ST ALBANS SCHOOL

Hallam Land

PART OF HENRY BOOT

WOOLLAM PARK

North St Albans

# SUSTAINABILITY STATEMENT

DECEMBER 2024

# Sustainability and Energy Statement

Woollam Park, St Albans

February 2025

Turley
Sustainability

# Contents



**Client**

Hallam Land

**Turley Reference**

HALZ3003

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# 1. Introduction

This Sustainability and Energy Statement sets out key measures incorporated into the proposed development at Woollam Park, St Albans, to deliver a highly sustainable, net zero development.

## 1.1 Introduction

This Sustainability and energy statement has been prepared by Turley Sustainability and ESG, to support a 'hybrid' planning application to St Albans City and District Council for a residential-led mixed use development on land at North St Albans (the 'application site', referred to as 'Woollam Park') on behalf of Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust (the Applicants).

This statement provides a summary of the sustainable design measures incorporated into the proposals to deliver a highly sustainable, net zero development, and ensure suitable levels of sustainability performance in accordance with local and national planning policy.

## 1.2 Site Context

The site is located approximately 2.7km north of St Albans City Centre and 4.7km south of Harpenden. The site comprises arable land currently in agricultural use and three sports pitches. These sport pitches are occupied by the Old Albanians Sports Association, and form part of the wider Woollam Playing Fields site.

The Site is bounded to the south by St Albans, St Albans Girls' School, and Valley Road Industrial Estate, (also known as Porter's Wood).

The southern boundary is formed by Longspring Wood which is an ancient woodland and Local Wildlife Site. A public right of way runs through this woodland and a permissive path has been formed along its northern edge. To the north and east there is countryside. To the northwest are Woollam Playing Fields, and to the west is Sewell Park, the residential site that forms part of the same large allocation in the emerging Local Plan. Sewell Park is bounded by residential dwellings fronting Harpenden Road. Sandridgebury Lane passes through the site and runs between the eastern edge of the site and its south-west corner.

Woollam Park is the majority part of the North St Albans Broad Location identified as a proposed residential allocation in the emerging St Albans City and District Council's Local Plan.

## 1.3 Proposed Development

The application includes:

- Up to 1,000 new homes (C3) of which 40% shall be affordable housing and 3% self and custom build and shall include 4 adult disability service units and up to 80 apartments for age restricted specialist accommodation for the elderly.
- An 80-bed care home, use class C2.
- A Local Centre, comprising a minimum 2,200 sqm (GEA), use class E and F.
- Land for a two-form entry primary school (2 hectares of land), use class F.
- Green Infrastructure.
- Playing fields and sports pavilion annex comprising three rugby pitches with a cricket

pitch overlain, 285sqm (gea) sports pavilion annex, use class F.

- Means of access and movement on Harpenden Road, Sandridgebury Lane and Valley Road.

The planning description of the development is as follows:

*"Planning permission will be sought for the following development:*

*(1) Relocation and replacement of existing playing fields and erection of pavilion annex; and*

*(2) Construction of up to 1000 new homes (Use Class C3) to include a mix of market housing, affordable housing, age restricted specialist accommodation for the elderly, adult disability service units; a care home (Use Class C2); a local centre (Use Classes E and F); a primary school (Use Class F); the laying out of green infrastructure including habitat creation; drainage infrastructure; earthworks; pedestrian and cycle routes; new means of access and alterations to existing accesses.*

*The application is submitted as a "hybrid" application. Part (1) is submitted as a full application. Part (2) is submitted as an outline application with approval of means of access sought at the present time, and all other reserved matters to be approved at a later date."*

The Illustrative Framework Plan is shown in **Figure 1**.

## 1.4 Document Structure

**Chapter 2** of this report provides an overview of relevant national and local legislation, planning policy and guidance.

**Chapter 3** provides detail of the sustainability and energy strategy of the proposed development.

Please note, the terms "carbon", carbon dioxide ($CO_2$)" and "greenhouse gas (GHG)" are used interchangeably in this statement depending on the terminology of referenced documents.

**Figure 1: Illustrative Landscape Masterplan (Source: Define)**

# 2. Policy Context

## 2.1 Introduction

This chapter sets out the planning policy context relating to sustainable design and construction at the national and local authority level.

## 2.2 National Policy

This section sets out a summary of current national guidance and policy in relation to sustainable development.

### 2.2.1 National Planning Policy Framework

The National Planning Policy Framework[1] (NPPF) provides a framework for the development of locally-prepared plans and the Government's planning policies for England and how these are expected to be applied.

Paragraph 7 of the NPPF states that: 'the purpose of the planning system is to contribute to the achievement of sustainable development'.

The NPPF states that in order to deliver sustainable development, the planning system must perform three distinct objectives, aligned to the three pillars of sustainability, which must not be taken in isolation and should be pursued jointly:

An **economic** objective to help build 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, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure.

A **social** objective supporting 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 well-designed beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and

An **environmental** objective contributing to protecting and enhancing our natural, built and historic environment; including, making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

The NPPF recognises the role planning has to play in support of the UK's pursuit of the United Nations Sustainable Development Goals (UNSDGs) which address social progress, economic wellbeing and environmental protection[2]. Example UNSDGs are presented in **Figure 2**.

[1] https://assets.publishing.service.gov.uk/media/65829e99fc07f3000d8d4529/NPPF_December_2023.pdf

[2] UN Sustainable Development Goals


**Figure 2: UN Sustainable Development Goals**

### 2.2.2 Planning Practice Guidance

Planning Practice Guidance (PPG) provides further advice on various planning issues associated with development, including those linked to sustainability and renewable energy, and underpins the policies within the NPPF.

PPG is a material consideration in planning decisions and should generally be followed unless there are clear reasons not to. It sets out how local authorities should include policies that protect the local environment and strategies to mitigate and adapt to climate change and support developments that are functional and adaptable for the future.

### 2.2.3 National Design Guide

The National Design Guide published in October 2019 and is based on the national planning policy practice guidance and objective for good design as set out in the NPPF. The Guide introduces 10 characteristics of well-designed places which work together to create developments Character and Community, while positively addressing environmental issues affecting climate.

### 2.2.4 Building Regulations

Whilst not planning policy, the Building Regulations (and specifically Approved Document Part L: Conservation of Fuel and Power) set out the requirements for energy and carbon performance in new buildings. Periodic updates to these national regulations will drive energy efficiency and carbon reduction improvements.

Part L, Conservation of Fuel and Power - On 15th June 2022, the Building Regulations were updated as an interim step towards the 'full' Future Homes and Buildings Standard, which comes into effect in 2025. The regulations aim to deliver buildings that are of a higher quality, with lower energy bills, and a reduction of GHG emissions of around 30% for new homes and 27% for non-domestic buildings.

In December 2023, the Government published the 2025 Future Homes Standard (FHS) and Future Buildings Standard (FBS) consultation. The FHS will require homes to achieve a c.75% reduction in carbon emissions beyond Part L 2013. Homes will be 'zero-carbon ready', meaning that they will need no retrofitting to produce zero carbon emissions as the electricity grid decarbonises. Fabric standards will

closely resemble the fabric standards in the 2021 Part L uplift to the Building Regulations.

For homes, two options are currently being consulted on:

- Option one: with high efficiency solar PV panels covering 40% of ground floor area (equiv.), airtightness of 4 $m^3/m^2.h$ @ 50Pa, wastewater heat recovery, and decentralised mechanical extract ventilation (dMEV), and
- Option two: with no renewable energy, airtightness of 4 $m^3/m^2.h$ @ 50Pa, no wastewater heat recovery, and natural ventilation with intermittent extract fans.

For non-residential development, there are different sets of proposals for top-lit spaces (such as warehouses) and side-lit spaces (such as offices). Performance targets are based on a building with good fabric standards, and efficient heating, lighting and heat recovery. Two options are then presented,

- Option 1 (recommended by the government): Solar PV equivalent to 40% of floor area for side-lit spaces and 75% for top-lit spaces.
- Option 2 (not recommended): Solar PV coverage equivalent to 20% of floor area for side-lit spaces and 40% for top-lit spaces.

Part S, Infrastructure for Charging Electric Vehicles - Newly approved document Part S sets out guidance for electric vehicle (EV) charging infrastructure. EV charge points must be provided for each new residential building with associated parking, and any remaining spaces must have cable routes for charge points to be installed. For non-residential car parks with more than 10 spaces, at least one active EV charge point must be provided, with cabling to the remaining 20% of spaces.

Part O, Overheating - Part O sets out new requirements for mitigating overheating. Residential developments must limit unwanted solar gains in the summer and provide means to remove heat to demonstrate that the risk of overheating from rising summer temperatures has been mitigated. Compliance with Part O can be demonstrated by following a simplified method (which considers the building's location, orientation, window sizes, and cross-ventilation), or use of thermal dynamic modelling.

