ELEMENT SUSTAINABILITY

OLD MARKET STREET, MANCHESTER

SUSTAINABILITY AND ENERGY STATEMENT

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Appendix A – SAP Output Report

1. INTRODUCTION

Element Sustainability have been commissioned by Robin Dobson to review the sustainability performance of the proposed residential scheme at Old Market Street, Manchester.

The purpose of this Statement is to summarise the relevant policy background and requirements of Manchester City Council (hereafter referred to as the council) and demonstrate the ways in which the client has sought to address these aims through the scheme proposals, ensuring measures have been taken in order to provide a sustainable development at this site. Submission of this statement will also aid in the discharge of Condition 7 of planning reference 126451/FO/2017.

This statement reviews the sustainable design features and appraises the energy strategy of the proposed development. Details of the design attributes, specifications and characteristics of the scheme are appraised in order to demonstrate how the proposals contribute to sustainable development in Manchester and seek to mitigate the environmental impacts of the scheme.

2. DEVELOPMENT PROPOSALS

2.1 Development Site Description

The application site is located on Old Market Street, Blackley in Manchester and the existing site is occupied by rough vegetation and a number of vehicular parking bays. The proposed development site is bound by Old Market Street to the north, with commercial / retail units to the east. The south and west of the proposed development site is dominated by residential properties plus associated gardens.

The wider area contains mostly residential properties as well as some community and educational facilities, and commercial uses. The proposed development site is not located within a conservation area.

Figure 2.1 – Pre-development Site

2.2 Development Proposals

The proposals include for the construction of a detached, three-bedroom bungalow with associated car parking, hard and soft landscaping, and boundary treatment.

The proposed site plan and elevations are displayed in Figures 2.2 to 2.4 below.

Figure 2.2 – Proposed Site Plan

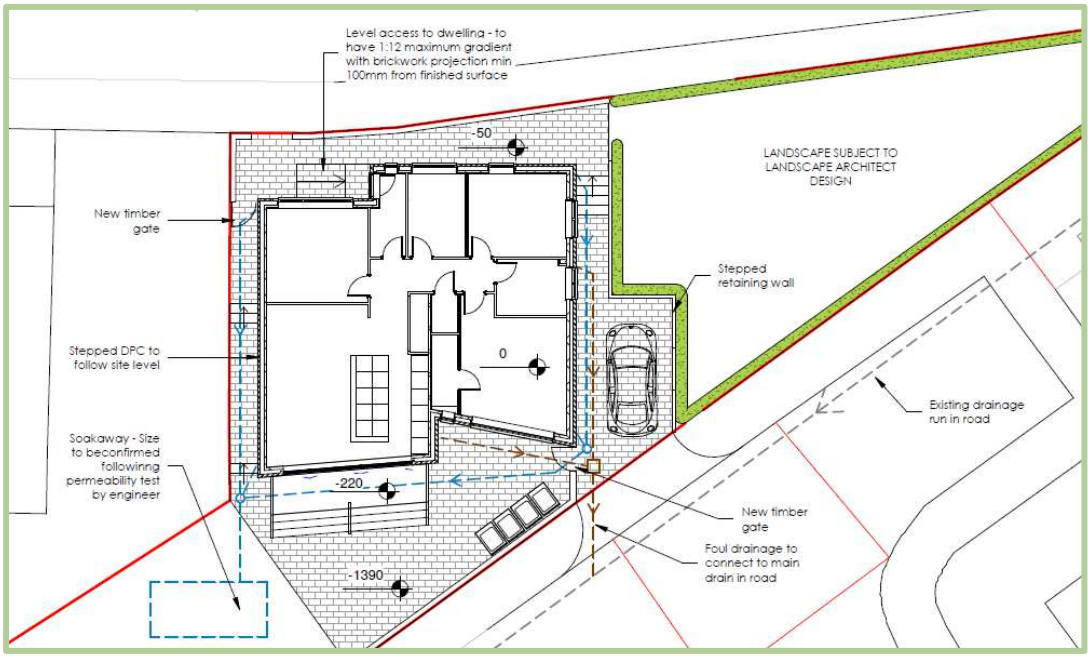


Figure 2.3 – Proposed Front Elevation

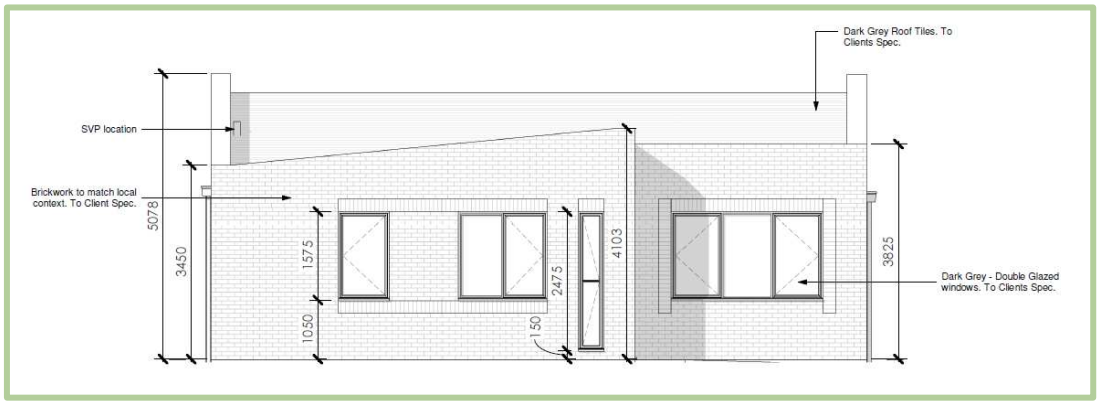
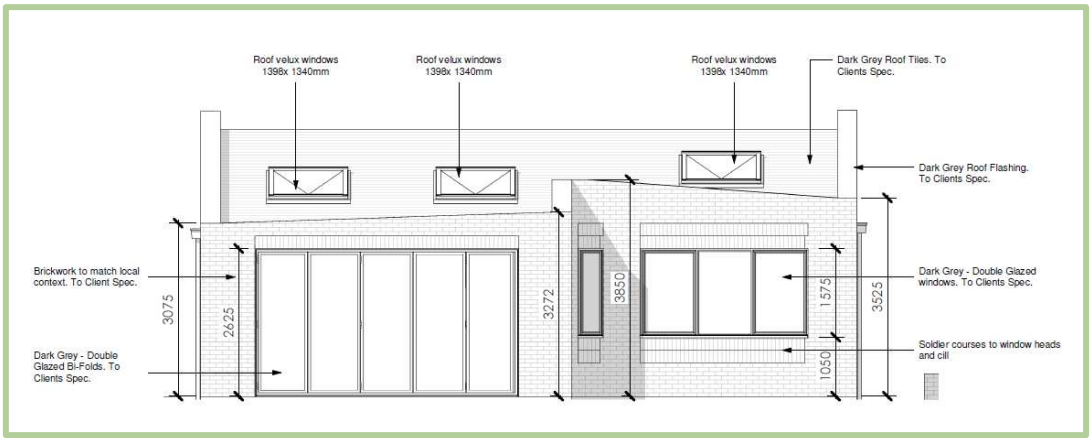


Figure 2.4 – Proposed Rear Elevation



3. POLICY REVIEW

3.1 Local Planning Policy

3.1.1 Manchester Core Strategy

Manchester's Core Strategy (CS) was adopted on 11th July 2012 and is the key Development Plan Document in the Local Development Framework (LDF).

