

# Himley Village Outline Application Sustainability and Energy Statement

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December 14

# Sustainability and Energy Statement

Himley Village, NW Bicester



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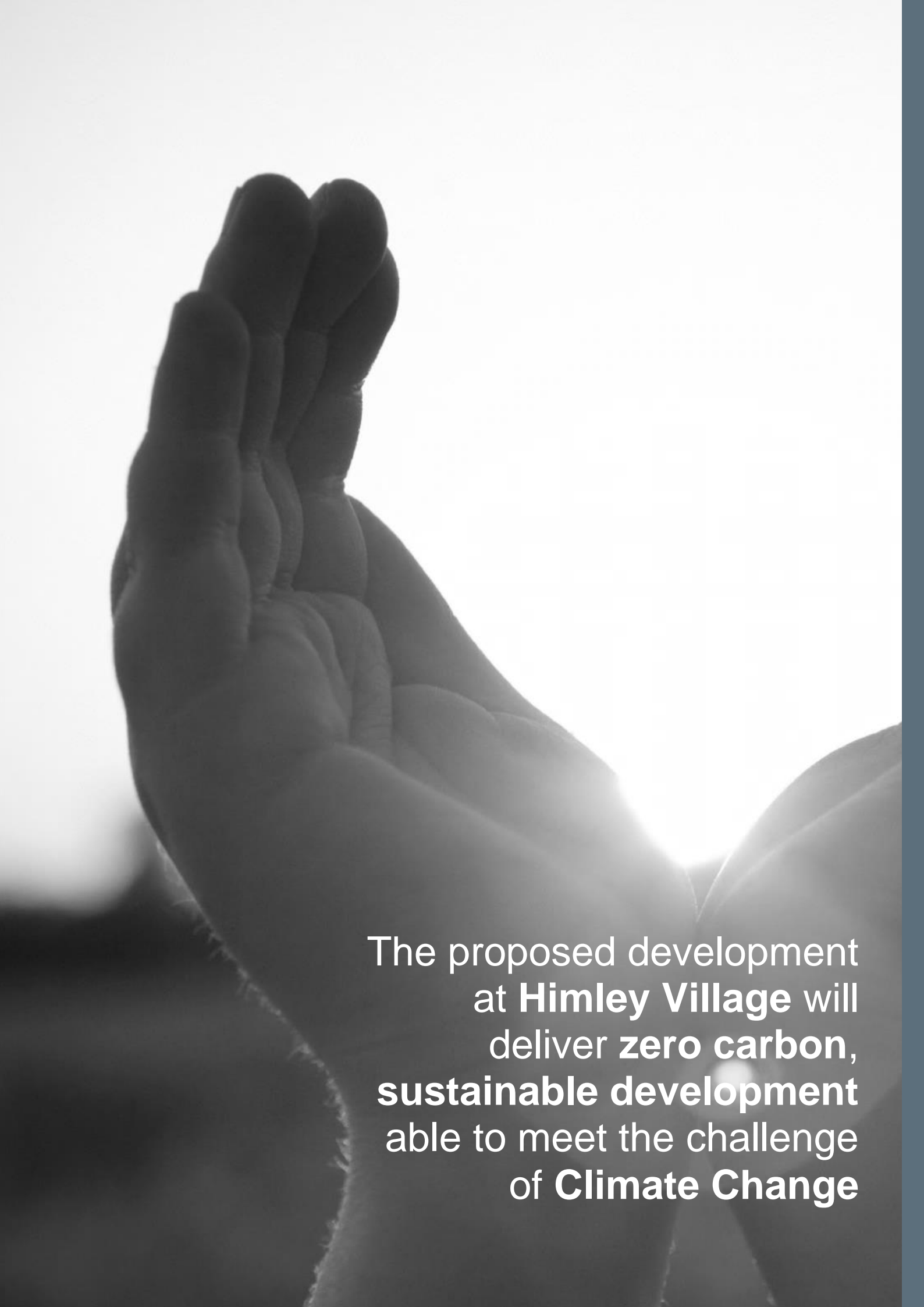
**This Sustainability and Energy Statement** has been prepared by **Turley Sustainability** on behalf of **P3Eco** for the development of **Himley Village** at the **NW Bicester Eco Town**

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A black and white photograph of a hand holding a small plant seedling against a bright, sunlit background. The hand is positioned on the left side of the frame, with the fingers gently cradling the base of the seedling. The seedling has two small leaves and a central stem. The background is a bright, overexposed area, likely representing a sunrise or sunset, with a soft glow around the hand and seedling. The overall mood is one of care and growth.

The proposed development  
at **Himley Village** will  
deliver **zero carbon,**  
**sustainable development**  
able to meet the challenge  
of **Climate Change**

# 1. Introduction

**This Sustainability and Energy Statement been prepared in support of the Outline Application for land to the North West of Bicester, north of Middleton Stoney Road and west of Howes Lane.**

The purpose of this report is to summarise the Proposed Developments sustainability commitments including the zero carbon energy strategy in response to relevant national and local planning policy, the submitted NW Bicester masterplan and local sustainability priorities of Cherwell District Council (CDC).

## History

The Site, also referred to as 'Himley Village', forms part of the North West (NW) Bicester eco-town which is identified for major strategic growth by CDC.

NW Bicester is being promoted as a site for up to 6,000 new homes, after previously being identified as an eco-town location within Planning Policy Statement (PPS) 1.

A masterplan has been submitted to CDC for the whole of the NW Bicester eco-town area in response to the requirements of the supplement to PPS1 (the 'PPS Supplement'), in March 2014, with additional information provided in May 2014.

The NW Bicester masterplan area comprises approximately 400ha of which the Himley Village site constitutes approximately 90ha. The NW Bicester masterplan sets out the strategy for the development of the eco-town area as a

whole and includes a masterplan Energy Strategy which establishes the overarching energy strategy for the NW Bicester masterplan area and how the development will achieve its zero carbon ambitions.

Planning permission was granted in 2012, for the development of some 21 ha of land within the masterplan area known as the Exemplar Phase. This permission is currently being implemented and provides 393 new homes, land for a new primary school, together with social and community facilities, business and retail accommodation. This aims to provide a showcase of eco-development and exemplar of sustainable neighbourhoods that make green living easy and benefit the whole community.

## Site and Surroundings

The NW Bicester development is on the north west perimeter of Bicester, Oxfordshire.

The eco-town area is bounded by the A4095, B4100 and B4030 and bisected approximately north south by the mainline Birmingham to London Marylebone railway and Bucknell Road.

## Proposed Development

The Proposed Development at Himley Village will provide up to 1,700 new homes with associated services and infrastructure including the provision for a new school, commercial, social and community facilities and hotel. The Application Site is approximately 90 ha. It is predominantly Greenfield in nature and encompasses two farms and associated access.

Figure 1: Site location plan



## Phasing

Development of Himley Village is expected to commence in 2016 and be undertaken in a number of discrete phases, with completion in around 2031. It is anticipated that development will be delivered through eight phases starting from the area adjacent to Middleton Stoney Road (B4030) and moving north eastwards into the site.

Table 1: Residential accommodation schedule

Use	Number	Area (m <sup>2</sup> )
1 Bed	168	9,240
2 Bed	680	54,400
3 Bed	568	56,800
4 Bed	209	25,080
5 Bed	75	10,875
<b>Total homes</b>	<b>1,700</b>	<b>156,395</b>

Table 2: Non-domestic accommodation schedule

Use	Area (m <sup>2</sup> )
Hotel	2,600
Veterinary Surgery	2,000
Primary School	2,750
Extra care retirement village	9,000
Pub/community hall	400
Retail	700
Health Facility	1,500
Office	1,000
Nursery	100
Energy Centre	375
Water Treatment Plant	450
<b>Total Non-Domestic</b>	<b>20,875</b>

Full details of the Proposed Development, Site and phasing are provided within the Design and Access Statement and Planning Statement that accompany the Outline Planning Application.

## 2. Policy Context

This section of the report provides an overview of the relevant planning policy and guidance regarding sustainability and development at NW Bicester from a national and local perspective.

The concept of sustainable development became part of the international political arena in 1987 with the World Commission on Environment and Development's publication of "Our Common Future" (commonly known as the "Brundtland Report"). Today, governments across the globe seek to implement sustainable development to ensure that progress meets the needs of everyone, makes wise use of natural resources and does not damage the environment.

### UK Sustainable Development Strategy

In 2005, the government published an updated strategy for implementing sustainable development across the UK. This strategy acts as an overarching document from which a range of specific policies and legislation was derived. Although published in 2005, the strategy has taken a recently renewed focus in light of the Government's definition of Sustainable Development in the NPPF.

### Climate Change Act

The Climate Change Act (2008) sets a legally binding target for reducing UK CO<sub>2</sub> emissions by least 80% on 1990 levels by

2050. It established the Committee on Climate Change, which is responsible for setting binding interim carbon budgets for the government over successive five year periods. The first three carbon budgets were announced in the Budget 2009, resulting in an interim target of a 34% reduction in CO<sub>2</sub> equivalent emissions on 1990 levels by 2020.

