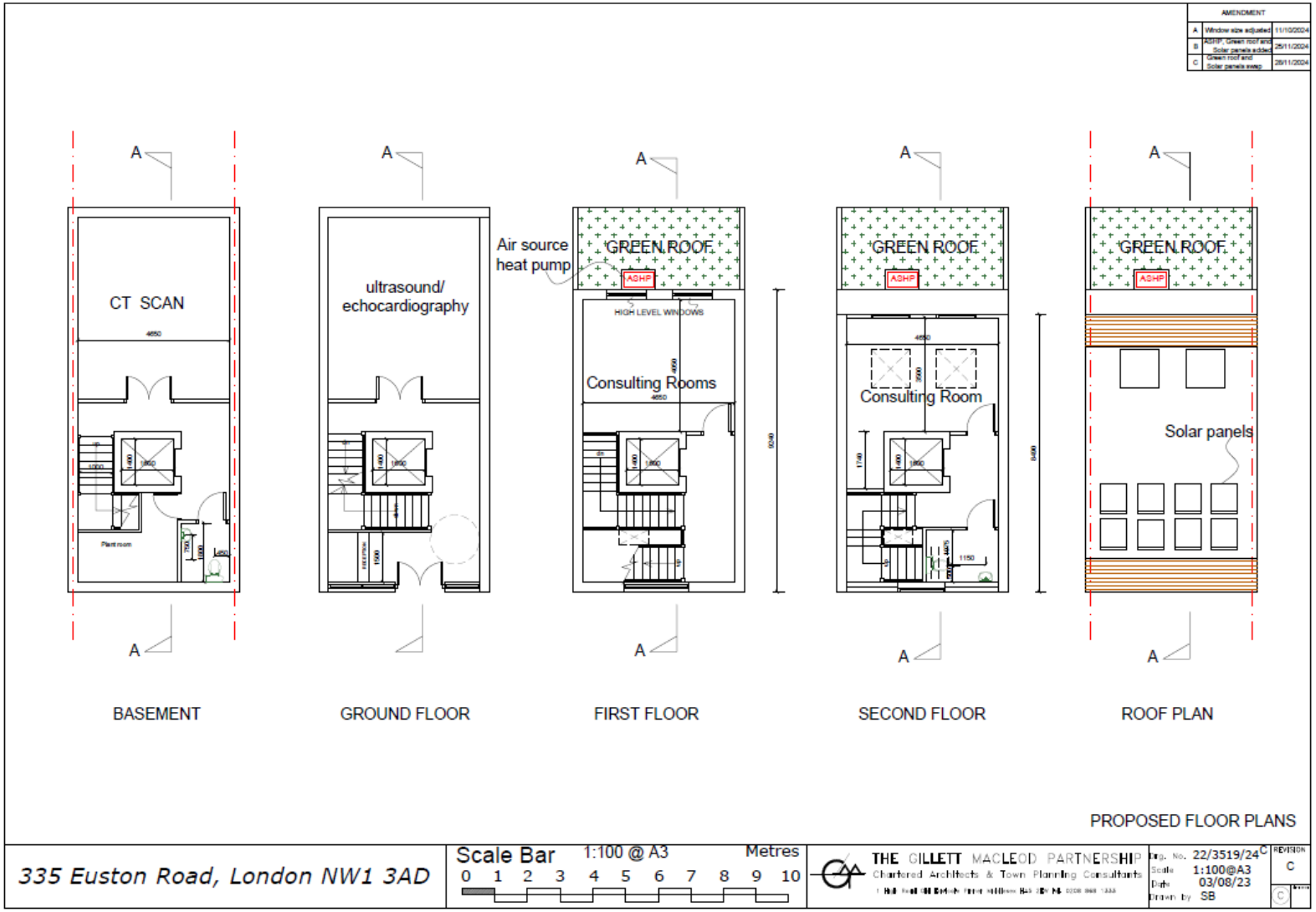
The net result of the sustainability measures implemented will aim to meet and exceed the targets set out by planning policy through the following:

