

Birch Business Park

Client: CGG MLI (REIT) Propco 1 Limited

Energy and Sustainability Statement

BY: Cudd Bentley Consulting Ltd

REV: P03 · DATE: 30-01-26

DOC NO. 7091-CBC-HR-RP-S-000001



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BIRCH BUSINESS PARK ENERGY AND SUSTAINABILITY STATEMENT ISSUED



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RECORD OF REVISIONS

Date.	Revision.	Description of change.
05/12/2025	P01	First Issue
15/01/2026	P02	Site plan updated
30/01/2026	P03	Updated to incorporate comments

1. EXECUTIVE SUMMARY

This report considers the energy and sustainability measures to be incorporated within the Proposed Birch Business Park, Whittle Lane, Heywood, OL10 2SX Industrial Development. This document reviews the requirements at both national and local level, as set out in the National Planning Policy Framework (2024), Rochdale Core Strategy (Adopted October 2016) and the Places for Everyone Development Plan (2024).

The recommended sustainability features for the Proposed Development, resulting from a Part L compliant SBEM model, will allow for a 25% carbon reduction from a base Part L 2021 compliance build making it compliant with Rochdale Core Strategy (Adopted October 2016). The sustainability features will allow for a 5.76 tonnes reduction in annual CO₂ emissions. For this development an EPC rating of A has been targeted. This development is compliant with the local plan through use of passive measures, an air source heat pump and 70 kWp Photovoltaic Panels which result in an overall 27.10% energy reduction. The energy and carbon savings are to be achieved through passive design, energy efficient measures incorporating design features such as energy efficient lighting, submetering of relevant areas, upgrading of 'U' values and occupancy sensing in relative areas, as well as the incorporation of an Air Source Heat Pump and Photovoltaic Panels.

To reduce the energy demand of the development as well as help to conserve water resources within the local area, it is anticipated that the fit-out works will provide for sanitary fittings which will be water efficient through measures such as dual flush toilets and low flow taps.

The Proposed Development will also prioritise sustainable modes of transport. It is anticipated that cycle storage facilities will be provided in order to allow for the reduction of car-based travel and transport related pollution.

The incorporation of these sustainability measures allows for the proposed development to be deemed sustainable whilst targeting compliance with local and national policy.

This report includes annualised baseline calculations which predict the likely energy consumption and associated CO₂ emissions for the entire development. The total baseline energy and carbon emissions for the entire development, taking into account regulated energy demands are:

- **160,023.01 kWh/Annum**
- **23.06 Tonnes CO₂/Annum**

Unregulated energy use is not covered by existing regulations and includes energy consumed by the occupants through activities and appliances; in this case it would typically be small power usage (computers, equipment, appliances etc.). The following unregulated energy use for the development was calculated:

- **50,861.51 kWh/Annum**
- **5.18 Tonnes CO₂/Annum**

The following energy hierarchy has been adhered to in order to determine the most appropriate strategy for the development:

1. Be Lean, Reduce energy and carbon emissions through the use of passive design and energy efficiency measures.
2. Be Green, Reduce energy and carbon emissions by installing Low or Zero Carbon (LZC) Technologies such as Solar panels, Photovoltaics, Wind Turbines etc.

Be Lean and Be Green Measures

In order to initially reduce carbon emissions from a base Part L 2021 compliant development, passive design and energy efficiency measures have been incorporated, such as:

- *Additional improvements to the thermal performance of the fabric of the buildings;*
- *The provision of energy efficient lighting;*
- *The provision of time and temperature zone controls.*

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Further examples of the proposed measures to be provided are in Section 8.0 'Passive Design and Energy Efficiency Measures' of this report.

Also, after analysing the various renewable energy options, it is considered that the most appropriate low or zero carbon (LZC) technology is Photovoltaics (PV) panels and ASHP. Further details of the feasibility analysis of low or zero carbon technologies are detailed within Section 10.0 'Renewable Energy' of this report.

Following the inclusion of the PV and ASHP and Passive measures, the total energy consumption and carbon emissions for the Proposed Development, taking into account regulated energy demands have further reduced to:

- **116,654.85 kWh/Annum**
- **17.29 Tonnes CO₂/Annum**

Proposed Energy Strategy for the Birch Business Park development:

In summary the energy strategy comprises of:

- Passive Design and Energy Efficient Measures (Section 8.0)
- PV and Air Source Heat Pumps (Section 10.0)

The strategy takes into consideration the site layout and requirements for the building type to produce a design that incorporates the most appropriate technologies available to the site. This provides a scheme that is commercially viable whilst targeting compliance with all policies applicable to this development.

This review has resulted in the formation of an Energy Strategy to be adopted for the development which involves the use of passive design and energy efficiency measures, and the use of Photovoltaics and ASHP.

The energy strategy for the development is shown in Table 1.1 below.

Development Energy Strategy	
Heating	ASHP within Office, Electric Panel heaters within WC and Circulation Spaces
Cooling	ASHP for the cooling within the Office spaces
Hot water (DHW)	Instantaneous Point of Use Electric DHW
Ventilation	Extract system provided in WC's, and MVHR within the Office spaces
Lighting	Energy efficient LED lighting where applicable

Table 1.1 Proposed Energy Strategy for the development

Tables 1.2 – 1.5, highlight the carbon and energy savings that are currently anticipated for the development from a base Part L 2021 compliant build.

Development	Predicted Energy Consumption (kWh/Annum)	
	Regulated	Unregulated
Baseline: Part L 2021 of the Building Regulations Compliant Development	160,023.01	50,861.51
After Energy Efficient and Passive Measures	116,654.85	-

Table 1.2 Predicted Energy Consumption

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Development	Regulated Energy Savings	
	kWh/Annum	%
Passive Savings	43,368.16	27.1%

Table 1.3 Regulated Energy Savings

Development	Carbon Dioxide Emissions (Tonnes/Annum)	
	Regulated	Unregulated
Baseline: Part L 2021 of the Building Regulations Compliant Development	23.06	5.18
After Energy Efficient and Passive Measures	17.29	-

Table 1.4 Predicted Carbon Emissions

Development	Regulated Carbon Dioxide Emissions	
	Tonnes/Annum	%/Annum
Passive Savings	5.76	25

Table 1.5 Regulated Carbon Emissions Savings

The development shall have an anticipated CO₂ improvement of 25% beyond Part L 2021, complying with local policy requirements. The energy and carbon calculations for the development at each stage (baseline, passive measures and PV), are displayed in full within Appendix C. Furthermore, sample BRUKL documents for the development are displayed in Appendix D.

2. INTRODUCTION

This report has been prepared by Cudd Bentley Consulting Ltd to investigate the issues of energy and sustainability surrounding the Birch Business Park, Whittle Lane, Heywood, OL10 2SX Industrial Development. The development includes the creation of a single industrial unit with mezzanine level to provide flexible industrial and storage floorspace and ancillary office floorspace, with associated landscaping, yard, parking, and other supporting infrastructure. Planning Permission has already been granted for the building under ref. 24/00453/VRCON and this report supports a Section 73 application to amend the previous permission.

Government policies now require significant energy reductions from proposed buildings. Building a greener future sets a planned trajectory outlined via Part L 2021 of the Building Regulations. These commitments have been the key focus point in addressing policies and strategies to reduce energy use and carbon emissions through energy efficiency and low or zero carbon technologies (LZC).

In line with best practice the following approach has been adopted in forming the energy statement for the development:

1. To propose to improve the building fabric from minimum Part L 2021 Building Regulations requirements; (BE LEAN)
2. To propose to reduce energy consumption and carbon dioxide emissions through passive and energy efficiency measures; (BE LEAN)
3. To propose to reduce energy consumption and carbon dioxide emissions further through the use of on-site renewable / LZC energy technologies. (BE GREEN)

The recommended strategy takes into consideration the site layout and requirements for the building to produce a design that incorporates the most appropriate technologies available to the site that are commercially viable, whilst targeting compliance with all policies applicable to this development.

The proposed development of Birch Business Park, Manchester development consists of 1 industrial unit. The site plan of the development is shown below in Figure 2.1.

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Figure 2.1: Proposed Site Plan

3. DRIVERS OF SUSTAINABILITY

The term Sustainable Development, is defined by the Department for the Environment, Food and Rural Affairs as:

‘... making sure people throughout the world can satisfy their basic needs now, while making sure that future generations can also look forward to the same quality of life. It recognises that the “three pillars” – economy, society and environment – are interconnected.’



To achieve this objective of sustainable development in any industry, sector strict regulations have been put in place that have filtered down through EU Directives from the European Climate Change Programme, to National UK Acts such as the Climate Change Act 2008, to Local Policy in the form of Core Strategies. However, there

are larger drivers behind the concept of sustainable development.

Kyoto Protocol

In 1997, the Kyoto Protocol was adopted as part of the United Nations Framework Convention on Climate Change, to which the UK is a signatory. The key feature of the protocol was the binding targets that were set for industrialised countries to reduce their Green House Gas emissions by 12.5% below 1990 levels by 2008-2012.

Cancun Agreements

Since the initial adoption of the Kyoto Protocol, extensive research has been put forward as to the causes and markers of climate change from the Intergovernmental Panel on Climate Change, which has led to new targets and objectives being made. In 2012, the international community met to discuss new directions for responding to climate change by adopting new agreements. The key objectives of the Cancun Agreements are:

- *Establish clear objectives for reducing human-generated greenhouse gas emissions over time to keep the global average temperature rise below two degrees;*
- *Mobilise the development and transfer of clean technology to boost efforts to address climate change, getting it to the right place at the right time and for the best effect;*
- *Assist the particularly vulnerable people in the world to adapt to the inevitable impacts of climate change;*
- *Protect the world's forests, which are a major repository of carbon;*
- *Establish effective institutions and systems which will ensure these objectives are implemented successfully.*

COP21: Paris Global Climate Agreement

In December 2015, a global climate deal was reached in a summit involving all of the world's nations. The targets of this aimed principally to curb the dangerous levels of climate change and drive an increase low-carbon infrastructure investment. Numerous organisations and corporations also committed to helping create a greener future by making their own pledges through the course of the summit. The key elements of the agreement are:

- *To keep global temperatures "well below" 2.0°C above pre-industrial times and "endeavour to limit" them even more, to 1.5C*
- *To limit the amount of greenhouse gases emitted by human activity to the same levels that trees, soil and oceans can absorb naturally, beginning at some point between 2050 and 2100*
- *To review each country's contribution to cutting emissions every five years so they scale up to the challenge*
- *For rich countries to help poorer nations by providing "climate finance" to adapt to climate change and switch to renewable energy.*

BRE's COP21 Climate Pledge (December 2015)

"We commit to continue to drive best practice and carbon reduction, as we have through the use of BREEAM for the past 25 years. By reaching over 9,000 BREEAM rated buildings we predict emissions savings will be in excess of 900,000 tonnes of CO₂, compared to regulatory minimum performance requirements, by 2020. Saving not only carbon, but bringing wider benefits to both the owner and occupiers."

4. NATIONAL POLICY

National Planning Policy

An effective planning system is required to contribute to achieving sustainable development. The **National Planning Policy Framework (NPPF)**, 2024, outlines what the government deems as sustainable development in England.

Sustainable development is defined as having the following three overarching objectives which are interdependent and need to be pursued in mutually supportive ways: an economic objective, a social objective, and an environmental objective.

1. Economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;
2. Social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and
3. Environmental objective – to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

The above objectives can be described as an energy trilemma, this is demonstrated in Figure 4.1 below. Each dimension is dependent on each other and sustainable development proposals should adhere to each role. This energy statement shall ensure the proposed Development is one that contributes economically, socially and environmentally in accordance with the NPPF, 2024.

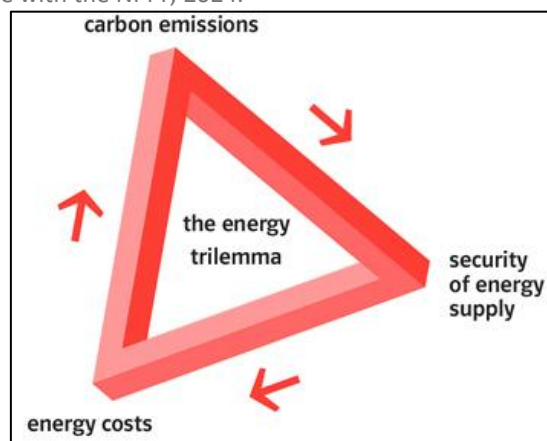


Figure 4.1 The Energy Trilemma

Guidance has been followed from the (NPPF), 2024, to provide an energy strategy which reduces energy use and carbon emissions, in line with best practice. This will provide a balanced scheme which focuses on optimal use of non-renewable resources (energy efficiency measures) whilst providing a renewable energy strategy best suited to the sites and their building uses. Below are some key extracts relevant to the development from Chapter fourteen 'Meeting the Challenge of Climate Change, Flooding & Coastal Change':

Paragraph 162

Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating and drought from rising temperatures. Policies should support appropriate measures to ensure the future health and resilience of communities and infrastructure to climate change impacts, such as providing

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space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.

