

Sustainability Statement

Blythe Vale, Blythe Bridge: Phase 2

June 2021



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Client

St Modwen Homes

Turley Reference

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1. Introduction

This Sustainability Statement has been prepared to demonstrate the sustainability credentials of the development proposals for Blythe Vale, Phase 2.

This Sustainability Statement has been prepared by Turley Sustainability, on behalf of St Modwen Homes (the applicant), to support the full planning application for Blythe Vale, Phase 2.

It provides a summary of the sustainable design measures incorporated in to the proposals to ensure suitable levels of sustainability performance in accordance with local and national planning policy.

Site Context

The site forms part of the DSR 1 mixed use allocation at Blythe Bridge. Phase 1 of this allocation (immediately to the northwest of the site) has received planning permission and is under construction. The site of the application is approximately 11.4 hectares (ha) and currently comprises several fields of moderately diverse semi-improved grassland, bounded and divided by outgrown native species hedgerows and mature trees, providing variable nature conservation value. There are also a number of existing waterbodies within the site.

The site is bordered by agricultural land and farmhouses/ buildings to the north and east; the A50 to the south; and Stone House Farm/Woodlands Lane to the west and is located in between the eastern edge of Blythe Bridge and Draycott in the Moors.

Located on the eastern edge of Blythe Bridge the development is approximately 1km to the south east of Blythe Bridge and a range of local amenities, with Stoke-on-Trent located approximately 9.5km to the north-west providing additional amenities and employment opportunities.

Proposed Development

The development description is as follows:

"Full planning application for residential development of 200 dwellings (Use Class C3), access and internal roads for vehicles, footpaths and cycle linkages, parking, public open space and landscaping, ecological habitats, community orchard, sustainable drainage measures, and associated infrastructure and earthworks"

The indicative development masterplan is shown in Error! Reference source not found..

The following chapters set out the local and national sustainability objectives, followed by a review of the measures incorporated into the detailed design of the development and of new homes, to demonstrate the social, economic and environmental benefits of the development.

Please note, the terms "carbon", "carbon dioxide (CO₂)" and "greenhouse gas (GHG)" are used interchangeably in this statement depending on the terminology of referenced documents.

Figure 1: Proposed Development Masterplan



2. Policy Context

This chapter provides an overview of the relevant sustainability planning policy and guidance from a national and local perspective.

National Policy

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

National Planning Policy Framework

Most recently updated in February 2019 the National Planning Policy Framework (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'.

It states clearly 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 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, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure.



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

These objectives are key to the development of plans and the NPPF sets out a number of key themes for consideration which guide the preparation of local plans and policies, ensuring the delivery of sustainable development.

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 supports developments that are functional and adaptable for the future.

The March 2019 PPG update confirms that Local Authorities have the option to set technical requirements exceeding the minimum requirements of the Building Regulations in respect of access, water and space where sufficient evidence is produced to justify the target.

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 ten characteristics of well-designed places which work together to create developments Character and Community, while positively addressing environmental issues affecting climate.

Building Regulations

Whilst not planning policy, in April 2014 the Part L regulations changed and it is currently a requirement of the current 2013 Regulations for new homes to deliver a 6% reduction in carbon emissions compared to 2010 Part L. This change aimed 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 October 2019 Future Homes Standard (FHS) consultation concluded a 2021 interim uplift of 31% CO₂ improvement compared to 2013 Building Regulations standards ahead of the 2025 implementation of the FHS which will require all new homes to reduce CO₂ emissions by 75% lower than current standards. All homes should be 'zero carbon ready'; adaptable and fit for the future.

Local Authority retain powers to set local energy efficiency standards for new homes.

Local Policy

Climate Emergency

Staffordshire Moorland District Council declared a climate emergency in July 2019, with the aim of becoming carbon neutral by 2030. The Council have established a Climate Change Sub Committee and Working Groups and drafted a Climate Change Action Plan focussing on the emissions from Council activities. Council staff will undergo Carbon Literacy training delivered by Keele University. Other key agencies that are assisting the Council developing the plans include the Energy Saving Trust and The Midlands Energy Hub,

Staffordshire Moorlands District Local Plan 2014 - 2033

Adopted in 2020, the Local Plan sets out the vision and strategy for the District. The key sustainability policies of the plan include:

Policy SS1 Development Principles – Development is expected to contribute positively to the social, economic and environmental improvement of the District including development which secures high quality, sustainable environments, efficient and effective use of resources and contributes effectively to tackling climate change and reduced carbon emissions.