## 2.3 Local Planning Policy and Guidance

### 2.3.1 Climate Emergency

St Albans City and District Council declared a Climate Emergency in July 2019, and in 2020 adopted a Sustainability and Climate Change Crisis Strategy with the aim of reducing the Council's emissions, and doing everything in their power to influence the District's emissions, to achieve Net Zero by 2030.

In 2023, the Council declared a further sustainability and biodiversity emergency, recognising the urgent need to protect and enhance nature. In 2024, the Council adopted their new Sustainability and Climate Crisis Strategy for St Albans[3]. The new strategy covers the years 2024-2027 and includes commitments to:

- Support and promote sustainable building practices and sustainable development that is consistent with net zero operational carbon and minimises embodied emissions.
- Promote active and sustainable transport to improve air quality.
- Reduce waste, encourage recycling, and campaign for sustainable food production.
- Enhance the natural environment and allow biodiversity to flourish.
- Conserve precious water resources and ease flooding risks.

In relation new development, the Council will support and promote sustainable building practices and sustainable development that is consistent with net zero operational carbon and minimises embodied emissions.

[3] Final St Albans Sustainability Strategy 2024-27.pdf

### 2.3.2 St Albans Current Local Plan

St Albans City and District Council's saved policies date from the current but out-of-date 1994 Local Plan. This is one of the oldest local plans in the country and as such, many of the sustainability-related requirements have been superseded. The adopted Local Plan is due to be replaced by a new Local Plan

### 2.3.3 St Albans Draft Local Plan 2041

St Albans City and District Council are in the process of developing a new local plan which is currently at Regulation 19 consultation stage[4]. Woollam Park is allocated for development in the emerging local plan under B1 - North St Albans, AL3 6DD.

A key objective within the draft plan is to *"Promote adaptation to and mitigation of the Climate Emergency; seek to achieve net zero by 2030, including through the Council doing everything reasonably within its power; promote the use of renewable resources, reduce greenhouse gas emissions, protect natural resources and reduce waste."*

This objective is supported by a number of strategic and detailed policies, as summarised below.

Draft Strategic Policy SP2 – Responding to the Climate Emergency: The Council recognises the urgent need to respond to Climate Change through mitigation and adaptation. The Council will support proposals that help combat Climate Change where the proposals:

a. Demonstrate mitigation and adaptation to Climate Change, including pursuing the reduction of whole life-cycle carbon emissions (both operational and embodied);

b. Prioritise the development of previously developed land;

c. Are designed to improve resilience to Climate Change, including resilience to increasing temperatures, and more intense drought, storms, wind, and heavy rainfall events;

d. Use the most sustainable locations for growth to minimising the need to travel while encouraging walking, cycling and the use of public transport;

e. Provide on-site renewables, high standards of energy efficiency, and low carbon energy;

f. Prioritise the use of sustainable and active modes of travel in new and existing developments;

g. Deliver biodiversity net gain;

h. Mitigate increasing flood risk;

i. Include Sustainable Drainage Schemes (SuDS) where appropriate;

j. Demonstrate tree planting;

k. Combine environmental payments through stacking different types of credits on sites (e.g. carbon, biodiversity, Suitable Alternative Natural Green Space (SANG) etc) where appropriate.

Draft Policy CE1 - Promoting Sustainable Design, Construction and Building Efficiency: New buildings should be designed and constructed to ensure efficient use of energy, water and materials. Energy efficiency and reduced use of energy within buildings is a key component of reducing greenhouse gas emissions within the district. Applicants must demonstrate sustainable design and construction and a high degree of resource efficiency through:

a. Ensuring all new build development minimises the carbon, pollution and energy impacts of their design and construction. Building conversions, refurbishments and extensions must also minimise carbon and energy impacts. Proposals must demonstrate that they are seeking to limit greenhouse gas emissions through location, building orientation, design, landscape and planting, taking into account any nationally adopted standards;

b. Including water conservation, greywater recycling and storage facilities to reduce household water consumption to under 110 litres per person per day including external

[4] Reg 19 Local Plan Part A.pdf (stalbans.gov.uk)

water use, and new development to include rainwater harvesting;

c. Retrofitting of existing buildings to improve energy and water efficiency and improve long term resilience to a changing climate;

d. Adopting sustainable construction and demolition methods including using materials with low embodied carbon that are sustainably sourced, and the reuse and recycling of demolished material from the development site;

e. Minimising waste during the construction and operation phases of development by using the Circular Economy approach; and

f. Including SuDS.

The supporting text for Policy CE1 also encourages the use of recognised sustainability standards such as Home Quality Mark (HQM) and the Building Research Establishment Environmental Assessment Method (BREEAM), operated by The Building Research Establishment (BRE) who are based in St Albans District.

Draft Policy CE2 - Renewable and Low Carbon Energy: The Council seeks to increase the use of renewable and low carbon energy in the District.

a. Development proposals must demonstrate, where appropriate, that the use of renewable or low carbon energy has been maximised.

b. Major development proposals must set out at the planning application stage how they will make use of renewable or low carbon energy within the site through submitting and agreeing an Energy Statement with the Council. Agreed measure will be secured through conditions;

c. The Council will support a range of low carbon and renewable energy solutions

d. Proposals which overshadow existing solar panels should be avoided and / or mitigated.

Draft Policy HOU1 – Housing Mix: The Council expects new residential development to provide a mix of dwelling types and sizes to meet the needs of current and future households.

Draft Policy HOU2 – Affordable Housing: Requires new residential development to provide 40% of homes as affordable housing with a tenure mix of 30% social rented, 30% affordable rented, and 40% affordable home ownership.

Draft Policy HOU4 – Accessible and Adaptable Housing: Supports proposals which provide accessible and adaptable housing which meets the changing lifetime needs of the occupants. All dwellings should meet Building Regulations (Part M4(2)) where possible. On large developments, 5% of market dwellings and 10% of affordable rent dwellings should comply with wheelchair standard Part M4(3)(b).

Draft Policy EMP5 – Employment Skills: Larger proposals must ensure the employment of a proportion of local people in construction. Relevant proposals must submit an Employment Skills Strategy that demonstrates how the local people employed will be given training in skills required by the construction industry (such as electrician, plumber, carpenter, etc).

Draft Strategic Policy SP7 - Community Infrastructure: The Council seeks to protect and encourage provision of community facilities such as healthcare facilities, schools, community centres, libraries, sports and leisure facilities, public realm, public art etc.

Draft Policy TRA1 – Transport Considerations for New Development:

a. Proposals must demonstrate:

i. That safe and suitable access can be provided for walking, cycling and vehicles, accommodating equestrians where appropriate;

ii. That development would not lead to highway safety problems or cause unacceptable impacts upon the transport network; and

iii. Suitable evidence including Transport Statements or Transport Assessments along with other

appropriate evidence where required.

b. Major proposals must demonstrate as appropriate how:

   i. Measures to reduce the need to travel by private car are identified and implemented;

   ii. Active and sustainable connections to key destinations are deliverable at an early stage of development

   iii. The proposed scheme would be served by public transport and would not have a detrimental impact to public transport provision;

   iv. Safe, direct and convenient routes for active journeys to key destinations

   v. Comprehensive and coherent integration into the existing pedestrian and cycle networks

   vi. Adequate servicing arrangements

   vii. The needs of people with disabilities and reduced mobility will be addressed;

   viii. The charging of plug-in and other ultra-low emission vehicles will be enabled in safe, accessible and convenient locations;

   ix. Suitable travel plans will be provided and appropriate measures for implementation will be secured to encourage people to use alternative modes of travel to single-occupancy car use; and

   x. Suitable mechanisms will be provided to secure sustainable transport measures, including delivery of schemes identified in the LCWIP, Bus Service Improvement Plan, Growth & Transport Plan and IDP and improvements to the existing highway network and other appropriate transport mitigations.

Additional requirements include onsite car club facilities (in developments of > 100 dwellings), contributions to bike share schemes, and Electric vehicle charging points in line with HCC guidance where proportionate.

Draft Strategic Policy SP10 – Natural Environment and Biodiversity: Aims to protect and enhance Green Infrastructure (GI) for its role in combating Climate Change and supporting biodiversity, along with its value for recreation, health and wellbeing, and landscape value. Requirements for new development include connecting to existing GI assets where appropriate, exploring opportunities to add to GI, avoiding harm and restoring GI within sites where practical, contributing to local GI projects, and having regard to the Hertfordshire Green Infrastructure Strategy.

Draft Policy NEB 1 – Woodlands, Trees and Landscape Features: Sets out measures to enhance tree cover and protect existing woodlands, including a requirement for proposals within Broad Locations to plant at least one semi-mature tree for each dwelling, predominantly of native local species.