### UK Low Carbon Transition Plan

The Low Carbon Transition Plan was launched by the previous Government in 2009 and set out a range of policies to ensure that the UK meets its Climate Change Act commitments by 2020 including:

- **Sourcing 40% of our electrical energy from low and zero carbon**
- **Rolling out smart meters to every home**

### Building Regulations

Whilst not planning policy, the Building Regulations, and specifically Approved Documents Part L; Conservation of Fuel and Power, are relevant as they determine the energy efficiency and carbon emission standards required by new buildings.

The primary mechanism for reducing carbon emissions from new development is progressive changes to Part L aiming to deliver zero carbon homes by 2016.

The zero carbon policy sets out a plan for progressive changes to Part L of the Building Regulations to eventually achieve zero carbon homes. In April 2014 the Part L



regulations changed and it is now a requirement for new homes to deliver a 6% reduction in carbon emissions compared to equivalent 2010 Part L2A standards and an aggregate 9% reduction for non-domestic buildings compared to Part L2B. This change aims to strike a balance between the commitments to reducing carbon emissions and improving energy efficiency and ensuring that the overall effect of regulation upon consumers and businesses does not stifle growth.

The Government has stated that developers will continue to have flexibility in how they meet carbon reduction targets, however, the emphasis of these changes is on using a fabric first approach and this is reinforced through the introduction of a new target for fabric energy efficiency.

### Zero Carbon Buildings Policy

Until 2008 the Government’s definition of Zero Carbon included both regulated and unregulated energy. In 2008 the government amended this, re-defining Zero Carbon to consider regulated energy only.

The table below shows the difference between the, ‘True Zero Carbon’ definition used in policies prior to 2008 and the definition used in the Zero Carbon Building policy due to be introduced in 2016.

**Table 3: Zero Carbon definitions**

True Zero Carbon	Zero Carbon Buildings Policy 2016
Requires the mitigation of 100% of all regulated and un-regulated energy	Requires the mitigation of 100% regulated energy only.
Homes should achieve a minimum onsite carbon reduction through energy efficiency measures, onsite energy supply or direct connection to low	Homes are required to meet an average onsite energy efficiency target of 39/47kWh/m <sup>2</sup> and a carbon reduction target of 19% over Part L 2013.

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carbon or renewable heat.

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A portion of the mitigation can be delivered through offsite measures.	The remaining carbon target can be met through the Allowable Solutions mechanism
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The government’s Zero Carbon Buildings Policy requires new homes to reduce regulated carbon emissions to zero. This will be achieved through a sequential method:

1. Maximising fabric efficiency of a building, achieving the minimum Fabric Energy Efficiency Standard.
2. Achieving minimum Carbon Compliance 19% above Part L 2013 to be set in the Building Regulations.
3. Achieving net zero carbon emissions through offsetting the remaining carbon through an Allowable Solutions mechanism.

### The Housing Standards Review

Following the publication of the Harman Review into local housing standards in 2012 a Technical Housing Standards Review Group was established to look into existing sustainability standards applied to new housing, including the Code for Sustainable Homes.

The proposals included consolidating requirements into the Building Regulations with amendments proposed for the Planning and Energy Act 2008 to remove local authorities’ ability to set energy standards above Building Regulations. The announcement confirmed the Government’s intention to wind down the Code for Sustainable Homes prior to the introduction of the Zero Carbon Homes standard in 2016.

In September 2014 the government released the next consultation phase of the Housing Standards Review with the publication of proposed standards on access, water efficiency, security and internal waste. The consultation set out the government's aim to produce a 'Statement of Policy' in early 2015 which will set out how the proposed standards will be applied in local plans and the transitional arrangements for the Code.

This outlines the timeline for the winding down on the Code in line with the introduction of the Zero Carbon Homes policy which will require onsite carbon reductions equivalent to the current Code Level 4.

Until the release of the Statement of Policy in 2015 the Code remains a nationally prescribed standard for the assessment of sustainability in new development.

### Allowable Solutions

Allowable Solutions is the mechanism by which developers can use to mitigate the remaining carbon emissions of a scheme after the onsite obligations have been met.

In August 2013, the Government released a consultation document on the proposed Allowable Solutions policy, 'Next steps to zero carbon homes – allowable solutions'.

The government's response in July 2014 set out more details on how the allowable solutions mechanism will work. The response set out that:

- Small scale developments will be exempt from meeting the zero carbon homes policy. The definition of 'small scale' is currently being consulted on.
- Developers will have a range of options in meeting the remaining carbon reductions including:

- Carrying out further onsite abatement onsite
- Carrying out offsite abatement, i.e. retrofitting existing buildings
- Third party delivery of the required carbon abatement
- Payment to an Allowable Solutions fund which invests in carbon abatement projects
- A national framework for Allowable Solutions will be set up to create greater efficiency in delivery of carbon abatement and ensure greater coverage across the country.

### Planning Policy Statement: Eco-Towns

In July 2009, the Department for Communities and Local Government published **Planning Policy Statement (PPS): eco-towns** as a supplement to PPS1.

The supplement established a number of key requirements on sustainability, waste reduction, zero carbon buildings and sustainable public transport for eco town developments.

Eco-towns are defined as sustainable developments of at least 5,000 homes. In July 2009, four 'first wave' locations were identified with the potential to be an Eco-town; one of which was NW Bicester.

The PPS1 supplement established a vision that:

*"Eco-towns should be exemplar projects that encourage and enable residents to live within managed environmental limits and in communities that are resilient to climate change"*

It also sets out the Government's objectives for the planning system planning in relation to the delivery of eco-towns:

1. *"To promote sustainable development by: ensuring that eco-towns achieve sustainability standards significantly above equivalent levels of development in existing towns and cities by setting out a range of challenging and stretching minimum standards for their development, in particular by: providing a good quantity of green space of the highest quality in close proximity to the natural environment offering opportunities for space within and around the dwellings promoting healthy and sustainable environments through 'Active Design' principles and healthy living choices enabling opportunities for infrastructure that make best use of technologies in energy generation and conservation in ways that are not always practical or economic in other developments delivering a locally appropriate mix of housing type and tenure to meet the needs of all income groups and household size, and taking advantage of significant economies of scale and increases in land value to deliver new technology and infrastructure such as for transport, energy and community facilities.*
2. *To reduce the carbon footprint of development by: ensuring that households and individuals in eco-towns are able to reduce their carbon footprint to a low level and achieve a more sustainable way of living."*

The National Planning Policy Framework (NPPF) was published on 27 March 2012 and replaced all the previous Planning Policy Statements, however, PPS1 Supplement is still considered relevant and applicable.

## National Planning Policy Framework

Following its publication in March 2012, national planning policy is now provided by the NPPF which sets out the government's planning policies for England and how these are expected to be applied. It also

sets out the requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so.

The Government has made clear its expectation that the planning system should positively embrace well-conceived development to deliver the economic growth necessary and the housing we need to create inclusive and mixed communities.

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

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

**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.

## Demonstrating Sustainable Development

Paragraph 6 of the NPPF states that:

*“The purpose of the planning system is to contribute to the achievement of sustainable development. The policies in paragraphs 18 to 219, taken as a whole, constitute the Government’s view of what sustainable development in England means in practice for the planning system”.*

Should a proposed development demonstrate that it is supporting the relevant policies of the NPPF then it is deemed to be ‘Sustainable Development’.

## National Planning Policy Guidance

In March 2014 the Government released the updated National Planning Policy Guidance (the Guidance). The Guidance provides information to local authorities on how to implement the policies of the NPPF and approach specific policy aims.

The Guidance sets out how local authorities should include policies that protect the local environment and strategies to mitigate and adapt to climate change. It reiterates that local authorities should set sustainability policies for new housing in line with the Government’s Zero Carbon Buildings Policy and the findings of the Housing Standards Review.

## Climate Change

Climate change adaptation and mitigation can be addressed in a number of ways outlined within the Guidance including:

- Reducing the need to travel and providing for sustainable transport;
- Providing opportunities for renewable and low energy technologies;

- Providing opportunities for decentralised energy and heating;
- Promoting low carbon design approaches to reduce energy consumption in buildings, such as passive solar design.
- Considering future climate risks when allocating development sites to ensure risks are understood over the development’s lifetime;
- Considering the impact of and promoting design responses to flood risk and coastal change for the lifetime of the development;
- Considering availability of water and water infrastructure for the lifetime of the development and design responses to promote water efficiency and protect water quality;
- Promoting adaptation approaches in design policies for developments and the public realm.

## Design

The Guidance also states that the design of new development, and the potential for servicing sites through sustainable transport solutions, is particularly important. Good quality design is an integral part of sustainable development and good design should:

- Ensure that development can deliver a wide range of planning objectives;
- Enhance the quality of buildings and spaces, by considering amongst other things form and function; efficiency and effectiveness; and their impact on well being
- Address the need for different uses sympathetically.

## The Development Plan

The Coalition Government has reiterated its desire to abolish the regional policy tier, and the Localism Act and NPPF is a clear indication of that intention.

The Regional Spatial Strategy (RSS) for the South East of England (The South East Plan) was revoked in March 2013 and no longer forms part of the statutory development Plan for Cherwell District.