Paragraph 164

New development should be planned for in ways that:

- a. avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through incorporating green infrastructure and sustainable drainage systems; and
- b. help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings in plans should reflect the Government's policy for national technical standards.

Paragraph 165

To help increase the use and supply of renewable and low carbon energy and heat, plans should:

- a. provide a positive strategy for energy from these sources, that maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts);
- b. consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and
- c. identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

Paragraph 166

In determining planning applications, local planning authorities should expect new development to:

- a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and
- b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.

Paragraph 167

Local planning authorities should also give significant weight to the need to support energy efficiency and low carbon heating improvements to existing buildings, both domestic and non-domestic (including through installation of heat pumps and solar panels where these do not already benefit from permitted development rights). Where the proposals would affect conservation areas, listed buildings or other relevant designated heritage assets, local planning authorities should also apply the policies set out in chapter 16 of this Framework.

Paragraph 168

When determining planning applications for all forms of renewable and low carbon energy developments and their associated infrastructure, local planning authorities should:

- a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and give significant weight to the benefits associated with renewable and low carbon energy generation and the proposal's contribution to a net zero future;
- b) recognise that small-scale and community-led projects provide a valuable contribution to cutting greenhouse gas emissions;
- c) in the case of applications for the repowering and life-extension of existing renewable sites, give significant weight to the benefits of utilising an established site.

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Paragraph 181

When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:

- a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;
- b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;
- c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;
- d) any residual risk can be safely managed; and
- e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.

5. LOCAL POLICY

This section outlines the key planning guidance and minimum local requirements relevant to the proposed development, based on the currently adopted policies within Rochdale Core Strategy (Adopted October 2016) and the Places for Everyone Development Plan (2024). The Rochdale Core Strategy Development Plan (RDP) 2028 was adopted by Rochdale Borough Council on 10 November 2016. The RDP sets out a spatial vision and strategy for the sustainable growth of Rochdale for the period 2016 to 2028, and is used to guide decisions on planning, development and regeneration in Rochdale.

Rochdale Core Strategy, Adopted October 2016

G2 - Energy and new development

All new development will be expected to adhere to the following energy hierarchy to the extent that policy G2 reflects national policy, targets and requirements for that type of development:

1. **Demand Reduction** – Achieve the maximum possible reduction in demand for energy through building design (i.e. the use of passive systems). At the design stage of new developments, every effort should be made to ensure that buildings use as little energy as possible throughout their lifetimes, using siting, orientation, layout, construction and landscaping to optimise use of natural passive systems such as solar gain and natural lighting, shading, ventilation and cooling to minimise heating, cooling and lighting demands. Green roofs and green walls should be incorporated into developments wherever feasible.
2. **Energy efficiency and low / zero carbon technologies and networks** – Design to maximize energy efficiency, and use on-site or linked low or zero carbon technologies or direct connection to a low or zero carbon heat source (not necessarily on-site).
3. **‘Allowable solutions’** – use wider energy efficiency / CO₂ reduction measures, which could include developer contributions, to compensate for ‘residual emissions’ not addressed by 1 or 2 above.

G3 - Renewable and low carbon energy developments

The Council will promote renewable, low and zero carbon energy generating developments, including wind power, biomass, Combined Heat and Power (CHP), hydro and heat pumps in order to help meet CO₂ reduction targets and contribute towards energy security for Greater Manchester and the North West.

Any proposal and associated infrastructure must avoid harm to the health and safety of the public, including through nuisance or adverse impact on highway safety by conflict with or undue distraction to road users. Any harm to the following must be minimised and appropriately mitigated:

- The visual character and quality of the landscape or townscape and the physical record of the historic and cultural evolution of the landscape;
- The setting of heritage assets including Scheduled Ancient Monuments, Conservation Areas and Listed Buildings;
- Local residents and their amenity;
- Biodiversity including protected species, statutory and locally designated sites and important habitats, and geodiversity;
- The value of the borough’s peatlands as an ecological and hydrological resource and as a carbon sink;
- The value of the surrounding area for relaxation and recreation;
- Water quality;
- Land which is used for water catchment purposes and which is critical to the delivery of water supply; and
- Highway safety.

Any proposal must demonstrate the best use of location, topography, siting, design and colour to minimise it’s visual and other impacts, including any cumulative impacts. Any ancillary structures and access roads should employ sensitive design and the use of local materials to respect the character and appearance of the setting.

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The visual impact of infrastructure associated with renewable energy developments should be satisfactorily addressed, including by routing power lines underground wherever possible. All proposals should seek to minimise the length of cable connection in order to reduce the visual impact of such structures when sited above ground. It must be demonstrated that the proposal will not result in electro-magnetic interference with local television reception and specialist radio communication networks.

All the above issues, where relevant, will have to be addressed in a detailed statement of environmental effects submitted with the application.

Planning permission will be subject to a condition that if a wind turbine generator, or other redundant plant or infrastructure, is not producing electricity for six months or more, it shall be removed and the site fully restored to a use and condition appropriate to its surroundings in accordance with this plan.

G7 - Increasing the value of biodiversity and geodiversity

We will ensure that sites and features of biodiversity and geodiversity importance are given full and appropriate recognition and protection. Opportunities for enhancing biodiversity and geodiversity, creating new sites and features of interest and improving opportunities for public enjoyment will be supported. No development should result in a net loss of biodiversity or geodiversity interest in the borough and overall development in the borough should result in a net gain.

Particular priorities for biodiversity and geodiversity are:

6. Designated sites of ecological importance - will be given appropriate protection according to their European, national or local status and in accordance with policies in other development plan documents, supporting Supplementary Planning Documents and Biodiversity Action Plans.

G8 - Managing water resources and flood risk

We will ensure that new development (including flood risk mitigation measures) does not lead to any form of increased flooding locally or further downstream, does not impede natural water and flood risk management, is not detrimental to existing or potential flood storage areas, contributes where possible to alleviating existing flood risk, is itself well protected from flood risk and ensures prudent use of water resources. We will require:

- a. Compliance with a 'sequential' approach to new development and flood risk, directing development away from areas of high risk, in accordance with the National Planning Policy Framework;
- b. Full regard to and compliance with the advice of the Environment Agency (or equivalent agency) and the objectives and priorities for flood risk management set out in the Local Flood Risk Management Strategy, including any mitigation measures recommended for particular sites;
- c. Full regard to the published evidence of local flood risk and its significance as included in Strategic Flood Risk Assessments, Surface Water Management Plans and other recognised sources of flood risk data and the production of additional Flood Risk Assessments (FRAs) as appropriate;
- d. Incorporation of appropriate measures for the management of surface and flood water, including flood storage areas, Sustainable Urban Drainage Systems (SUDS) and the protection of 'overland flow paths';
- e. Compliance with any Surface Water Management Plan or drainage strategies produced, such as for the identified critical drainage areas of Littleborough and Heywood;
- f. The avoidance of culverting, and support the opening up of existing culverts wherever possible;
- g. The incorporation of measures for the conservation of water to minimise potable water consumption, including rainwater collection measures, which should be integral to the design of buildings and spaces;
- h. Development that does not directly or indirectly lead to pollution of existing water resources such as watercourses and groundwater or the derogation of the quantity of groundwater;
- i. The incorporation of measures to improve water quality; and

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- j. The taking of opportunities to improve the habitat value of watercourses and water bodies.

In addition, we will identify additional flood storage areas which will be protected from development.

G11 - Managing waste

We will support sustainable waste management and ensure that Rochdale borough makes an appropriate contribution towards Greater Manchester's waste management needs.

We will, therefore:

- a. Require all developers of new waste management facilities within the Borough to demonstrate the proposal's conformity with the principles of the waste hierarchy (prevention first, then preparing for re-use, recycling/composting, other waste recovery and final disposal);
- b. Support waste management development in the areas identified through the Greater Manchester Joint Waste Development Plan Document (GMJWDPD), subject to compliance with the details of that Plan and all relevant Core Strategy and other relevant national and local policies;
- c. Encourage the sustainable transport of waste, including by use of modes such as rail where possible;
- d. Promote the use of site waste management plans in major construction projects within the borough;
- e. Expect new waste management facilities proposed within the borough to balance environmental, social and economic impacts, including having scope for securing long term benefits in improving the local environment; and
- f. Require that proposals for new waste management facilities within the borough do not, through their impact, undermine or discourage the regeneration of areas and strategic sites identified for investment in the Core Strategy.

T2 - Improving accessibility

We will improve accessibility by locating development where good access to public transport is available or can be provided, backed by measures to reduce the need for travel and effective provision for cyclists, pedestrians and people with impaired mobility. Development will be appropriately located to minimise the need to travel by car and the number and length of car trips made to access local amenities. Transport improvements will focus access to priority regeneration areas, e.g. town centres, housing regeneration areas and economic growth corridors. We will do this by:

- a. Requiring development and infrastructure proposals to satisfy the Council's accessibility hierarchy. This requires transport user needs to be considered and addressed in the following priority order:
 - i. People with impaired mobility and pedestrians;
 - ii. Cyclists;
 - iii. Public transport (Bus, Heavy and Light Rail) and "clean fuelled" vehicles;
 - iv. Taxi, private hire vehicles;
 - v. Powered two wheeled vehicles;
 - vi. Commercial traffic for local access;
 - vii. Shopping, visitors / tourist and off peak traffic; and viii. Long stay and peak time commuter traffic.

Places for Everyone Development Plan (Adopted March 2024)

Policy JP-S1: Sustainable Development

To help tackle climate change, development should aim to maximise its economic, social and environmental benefits simultaneously, minimise its adverse impacts, utilise sustainable construction techniques and actively seek opportunities to secure net gains across each of the different objectives. In preparing plans, authorities should make as much use as possible of suitable previously developed (brownfield) land and vacant buildings to meet development needs. In bringing forward previously developed sites for development, particular attention will be paid to tackling land contamination and stability issues, ensuring that appropriate mitigation and remediation is implemented to enable sites to be brought back into use effectively.

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Addressing Climate Change

5.5 Greater Manchester's Vision is to be at the forefront of action on climate change and to make its fair contribution to international commitments by becoming a carbon neutral city region by 2038. In acknowledgment of climate change, by 2020, all 10 districts and the Greater Manchester Combined Authority have declared a climate emergency. To support this vision a 5 Year Environment Plan¹⁸ was launched in 2019 to identify the urgent actions that are needed to ensure Greater Manchester can follow the required pathway for carbon neutrality.

5.6 To meet our carbon commitments we will need to:

- Be carbon neutral by 2038
- Hold cumulative carbon dioxide emissions to within our carbon budget
- Initiate a programme of mitigation to reduce emissions including by:
 - Significantly upscaling solar photovoltaic energy;
 - Reducing heat demand in homes
 - o Moving away from carbon intensive gas as the primary source of heat;
 - o Reducing heating and cooling demand for public and commercial buildings;
 - o Increasing biofuel use;
 - o Enable sustainable choices for travel and decarbonise transport;
 - o Significantly upscaling building retrofit; and
 - o Increase the delivery of nature-based solutions and biodiversity net gain

5.18 In calculating carbon emissions from 2025, 'unregulated' emissions (e.g. those associated with cooking and small appliances) should be assessed, in addition to 'regulated' emissions. The only way that this can be deliverable will be through the use of onsite electricity generation or through carbon offsetting ('allowable solutions') as occupants' lifestyle choices are not predetermined by energy efficiency measures associated with construction standards.

5.19 By following the energy hierarchy, new development will need to achieve net zero carbon through the maximisation of on-site measures first. However, in circumstances where a development has demonstrated that the hierarchy has been followed and there are no reasonable alternatives to meet the minimum carbon reductions, then payment to offset remaining emissions will also be required. Such payments should be expected to fund other carbon saving programmes within Greater Manchester to help meet the 5 Year Environment Plan targets (such as energy efficiency retrofit and renewable energy installations). The Mayor of Greater Manchester has developed the Greater Manchester Environment Fund, which will provide a mechanism for carbon offset payments to be made. Districts may also set up their own carbon off-setting schemes and set their own carbon price. District carbon off-set funds will need to be ring-fenced and used effectively to support local carbon reduction projects and programmes (such as retrofitting existing properties with energy efficiency measures).

Policy JP-S2: Carbon and Energy

The aim of delivering a carbon neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions, will be supported through a range of measures including:

1. Promoting the retrofitting of existing buildings with measures to improve energy efficiency and generate renewable and low carbon energy, heating and cooling;
2. Promoting the use of life cycle cost and carbon assessment tools to ensure the long-term impacts from development can be captured;
3. Taking a positive approach to renewable and low carbon energy schemes, particularly schemes that are led by, or meet the needs of local communities;
4. Increasing the range of nature-based solutions including carbon sequestration through the restoration of peat-based habitats, woodland management, treeplanting and natural flood management techniques;
5. An expectation that new development will, unless it can be demonstrated that it is not practicable or financially viable;

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a. Be net zero carbon which applies:

- from adoption – to regulated operational carbon emissions;
- from 2028 – to all emissions 'in construction'.