Draft Policy NEB 6 – Biodiversity and Biodiversity Net Gain: Sets out a number of requirements to protect biodiversity, including production of an ecological assessment, application of the mitigation hierarchy, and a Biodiversity Net Gain (BNG) of at least 10%.

Draft Policy NEB 7 - Biodiversity Provision in the Design of New Buildings and Open Spaces: Requires proposals to have regard to biodiversity already present onsite, identify opportunities to maximise the provision for biodiversity, and provide at least one integrated feature appropriate to the location of the development (such as integrated bird, bat or insect boxes). Non-residential buildings must include swift bricks. New wildlife habitats and features will be integrated into design. All fencing should be hedgehog friendly, and hedgehog highways should be incorporated throughout the development.

Draft Policy NEB 12 - Green Space Standards and New Green Space Provision: Sets out standards and requirements for new green space provision including amenity green space, natural and semi-natural green spaces, parks and gardens, allotments, and children and teenager play areas.

Draft Policy DES5 – Residential Amenity Standards: Sets out requirements for new homes including adequate privacy, access to daylight and sunlight, and internal space standards.

Draft Policy DES7 – Building Servicing: Requires building servicing to be considered at an early stage including provision of refuse and recycling storage, and accessible, attractive, secure and safe cycle storage.

Draft Strategic Policy SP13 – Health and Wellbeing: States that the Council will aim to support health and wellbeing and adoption of a healthy lifestyle through measures such as:

- Improved walking and cycle infrastructure;
- Creating opportunities active play;
- provision for exercise and sports, including trim trails in open space;
- Considering using areas of open space to provide sensory gardens;
- New development to provide or enhance green spaces where appropriate;
- Increased tree planting and support for biodiversity;
- Large developments (100+ homes) must be provided with appropriate public open space including children's playgrounds;
- Major developments (10 or more homes) should promote active design with regard to relevant guidance, including from Sport England;
- Encouraging design that reduces community severance and improves opportunities for social interaction;
- Affordable housing provision; and
- Protection and enhancement of allotments where appropriate.

Draft Policy HW1 – Noise and Air Pollution: Requires development proposals to include suitable assessments for noise and air pollution, and to demonstrate suitable mitigation where required.

Draft Policy HW5 – Health Impact Assessments: Requires Health Impacts Assessments for proposals of 100 dwellings or more.

### 2.3.4 Waste Core Strategy & Development Management Policies Development Plan Document 2011-2026

Policy 12 - Sustainable Design, Construction and Demolition: New and existing development must contribute to resource efficiency, the reduction of carbon emissions, and the effective management of climate risk. Proposals will be required to incorporate, where appropriate:

- Construction and demolition methods that minimise waste generation and re-use/recycle materials and buildings, as far as practicable on site;
- Design and construction processes that minimise the use of primary aggregates and water, are consistent with the energy hierarchy, and encourage the use of high quality building materials made from recycled and secondary sources;
- Designs and layouts that allow for the effective sorting, recycling, and composting of waste where appropriate;
- A demonstration that no significant noise or light intrusion will arise from the development, with minimised adverse impact on human health, amenity, wildlife habitats, and the natural and built environment; and
- Use of SuDS.

Completed Site Waste Management Plans (SWMP) should support relevant developments and be passed onto the Waste Planning Authority.

### 2.3.5 St Albans Strategic Sites Design Guidance: Masterplan Toolkit

A suite of Strategic Sites Design Guidance has been published to provide further guidance for sites which are identified as Broad Locations and Large

sites. Although not planning policy, the Design Principles Toolkit[5], published in July 2023, provides further guidance on principles the Council will expect developments to comply with.

Design Principle 8 - Facing the Climate Crisis sets out a number of aims and features designs should demonstrate under the following headings:

- 8.1 Certify Sustainability
- 8.2 Enhance Biodiversity and Habitats
- 8.3 Drain Places Naturally
- 8.4 Conserve Water
- 8.5 Maximise Natural Heating and Ventilation
- 8.6 Conserve Energy and Reduce Carbon Emissions
- 8.7 Create Opportunities for Energy Production
- 8.8 Be Resilient to Climate Change and Extreme Weather

## 2.4 Planning Policy Summary

Both local and national policies aim to ensure the delivery of sustainable and well-designed homes and other buildings which mitigate and adapt to the impacts of climate change.

Latest national planning policy and guidance confirms the Government's approach to sustainable development is being driven through updates to the Building Regulations in the form of the FHS, to ensure that new buildings are well designed and reduce emissions in line with the UK's national carbon targets.

St Albans Council's Sustainability and Climate Crisis Strategy states that the Council will support development that is consistent with net zero operational carbon and minimises embodied emissions. The Council's emerging Local Plan encourages new development to incorporate a range of sustainability measures including efficient use of energy, water and materials, supporting green infrastructure and biodiversity, promoting sustainable travel, and managing flood risk.

With respect to energy performance standards, the emerging Local Plan does not specifically set standards above Building Regulations but does encourage new development to go beyond these where viable.

The following sections of this sustainability and energy statement set out the sustainability measures incorporated into the proposals to ensure the delivery of a sustainable development in line with local and national policy sustainability requirements and ambitions.

[5] Strategic Sites Design Guidance - Design Principles - 2023.pdf (stalbans.gov.uk)

# 3. Industry Standards and Schemes

This section provides an overview of relevant voluntary sustainability standards and schemes which aim to support carbon reduction and sustainability in the built environment.

A range of voluntary industry standards and schemes exist to allow developers to demonstrate their commitment to carbon reduction and sustainability in the built environment. This section provides an overview of these relevant national sustainability standards which have been considered for the development at St Albans North.

## 3.1 Home Quality Mark (HQM) & BREEAM

BREEAM and HQM, both of which are established by The Building Research Establishment (BRE) who are based in St Albans District, provide a comprehensive assessment of a new home or building's sustainability performance. Both HQM and BREEAM assess buildings on a wide range of sustainability criteria, including energy efficiency, water efficiency, materials, waste, pollution, health and wellbeing, and ecology.

BREEAM covers a wide range of non-residential building types, with ratings ranging from Pass to Good, Very Good, Excellent and finally Outstanding. Around 550,000 buildings have been certified under BREEAM, and the standard is touted as the world's longest-established method of certifying the sustainability of buildings.

HQM is specifically tailored for new homes. HQM assessment provides an overall star rating, ranked on a 1–5-star scale scored in half star levels, alongside indicators of performance under 'my cost', my wellbeing', and 'my footprint' ranked on a five-point scale. The certification ensures that housing developments are not only environmentally friendly, but also cost-effective and comfortable to live in. To date, 2,000 homes have been certified under HQM, and it is currently being applied to over 25,000 homes across the UK. This is a relatively small percentage of the overall new housing stock, demonstrating the significance of the voluntary commitment to this standard and the overall sustainability performance of the site.

## 3.2 RIBA Climate Challenge

RIBA (Royal Institution of British Architects) - 2030 Climate Challenge Targets[6] are a series of voluntary operational energy, embodied carbon, and potable water performance targets for homes, schools, and office developments. RIBA Climate Challenge targets for embodied carbon and operational energy performance are set out in the following table. The operational energy targets include unregulated energy.

[6] 2030 Climate Challenge (architecture.com)

Table 1: RIBA 2030 Climate Challenge Targets

| RIBA Metrics | | 2025 | 2030 |
|---|---|---|---|
| Homes | Operational Energy ($kWh/m^2/yr$) | <60 | <35 |
| | Embodied Carbon ($kgCO_2e/m^2$) | <800 | <625 |
| Schools | Operational Energy ($kWh/m^2/yr$) | <70 | <60 |
| | Embodied Carbon ($kgCO_2e/m^2$) | <675 | <540 |
| Offices | Operational Energy ($kWh/m^2/yr$) | <75 | <55 |
| | Embodied Carbon ($kgCO_2e/m^2$) | <970 | <750 |

## 3.3 UK Net Zero Building Standard (UKNZBS)

The UK Net Zero Carbon Buildings Standard is a cross-industry initiative has been launched by leading industry organisations such as BBP, BRE, the Carbon Trust, CIBSE, IStructE, LETI, RIBA, RICS, and UKGBC to develop the UK's first Net Zero Carbon Buildings Standard.

The standard is an innovative initiative that sets a single, agreed technical methodology to help the sector develop and deliver net-zero buildings which are aligned with the UK's legal requirements to meet net zero by 2050.

The Pilot version of the standard was released on the 24th of September 2024 and includes a range of carbon and energy limits for net zero carbon aligned buildings. The standard includes targets for embodied carbon, operational energy, on-site renewable electricity generation, heating/cooling limits, and refrigerants, as well as reporting metrics for water use and electricity demand management. Future versions of the standard will also include requirements around verification, conformity, and communication of performance.

# 4. Sustainability at St Albans North

This section summarises the sustainability strategy for the proposed development at Woollam Park, demonstrating how the development meets and exceeds local and national sustainability aspirations.