CS Policy DM 1 - Development Management requires all development to have regard to a number of development principles. Subject to scheme viability, developers will be required to demonstrate that new non-domestic development to achieve a BREEAM Rating of 'Very Good' or for domestic development to achieve the Code for Sustainable Homes standard[1].

CS Policy EN 4 - Reducing CO_2 Emissions by Enabling Low and Zero Carbon Development requires all development to follow the principle of the Energy Hierarchy, being designed:

- To reduce the need for energy through design features that provide passive heating, natural lighting and cooling;
- To reduce the need for energy through energy efficient features such as improved insulation and glazing; and,
- To meet residual energy requirements through the use of low or zero carbon energy generating technologies.

Further details of the building regulation requirements are provided in the sections below.

3.1.2 Guide to Development in Manchester, Supplementary Planning Document

The Core Strategy requires that all new residential developments should accord with the design guidance set out in the Supplementary Planning Documents (SPD). The Guide to Development in Manchester SPD was adopted on 11thApril 2007 and supports and enhances the ongoing shaping of the City by providing a set of reasoned principles which will guide developers, designers and residents. These principles include a number of environmental standards, and includes the following categories which are identified in the SPD:

- Energy efficiency;
- Renewable energy;
- Environmental design;
- Water management and weather resilience;
- Waste management;
- Construction management;
- Biodiversity; and,
- Waterways.

[1] On the 25th March 2015 the Government issued a Written Ministerial Statement setting out the conclusion of the Housing Standards Review. The statement set out a new policy on the application of technical housing standards that applied immediately to all local planning authorities and qualifying bodies. This had a direct effect on the application of existing Code policies, and the setting of new Code policies. The Government elected to remove the Code for Sustainable Homes and incorporate new additional optional Building Regulations on water and access, and a new national space standard.

3.1.3 Manchester Residential Quality Guidance

This document provides guidance for building new build dwellings in Manchester. The residential quality guidance demands design excellence in all new housing built in the city, sets minimum space standards, and ensures high environmental standards. The guidance includes nine components:

Make it Manchester – developers must understand the city's unique character, heritage old and new, density and scale in various parts of the city and appreciate how new homes will fit in to what's already there.

Make it bring people together – new homes must encourage a sense of community and neighbourliness, offering a mix of tenures to promote a mix of people.

Make it animate streets and spaces – understand the relationship between new homes and its environment and create public space.

Make it easy to get around – make sure developments have good transport links, along with good walking and cycling provision.

Make it work with the landscape – development should improve the connection with the local environment with improved biodiversity, as well as greening and water schemes.

Make it practical – dealing with waste, car parking, bike storage and visitors should be made as easy as possible.

Make it future proof – design must anticipate the impacts of climate change and extreme weather with efficient design and adaptability.

Make it a home – sufficient space, natural light, privacy and storage are essential for people to settle down and flourish.

Make it happen – ensuring proposals are delivered to a high quality, with high design standards and high sustainability. Manchester's Great Outdoors

A Green and Blue Infrastructure Strategy for Manchester aims to invest in the city's Green and Blue infrastructure over the next 10 years (by 2025). Four objectives have been established to enable the vision to be achieved:

1. Improve the quality and function of existing green and blue Infrastructure, to maximise the benefits it delivers.

2. Use appropriate green and blue infrastructure as a key component of new developments to help create successful neighbourhoods and support the city's growth.

3. Improve connectivity and accessibility to green and blue infrastructure within the city and beyond.

4. Improve and promote a wider understanding and awareness of the benefits that green and blue infrastructure provides to residents, the economy and the local environment.

3.1.4 Climate Emergency

A **Climate Emergency** was declared by Manchester City Council on the 10th July 2019 in response to the findings of the Intergovernmental Panel on Climate Change (IPCC) report. The City Council believe that there is serious

risk to Manchester's people of climate change affecting economic, social and environmental well-being, supply chains – including food security, financial systems and local weather, among many others. Therefore, the target for becoming a zero-carbon city has been accelerated by 12 years, setting 2038 as the new target for the city.

Manchester Climate change Framework 2020 – 25 is Manchester's high-level strategy for meeting their commitment on climate change that builds on the Draft Manchester Zero Carbon Framework 2020-38, which was published in February 2019, and Manchester City Council's declaration of a climate emergency in July 2019. This was endorsed by MCC at the Executive meeting in March 2020 and will develop over the next five years, in line with changes in policy, climate science, rate of progress and other factors. The framework contains the following relevant objectives:

Objective 2 – Climate adaptation and resilience will require the adaption of the city's buildings, infrastructure and natural environment to the changing climate and increasing the climate resilience of our residents and organisations. This includes:

- Increase the amount of urban green infrastructure cover, aiming for a 10% increase by 2038 from 2018 levels, in line with the Greater Manchester aim.

Objective 3 – Health and wellbeing aims to improve the health and wellbeing of everyone in Manchester through actions that also contribute to objectives for CO_2 reduction and adaption and resilience:

- Adapt the city's built and natural environment and prepare residents to become more resilient to these changes. Increasing the amount and quality of green space to enable residents to benefit from the improved physical and mental health that will come as a result.

- Improving the energy efficiency of the city's homes and providing access to affordable, secure supplies of renewable energy, which are essential to help get 38,000 Manchester households out of fuel poverty.

Objective 4 – Inclusive, zero carbon and climate resilient economy looks to ensure that Manchester establishes an inclusive, zero carbon and climate resilient economy where everyone can benefit from playing an active role in decarbonising and adapting the city to the changing climate.

Priority Areas

Six priority areas have been established in order to help meet the above objectives and include:

1. Buildings (existing and new)
2. Renewable energy
3. Transport and flying
4. Food
5. The things we buy and throw away
6. Green infrastructure and nature-based solutions

Urgent Climate Change Framework Actions Identified to Help Meet the Commitments:

- New Buildings – To ensure that new developments in the city don't eat into the limited carbon budgets and add to the already significant retrofit challenge developments need to be built and operated to zero carbon standards as soon as possible.

- The ideal way to do this is through UK Government *establishing a national zero carbon definition* and methodology for its implementation, and for Manchester City Council to implement this standard as quickly as possible through the local planning system.
- This should include applying zero carbon standards to all developments where the Council has additional influence, with a view to all new development needing *to be zero carbon from 2023 at the latest.*

- Renewable Energy – The National Grid has been decarbonising in recent years; we need this to continue but at an accelerated rate, with a view to being fully decarbonised as soon as possible.

  - At least 50% of all homes should have the equivalent of 16m^2 of solar PV panels by 2024.

- Gas – The following actions are needed to help reduce the reliance on natural gas:

  - Improve the energy efficiency of our buildings as far as possible to reduce our demand for gas.
  - Replace our natural gas-based heating systems with renewable energy-based heating technologies as soon as possible.
  - Work with Government to ensure that moving to electricity-based heating systems is affordable and doesn't push even more people into fuel poverty.

3.2 Emerging Policies

The previous Draft Greater Manchester Spatial Framework 2020 is currently on hold following Stockport Council's decision to withdraw from the GMSF in December 2020. The Draft 'Places for Everyone' Plan is a new long-term plan of nine Greater Manchester districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) for jobs, new homes, and sustainable growth. It has been prepared by the GMCA on behalf of the nine districts.

The Draft Plan will determine the kind of development that takes place across the city-region, maximising the use of brownfield land and urban spaces while protecting green belt land from the risk of unplanned development.