From 2025 development should also calculate and minimise carbon emissions from unregulated emissions alongside regulated emissions.

Development proposals should set out how this has been achieved in an energy statement in accordance with the energy hierarchy, which in order of importance seeks to:

- i. Minimise energy demand;
- ii. Maximise energy efficiency;
- iii. Use renewable energy;
- iv. Use low carbon energy; and
- v. Utilise other energy sources

From 2025 any residual carbon emissions that cannot be fully mitigated on-site should be offset, in agreement with the relevant local planning authority through a financial contribution to a carbon offset fund.

As an interim measure, development should be consistent with the 2022 Part L Building Regulations unless superseded by changes to building regulations and/or national or local planning policies.

b. Incorporate adequate electric vehicle charging points, in line with Part S of the Building Regulations, unless superseded by relevant Local Plan policies, to future proof for the likely long-term demand, taking account of the potential maximum energy demand for the site;

c. Where practicable, prioritise connection to a renewable energy/heating/cooling network in the first instance or a low carbon energy/heating/cooling network that is adaptable to non-fossil fuels at a later date.

Policy JP-S5: Clean Air

A comprehensive range of measures will be taken to support improvements in air quality, focusing particularly on locations where people live, where children learn and play, where there are impacts on the green infrastructure network and where air quality targets are not being met, including:

1. Locating and designing development, and focusing transport investment, so as to reduce reliance on forms of transport that generate air pollution.
2. Determining planning applications having regard to the most recent development and planning control guidance published jointly by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK), and the most recent IAQM Guidance on the Assessment of Dust from Demolition and Construction, or relevant successor guidance, including the requirement for developers to submit construction management plans as appropriate;
3. Requiring applications for developments that could have an adverse impact on air quality to submit relevant air pollution data so that adverse impacts on air quality can be fully assessed and development only permitted where they are acceptable and/or suitable mitigation can be provided;
4. Restricting developments that would generate significant point source pollution such as some types of industrial activity and energy generation;
5. Significantly expanding the existing commercial network of electric vehicle charging points, both for public and private use, including as part of new developments;
6. Implementing the Clean Air Plan and associated measures;
7. Facilitating the more sustainable distribution of goods within the urban area, including through accommodating urban consolidation centres and urban distribution centres that use ultra-low-emission vehicles, and local delivery facilities to reduce repeat delivery attempts;
8. Designing streets to avoid trapping air pollution at ground level, including through the appropriate location and scale of buildings and trees;
9. Controlling traffic and parking within and around schools, early years sites and other locations that are particularly sensitive to air quality;
10. Promoting actions that help remove pollutants from the air, such as enhancing the green infrastructure network and using innovative building materials that capture air pollutants; and

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Policy JP-S6: Resource Efficiency

The achievement of a circular economy and a zero-waste economy will play a key role in meeting Greater Manchester's ambition of becoming a leading green city region by 2038. The following measures will help achieve this:

1. Development and implementation of the Zero Waste Strategy for Greater Manchester which promotes overall reduction in the level of waste produced and supports resource efficiency within the Plan area in order to gain the maximum value from the things we produce;
2. Recognition of the role of existing infrastructure in managing our waste and protecting such facilities to ensure adequate waste management capacity is maintained; and
3. Using sustainable design and construction techniques to reduce carbon emissions, adapt and future proof to the impact of climate change, reduce and recycle waste and minimise water use

Policy JP-S4: Flood Risk and the Water Environment

An integrated catchment-based approach will be taken to protect the quantity and quality of water bodies with reference to the North West River Basin Management Plan and managing flood risk, by:

1. Returning rivers to a more natural state, where practicable;
2. Working with natural processes and adopting a natural flood management approach to slow the speed of water drainage and intercept water pollutants;
3. Locating and designing development so as to minimise the impacts of current and future flood risk, including retrofitting or relocating existing developments, infrastructure and places to increase resilience to flooding;
4. Expecting developments to manage surface water run-off through sustainable drainage systems and as close to source as possible. Development should achieve greenfield run-off rates unless it is demonstrated to be impracticable. District local plans should consider setting more detailed surface water drainage policies to reflect local circumstances, including alternative surface water discharge rates, such as in areas with critical drainage issues;
5. Ensuring that sustainable drainage systems:
 - i. Are designed to provide multifunctional benefits wherever possible, including for water quality, nature conservation and recreation;
 - ii. Avoid adverse impacts on water quality and any possibility of discharging hazardous substances to ground;
 - iii. Are delivered in a holistic and integrated manner, including on larger sites split into different phases; and
 - iv. Are managed and maintained appropriately to ensure their proper functioning over the lifetime of the development.
6. Securing the remediation of contaminated land and the careful design of developments to minimise the potential for urban diffuse pollution to affect the water environment

Policy JP-G2 Green Infrastructure Network

A strategic approach will be taken to the protection, management and enhancement of our Green Infrastructure in order to protect and enhance the ecosystem services which the Green Infrastructure Network provides, including flood management, climate change mitigation and adaptation. Alongside this primary function an enhanced Green Infrastructure network will support wider public health benefits, including promotion of active travel, food growing and recreational opportunities.

The protection, management and enhancement of Green Infrastructure will contribute to the development of a Local Nature Recovery Strategy for Greater Manchester. This Strategy will feed into the development of a Nature Recovery Network locally and nationally.

Development within and around the Green Infrastructure Network should be consistent with delivering major green infrastructure improvements within them and should contribute to improvements.

Development which involves the removal of land from the Green Belt (including allocations proposed in this plan) will be required to offset the impact of removing land from the Green Belt through identifying and delivering compensatory improvements to the environmental quality and accessibility of remaining Green Belt in the vicinity of the site. Details of specific sites and projects will be established in discussion with the relevant Local Authority.

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Wherever practicable, opportunities to integrate new and existing green infrastructure into new development will be taken to protect, enhance and expand the green infrastructure network. Where new or improved green infrastructure is delivered as part of a development, the developer should make appropriate provision for its long-term management and maintenance.

Policy JP-G8: A Net Enhancement of Biodiversity and Geodiversity

Through local planning and associated activities a net enhancement of biodiversity resources will be sought, including, where relevant, by:

1. Increasing the quality, quantity, extent and diversity of habitats, particularly priority habitats identified in national or local biodiversity action plans and those that support priority species;
2. Improving connections between habitats, to protect and enhance the provision of corridors, ecological networks (including Nature Recovery Networks) and steppingstones that enable the movement of species, especially as the climate changes;
3. Enhancing the management of existing habitats, including through habitat restoration, avoiding habitat fragmentation and combating invasive species;
4. Protecting sites designated for their nature conservation and/or geological importance, with the highest level of protection given to international and then national designations;
5. Facilitating greater access to nature, particularly within urban areas;
6. Supporting the development and implementation of the Great Manchester Wetlands Nature Recovery Network; and
7. Safeguarding, restoring and sustainably managing our most valuable soil resources, tackling soil degradation/erosion and recovering soil fertility, particularly to ensure protection of peat-based soils and safeguard 'best and most versatile' agricultural land.

Development will be expected to:

- a. Follow the mitigation hierarchy of:
 - i. Avoiding significant harm to biodiversity, particularly where it is irreplaceable, through consideration of alternative sites with less harmful impacts, then
 - ii. Adequately mitigating any harm to biodiversity, then
 - iii. Adequately compensating for any remaining harm to biodiversity
- b. Avoid fragmenting or severing connectivity between habitats;
- c. Achieve a measurable net gain in biodiversity of no less than 10%
- d. Make appropriate provision for long-term management of habitats and geological features connected to the development;
- e. Where appropriate, development should: mitigate air pollution impacts on Manchester Mosses SAC; mitigate urban edge, functionally linked land and recreation disturbance impacts on the South Pennine Moors SAC/SPAs; and assess and potentially mitigate boat movement, water pollution, and light spillage and shading impacts on the Rochdale Canal SAC; and
- f. Development proposals should be informed by the findings and recommendations of the appropriate biodiversity/ecological assessment(s) in the PfE evidence base and/or any updated or appropriate biodiversity/ecological assessments submitted as part of the planning application process.

6. DEVELOPMENT APPROACH

This report adopts the following approach to provide compliance with the Local and National Planning Policies:

1. To propose to improve building fabric from minimum Part L (2021) Building Regulations requirements.
2. To propose to reduce energy consumption and carbon dioxide emissions through passive and energy efficiency measures.
3. Investigate the possibility of connection into existing District Heating / Cooling Networks.
4. To propose to reduce energy consumption and carbon dioxide emissions further through the use of on-site renewable / LZC energy technologies.

Table 6.1 below outlines the Part L Building Regulations that the development shall be assessed under:

Building Element	Part L Building Regulations Applicable
Use Class B2/B8/E(g)	Part L2 (2021)

Table 6.1 Part L Building Regulations Applicable

7. ASSESSMENT OF BASELINE ENERGY

Government policies require significant energy reductions from buildings. Building a Greener Future sets a planned trajectory (delivered via Part L of the building regulations 2021) with an aspiration for all non-domestic new buildings to be zero carbon by 2020. The Climate Change Act (Nov 2008) sets the UK targets of; CO₂ reduction of 26% by 2020 and CO₂ reduction of 100% by 2050.

7.1. POLICY REVIEW

National Planning Policy Framework (2024)

Paragraph 165

To help increase the use and supply of renewable and low carbon energy and heat, plans should:

provide a positive strategy for energy from these sources, that maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts);

consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and

identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

ROCHDALE CORE STRATEGY, ADOPTED OCTOBER 2016

G2 - Energy and new development

All new development will be expected to adhere to the following energy hierarchy to the extent that policy G2 reflects national policy, targets and requirements for that type of development:

1. **Demand Reduction** – Achieve the maximum possible reduction in demand for energy through building design (i.e. the use of passive systems). At the design stage of new developments, every effort should be made to ensure that buildings use as little energy as possible throughout their lifetimes, using siting, orientation, layout, construction and landscaping to optimise use of natural passive systems such as solar gain and natural lighting, shading, ventilation and cooling to minimise heating, cooling and lighting demands. Green roofs and green walls should be incorporated into developments wherever feasible.
2. **Energy efficiency and low / zero carbon technologies and networks** – Design to maximize energy efficiency, and use on-site or linked low or zero carbon technologies or direct connection to a low or zero carbon heat source (not necessarily on-site).
3. **'Allowable solutions'** – use wider energy efficiency / CO₂ reduction measures, which could include developer contributions, to compensate for 'residual emissions' not addressed by 1 or 2 above.

Places for Everyone Development Plan (Adopted March 2024)

Policy JP-S1: Sustainable Development

To help tackle climate change, development should aim to maximise its economic, social and environmental benefits simultaneously, minimise its adverse impacts, utilise sustainable construction techniques and actively seek opportunities to secure net gains across each of the different objectives. In preparing plans, authorities should make as much use as possible of suitable previously developed (brownfield) land and vacant buildings to meet development needs. In bringing forward previously developed sites for development, particular attention will be paid to tackling land contamination and stability issues, ensuring that appropriate mitigation and remediation is implemented to enable sites to be brought back into use effectively.

5.6 To meet our carbon commitments we will need to:

- Be carbon neutral by 2038
- Hold cumulative carbon dioxide emissions to within our carbon budget
- Initiate a programme of mitigation to reduce emissions including by:
Significantly upscaling solar photovoltaic energy;
Reducing heat demand in homes
 - o Moving away from carbon intensive gas as the primary source of heat;
 - o Reducing heating and cooling demand for public and commercial buildings;
 - o Increasing biofuel use;
 - o Enable sustainable choices for travel and decarbonise transport;
 - o Significantly upscaling building retrofit; and
 - o Increase the delivery of nature-based solutions and biodiversity net gain

5.18 In calculating carbon emissions from 2025, 'unregulated' emissions (e.g. those associated with cooking and small appliances) should be assessed, in addition to 'regulated' emissions. The only way that this can be deliverable will be through the use of onsite electricity generation or through carbon offsetting ('allowable solutions') as occupants' lifestyle choices are not predetermined by energy efficiency measures associated with construction standards.

5.19 By following the energy hierarchy, new development will need to achieve net zero carbon through the maximisation of on-site measures first. However, in circumstances where a development has demonstrated that the hierarchy has been followed and there are no reasonable alternatives to meet the minimum carbon reductions, then payment to offset remaining emissions will also be required. Such payments should be expected to fund other carbon saving programmes within Greater Manchester to help meet the 5 Year Environment Plan targets (such as energy efficiency retrofit and renewable energy installations). The Mayor of Greater Manchester has developed the Greater Manchester Environment Fund, which will provide a mechanism for carbon offset payments to be made. Districts may also set up their own carbon off-setting schemes and set their own carbon price. District carbon off-set funds will need to be ring-fenced and used effectively to support local carbon reduction projects and programmes (such as retrofitting existing properties with energy efficiency measures).

7.2. DEVELOPMENT SUSTAINABILITY FEATURES

The primary energy demands of the development will be:

- Heating
- Lighting
- Hot water
- General Power
- Cooling
- Ventilation

To assess the preliminary energy consumption of the proposed development, calculations have been completed using approved SBEM software (OpenBuildings). The calculations generate annualised energy consumption for the buildings, from which the "carbon footprint" can be assessed.