This section of the report outlines the sustainability strategy for the proposed development at Woollam Park, St Albans North, demonstrating how the proposals will deliver a highly sustainable development that targets net zero and that responds strongly to both national and local adopted and emerging planning policy, including the NPPF.

In this context the sustainable design measures incorporated into the development masterplan and design of homes at this stage are set out under the following headings which reflect the themes of the NPPF.

**4.1 Sustainable Design**

**4.2 Building a Strong and Competitive Economy**

**4.3 Promoting Sustainable Transport**

**4.4 Delivering a Wide Choice of High-Quality Homes**

**4.5 Promoting Healthy Communities**

**4.6 Meeting the Challenge of Climate Change**

**4.7 Conserving and Enhancing the Natural Environment**

**4.8 Circular Economy and Sustainable Waste Management**

## 4.1 Sustainable Design and Certification

Creation of a well-designed development that minimises impact on the environment is a key aim of the scheme. In order to demonstrate a commitment to higher standards of sustainable design, the development will pursue certification with HQM.

HQM sets a standard that is significantly higher than that set by regulations. The sections and categories considered are as follows:

- Our Surroundings- the ability of the home to work within current and future surroundings. Categories assessed are:
    1. Transport and Movement
    2. Outdoors
    3. Safety and Resilience
- My Home- promotes living spaces that are comfortable, healthy and cost-effective, and have a reduced impact on the environment. Categories assessed are:
    4. Comfort
    5. Energy
    6. Materials
    7. Space
    8. Water
- Delivery- focusses on the quality of the homes design and construction, and high standard of support for occupants. Categories assessed are:
    9. Quality Assurance
    10. Construction Impacts
    11. Customer Experience

An HQM preassessment has been undertaken by Turley to determine the score achievable by the development. The development at this stage has the potential to target a 4-Star rating under the HQM V6 scheme. Each of the HQM themes and topics will continue to be considered throughout

the detailed design stages by the individual house builders responsible for future phases to ensure the delivery of high-quality sustainable homes in line with HQM criteria.

In addition to homes seeking HQM certification, any non-residential building over 1,000m$^2$ will aim to achieve a minimum of BREEAM 'excellent' A detailed BREEAM pre-assessment will be provided at detailed design stages for any non-residential building over 1,000m$^2$. The preassessment will provide a summary of the credits which will be targeted to achieve the required 'excellent' rating.

Both HQM and BREEAM standards are recognised in the supporting text for **draft Policy CE1** and pursuing certification demonstrates a commitment to higher standards of sustainability which go beyond the requirements of emerging local policy.

## 4.2 Building a Strong and Competitive Economy

The proposed development will contribute to positive economic growth for the district through construction and occupation of the proposed sustainable new homes, supporting the aims of the NPPF.

Construction – The economic benefits of construction are well known with considerable direct and indirect positive impacts resulting from new residential construction. A study by the Confederation of British Industries (CBI) in February 2020 demonstrates that construction projects have a significant benefit on the local and wider economy. The report concludes that for every £1 of construction expenditure £2.92 is injected into the economy.

The construction of up 10 1,000 new homes will therefore provide opportunities for local employment as well as increased revenue locally for materials, services and goods.

An Employment Skills Strategy will be submitted as part of the application in line with **Draft Policy EMP5 Employment Skills.** This strategy will set out measures to employ a proportion of local people during the construction phase and to provide them with training in the skills required by the construction industry.

Occupation – Further positive economic impacts of the proposed development resulting from the occupation of new homes and associated increase in local population are noted as follows;

- The construction of up to 1,000 new homes will increase the population resulting in local benefits through the demand for goods and services; and
- The increase in local population will also help support local facilities, groups and stores helping promote the vitality of the local area and beyond.

## 4.3 Promoting Sustainable Transport

The development of a comprehensive sustainable transport strategy for the site is a key priority for Woollam Park.

At a District level, road transport related carbon emissions account for circa 39% of total emissions[7], and therefore one of the single biggest impacts new developments can make to reducing carbon emissions is to ensure it is in a sustainable location and provides the infrastructure which reduces the need to travel, and enables travel by means other than the private car.

A Transport Assessment and Framework Travel Plan have been prepared by highways consultants PJA summarising the existing conditions in the vicinity of the site, the accessibility of the site relative to local facilities and services, and the proposed transport measures. This section of the report provides a summary of the sustainable access and transport measures available and incorporated into the development.

[77] Microsoft Word - 051021 St Albans District Carbon Dioxide Briefing Note.docx

### 4.3.1 Site Accessibility

Local Services and Amenities – The site is within walking and cycling distance of a number of local facilities, these include:

- Education facilities including Townsend Academy and St Albans Girls School (secondary), and Margaret Wix School (primary);
- Medical facilities such as High Oaks Dental Practice, Parkbury House Surgery, and St Albans City Hospital;
- Retail facilities such as St Albans Service Station (Texaco), and various shops at Beech Road and High Oaks Local Centres;
- Leisure facilities such as the Old Albanian rugby, cricket and tennis clubs, the Ancient Briton Pub, and King William IV Pub.

Further facilities and amenities can be found at St Albans city centre which can be accessed within a c.35-minute walk or c.15-minute cycle.

The development itself will also provide a number of local services and amenities to support the new and existing communities, these include a primary school, a local centre, community buildings, and playing fields.

These local services provide an excellent opportunity for future residents to meet their day-to-day needs either on-site or by sustainable modes of travel other than the private car.

Walking/Cycling Infrastructure – There are several walking and cycling routes which connect the site into the wider network. In terms of pedestrian facilities, there is generally continuous footway provision along most roads to the south and west of the site and within St Albans. In more rural areas to the North and East, footway provision is more intermittent however is supplemented by a network of footpaths and bridleways which provide leisure routes. A new bridleway will provide a connection to Heartwood Forest.

In relation to cycle facilities, a traffic-free portion of National Cycle Route (NCR6) is located opposite the western boundary of the site. NCR6 spans the length of England and connects St Albans, Harpenden, Luton, Watford, and west London. A shared use pedestrian/cyclist path is also provided on the western side of the A1081. Several roads in the vicinity of the site are suggested as routes by local cyclists on the St Albans Cycling map. The St Albans Green Ring, a continuous 10km walking and cycling route around St Albans, is also accessible in the vicinity of the site.

The proposed development will deliver a number of off-site active travel enhancements along key desire lines. Proposed improvements include:

- Cycle infrastructure improvements to NCN6 adjacent to the A1081 Harpenden Road to the south of the Ancient Briton junction;
- Improvements to form a shared footway/cycleway between the site access and the Woollam Playing Fields to the north;
- Construction of new active travel route between Sandridgebury Lane and the Hertfordshire Way,
- Measures forming active travel routes towards the hospital and Marshalswick; and
- Various modal filters and traffic calming across the highway network surrounding the application site.

These improvements will benefit existing and future residents and help to improve pedestrian safety.

Bus Services – There is a good network of existing bus services which operate adjacent to the site including. Services include the 321/721 which provides a connection between Luton and Watford/Rickmansworth, and the 653 which runs between St Albans, Welwyn Garden City, and Hatfield.

Development proposals include the provision of new north and southbound bus stops at the site access on Harpenden Road, and the potential extension of service 653 from New Greens to the new onsite mobility hub.

Rail Services – The nearest railway station is St Albans City, approximately 3.2km (a 40-minute walk or a 12-minute cycle) from the centre of the site. The station is on the Midland Main Line and provides connections to key destinations such as Luton Airport, Luton, London St Pancras, London Bridge, Bedford, and Gatwick Airport. The station has 1,150 secure sheltered cycle parking spaces, a taxi rank, a bus interchange, and car parking facilities. The station is accessible by bus, and the proposed active travel strategy will also help to facilitate walking/ cycling links towards St Albans.

Additional train stations accessible to the site include:

- Harpenden Station- 5.4km from the centre of the site. Accessible by a c.20-minute cycle or via the 321 Sapphire. On the Midland Main Line and provides connections to the same locations as St Albans City.
- St Albans Abbey- 3.7km from the centre of the site. Accessible by a c. 45-minute walk, a 15-minute cycle, or via the 321 Sapphire. Offers an hourly service between St Albans and Watford Junction.

In summary the site is in a highly sustainable location with excellent access to a range of sustainable transport modes and services and facilities.

### 4.3.2 Sustainable Transport Measures

Various measures are proposed to promote and support travel by sustainable modes, these include:

On-site street network – The internal street network will aim to prioritise walking and cycling through the provision of a low speed, low traffic street network, traffic free routes, and cycle provision in accordance with LTN 1/20 standards;

Off-site improvements – The proposals include a range of off-site active travel and public transport improvements. These will be delivered both as part of the development and via contributions to HCC;

On-site Mobility Hub – A new on-site mobility hub will be provided to support active and sustainable connections. The hub will bring together a range of facilities which will be established through later design stages. These could include public transport interchange, a cycle repair station, cycle parking, a car club hub, a cafe and toilets, parcel lockers, and information boards.