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

A final period of public consultation is taking place with regards to the Draft 'Places for Everyone' Plan between 9 August 2021 and 3 October 2021. Following this there is an intention to submit the Plan to the Secretary of State. It is therefore considered that the Plan is in an advanced stage of preparation and will hold some weight in the determination of planning applications within Greater Manchester

3.3 National Planning Policy

In addition to the local planning policies, the **National Planning Policy Framework 2019** is a material consideration. The National Planning Policy Framework (amended July 2019) replaces all previous PPSs and PPGs.
The NPPF states that the planning system should play an active role in guiding development to sustainable solutions. There are three dimensions to sustainable development, as stated within the NPPF: economic, social and environmental. These dimensions give rise to the need for the planning system to perform a number of roles:

An economic role – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure;

A social role – supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high-quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being; and

An environmental role – contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

These roles should not be undertaken in isolation, because they are mutually dependent. Economic growth can secure higher social and environmental standards, and well-designed buildings and places can improve the lives of people and communities. Therefore, to achieve sustainable development, economic, social and environmental gains should be sought jointly and simultaneously through the planning system.

Pursuing sustainable development requires careful attention to viability and costs in plan-making and decision-taking. To ensure viability, the costs of any requirements likely to be applied to development, such as requirements for affordable housing, standards, infrastructure contributions or other requirements should, when taking account of the normal cost of development and mitigation, enable the development to be deliverable.

At the heart of the National Planning Policy Framework is a **presumption in favour of sustainable development** - for decision-taking this means approving development proposals that accord with the development plan without delay.

3.4 Regulatory Framework

3.4.1 Building Regulations

Building Regulations, Part L - Conservation of Fuel and Power sets the compliance standards for energy demand and carbon dioxide emissions from buildings.

Approved Document L1A addresses the conservation of fuel and power in new dwellings. The proposed development is registered against Building Regulations, Part L (2013) which requires all newly constructed dwellings need to comply with 5 criteria set out in Approved Document L1A unless exempted through the transitional provisions:

I. The predicted rate of carbon dioxide emissions from the dwelling (the Dwellings Emission Rate DER) is not greater than the Target Emissions Rate (TER). Additionally, the Dwelling Fabric Energy Efficiency (DFEE) is not greater than the Target Fabric Energy Efficiency (TFEE);

II. The performance of the building fabric and fixed building services should be no worse than the design limits set out in Table 2 of the Approved Document;

III. The dwelling has appropriate passive control measures to limit the effect of solar gains on indoor temperatures in summer;

IV. The performance of the dwelling as built is consistent with the DER, including site checking that the air permeability is within reasonable limits; and

V. The necessary provisions for energy efficient operation of the dwelling are put in place including operating and maintenance instructions aimed at achieving economy in the use of fuel and power in a way that householders can understand.

3.5 Applicable Targets

Based upon a review of relevant planning policy requirements, legislative drivers, and client priorities, the following list provides a brief precis of the key criteria that should be targeted for this development:

- CS Policy DM 1 – Development Management
- CS Policy EN 4 – Reducing CO_2 Emissions
  - Following the principles of the Energy Hierarchy to reducing CO_2 Emissions;
- Guide to Development in Manchester SPD
- Approved Document L1A will guide the compliance standards for energy demand and carbon dioxide emissions from this building.

4. ENVIRONMENTAL PERFORMANCE

This section provides an appraisal of the development proposals and details the specific approach, design features and specifications which will contribute to reducing the environmental impact of the proposed scheme. This section outlines those commitments that have been made by the client to ensure this development contributes to sustainable development, meets the council's current policies, and examines the following categories identified in the Guide to Development in Manchester, Supplementary Planning Document (SPD):

- Energy efficiency;
- Environmental design;
- Waste management;
- Construction Management;
- Renewable energy;
- Water management and weather resilience;
- Biodiversity; and,
- Waterways.

The key specifications, site characteristics and design measures of the proposed development are considered below. They will help to mitigate the environmental impact of the scheme throughout both the construction stage and the future occupation of the development.

4.1 Energy

In order to limit energy demand and carbon dioxide (CO_2) emissions from the operation of the new dwelling, the following design features will be integrated within the scheme. These will enable the occupant(s) to lead a low-impact lifestyle:

4.1.1 Energy Efficiency Strategy

- The proposed approach to emissions reduction at this site will be through a fabric led energy strategy and efficient servicing in accordance with the principles of the Energy Hierarchy;
- The enhanced material specification will be supplemented with efficient mechanical and electrical systems; and,
- The proposed heating strategy for the dwellings will be provided by high efficiency, gas-fired boilers to meet the space and water heating loads generated by the buildings;

Further details of the proposed approach to reducing the energy demand and associated carbon dioxide emissions of this dwelling is presented in Section 5 (Energy Strategy) and Section 6 (Climate Emergency).

4.1.2 General Principles

- White goods are graded on a scale from G (the least efficient) up to A++ (the most efficient) under the EU energy efficiency labelling scheme. There will be the provision of A and A+ rated white goods (where applicable);
- Provision of EU energy efficiency labelling scheme details to assist in the purchasing of energy efficient white goods; and,

- 100% low energy and/or LED internal lighting.

4.2 Water

The new dwelling will be designed to reduce mains/potable water consumption and will include water efficient devices and equipment.

- A water efficiency strategy will be determined for the development. This will include 'A' rated appliances (where provided);

- Specification of efficient water fixtures throughout the scheme including low flow taps and showers, dual flush WCs and low volume baths. In order to reduce the demand, the sanitary fixtures will be specified to achieve a calculated daily consumption of <105litres/person/day; and,

- The landscaped areas of the development will be irrigated solely by precipitation throughout all seasons of the year to reduce unregulated water consumption.

4.3 Resource Management and Pollution

4.3.1 Efficient Use of Land

- The proposal for the residential dwelling makes effective use of a small plot of vacant land in meeting the urgent need for homes.

4.3.2 Pollution Control

To reduce emissions of gases with high global warming potential (GWP) and nitrogen oxide (NOx) into the atmosphere, the new build dwellings will be specified with:

- Insulating materials that have a GWP of less than 5 throughout the development to reduce the construction phase impact of this scheme upon climate change.

Additionally, the following measures will be implemented:

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

- Where necessary, temporary drainage and pollution prevention measures will be in place on site, this may include, for example, bunded areas and spill kits to prevent harmful chemicals/materials from draining to natural watercourses; and silt traps to ensure that suspended solids are removed from the drainage water;

- Dust suppression measures will also be put in place as part of the contractor's Environmental Management Plan, such that any potential risks to watercourses or the neighbouring properties are minimised; and,

- Sound insulation will be specified to achieve Building Regulation Part E compliance standard in addition to meeting the requirements of the council. Excess noise can have a significant impact on local ecology

as well as human physical and psychological health therefore, an Acoustic Planning Report has been prepared by Lighthouse Acoustics. The assessment confirms that measured noise levels have been used to determine specifications for glazing and ventilation to ensure internal criteria for living spaces is achieved. Furthermore, the landscaping proposals include for the planting of new trees and shrubbery around the site borders and property boundaries. These measures will help to further buffer any noise generated by the development and the adjacent road.