The total baseline energy and carbon emissions for the entire development, taking into account regulated energy demands are:

- 160,023.01 kWh/Annum
- 23.06 Tonnes CO₂/Annum

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(A full set of calculations supporting these figures included in Appendix C of this document)

Unregulated energy use is not covered by existing regulations and includes energy consumed by the occupants through activities and appliances; in this case it would typically be small power usage (appliances, computers etc.). The following unregulated energy use for the development was calculated:

- **50,861.51kWh/Annum**
- **5.18 Tonnes CO₂/Annum**

8. BE LEAN - ENERGY EFFICIENT MEASURES

The proposed development incorporates a range of passive and active design measures that will reduce the energy demand for space conditioning, hot water and lighting.

8.1. PASSIVE DESIGN MEASURES

Enhanced U-Values

The heat loss of different building fabric elements is dependent upon their U-value. A building with low U-values provides better levels of insulation and reduced heating demand during the cooler months.

The proposed development will incorporate high levels of insulation and high-performance glazing beyond Part L 2021 targets in order to reduce the demand for space heating and/or cooling.

The table 8.1 demonstrates the improved performance of the proposed building fabric beyond the Building Regulations requirements for non-domestic uses.

Building Element	Proposed
	U-Value (W/m ² K)
External Walls	0.22
Internal Partitions	0.28
Exposed Floors	0.18
Exposed Roof	0.15
Personnel Door	1.60
Vehicle Door	1.30
Rooflights	1.50 (g= 0.49)
Glazing	1.40 (g= 0.36)
Air Permeability	4 m ³ /hr/m ² @ 50 Pa

Table 8.1 U – Values targeted in the development.

AIR PERMEABILITY IMPROVEMENT

Heat loss may also occur due to air infiltration. Although this cannot be eliminated altogether, good construction detailing, and the use of best practice construction techniques can minimise the amount of air infiltration.

The proposed development will aim to improve upon the Part L 2021 minimum standards for air permeability by targeting air permeability of 4 m³/hr/m² at 50Pa.

Reducing The Need For Artificial Lighting

The development has been designed for good levels of daylight in all habitable spaces as a way of improving the health and wellbeing of its occupants.

All of the habitable areas will benefit from large areas of glazing to increase the amount of daylight within the internal spaces where possible and Warehouse storage spaces from the Rooflights. This is expected to reduce the need for artificial lighting whilst delivering pleasant, healthy spaces for occupants.

8.2. ACTIVE DESIGN MEASURES

High Efficacy Lighting

The development intends to incorporate low energy lighting fittings throughout the spaces. All light fittings will be specified as low energy lighting and will accommodate LED with lighting efficacy as shown below table 8.2.

Lighting	
Lighting Type	lumens per circuit watt
LED	Warehouse Storage – 160 lm/w (to be installed at fitout by tenant/occupier) Office Area's – 140 lm/w Reception – 100 lm/w WC – 100 lm/w Circulation Area's – 100 lm/W

Table 8.2 Lighting efficacy targeted in the development.

Heat Recovery Ventilation

The mechanical ventilation system will include heat recovery in order to achieve ventilation in the most energy-efficient way. The table 8.3 below shows the heat recovery efficiencies for this development.

Mechanical Ventilation Heating Recovery (Typical Unit Chosen)				
Area Type	Supply/Extract SFP (W/l/s)	Heat Recovery Efficiency (%)	Exhaust Flow Rate (l/s/m ²)	Exhaust SFP (W/l/s)
Office/Reception<	1.1	70	x	x
WC	x	x	5	0.4

Table 8.3 Mechanical ventilation heat recovery efficiency

Comfort Cooling

An ASHP system of high energy efficiency ratios is assumed for both heating and cooling in the development. Therefore, the impact of active cooling in terms of energy use and carbon emissions will be minimised.

Monitoring

In addition to the above design measures, the development will incorporate monitoring equipment and systems to enable occupiers to monitor and reduce their energy use. Smart meters will be installed to monitor the heat and electricity consumption of the development.

9. BE CLEAN – SUPPLY ENERGY EFFICIENTLY

Be Clean energy refers to energy that is generated off the main grid, which may include micro-renewables, heating and cooling. It can refer to energy from waste plants, combined heat and power, district heating and cooling, as well as geothermal, biomass or solar energy.

Connection To An Existing Heat Network

It was investigated to establish if there were any existing decentralised energy networks near the proposed site using the Department of Energy and Climate Change CHP database. It has been concluded that there are no suitable existing nearby CHP systems or source of waste heat or power to which a connection may be possible. The CHP availability map can be seen below in figure 9.1.

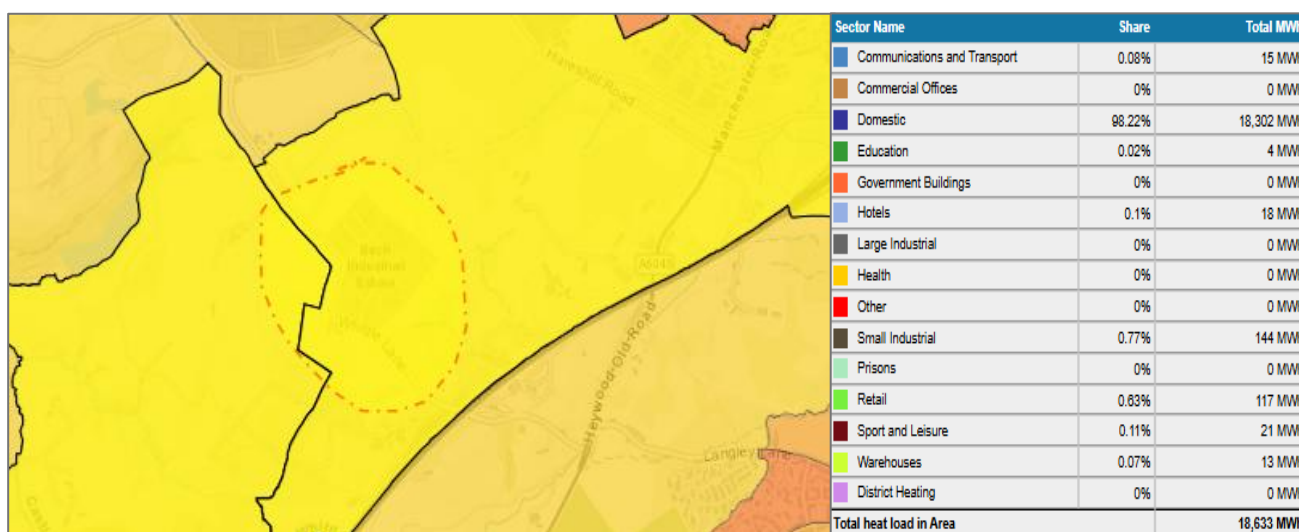


Figure 9.1 CHP availability Search Area

BE CLEAN CO2 EMISSIONS

Given that it has not been found feasible or viable for the proposed development to incorporate the supply of low carbon heating and cooling via connection to a District Energy Network, no carbon savings are achieved for this step of the Energy Hierarchy.

10. BE GREEN - RENEWABLE ENERGY

The use of renewable and low or zero carbon (LZC) technologies within the development has been addressed and the following, Table 10.1, reviews the primary options for generation of on-site renewable / LZC energy and considers their suitability for use on the development.

Renewable Technology Feasibility Assessment		Viable?
Bio Fuel Boilers 	Bio-fuel boilers are specifically designed to burn solid biomass or liquid bio-fuel in order to heat water, or raise steam. This can then be used for space heating or Domestic Hot Water (DHW) supply. Bio-fuel boilers could potentially provide the annual space heating and DHW demand for the Units, however they are not recommended for this development for the following reasons:- 1. Biomass boilers generate increased Oxides of Nitrogen (NOx) and particulates (PM10) which would affect air quality. 2. The storage requirements for the biofuel would require a large plant space, with an auxiliary storage facility to allow for a two week period where delivery of fuel might not be available.	No
<u>Land Use</u> Large volumes of storage is required for fuel at ground level or basement level with sufficient vehicular access for fuel delivered. <u>Noise</u> Noise levels are generated by the operation of the bio-fuel boiler and associated deliveries of the bio-fuel. The plant room enclosure will have to be attenuated to acceptable levels imposed by planning and Acoustician recommendations.		

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Renewable Technology Feasibility Assessment		Viable?
Wind Turbines 	Wind turbines convert the kinetic energy in the wind into mechanical energy which is then converted into electricity. Wind turbines can provide electrical power either directly to a load or via a battery system. The use of wind turbines is not recommended for this development for the following reasons:- 1. Wind turbines, of a size necessary to make a contribution to the Units renewable energy requirements are considered inappropriate on spatial, planning, aesthetic and noise grounds. Noise pollution from commercial wind turbines can be quite significant within a few hundred metres. 2. The site is not ideal; an ideal site is a hill with a flat, clear exposure. It should be free from strong turbulence and obstructions like large trees, houses or other buildings. As the development is surrounded by industrial buildings, turbulent wind flow will be experienced across the site which is not ideal for wind turbine installations. 3. The financial viability of a small scale installation on the site would be compromised by the operational efficiency of the units (circa 30%). 4. Wind turbines, can cause electrical interference within a 2km radius. 5. Finally, the main disadvantage is down to the winds unreliability factor. The wind strength is often too low in many areas, where this site is located the wind speed is 4.4 m/s at 10m, as can be seen in the wind map presented in Appendix C, in order for the wind turbines to be feasible, wind speeds of greater than 5.5m/s are required.	No
<u>Land Use</u> There would be an adverse visual impact on the site which will be dependent on the height at which the wind turbines are located. <u>Noise</u> Noise levels are generated by the rotating blades; these noise levels will vary dependent on wind velocity and will need to be in acceptable levels imposed by planning and Acoustician recommendations.		
Ground Source Heat Pumps 	Space cooling and heating can be provided by circulating water cooled or heated directly by the ground or via subterranean water. Ground water cooling and heating through the use of aquifers makes use of the relatively stable ground/ water temperature which is available at a temperature range of 10 – 14°C. The use of Ground Source Heat Pumps is not recommended for this development for the following reasons:- 1. Cost of boreholes may be prohibitive (subject to site geological conditions). 2. Favourable ground conditions may not exist. 3. Problems can arise with boreholes silting up (open-loop).	No

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Renewable Technology Feasibility Assessment		Viable?
	4. Changes in local ground conditions could affect water quality and the amount that can be extracted (open-loop).	
Water Source Heat Pump	The development is not located in a groundwater source protection zone and as a result, is unlikely to require EA approval. However, use of water source heat pump would not be feasible for the following reasons: 1. A closed loop system would require an enquiry to be made to assess any potential effects on the water temperatures and consequently the wildlife. 2. Closed loop systems may contain thermal transfer fluids (which are toxic). If these are leaked, they could potentially pollute the canal. 3. This is a light industrial units which does not have high heating and hot water demand.	No
<u>Land Use</u> This installation would require Environmental Agency approval. Ground and Hydrology analysis would be required to investigate if favourable conditions exist. <u>Noise</u> There are no noise issues generated by this technology.		
Solar Water Heating 	Solar Water Heating systems use radiant energy from the sun to heat water. Systems comprise of a roof mounted heat collector piped to a coil located within a hot water storage cylinder.	No
<u>Land Use</u> Roof space is better served for the installation of Photovoltaic panels. <u>Noise</u> Noise levels are generated by pumps at roof level, these are insignificant so should pose no issues.		
Air Source Heat Pumps 	An Air Source Heat Pump extracts heat from the outside air in the same way that a fridge extracts heat from its inside. It can extract heat from the air even when the outside temperature is as low as minus 15°C and typically draws approximately a quarter to a third of the electricity of a standard resistance heater for the same amount of heating, reducing utility bills. This typical efficiency compares to 70-95% for a fossil-fuel powered boiler. Air Source Heat Pumps (ASHP) are proposed for use within the office areas to provide the heating and cooling requirements. The benefits of ASHP are as follows: • They are ideally suited to serve the office areas within the development during periods when they may require heating or cooling. The times when cooling is required may differ for different space depending on their use, occupancy period and levels, the operation of individual air source heat pumps would	Yes

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Renewable Technology Feasibility Assessment		Viable?
	allow individual control and can be efficiently accommodated within the building design; The heat pump unit can be configured to provide internal heat reclaim from dissimilar environmental zones, reducing energy consumption and carbon emissions.	
<u>Land Use</u> Air Source Heat Pumps can be installed on ground mounted, roof mounted or wall mounted frames. When installing Air Source Heat Pumps there are various factors to consider; Heat Pumps should be positioned to provide shelter from high winds which can reduce efficiency by causing defrost problems. <u>Noise</u> Noise levels are generated by fans, and compressors causing vibrations. The noise levels are dependent on manufacturer and vary accordingly, these will need to be in acceptable levels imposed by planning and Acousticians recommendations.		
Photovoltaics 	Photovoltaic (PV) modules convert sunlight directly to DC electricity. The solar cells consist of a thin piece of semiconductor material, in most cases silicon. A 70 kWp photovoltaic array is proposed for the development to be located on the roof of the units. They have the following advantages for use on this development. 1. Photovoltaic panels can be situated at roof level, east facing, to provide a source of renewable energy. 2. Panels can be grid connected to sell surplus electricity produced. 3. Low maintenance issues. 4. Visual use of renewable energy can be seen by general public.	Yes
<u>Land Use</u> There are no land issues or adverse visual impacts as the photovoltaic panels are roof mounted. <u>Noise</u> There are no noise issues generated by this technology.		

