Oakley Gardens, 188 Wilmslow Road, Manchester, M14 6LJ

Environmental Standards Statement

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PREPARED FOR

GREYSLOW LIMITED



Environmental Standards Statement

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Executive Summary

This Environmental Standards Statement has been prepared by CIVIC MEP on behalf of Greyslow Limited (hereafter referred to as 'The Applicant') to support a planning application for the residential development at Oakley Gardens, 188 Wilmslow Road, Manchester, M14 6LJ hereafter referred to as 'the site'.

The statement specifically addresses policies from The National Planning Policy Framework (NPPF) 2026, in addition to policies set out in The Planning & Energy Act (2008), Building Regulations Part L (2022), The Future Homes Standard Trajectory (2025) as well as all application regional and local policies for Greater Manchester/ Manchester. Relevant policies will be outlined in section 2.

The statement details how the development will incorporate sustainable design and resource efficiency in line with the Energy Hierarchy, to meet the policy requirements and council targets whilst reducing its overall environmental impact.

In relation to the planning documents and policies outlined above, the development achieves a **27.3%** reduction in primary energy demand over the Part L 2022 Building Regulations baseline, solely through the implementation of renewable and low/zero carbon technologies. Whilst achieving a **57.6%** reduction in residual CO_2 emissions over the Part L Building Regulations baseline.

To achieve this compliance, the development has been designed with a holistic low energy design concept involving a fabric first approach. The U-values, design air permeability and ventilation targets all aspire to achieve and exceed Part L 2022 standards along with the consideration and application of low zero carbon renewable technologies.

Following the LZC feasibility assessment, it is in the aspirations of the applicant that the site will not include any gas, instead utilise ASHPHW systems for water heating as a renewable source of energy.

This statement also examines how the design, specification and characteristics of the proposal will contribute to sustainability and meet the relevant objectives outlined within the relevant policies. The sustainability measures assessed included:

- Flood Risk Zone
- Biodiversity / Ecology
- Internal Water Efficiency
- Waste Management
- Materials
- Pollution Control
- Health and Wellbeing

The development therefore complies with all Greater Manchester's current and future policy requirements relating to creating a sustainable development.

In relation to the planning target centred around carbon emission reduction, the proposed development is achieving a

- **57.6% reduction over the residual carbon emissions**

This surpasses all National, Regional and Manchester's Council planning targets and therefore allows compliance to be reached.

Summary of Energy and Sustainability Elements:

Below summarises the energy and sustainable measures included in the development.

Operational energy and carbon

- The development is designed to be highly energy-efficient, using a fabric-first approach with insulation, airtightness and glazing standards that exceed Building Regulations Part L requirements.
- The scheme is fully electric with no gas, supporting Manchester's ambition to phase out fossil fuels and transition towards a zero-carbon future.
- Air Source Heat Pump hot-water systems are provided to all homes, delivering efficient, low-carbon domestic hot water, while space heating is provided by electric panel heaters in line with the fully electric, no-gas design strategy.
- The design includes provisions for on-site renewable energy that in return reduces energy demand and support low carbon emissions.
- The proposals follow the Energy Hierarchy: first reducing energy demand through high-performance building design, then meeting demand efficiently, and finally incorporating low-carbon and renewable energy technologies.
- The overall strategy ensures the development delivers a highly energy-efficient, low-carbon scheme with significantly reduced energy demand and substantial reductions in operational carbon emissions.

Transport

- The site is well connected to public transport links and local amenities, and active travel will be encouraged through high quality public realm design, traffic calming measures, and appropriate levels of cycle parking provision.
- Sufficient car parking and EV charging points are to be provided for disabled users, without encouraging over car use.

Climate change Adaptation

- In line with Manchester Core Policy EN8 "Adaptation to Climate Change", a climate change resilience assessment has been undertaken, and careful consideration has been given to ensuring climate change mitigation and adaptation measures are embedded within the scheme.

Materials and waste:

- Further sustainable material selection will be informed through reviews of Environment Product Declarations (EPDs) prior to specification.
- It is anticipated that low carbon and sustainable materials will be considered further in the design process, where the use of materials with EPDs will help drive the specifications.
- The Principal Contractor will be encouraged to minimise waste on site and recycle as much as possible. A construction environmental management plan will be developed by the Principal Contractor to address wider issues surrounding materials and waste.

Biodiversity:

- Tree planting, native shrub planting and biodiverse grassland will be incorporated into the landscaping design wherever feasible.

Energy efficient design measures

- Ground floor U-values of 0.12 W/m²K
- External Wall U-values of 0.18 W/m²K
- External Sloped Roof U-values of 0.16 W/m²K
- Triple Glazed Window U-values of 0.8 W/m²K
- Solid Frame Door U-values of 0.8 W/m²K
- 100% low energy lighting throughout
- 100 Efficient Electric Panel Heaters to each house
- 200L Dimplex Edel ASHP HW unit to each house for hot water
- dMEV system using Greenwood Unity CV3 decentralized mechanical extract ventilation system
- Assumed Air Permeability Rate of 3m³/hm² in all flats

1. Introduction

The following Energy Statement has been prepared by CIVIC MEP on behalf of Greyslow Limited to support a planning application for the residential development at Oakley Gardens, 118 Wilmslow Road, Fallowfield, Greater Manchester.

1.1. The Site and Proposed Development

The proposed development site is located at Oakley Gardens, 188 Wilmslow Road, Manchester, M14 6LJ under the jurisdiction of Manchester City Council.

The site at **188 Wilmslow Road, Fallowfield, Manchester M14 6LJ** occupies a sustainable and accessible location along a key arterial route, with excellent access to public transport, including frequent bus services along Wilmslow Road. The site benefits from close proximity to a wide range of local services, community facilities, educational establishments, and areas of public open space, contributing to a well-established urban neighbourhood.

The surrounding context comprises predominantly residential development, together with community and institutional uses, reflecting the established character of the area. The site is generally level and represents an opportunity to deliver high-quality residential development that makes efficient use of previously developed land within an accessible location.

The proposal comprises a **residential-only development (Use Class C3)**. The scheme includes associated access arrangements, car parking, **dedicated cycle storage**, **refuse and recycling facilities**, landscaping, and other associated works. The development will provide a range of **houses and apartments delivering a total of 53 dwellings.**

The design adopts a coherent building form arranged around a central landscaped courtyard, creating a safe, attractive, and sociable environment for residents. Car parking is accommodated at ground floor level efficiently integrated to ensure a clear and well-managed site arrangement.

The development incorporates a high-performance building fabric, with enhanced insulation standards, decentralized mechanical extract ventilation (dMEV), and low-carbon technologies, including air source heat pump (ASHP) hot water systems, to reduce energy demand and minimise operational carbon emissions.

Overall, the proposal delivers a high-quality residential scheme that responds positively to its context, promotes sustainable modes of travel, and provides a well-designed living environment for future occupants.



Figure 1- Proposed Site Boundary Plan

2. Relevant Policies and Guidance

2.1. National Policies

2.1.1. Building Regulations Part L (2022)- Conservation of Fuel & Power

This national level regulation sets the mandatory minimum energy performance standards for all new buildings in England. The regulations establish Target Emissions Rates (TER) that developments must not exceed, calculated using the Building Emissions Rate Methodology. Key requirements include improved fabric performance standards with improved U-values for walls, roofs, floors and windows alongside higher system efficiency required for heating, cooling and lighting.