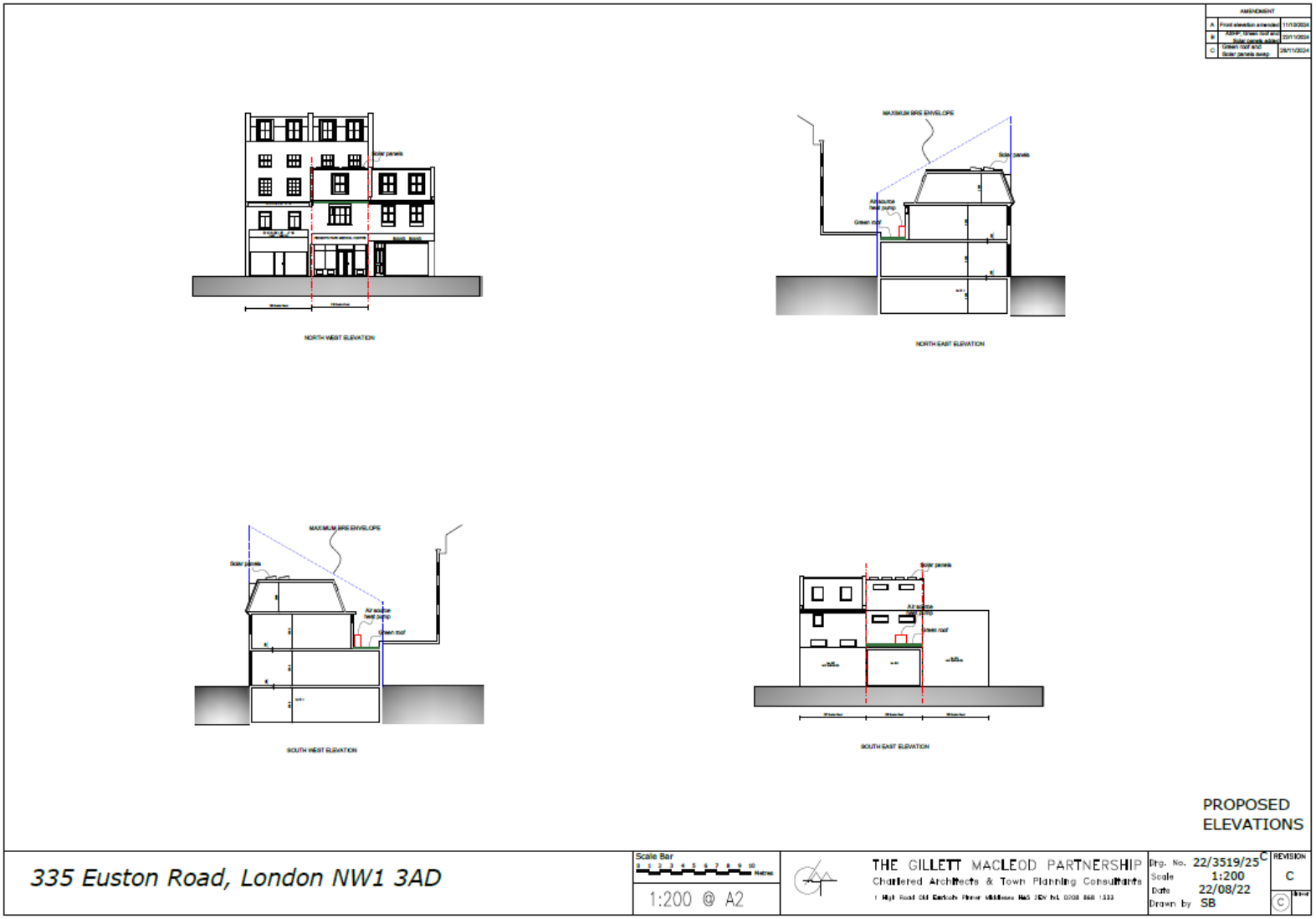
- Air pollution contributions will be negligible on-site and minimised on a national scale through the use of an ASHP for space heating and electric point-of-use DHW.
- Noise pollution reduction measures will be considered by minimising air infiltration and enhanced fabric.
- Flooding is considered to be a low risk for the site. SuDS will be implemented if required based on site conditions determined through later design stages.
- The Proposed Development will enhance the biodiversity of the area if possible.
- Waste management will be ensured following the waste hierarchy in accordance with local policy.
- Implementation of sustainable construction techniques and materials, inclusive design, site management and procurement procedures in accordance with local policy.
- Internal water use will be controlled in alignment with Part G requirements.