Table 10.1 Renewable Energy Options

10.1. BE GREEN RESULTS

Following the inclusion of the PV and ASHP and Passive measures, the total energy consumption and carbon emissions for the Proposed Development, taking into account regulated energy demands have further reduced to:

- **116,654.85 kWh/Annum**
- **17.29 Tonnes CO₂/Annum**

The incorporation of photovoltaic panels shall provide the following contribution in renewable energy to the Development.

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Site PV Requirement	Energy Generation from Renewable Energy (PV)
70 kWp system	57,400 kWh/annum

Table 10.2 PV Energy and Carbon Savings

The payback time for photovoltaic panels can be seen below in table 10.3.

	PV kWp	Energy Generated from PV kWh/annum	Annual Savings (32P per KWh electricity Price) £	Payback Period Yr
Unit 1	70	57,400	18,368	2.36

Table 10.3 Payback period for renewables

The energy strategy for the development is shown in table 10.4 below.

Development Energy Strategy	
Heating	ASHP within Office, Electric Panel heaters within WC and Circulation Spaces
Cooling	ASHP for the cooling within the Office spaces
Hot water (DHW)	Instantaneous Point of Use Electric DHW
Ventilation	Extract system provided in WC's, and MVHR within the Office spaces
Lighting	Energy efficient LED lighting where applicable

Table 10.4 Proposed Energy Strategy for the development

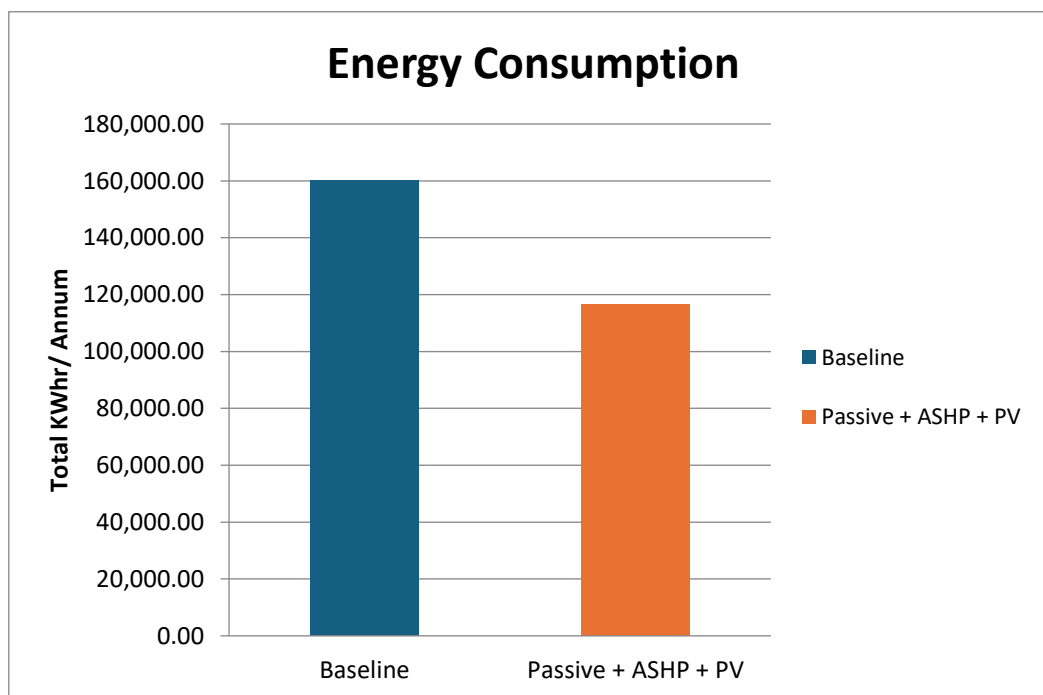


Figure 10.1 Annual Energy Consumption for the development

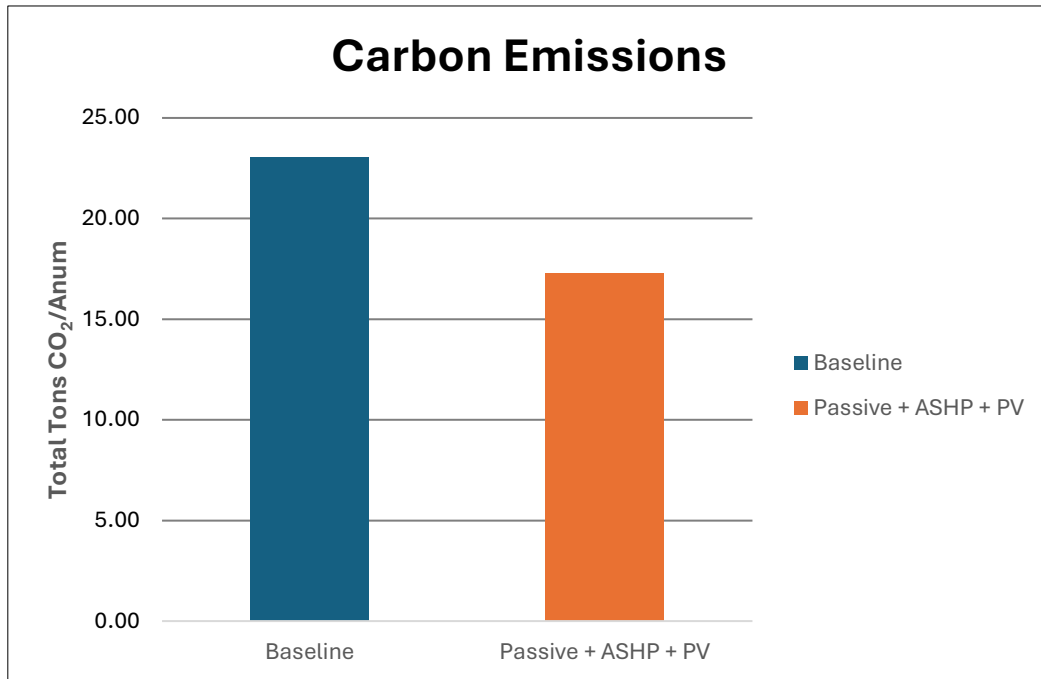


Figure 10.2 Annual Carbon Emissions for the development

The development shall have an anticipated CO₂ improvement of 25% beyond Part L 2021.

11. WATER CONSUMPTION

The ever-increasing impacts of climate change are continuously inflating demand for water, as well as increasing a need for awareness towards water usage. The UK is already under a large amount of pressure regarding water resources. To contribute towards mitigating this issue, the proposed development will consider various means of being economical with water consumption.

11.1. POLICY REVIEW

ROCHDALE CORE STRATEGY, ADOPTED OCTOBER 2016

G8 - Managing water resources and flood risk

We will ensure that new development (including flood risk mitigation measures) does not lead to any form of increased flooding locally or further downstream, does not impede natural water and flood risk management, is not detrimental to existing or potential flood storage areas, contributes where possible to alleviating existing flood risk, is itself well protected from flood risk and ensures prudent use of water resources. We will require:

- a. The incorporation of measures for the conservation of water to minimise potable water consumption, including rainwater collection measures, which should be integral to the design of buildings and spaces;
- b. Development that does not directly or indirectly lead to pollution of existing water resources such as watercourses and groundwater or the derogation of the quantity of groundwater;
- c. The incorporation of measures to improve water quality; and
- d. The taking of opportunities to improve the habitat value of watercourses and water bodies.

11.2. DEVELOPMENT SUSTAINABILITY FEATURES

In order to ensure the reduction and management of water consumption within the proposed industrial units, it is anticipated that various measures shall be undertaken, and specific features installed during the fit out works to minimise the building's potable water consumption.

It is anticipated that improvements in the consumption of potable water will be achieved through the specification of water efficient components within sanitary areas during the fit out works. Such features include the specification of low flow taps as well as dual flush toilets with reduced flush volumes.

11.3. SUMMARY

To ensure the sustainability of the development it is anticipated that water efficient fixtures will be incorporated into the design, such as low flow taps and dual flush toilets with reduced effective flush volumes.

To be further sustainable, it is anticipated that pulsed water meters will be installed on the mains water supply, to effectively monitor water consumption. The inclusion of the above sustainability features allows for the development to be deemed sustainable with regard to water consumption.

12. TRANSPORT

Transport produces a large proportion of the country's greenhouse gas emissions, something which government at both national and local level are striving to combat, especially through planning frameworks for new developments. Solutions to transport issues are to be incorporated into the design of the development.

12.1. POLICY REVIEW

National Planning Policy Framework (2024)

Section 9 - Promoting Sustainable Transport

Paragraph 109

Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. This should involve:

- a) making transport considerations an important part of early engagement with local communities;
- b) ensuring patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places;
- c) understanding and addressing the potential impacts of development on transport networks;
- d) realising opportunities from existing or proposed transport infrastructure, and changing transport technology and usage – for example in relation to the scale, location or density of development that can be accommodated;
- e) identifying and pursuing opportunities to promote walking, cycling and public transport use; and
- f) identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains.

ROCHDALE CORE STRATEGY, ADOPTED OCTOBER 2016

T2 - Improving accessibility

We will improve accessibility by locating development where good access to public transport is available or can be provided, backed by measures to reduce the need for travel and effective provision for cyclists, pedestrians and people with impaired mobility. Development will be appropriately located to minimise the need to travel by car and the number and length of car trips made to access local amenities. Transport improvements will focus access to priority regeneration areas, e.g. town centres, housing regeneration areas and economic growth corridors. We will do this by:

- a. Requiring development and infrastructure proposals to satisfy the Council's accessibility hierarchy. This requires transport user needs to be considered and addressed in the following priority order:
 - i. People with impaired mobility and pedestrians;
 - ii. Cyclists;
 - iii. Public transport (Bus, Heavy and Light Rail) and "clean fuelled" vehicles;
 - iv. Taxi, private hire vehicles;
 - v. Powered two wheeled vehicles;
 - vi. Commercial traffic for local access;
 - vii. Shopping, visitors / tourist and off peak traffic; and
 - viii. Long stay and peak time commuter traffic.

12.2. DEVELOPMENT SUSTAINABILITY FEATURES

The Business Park is located on Whittle Lane near Heywood. The site has good links to the motorway network being in close proximity to the M62, M60, M66 and the wider motorway network.

In order to encourage sustainable means of transport rather than commuting in private vehicles it is anticipated there will be the provision of cycle storage facilities within the site, which will be sheltered and secure.

12.3. SUMMARY

The above provisions aim to make the proposed development easier to access for all building users, as well as offering a sustainable means of commuting rather than using a private vehicle.

13. CONSTRUCTION SITE MANAGEMENT

The requirement for new materials needs to be minimised, by re-using existing buildings and materials where possible and providing a Site Waste Management Plan for all construction sites. This responsibility lies with the contractor and needs to be clarified at an early design stage. It is becoming a greater requirement now to construct buildings that are flexible and can be re-used.

13.1. POLICY REVIEW

National Planning Policy Framework (2024)

Paragraph 20

Strategic policies should set out an overall strategy for the pattern, scale and design quality of places and make sufficient provision for:

b) infrastructure for transport, telecommunications, security, waste management, water supply, wastewater, flood risk and coastal change management, and the provision of minerals and energy (including heat)

ROCHDALE CORE STRATEGY, ADOPTED OCTOBER 2016

G11 - Managing waste

We will support sustainable waste management and ensure that Rochdale borough makes an appropriate contribution towards Greater Manchester's waste management needs.

We will, therefore:

- a. Require all developers of new waste management facilities within the Borough to demonstrate the proposal's conformity with the principles of the waste hierarchy (prevention first, then preparing for re-use, recycling/composting, other waste recovery and final disposal);
- b. Support waste management development in the areas identified through the Greater Manchester Joint Waste Development Plan Document (GMJWDPD), subject to compliance with the details of that Plan and all relevant Core Strategy and other relevant national and local policies;
- c. Encourage the sustainable transport of waste, including by use of modes such as rail where possible;
- d. Promote the use of site waste management plans in major construction projects within the borough;
- e. Expect new waste management facilities proposed within the borough to balance environmental, social and economic impacts, including having scope for securing longterm benefits in improving the local environment; and
- f. Require that proposals for new waste management facilities within the borough do not, through their impact, undermine or discourage the regeneration of areas and strategic sites identified for investment in the Core Strategy.