Following abolition of the South East Plan, adopted planning policy for the district is contained within the saved policies of the Cherwell District Local Plan.

## Saved Policies of Cherwell District Local Plan

The Cherwell District Local Plan was adopted in November 1996 and its relevant policies were saved from 27 September 2007.

The saved policies of the Local Plan remain the only adopted policy for the Cherwell District until such a time as they are replaced by the emerging Local Plan.

Policies TR1, TR2 and TR3 seek to balance and minimise conflicts between vehicles, pedestrians and cyclists ensuring new development make or contribute towards improvements to local road network and Policy TR4 encourages effective public transport systems as an alternative to private car usage.

The Local Plan contains a number of saved policies relating to good quality design (Policy C30 and C31) and Environmental Protection including Policy C7 (landscape and conservation) Policy C14 (trees and landscaping) Policy C26 (archaeology) Policy ENV3 Noise and ENV9 Surface Water Run-off.

## Non-Statutory Cherwell District Local Plan 2011

The Non Statutory Cherwell District Local Plan 2011 was intended to review and update the existing Local Plan.

The Non-Statutory Local Plan is not part of the statutory Development Plan but it has been approved as interim planning policy guidance to prevent a policy void for development control purposes.

## Cherwell Local Plan Proposed Submission

The emerging Local Plan Part 1 and all supporting documents were submitted to the Secretary of State on 31st January 2014 for formal examination. The public Examination hearings into the Submission Local Plan were suspended on 4 June 2014 for six months to enable the Council to make modifications with respect to additional housing delivery over the plan period to meet the objectively assessed needs of the District.

The Proposed Modifications were submitted for formal Examination on 21st October 2014 and have revised the plan period to 2011 – 2031 and represents that latest expression of the Council's policies on sustainable development including the NW Bicester eco-town area.

**Policy Bicester 1 - North West Bicester Eco-Town** - contains a number of elements that directly relate to the sustainability and energy strategy for development at NW Bicester including:

- *A new exemplar zero carbon (as defined in the PPS1 Supplement) eco development will be developed on land identified at NW Bicester.*
- All new non-residential buildings including the school and hotel will achieve BREEAM Very Good with the

capability of achieving BREEAM Excellent.

- *Homes to be constructed to be capable of achieving Level 5 of the Code for Sustainable Homes on completion of each phase of development including being equipped to meet the water consumption requirement of Code Level 5.*
- *Have real time energy monitoring systems, real time public transport information and superfast broadband. Consideration should also be given to digital access to support assisted living and smart energy management systems.*
- *Utilities and infrastructure which allow for zero carbon and water neutrality on the site and the consideration of connection of waste heat from the recently constructed Ardley Energy from Waste facility.*

**Policy ESD 1 - Mitigating and Adapting to Climate Change** states that measures will be taken to mitigate the impact of development within the district on climate change and improve the development microclimate.

**Policy ESD 2 - Energy Hierarchy and Allowable Solutions** recognises it would be counter-productive to encourage generation of renewable energy if energy is being wasted by inefficiency. As such the policy supports the use of the 'energy hierarchy' to guide reductions in energy and associated carbon emissions as follows:

- **Reducing energy use, in particular by the use of sustainable design and construction measures;**
- **Supplying energy efficiently and giving priority to decentralised energy supply;**
- **Making use of renewable energy;**

- **Making use of allowable solutions**

The policy states an Energy Statement will be required for proposals for major residential developments (over 10 dwellings, or 1,000 sqm of non-residential floorspace) and all non-residential development.

**Policy ESD 3 - Sustainable Construction**

States all new residential development will be expected to incorporate sustainable design and construction technology to achieve zero carbon development through a combination of fabric energy efficiency, carbon compliance and allowable solutions in line with Government policy.

Cherwell District is in an area of water stress and as such the Council will seek a higher level of water efficiency than required in the Building Regulations, with developments achieving a limit of 110litres/person/day.

All new non-residential development will be expected to meet at least BREEAM 'Very Good' with immediate effect, subject to review over the plan period to ensure the target remains relevant. The demonstration of the achievement of this standard should be set out in the Energy Statement.

The strategic site allocations identified in this Local Plan are expected to reflect exemplary contributions to carbon emissions reductions and to wider sustainability.

**Policy ESD 4 - Decentralised Energy Systems** states the use of decentralised energy systems, providing either heating (District Heating (DH)) or heating and power (Combined Heat and Power (CHP)) are encouraged in all new developments where viable.

**Policy ESD 5 - Renewable Energy** suggests a consideration be given to the potential for significant on site renewable energy provision above any provision required meeting national building standards.

**Policy ESD 6 - Sustainable Flood Risk Management** states that site specific Flood Risk Assessments (FRA) are required for development proposals of 1 hectare or more located in flood zone 1 and all proposals in zones 2 and 3. FRAs should consider all sources of flood risk.

**Policy ESD 7 - Sustainable Drainage Systems** states that all development will be required to use sustainable drainage systems for the management of surface water run-off.

**Policy ESD 8 Water Resources** States the Council will seek to maintain water quality, ensure adequate water resources, and promote sustainability in water use and development proposals which would adversely affect the water quality of surface or underground water bodies will not be permitted.

### Emerging Guidance

The Council is currently in the process of producing a supplementary planning document (SPD) to guide development proposals for the site.

At a meeting of the Executive on 3rd November, the Council resolved to endorse the draft NW Bicester Development Framework SPD for public consultation in late 2014. The SPD is intended to provide further guidance to assist the implementation of emerging Local Plan Policy Bicester 1. This will include key development principles for the strategic allocation, supplemented by specific design and place making principles.

### Policy Summary

Central to the government's and Cherwell District's vision for 'Sustainable Development' is the approval of development that jointly promotes economic, social and environmental benefits.

The NPPF states that these principles should be promoted jointly and simultaneously through the planning system to achieve sustainable development. The PPS 1 Supplement set a vision of exemplar projects that encourage and enable residents to live within environmental limits in communities that are resilient to climate change.

The emerging spatial strategy for Cherwell aims to manage the majority of proposed growth in and around Bicester and its main objective is to secure the economic future of the District and deliver sustainable communities.

The emerging Local Plan encourages development to meet the challenge of climate change through application of the energy hierarchy and sets standards above those required to meet the Building Regulations. It establishes a number of criteria for the NW Bicester eco-town including meeting Code for Sustainable Homes Level 5 and BREEAM Very Good as a minimum.

The recent Housing Standards Review has signalled the government's intention to wind down the Code for Sustainable Homes and there has been considerable changes to the national zero carbon buildings policy including removal of unregulated energy and emissions.

Despite these changes the PPS1 Supplement is still considered relevant including the ambition for true zero carbon development and establishes key sustainability criteria to deliver the eco-town vision of exemplar sustainable new communities

The proposed Sustainability and Energy Strategy for Himley Village is summarised in Section 3 of this report in response to the policy context and vision for NW Bicester.

## 3. Sustainability at Himley Village

This Sustainability and Energy Statement has been prepared to summarise the approach of P3Eco to delivering a sustainable zero carbon community and supporting the vision for NW Bicester.

The proposed sustainability and energy strategy for Himley Village reflects the varying requirements of national and local planning policy and the overarching approach to development established by the submitted NW Bicester masterplan.

The PPS1 Supplement established 16 key criteria which have been agreed from the outset as the guiding principles for development at NW Bicester. Himley Village has continued to use this framework in identifying key objectives to ensure delivery of the sustainable development vision.

At the outline planning application stage this sustainability and energy strategy provides the framework within which the scheme can be delivered, establishing clear sustainability commitments within which the design of new homes and buildings can be achieved as part of a sustainable and low carbon community.

### Sustainability at Himley Village

The Sustainability and Energy Strategy for Himley Village is considered under the following headings:

- 3.1 Zero carbon
- 3.2 Climate change adaptation
- 3.3 Homes
- 3.4 Employment
- 3.5 Transport
- 3.6 Healthy lifestyles
- 3.7 Local services
- 3.8 Green infrastructure
- 3.9 Landscape and historic environment
- 3.10 Biodiversity
- 3.11 Water
- 3.12 Flood risk management
- 3.13 Waste
- 3.14 Master planning
- 3.15 Transition
- 3.16 Community and governance

These themes respond to the sustainability priorities established in the PPS1 Supplement and national and local planning policy in support of the delivery of resource efficient and low carbon new homes and buildings.



### 3.1 Zero Carbon

The definition of zero carbon for eco-towns is that over a year the net carbon dioxide emissions from all energy use within the buildings on the eco-town development as a whole are zero or below.

The general approach to meeting the zero carbon standards at NW Bicester has been established within the NW Bicester masterplan Energy Strategy prepared by Hyder Consulting in accordance with the energy hierarchy and Policy ESD2 of the emerging Cherwell Local Plan.

All planning applications for the development of the eco-town should demonstrate how the zero carbon target will be achieved and this section of the report sets out the energy strategy for Himley Village as appropriate to the Outline Planning Application for Himley Village.