Cycle Parking – Safe and secure high quality cycle parking will be provided within or near new homes in line with LTN 1/20 standards- this is in excess of the Draft Parking Standards in the Emerging Local Plan. Secure cycle parking will also be available within the local centre.

Electric Vehicle Charging – Electric Vehicle (EV) charging will be provided in accordance with St Albans guidance and Part S of the Building Regulations, this will include the provision of at least one fast charger per home with a dedicated parking space, to encourage the uptake of low emission vehicles. Further detail will be provided at later design stages.

Vehicular Parking Strategy – A bespoke vehicle parking strategy will be developed which will look to minimise parking where possible and ensure sustainable travel modes are prioritised in line with **Draft Policy TRA4.**

Reducing the need to travel – A number of key facilities will be provided within the local centre onsite (such as retail, café, nursey, community building and other commercial uses) to meet daily needs of residents. Proposals will seek to reduce the need to travel through the provision of comfortable work spaces and high-speed internet to facilitate working from home, and delivery lockers to accommodate online shopping.

Travel Plan – A comprehensive Travel Plan has been prepared for the site with the aim of supporting the use of more sustainable modes of transport for journeys within the development and beyond. Measures include the provision of cycle discount vouchers, cycle training, 'Dr Bike' cycle repair sessions, and information to promote walking and cycling.

### 4.3.3 Sustainable Transport Summary

The proposed development at Woollam Park is in a highly sustainable location with a variety of existing sustainable travel links to a range of local services and amenities. The proposals include a number of measures, including an on-site mobility hub to reduce the need to travel by private car and to maximise the use of sustainable transport modes in line with **Draft Policy TRA1.**

Further detail on sustainable transportation can be found in the Transport Assessment and Framework Travel Plan which accompany the application.

## 4.4 Delivering a Wide Choice of High-Quality Homes

The proposed development at Woollam Park will seek to deliver a mix of well-designed homes which respond to specific local context and the needs of current and future households, helping to meet the need for market and affordable housing in the local area and the wider District.

Up to 1,000 new homes will be delivered, of which 40% shall be affordable housing and 3% self and custom build, 4 adult disability service units, and up to 80 apartments for age restricted specialist accommodation for the elderly. The proposals also include the delivery of an 80-bed care home.

The final housing mix will be determined through discussion with the local authority and resolved fully in the reserved matters stages.

Homes will be designed to be energy efficient, helping to further reduce energy bills and operating costs for the occupiers.

The development will support the delivery of accessible and adaptable housing which meets the changing lifetime needs of the occupants in line with the requirements of **Draft Policy HOU4.** At detailed design, all dwellings should meet Building Regulations (Part M4(2)), and 5% of market dwellings and 10% of affordable rent dwellings should comply with wheelchair standard Part M4(3)(a). Homes will also be designed to meet or exceed the nationally described space standards as required by **Draft Policy DES5.**

Further details on how the development will deliver a wide choice of high-quality dwellings are set out in the DAS which accompanies the application.

## 4.5 Promoting Healthy Communities

Creating a high-quality development that promotes health and wellbeing for residents and surrounding communities is a key aim of the scheme. The design incorporates a number of features to enhance the health and wellbeing of the residents in line with the aims of **draft Policy SP13**, these include:

- Extensive provision of c.24.6ha of green infrastructure covering c.48.6% of the total site area, comprising a mix of natural, semi-natural, and amenity green space, allowing residents and visitors to benefit from the health and wellbeing benefits of green space;
- Provision for children, young people and teenagers in the form of a Neighbourhood Equipped Area for Play (NEAP), Local Areas for Play (LAPs), and 'teenage areas', providing opportunities for play and social interaction;
- Provision of grow zones, productive edges, and fruiting trees throughout the site, promoting healthy and sustainable food production;
- Provision of a local centre providing facilities for the local community; and
- Development within close proximity to a range of services and facilities and design of a permeable, well-connected street network which promotes healthy and active travel.

In addition, the detailed design of new homes will consider measures to promote health and wellbeing including:

- Prioritisation of natural ventilation, contributing to good internal air quality;
- Utilisation of materials and services that have low emission rates and pollutants; and
- Adequate privacy, access to daylight and sunlight, and internal space standards, in line with **Draft Policy DES5**.

A Health Impact Assessment has been produced at part of the Environmental Statement to consider how the local population will be affected by the proposals, including consideration of both positive and negative health impacts in line with **Draft Policy HW5.**

More information on how the development has incorporated healthy living opportunities is contained within the DAS which accompanies the application.

## 4.6 Meeting the Challenge of Climate Change

One of the main challenges facing the UK and new development is the need to mitigate and adapt to a changing climate. The Government is committed to tackling climate change and in 2019 set out an ambition to reach net zero emissions by 2050.

Climate change will cause the UK to become warmer, winters will become wetter, and summers will become drier. Adapting to this changing climate will impact on the design, construction, location, cost and operation of all new buildings in the next few decades. One of the NPPF's core planning principles is for development to consider climate change adaptation and mitigation during the planning process.

Locally, the St Albans Sustainability and Climate Change Crisis Strategy and draft Local Plan 2041 goes one step further, targeting net zero by 2030, and encouraging all new development to reduce carbon emissions and to be resilient to the effects of climate change.

The following sections of this statement outline the key climate change mitigation and adaptation measures proposed to deliver a highly sustainable development that fully supports the Council's net zero ambitions and the broader transition to a net zero economy.

In line with draft **Policy SP2**, the strategy will pursue a reduction in whole life-cycle carbon impact of the development, considering carbon emissions associated with the construction of the buildings (embodied) and that associated with the use of the buildings (operational).

### 4.6.1 Mitigating Climate Change – Reducing Embodied Carbon Emissions

As the operational efficiency of buildings continues to increase, the relative proportion of embodied carbon within a building's lifetime emissions increases. This is recognised by **Draft Policy CE1**, which requires new development to incorporate sustainably sourced materials with low embodied carbon.

In order to manage and reduce the embodied carbon impact of the development at Woollam Park, all homes will aim to achieve best practice embodied carbon targets in line with the RIBA Climate Challenge embodied carbon targets of <800 $kgCO_2e/m^2$ from 2025, and <625 $kgCO_2e/m^2$ from 2030.

At detailed design stage, developers will be required to undertake a Lifecycle Assessment (LCA) on a representative sample of their dwelling types and implement measures to reduce embodied carbon. Sustainable construction measures for consideration at detailed design stage to reduce the embodied carbon impact of the development include:

- Lean design to minimise materials' use;
- Specification of locally sourced or lightweight materials wherever possible to reduce emissions from transport to site;
- Specification of low carbon materials, for example steel and concrete with recycled materials content where feasible;
- Use of natural materials which sequester carbon, such as timber;
- Specification of sustainably sourced timber from the Forest Stewardship Council (FSC) or equivalent certified sources;
- Use of durable and resilient materials;
- Use of Modern Methods of Construction (MMC)/ modular build; and

- Material from construction/excavation to be re-used on site in the first instance where feasible.

Through consideration of these measures the development will aim to reduce the embodied carbon of the proposed homes.

### 4.6.2 Mitigating Climate Change – Reducing Operational Carbon Emissions

Developing energy efficient, low carbon homes and buildings is a key objective of local and national policy.

The government's FHS/FBS 2025 will require all homes and buildings to achieve at least a 75% reduction in carbon emissions over Part L 2013 and deliver developments that are **Net Zero Ready,** meaning they will need no further work to achieve net zero carbon emissions as the grid decarbonises.

Locally, the Council's draft Local Plan encourages new residential development to aim for higher standards of sustainability and demonstrate that the use of renewable or low carbon energy has been maximised.

The applicants are committed to the delivery of highly sustainable low carbon new homes, and at Woollam Park, propose the following strategy, which goes significantly beyond the requirements of the draft local plan:

- As a minimum, all homes will be designed to meet the FHS, with an ambition to go beyond this where viable with a target to be **net zero in carbon emissions associated with regulated energy use** across the site as far as possible;
- Non-domestic buildings will achieve the government's FBS as a minimum. Community buildings within the local centre will target the UK Net Zero Building Standard. It is highly likely that the school, which will be delivered by HCC, will also be net zero in line with the Council's net zero aspirations, should they have this ambition. Any non-domestic buildings over 1,000m$^2$ will also aim to achieve BREEAM excellent, which sets out a number of requirements in relation to operational energy.

'Regulated energy' refers to building energy consumption resulting from controlled, fixed building services and fittings (such as space heating and cooling, hot water, ventilation, fans, pumps and lighting). Such energy uses are inherent in the design of a building as are controlled by Part L of the Building Regulations. 'Unregulated energy' is building energy consumption resulting from a system or process that is not 'controlled' (such as refrigerators, TV's, and other appliances).