4.3.3 Materials

This development will contribute towards making more efficient use of non-renewable material resources and to reducing the lifecycle impact of materials used in construction. This is demonstrated by the selection of:

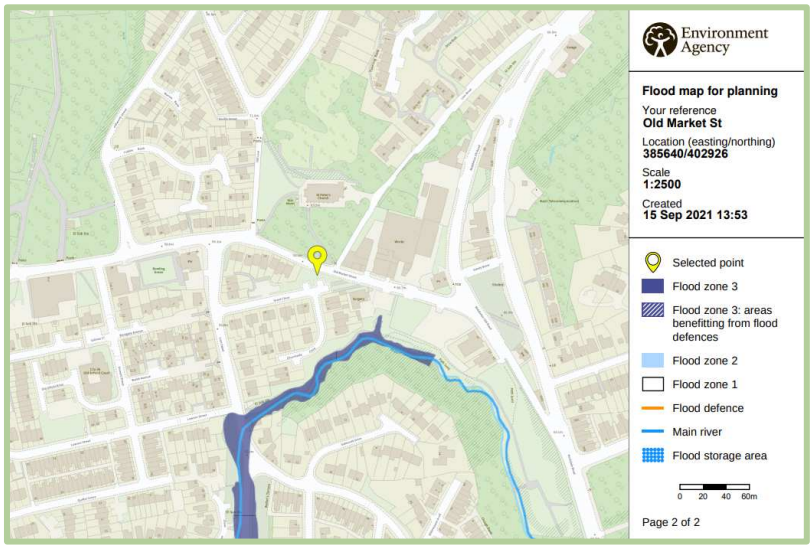
- Materials with low environmental impact throughout their lifecycle will be selected;
- Materials responsibly sourced from suppliers operating an Environmental Management System or procuring timber verified by either the Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification standard (PEFC) will be utilised;
- Construction materials will be selected to match the existing building on the site, as well as the housing stock of the area, so as to contribute to the retention of the local housing characteristics; and,
- Robust materials will be utilised for hard landscaping that reflect the local vernacular therefore, minimising the frequency of replacement.

4.4 Surface Water Run-off

4.4.1 Flood Risk

The proposed site is located within Flood Risk Zone 1 and therefore has a low probability of flooding. Data provided on the Environment Agency website confirms the Flood Risk Zone classification for the site (see Figure 4.1).

Figure 4.1 – Flood Risk Map



4.4.2 On Site Surface Water Management -

To minimise the risk and impact of localised flooding on and off-site, watercourse pollution and other environmental damage, the drainage strategy will ensure that the peak rate of run-off from the site to the watercourses (natural or municipal) will be no greater for the developed site than it was for the pre-development site.

It is proposed that run-off from the roof of the proposed dwelling would discharge to a crate soakaway located beneath the proposed landscaped area, and the areas of car parking and pedestrian access will comprise permeable paving in order to minimise the risk of flooding.

4.5 Construction Waste

Best practice techniques to prevent and minimise waste arising during the design and construction phases of the development will be adopted as follows:

- Prior to commencement of the above ground construction phase, a site waste management plan (SWMP) will be produced by a waste management contractor, containing procedures for waste minimisation, as well as optimisation of waste recovery and recycling in accordance with the Waste Hierarchy. This SWMP will limit the on and off-site environmental impacts of construction and will detail:
    - Recycled and secondary materials;
    - Waste reduction;
    - Waste segregation;
    - Waste recovery; and,
    - Waste disposal.
- A site waste management plan will identify opportunities to minimise waste generation and divert at least 90% of construction waste from landfill; and,
- This scheme will promote the minimisation of waste from the site development and seek to maximise the use of recycled materials in construction.

4.6 Domestic Waste

The building will provide infrastructure and facilities that meet the need of the residents for segregated waste storage, thereby optimising the ability to recycle waste:

- Recycling bin storage provisions will enable residents to make full use of Local Authority recycling services; and,
- A waste management strategy will be developed, ensuring adequately sized bin storage areas for the retail units and each residential dwelling, access for collection personnel and vehicles, and other aspects of waste management will be designed into the development at an early stage of the design. The strategy will allow for storage of general waste, recyclable materials, and food waste, in order to optimise the recycling rates targeted by Manchester City Council.

4.7 Health and Wellbeing

To enable the occupants of the proposed development to lead lower impact lifestyles and enhance their quality of life, the following measures will be delivered:

- Good levels of natural daylighting will be achieved within the dwelling. This will reduce the need for energy to artificially light the dwelling; and,

- The dwelling will comply with National Space Standards, to ensure that the dwelling is of a sufficient size and provides flexibility and comfort for the future occupants.

4.8 Management

In order to minimise the impact of the development during construction and operation whilst providing a safe place to live, the proposals include for the following provision:

- Construction site impacts will be minimised and measures implemented to protect water courses, as well as to prevent impacts upon the local area in terms of dust and noise pollution during construction works; and,

- The security needs of the development will be considered, and security measures incorporated into the development which shall be to 'secured by design' specification as per Condition 5.

4.9 Biodiversity

Biodiversity -

The landscaping proposals will include the planting of shrubs, trees and wildflowers of local progeny that support blossoms and fruit. Trees have been incorporated into the scheme to replace those previously felled and to create a more interesting vista, whilst hedges have been selected to provide a dense evergreen boundary which can be neatly maintained and will sit nicely in the local area. In addition, a wildflower mix has been recommended for the eastern edge of the site.

The proposed planting scheme will support invertebrates and in turn, encourage foraging birds and bats. Planting to the front boundary will be maintained to 1m height due to its proximity to the footpath and road.

4.10 Transport

The proposed development is located within approximately 5 kilometres of Manchester city centre, which is one of the most sustainable locations in the north west, particularly in relation to key pedestrian, rail, Metrolink and bus transport routes.

The site is well located in terms of non-car modes of transport with basic facilities all within easy walking distance of the site.

Transport Links -

The site benefits from good sustainable access opportunities and is well connected by existing walking and cycling routes to key trip attractors. Buses can also be used to easily access the site as well as Metrolink stops:

- Bus – The nearest bus stops are located within easy walking distance (approx. 140m) to the east and west of the site. The bus stops provide regular services into Hulme, Salford Quays, Oxford Road, Piccadilly Gardens and Oldham amongst others.

- Rail – The nearest railway station is Moston and is located 3.6km (or a 40-minute walk) away from the proposed development site. This station services the Pink Line and provides regular services through the week to Clitheroe and Rochdale.

- Metrolink – The nearest Metrolink station is Newton Heath and Moston and is located 3.9km (or a 48-minute walk) away from the proposed development site. This station services the Pink Line and provides regular services to East Didsbury and Rochdale.

- Cycle - The area is accessible by bike with particularly strong links to employment opportunities in the city centre areas such as Salford and Manchester which can be accessed easily via public transport.

- Pedestrians – The site is in a sustainable location with basic facilities that can be accessed from the development via foot or public transport.

Local Amenity Access -

- Residents are able to walk to local amenities and shops along Old Market Street and Rochdale Road; and,

- Local amenity space and recreational facilities are located close to the site, such as:

    - Recreational Space – Boggart Hole Clough is located just a 7-minute walk away from the site, providing access to a significant expanse of green space for residents to utilise. This public space offers residents access to woodland, a recreation ground and sports area;

    - Education – There are a range of education facilities surrounding the proposed development site including Mount Carmel RC Primary School, Pike Fold Primary School, and Blackley Academy. All of these institutions are within 1.3km of the site and the various Universities homed within Manchester and Salford can be easily accessed via public transport links; and,

    - Cultural – The site is positioned only a short bus journey away from of a multiplicity of cultural institutions such as the Science and Industry Museum, numerous theatre and art venues and Manchester's City Library.

Disability Access -

- Disabled access provision within the scheme itself will be in accordance with Building Regulation, Part M criteria as far as possible.

5. ENERGY STRATEGY

Details of the proposed energy strategy for the Old Market Street development, which includes an enhanced fabric approach to dwelling emission rate reduction combined with efficient mechanical and electrical servicing, are reviewed below.

Priority is given to achieving a reduction in carbon emissions by means of on-site measures and applying the principles of the energy hierarchy.