This has been informed by the experience of the applicant and lessons learned from the Exemplar Phase of development. It should be recognised that advances in technology and changes in energy costs, government subsidy and incentives are anticipated during the lifetime of the development and the strategy needs to be sufficiently flexible to recognise and adapt to these changes over time.

The PPS1 Supplement requires development to achieve true zero carbon standards including all regulated and unregulated energy use in homes and buildings which was the original ambition of the governments zero carbon policy.

The national zero carbon policy has gone through a number of significant changes including the removal of unregulated energy from the zero carbon homes policy to be implemented in 2016. However, at this stage the Applicant remains committed to the eco-town vision of delivering True Zero Carbon development.

#### 3.1.1 Baseline

The baseline energy demand of the Proposed Development at Himley Village has been estimated based on compliance with the latest Part L2A 2013 Building Regulation standard for new homes.

Regulated energy use in the proposed new homes has been estimated based on the sample of SAP calculations defined within the NW Bicester masterplan Energy Strategy and the Proposed Development's accommodation schedule. This is considered appropriate to the nature of the Outline Planning Application and should ensure consistency across the Development.

Estimates of unregulated energy from appliances and cooking in the home have been calculated based on the calculation method defined in Section 16 of SAP 2012.

Non-domestic energy usage and associated carbon emissions has been estimated based on CIBSE Guide F (2012) energy consumption benchmarks for both electrical and fossil fuel energy use.

This data, in combination with the Application accommodation schedule, has been used to estimate the baseline performance of the Development's non-residential buildings and the Application's overall baseline carbon footprint.

**Table 1: Energy and Carbon Baseline**

Energy Demand	Energy kWh/yr	Carbon kgCO <sub>2</sub> /yr
Domestic Electricity	4,302,562	2,233,030
Domestic Heat	10,442,147	2,255,504
<b>Domestic Total</b>	<b>14,744,709</b>	<b>4,488,534</b>
Non-Domestic Electricity	1,237,675	642,353
<b>Non-Domestic Heat</b>	<b>6,951,750</b>	<b>1,501,578</b>
Non-Domestic Total	8,189,425	2,143,931
<b>Total</b>	<b>22,934,134</b>	<b>6,632,465</b>

It should be noted that this carbon baseline does not include other indirect carbon emissions associated with the Development including embodied carbon from construction materials or travel either during construction or operation. Also it does not include any additional carbon sequestration benefits as a result of new Green Infrastructure.

Table 1 illustrates that the residential proportion of Development is anticipated to account for over 60% of energy usage at Himley Village.

Local planning policy and the emerging zero carbon buildings policy encourages the use of the energy hierarchy in guiding the reduction in carbon emissions of new development in Cherwell and is summarised below:

**1. Lean:**

Use less energy. Minimise energy demand through efficient design and the incorporation of passive measures.

**2. Clean:**

Supply energy efficiently. Reduce energy consumption through use of low carbon technology.

**3. Green:**

Use renewable energy systems.

**3.1.2 Energy efficiency (Lean)**

At Himley Village a fabric first approach to design and construction of all new homes and buildings is proposed in order to reduce energy demand and ‘lock-in’ long term carbon reductions for the lifetime of the Development.

All new homes will target further reductions in energy consumption through Fabric Energy Efficiency Standards (FEES) that exceed the minimum backstop performance established for the national zero carbon homes policy.

Individual phases of Development, homes and buildings will take different approaches in design and construction as is appropriate to each phase, dwelling type and location to optimise energy efficiency.

At the outline application stage it is envisaged that the following measures will be considered to optimise energy efficiency of all homes:

- *Design and layout to promote passive solar gains, maximise natural daylight, sunlight and ventilation*
- *Design of new homes will optimise natural daylight in all the habitable spaces and all homes will incorporate suitable window sizes relative to living spaces and bedrooms.*
- *Development will aim to balance minimising the direct adverse impact of shading from other buildings and landscape features and improving access to passive solar gains.*
- *Material selection will aim to balance the aesthetics, robustness and durability*

with optimal thermal benefits for each home.

- New homes will target building element U-values and air tightness which go beyond the current Building Regulations requirements.
- High performance glazing with appropriate window u-values and g-values will reduce heat loss and optimise positive solar gain and also contribute to reducing any potential overheating impact.

**Table 3: Target residential thermal efficiency**

Dwelling element	Target thermal performance
Walls	≤ 0.18 W/m <sup>2</sup> K
Floor	≤ 0.15 W/m <sup>2</sup> K
Roof	≤ 0.13 W/m <sup>2</sup> K
Windows and Doors	≤ 1.4 W/m <sup>2</sup> K
Air tightness	<5m <sup>3</sup> /m <sup>2</sup> /hr

- The Development will incorporate high efficiency lighting targeting 100% of all light fittings as low energy lighting to accommodate compact fluorescent or fluorescent luminaires only.
- Any specific needs for mechanical ventilation or cooling identified will be met by energy efficient systems with heat recovery.
- Where specified installation of high energy efficient rated appliances will be provided that use less energy and water.
- Real time display energy monitors will be installed within every home and a Building Management System (BMS) within all non-domestic buildings to enable residents and occupiers to understand and adapt their energy use.

- The display monitors may be combined with systems that also enable real time passenger information in relation to public transport serving the Development.

Opportunities for further enhanced fabric and energy efficiency standards such as Passivhaus and EnerPHit will be considered within individual phases and as appropriate to individual dwellings, buildings and locations.

**Table 4: Energy efficiency (lean) savings**

Energy Source	Lean Energy kWh/yr	Lean Carbon kgCO <sub>2</sub> /yr
Domestic Electricity	4,216,511	2,188,369
Domestic Heat	9,920,040	2,142,729
<b>Domestic</b>	<b>14,136,551</b>	<b>4,331,098</b>
Non-Domestic Electricity	1,212,922	629,506
Non-Domestic Heat	6,256,575	1,351,420
<b>Non-Domestic</b>	<b>7,469,497</b>	<b>1,980,926</b>
<b>Total</b>	<b>21,606,047</b>	<b>6,312,024</b>

### 3.1.3 Low Carbon Energy (Clean)

The next step in the energy hierarchy is the consideration of 'on-site' low carbon (clean) and renewable energy (green) technologies. Generating low carbon energy onsite can reduce reliance on fossil fuels and minimises energy lost through transmission. It can also contribute to security of supply and better connections between energy demand and generation.

It is anticipated at the outline application stage that a site wide District Heating Network will be installed at Himley Village providing low temperature heating and hot

water to all homes and the majority of non-domestic buildings within the Development.



The District Heating Network will comprise of below ground insulated pipes used to deliver heat to individual homes and buildings in the form of low temperature hot water. At this stage it is anticipated this would require the construction of a single on-site Energy Centre with gas fired Combined Heat and Power (CHP) engine within the Development boundary.

This Energy Centre would be able to function independently as a standalone system for Himley Village or could form part of the wider NW Bicester decentralised energy strategy through connection to other Energy Centres proposed within the wider NW Bicester eco-town area.

In the initial phases of Development insufficient thermal demand will exist to enable efficient operation of the proposed CHP engine. This could potentially be addressed in the short term through a combination of renewable biomass woodchip boiler and high efficiency gas fired back up boiler boilers to serve up to 400 properties.

Should a biomass boiler be considered it is anticipated that local wood chip would be used from a combination of arboriculture and managed deforestation, both of which are necessary forms of local wood management and a number of suppliers have been identified on the national sustainable biomass suppliers list within 40km of the Proposed Development.

Once approximately 1,000 properties are connected to the Himley Village heat network a CHP engine could be installed and act as the prime mover and provide the majority of the developments thermal energy demands. The remaining heating demand could be met through the interim biomass boiler and gas boilers providing sufficient capacity to meet peak heating demands and resilience and security of supply for consumers.

The Himley Village Energy Centre once the Proposed Development is completed and fully occupied is anticipated to comprise:

- **2MWe Gas Combined Heat and power (CHP) reciprocating engine**
- **4MW high efficiency natural gas backup boilers**
- **500kW interim biomass boiler**
- **Thermal storage**

The Outline Application forecast breakdown for supply of energy from the Energy Centre to the Site's district heating network when fully occupied is summarised in Table 5 below. The selection of technologies and proportion of energy supplied will need to be reevaluated as part of future Reserved Matters planning application and detailed design.

**Table 5: district heating energy supply**

District heating network supply at Himley Village	% of energy source
% from gas CHP	64%
% from gas boilers	20%
% from biomass	16%

The Metropolitan Group has been selected by P3Eco as the utilities and energy infrastructure partner for the Himley Village Development. Metropolitan has been working in partnership with promoters across the NW Bicester masterplan area to

realise the ambition of the NW Bicester eco-town and a site wide energy strategy to deliver zero carbon homes and buildings at Himley Village.

The strategy aims to be self-sufficient and not solely reliant on the establishment of off-site infrastructure elsewhere within the NW Bicester masterplan, whilst at the same time enabling the interconnectivity of Energy Centres and heat networks should be technically and commercially feasible and viable in delivering the zero carbon target.