Appendices

Appendix A – Site Plan, Floor Plan, Sections and Elevations




AMENDMENT
A Window size adjusted 11/10/2024
B ASHP, Green roof and Solar panels added 25/11/2024
C Green roof and Solar panels swap 25/11/2024
A
CT SCAN
4650
Plant room
A
ultrasound/ echocardiography
A
Air source heat pump
GREEN ROOF
ASHP
HIGH LEVEL WINDOWS
Consulting Rooms
4650
9240
A
GREEN ROOF
ASHP
Consulting Room
4650
1150
9400
A
GREEN ROOF
ASHP
Solar panels
A
BASEMENT
GROUND FLOOR
FIRST FLOOR
SECOND FLOOR
ROOF PLAN
PROPOSED FLOOR PLANS
335 Euston Road, London NW1 3AD
Scale Bar 1:100 @ A3 Metres
0 1 2 3 4 5 6 7 8 9 10
THE GILLETT MACLEOD PARTNERSHIP
Chartered Architects & Town Planning Consultants
Dwg. No. 22/3519/24 C
Scale 1:100@A3
Date 03/08/23
Drawn by SB
REVISION C


AMENDMENT
A Front elevation amended 11/12/2024
B ASHP, Green roof and Solar panels added 20/11/2024
C Green roof and Solar panels design 28/11/2024
Solar panels
NORTH WEST ELEVATION
MAXIMUM BRE ENVELOPE
Air source heat pump
Green roof
NORTH EAST ELEVATION
SOUTH WEST ELEVATION
SOUTH EAST ELEVATION
PROPOSED ELEVATIONS
335 Euston Road, London NW1 3AD
Scale Bar
1:200 @ A2
THE GILLETT MACLEOD PARTNERSHIP
Chartered Architects & Town Planning Consultants
Prg. No. 22/3519/25 C
Scale 1:200
Date 22/08/22
Drawn by SB
REVISION C