Policy SD1 Sustainable Use of Resources – all development is required to make sustainable use of resources and adapt to climate change by:

- Minimising soil disturbance and retain ecological connectivity as far as possible;
- Proposals that remediate brownfield sites affected by contamination and mining activities;
- Minimising energy needs and maximise orientation to achieve energy savings;
- Developments of 10 or more residential units are required to demonstrate that consideration has been given to energy efficiency, water conservation, sourcing of construction materials, and site orientation

and where possible integrating micro-renewables;

- Encourage the potential for re-using construction or construction waste materials, especially sourced locally.

Policy SD2 Renewable Energy – Sets out the Council’s requirements for new renewable energy developments.

Policy SD3 Sustainability Measures in Development – Carbon saving and water saving measures will be supported, in the following ways:

- Supporting developers that propose exceeding the thermal efficiency or water conservation standards, and in the case of larger developments, measures such as ‘communal’ renewables or District Heating installations;
- Measures that contribute to existing or emerging District Heating networks;

Policy SD5 Flood Risk – All applicable developments should incorporate sustainable drainage measures (SuDS) to reduce the risk of flooding from surface water runoff and contribute to on-site flood alleviation, as well as contributing to wider objectives such as the emerging Green Infrastructure Network; to enhance biodiversity and recreation opportunities; landscaping character etc. On greenfield sites, developers should aim to not increase surface water runoff rates.

Policy H3 Affordable Housing – Residential developments of 10 dwellings (or 0.5ha) or more shall provide 33% affordable housing, which should be well integrated into the design of developments. Where justified, the Council will consider lower levels of provision taking into account viability evidence.

Policy C1 Creating Sustainable Communities – To creating sustainable communities at the local level, the Council will support proposals to protect, retain and enhance existing community facilities or provide new facilities. All development proposals must incorporate infrastructure required into the scheme or make provision for financial

contributions and/or land to secure infrastructure and service provision.

Policy C3 Green Infrastructure – The creation of an integrated network of high quality and multi-functional green infrastructure is encouraged through the Green Infrastructure Strategy.

Policy NE1 Biodiversity and Geological Resources – The biodiversity and geological resources will be conserved and enhanced by control of development by ensuring all development scheme include measures for protection and enhancement of site biodiversity and protection of any geodiversity as appropriate, and ensuring no adverse effect to designated sites. All development where possible is to seek to deliver a net gain in biodiversity proportionate to the size and scale of the development.

Policy T1 Development and Sustainable Transport – Reducing the reliance of the private car for travel journeys in new development can be achieved by ensuring the development is located in areas that are accessible by sustainable travel modes or can be made accessible as part of the proposal, and shall facilitate walking and cycling and link with or extend identified walking and cycling routes. Developments should also consider how schemes can enhance the existing network in line with the Staffordshire County Council Rights of Way Improvement Plan.

Policy T2 Other Sustainable Transport Measures – Development proposals which encourage electrical battery powered vehicles will be encouraged.

Policy DSR1 Blythe Vale Allocation – A mixed use allocation of 48.5ha to include residential development of approximately 300 houses and supporting infrastructure. Residential development should be located to the north and employment development is intended to serve a regional need. Specifically, the development should include measures to improve sustainable transport routes and connectivity with Blythe Bridge and surrounding area, protect and extend green infrastructure within the Blythe Bridge Opportunity

Corridor and promote suitable and safe walking and cycling facilities.

Staffordshire Moorlands District Design Guide Supplementary Planning Document (SPD) 2018

New developments should aim for zero carbon emissions, achievable through a combination of sustainable design principles including:

- Siting development with good access to public transport;
- Maximising solar gain and increasing the proportion of glazing on south facing elevations;
- Minimising heat loss by limiting openings to the north;
- Avoiding exposed sites, frost hollows and flood risk areas;
- Maximising the use of trees for shelter, privacy and air cleaning but avoiding over-shading on the south elevation;
- Aligning the building with the contours to avoid artificial mounding or wasteful under-building.