The 2022 update introduced a 31% reduction in carbon emissions compared to 2013 standards, with a focus on fabric first approaches and reduced thermal bridges. All major developments must demonstrate Part L, through SAP (residential).

The applicant aspires to achieve this reduction through the fabric-first design, enhanced insulation and air tightness, whilst installing efficient systems across the site.

2.1.2. National Planning Policy Framework (NPPF) 2026

The NPPF (August 2026) sets out the Government's planning policies for England and how these are expected to be applied. The overall emphasis of the NPPF is to reiterate the Government's key objectives, including securing sustainable development and to support the transition to a low-carbon future, in line with the UK's Statutory commitment to achieve net zero greenhouse emissions by 2050. The NPPF requires new development to minimise energy use, integrate low and zero-carbon technologies, and contribute to climate change mitigation and adaptation.

The applicant endeavours to utilise completely electric systems, mitigating the use of gas across the site.

2.1.3. Planning Practice Guidance (PPG)- Climate Change and Energy

The PPG sets out how planning can support climate change mitigation and adaptation. It allows local planning authorities to set energy standards above Building Regulations were justified and highlights the importance of both operational and embodied carbon. It covers renewable and low carbon measures, appropriate assessment methods, cumulative impacts and community benefits. For major schemes, it recommends following the 'Energy Hierarchy' to reduce demand, improve efficiency, and use renewable sources. It also addresses resilience, including overheating, flood risk and SuDS.

Consideration will be given throughout the design process to the energy hierarchy alongside overheating, flood risk, and SuDS.

2.1.4. Future Homes Standard (Implementation Pending)

The Future Homes Standard represents the next step in the building energy performance, targeting 75-80% reduction in carbon emissions compared to the current standards (anticipated 2025-26). This standard will mandate low carbon heating systems, effectively ending the installation of gas boilers in new homes. New homes will be designed to be 'zero carbon ready', meaning they can achieve net zero emissions through renewable electricity supply once the grid is fully decarbonised. Developers are expected to prepare for these enhancements through design strategies that can accommodate future upgrades.

The development aligns by excluding gas throughout the development, future-proofing the site for zero carbon grid.

2.2. National Climate and Energy Policy

National climate and energy policies provide the overarching framework for carbon reduction and energy transition across all sectors. These policies establish long-term targets and strategic direction that inform local implementation and ensure consistency with national decarbonisation objectives.

Policy	*Key Requirements / Details*	*How the Development Meets This Policy*
Climate Change Action 2008	*This legal framework states that Development must contribute to national net zero by 2050 target, support statutory carbon budgets, and demonstrate long-term carbon reduction trajectory.*	*The scheme adopts an all-electric design, removing reliance on fossil fuels and supporting the national Net Zero 2050 target. Use of a high-efficiency Air Source Heat Pump (ASHP HW unit) and a DMEV system with a low air test significantly reduces operational carbon emissions, demonstrating a clear long-term decarbonisation pathway.*
Net Zero Strategy 2021	*Requirements include building decarbonisation measures, renewable energy deployment, energy efficiency improvements, and transition to low carbon heating systems.*	*The design delivers enhanced fabric performance with low U-values that minimise energy demand by **27.3%.** The inclusion of ASHP HW and Greenwood Unit CV3 DMEV technologies provide low-carbon heating and ventilation, promoting renewable energy use and improving overall energy efficiency in line with policy requirements.* *Total savings on residual emissions is calculated at **57.6%.***

Table 1- National Climate and Energy Policies

2.3. Regional Level Policies- Greater Manchester Combined Authority (GMCA)

Regional policies for Greater Manchester provide an enhanced framework that builds upon national requirements to deliver the area's ambitious carbon neutral target by 2038. These policies coordinate action across the city-region and establish specific requirements for energy infrastructure, affordable housing, and local energy systems that go beyond national minimum standards.

Policy	Description	Key Requirements / Details	*How the Development Meets This Policy*
Greater Manchester 5 Year Environmental Plan	*Regional Environmental strategy and carbon targets*	*Development must contribute to carbon neutrality by 2030 and 50% reduction in emissions by 2030 through enhanced building energy efficiency and renewable energy deployment*	*All-electric development with ASHP HW units (hot water), Greenwood Unit CV3 dMEV units, and fabric (low U-values) reduces operational emissions. Combined measures deliver a **57.6%** reduction in operational carbon emissions relative to the baseline, supporting GMCA's decarbonisation targets.*
Greater Manchester Local Energy Market (GM LEM)	*Framework for local energy systems and trading*	*Development should support local energy generation, enable energy storage systems facilitate community energy projects, and integrate with smart energy networks.*	*The all-electric, high efficiency system is compatible with local energy markets and future smart grid/ storage integration. The scheme's measures reduce operational carbon by **57.6%,** lowering local network demand and improving suitability for LEM participation.*

Table 2- Greater Manchester Policies

2.4. Places for Everyone Joint Development Plan (Adopted March 2024)

Places for Everyone is a long-term plan of nine Greater Manchester districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) for jobs, new homes, and sustainable growth. It has been published by the GMCA on behalf of the nine districts.

The plan is a joint development plan of the nine districts which will determine the kind of development that takes place in their boroughs, maximising the use of brownfield land and urban spaces while protecting Green Belt land from the risk of unplanned development.

It will also ensure all new developments are sustainably integrated into Greater Manchester's transport network or supported by new infrastructure.

Policy	Description	Key Requirements / Details	*How the Development Meets This Policy*
JP-S 2: Carbon and Energy	*Strategic policy on carbon reduction and energy efficiency*	*All developments must be carbon neutral by 2038, exceeding Building Regulations energy performance standards, maximise renewable energy generation, connect to heat networks where viable, and demonstrate whole-life carbon assessment*	*The Oakley Gardens, development follows a fabric-first design approach to significantly reduce energy demand and operational carbon emissions. The building fabric achieves high insulation levels and airtightness, with optimised glazing to balance daylight and heat gains. Decentralized mechanical extract ventilation(dMEV) is included to minimise heat loss while ensuring good indoor air quality.* *Heating and hot water will be provided through efficient, low-carbon systems, supporting the transition away from traditional gas-based solutions.* *Collectively, these measures demonstrate compliance with JP-S2's requirement for energy-efficient, low-carbon development, while recognising that full zero-carbon delivery is currently constrained by viability considerations.* *The design, however, allows for future integration of renewable technologies such as photovoltaic panels, ensuring the development can move closer to Greater Manchester's 2038 net zero objective as technology costs continue to fall.*
JP-S 3: Heat and Energy Networks	*District heating and energy infrastructure policy*	*Development must connect to existing heat networks where available, enable future connection to planned networks, provide infrastructure for heat network development and support community heating schemes*	*The development supports the aims of JP-S3 by promoting low-carbon, energy-efficient heating infrastructure. Although the site is not currently within a designated heat network zone, and shown as 'potential heat network zone' the design will allow for future connection to a district or communal heat network should one become available in the future.* *In the meantime, heating and hot water will be delivered via efficient individual or centralised low-carbon systems, selected to minimise fossil-fuel dependency and maximise operational efficiency.* *This flexible approach ensures long-term compatibility with Manchester's emerging low-carbon heat network strategy and contributes to the transition to cleaner energy sources across the city region.*