5.1 Local Planning Policy Targets

Manchester's Core Strategy (CS) includes the following relevant policy:

CS Policy EN 4 - Reducing CO_2 Emissions by Enabling Low and Zero Carbon Development requires all development to follow the principle of the Energy Hierarchy, being designed:

- To reduce the need for energy through design features that provide passive heating, natural lighting and cooling;
- To reduce the need for energy through energy efficient features such as improved insulation and glazing; and,
- To meet residual energy requirements through the use of low or zero carbon energy generating technologies.

5.2 Build Fabric and Thermal Performance

A combination of enhanced building fabric specification (significantly beyond the regulatory compliance standard), efficient mechanical and electrical systems, and controls, will achieve compliance with the emission reduction targets stipulated by Building Regulations Part L1A (2013).

The standard measurement of heat transfer through a given building material or construction type is the U-value (W/m^2K). In buildings, heat loss generally occurs through the following areas and elements of the construction:

- Ground Floor;
- External Walls;
- Roofs;
- Doors and Windows;
- Thermal (cold) Bridging (heat loss through construction joints); and,
- Uncontrolled Ventilation.

The lower the U-value, the more slowly heat transfers and is lost out of a building. Table 5.1 presents the proposed material specification that could be incorporated to limit heat loss and ensure efficient operation of the dwelling.

Table 5.1 – Proposed Building Specification

Item	Specification
External Wall	U=0.18W/m^{2}K *(Masonry construction)*
Loft Wall	U=0.18W/m^{2}K *(Timber stud wall)*
Ground Floor	U=0.13W/m^{2}K
Roof	U=0.13W/m^{2}K *(Sloping roof)*
Roof	U=0.16W/m^{2}K *(Plane roof)*
Windows and Glazed Doors	U=1.5W/m^{2}K; g=0.72 *(uPVC, double glazed, low E)*
Roof Lights	U=1.1W/m^{2}K *(Velux triple glazed, Low-E)*
Solid Doors	U=1.6W/m^{2}K
Air Permeability	5.0m^3/hm^2 (@50Pa.)
Cold Bridge	Accredited Construction Details

These specifications and design attributes will provide the following benefits:

- **High performance thermal insulation** will ensure low U-values for all heat loss elements;
- **Thermally efficient double-glazed windows** will be specified with argon gas fill and low emissivity coatings to limit heat loss through the panes. The glazing g-value will be specified to optimise beneficial solar gains but limit the propensity for the dwelling to overheat;
- **Low air permeability** of 5.0m^3/hm^2 (@50Pa.) is targeted for the dwelling in order to minimise uncontrolled ventilation. This will reduce heat losses and provide high levels of occupant comfort. Focus on the quality of the build is vital to deliver airtight buildings; and,
- **Attention to cold bridging junctions** including the provision of insulation to reduce heat and limit heat losses that occur at the junctions between building elements and around openings and will significantly improve the emission rate of the dwellings.

This specification will help to deliver an energy efficient development that achieves an emission rate and fabric energy efficiency performance as per the requirements set by building regulation Part L1A, (2013).

5.3 Building Services Specification

Table 5.2 presents the current proposed mechanical and electrical specification that is anticipated to be part of the design to ensure efficient and comfortable operation of the dwelling.

Table 5.2 – Proposed Mechanical and Electrical Specification

Item	Specification
Ventilation	Natural intermittent extract ventilation
Lighting	100% 'Low E' or LED
Space Heating	High efficiency, gas-fired condensing boiler
Heating Controls	Time and temperature zone controls with delayed start-stat and boiler interlock
Water Heating	From combi boiler

The specification will provide the following benefits:

- **No mechanical cooling** is required for the dwelling. The building is not considered to be at risk from overheating due to the orientation of the building and openable windows therefore, natural intermittent extract fans and acoustic window ventilators are specified throughout.
- **Low energy and LED lighting** will be specified throughout the scheme in order to maximise operational efficiencies and lifespan of the fittings. LEDs operate with an estimated energy efficiency of up to 90% when compared to traditional lighting and conventional light bulbs. This means that about c.90% of the electrical energy is converted to light, rather than wasted heat as in conventional bulbs;
- **Sophisticated heating controls** including time and temperature zone controls will ensure the efficient delivery of heat from the gas-fired condensing boiler to further reduce the dwellings' energy demand.

5.4 Energy Performance Calculations

5.4.1 Methodology

Approved SAP 2012 software (Design SAP 2012 4.14r16) has been used to calculate *an* energy demand models for the scheme based on available plans. The calculations demonstrate the environmental benefits associated with the 'fabric led' approach to energy demand and emissions reduction, which has been implemented in conjunction with efficient mechanical and electrical systems.

SAP software calculates the regulated energy demand of the dwelling and associated carbon dioxide emissions, in accordance with the requirements of Building Regulation, Part L1A (2013) that this development will be constructed in compliance with.

5.4.2 Regulated Energy Demand and Emission Calculations

The calculated Dwelling Emission Rate reduction over Part L1A (2013) and thermal envelope Fabric Energy Efficiency performance associated with the proposed 'fabric led' specification for the development is presented in Tables 5.3 and 5.4 respectively.

Table 5.3 – Average Regulated Dwelling Emission Rate

House Type	Bungalow
Dwelling DER ($kgCO_2/m^2/yr.$)	19.59
Dwelling TER ($kgCO_2/m^2/yr.$)	19.70
% DER Reduction over Part L 2013	**0.56**

The above calculations demonstrate that the Dwelling Emission Rate (DER; carbon dioxide emissions) reduction for the development is expected to be at least 0.56% better than the Part L1A (2013) compliance requirement.

Table 5.4 – Average Fabric Energy Efficiency

House Type	Bungalow
Dwelling DFEE ($kWh/m^2/yr.$)	61.24
Dwelling TFEE ($kWh/m^2/yr.$)	66.59
% DFEE Reduction over Part L 2013	**8.03**

The Dwelling Fabric Energy Efficiency for the scheme is expected to achieve an 8.03% betterment relative to the Part L compliance criterion.

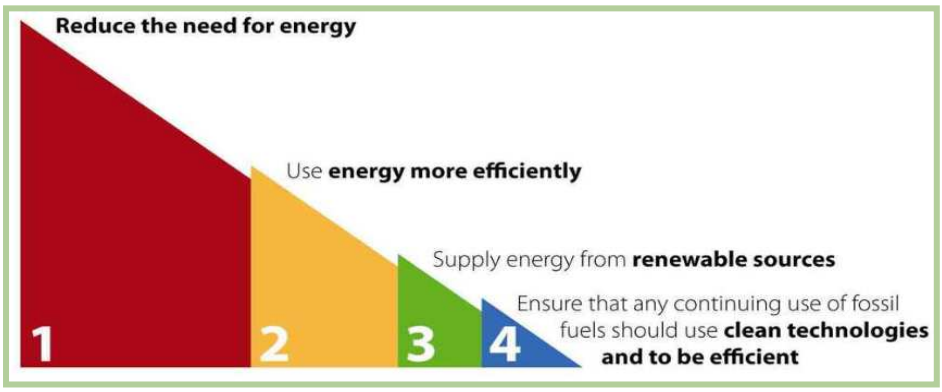
This indicative SAP calculation demonstrates that the Dwelling Emission Rate (DER) reduction for the Old Market Street scheme will provide a significant improvement over the Part L1A (2013) compliance standard as a consequence of the proposed enhanced fabric specification, and efficient mechanical and electrical systems.