Staffordshire Moorlands Local Plan Green Infrastructure Strategy 2018

Green infrastructure planning involves the provision of strategically planned networks designed to link existing and proposed green spaces with corridors running through towns, villages and rural areas, bringing multiple benefits. The Blythe Vale strategic site DSR1 is located adjacent to the Blythe Bridge Opportunity Corridor which is potentially a corridor linking the Bromley Wood and Hose Wood SBIs in the south with Cresswell and the proposed development site through to Forsbrook, and running north along the Foxfield Steam Railway linking Little Eaves Farm SBI with important habitats at Dilhorne Park and Godley Brook. The potential corridor has scope to

create and contribute to significant GI networks for people and wildlife as part of any development at Blythe Vale.

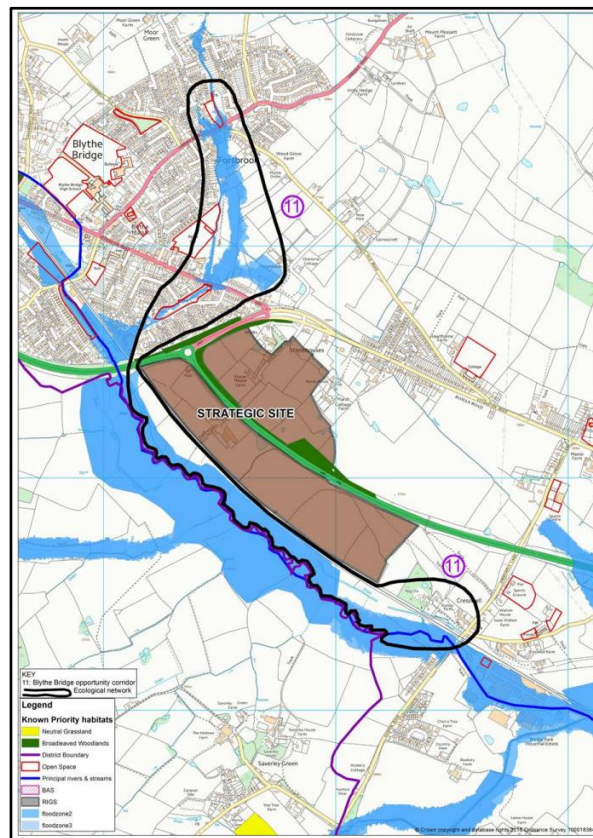


Figure 2: Blythe Bridge Ecological Opportunity Corridor as shown in the Green Infrastructure Strategy¹

Staffordshire Moorland District Council Validation Checklist

An Energy Efficiency / Sustainability Statement is required for residential schemes of 5 or more dwellings to demonstrate compliance with Core Strategy policies SD1, SD2 and SD3.

Planning Policy Summary

Both local and national policy aims 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

¹ https://www.staffs Moorlands.gov.uk/media/3355/Green-Infrastructure-Strategy/pdf/22.10_SMDC_Green_Infrastructure_Strategy_May_2018.pdf?m=1531894585753

the updates to the Building Regulations to ensure that new buildings are well designed and reduce emissions in line with the UK's national carbon targets.

The Staffordshire Moorlands Local Plan confirms the Council's commitment to the creation of sustainable new developments. It requires development to consider a range of sustainable design measures including making sustainable use of resources, reduce carbon emissions and enhance water efficiency of new homes.

The following sections of this Sustainability Statement set out the sustain measures incorporated into the design of the development to ensure the delivery of a sustainable development and address the requirements of local policy.

3. Sustainability at Blythe Vale, Phase 2

This section summarises the sustainability strategy for the proposed development at Blythe Vale, Phase 2.

This section of the report outlines the sustainability strategy for the proposed development at Blythe Vale, Phase 2 demonstrating how the development responds to both national and local planning policy, including the NPPF.

In this context the sustainable design measures incorporated into the development masterplan at the full application stage and measures to be considered during the detailed design are set out under the following headings which reflect the themes of the NPPF.

3.1 Building a Strong and Competitive Economy

3.2 Promoting Sustainable Transport

3.3 Delivering a Wide Choice of High Quality Homes

3.4 Requiring Good Design

3.5 Promoting Healthy Communities

3.6 Meeting the Challenge of Climate Change

3.7 Conserving and Enhancing the Natural Environment

3.8 Sustainable Waste Management

St Modwen Homes Sustainability

St Modwen Homes has set a target to be operationally net zero carbon by 2025 and fully net zero by 2040. They are focussing on the way the homes are designed, built, operate and are deconstructed, as well as sourcing materials and products that will help reach this target.