Places for Everyone Development Plan (Adopted March 2024)

Policy JP-S6: Resource Efficiency

The achievement of a circular economy and a zero-waste economy will play a key role in meeting Greater Manchester's ambition of becoming a leading green city region by 2038. The following measures will help achieve this:

1. Development and implementation of the Zero Waste Strategy for Greater Manchester which promotes overall reduction in the level of waste produced and supports resource efficiency within the Plan area in order to gain the maximum value from the things we produce;
2. Recognition of the role of existing infrastructure in managing our waste and protecting such facilities to ensure adequate waste management capacity is maintained

13.2. DEVELOPMENT SUSTAINABILITY FEATURES

In order to comply with national and local policy in regard to construction site management, it is anticipated that certain measures will be put into place for this development. It is expected the main contractor will comply with best standards as set out in the Considerate Constructors Scheme, achieving a score which is considered as exceeding compliance with the criteria of the scheme.

To ensure the sustainable construction of the development, the project will consider the concept of the waste hierarchy as seen in Figure 13.1 below. The waste hierarchy recognises the need for waste to be considered for a variety of waste streams before being sent to land fill as a last resort. The hierarchy is as follows:

- *Waste minimisation;*
- *Reusing or waste or up cycling;*
- *Recycling of all applicable materials;*
- *Recovery of energy from waste (anaerobic digestion plants);*
- *Waste is sent to landfill.*

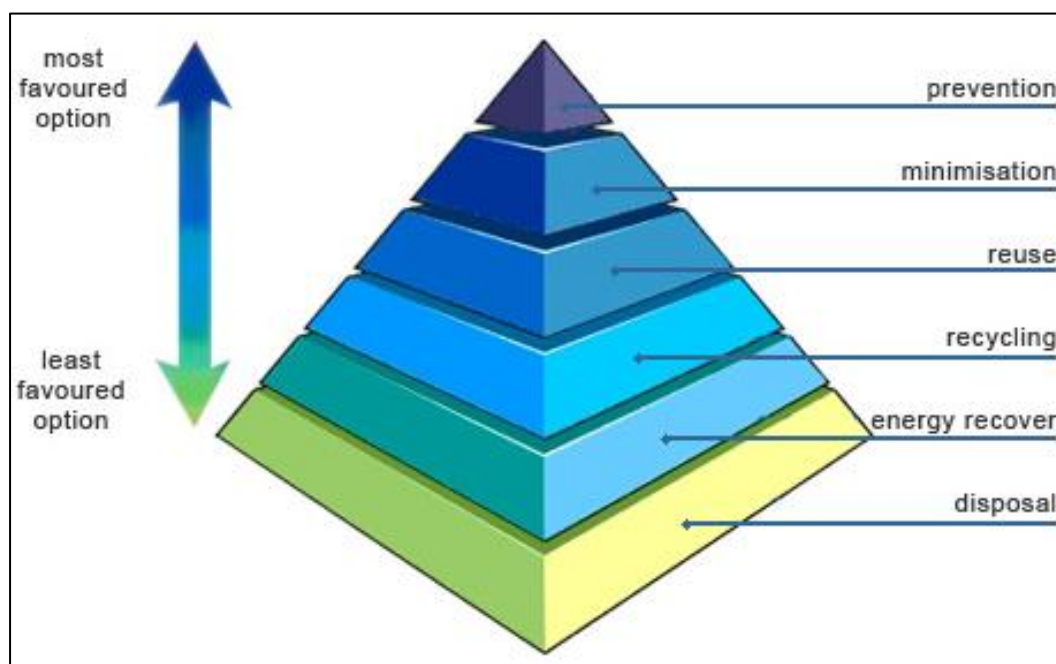


Figure 13.1 Waste Hierarchy Diagram

13.3. SUMMARY

It is anticipated that this development will produce a Site Waste Management Plan, highlighting key refurbishment materials and the correct waste streams for recycling these materials.

The development should adhere to a Considerate Constructors Scheme, achieving a targeted score which exceeds 'compliance' with the criteria of the scheme. As a result of these measures, the development may be deemed sustainable as regards to construction site management.

14. SUSTAINABLE DESIGN

Good urban design is essential in providing a varied and sustainable environment, which can facilitate opportunities for positive contributions within communities. As part of sustainable design for developments, it is essential that suitable design principles are followed to maximise opportunities for energy reduction through design as well as ensuring buildings follow or enhance the character of an area. Developments should also give further consideration to the level of security and comfort that is provided for future building users, including thermal and visual comfort, inclusivity and safe access.

14.1. POLICY REVIEW

National Planning Policy Framework (2024)

Section 12- Achieving Well-Designed Places

Paragraph 131

The creation of high quality, beautiful and sustainable buildings and places is fundamental to what the planning and development process should achieve. Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities. Being clear about design expectations, and how these will be tested, is essential for achieving this. So too is effective engagement between applicants, communities, local planning authorities and other interests throughout the process.

Places for Everyone Development Plan (Adopted March 2024)

Policy JP-S2: Carbon and Energy

The aim of delivering a carbon neutral Greater Manchester no later than 2038, with a dramatic reduction in greenhouse gas emissions, will be supported through a range of measures including:

1. Promoting the retrofitting of existing buildings with measures to improve energy efficiency and generate renewable and low carbon energy, heating and cooling;
2. Promoting the use of life cycle cost and carbon assessment tools to ensure the long-term impacts from development can be captured;
4. Increasing the range of nature-based solutions including carbon sequestration through the restoration of peat-based habitats, woodland management, treeplanting and natural flood management techniques;

14.2. DEVELOPMENT SUSTAINABILITY FEATURES

The proposed development shall include a variety of features which are regarded as having a good sustainable design. It is anticipated that any external lighting specified will be designed to reduce unnecessary light pollution during nighttime hours, a lighting assessment has been undertaken to ensure this.

To ensure the risk of potential overheating is minimised building modelling of the units are expected to have blinds to mitigate the risk of occupied spaces being affected from excessive solar gains; this is also being achieved through use of glazing with a low shading coefficient. Additionally, to ensure that overheating will not occur during summer months and the building is suitably insulated as well as allowing for adaptation due to the effects of climate change, it is anticipated that the development will use building fabrics with enhanced 'U' values which go beyond the minimum requirements of Part L (2021), as seen within Table 14.1. Further to this the energy efficiency measures discussed within Section 8.0 will be incorporated into the design of the development. It is anticipated that such measures will lower the building's energy requirements making its operation feasible and practical for years to come.

Element	Part L Requirement	U Value Specified	% Improvement
Wall	0.26	0.22	15.38%
Roof	0.16	0.15	6.25

BIRCH BUSINESS PARK

ENERGY AND SUSTAINABILITY STATEMENT

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Floor	0.18	0.18	N/A
Glazing	1.6	1.4	12.5%

Table 14.1 U Value Improvements

To provide a fully sustainable development it is also anticipated that the materials used for the following main elements of the development shall be rated under the Green Guide to Specification targeting ratings between A+ and D:

- *External walls;*
- *Ground floor;*
- *Roof;*
- *Windows.*

To provide a development which remains sustainable during its operation phase, it is anticipated that space will be provided for the provision of waste storage facilities with additional space of recyclable waste streams. This is to enable building users to sort waste before collection and minimise the quantity of waste that may end up at landfill.

The proposed development incorporates thoughtful landscaping improvements to enhance biodiversity and the overall environmental quality of the site. These include mixed planting and grassland areas strategically located in the site, contributing to a greener, more sustainable environment.

14.3. SUMMARY

In order to comply with national and local policies, the development shall strive to provide both to building users and the local community a building of sustainable design.

Measures should be taken to ensure the thermal comfort of future building users, through efforts such as ensuring no occupied areas will result in excessive solar gains and in turn over heating.

External lighting except safety and security lighting should be designed to be switched off automatically through the use of timers of day light sensors as well as the specification of cut off luminaires to reduce any potential light spill on to neighbouring properties as covered in the lighting assessment.

The above design features allow for the proposed development to be of sustainable design.

15. FLOOD RISK

To prevent an increase in surface water run off through development of a site, it is imperative that consideration is given to the reduction of over land flow during storm events as well as the impact of development in potential flood risk areas.

15.1. POLICY REVIEW

National Planning Policy Framework (2024)

Section 14- Meeting the Challenge of Climate Change, Flooding and Coastal Change

Paragraph 170

Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

ROCHDALE CORE STRATEGY, ADOPTED OCTOBER 2016

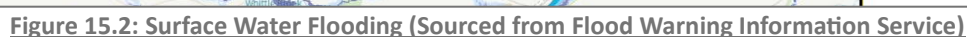
G8 - Managing water resources and flood risk

We will ensure that new development (including flood risk mitigation measures) does not lead to any form of increased flooding locally or further downstream, does not impede natural water and flood risk management, is not detrimental to existing or potential flood storage areas, contributes where possible to alleviating existing flood risk, is itself well protected from flood risk and ensures prudent use of water resources. We will require:

- e. Compliance with a 'sequential' approach to new development and flood risk, directing development away from areas of high risk, in accordance with the National Planning Policy Framework;
- f. Full regard to and compliance with the advice of the Environment Agency (or equivalent agency) and the objectives and priorities for flood risk management set out in the Local Flood Risk Management Strategy, including any mitigation measures recommended for particular sites;
- g. Full regard to the published evidence of local flood risk and its significance as included in Strategic Flood Risk Assessments, Surface Water Management Plans and other recognised sources of flood risk data and the production of additional Flood Risk Assessments (FRAs) as appropriate;
- h. Incorporation of appropriate measures for the management of surface and flood water, including flood storage areas, Sustainable Urban Drainage Systems (SUDS) and the protection of 'overland flow paths';
- i. Compliance with any Surface Water Management Plan or drainage strategies produced, such as for the identified critical drainage areas of Littleborough and Heywood;

15.2. DEVELOPMENT SUSTAINABILITY FEATURES

The flood risk maps within figures 15.1 & 15.2 confirm that the proposed site is located within Flood Zone 1, indicating a very low risk of flooding. The development works will not increase flood risk, and the site is considered safe, requiring no specific flood mitigation measures.



As shown in the flood maps (Figures 15.1 and 15.2), the site is located within Flood Zone 1 and is not at risk of flooding. The location is therefore considered sustainable and safe in terms of flood risk.

16. NOISE

Noise is a subjective concept that can affect people differently, however there are set standards as to acceptable levels of noise, for different areas and times of day. In this instance, the proposed development would be subject to potential noise pollution from road sources.

16.1. POLICY REVIEW

National Planning Policy Framework (2024)

Section 15- Conserving and Enhancing the Natural Environment

Paragraph 187

Planning policies and decisions should contribute to and enhance the natural and local environment by:

- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.

16.2. DEVELOPMENT SUSTAINABILITY FEATURES

The proposed development is not subject to extreme noise pollution from road and rail sources, as can be seen in figure 16.1 and 16.2 It should be noted that the noise levels are 'A' weighted and as such only demonstrate sounds on a frequency that would affect human populations, it does not consider noise on frequencies that may affect any local habitats.

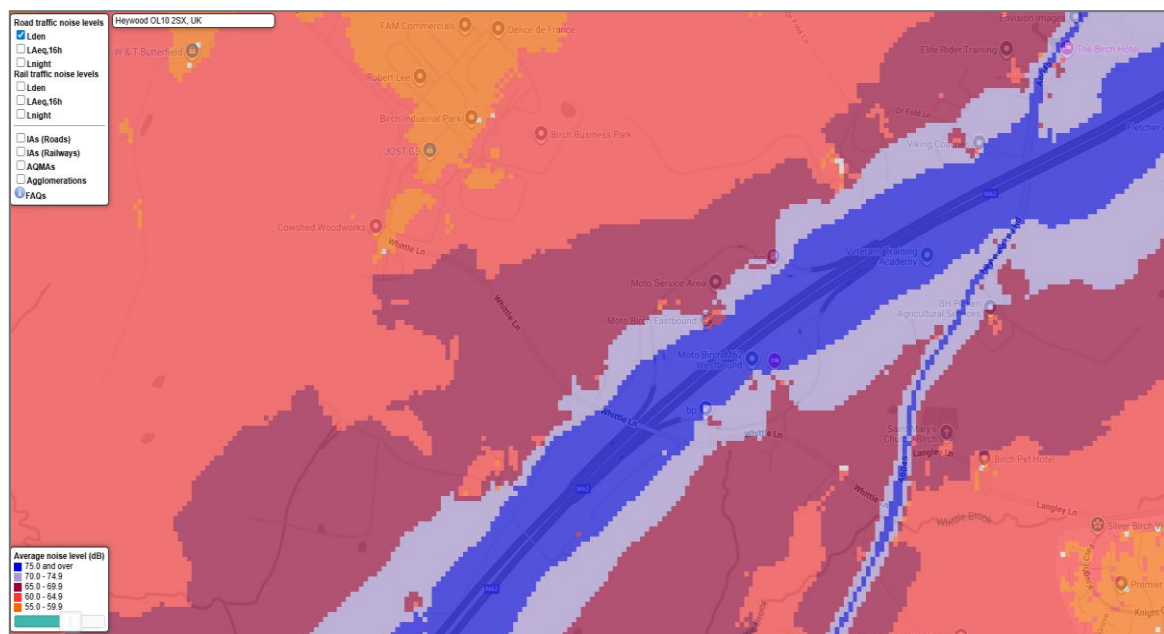


Figure 16.1: Road Noise Data Map (Postal Code Analysis, Sourced from Extrium)