A concept design has been developed by Metropolitan for the Proposed Development to establish that it is technically and commercially feasible to deliver a new Energy Centre and low carbon heat network for the development which builds on the strategy being implemented at the Exemplar Phase and the wider Energy Strategy of the NW Bicester masterplan.

There is the possibility of connection of the Himley Village Energy Centre to Viridor's recently completed Energy Recovery Facility at Ardley and the Council has secured funding and appointed Ramboll to undertake a feasibility study to determine the possibility of connection of waste heat, which is to be completed in summer 2015.



At the outline planning application stage an estimate of the carbon emissions reductions secured by the Energy Centre and heat network has been made and is summarised in Table 6.

**Table 6: Estimated Energy Centre carbon saving**

Item	Value	
Site electricity demand	5,429,433	kWh/yr
Site thermal demand	16,176,615	kWh/yr
Conventional supply	19,031,311	kWh/yr
Heat network demand	21,029,599	kWh/yr
<b>CO2 of conventional gas</b>	<b>4,110,763</b>	<b>kWh/yr</b>
CHP engine thermal rating	1,912	kW
CHP engine electrical rating	2,000	kW
CHP gas fuel input	4,544	kW
CHP runtime	7,039	Hrs
Heat generation from Gas CHP	13,458,568	kWh/yr
Gas input to CHP	31,985,216	kWh/yr
Gas backup boilers	4,205,920	kWh/yr
Biomass input	3,364,736	kWh/yr
<b>Gas and biomass input CO2</b>	<b>7,948,510</b>	<b>kgCO2/yr</b>
Electrical generation from Gas CHP	14,078,000	kWh/yr
Electrical CO2 savings	-7,306,482	kgCO2/yr
CO2 of Gas CHP	642,028	kgCO2/yr
<b>Total CO2 Savings</b>	<b>3,468,735</b>	<b>kgCO2/yr</b>

The lean CHP Energy Centre and heat network is estimated to reduce total carbon emissions of the development by a further **3,468,735kgCO<sub>2</sub>/yr**.

The DHN will be installed as the Proposed Development's road network is constructed, which will facilitate connection of new homes to the on-Site Energy Centre.

As noted previously localised temporary gas boiler units may be required to enable homes in first phases to receive heating and hot water in the short term prior to construction of the Energy Centre.

### 3.1.3 Renewable Energy (Green)

It is anticipated that the remaining carbon reductions required to achieve the target Zero Carbon standard in accordance with the PPS1 Supplement will be achieved through the installation of roof mounted renewable Solar Photovoltaic (PV).



Solar PV modules convert energy from the sun into electricity, which is either used on-site or exported back to the national grid. Systems work best when installed on pitched roof spaces orientated with 30 degrees of south; however, systems installed on east and west facing roof spaces are still potentially technically feasible.

At Himley Village Solar PV is anticipated to be installed on suitable un-shaded roof space of both homes and buildings. Other suitable spaces e.g. car ports, garages or ground mounted systems could also be considered to support the Development's zero carbon target.

At the outline application stage it is anticipated that this is equivalent to approximately 30m<sup>2</sup> or 3.2kWp of solar panels installed to the roof of every dwelling at Himley Village. An estimate of the target carbon emissions reductions secured by

Solar PV at the site is summarised in Table 7 below.

**Table 7: Solar PV carbon savings estimate**

Solar PV parameters	Himley Village
Maximum available domestic roof area	78,198 m <sup>2</sup>
Roof area with domestic PV installed	54,738 m <sup>2</sup>
Installed capacity	5,474 kWp
Annual renewable energy generation	4,652,751 kWh/yr
<b>Domestic carbon savings</b>	<b>2,414,778 kgCO<sub>2</sub>/yr</b>
Maximum available Non-domestic roof area	19,950 m <sup>2</sup>
Assumed installed PV area (m <sup>2</sup> )	13,965 m <sup>2</sup>
Installed capacity (kWp)	1,397 kWp
Annual renewable energy generation	1,187,025 kWh/yr
<b>Carbon savings</b>	<b>616,066 kgCO<sub>2</sub>/yr</b>
<b>Total PV carbon savings</b>	<b>3,030,844 kgCO<sub>2</sub>/yr</b>

The 'green' on-site renewable energy generation from solar PV is anticipated to reduce total carbon emissions of the Development by a further **3,030,844kgCO<sub>2</sub>/yr.**

### 3.1.4 Allowable Solutions

It is the intention that the zero carbon target will be achieved by the Himley Village development on-site as far as possible in accordance with emerging Local Plan policy ESD2. This will need to be re-evaluated at each stage of the design process; however at the outline planning application stage is anticipated to be achievable through the decentralised energy strategy outlined.

In the event that barriers or shortfalls in the 'as-designed' carbon performance of the development are identified suitable Allowable Solutions are to be considered in accordance with national guidance and the priorities of CDC.

### 3.1.5 Summary of zero carbon strategy

The Energy Strategy proposed aims to achieve the PPS1 Supplement’s true zero carbon ambition through on-site energy efficiency in combination with low carbon and renewable technology without significant reliance on off-site Allowable Solutions.

It has been informed by the experience of delivering a similar solution, utilising district heating and an on-site Energy Centre with as part of the Exemplar Phase at NW Bicester whilst maintaining a traditional design approach and future proofing to incorporate advances in new technology including potential connection to waste heat from the Ardley Energy Recovery Facility.

The Proposed Development’s estimated carbon emissions reductions at each stage of the energy hierarchy is summarised in Table 8 below and the chart on the following page.

**Table 8: Himley Village carbon savings**

Energy Hierarchy	Total carbon emissions (kgCO2e/yr)	% Reduction
Baseline (2013 Part L)	6,632,465	-
Energy Efficiency (Lean)	6,320,629	5%
CHP and Biomass DHN (Clean)	2,851,894	57%
Solar PV (Green)	-178,950	103%

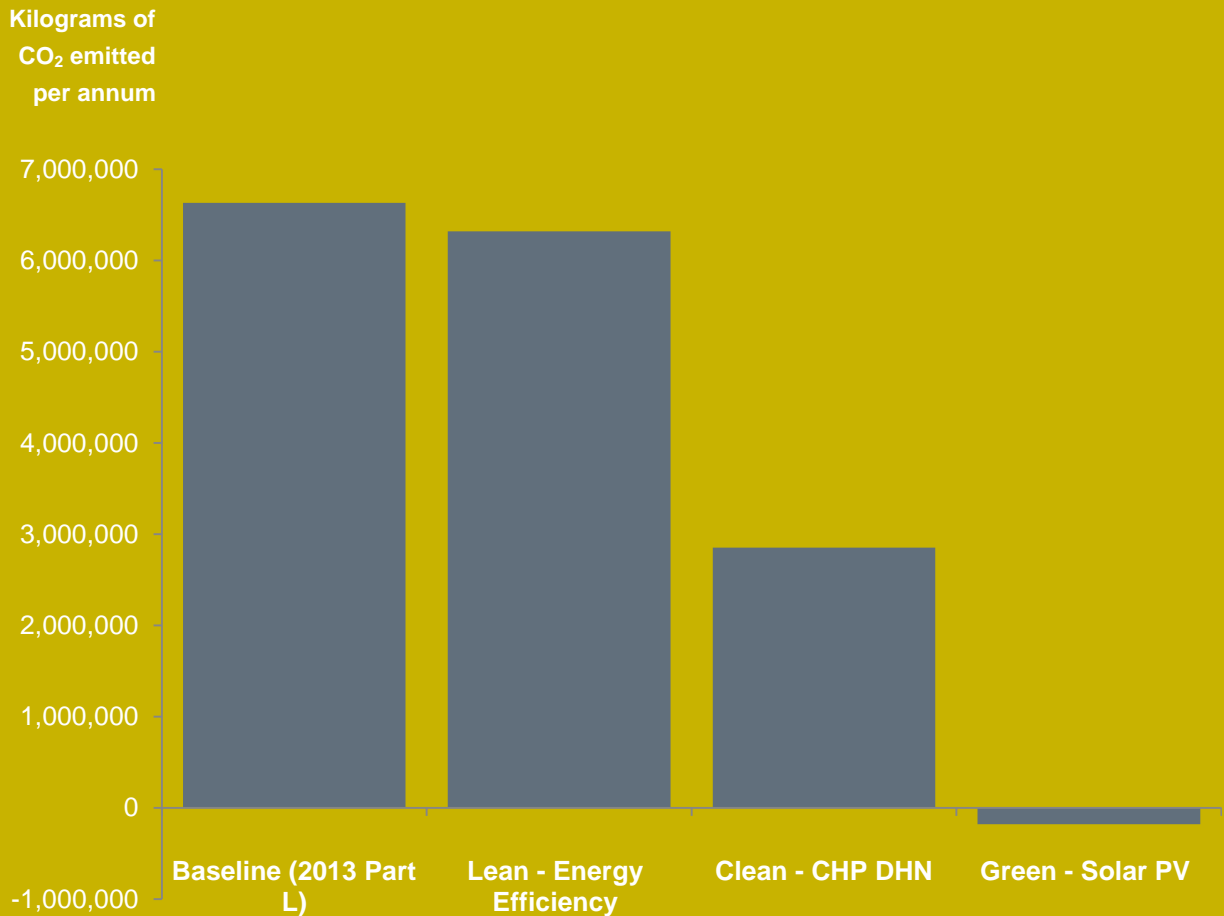
The strategy has been developed as appropriate to the Outline Planning Application. It should be recognised that this will need to be developed and refined as part of subsequent Reserved Matters Applications for each phase of development and experiences of the Exemplar Phase and other developments within the eco-town masterplan area.