JP-P-1: Sustainable Places	*Sustainable development policy*	*Requirements include integrating climate resilience measures, demonstrating sustainable design principles, supporting low carbon transport, and enhancing biodiversity and green infrastructure.*	*The Oakley Gardens scheme demonstrates best practice in sustainable design and construction, delivering high-performance homes in a walkable, transit-rich location.* *The proposal aligns with Manchester's Garden City heritage through green frontages, communal landscaping, and durable materials that support long-term environmental quality.* *Energy efficiency is achieved through enhanced building fabric, dMEV, and responsible material selection to reduce embodied carbon.* *Construction methods will prioritise durability and reduced waste, while operational efficiency will exceed Building Regulations requirements. EV charging points are being incorporated furthering the alignment with sustainable transport.* *Collectively, these measures ensure the development meets the intent of JP-P-1 by promoting energy-efficient, low-carbon, and sustainable construction practices.*

Table 3 – Places for Everyone Policies

2.5. Local Level Policies- Manchester City Council

Local policies from Manchester City Council provide the most detailed and site-specific requirements for energy sustainability in residential development. These policies reflect Manchester's position as a climate leadership city and establish enhanced performance standards that support the delivery of the city's zero carbon ambitions by 2038.

Policy	Description	Key Requirements / Details	*How the Development Meets This Policy*
Core Strategy Policy DM 1: Development Management	*Outlines several development principles, developments should adhere to*	*Stipulates that all new development should have regard for several development principles relevant to sustainability, including waste management, designing for health, flood risk, green infrastructure, biodiversity. Additionally, subject to scheme viability, developers will be required to demonstrate that new non-domestic development will achieve a BREEAM Rating of 'Very Good' or for domestic development to achieve the Code for Sustainable Homes standard.*	*The scheme achieves high standards of design, energy efficiency, and sustainability, with a strong emphasis on residential quality and environmental performance. The proposal optimises land use within greater Manchester, promotes accessibility to public transport, and provides a safe, attractive living environment consistent with DM1 principles.*
Core Strategy Policy EN 4: Reducing CO_2 Emissions	*Strategic policy for carbon reductions in development*	*Reducing CO2 Emissions: This policy targets the reducing of CO2 emissions through the following of the energy hierarchy; firstly reducing the need for energy through efficient design measures, followed by clean energy and lastly, the application of renewable or LZC technologies. In addition to this point, MCC state within this policy all new development is required to use building materials that have low embodied carbon.*	*The development reduces carbon emissions through a fabric-first approach, incorporating high levels of insulation, airtight construction, decentralised mechanical extract ventilation (dMEV) and efficient low-carbon heating systems. The scheme also recognises the importance of reducing embodied carbon. Further sustainable material selection will be informed through reviews of Environmental Product Declarations (EPDs) prior to specification, as set out within the Materials and Waste strategy (Section 6.1.3). Where possible, materials with verified low embodied carbon credentials will be prioritised, including responsibly sourced products such as FSC-certified timber. Collectively, these measures minimise energy demand, reduce both operational and embodied carbon impacts, and support Manchester City Council's objectives for low-carbon development.*
Core Strategy Policy EN 6: Target Framework for CO_2 reductions	*Specific targets and implementation framework*	*Developments must achieve 31% reduction in CO2 from baseline standards, support progressive targets towards zero carbon, contribute to city-wide carbon budget, and include monitoring and reporting of energy performance.*	*The proposal contributes to Manchester's CO_2 reduction targets by adopting efficient building fabric, optimised thermal performance, and modern heating technology. The SAP results confirm that the dwellings achieve a substantial reduction in regulated emissions relative to Part L 2021 standards, supporting EN6*

			*objectives. This leads to minimisation of energy demand by **27.3%,** and **57.6%** reduction in CO2 emissions.*
Core Strategy EN8: Adaptation to Climate Change	*Ensuring the development is adaptable*	*Developments must ensure resilience to overheating, water stress and energy supply risks.*	*The design integrates landscaped courtyards, and shaded façades to mitigate overheating and enhance thermal comfort. Sustainable drainage features and robust material selection further improve the building's resilience to future climate conditions and support urban cooling.*
Core Strategy Policy EN9-Green Infrastructure	*Incorporating Green Infrastructure into developments*	*Requires new developments to maintain existing green infrastructure whilst using every opportunity, in accordance with current Green Infrastructure Strategies, to enhance the quality and quantity of green infrastructure, improve the performance of its functions and create and improve linkages to and between area of green infrastructure.*	*The scheme enhances local green infrastructure through the inclusion of courtyard planting, and biodiverse areas. These elements improve ecological connectivity, promote wellbeing, and align with Manchester's wider green network strategy.*
Core Strategy Policy EN14-Flood Risk	*Flood Risk*	*This policy expects all new developments to minimise surface water run-off through the use of SUDs and Green Infrastructure.*	*The site lies in a low flood risk zone (Flood Zone 1), and the design incorporates sustainable drainage measures to control surface water runoff. Permeable landscaping and roof drainage management ensure compliance with EN14 and national flood mitigation guidance.*
Core Strategy EN15-Biodiversity and Geological Enhancement	*Biodiversity*	*Developers will be expected to identify and implement reasonable opportunities to enhance, restore or create new biodiversity, either on or adjacent to the proposed site.*	*The development includes planted courtyards, and green frontage treatments that support local habitats and pollinators. Landscape design focuses on native species and long-term ecological enhancement consistent with EN15.*
Core Strategy Policy T 1	*Ensuring Sustainable Transport is available for developments*	*Policy aims to deliver sustainable, high quality, integrated transport systems to encourage a shift away from car travel to public transport, cycling and walking.*	*Located in Fallowfield, the site provides excellent access to public transport, including tram and bus services. The proposal includes secure cycle storage, promotes pedestrian connectivity, and reduces reliance on private vehicles, supporting sustainable mobility in line with T1.*

Table 4 – Manchester Core Strategies

2.6. Manchester Climate Change Framework 2020-25

Manchester's Climate Change Framework establishes the city commitment to carbon neutrality and provides specific targets and actions area that new development must support. This framework translates Greater Manchester's regional ambitions into local delivery mechanisms and accountability structures.

Policy	Description	Key Requirements / Details	*How the Development Meets This Policy*
Zero Carbon City 2038	*Manchester's commitment to carbon neutrality*	*All new development must support the zero-carbon target, demonstrate net positive energy contributions where possible, integrate with city-wide carbon monitoring systems, and support community energy initiatives.*	*The Oakley Gardens development directly supports Manchester's ambition to become a Zero Carbon City by 2038. The scheme achieves a **27.3%** reduction in primary energy demand relative to the Part L 2022 baseline and a **57.6%** reduction in residual CO_2 emissions compared with the Part L 2021 baseline, achieved through the use of low and zero carbon technologies and a high-performance building fabric. While full operational zero-carbon performance is not currently practicable within the scheme's financial and technical parameters, the design has been optimised to minimise energy use and carbon emissions and incorporates capacity for future renewable energy integration - such as photovoltaic panels and battery storage, as these measures become more commercially viable. Collectively, these measures demonstrate that the development significantly exceeds current regulatory standards, contributes meaningfully to Manchester's decarbonisation trajectory, and establishes a strong precedent for sustainable residential redevelopment.*
Carbon Budget Framework	*City-wide carbon accountability*	*Development must contribute appropriately to the city carbon budget of 15.9MtCO_2 remaining, include annual carbon reporting mechanisms, support science-based targets, and enable carbon offset strategies where necessary.*	*The development aligns with Manchester's emerging Carbon Budget Framework by achieving substantial reductions in both energy demand and operational CO_2 emissions relative to Building Regulation baselines. The achieved **27.3%** reduction in primary energy demand and **57.6%** reduction in CO_2 emissions ensure that the scheme performs well within the expected carbon intensity limits for new residential buildings. This proactive approach demonstrates compliance with the city's evolving carbon budgeting principles, ensuring the development contributes proportionately to Manchester's overall carbon budget while maintaining flexibility.*

Table 5 –Manchester Climate Change Framework

2.7. Manchester Affordable Housing and Net Zero Policies

This section addresses the specific policy requirements for affordable housing within the development, particularly the enhanced energy performance standards. These policies ensure that affordable housing residents benefit from low energy costs and high-quality, energy-efficient homes.