Appendix B – SBEM Summary Specification Sheet

Regents Park Medical Centre, Euston Road, London

SRE

Building Regulations 2021										
Building Type	**Address**				**As-Designed/ As-Built Drawings**	**SBEM Level**	**Weather File**	**BER $kgCO_2/m^2.annum$**	**TER $kgCO_2/m^2.annum$**	**BER/TER Improvement (%)**
C2 : Hospital (Hospital)	Regents Park Medical Centre, Euston Road, London, NW1 3AD				As-Designed	5	London TRY	3.11	6.21	49.92%
Construction Element	**U-Value**	**U-Value (Part L Limiting)**	**Description (Outside to inside)**							
Basement/Ground floor	0.14	0.18	Pile foundation (U - value and construction details are indicative only; to be confirmed during detailed stage)							
External wall	0.18	0.26	100mm external skin, 10mm cavity, 90mm EcoTherm Eco-cavity Insulation, 100mm Lightweight internal skin (U - value and construction details are indicative only; to be confirmed during detailed stage)							
Internal Partitions	0.82	–	Stud Wall (TBC)							
Internal Floors	0.57	–	200mm Timber joists (U - value and construction details are indicative only; to be confirmed during detailed stage)							
Roof (Flat roof)	0.14	0.18	150mm timber joist, 100mm insulation, single ply membrane covering (U - value and construction details are indicative only; to be confirmed during detailed stage)							
Roof (Green roof)	0.10	0.18	Green Roof System, Waterproofing, Vapour Control Layer, 18mm Plywood , 200mm PIR Insulation (0.022 W/mK), 200mm Timber Joists, 12.5mm Plasterboard (U - value and construction details are indicative only; to be confirmed during detailed stage)							
Roof (Pitched roof)	0.14	0.16	150mm timber joist, 100mm insulation, single ply membrane covering (U - value and construction details are indicative only; to be confirmed during detailed stage)							
Construction Element	**U-Value**	**U-Value (Part L Limiting)**	**G Value**	**Frame Factor**	**Description (manufacturer, make and model)**					
Windows and Glazed doors	1.20	1.60	0.40	10%	Double glazed , whole window U-Value					
Skylights	1.20	2.20	0.40	10%	Double glazed , whole window U-Value					
Construction Notes	**Description (manufacturer, make and model)**									
Air permeability	5 $m^3/hr/m^2$				Targeted					
Heating and Cooling	**System Details**				**Emitter**		**Controls**			
Heating System 1	Air Source Heat Pumps (SCOP 4.8) For Space Heating Only (To all spaces except plant room)				Ceiling Cassettes		Central time control, Local temperature control			
Hot Water (Same as Space Heating)	**System Details**		**Location**	**Secondary Circulation**	**Circulation Losses (W/m)**	**Pump Power (kW)**	**Loop Length (m)**	**Storage Tank (l)**	**Storage Losses (kWh/Lday)**	**Delivery Efficiency (%)**
Hot Water System 1	Electric Standalone Hot water system		WCs	N	n/a	N	N	n/a	n/a	100
Ventilation	**System Details**		**SFP (W/l/s)**		**Leakage tested ductwork CEN Classification**	**AHU CEN leakage standards class**	**Heat Recovery**	**Heat Recovery Efficiency (%)**	**Heat Recovery Type**	**Variable HR**
Mechanical Ventilation with Heat Recovery (MVHR)	MVHR with CO2 sensors (To all spaces except plant room)		0.90		–	–	Y	75	–	N
Electrical Flow Control	**Description**									
Power Correction Factor	N	<0.90								
Separate Metering	N	n/a								
Renewables	**Description**									
PV	10.2 m^2 southeast facing PV panels at 10 degree inclination from horizontal, 147 degree azimuth and a nominal efficiency of 21%									
Solar Water Heating	N									
Wind Turbine	N									
Lighting	**Description (As per the lighting layouts in the maintenance manual and site visit data)**									
Lighting	LED lighting (125lm/W, LOR 1)									
Lighting Controls	Passive Infrared (PIR) sensors to all spaces (Automatic ON and OFF) Daylight sensors in all spaces with windows									
Parasitic Power	0.1 W/m2 assumed for stand alone PIR sensors. 0.1 W/m2 assumed for the combination of Daylight and PIR sensors.									
Sign Off of details	**Name**	Alisha Pinheiro / Meenadevi Kathaliyil	**Date**	05.12.2024	**By signing this document, I declare that the aforementioned details are all correct as per the final "as designed" specifications:**	**Name**		**Date**		
						Sign				

Appendix C – BRUKL Report

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Regents Park Medical Centre — As designed

Date: Thu Dec 05 16:26:32 2024

Administrative information

Building Details

Address: 335 Euston Road, London, NW1 3AD

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.26

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.26

BRUKL compliance module version: v6.1.e.1

Certifier details

Name: Alisha Pinheiro

Telephone number: 01730710044

Address: 3 London Square, Cross Lanes, Guildford, GU1 1UJ

Foundation area [m²]: 41.27

The CO_2 emission and primary energy rates of the building must not exceed the targets

Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	6.21	
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	3.11	
Target primary energy rate (TPER), $kWh_{PE}/m^2.annum$	67.48	
Building primary energy rate (BPER), $kWh_{PE}/m^2.annum$	32.77	
Do the building's emission and primary energy rates exceed the targets?	BER =< TER	BPER =< TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls*	0.26	0.18	0.18	11000000:Surf[1]
Floors	0.18	0.14	0.14	00000000:Surf[0]
Pitched roofs	0.16	0.14	0.14	15000000:Surf[4]
Flat roofs	0.18	0.13	0.14	12000000:Surf[3]
Windows** and roof windows	1.6	1.2	1.2	11000000:Surf[0]
Rooflights***	2.2	1.26	1.3	15000000:Surf[3]
Personnel doors^	1.6	-	-	No personnel doors in building
Vehicle access & similar large doors	1.3	-	-	No vehicle access doors in building
High usage entrance doors	3	-	-	No high usage entrance doors in building