This includes the refinement of construction specifications and thermal performance of individual homes and buildings, identification of areas for installation of solar PV and detailed evaluation and selection of low carbon generation technologies and thermal storage within the sites Energy Centre and the sites district heating network. Developments in technological solutions and best practice will also need to be considered as the detailed design of each individual neighbourhood, home and building is progressed.

# Zero Carbon at Himley Village

The graph below illustrates the target carbon savings at each stage of the energy hierarchy to deliver the developments zero carbon ambition in support of the PPS1 Supplement.

The strategy is flexible and adaptive to changes in technologies whilst providing CDC confidence in the deliverability of the zero carbon ambition at the outline planning application stage.





### 3.2 Climate change adaptation

Eco-towns should be sustainable communities that are resilient to and appropriate for the climate change now accepted as inevitable. They should be planned to minimise future vulnerability with both mitigation and adaptation in mind.

As part of the first Exemplar Phase at NW Bicester research was undertaken, funded by the Technology Strategy Board (TSB), working alongside Oxford Brookes University and BioRegional, to identify future climate change risks for NW Bicester.

The key future climate risks were identified as:

- **Higher summer temperatures**
- **Changing rainfall patterns**
- **Higher intensity storm events**
- **Impact on comfort levels and health risks**

Whilst many aspects of climate change resilience must be considered as part of the detailed design process of individual neighbourhoods and buildings, spatial arrangements, green infrastructure, water resources, and other supporting infrastructure can all make positive contributions in enabling adaptation to future climate change.

Climate change adaptation has been considered as part of the Himley Village masterplan to support long term resilience through a range of measures including:

- Development located outside of the 1:100 year plus climate change and 1:1000 year flood zones.
- Retention of existing hedgerows and woodland plus the creation of interconnecting green and blue corridors

east to west and opportunities to provide shade and shelter, manage water.

- Appropriate density and massing of development within the site will help manage the urban heat island effect in combination with green infrastructure.
- Commitment to zero carbon development making a positive contribution to mitigating future climate change.
- A sustainable drainage strategy to ensure water resources within the site are controlled and maintained for the future and the greater intensity of future rainfall events.
- Ensuring existing watercourses and proposed swales and other onsite water features are given sufficient space to adapt to a changing climate.
- Prioritising natural ventilation and commitment to considering overheating risks in all homes and buildings and the provision of appropriate insulation and shading systems.
- Ensuring that retained and newly created habitats enable ease of migration of species within and beyond the site in response to future changes in climate.
- Incorporating measures to control the micro-climate within the developed areas such as the provision of interconnected green spaces and corridors, which could help to provide evaporative cooling effects.
- Opportunities to create localised shade to public spaces and infrastructure including the sites green corridors and bus stops, and pedestrian and cycle routes are sheltered from severe weather and intense sun through the

integrated use of street trees and soft landscaping.

- Selecting public realm materials that are permeable to reduce surface water flood risk.

The research undertaken by Oxford university for the Exemplar Phase found there to be a key risk of overheating in the future and this identified a number of key adaptation measures which will be considered at Himley Village, including:

- Night cooling enabling secure opening of windows in the night during heat waves.
- Shading of homes and building, through planting and orientation of homes.
- Integrating fixings for future retrofit of shutters to south facing windows.

### 3.3 Homes

Eco-towns should ensure delivery of high quality new homes as a key component of a sustainable new community. This includes all homes meeting Level 4 of the Code for Sustainable Homes as a minimum, Building for Life Silver and Lifetime Homes standards.

The Proposed Development at Himley Village will ensure the delivery of sustainable homes through a number of measures including:

- The creation of a range of dwelling types and forms appropriate to the location and market demand and neighbourhoods being created.
- Provision for 30% affordable homes with a suitable mix of social rented and intermediate housing, subject to viability.
- All phases of residential development will be built to meet the criteria of

Building for Life 12 as well as aiming to meet Lifetime Homes standards.

- Himley Village is targeting achieving Level 5 of the Code for Sustainable Homes on completion of each phase of development. In the event the winding down of the Code prevents certification a suitable alternative sustainability assessment of new homes will be provided to the Council prior to occupation.
- The zero carbon energy strategy set out in Section 3.1 of this report confirms the proposed approach to be taken with regard to energy efficiency and carbon reduction. This will ensure low carbon and energy efficient homes are delivered through a fabric first approach to design and construction in combination with connection to a low carbon district heating network to meet all the Development's heating and hot water needs and the provision of roof mounted Solar PV to generate on-site renewable energy.
- Real time display energy monitors will be installed in each home and non-domestic building to enable residents and occupiers to understand and adapt their energy use with due consideration of the national smart metering programme. This could be combined with smart systems to enable connection of real time public transport and other information.

### 3.4 Employment

Eco-town's aim to be genuine mixed-use communities that minimise commuting and provide ease of access to employment opportunities by sustainable travel modes.

The NW Bicester masterplan Economic Strategy prepared by SQW identifies a number of ways to accommodate as many

jobs as new homes at the eco-town. A large proportion of these will be within the NW Bicester masterplan area and all within easy reach by public transport, walking or cycling.

The Himley Village Development includes land for a range of employment uses and local services which will generate new jobs including; shops, schools, an extra care facility, local public-house or community centre and hotel. To the south of the site on Middleton Stoney Road commercial uses such as a hotel and veterinary surgery are proposed to connect not just the residents of Himley Village but also the wider community of Bicester.

All homes will be designed to enable home working through provision of suitable home office space and superfast broadband connectivity to facilitate and encourage home working.

All new non-residential buildings including the school, hotel and offices will aim to achieve a BREEAM (2014) Excellent rating as certified and verified commitment to sustainable design and construction. BREEAM targets are to be evaluated on a building by building basis as part of future Reserved Matters Applications and any future changes to the BREEAM standard.

The economic strategy estimates at least 6,000 new jobs will be supported by the NW Bicester development comprising an estimated 4,600 jobs directly on-site and over 1,000 local service jobs.

The NW Bicester masterplan Economic Strategy is supported by an action plan setting out various ways to support job creation including apprenticeship schemes and skills training in addition to the provision of employment land. This will support employment growth throughout Bicester, not just within the NW Bicester masterplan area.

The Proposed Development at Himley Village is estimated to generate 2,847 jobs

comprising approximately 2,250 construction jobs throughout the construction period and the remainder from a mix of office, commercial and community and home working.

### 3.5 Transport

Travel in eco-town's should support people's desire for mobility whilst achieving the goal of low carbon living. The town should be designed so that access to it and through it gives priority to options such as walking, cycling, public transport and other sustainable options, thereby reducing residents' reliance on private cars.

The NW Bicester masterplan Travel Strategy establishes how development will meet the PPS1 Supplement criteria.

Himley Village is located within the wider NW Bicester masterplan area. The Site is within 5km of Bicester town centre and is 24km northeast of Oxford and 28km southeast of Banbury.

The main access to the Site is proposed from Middleton Stoney Road with a range of secondary access points and links proposed linking the Development to the wider Bicester area.

The Proposed Development makes provision for appropriate car parking for all homes and buildings as detailed in the Design and Access Statement accompanying the Planning Application which aims to achieve the right balance of providing adequate parking whilst also encouraging sustainable travel modes.

The Proposed Development incorporates a range of services and facilities, including a primary school, nursery and health facility as well as retail and employment

opportunities within easy access via walking, cycling or public transport.

The Development includes provision for a range of sustainable transport options including:

- A bus loop through the Development in accordance of the wider NW Bicester eco-town strategy which will provide frequent bus services, every 15 minutes to Bicester town station. The majority of new homes will be within 400m of a bus stop, encouraging use of public transport.
- Significant rail improvements at Bicester town station and implementation of the Evergreen3 line to London will improve access to the wider area by rail.
- Provision for a network of quality walking and cycling routes, commuter and leisure routes via green corridors and segregated routes providing access to key local employment areas, schools and other services and amenities.

The wide range of services and amenities within the Development is anticipated to encourage 35% of trips within NW Bicester and 60% of trips within Bicester. In addition the Application Travel Plan targets 50% of the trips originating from Himley Village being made via non-car modes.

The Proposed Development also includes a range of other design features and measures to reduce the need for residents to travel and encourage use of sustainable transport measures including:

- Homes with a high level of broadband provision and flexible layouts to provide workspace, maximising the potential for residents to work from home, reducing resident journeys.