Policy	Description	Key Requirements / Details	*How the Development Meets This Policy*
Manchester Housing Strategy (Linked to Net Zero 2038)	*Manchester's approach to housing delivery aligned with carbon targets*	*All new housing should be aligned to support net zero by 2038 through enhanced sustainability standards for affordable housing, integration with city-wide carbon budget, and affordable housing exceeding minimum energy standards.*	*The Manchester Housing Strategy 2022–2032 and Net Zero 2038 ambition provide a strategic, non-statutory framework and do not impose a mandatory requirement on individual developments. The proposed development does not include affordable housing and is therefore not subject to the enhanced sustainability standards associated with affordable housing delivery within the strategy. Notwithstanding this, the scheme has been designed to align with the strategy's wider objectives, achieving a **27.3%** reduction in regulated primary energy demand and a **57.6%** reduction in regulated CO_2 emissions compared to Part L baseline.*

Table 6 – Manchester's Affordable Housing and Net Zero Policies

2.8. Policy Integration Statement

The development energy strategy ensures compliance with all applicable policies through a hierarchical approach:

1. **National Minimum Standards**- Full compliance with Building Regulations Part L and all statutory requirements
2. **Regional Enhancement:** Meeting and exceeding Places for Everyone carbon and energy policies
3. **Local Leadership**: Demonstrating exemplary performance against Manchester's zero carbon ambitions

2.8.1. Cross-Policy Synergies

The development recognises the interconnected nature of energy, carbon and sustainability policies, ensuring that compliance measures support multiple policy objectives simultaneously:

- **Energy efficiency measures** support both Building Regulations compliance and Manchester's carbon budget objectives.
- **Renewable energy systems** contribute to regional renewable energy targets and local energy market development
- **Heat Network readiness** aligns with Greater Manchester heat infrastructure strategy and local energy security
- **Smart energy integration** supports emerging national smart grid policies and local energy trading opportunities.

2.8.2. Observing and Adaptive Management

A robust framework ensures ongoing policy compliance and enables adaptive management as policies evolve:

- Integration with Greater Manchester energy monitoring systems
- Preparation for enhanced reporting requirements under emerging policies
- Flexibility for policy updates through adaptive design features

2.9. Summary of Policies and Benchmarks for The Development

The development has been assessed against national and local planning policies, as well as Building Regulations and Manchester's zero carbon targets. A summary can be seen below:

Policy/ Standard	Requirement	Compliant	*Evidence*
Part L 2021	*At least 31% CO_2 Reduction vs. Part L 2013*	*Y*	*Yes, achieves **57.6%** carbon reduction – refer appendix 1 for calculations*
Future Homes Standard (2025)	*Pathway to 75-80% CO_2 reduction vs 2013 baseline*	*Y*	*Yes, as carbon reductions are now assessed against the more stringent Part L 2022 baseline, which exceeds the requirements of the Part L 2013 regulations.*
Approved Document O (2022)	*Overheating mitigation demonstrated*	*Y*	*The development is not considered likely to overheat based on the free area study of window openings. A Part O TM59 assessment can be undertaken at a later stage to formally evidence compliance, if required.*
Water Efficiency	*Maximum 110 litres/person/day*	*Y*	*Yes, refer Section 6.1.3 below*
Core Strategy EN6	*Contributes to Manchester's 2038 net zero target*	*Y*	*Yes, as outlined above. This development complies by adopting efficient building fabric, optimised thermal performance, and modern heating technology.*
Core Strategy EN4	*On-site renewable/ low-carbon energy included*	*Y*	*Yes, installation of an ASHP HW unit demonstrates compliance*
Core Strategy EN8	*Climate resilience measures included (heating, water & energy)*	*Y*	*All were targeted in a feasibility assessment, and best strategies were incorporated.*
GMCA carbon target	*>19% CO_2 Reduction beyond Part L 2013*	*Y*	*The scheme achieves a **57.6% CO_2 reduction**, far exceeding the GMCA target.*
On-site Renewables	*10-15% energy demand met on-site*	*Y*	*The design allows for future integration of renewables to meet on-site energy targets. **Site shows 27.3% reduction** in energy usage, exceeding the 15% reduction in energy demand.*
Heating Systems	*No gas boilers- low-carbon heat specified.*	*Y*	*The development uses low-carbon heating with no gas boilers proposed.*

Table 7– Summary of Policies and Benchmarks for The Development

3. Sustainable Design Strategy

This section considers the requirements for the design with regards to energy and carbon emissions and the potential impacts from utilising renewable energy sources.

3.1. Energy Hierarchy

In response to the policy requirements and climate change plan targets set out in **Section 2**, developments should aim to assist and achieve the following carbon reduction targets:

- 15% renewable energy contribution
- 31% reduction over Part L 2013

To achieve the most accurate calculations and estimates, the development will need modelling using *SAP 10.2* the governments Standard Assessment Procedure for residential dwellings.

The energy hierarchy that should be adopted for the development to ensure that the correct approach to design is taken to promote an energy-efficient low carbon solution is as follows:

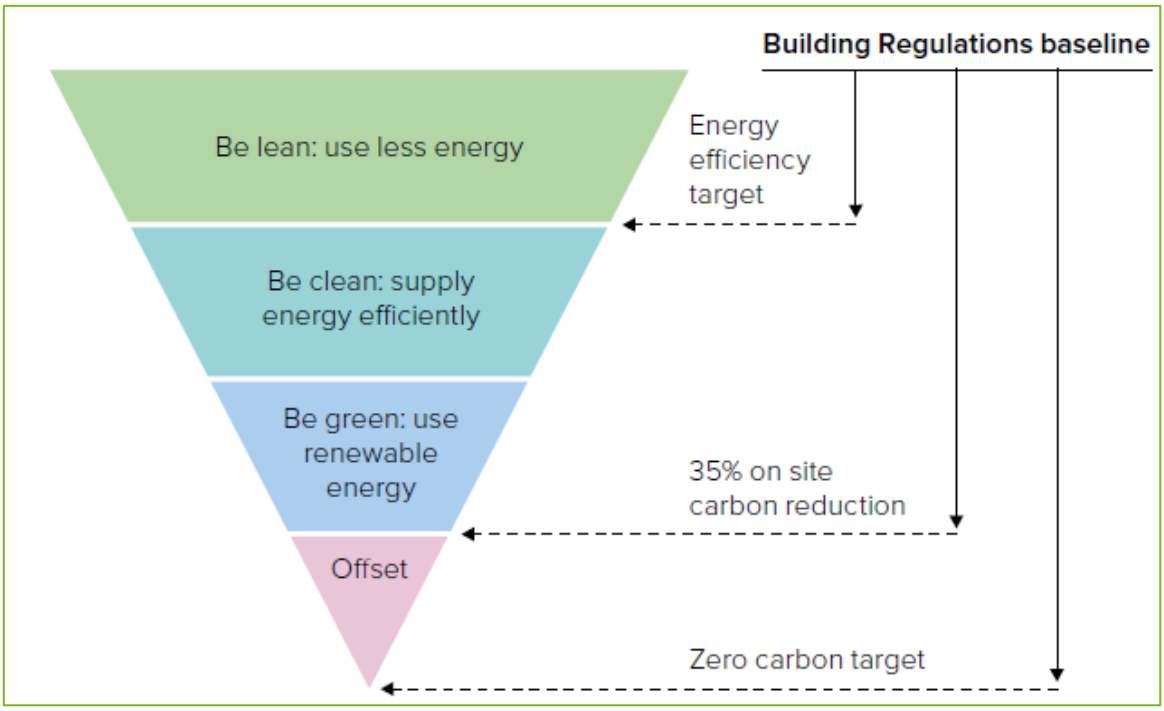


Figure 2- Energy Hierarchy

3.1.1. Be Lean- Minimise Energy Demand

The development will include the implementation of passive design measures and optimise the building envelope in terms of orientation, air tightness, and insulation.

The proposal is utilising the fabric first methodology; therefore, the properties will incorporate super-insulated envelopes, clever thermal bridging details to minimise loss through the envelope and reduce energy consumption.

For example, the proposal is targeting a low carbon classification through a holistic low energy design concept as it will be designed with a fabric first approach whereby very high standards are aspired to for all fabric U-values and air permeability targets, whilst consideration is also given to building orientations, solar shading devices and natural means of ventilation.

Fabric Element	*Proposed U Values*	*Part L 2021 Notional*	*Improvement (%)*
Walls	*0.18 W/m²K*	*0.18 W/m²K*	-
Roofs	*0.12 W/m²K*	*0.13 W/m²K*	***7.69%***
Windows	*0.8 W/m²K*	*1.4 W/m²K*	***42.86%***
Floors	*0.12 W/m²K*	*0.18 W/m²K*	***33.33%***
Air Permeability	*3 m³/m²/hr*	*5 m³/m²/hr*	***40%***

Table 8- Fabric Performance of Residential Properties.

3.1.2. Be Clean- Meeting Demand Efficiently

Specification of energy efficient decentralised plant, heating, ventilation, lighting, and system controls to facilitate efficient operation. Particular attention is being paid to the wellbeing of occupants. The ventilation strategy has been developed to minimise noise ingress from the proposed location as far as possible while minimising the risk of overheating.

The development will look to utilise air source heat pumps to the houses for hot water heating

The whole development will not incorporate any gas, in line with the policies outlined above.

3.1.3. Be Green- Use Renewable Energy

Opportunities for incorporating low and zero carbon technologies (LZCT) have been considered for this development. The viability of several separate technologies was examined in a LZCT study (see section 4).

The design, however, allows for future integration of renewable technologies such as photovoltaic panels, ensuring the development can move closer to Greater Manchester's 2038 net zero objective as technology costs continue to fall.

4. Low and Zero Carbon Technology Assessment

4.1.1. Solar Hot Water (Thermal)

Solar water heating systems are one of the more familiar renewable technologies used at the moment. They use the energy from the sun to heat water, most commonly for hot water needs. Solar heating systems use a heat collector that is usually mounted on a roof in which the sun heats a fluid. This fluid is used to heat water that is stored in either a separate hot water cylinder or in a twin-coil hot water cylinder (the second coil is used to provide additional heating from a boiler or other heat source).

Solar hot water panels could be used; however, ASHP HW will provide slightly better savings when compared.

Renewable Technology Not Chosen.

4.1.2. Photovoltaic Panels (PV)

Photovoltaic modules convert sunlight directly to DC electricity. The solar cells consist of a thin piece of semiconductor material, in most cases of silicon. Through a process called doping, very small amounts of impurities are added to the semiconductor, which creates two different layers called n-type and p-type layers.

Certain wavelengths of light are able to ionize the silicon atoms, which separates some of the positive charges (holes) from the negative charges (electrons). The holes move into the positive or p-layer and the electrons into the negative or n-layer. These opposite charges are attracted to each other, but most of them can only re-combine by the electrons passing through an external circuit, due to an internal potential energy barrier. This flow of electrons produces a DC current.

Renewable Technology Not Chosen.

4.1.3. Ground Source Heat Pumps (GSHP)

A heat pump is a device that takes up heat at a certain temperature and releases it at a higher temperature. The essential components of a heat pump are heat exchangers (through which energy is extracted and emitted) and a means of pumping heat between the exchangers. The effectiveness of the heat pump is measured by the ratio of the heating capacity to the effective power input, usually known as the coefficient of performance (COP). Ground-source heat pumps (GSHP) extract heat from the ground. They are classified as either water-to-air or water-to-water units depending on whether the heat distribution system in the building uses air or water. Ground source heat pumps either use long shallow trenches or deep vertical boreholes to take low grade heat from the ground and then compress it to create higher temperatures.

Ground source heat pumps have not been utilised at this stage, due to the considerable saving from other chosen renewables.

Renewable Technology Not Chosen

4.1.4. Air Source Heat Pumps (ASHP)

ASHPs absorb heat from the outside air to provide space heating and hot water, operating efficiently year-round and down to -20 °C. They supply hot water at around 55 °C without immersion heaters and work best with underfloor heating or larger radiators designed for low-temperature systems. Air Source Heat Pump Hot Water systems (ASHPHWs) operate on the same principle but are dedicated to domestic hot water. Operating efficiently year-round, they deliver water at around 55 °C without the need for immersion heaters, ensuring a reliable hot water supply for baths, showers, and daily household use. Compact and self-contained with an integrated cylinder, ASHPHW units are well suited to apartments or homes with limited space. They are typically installed in a ventilated cupboard, utility room, or plant area.

For this project, all **dwellings will be equipped with ASHPHW units for hot water only**.

Chosen Renewable Technology

4.1.5. Biomass Heating

Biomass is any plant-derived organic material that renews itself over a short period.

Biomass energy systems are based on either the direct or indirect combustion of fuels derived from those plant sources. The most common form of biomass is the direct combustion of wood in treated or untreated forms. The use of biomass is becoming increasingly common in some European countries.

The environmental benefits relate to the significantly lower amounts of energy used in biomass production and processing compared to the energy released when they are burnt. This can range from a four-fold return for biodiesel to an approximate 20-fold energy return for woody biomass. Biomass-fuels can be used to produce energy on a continuous basis (unlike renewables such as wind or solar energy) and it can be an economic alternative to fossil fuels as it is a potential source of both heat and electricity.