In line with best practice, homes and buildings will be designed in accordance with the energy hierarchy, as shown in **Figure 3**, which aims to reduce energy demand through passive design measures and a fabric first approach before utilising low carbon energy and the production of on-site renewable energy.

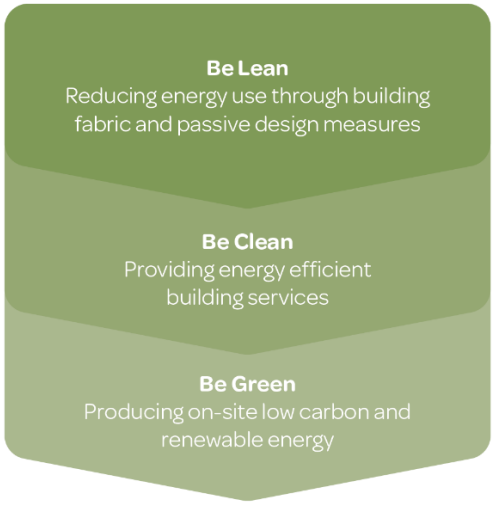


**Figure 3: The Energy Hierarchy**

The following sections set out the measures that will be included at detailed design to deliver an energy efficient, zero carbon development.

#### *Be Lean – Reducing Energy Use*

Central to the delivery of low carbon and energy efficient buildings is the 'Fabric First' principle which recognises the most effective way of minimising carbon emissions is to reduce the demand for heat and power through a well-insulated, energy efficient building fabric and services.

Reducing the primary energy demand of a building through the use of an efficient fabric and services is widely regarded as best practice and is therefore

the first and most important step to reducing carbon emissions.

This 'fabric first' approach has a number of distinct benefits including:

- Carbon savings delivered are 'locked-in' for the lifetime of the building (60 years or more);
- Virtually no maintenance and/or replacement costs to maintain carbon reductions through improved fabric;
- No reliance on an occupier's behaviour to deliver carbon reductions. Achieving carbon savings from renewable energy technologies require education, awareness and often, behavioural changes from occupants.

Fabric Efficiency Measures – The design of new buildings will reduce thermal energy demand by targeting improved insulation levels and air leakage and fabric u-values in line with the 2025 FHS as a minimum. Proposed values within the FHS consultation are set out in the table below.

**Table 2: Proposed FHS 2025 Fabric Specification**

| Building element | Part L 2013 | FHS 2025 | % Reduction |
|---|---|---|---|
| **Wall (W/m²K)** | 0.30 | 0.18 | 40% |
| **Roof (W/m²K)** | 0.20 | 0.11 | 45% |
| **Floor (W/m²K)** | 0.25 | 0.13 | 48% |
| **Windows (W/m²K)** | 2.00 | 1.2 | 40% |
| **Doors (W/m²K)** | 2.20 | 1.0 | 55% |
| **Airtightness (m³/h. m²@50Pa)** | 10.00 | 4 - 5 | 50 - 60% |

In addition to an enhanced fabric specification, a range of other measures will be considered in the detailed design of individual buildings to reduce energy use and carbon emissions:

- Consideration of building orientation and form to optimise solar gain, whilst accounting for wider design considerations;
- Design to promote natural daylight, sunlight and ventilation to reduce artificial lighting and ventilation demands;
- Incorporating high efficiency lighting targeting 100% of all light fittings as low energy lighting;
- Use of high efficiency heating systems appropriate to the building use to reduce energy consumption;
- Potential for installation of Mechanical Ventilation and Heat Recovery and Waste Water Heat Recovery systems; and
- Specification of energy efficient equipment that use less energy and water where relevant.

Through these measures it is anticipated the development will significantly reduce energy demand and carbon emissions.

### *Be Clean – Efficient Energy*

The next stage of the energy hierarchy is the efficient supply of heat and energy. This means connecting into an existing District Heating Network or providing an on-site communal heat network. Heat networks utilise a central engine to generate heat which is distributed to dwellings and/or other buildings via a network of pipes and provides heating and hot water through a heat interface unit.

A review of the UK Heat Network map[8] shows there are no suitable existing or planned heat networks in the vicinity of the site, with the closest network being the Royal Victoria Hospital Energy Centre in Hemel Hempstead, over >10km from the site.

Typically, existing District Heating Networks in the UK are powered by gas-fired Combined Heat and Power (CHP) engines which generate heat that can be used to drive a heat network, and low carbon electricity which can be fed back into the National Grid. The continued decarbonisation of the national electricity network and changes to the Building Regulations mean that the carbon emission benefits of traditional gas-powered CHP systems will diminish during their life cycle.

[8] Heat Networks Planning Database | DESNZ & Barbour ABI (barbour-abi.com)

Whilst gas-powered systems are no longer considered suitable, alternative systems are potentially available (such as hydrogen, biomass and heat pump fuelled systems). However, these technologies typically have higher running costs and do not benefit from the sale of energy generated through CHP systems which is sold back the grid.

Heat networks are suited to developments with high thermal demand, typically provided by sufficient density or a large anchor load. Due to the high thermal efficiency and the relatively low heating and hot water demand of the proposed development, individual heat pumps are considered to be a more efficient and lower carbon option.

### *Be Green – Low Carbon Renewable Energy*

The final stage of the Energy Hierarchy is the generation of on-site low carbon and/or renewable energy.

**Draft Policy CE2** requires proposals to demonstrate that the use of renewable or low carbon energy has been maximised where appropriate. According to the draft plan, the Council will support a range of low carbon and renewable energy solutions including, but not limited to:

- Solar power, including photovoltaic panels, solar thermal heaters, and maximising passive solar heating through south facing designs;
- Wind turbines at different scales;
- Decentralised District Heating and Energy Networks; and
- Heat Pumps.

A review of each of these technologies and their suitability for the site has been completed below. Specific details on the renewable technologies that will be delivered on site will be provided at each reserved matters application.

Solar Photovoltaics (PV) - Solar PV systems generate zero carbon electricity from sunlight and are well suited to dwellings with unobstructed southeast to southwest facing roof space. Excess power is exported to the grid or can be harnessed using battery storage. Maintenance requirements are typically minimal.

Given the ambition to meet 100% of regulated energy demand through on-site renewable energy production, all homes at Woollam Park will include the provision of rooftop Solar PV. The orientation of buildings will aim to maximising the potential for renewable energy production, whilst maintaining a balance with good urban design.

Solar Thermal - Solar thermal systems generate zero carbon hot water from sunlight. They require insulated tanks to store the hot water and have greater maintenance demands than solar PV given the need to ensure anti-freeze in the pipework is topped up every few years. They can be a highly cost-effective technology, however given the all-electric nature of the development, their benefit may be limited.

Wind Turbines - Wind turbines capture wind energy and convert it into usable electricity. There are three main types of domestic-scale wind turbine systems, roof mounted, standalone, and micro turbines (under a 15kW). Wind turbines can generate small but valuable amounts of electricity; however, they can also result in potential noise, vibration, and visual impacts. Roof-mounted wind turbines can also place additional forces on structures. The use of wind turbines would therefore need to be carefully considered before being included at detailed design.

Heat Pumps - Heat pumps provide low carbon heat sourced either from the ground (Ground Source Heat Pumps/ GSHP) or air (Air Source Heat Pumps/ ASHP). This type of system is suited to thermally efficient buildings. They require mains electricity to operate but typically generate at around three units of heat for every unit of electricity that is consumed. The 2025 FHS consultation is based on the use of a notional high-efficiency ASHP (equivalent to ErP A++) to provide low carbon heat. It is considered likely that the detailed design of homes at Woollam Park will include provision of a high efficiency ASHP.

### *Non-domestic buildings*

The proposals also include a number of non-domestic buildings such as elderly care provision, a local neighbourhood centre, and a primary school.

- All non-domestic buildings will be built in line with the FBS as a minimum, which will require the building to achieve a c.75% reduction in carbon emissions beyond Part L 2013.
- Community buildings within the local centre will target the emerging UK Net Zero Building Standard.
- It is likely that the school (which will be delivered by HCC) will also be Net Zero in line with the Council's net zero aspirations. HCC have already funded their first fully net-zero carbon school at The Buntingford First School, which opened in September 2023. The school is highly sustainable and utilises a Passivhaus design, over 300 solar panels, triple-glazing windows and air-source heat pumps.

### *Operational Energy Strategy Summary*

The proposed development at Woollam Park will seek to ensure efficient use of energy and to maximise the use of renewable and low carbon energy and in line with **draft Policy CE1** and **CE2**.