5.5 Energy Hierarchy

The scheme will incorporate an enhanced material specification along with high quality design and construction standards in order to improve energy efficiency through a 'fabric led' energy strategy. The construction, design and specification proposed for this scheme will deliver dwellings that is cost-effective during occupation.

The Energy Hierarchy provides a framework to guide energy policy and decision making to achieve practical and cost-effective carbon emission reduction strategies. The hierarchy prioritises demand-side activities to reduce wastage and improve efficiency (see Figure 5.1).

Figure 5.1 – The Energy Hierarchy



First Principle

The following efficiency measures are designed to reduce heat losses and minimise energy demand:

- The dwelling will be constructed with a material and design specification which exceeds minimum Building Regulation standards and includes numerous efficiency measures designed to reduce heat losses and minimise energy demand, including very good levels of insulation and low u values;

- The design air permeability target for the residential unit is $5.0m^3/hm^2$ (@50Pa.). This low air permeability target will minimise any uncontrolled ventilation and assist to limit heat loss through the structure of the build; and,

- The g-value of the glazing will be optimised to control solar gain in the summer months and allow beneficial gains in the winter season so as to minimise the overheating risk and limit the heating energy demand within the property.

This 'fabric led' approach to minimising energy demand and associated carbon dioxide emissions is aligned with the first principle of the energy hierarchy which states that reduction in energy demand should be achieved initially by energy efficiency.

Second Principle

Combined heat and power technology does not form part of this energy strategy. As per the second principle of the Energy Hierarchy:

- Sophisticated control systems for the space heating will ensure that energy consumed by the dwelling is used efficiently;

- The dwelling will be designed to not require active cooling; and,

- 100% LED provision and sophisticated control systems will be incorporated throughout the development.

Third Principle

Renewable energy systems are not proposed for this development. The developer's preference is to focus on quality construction and thermally efficient materials to meet the building regulation criteria without the need to integrate 'bolt on' renewable energy solutions.

Fourth Principle

The space and water heating demand of the development will be met by high efficiency, low Nitrogen Oxide (NOx) emission, gas-fuelled condensing boilers. This will ensure that fossil fuels consumed by the building for heating purposes will be burnt cleanly and efficiently.

The development proposals are therefore aligned with the energy hierarchy promoted within the Manchester Guide to Development and Core Strategy Policy EN 4.

6. CLIMATE CHANGE EMERGENCY

A Climate Emergency was declared by Manchester City Council on 10th July 2019, with a target to make Manchester carbon neutral by 2038. In support of this, the developer wishes to highlight the following measures that will form part of the specification of this development:

- An energy strategy that aligns with current planning policy in relation to carbon emissions and minimising energy consumption:
    - In securing compliance with the current, building regulation Part L targets, a commitment is made to construct a high quality, energy efficient thermal envelope thereby minimising demand side energy loads – in accordance with the principles of the Energy Hierarchy; and,
    - The proposals will significantly improve upon the dwelling fabric efficiency by at least 8% for the residential development, responding positively to Manchester City Council's Climate Emergency.
- Unregulated energy demand (that is, the energy demand associated with appliances and cooking) typically accounts for over half of the total carbon dioxide emissions from modern residential development such as this. To limit this:
    - The integrated white goods will have as a minimum an A+ energy rating.
- There is a limit to fabric enhancements such as increased insulation and improved air tightness as this generates a higher overheating risk and, as a consequence, the building would generate cooling loads. The design of the dwelling will balance both requirements and incorporates a building specification intended to avoid cooling requirement and the associated wasted energy in producing cooled air. Thus, through the integration of passive design measures such as the specification of the window g-value, the dwelling will not require active cooling, which further limits the energy demand of the development.
- Waste is a misuse of natural resources and also contributes a large proportion of the UK's carbon footprint;
    - Waste minimisation during construction will reduce raw materials demand, thereby reducing the building's embodied carbon footprint; and,
    - During occupation, the building will benefit from recycling facilities to enable the local authority waste reduction targets, diverting more materials away from landfill and reducing the occupant's carbon footprint further.
- The site's location will enable low carbon, sustainable lifestyles. Located minutes away from several bus stops, the residents have the option to utilise various sustainable modes of transport. This is facilitated by:
    - Travel options, including local access to transport nodes for bus, train and Metrolink; and,
    - Local amenities that are within easy walking distance of the site, enabling residents to live local with a reduced need to travel.
- The dwelling is designed to incorporate features that will serve to reduce energy demand, and in turn, carbon emissions arising from the building:

- The external lighting provision will include active sensors; and,
- The fit-out specification of the dwelling will seek to minimise water demand. Water efficiency measures (such as dual flush toilets, flow restrictors and reduced volume baths) will limit potable water demand to <105litres/person/day. This will reduce water heating energy loads and also cut the process energy required to supply clean drinking water.

These commitments, in combination, seek to work towards the carbon reduction target of no more than 1.5°C global temperature increase and assist Manchester City Council in meeting their Climate Change Emergency objectives.

7. CONCLUSION

This statement has reviewed the environmental performance of the proposed development site at Old Market Street, Manchester against national and local policies. The material specification and servicing strategy for the scheme and the building (carbon dioxide) emission rates have also been reviewed.

Energy Strategy –

Full compliance with the key criteria of the Manchester Core Strategy have been achieved by the proposed energy strategy while responding positively to MCC's declaration of a Climate Emergency, as follows:

- In line with adopted Core Strategy Policy EN 4and the Supplementary Planning Document (SPD) criteria, the energy strategy includes an enhanced fabric approach to emission rate reduction combined with efficient servicing.

- The development will be designed and specified in accordance with the principles of the energy hierarchy in line with the adopted Core Strategy Policy EN 4 and will achieve the following:

    - The Dwelling Fabric Energy Efficiency (DFEE) reduction for the residential scheme is at least 8.03% better than the Part L1A (2013) compliance standard through enhanced fabric measures;
    - The indicative SAP calculation shows that the building specification is expected to achieve at least a 0.56% betterment in dwelling emissions over Building Regulation Part L1A (2013).

Sustainability Performance -

The key issues of Manchester City Council's Supplementary Planning Document (Environmental Standards) in accordance with the Core Strategy Policy DM 1 have been achieved by the proposals. These are as follows:

- Water consumption of the development will be minimised. The internal water strategy will exceed the regulatory standard specified to achieve a calculated daily consumption of <105litres/person/day through the specification of efficient water fixtures.

- The development site is located within Flood Risk Zone 1. The drainage strategy will ensure that the peak rate of run-off from the site to the watercourses (natural or municipal) will be no greater for the developed site than it was for the pre-development site. In addition, surface water will be managed on site through a combination of soakaways and permeable paving.

- Waste arising during construction and occupation/operation will be minimised. The development will be provided with waste facilities and a comprehensive waste management plan for the site. The provision of suitable space and facilities will allow the dwelling to segregate and store operational recyclable waste.

- Construction site management procedures will minimise adverse impacts on the environment and control pollution generated during the construction phase. These include a waste management strategy to reduce the quantity of waste generated, and to increase re-use and recycling of materials. A commitment will be made to minimise waste and pollution.

- The impact of sound associated with the development will be mitigated by the design/specification of the building. Sound insulation will be specified to comply with acoustic performance compliance

standards, and mitigation measures will be implemented, where required, to reduce the noise arising from the residential development.

- The planting provision will be designed to provide an enhancement to the aesthetic and ecological value of the post-developed site. Biodiversity enhancement measures such as the planting of shrubs and trees of local progeny will provide a contribution to the enhancement of the borough's natural environment and biodiversity.

- The site is located in a highly sustainable location with basic facilities all within easy walking and/or cycling distance of the site therefore, reliance upon traditional methods of transport such as the car will be reduced.