However, Biomass systems have particular design management and maintenance requirements associated with sourcing, transportation and storage and are therefore more commonly used in commercial developments rather than domestic installations. It can be less convenient to operate than mains-supplied fuels such as natural gas and are more management intensive and require expertise in facilities management. Sources of biomass can also fluctuate, so boilers should be specified to operate on a variety of fuels without risk of overheating or tripping out.

A communal biomass system would not be feasible for this development due to the expense associated with the necessary output to heat all dwellings on the site.

Renewable Technology Not Chosen

4.1.6. Wind

Wind turbines convert the kinetic energy in wind into mechanical energy that is then converted to electricity. Turbines are available in a range of sizes and designs and can either be free-standing, mounted on a building or integrated into a building structure.

The wind speed in the area is under the advised minimum, and the built-up area means that a wind turbine wouldn’t be feasible.

Renewable Technology Not Viable

4.1.7. District Heat Networks

District heating networks operate by distributing heat from a centralised energy source to multiple buildings through a network of insulated underground pipes. This approach can offer substantial carbon savings and efficiency benefits where there is sufficient heat density and connection potential to nearby developments. However, no existing or planned district heat network infrastructure currently extends to the area, and the Oakley Gardens development is a standalone residential block with limited adjacent high-demand buildings.

Establishing a new, dedicated network solely for this site would therefore be economically and technically unfeasible, with high capital costs and minimal carbon benefit relative to demand.

Consequently, the use of a district heating connection is not considered a viable renewable or low-carbon option for this development.

Renewable Technology Not Viable

5. Carbon Reductions Outcomes

5.1. Be Lean, Be Clean and Be Green

All reasonable technologies were investigated for their suitability to the site and development; please refer to section 3 for details.

In addition to energy efficiency measures, it is proposed that the development will feature the following Low/Zero carbon Technologies:

- ASHPHW to all dwellings

The above LZC contribution has provided an **27.3%** reduction in energy demand following Energy Efficiency Measures.

Energy Saving from onsite LZC Technologies = **61,776.49 kWh/Yr**

CO2 Saving from onsite LZC Technologies = **30,413.32 kgCO2/Yr**

5.1.1. Energy and CO_2 Reduction Summary

A summary of all stages of the energy demand assessment from baseline figures to final carbon reduction are shown in Tables 5 and 6 below:

Summary of CO2 Emission Reductions	Total CO2 emissions (kgCO2/year)
Carbon Factors (Gas / Electric)	**0.210 / 0.136**
Baseline emissions	**226,165.69**
Improved emissions (after incorporation of renewable energy technology) % CO2 displaced in total	**164,389.20**
% CO2 displaced in total	**57.6%**

Table 9 – Summary of Energy Demand Reductions

	Energy Demand (kWh pa)	Energy saving ac hieved (%)	Regulated CO_2 e missions (kg pa)	Saving achieved on residual CO_2 emissions (%)
Building Regulations Part L compliance ("Baseline" energy dema nd & emissions)	226,165.69		52,770.25	
Proposed scheme after ot her low and zero carbon technologies*	225,938.05	27.3%	22,356.93	**57.6%**
Total savings on residual emissions				**57.6%**

Table 10 – Total Energy and Carbon Emissions Savings Based on SAP 10.2 Carbon Factors

5.1.2. Breakdown of Energy Hierarchy Compliance

For a full Breakdown of the figures and calculations please see Appendix A – Energy Demand Assessment Spreadsheet.

Baseline Energy Demand

Standard Assessment Procedure - SAP 10.2 was used to produce example SAP reports to generate the figures used within the calculations.

Baseline energy demand (kWh pa)	**226,165.69**
Regulated emissions (kg pa)	**52,770.25**

Table11 – Baseline Energy demand and CO_2 Emissions

Be Clean and Be Green Stage

The following table demonstrates how the development achieves reduction in energy demand and carbon dioxide emissions through the implementation of any clean energy systems, such as heat pumps or communal heating. And the reduction in carbon dioxide emissions from LZC technologies.

Energy saving from the use of renewables (kWh)	**61,776.49**
Saving on emissions from the use of renewables (kg)	**30,413.32**
Saving on energy demand from the use of renewables (%)	**57.6%**

Table 12 – Table illustrating savings achieved at the Be Clean and Be Green Stage

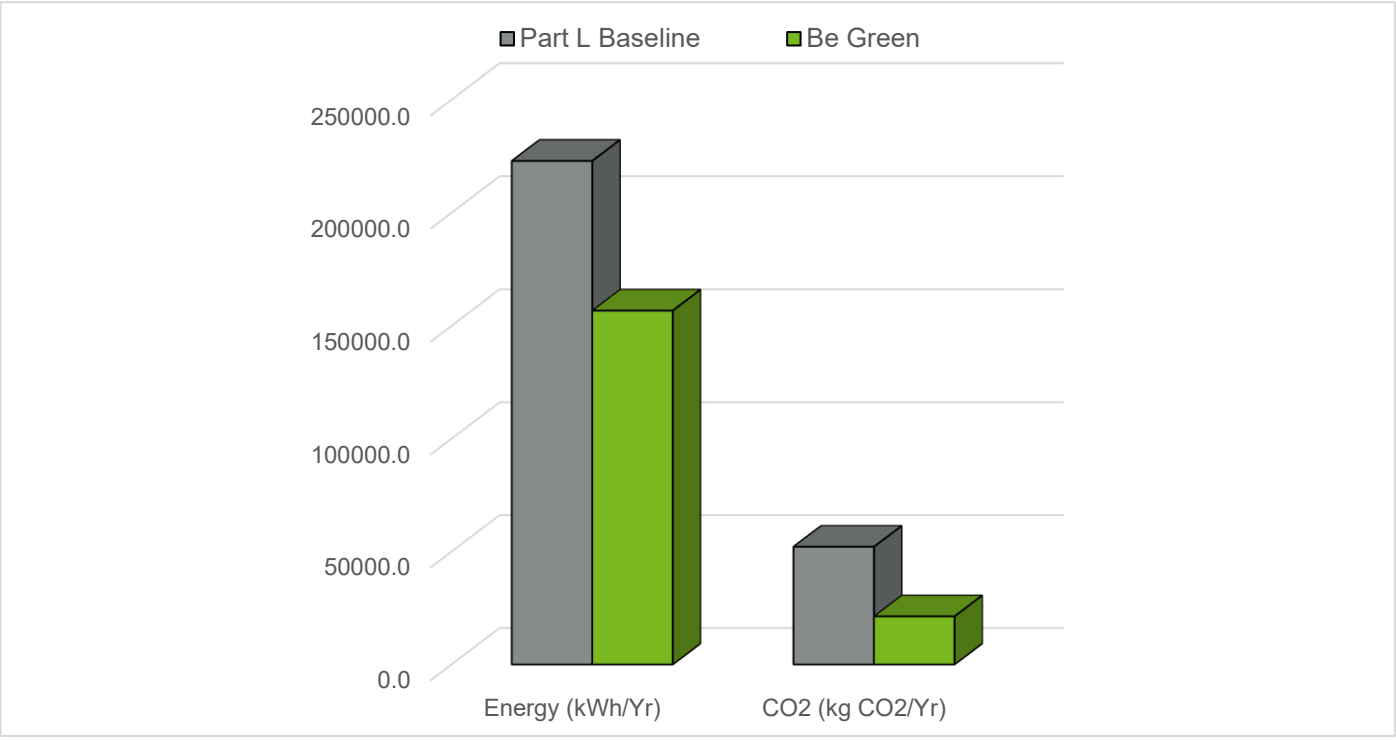


Figure 3 – Chart Illustrating the improvement of energy use and CO2 reduction over Part L Compliance

6. Other Sustainability Considerations

In addition to the primary building design and fabric, many other issues that will influence creating a Sustainable Development, including flood prevention, material use, waste minimisation and transport.