- A highways design aimed at minimising vehicle speeds providing safer access for pedestrians and cyclists.
- Provision of green corridors which provide traffic free travel options.
- Provision of secure cycle storage in homes, at key employment facilities and destinations.
- Employment of a Travel Plan co-ordinator to work with residents and employment uses to encourage sustainable transport options.
- Provision of personalised Travel Plans for residents or employees providing a tailored travel plan with information on sustainable travel options, incentives and discounts matched to the individual's needs.
- Introduction of an EV car club and provision of EV charging points for those who request them and special deals to encourage the uptake of Electric Vehicles.

Further details on the sustainable transport measures incorporated into the Development can be found in the Transport Assessment and Travel Plan that accompany the Application.

### 3.6 Healthy lifestyles

**Eco-towns should be designed and planned to support healthy and sustainable environments and enable residents to make healthy choices easily.**

The NW Bicester masterplan has been developed to create an integration of built and natural environment, based on a landscape led design concept of creating "Space to Live".

The masterplan and landscape strategy for Himley Village aims to promote healthy lifestyles and wellbeing of the community through a number of measures including:

- *Attractive and safe walking and cycling routes including green corridor 'leisure routes' east to west through the development,*
- *Control of traffic speeds and measures to reduce car travel and support low emission vehicle uptake to minimise pollution.*
- *the provision of a range of amenities, social and community buildings within close walking distance of new homes*
- *A range of formal and informal play spaces encouraging physical activity and interaction with the landscape for residents and the existing community.*
- *A network of private and public allotments enabling local food production. These are located along the main movement corridors and within ease of access from residential areas and in combination with private gardens will encourage local food production.*
- *Creation of a safe and accessible environment to minimise crime and support a good quality of life and community cohesion.*

### **3.7 Local services**

The NW Bicester masterplan identifies where local services and functions will be located to ensure the entire Eco-town development is well served; in combination with existing services and facilities within Bicester.

These services have been considered as part of the NW Bicester masterplan and

determined in discussion with CDC and relevant service providers.

The Application for Himley Village is consistent with the overall NW Bicester masterplan and will provide the local facilities and services necessary to ensure the overall strategy and vision will be achieved.

The Development includes proposals for a number of new local services including:

- **New school**
- **Health centre**
- **Extra-Care facility**
- **Veterinary surgery**
- **Public house or community hall**

The proposed school is to be located adjacent to Himley Farm. As well as providing education facilities this offers potential to support a range of other community uses and activities.

The Village Green is proposed to the south of the school and provides a natural focal point for the development to include a range of community led facilities including local shop, public house or community hall.

Middleton Stoney Road will include a range of commercial uses such as a hotel and veterinary surgery serving not only the Proposed Development but the wider Bicester area and existing local community.

### **3.8 Green infrastructure**

Forty per cent of an eco-town's total area should be allocated to green space, of which at least half should be public and consist of a network of well-managed, high quality green/open spaces which are linked to the wider countryside.

The Proposed Development at Himley Village will meet the requirements of the PPS1 Supplement with provision of 36.1 hectares of Green Infrastructure, equivalent to 40% of the application site area, of which at least half would be publicly accessible and will form part of the overall NW Bicester masterplan commitment to public green space. The applications principal Green Infrastructure includes:

- **Retained and enhanced hedgerows**
- **Enhanced existing woodland**
- **New woodland planting**
- **Village green**
- **School playing fields**
- **Sustainable drainage features**
- **New green corridors**
- **Street trees**

A village green will be created at the heart of the Development comprising open grassland, orchards in wildflower meadows, and pond. A network of swales and attenuation ponds will form part of the drainage strategy, but also be an integral part of the sites green space and enable creation of new wetland habitats.

The Masterplan prepared by architects Penoyre & Prasad and Landscape Strategy prepared by Farrer Huxley Associates provides full details of the high quality and interconnected, green spaces that are linked to the wider eco-town area and surrounding countryside.

The majority of existing hedgerows on Site are to be retained and ecologically enhanced via a 10m minimum landscape buffer on either side. The hedgerows will increase bio diversity and act as central features of the landscape.

The existing broad leaved woodland to the east of the Site is to be retained and enhanced through appropriate planting and management to create a species rich and diverse buffer.

To the south east and west new woodland is proposed to screen the proposed distribution centre and also create a landscape setting for the dwellings.

A range of climate change adaptation measures are also supported through new Green Infrastructure including the creation of suitable green buffers to increase flood resilience, street trees and shading with vegetation.

### **3.9 Landscape and historic environment**

Planning applications for eco-towns should demonstrate that they have adequately considered the implications for the local landscape and historic environment.

The proposed landscape strategy for Himley Village identifies the key features of the local landscape and valuable hedgerows which have been considered in the Development of the Site layout and definition of the housing neighbourhoods, green space and access routes.

A key feature of the Site's historic landscape is the field boundaries and hedgerows delineating the historic use as farmland.

There are Two Grade II listed barns at Himley Farm within the Application Site in an area of open farmland. There are no other listed structures within the Application Site.

The Proposed Development will preserve the existing Grade II listed buildings and respect the historic landscape through the retention of historic field boundaries, watercourses and woodland.

### 3.10 Biodiversity

Eco-towns should demonstrate a net gain in local biodiversity and planning permission may not be granted for eco-town proposals which have a significant adverse effect on internationally designated nature conservation sites or Sites of Special Scientific Interest.

The Developments ecological impacts are considered in detail within Chapter 7 of the Environmental Statement submitted with the Application.

The Development will not have a significantly adverse impact on any designate or sites of Specific Special Scientific Interest and in response to the PPS1 Supplement aims to deliver a net gain in biodiversity.

Biodiversity enhancement has been considered across the whole NW Bicester masterplan area and the Himley Village Application proposes a range of elements to safeguard the sites natural environment and enhance biodiversity.



The Site consists of grassland fields, an arable field, species-rich hedgerows, trees, native broad-leaved woodland plantation, scattered trees and two ponds.

The majority of the hedgerows within the site are species-rich and provide habitat

links across the NW Bicester masterplan area. Due to their nature conservation value and the species they support, the hedgerows are considered to be part of a hedgerow network of “District/Borough” Importance.

The Himley Village masterplan aims to retain the most valuable habitats of the Site where possible with appropriate buffer zones, and create ecologically valuable areas of green space. These green spaces will be linked to create a network of green corridors and habitats..

The Application Site’s most important existing habitats include broadleaved woodland plantations, hedges and ponds, which are of local value. The ponds support a population of great crested newts. Other legally protected species occur on site, include bats and breeding birds. Prior to demolition and construction work, appropriate mitigation strategies for affected habitats and species will be prepared. This is likely to include translocation of great crested newt, reptiles and other amphibians and relocation of bat roosts, where necessary. All construction work is to be undertaken in accordance with a Construction Environmental Management Plan, with established safeguards to protect wildlife.

The Proposed Development aims to enhance biodiversity across the Site through a number of features and measures including:

- The Site’s network of swales and attenuation ponds will enable creation of new wetland habitats.
- The Site’s existing hedgerows are to be retained where possible and ecologically enhanced via a landscape buffer to increase biodiversity and act as central features of the landscape.
- A Village Green to include open wildflower meadows and a pond.

- The existing broad leaved woodland in the east of the Site is to be retained and enhanced through appropriate planting and management to create a species rich and diverse buffer.

Whilst the Outline Planning Application does not provide detailed design for each neighbourhood it is anticipated that a number of areas of value to biodiversity will be created and ensure a net gain in the quality of habitats including:

- Native planting within areas of open space.
- The use of artificial nest and roost boxes,
- Street trees;
- Fruit trees within gardens;
- Green walls and roofs;

Linked gardens which would provide significant areas of green spaceThe proposed Community Land Trust

is anticipated to manage the landscape within the Proposed Development and ensure that the network of existing and new habitats created will be responsibly managed and maintained.

### 3.11 Water

Eco-towns should be ambitious in terms of water efficiency across the whole development, particularly in areas of serious water stress, and should contribute, where existing water quality leaves scope for further improvement, towards improving water quality in their localities.

The Water Cycle Study (WCS) submitted as part of the NW Bicester masterplan aims to minimise water consumption and ensure the growth in water demand is manageable and within the growth forecasts assumed by Thames Water in their water resource management plan.

Cherwell is in an area of water stress and as such the Proposed Development at Himley Village aims to make the greatest possible contribution to reducing water consumption.

The minimum design standard for all new dwellings will be that water efficient fixtures and fittings are specified to reduce average per capita consumption to at least 105 litres/person/day (l/p/d).

Non-residential buildings are to be designed with water efficient fixtures and fittings and where appropriate reclamation of water) so as to reduce whole building potable water use by at least 55% from the baseline demand in accordance with BREEAM Excellent standards.

On-site water recycling technologies including rainwater and grey water recycling will also be used locally to supplement domestic supplies, and reduce demand for potable water further to less than 80 l/p/d and meet Code for Sustainable Homes Level 5 mandatory water standards.

The detailed design of residential and non-residential properties within the Himley



Village Application shall conform to the design standards discussed in the WCS relative to water efficiency.

The WCS highlights a number of possible strategies for further enhancing the water neutrality of the development, including water efficiency retrofit of the wider area, reclamation of wastewater effluent and utilisation of local groundwater supplies.