BIRCH BUSINESS PARK ENERGY AND SUSTAINABILITY STATEMENT ISSUED

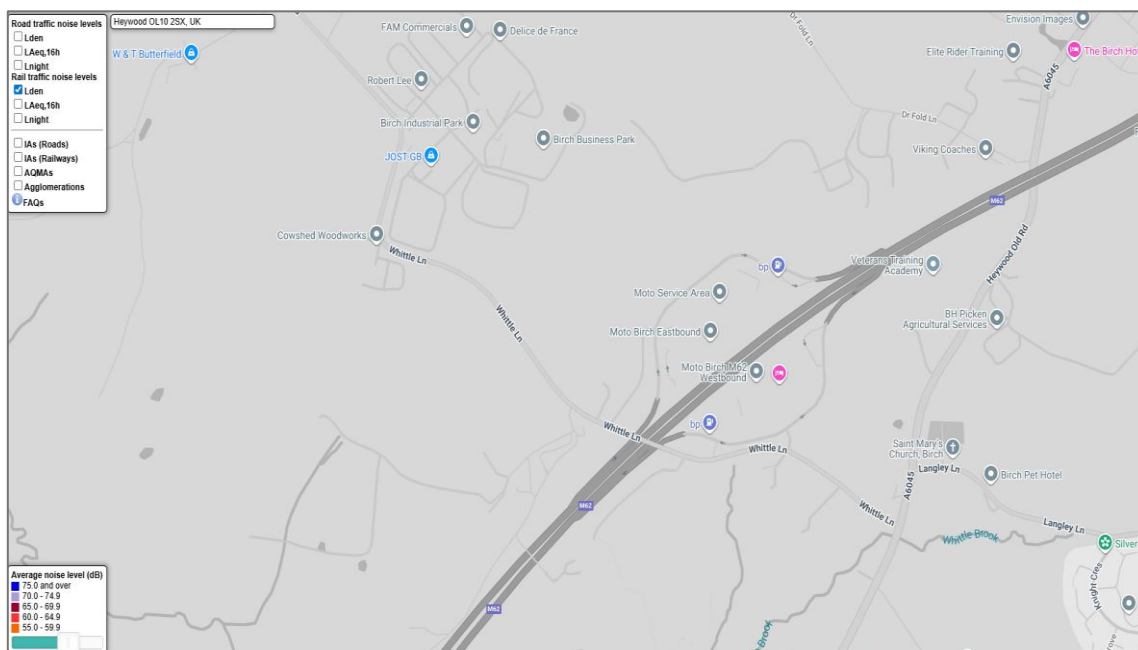


Figure 16.2 Rail Noise Data Map (Postal Code Analysis, Sourced from Extrium)

The proposed development is situated in close proximity to similar industrial buildings and therefore it is anticipated that the scheme will not become a source of noise pollution to the surrounding buildings.

16.3. SUMMARY

The development would not be subject to sources of noise pollution from surrounding roads and rail sources. It is anticipated that any plant equipment installed will not have an impact on the local area and as such the proposed development may be deemed sustainable with regard to noise.

17. ECOLOGY

Ecology is essential within many communities, with the mix of flora and fauna facilitating benefits such as flood alleviation and pollution amelioration. In addition to this, areas with a wealth of green spaces and an abundance of biodiversity are seen to provide a positive contribution to a community.

17.1. POLICY REVIEW

National Planning Policy Framework (2024)

Section 15- Conserving and Enhancing the Natural Environment

Paragraph 187

Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)

ROCHDALE CORE STRATEGY, ADOPTED OCTOBER 2016

G7 - Increasing the value of biodiversity and geodiversity

We will ensure that sites and features of biodiversity and geodiversity importance are given full and appropriate recognition and protection. Opportunities for enhancing biodiversity and geodiversity, creating new sites and features of interest and improving opportunities for public enjoyment will be supported. No development should result in a net loss of biodiversity or geodiversity interest in the borough and overall development in the borough should result in a net gain.

Particular priorities for biodiversity and geodiversity are:

6. Designated sites of ecological importance - will be given appropriate protection according to their European, national or local status and in accordance with policies in other development plan documents, supporting Supplementary Planning Documents and Biodiversity Action Plans.

Places for Everyone Development Plan (Adopted March 2024)

Policy JP-G8: A Net Enhancement of Biodiversity and Geodiversity

Through local planning and associated activities a net enhancement of biodiversity resources will be sought, including, where relevant, by:

1. Increasing the quality, quantity, extent and diversity of habitats, particularly priority habitats identified in national or local biodiversity action plans and those that support priority species;
2. Improving connections between habitats, to protect and enhance the provision of corridors, ecological networks (including Nature Recovery Networks) and steppingstones that enable the movement of species, especially as the climate changes;
3. Enhancing the management of existing habitats, including through habitat restoration, avoiding habitat fragmentation and combating invasive species;
4. Protecting sites designated for their nature conservation and/or geological importance, with the highest level of protection given to international and then national designations;
5. Facilitating greater access to nature, particularly within urban areas;
6. Supporting the development and implementation of the Great Manchester Wetlands Nature Recovery Network; and

17.2. DEVELOPMENT SUSTAINABILITY FEATURES

An ecology conservation map (sourced from MAGIC) highlights there is no Site of Special Scientific Interest (SSSI) in the vicinity of the site development. Figure 17.1 below shows that the nearest SSSI (Rochdale Canal) is approximately 4.66 km from the proposed development.

Cudd Bentley
Consulting



An Ecology conservation map (sourced from MAGIC) highlights there are no Sites of Special Scientific Interest (SSSI) in the vicinity of the site development, as the nearest SSSI is far enough to have an impact on the development.

18. LZC FOR BREEAM

LZC Section for BREEAM:

1. Energy generated from LZC energy source per year

Table 10.2 within section 10.1 of this statement provides the energy generated from LZC, which is equal to 57,400 kWh/Annum.

2. Carbon dioxide savings from LZC energy source per year

Refer to table 1.5 within section 1.0.

3. Life cycle cost of the potential specification, accounting for payback

Refer to table 10.3 within section 10.1.

4. Local planning criteria, including land use and noise

Please refer to section 5.0 which includes all local planning policies relevant to the energy and sustainability side of the development.

5. Feasibility of exporting heat or electricity from the system

During off peak hours, energy generated on site is expected to be exported to Grid.

6. Any available grants

No grants are currently available.

7. All technologies appropriate to the site

Refer to section 10, and table 10.1

8. Reasons for excluding other technologies

Refer to section 10, and table 10.1

9. Energy storage Feasibility

Energy storage is not proposed for the industrial units because of low energy demand, and renewable energy systems like photovoltaics (PV) and air source heat pumps (ASHP) can directly supply energy when needed.

BIRCH BUSINESS PARK

ENERGY AND SUSTAINABILITY STATEMENT

ISSUED

Energy Modeller Qualification:

The Energy Modelling (SBEM) was carried out by Hasnaat Mahmood and his qualifications and CV can be seen below in figure 18.1 and 18.2.

Mahmood, Hasnaat Shahid

(0.56) Miles

Cudd Bentley Consulting

Ashurst Manor, Church Lane

Sunninghill, Ascot

SL5 7DD

United Kingdom

Email: hasnaat.mahmood@cuddbentley.co.uk

Tel: 01344628821

LCC: LCC Building Design; LCC Simulation;

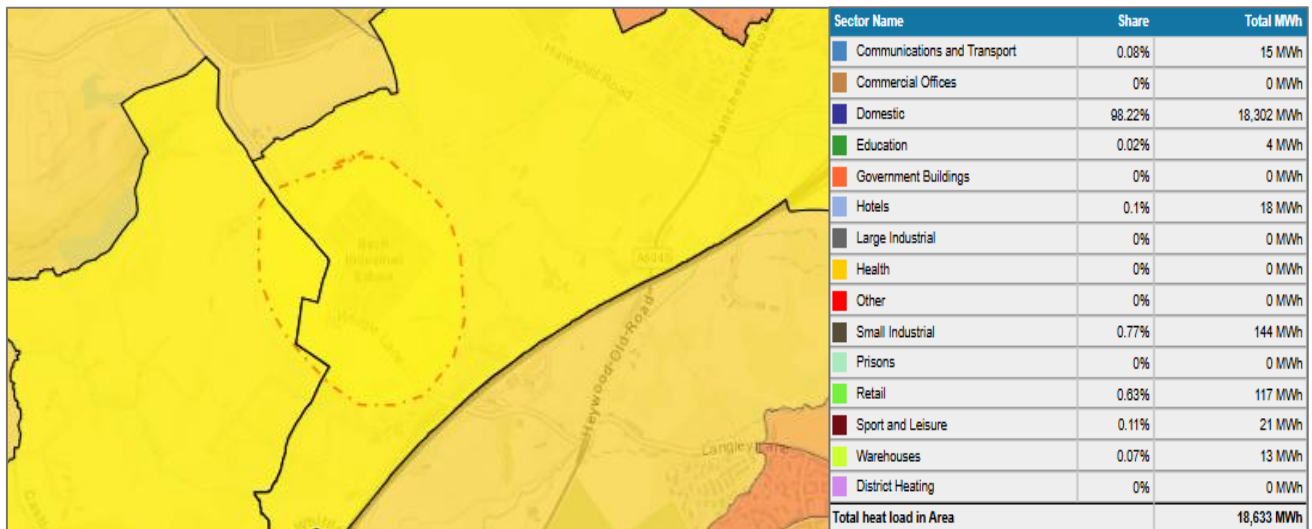
LCEA: LCEA EPC Level 3 and 4 EW&NI;

Figure 18.1 Energy Modeller Qualifications

HASNAAT MAHMOOD	
TITLE:	Senior Sustainability Engineer
QUALIFICATIONS:	BEng Mechanical Engineering MSc Renewable Energy Systems Part L Level 3/4 Energy Assessor Hevacomp Part L Competent
EXPERIENCE:	Hasnaat joined Cudd Bentley in 2021 and is mainly involved in undertaking Energy and Sustainability assessments, Building Regulation compliance, SBEM/SAP modelling and ensuring local and national planning policy requirements are met for various projects. He has a MSc degree in Renewable Energy Systems from University of Surrey. He has experience in residential, industrial and mixed-use developments and since joining Cudd Bentley he has gained extensive experience within the sustainability sector and has been promoted from graduate to sustainability engineer. Publications Managing for Energy Performance – A Guiding Framework for Property Management WOOLWICH PHASE 3 & PHASE 4 Part L compliance, Energy Statement, Sustainability Statement, Feasibility Study, Overheating Assessment POYLE INDUSTRIAL DEVELOPMENT Energy and Sustainability Statement, Feasibility Statement, BREEAM Assessment Sainsbury's Ilford The scheme consists of 7 multi-purpose blocks with over 1200 residential units with one block to serve student accommodation. Took the lead role in sustainability ensuring the best energy solution has been proposed in order to comply with the GLA planning policies. Worked on the Energy Statement, Sustainability Statement, Whole Life Cycle and GHG report. West Midlands Interchange The scheme consists of industrial warehouses (the largest in West Midlands) with office spaces on the ground and first floor. Worked on the net-zero report, in which a pathway was identified and proposed to make the building completely net zero in terms of operational energy and embodied carbon. Thames Road Produced an overheating assessment for the residential development in London and proposed mitigation measures in order to comply with CIBSE TM59 criteria. Laporte Way, Luton Worked on the Energy and Sustainability Statement for this industrial development for planning. Also, produced a net-zero carbon report in which solutions were proposed to make the development a net-zero building. Unit Q West, Heathrow This project consists of re-development of an existing building by changing the internal layouts and some building fabric. Worked on the operational energy calculation to determine amount of PV required to make building net-zero for operational use and offset embodied carbon.