All the sections of creating a sustainable development should be taken into consideration from the start of the development and promoted throughout the building construction on site in order to maximise their benefits. Additionally, features which enable more efficient usage should also be specified to encourage the building users to maintain efficient use once construction has been completed.

6.1.1. Flood Risk

Flood risk is an increasing issue in the face of climate change. As communities, infrastructure, and ecosystems become more vulnerable, understanding and managing flood risk has become central to building climate resilience.

From a sustainability perspective, addressing flood risk requires a holistic approach that integrates environmental, social, and economic considerations. This includes enhancing urban drainage through green infrastructure and ensuring that vulnerable populations are not disproportionately affected. Moreover, long-term planning must account for projected climate scenarios and adopt a collaborative, forward-thinking strategy that reduces exposure and vulnerability, while promoting the health of ecosystems and the well-being of communities.

The site is located within **flood risk zone 1** and therefore is at the lowest possible risk of flooding.

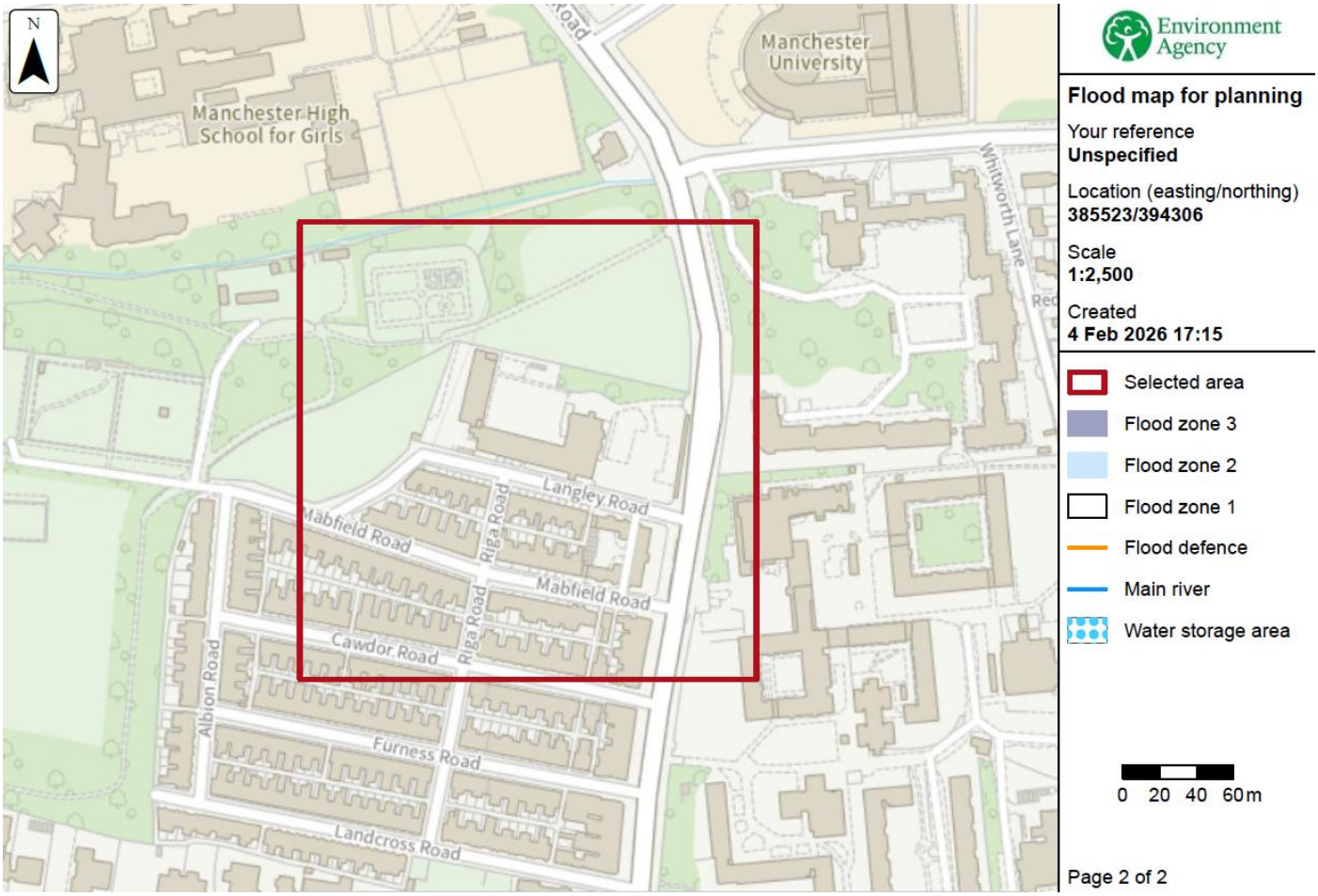


Figure 4 – Flood Risk Map

6.1.2. Internal Water Efficiency

Part G of the Building Regulations requires all new dwellings to have an internal water consumption of no greater than 125 litres per person per day (l/p/d). There is an optional stricter standard of 110 litres / person / day, unless specified to be less. Therefore, fittings proposed should have low flow rates, capacities, effective flush volumes etc. Example targets for these to achieve the required internal consumption are as follows:

Appliance	Unit of measure	Amount (litres)
WC (Dual flush)	Full flush volume	**4**
WC (Dual flush)	Part flush volume	**2.6**
Taps (excluding kitchen)	Flow rate l/min	**5**
Kitchen taps	Flow rate l/min	**6**
Bath	Capacity to Overflow	**170**
Shower	Flow rate l/min	**8**
Washing Machine	Litres / kg dry load	**8.17**
Dishwasher	Litres / place setting	**1.25**

Table 14 – Internal Water Efficiency Flow Rates

The above rates will achieve a total internal water consumption of 106.98.

The specifying of 'A' rated appliances will be prioritised where possible.

6.1.3. Materials

The construction of new buildings and building elements has a large environmental impact in terms of both, energy, and embodied carbon of new materials. Therefore, Manchester City Council or MCC promotes the prioritising of environmentally friendly materials, where possible, and encourages the use of recycled building materials. This information should also be incorporated into the SWMP as a means of promoting the re-using and recycling of materials.

Where new materials are to be used, careful consideration of their environmental impact should be taken. This can be achieved by ensuring that only materials that score well under The Green Guide to Specification. This useful online tool can be used as a reference that provides guidance on the relative environmental impacts for a wide range of different building specifications. The BRE's Environmental Profile Methodology determines the Life Cycle Assessment (LCA) of materials, which is what the Guide's specifications are based on.

In order to take full advantage of low impact materials, elements key to the scheme should be specified to achieve ratings of between A+ and C under The Green Guide's ratings. Insulation materials that are specified will also have a global warming potential (GWP) of 5 or less, with an ODP of 0.