Furthermore, the proposals accord with the aims of the National Planning Policy Framework, as follows:

- Construction practices that minimise adverse impacts on the environment will be adhered to including a waste management strategy to reduce the quantity of waste generated, and to increase re-use and recycling, a commitment will be made to minimise waste and pollution; and,

- Exceeding the regulatory compliance criteria (Part L1A) will assist in mitigating the impact of climate change and its environmental impact.

In conclusion, the proposals reviewed within this statement for the scheme at Old Market Street, Manchester will deliver a high-quality development that accords with the guidance provided within the Manchester City Council's adopted policies.

APPENDIX A – SAP DOCUMENTS

BASIC COMPLIANCE REPORT
Calculation Type: New Build (As Designed)

Design SAP
elmhurst energy

Property Reference	Old Market Street	**Issued on Date**	14/09/2021
Assessment Reference	001	**Prop Type Ref**	Bungalow
Property			

SAP Rating	82 B	**DER**	19.59	**TER**	19.70
Environmental	83 B	**% DER<TER**	0.56		
CO_2 Emissions (t/year)	1.86	**DFEE**	61.24	**TFEE**	66.59
General Requirements Compliance	Pass	**% DFEE<TFEE**	8.03		

Assessor Details	Mr. Laurie Wills, Element Sustainability Limited, Tel: 01829 733444, laurie@elementsustainability.co.uk	**Assessor ID**	H367-0001
Client			

SUMARY FOR INPUT DATA FOR New Build (As Designed)

Criterion 1 – Achieving the TER and TFEE rate

1a TER and DER

Fuel for main heating	Mains gas		
Fuel factor	1.00 (mains gas)		
Target Carbon Dioxide Emission Rate (TER)	19.70	$kgCO_2/m^2$	
Dwelling Carbon Dioxide Emission Rate (DER)	19.59	$kgCO_2/m^2$	Pass
	-0.11 (-0.6%)	$kgCO_2/m^2$	

1b TFEE and DFEE

Target Fabric Energy Efficiency (TFEE)	66.59	$kWh/m^2/yr$	
Dwelling Fabric Energy Efficiency (DFEE)	61.24	$kWh/m^2/yr$	
	-5.4 (-8.1%)	$kWh/m^2/yr$	Pass

Criterion 2 – Limits on design flexibility

Limiting Fabric Standards

2 Fabric U-values

Element	Average	Highest	
External wall	0.18 (max. 0.30)	0.18 (max. 0.70)	Pass
Floor	0.13 (max. 0.25)	0.13 (max. 0.70)	Pass
Roof	0.15 (max. 0.20)	0.16 (max. 0.35)	Pass
Openings	1.45 (max. 2.00)	1.60 (max. 3.30)	Pass

2a Thermal bridging

Thermal bridging calculated from linear thermal transmittances for each junction

3 Air permeability

Air permeability at 50 pascals	5.00 (design value)	
Maximum	10.0	Pass

Limiting System Efficiencies

4 Heating efficiency

Main heating system	Boiler system with radiators or underfloor - Mains gas Data from database Vaillant ecoFIT pure 830 VUW 306/6-3 (H-GB) Combi boiler Efficiency: 89.6% SEDBUK2009 Minimum: 88.0%	Pass

Secondary heating system	None		

5 Cylinder insulation

Hot water storage	No cylinder		

6 Controls

Space heating controls	Time and temperature zone control		Pass
Hot water controls	No cylinder		
Boiler interlock	Yes		Pass

7 Low energy lights

Percentage of fixed lights with low-energy fittings	100	%	
Minimum	75	%	Pass

8 Mechanical ventilation

Not applicable

Criterion 3 – Limiting the effects of heat gains in summer

9 Summertime temperature

Overheating risk (West Pennines (England))	Not significant	Pass

Based on:

Overshading	Average
Windows facing North	9.45 m², No overhang
Windows facing East	3.68 m², No overhang
Windows facing South	17.74 m², No overhang
Windows facing West	0.50 m², No overhang
Air change rate	6.00 ach
Blinds/curtains	None

Criterion 4 – Building performance consistent with DER and DFEE rate

Air permeability and pressure testing

3 Air permeability

Air permeability at 50 pascals	5.00 (design value)		
Maximum	10.0		Pass

10 Key features

Roof window U-value	1.10	W/m²K

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Designed)

Design SAP
elmhurst energy

Property Reference	Old Market Street	**Issued on Date**	14/09/2021
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General Requirements Compliance	Pass	**% DFEE<TFEE**	8.03		

Assessor Details	Mr. Laurie Wills, Element Sustainability Limited, Tel: 01829 733444, laurie@elementsustainability.co.uk	**Assessor ID**	H367-0001
Client			

SUMMARY FOR INPUT DATA FOR: New Build (As Designed)

Orientation	West
Property Tenure	Unknown
Transaction Type	New dwelling
Terrain Type	Suburban
1.0 Property Type	Bungalow, Detached
2.0 Number of Storeys	1
3.0 Date Built	2021
4.0 Sheltered Sides	1
5.0 Sunlight/Shade	Average or unknown

6.0 Measurements

	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
Ground Floor:	44.10 m	103.20 m²	2.73 m

7.0 Living Area	32.40	m²
8.0 Thermal Mass Parameter	Precise calculation	
Thermal Mass	188	kJ/m²K

9.0 External Walls

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area (m²)	Nett Area (m²)
External Wall 1	Cavity Wall	Cavity wall : plasterboard on dabs, AAC block, filled cavity, any outside structure	0.18	60.00	118.80	85.49
Loft wall	Timber Frame	Timber framed wall (one layer of plasterboard)	0.18	9.00	14.85	14.85

9.2 Internal Walls

Description	Construction	Kappa (kJ/m²K)	Area (m²)
Internal Wall 1	Plasterboard on timber frame	9.00	210.00

10.0 External Roofs

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Gross Area (m²)	Nett Area (m²)
Sloping roof	External Slope Roof	Plasterboard, insulated slope	0.13	9.00	37.09	31.47
Plane roof	External Plane Roof	Plasterboard, insulated at ceiling level	0.16	9.00	68.11	68.11

11.0 Heat Loss Floors

Description	Type	Construction	U-Value (W/m²K)	Kappa (kJ/m²K)	Area (m²)
Heat Loss Floor 1	Ground Floor - Solid	Slab on ground, screed over insulation	0.13	110.00	103.20

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Designed)

Design SAP
elmhurst energy

12.0 Opening Types

Description	Data Source	Type	Glazing	Glazing Gap	Argon Filled	G-value	Frame Type	Frame Factor	U Value (W/m²K)
Windows	Manufacturer	Window	Double Low-E Hard 0.2			0.72		0.70	1.50
Roof lights	Manufacturer	Roof Window	Triple Low-E Hard 0.2			0.64		0.70	1.10
Door	Manufacturer	Solid Door							1.60

13.0 Openings

Name	Opening Type	Location	Orientation	Curtain Type	Overhang Ratio	Wide Overhang	Width (m)	Height (m)	Count	Area (m²)	Curtain Closed
North Windows	Window	[1] External Wall 1	North	None	0.00					9.45	
South windows	Window	[1] External Wall 1	South	None	0.00					17.74	
South windows	Roof Window	[1] Sloping roof	South	None						5.62	
Door	Solid Door	[1] External Wall 1	West							1.94	
West window	Window	[1] External Wall 1	West	None	0.00					0.50	
East windows	Window	[1] External Wall 1	East	None	0.00					3.68	