Figure 18.2 Energy Modeller CV

APPENDIX A – CHP SEARCH



CHP availability Search Area

APPENDIX B – WIND MAP



Chart C.1 Wind Velocity Chart for the Development Site

BIRCH BUSINESS PARK
ENERGY AND SUSTAINABILITY STATEMENT
ISSUED

APPENDIX C – ENERGY AND CARBON CALCULATIONS

Baseline Energy

kWh/m²/annum Baseline												
Typical Unit	Area	Heating	Cooling	Auxillary	Lighting	Hotwater	Total	kWh/Annum	kgCO2/m²/ Annum	Total kgCO2/ Annum	Total TonsCO2/ Annum	PV (kWh/m²)
Birch Business Park	9149.40m²	1.74	1.19	0.93	11.93	4.14	19.93	160023.0	2.52	23056.49	23.06	2.44
Total	9149.40	1.74	1.19	0.93	11.93	4.14	19.93	160,023.01			23.06	0

Be Lean + Green Energy

kWh/m ² /annum Baseline + Passive + PV												
Typical Unit	Area	Heating	Cooling	Auxillary	Lighting	Hotwater	Total	kWh/Annum	kgCO ₂ /m ² /Annum	Total kgCO ₂ /Annum	Total TonsCO ₂ /Annum	PV
Birch Business Park	9149.40m ²	1.39	1.28	0.58	11.14	4.14	18.53	116654.85	1.89	17292.366	17.29	5.78
Total	9149.40	1.39	1.28	0.58	11.14	4.14	18.53	116,654.85			17.29	5.78

Energy Savings

Energy Calculations (Regulated Energy Demands) Energy							
Typical Unit	Total Area	Energy Baseline (kWh/annum)	Total Energy with Passive/Energy Efficiency Measures (kWh /annum)	Total Energy after CHP (kWh/annum)	Total Energy with Passive + PV measures (kWh /annum)	Total Displaced Energy from Baseline (kWh/annum)	Total % kwh/annum displaced
Birch Business Park	9149.40m ²	160023.0	116654.85		116654.85	43368.16	27.1%
Total	9,149	160,023	116,655		116,655	43,368	27.10%

Carbon Savings

Carbon Calculations (Regulated Energy Demands) Carbon								
Typical Unit	Total Area	Carbon Baseline kgCO2/annum	Improved Emissions after Passive/Energy Efficiency (kgCO2 /annum)	Improved Emissions after CHP (kgCO2/annum)	Improved Emissions after Passive + PV (kgCO2 /annum)	Total kgCO2/ annum displaced	Total TonsCO2/ annum displaced	Total % TonsCO2/ annum displaced
Birch Business Park	9149.40m²	23056.488	17292.366		17292.37	5764.12	5.76	25.00%
Total	9.149	23.056	17.292		17.292	5.764	5.76	25.00%

APPENDIX D – SAMPLE BRUKL REPORT

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

Be Green - Birch Business Park
As designed

Date: Wed Dec 03 11:01:21 2025

Administrative information

Building Details

Address: Birch Business Park, Whittle Lane, Heywood, Rochdale, OL10 2SX

Certifier details

Name: Hasnaat mahmood

Telephone number: 01344 628821

Address: Cudd Bentley, Ashurst Manor, Sunninghill, SL5 7DD

Certification tool

Calculation engine: SBEM

Calculation engine version: v6.1.d.0

Interface to calculation engine: Energy Simulator

Interface to calculation engine version: 10.9.2.36

BRUKL compliance module version: v6.1.d.0

Foundation area [m²]: 384.4

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	2.52
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	1.89
Target primary energy rate (TPER), kWh/m ² .annum	26.74
Building primary energy rate (BPER), kWh/m ² .annum	19.77
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 _{s-Limit}	U _{s-Calc}	U _{i-Calc}	First surface with maximum value
Walls*	0.26	0.23	0.28	Partition 1
Floors	0.18	0.18	0.18	Internal Floor 1
Pitched roofs	0.16	-	-	No heat loss pitched roofs
Flat roofs	0.18	0.15	0.15	Exposed Roof 1
Windows** and roof windows	1.6	1.4	1.4	Window 1
Rooflights***	2.2	-	-	No external rooflights
Personnel doors [^]	1.6	-	-	No external personnel doors
Vehicle access & similar large doors	1.3	-	-	No external vehicle access doors
High usage entrance doors	3	-	-	No external high usage entrance doors

U_{s-Limit} = Limiting area-weighted average U-values [W/(m²K)] U_{i-Calc} = Calculated maximum individual element U-values [W/(m²K)]

U_{s-Calc} = Calculated area-weighted average U-values [W/(m²K)]

* 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/m²K

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	4

BIRCH BUSINESS PARK

ENERGY AND SUSTAINABILITY STATEMENT

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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- Office

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	3.5	5	-	-	-
Standard value	2.5*	N/A	N/A	N/A	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.

2- Circ

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

3- WC

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

4- Reception

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	2.5	4.4	-	-	-
Standard value	2.5*	N/A	N/A	N/A	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.

1- Default DHW

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

Zone-level mechanical ventilation, exhaust, and terminal units

ID	System type in the Approved Documents
A	Local supply or extract ventilation units
B	Zonal system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal balanced supply and extract ventilation system
E	Local balanced supply and extract ventilation units
F	Other local ventilation units
G	Fan assisted terminal variable air volume units
H	Fan coil units
I	Kitchen extract with the fan remote from the zone and a grease filter

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

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Zone name	ID of system type	SFP [W/(l/s)]									HR efficiency	
		A	B	C	D	E	F	G	H	I	Zone	Standard
	Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1		
2F.OFF3		-	-	-	-	1.1	-	-	-	-	0.75	N/A
2F.OFF4		-	-	-	-	1.1	-	-	-	-	0.75	N/A
FF.OFF1		-	-	-	-	1.1	-	-	-	-	0.75	N/A
FF.OFF2		-	-	-	-	1.1	-	-	-	-	0.75	N/A
2F.WC		-	-	0.5	-	-	-	-	-	-	-	N/A
FF.WC		-	-	0.5	-	-	-	-	-	-	-	N/A
GF.WC		-	-	0.5	-	-	-	-	-	-	-	N/A

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
GF.UM		160	-	-
GF.WHO		160	-	-
2F.OFF3		140	-	-
2F.OFF4		140	-	-
FF.OFF1		140	-	-
FF.OFF2		140	-	-
2F.CIRC		100	-	-
FF.CIR		100	-	-
2F.WC		100	-	-
FF.WC		100	-	-
GF.WC		100	-	-
GF.ENT		110	-	-

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?
GF.UM	N/A	N/A
GF.WHO	NO (-44.1%)	NO
2F.OFF3	NO (-16.5%)	NO
2F.OFF4	NO (-23.7%)	NO
FF.OFF1	NO (-16.5%)	NO
FF.OFF2	NO (-22.9%)	NO
GF.ENT	YES (+37.3%)	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

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Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters			Building Use	
	Actual	Notional	% Area	Building Type
Floor area [m ²]	9149.4	9149.4		Retail/Financial and Professional Services
External area [m ²]	15046.3	15046.3		Restaurants and Cafes/Drinking Establishments/Takeaways
Weather	MAN	MAN		Offices and Workshop Businesses
Infiltration [m ³ /hm ² @ 50Pa]	4	5		General Industrial and Special Industrial Groups
Average conductance [W/K]	5217.4	5943.23	100	Storage or Distribution
Average U-value [W/m ² K]	0.35	0.39		Hotels
Alpha value* [%]	32.7	18.12		Residential Institutions: Hospitals and Care Homes
* Percentage of the building's average heat transfer coefficient which is due to thermal bridging				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	1.39	1.37
Cooling	1.28	0.76
Auxiliary	0.58	0.53
Lighting	11.14	13.55
Hot water	4.14	4.14
Equipment*	30.95	30.95
TOTAL**	18.54	20.35

* 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	5.78	2.45
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	5.78	2.45

Energy & CO₂ Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m ²]	211.29	194.46
Primary energy [kWh/m ²]	19.77	26.74
Total emissions [kg/m ²]	1.89	2.52

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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 SSEFF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] No Heating or Cooling									
Actual	135.2	78.4	0	0	0	0	0	0	0
Notional	122.8	74.4	0	0	0	0	0	----	----
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	24.3	165.3	2.1	12.9	4.6	3.26	3.55	3.5	5
Notional	35.2	124.1	3.7	7.8	3.8	2.64	4.4	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	156.9	94.7	54.5	0	0	0.8	0	1	0
Notional	231.6	42.4	48	0	0	1.34	0	----	----
[ST] Other local room heater - unfanned, [HS] Direct or storage electric heater, [HFT] Electricity, [CFT] Electricity									
Actual	77.6	49.7	27	0	11	0.8	0	1	0
Notional	86.4	48.8	17.9	0	13.1	1.34	0	----	----
[ST] Split or multi-split system, [HS] ASHP, [HFT] Electricity, [CFT] Electricity									
Actual	209.1	129.4	24.9	11.5	0	2.33	3.12	2.5	4.4
Notional	292.5	43.2	30.8	2.7	0	2.64	4.4	----	----

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

APPENDIX E – DRAFT EPC CERTIFICATE

Energy Performance Certificate
Non-Domestic Building

 HM Government

Birch Business Park
Whittle Lane, Heywood
Rochdale
OL10 2SX

Certificate Reference Number:
3316-3898-4400-8770-8114

This certificate shows the energy rating of this building. It indicates the energy efficiency of the building fabric and the heating, ventilation, cooling and lighting systems. The rating is compared to two benchmarks for this type of building: one appropriate for new buildings and one appropriate for existing buildings. There is more advice on how to interpret this information in the guidance document *Energy Performance Certificates for the construction, sale and let of non-dwellings* available on the Government's website at www.gov.uk/government/collections/energy-performance-certificates.

Energy Performance Asset Rating

More energy efficient

A+

A 0-25

B 26-50

C 51-75

D 76-100

E 101-125

F 126-150

G Over 150

Net zero CO₂ emissions

 **12**

This is how energy efficient the building is.

Less energy efficient

Technical information

Main heating fuel:	Grid Supplied Electricity
Building environment:	Air Conditioning
Total useful floor area (m ²):	9149.4
Building complexity:	Level 4
Building emission rate (kgCO ₂ /m ² per year):	2.26
Primary energy use (kWh/m ² per year):	23.31

Benchmarks

Buildings similar to this one could have ratings as follows:

14	If newly built
54	If typical of the existing stock

APPENDIX E – MODELLING INPUTS DETAILED

Heating & Cooling		
System Type	Efficiency/(S)COP	Efficiency /(S)EER
Air Source Heat Pump	3.5	5

Hot Water System	
Type	Fuel
Instantaneous Point of Use	Electric

Mechanical Ventilation Heating Recovery (Typical Unit Chosen)				
Area Type	Supply/Extract SFP (W/l/s)	Heat Recovery Efficiency (%)	Exhaust Flow Rate (l/s/m ²)	Exhaust SFP (W/l/s)
Offices Area's	1.1	70	x	x
WC's	x	x	5	0.4

Building Fabric	
Element	U-value (W/m ² K)
Ground Floor	0.18
External Wall (Cavity wall)	0.22
Roof	0.16
Windows (Double Glazed)	1.4 (g-value of 0.36)
Personal Doors	1.6
Vehicle Door	1.3

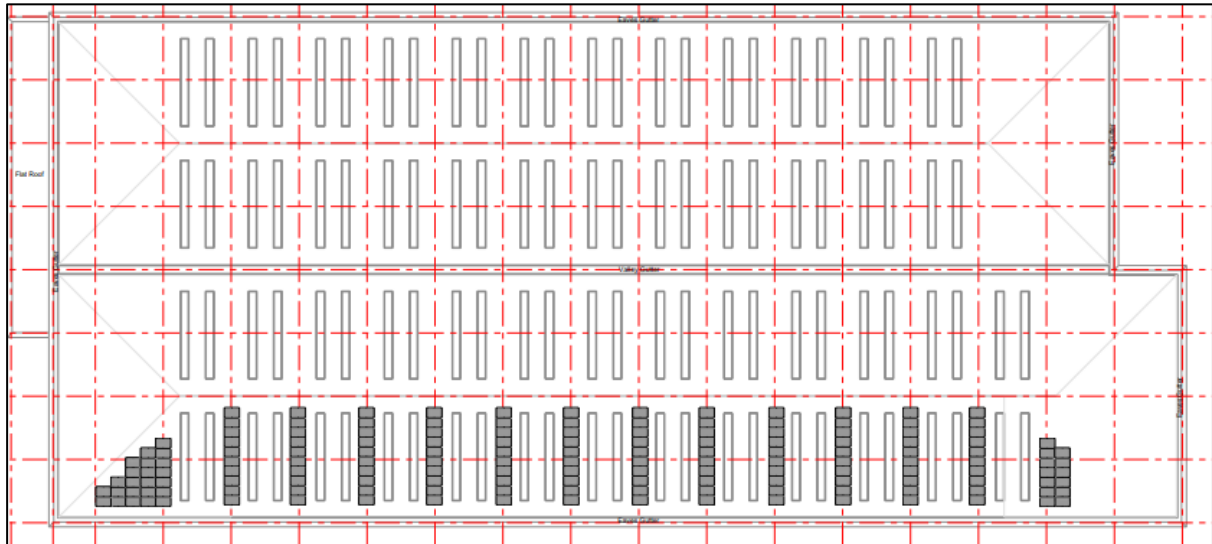
BIRCH BUSINESS PARK
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Air Permeability Rate – 4	
Renewables (Required for Net-Zero Target)	
PV Total Installed Capacity (KWp)	PV Inclination
70	South-Facing 30-degree inclination
Other Renewables (please specify details below): N/A	

Lighting	
Lighting Type	lumens per circuit watt
LED	Warehouse Storage – 160 lm/w (to be installed at fitout by tenant/occupier) Office Area's – 140 lm/w Reception – 100 lm/w WC – 100 lm/w Circulation Area's – 100 lm/W

APPENDIX F - PV LAYOUT





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