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [$W/(m^2K)$] $U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [$W/(m^2K)$]

$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [$W/(m^2K)$]

* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

** Display windows and similar glazing are excluded from the U-value check. *** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m^2K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
$m^3/(h.m^2)$ at 50 Pa	8	5

Page 1 of 5

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- 2b. ASHP - MVHR

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4.8	-	0.2	0.9	0.75
Standard value	2.5*	N/A	N/A	1.9^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.

^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

1- 4. Instantaneous Hot Water System

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	-
Standard value	1	N/A

"No zones in project where local mechanical ventilation, exhaust, or terminal unit is applicable"

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
Stair	125	-	-
CT Scan	125	-	-
Stair	125	-	-
Consulting Room	125	-	-
Circulation	125	-	-
WC	125	-	-
Consulting Room	125	-	-
Stair	125	-	-
Circulation	125	-	-
Circulation	125	-	-
Plant room	125	-	-
WC	125	-	-
Consulting Room	125	-	-
Circulation	125	-	-
Stair	125	-	-
Reception	125	125	1.08

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
CT Scan	N/A	N/A
Consulting Room	NO (-93.3%)	NO
Consulting Room	NO (-39%)	NO
Consulting Room	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
Reception	YES (+56.5%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m²]	171.3	171.3
External area [m²]	293.7	293.7
Weather	LON	LON
Infiltration [m³/hm²@ 50Pa]	5	3
Average conductance [W/K]	73.47	81.33
Average U-value [W/m²K]	0.25	0.28
Alpha value* [%]	25.23	10

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
	Offices and Workshop Businesses
	General Industrial and Special Industrial Groups
	Storage or Distribution
	Hotels
100	**Residential Institutions: Hospitals and Care Homes**
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
	Others: Miscellaneous 24hr Activities
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m²]

	Actual	Notional
Heating	0.83	0.79
Cooling	0	0
Auxiliary	14.82	23.24
Lighting	12.91	18.42
Hot water	3.4	3.23
Equipment*	197.66	197.66
TOTAL**	**31.96**	**45.67**

* Energy used by equipment does not count towards the total for consumption or calculating emissions.
** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m²]

	Actual	Notional
Photovoltaic systems	10.73	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*10.73*	*0*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m²]	11.93	7.86
Primary energy [kWh_{PE}/m²]	32.77	67.48
Total emissions [kg/m²]	3.11	6.21

HVAC Systems Performance										
System Type		Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Central heating using air distribution, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	12.4	0	0.9	0	15.4	3.97	0	4.8	0
	Notional	8.2	0	0.8	0	24.1	2.78	0	---	---
[ST] No Heating or Cooling										
	Actual	0	0	0	0	0	0	0	0	0
	Notional	0	0	0	0	0	0	0	---	---

Key to terms

Heat dem [MJ/m2]	- Heating energy demand
Cool dem [MJ/m2]	- Cooling energy demand
Heat con [kWh/m2]	- Heating energy consumption
Cool con [kWh/m2]	- Cooling energy consumption
Aux con [kWh/m2]	- Auxiliary energy consumption
Heat SSEFF	- Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER	- Cooling system seasonal energy efficiency ratio
Heat gen SSEFF	- Heating generator seasonal efficiency
Cool gen SSEER	- Cooling generator seasonal energy efficiency ratio
ST	- System type
HS	- Heat source
HFT	- Heating fuel type
CFT	- Cooling fuel type

SRE Registered Office | London Square
3 London Square | Guildford
Cross Lanes | Guildford | GU1 1UJ
01730 710044
info@sre.co.uk
www.sre.co.uk