To further promote embodied energy and carbon savings, the scheme will first prioritise the reusing of any demolished materials within the site, however if this is not possible secondary priority must be given to the redirecting from landfill, in line with the waste hierarchy.

Finally, in addition to the above policy points, the development is also recommended to register with the Considerate Constructors Scheme, or a similar approved scheme.

6.1.4. Pollution Control

To reduce emissions of gases with high global warming potential (GWP) and nitrogen oxide (NOx) into the atmosphere, new buildings will be specified with insulating materials that have a GWP of less than 5. This will follow throughout the development to reduce the impact that the construction phase has upon climate change.

Additionally, the following measures will be implemented:

- Pollution Prevention Guidance will be adhered to in respects of air (dust) and water (ground and surface) pollution during the demolition and construction phase.

- External light fittings will be controlled through a time switch, or daylight sensor, to prevent operation during daylight hours to limit the impact of artificial lighting for the development's residents and surrounding environment.

Sound insulation will be specified to achieve Building Regulation Part E compliance standard (this will be verified by pre-completion testing) in addition to meeting the requirements of the council. This will reduce the impact of sound pollution for the occupants within adjoining dwellings.

7. Conclusion

This statement has assessed the proposed development at the Oakley Gardens, 188 Wilmslow Road, Manchester, M14 6LJ against the relevant climate change and sustainability policies and targets, as outlined within Greater Manchester and Manchester Policies and Places for everyone joint development plan through the following of the energy hierarchy, the modelling of apartments in the SAP 10.2 software and addressing all aspects of a sustainable development. In addition, the proposal has been assessed against national sustainable design definitions to determine how it can be classified.

As part of this process, the development was designed with a fabric first approach; with U-values, design air permeability and ventilation targets all aspiring to exceeding Building Regulations Part L 2022 standards. Following on from this, good performing fabric elements, with natural ventilation systems are proposed at this stage providing each dwelling with healthy internal environments. This approach demonstrates a holistic low energy design concept, involving very low limiting values and thus led to high-energy performance targets.

In support of Manchester's low carbon principles, the Oakley Gardens development has been designed to deliver a highly energy-efficient and low-carbon scheme that aligns with the city's 2038 net zero objective. The design approach prioritises fabric efficiency and low-carbon systems to minimise operational emissions, while maintaining the affordability objectives of the development. Achieving full operational net zero was explored; however, the additional renewable infrastructure required would not be financially viable within the parameters of an affordable housing scheme and could compromise its delivery. The design therefore represents the most effective balance between decarbonisation and viability, with flexibility built in to accommodate future renewable technologies such as photovoltaic arrays or energy storage, as they become more feasible.

Furthermore, an LZC feasibility assessment was carried out, with all suitable technologies investigated for their suitability to the site and development. The assessment determined that an ASHP Hot Water system will be utilised for the new homes bringing the total energy demand reduction to **27.3%** and saving on residual emissions at **57.6%.** The development will also be adapting to climate change by incorporating sustainable drainage measures into the design, protecting existing ecology, enhancing biodiversity where possible and providing cycle storage provision to residents.

In addition to the following of the energy hierarchy through the efficient design and renewable technology measures mentioned, and meeting all relevant Greater Manchester and Manchester Council primary energy targets, the proposal will include a large number of sustainability measures throughout construction and once completed, which will contribute heavily to the development's sustainability performance and accord with the requirements of the NPPF. The key measures to be included and therefore can be taken from this report include:

- The proposal sits within Flood Risk Zone 1 and therefore has minimal to no risk of flooding.
- The development will incorporate green infrastructure in the form of planting involving hedges, trees, and ornamental planting that will instil a sense of wellbeing whilst also assisting with offsetting carbon dioxide and balancing local temperatures through evapotranspiration.
- Internal water efficiency will be prioritised by ensuring that efficient water fixtures are proposed so that each dwelling achieves less than 110L per person per day and 'A' rated appliances will be specified where possible.
- Waste minimisation will be targeted from throughout construction and occupational phase. It is targeted that at least 90% of construction waste will be diverted from landfill.
- Prioritising reusing existing materials and locally sourced materials for construction to reduce waste and transportation to landfill in addition and promote a low embodied carbon development.
- When new materials are specified that are not locally attainable then only those that score well on the BRE: The Green Guide to Specification are to be used; to further encourage the use of sustainable materials and reductions in embodied carbon.
- The development will also include cycle storage provision.

As a result of all the above, the proposed sustainable design and energy strategy allows the development to comply with all relevant planning policy requirement and is in line with all targets put forward in their planning documents.

Appendix- Energy and Carbon Worksheet

	House Type / Name	House Type A (End)	House Type A (Mid)	House Type B (End)	House Type B (Mid)	House Type C (End)	House Type C (Mid)	House Type D (End)	Apartment Type D	Apartment Type E	TOTAL (kWh/yr)	SAP 10.2	TOTAL (kgCO2/yr)
	Frequency	4	15	4	5	2	10	2	8	3	53		
BASELINE	BASELINE Dwelling Emission Rate (TER)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Carbon Emission Factor	Associated Total CO2 (kgCO2/yr)
	Main Heating Fuel Requirement (TER)	3,821.63	3,022.16	3,930.95	3,003.67	3,652.20	2,828.35	3,658.53	1,900.83	1,568.52	154,178.23	0.210	32,377.43
	Water Fuel Requirement (TER)	2,662.41	2,737.66	2,647.55	2,964.43	2,652.37	2,665.92	2,657.81	2,608.04	2,668.89	143,277.44	0.210	30,088.26
	Electricity Pumps Fans Requirement (TER)	86.00	86.00	86.00	86.00	86.00	86.00	86.00	86.00	86.00	4,558.00	0.136	619.89
	Electricity Lighting Requirement (TER)	235.16	235.16	229.23	229.23	242.39	242.39	232.93	156.46	163.39	11,647.50	0.136	1,584.06
	PV Energy Produced (TER)	- 1,845.13	- 1,845.13	- 1,874.29	- 1,874.29	- 1,905.43	- 1,905.43	- 1,882.20	- 801.22	- 843.36	- 87,495.48	0.136	- 11,899.39
BE GREEN	FINAL Dwelling Emission Rate (DER)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Total Energy Demand (kWh/yr)	Carbon Emission Factor	Associated Total CO2 (kgCO2/yr)
	Main Heating Fuel Requirement (DER)	2,986.09	1,073.76	3,016.96	2,271.13	2,979.27	2,167.28	3,289.34	1,556.97	1,226.23	101,818.72	0.136	13,847.35
	Water Fuel Requirement (DER)	697.73	1,532.28	694.54	748.97	695.77	695.77	697.98	629.50	601.37	48,883.44	0.136	6,648.15
	Electricity Pumps Fans Requirement (DER)	58.93	-	-	51.44	54.09	54.09	55.21	32.89	36.00	1,623.54	0.136	220.80
	Electricity Lighting Requirement (DER)	245.93	240.61	238.70	238.70	255.28	255.28	238.33	160.07	167.25	12,063.50	0.136	1,640.64
	TOTAL PER DEVELOPMENT												22,356.93
BE GREEN	PV Energy Produced (DER)										0.0	0.136	0.0
	TOTAL PER DEVELOPMENT	15,954.72	42,699.75	15,800.80	16,551.20	7,968.82	31,724.20	8,561.72	19,035.44	6,092.55	164,389.20		22,356.93

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