Two separate strategies are currently being considered for wastewater arising from the Development in the form of either new foul sewers connecting directly to the existing Bicester Waste Water Treatment works (WWTW). Alternatively P3Eco is considering the use of an on-site WWTW to treat foul effluent in a local treatment plant located within the Development. This would treat waste water from homes and buildings and produce a final effluent that is suitable for discharge to watercourse thus negating the need to connect to the existing off-site sewage network and limiting any additional stress on the local system.

The suitability of on-site waste water treatment at Himley Village is subject to feasibility and viability and is to be investigated in the context of the wider masterplan development and future Reserved Matters Applications.

### 3.12 Flood risk management

**Eco-towns should not increase the risk of flooding elsewhere and should use opportunities to address and reduce existing flooding problems.**

A site specific Flood Risk Assessment and Surface Water Drainage Strategy for the Proposed Development has been undertaken by Alan Baxter and Associates and demonstrates that the Application Site falls entirely within Flood Zone 1. The Proposed Development is consequently considered at low risk of flooding.

There are no surface water courses on the Site with the nearest the Gagle Brook located 260m south of the Site and the Langford Brook, a tributary of the River Bure, located 400m north of the Site. The River Bure itself is located 1,100 east of the Site. There are two ponds located on Site; a small pond to the east of Himley Farm and a larger pond to the south east.

The Site has a number of existing drainage features, which are formed from drainage ditches connecting to existing watercourses. The majority of the Site naturally drains towards the south and south east through a number of drainage ditches into a 840m long swale running parallel with the B4030 (Middleton Stoney Road). Two outlets have been identified from this swale beyond the south west and south east corners of the Site that is likely to discharge to Gagle Brook.

The Proposed Development will include a network of above ground attenuation incorporated within the green infrastructure across the Development Surface water is to be managed through a Sustainable Drainage System which will achieve greenfield run off rates from the Site. This will include swales located within the green corridors will act as key pathways for surface water to flow through the site and will also act to attenuate water by using a series of check dams and detention basins integrated in to the landscape where the natural topography can provide additional storage.



Any increase in surface water run-off caused by the Himley Village Development will be stored within the primary swales and

detention basins with no increase in off-site flood risk as a result of the development.

The above ground sustainable drainage features proposed will all be easily accessible for future maintenance.

### 3.13 Waste

#### Eco-towns should encourage sustainable waste and resource management for both domestic and non-domestic waste.

The NW Bicester masterplan Sustainable Waste and Resources Plan (SWRP) considers domestic and non-domestic waste and sets targets for residual waste, recycling levels and landfill diversion, exceeding the 2007 national Waste Strategy targets.

The Proposed Development is committed to supporting these targets through the inclusion of design measures, such as the provision of suitable external and internal waste storage arrangements. Such arrangements allow for the separate collection of priority waste materials, and is in accordance with the requirements of the Code for Sustainable Homes and CDC's current three bin system.

Eco-town planning applications are required to include a Sustainable Waste and Resources Plan and one has been prepared for the Proposed Development by Waterman and is included as Appendix 18.1 of the Environmental Statement submitted with the Application. This provides full details of the areas existing waste management systems and the anticipated waste streams from the Development.

This identifies the vast majority of waste at Himley Village to comprise municipal and proposes targets to minimise this including:

- **Diversion of 95% waste from landfill**
- **70% Recycling/reuse/composting rate**

A Site Waste Management Plan (SWMP) will be developed for each phase of construction at Himley Village in accordance with the waste hierarchy. This will support the implementation of waste minimisation measures to be identified at the design stage. This will include specific forecasts of the type and quantities of waste that will be produced how construction and excavation waste will be managed so that it is reused, recycled, and diverted away from landfill where possible and establishing suitable monitoring and targeting systems.

It is envisaged that the Himley Farm Land Trust (HFLT) will facilitate community composting within the sites green space as a component part of the community food gardens and the provision of home composters on request.

The opportunity for Energy from Waste has been considered for the NW Bicester masterplan and the potential for connection of waste heat from the recently constructed Viridor Energy Recovery Facility at Ardley to be connected to new development at NW Bicester.

It is understood that feasibility work, funded by DECC, and managed by CDC, is currently being undertaken by Ramboll to determine whether this is possible. The approach for the Application at this stage is to enable connection of the Site's district heating network and Energy Centre to any waste heat supply should this be found to be feasible and viable for connection to Himley Village. Reserved Matters Applications should re-evaluate the opportunity for waste heat connection for each phase of development.

### 3.14 Master planning

All eco-town planning applications should include an overall master plan and supporting documentation to demonstrate how the eco-town standards set out above will be achieved and it is vital to the long-terms success of eco-towns that the standards are sustained.

The NW Bicester masterplan sets out how the development will achieve the eco-town sustainability standards and provides the framework for future planning applications to enable the long term success of the development.

The NW Bicester masterplan was developed over several years, through extensive engagement with key stakeholders including the County Council, Local Authority and local community of Bicester.

It was submitted to CDC in March 2014 and the CDC has since consulted on the Masterplan and has been invited to adopt it as non-statutory planning guidance. The masterplan has also been used to inform the Council's emerging NW Bicester SPD.

The Outline Planning Application for Himley Village has been developed in accordance with the NW Bicester masterplan and to ensure the established standards and vision for NW Bicester is delivered.

The Himley Village masterplan and Design and Access statement prepared by Penoyre & Prasad follows the requirements of the PPS1 Supplement in setting out a framework to support the vision together with ambitious targets for environmental, social and economic sustainability.

### 3.15 Transition

A long term approach is necessary to ensure a new town retains its integrity as an eco-town, and is able to manage change in a planned way.

At Himley Village different elements of the development will be provided on a phased basis, whilst others are subject to spatial and quantitative triggers. The Design and Access Statement accompanying the Application provides information relating to the planned phasing of the scheme which is likely to be developed over a 10-15 year period, starting in 2015 through to circa 2031.

The exact phasing of the scheme is dependent on a number of factors and the Himley Village masterplan has been developed to allow for flexibility in delivery and phasing.

A key principle of the Proposed phasing is to create a sustainable community with its own identity early on which can grow sustainably with supporting local facilities and infrastructure with the development local centres acting as the focal points for the provision of local services and facilities.

This Application is consistent with the NW Bicester masterplan and will provide for a new social and community uses, a primary school and a range of commercial uses.

Various development triggers have been proposed to ensure timely delivery whilst other elements will be provided through financial contributions.

### 3.14 Community and Governance

The Application aims to deliver the community and governance priorities and commitments established in the NW Bicester masterplan.

The Exemplar Phase has created local management and governance structures, through a phased process leading to greater community engagement.

This included a three stage structure whereby the community's involvement and responsibilities increase gradually and the roles and responsibilities that the community wish to adopt is a function of the aspirations of the community.

The Outline Planning Application for Himley Village includes details of a proposed model to establish a Community Land Trust (referred to as the Himley Farm Land Trust) to take on the long-term operation of the landscape and community assets within the Proposed Development. There is also the potential to extend this role to the wider NW Bicester eco-town area.

## 5. Conclusion

Himley Village will deliver zero carbon development and support the vision of a sustainable new community at NW Bicester in response to the PPS1 Supplement and local sustainability policies of Cherwell District Council.

The Outline Planning Application establishes the key measures and commitments of the Applicant to the sustainability framework and many of the standards established through the Exemplar phase of development and subsequent planning applications.

The key measures and commitments include:

- Design and construction of a range of sustainable new homes targeting **Code for Sustainable Homes Level 5** and 30% affordable homes.
- Zero carbon development through a 'lean' **fabric first** approach in accordance with the energy hierarchy and NW Bicester masterplan Energy Strategy.
- Site wide **District Heating Network** and low carbon **Energy Centre** with opportunity for connection of waste heat from the Arden ERF facility.
- Installation of onsite green **renewable solar energy** targeting meeting the zero carbon target on-site.
- **Climate change** adaptation and resilience through a range of measures to reduce key risks of flooding and overheating.
- Creation of new **employment opportunities** in support of the eco-town's Economic Strategy and delivery of all non-domestic buildings to **BREEAM Excellent**

- Masterplan design and supporting **Travel Plan** to minimise commuting and encourage sustainable travel modes.
- Creation of **safe, accessible** and **attractive** neighbourhoods including open space, play areas and allotments supporting **healthy lifestyles**.
- Creation of a range of **local services** for residents and the wider Bicester community including a new school.
- Creation of new **Green Infrastructure** over 40% of the site including green corridors and enhancement of existing hedgerows and woodland to enhance biodiversity.
- A **masterplan framework** to support the eco-town vision and respond appropriately to the **historic landscape** and environment.
- **Water efficient** homes and buildings including rainwater and grey water recycling and the opportunity for on-site waste water treatment.
- Development in an area of **low flood risk** with a **sustainable drainage** strategy including onsite attenuation.
- Commitment to reduction of waste in construction and operation in accordance with the energy hierarchy through a include a Sustainable Waste and Resources Plan

**Himley Village will deliver sustainable, zero carbon new development new that supports the vision of CDC for the NW Bicester eco-town and the requirements of the PPS1 Supplement.**

**Turley Sustainability**

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