Homes will aim to achieve **net zero in carbon emissions associated with regulated energy use** across the site where viable. This will be achieved through a combined fabric, energy efficiency, and low carbon renewable energy such as Solar PV and ASHPs. **Figure 4** below shows an illustration of what a sustainable home at St Albans might look like.

Non-domestic buildings will be built in line with the FBS as a minimum. Community buildings within the local centre will target the emerging UK Net Zero Building Standard. It is likely that the school (which will be delivered by HCC) will also be Net Zero and highly sustainable in line with the Council's net zero aspirations.

The site will be all-electric without the use of fossil fuels to provide heat or hot water.

The final specification of homes and buildings, including details of the fabric specification, energy efficiency measures, and low carbon renewable energy technology will be confirmed at detailed design stage.


**Figure 4: Illustration of a sustainable home at St Albans**

### 4.6.3 Climate Change Adaptation

Climate change will cause the UK to become warmer, winters will become wetter, and summers will become drier. Adapting to this changing climate will impact on the design, construction, location, cost and operation of all new buildings in the next few decades. One of the NPPF's core planning principles is for development to consider climate change adaptation and mitigation during the planning process.

To ensure the proposed development is resilient to the effects of climate change, it will incorporate a number of key design measures which respond to the UKCP18 climate projections.

The UKCP18 projections demonstrate that over time the UK will experience increased summer and winter temperatures with significantly increased maximum temperatures, reduced summer rainfall, increased winter rainfall and an increase in extreme weather events.

The need to future proof against climate change is recognised by draft **Strategic Policy SP2**, which requires development to improve resilience to climate change, including increasing temperatures, drought, more intense storms and wind speeds, and heavy rainfall events.

This section identifies key measures which will be incorporated into the design of new homes and the proposed development to adapt to climate change.

#### *Water Efficiency*

Potable water is an increasingly important natural resource and, with the majority of the UK classed as being at moderate or severe water stress, the conservation of water is becoming a significant sustainability metric. St Albans is served by Affinity Water, and is classified as being in an area of serious water stress[9]. Water supply is therefore a key issue for the area, as recognised by **Draft Strategic Policy SP2** and **Policy CE1** of the emerging Local Plan.

The new development will aim to reduce water consumption through a range of water efficiency measures such as:

- Dual flush WCs;
- Water meters;
- Low flow fittings;
- Water butts; and
- Water efficient appliances and equipment (where appropriate).

Through the use of these measures new homes will aim to reduce water consumption to no more than 110 litres/person/day (including external water use) in line with **Draft Policy CE1.**

The provision of rainwater harvesting will be considered at the detailed design of the non-domestic buildings. It is likely that all homes with access to a garden will be provided with a water butt to enable rainwater collection. The use of rainwater harvesting systems will be considered for community areas and/or non-domestic buildings such as schools at detailed design.

#### *Flood Risk and Drainage*

A Flood Risk Assessment (FRA) and Drainage strategy have been prepared by PJA to accompany the application. The site is located entirely in Flood Zone 1, defined as being low risk, comprising land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).

Some areas of the site may be considered to be at risk of surface water flooding. This risk will be mitigated by directing development outside of areas of flood risk, raised finished floor levels, managing surface water flows through green-blue corridors, and a implementing a surface water drainage strategy which manages surface water runoff from the site to greenfield conditions up to and including the 1 in 100 year +40% climate change event.

[9] Water stressed areas – 2021 classification - GOV.UK (www.gov.uk)

The surface water drainage strategy aims to sustainably manage surface water from the site and has been developed in accordance with current sustainable development best practices and the specific requirements of Hertfordshire County Council as the Lead Local Flood Authority (LLFA). SuDS aim to mimic the natural processes of surface water drainage by allowing water to flow along natural flow routes ensuring that runoff rates and volumes during storm events are not increased above the greenfield values. SuDS also aim to provide water treatment, biodiversity, and amenity benefits within blue and green corridors. Proposed SuDS features include detention basins, infiltration basins and swales.

Further information on flood risk and the proposed surface water management system can be viewed in the FRA & Drainage Strategy which accompanies the application.

***Overheating***

With increasing summer temperatures there is an increasing risk of overheating in buildings which could adversely affect building occupants and users.

The site plan incorporates green infrastructure covering c.48.6% of the total site area, this will help to provide cooling through combatting the urban heat island effect.

At detailed design, all homes will be designed in accordance with the Part O of the Building Regulations, which requires development to demonstrate that the risk of overheating has been mitigated.

The proposed dwellings will be designed in accordance with the cooling hierarchy, as shown in **Figure 5**, which aims to reduce any potential overheating in buildings. Incorporating the cooling hierarchy into the design process means buildings will be better equipped to manage their cooling needs and to adapt to and mitigate climate change.

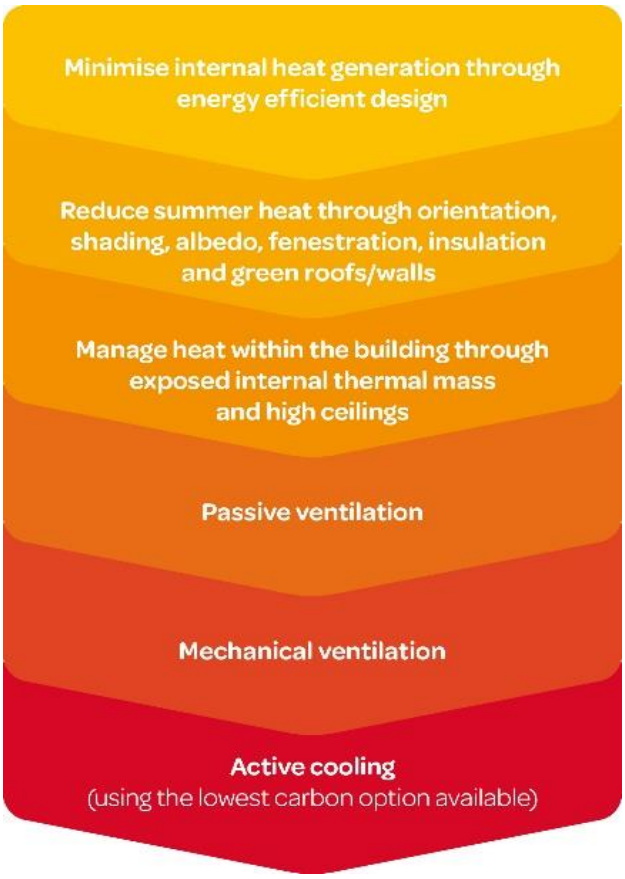


Figure 5: The Cooling Hierarchy

## 4.7 Conserving and Enhancing the Natural Environment

The proposed development will incorporate measures to support and enhance the environment through consideration of the existing site ecology, including measures to mitigate the impact of the site and enhance site biodiversity. It will also incorporate measures to reduce pollution from the site.

### 4.7.1 Ecology

An Ecological Appraisal has been prepared by The FCPR to consider the likely ecological implications of Woollam Park.

The majority of the site comprises arable habitats, consisting of four arable fields and a mown amenity grass field. The site also has a number of broadleaved woodland belts throughout the site, and hedgerows along the field boundaries. The site is thought to provide suitable habitat for a number of protected species such as badgers, bats, birds, and reptiles. A total of nine sites of local or county

level conservation interest can be found within 1km of the site, including Longspring Wood, a small ancient woodland within the south of the site.

To protect the site habitats and species, a number of mitigation and enhancement measures have been proposed.

The proposed mitigation measures can be summarised as follows:

- Retention of Longspring Wood LWS and protection with a 15m buffer;
- Retention of mature trees and protection of root protection areas with an adequate buffer;
- The majority of hedgerows will be retained and enhanced. Planting will prioritise native seed or fruit bearing species which tend to support a greater diversity and number of invertebrate species for birds to feed on;
- A sensitive lighting strategy will be implemented throughout the construction and operational phases of the development, to avoid disturbance of nocturnal species by seeking to reduce light spill and maintain dark corridors, in line with **draft Policy HW2**; and
- A Construction Environmental Management Plan (CEMP) will be prepared to mitigate the impact of construction activities. This will include specific protected method statements for notable species and pollution prevention measures.

The proposed enhancement measures include:

- Extensive provision of green infrastructure, covering c.51% of the total site area and providing a mix of habitats including species-rich meadow grassland, mixed scrub, and woodland habitats;
- Design of habitats to provide green corridors through the site, connecting existing habitats of higher biodiversity value;
- Scrub and woodland planting to extend the woodland habitat, with management to promote ancient woodland ground flora;
- New hedgerow planting between residencies and additional tree and scrub planting within the developable areas;
- SuDS design which provides a green/blue corridor through the site, offering multifunctional biodiversity benefits through habitat creation and diversity;
- Provision of a hedgerow and species-rich grassland bridleway link along the north-east of the site; and
- Provision of habitat features such as bat boxes and/or bat bricks, bird boxes, and reptile hibernacula in suitable locations, in line with **draft Policy NEB7**.