14.0 Conservatory	None	
15.0 Draught Proofing	100	%
16.0 Draught Lobby	Yes	

17.0 Thermal Bridging	Calculate Bridges	

17.1 List of Bridges

Source Type	Bridge Type	Length	Psi	Imported
Table K1 - Approved	E2 Other lintels (including other steel lintels)	17.90	0.300	Yes
Table K1 - Approved	E3 Sill	17.00	0.040	Yes
Table K1 - Approved	E4 Jamb	38.00	0.050	Yes
Table K1 - Approved	E5 Ground floor (normal)	44.10	0.160	Yes
Table K1 - Approved	E10 Eaves (insulation at ceiling level)	12.30	0.060	No
Table K1 - Approved	E11 Eaves (insulation at rafter level)	11.09	0.040	No
Table K1 - Approved	E12 Gable (insulation at ceiling level)	11.69	0.240	No
Table K1 - Approved	E13 Gable (insulation at rafter level)	5.75	0.040	No
Table K1 - Approved	E16 Corner (normal)	16.20	0.090	No
Table K1 - Approved	E17 Corner (inverted – internal area greater than external area)	5.40	-0.090	No
Table K1 - Default	R1 Head of roof window	4.19	0.080	Yes
Table K1 - Default	R2 Sill of roof window	4.19	0.060	Yes
Table K1 - Default	R3 Jamb of roof window	8.04	0.080	Yes
Table K1 - Default	R8 Roof to wall (rafter)	11.00	0.060	No
Table K1 - Default	R9 Roof to wall (flat ceiling)	11.00	0.040	No

Y-value	0.066	W/m²K

18.0 Pressure Testing	Yes	
Designed AP_{50}	5.00	m³/(h.m²) @ 50 Pa
Property Tested ?		
As Built AP_{50}		m³/(h.m²) @ 50 Pa

19.0 Mechanical Ventilation

Summer Overheating

Windows open in hot weather	Windows fully open
Cross ventilation possible	Yes
Night Ventilation	No
Air change rate	6.00

Mechanical Ventilation

Mechanical Ventilation System Present	No

SUMMARY FOR INPUT DATA
Calculation Type: New Build (As Designed)

Design SAP
elmhurst energy

20.0 Fans, Open Fireplaces, Flues

	MHS	SHS	Other	Total
Number of Chimneys	0		0	0
Number of open flues	0		0	0
Number of intermittent fans				3
Number of passive vents				0
Number of flueless gas fires				0

21.0 Fixed Cooling System	No	
22.0 Lighting		
Internal		
Total number of light fittings	12	
Total number of L.E.L. fittings	12	
Percentage of L.E.L. fittings	100.00	%
External		
External lights fitted	No	
23.0 Electricity Tariff	Standard	
24.0 Main Heating 1	Database	
Percentage of Heat	100	%
Database Ref. No.	17974	
Fuel Type	Mains gas	
Main Heating	BGW	
SAP Code	104	
In Winter	90.5	
In Summer	80.4	
Controls	CBI Time and temperature zone control	
PCDF Controls	0	
Delayed Start Stat	No	
Sap Code	2110	
Boiler Compensator	Vaillant Group UK Ltd, Vaillant, VRT 350	
Flue Type	Balanced	
Fan Assisted Flue	Yes	
Is MHS Pumped	Pump in heated space	
Heat Emitter	Radiators	
Flow Temperature	Normal (> 45°C)	
Combi boiler type	Standard Combi	
Combi keep hot type	None	
25.0 Main Heating 2	None	
Community Heating	None	
28.0 Water Heating	HWP From main heating 1	
Water Heating	Main Heating 1	
Flue Gas Heat Recovery System	No	
Waste Water Heat Recovery Instantaneous System 1	No	
Waste Water Heat Recovery Instantaneous System 2	No	

Waste Water Heat Recovery Storage System	No
Solar Panel	No
Water use <= 125 litres/person/day	Yes
SAP Code	901
29.0 Hot Water Cylinder	None

Recommendations

Lower cost measures

None

Further measures to achieve even higher standards

	Typical Cost	Typical savings per year	Ratings after improvement SAP rating	Environmental Impact
Solar water heating	£4,000 - £6,000	£30	B 83	
	Typical Cost	**Typical savings per year**	**Ratings after improvement SAP rating**	**Environmental Impact**
Solar photovoltaic panels, 2.5 kWp	£3,500 - £5,500	£326	A 92	

PREDICTED ENERGY ASSESSMENT

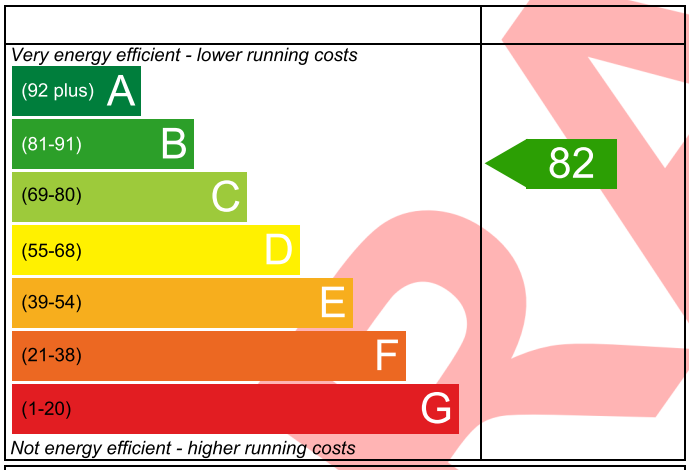
Design SAP
elmhurst energy

Dwelling type:	Bungalow, Detached
Date of assessment:	14/09/2021
Produced by:	Element Sustainability Limited
Total floor area:	103.2 m²

This document is a Predicted Energy Assessment for properties marketed when they are incomplete. It includes a predicted energy rating which might not represent the final energy rating of the property on completion. Once the property is completed, this rating will be updated and an official Energy Performance Certificate will be created for the property. This will include more detailed information about the energy performance of the completed property.

The energy performance has been assessed using the Government approved SAP2012 methodology and is rated in terms of the energy use per square meter of floor area; the energy efficiency is based on fuel costs and the environmental impact is based on carbon dioxide (CO_2) emissions.

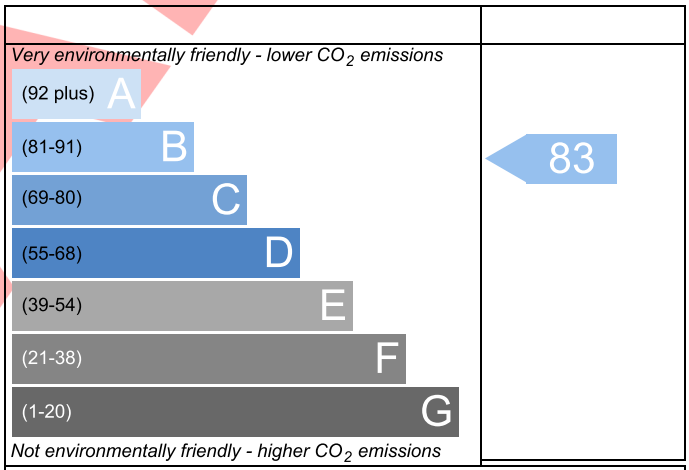
Energy Efficiency Rating



England EU Directive 2002/91/EC

The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

Environmental Impact (CO_2) Rating



England EU Directive 2002/91/EC

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO_2) emissions. The higher the rating the less impact it has on the environment.

DRAFT

This report has not been submitted through the Elmhurst Energy members' portal, therefore results are subject to change when the dwelling is completed.