Through implementation of the proposed habitat protection and enhancement measures, the development is capable of delivering net benefits for wildlife and biodiversity.

A Biodiversity Net Gain (BNG) assessment has been undertaken by FCPR. Based on the Illustrative Masterplan, the assessment shows the proposals at this stage are capable of delivering a delivering a biodiversity net gain of 11.23% habitat units, and 26.37% hedgerow units, exceeding the 10% requirement set out in **draft Policy NEB 6.**

Long term maintenance of biodiversity features will be secured in line with **draft Strategic Policy SP10.** An Ecology Management Plan (EMP) or similar will be produced during Reserved Matters, detailing how all areas of the GI will be managed in the long term under an agreed management strategy.

### 4.7.2 Pollution

The proposed development will aim to minimise pollution and any negative impacts on the natural environment, including considering the impacts of noise and air quality.

In line with the requirements of **draft Policy HW1**, suitable assessments for noise and air pollution have been carried out by Noise Consultants Limited and Air Quality Consultants Limited. A sensitive lighting strategy will be implemented to mitigate impacts on local amenity and safety, biodiversity,

heritage assets, roads and woodlands and rivers in line with **draft Policy HW2.**

Prior to construction, a Construction Environmental Management Plan (CEMP) will be produced, which will require pollution prevention and dust control measures to be implemented during site clearance and construction works. The risk of pollution will be reduced and managed through measures such as:

- Reducing erosion and run-off by minimising land disturbance and leaving vegetation cover where possible;
- Covering skips and trucks loaded with construction materials;
- Use of non-toxic paints, solvents and other hazardous materials wherever possible; and
- Segregation, covering and monitoring of any toxic substances to prevent spills and possible site contamination.

During operation, the proposals include several measures to mitigate, prevent and reduce air pollution, these include:

- An all-electric energy network which will result in reduced NOx emissions compared to traditional gas boilers.
- A sustainable movement strategy which will encourage active forms of travel (such as walking and cycling) and minimise congestion and air pollution associated with private car use.
- All homes will be provided with an electric vehicle charging point to promote the uptake of low emission vehicles.

## 4.8 Circular Economy and Sustainable Waste Management

A key theme of St Albans City and District Council's Sustainability and Climate Crisis Strategy is "Circular Economy, Waste & Food", with targets to reduce waste and increase recycling, and to promote Circular Economy principles across the district. This theme is supported by **draft Policy CE1,** which requires developments to minimise waste during construction and operation, using the Circular Economy approach.

Waste will be managed in accordance with the Waste Hierarchy which prioritises waste prevention, followed by re-use, recycling, then energy recovery and disposal as a last resort.


Figure 6: The Waste Hierarchy

A number of measures will be implemented throughout the design, construction, and operation of the proposed development at Woollam Park to minimise waste and support circular economy principles.

### 4.8.1 Design for a Circular Economy

A circular economy is one where materials are retained in use at their highest value for as long as possible and are then re-used or recycled, leaving a minimum of residual waste.

In line with draft **Policy CE1**, the development will aim to minimise waste using the circular economy approach. Measures to be considered and incorporated during the detailed design of individual homes include:

- Lean design to minimise material use;
- Consideration of pre-fabricated elements and modular build to reduce waste through greater accuracy and minimisation of errors which can be achieved in a factory setting;
- Design for adaptability, durability and resilience, to prolong the life of materials used;

- Design for disassembly so that components can be easily taken apart with minimal damage to facilitate reuse or recycling; and
- Specification of materials with high recycled content and/or materials that have a greater potential for reuse and recycling at end-of-life.

### 4.8.2 Construction Waste Management

Prior to the construction phase a Site Waste Management Plan (SWMP) will be developed to ensure the use of measures to minimise waste during the construction phases of the development, including the use of a scheme for recycling/disposing of waste arising from construction works, in line with the requirements of **Policy 12** of the Waste Core Strategy.

The SWMP will include waste reduction and diversion from landfill targets. The reduction, reuse and recycling of construction waste is to be prioritised through measures such as avoidance of over-ordering, supervision of deliveries, use of secure materials storage facilities and reuse of materials onsite where feasible.

### 4.8.3 Operational Waste Management

In order to support waste reduction and recycling during the operational phase of the development, adequate provision will be made for the storage and collection of recyclable and non-recyclable waste. In line with draft **Policy DES7**.

During the detailed design of the development, full consideration will be given to the Council's waste management infrastructure and services to ensure that the residents have the necessary infrastructure to participate in any kerbside recycling services. This will include consideration of the Council's Waste and Recycling; Storage and Collection Guidance[10] (or other relevant guidance in place at the time of reserved matters applications).

Upon occupation, residents will be provided with an information pack containing links to the Council's waste collection services website, and waste reduction and recycling initiatives in the region, such as the Hertfordshire Partnership WasteAware campaign[11]

[10] Microsoft Word - Waste and Recycling; Storage and Collection Guidance - Guidance for Developers.docx (stalbans.gov.uk)

[11] WasteAware campaigns | Hertfordshire County Council

# 5. Conclusion

This sustainability and energy statement has been prepared to demonstrate how the proposed development at Woollam Park delivers a highly sustainable development that targets net zero and responds positively to national and local sustainability aspirations.

The proposed development at Woollam Park has been designed to respond positively to national and local plan policy, incorporating measures to deliver social and economic benefits, protect and enhance the environment, and to mitigate and adapt to the effects of climate change.

This Sustainability and Energy Statement has set out key sustainable design measures incorporated at this stage and to be considered during the detailed design of homes. Below is a short summary of the key sustainable design measures that have been incorporated into the design of the development.

Social and Economic Benefits – The development aims to provide a range of social and economic benefits to both new and existing residents, through:

- Provision of a mix of up to 1,000 new dwellings, providing housing opportunities for local people;
- Pursuing HQM certification, demonstrating that homes will be environmentally friendly, cost-effective and comfortable to live in;
- Development in a sustainable location and a sustainable travel plan that encourages movement by healthy and active means;
- Extensive green infrastructure covering c.51% of the total site area, supporting the delivery of health & wellbeing benefits associated with green space;
- A local centre providing facilities for the local community;
- Provision of grow zones, productive edges, and fruiting trees throughout the site, promoting healthy and sustainable food production;
- Play areas and spaces for children, young people and teenagers, offering opportunities for play and social interaction; and
- Homes designed to create healthy living environments which are flexible for the future.

Mitigating and Adapting to Climate Change – In recognition of the climate emergency, the development will incorporate a range of mitigation measures to reduce carbon emissions, and adaptation measures to ensure the long-term resilience of the development to the effects of climate change. Measures include:

- All homes will be designed to reduce carbon emissions in accordance with the FHS / FBS as a minimum, with an ambition to go beyond this where viable with a target to be **net zero in carbon emissions associated with regulated energy use** across the site;
- A fabric-first approach to design to reduce energy demand, followed by low carbon renewable energy technologies such as Solar PV and ASHP. The development will be all electric without the use of fossil fuel boilers for heating or hot water;

- All homes will aim to reduce embodied carbon in line with best practice embodied carbon targets such as RIBA Climate Challenge embodied carbon targets of <800 $kgCO_2e/m^2$ from 2025, and <625 $kgCO_2e/m^2$ from 2030;
- Specification of water-efficient fittings to reduce water consumption to 110 l/p/d and consideration of rainwater harvesting for grey water use to reduce pressure on potable water supply;
- Reduced emissions associated with private car travel though development in a sustainable location and a travel plan which promotes sustainable and active travel;
- A surface water drainage strategy designed to sustainably manage all storm events up to and including the 1 in 100 year event plus a 40% allowance for climate change; and
- Homes designed to take into account increasing annual temperatures set out in the UKCP18 climate projections to minimise the risk of overheating.

Environmental Protection and Enhancement – A range of design measures will be implemented to protect and enhance the local environment, including:

- Homes designed to make use of sustainable materials to reduce environmental impacts of construction;
- Provision of measures to protect and enhance on-site ecology, with proposals at this stage delivering a biodiversity net gain of 11.23% habitat units, and 26.37% hedgerow units;
- Use of SuDS features such as attenuation basins, swales, bioretention systems, filter Strips and permeable paving, to help deliver multifunctional biodiversity, amenity and water quality benefits;
- Measures to reduce the risk of pollution throughout construction and operation, including consideration of air quality, noise, and light pollution;
- Consideration of design features to support a Circular economy. such as lean design to minimise material use and design for adaptability, durability and resilience, to prolong the life of materials used;
- Measures to minimise waste, and encourage recycling throughout construction and operation of the site.

**The Applicants are committed to the delivery of a highly sustainable development that targets net zero and includes measures to support the delivery of social and economic benefits, protect and enhance the environment, as well as mitigate and adapt to the long-term effects of climate change.**

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