They also seek to boost biodiversity at their developments and deliver new schemes in an environmentally responsible way.

Waste was reduced by 15% in 2020 and targets will continue to achieve the target of reducing waste by a third and increase recycling rate to 99% by 2025.

In addition St Modwen provide a range of Green Upgrades for new homes owners who wish to enhance their new homes, including provision of EV charge points, Solar PV, Air Source Heat Pumps and Waste Water Heat Recovery.

3.1 Building a Strong and Competitive Economy

The proposed development will contribute to positive economic growth for the Borough through construction and occupation, providing sustainable new homes and 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 2020²² demonstrates that construction projects have a significant benefit on the local and wider economy. The report concludes

²² <https://www.cbi.org.uk/media/4121/fine-margins-february-2020-cbi.pdf>

that for every £1 of construction expenditure £2.92 is injected into the economy.

The construction of 200 new homes will therefore provide opportunities for local employment as well as increased revenue locally for materials, services and goods.

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

- The construction of 200 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.

In addition the development of new homes will provide an increase in Council Tax revenue helping support local Council services.

3.2 Promoting Sustainable Transport

A Transport Assessment has been prepared by PJA, summarising existing conditions in the vicinity of the site, the accessibility of the site relative to local facilities and services and outlines the development proposal for the site.

This section of the report provides a summary of the sustainable access and transport measures available and incorporated into the development.

Walking/Cycling Services – The proposed development is located close to lit footways on both sides of the carriage way along Uttoxeter Road. A signal controlled junction with the A521 has been implemented as part of the Phase 1 development incorporating a pedestrian crossing linking to a shared footway/cycle way 3m in width along the northern side of the A521.

To facilitate sustainable travel the site will be designed to facilitate pedestrians and cyclists, including through provision of the following:

- The proposed layout of the site will be designed to provide a road network in which

pedestrian and cyclist movements will be prioritised; and,

- Cycle storage will be provided for all residents and users across the development.

Bus Services – There are existing bus stops along Uttoxeter Road, adjacent the north-west of the Blythe Vale site. The development will be served by a regular bus service as detailed in **Table 1**.

Table 1: Bus Routes and Services

Service	Destinations	Nearest Stop	Frequency
6a	Hanley – Longton – Meir Park – Blythe Bridge	Uttoxeter Road	Monday – Friday: Every 20 minutes Saturday: Every 30 minutes Sunday: Every hour

Rail Services – The nearest railway station is Blythe Bridge railway station which is approximately 1.7km to the northwest of the site, an approximate 20 minute walk. The railway is served by bus services detailed in **Table 1** with an approximate journey time of 5 minutes. This railway is served by an East Midlands Trains service providing frequent journeys between Crewe and Derby. The station has cycle storage facilities for up to 8 bicycles.

Electric Vehicles (EV) – EV charging infrastructure will be provided on all plots with parking located adjacent to them. The provision will be confirmed during the detailed design of the development.

Local Services and Amenities - The Transport Assessment indicates the proximity of the site to key services and amenities. Blythe Bridge Health Centre is located within 1km of the site, approximately an 11 minute walk. Key destinations within 2km of the site include William Amory Primary School, The Cooperative Food store, Tesco Express with cash machine, further schools and a medical centre. The large number of destinations accessible within a short distance should help to

encourage a proportion of shorter trips from the development to be made on foot. These are all accessible within a 25 minute walk.

More detailed information on transportation issues is contained in the Transport Assessment that accompanies the planning application.

3.3 Delivering a Wide Choice of High Quality Homes

The proposed development includes 200 residential dwellings to be provided, with a mixture of types and sizes. The dwelling mix is noted in

Table 2.

Table 2: Dwelling mix

Housing Type	Market Mix	% Mix
2 bedroom	52	26
3 bedroom	75	38
4 bedroom	73	36
Total	200	100%

Following a viability appraisal prepared by Savills, it has been indicated that the scheme would not be able to support any affordable housing.

The design of the individual homes maximises surveillance and main openings from principle rooms will overlook the public realm for passive surveillance. Each dwelling will strive to have a planted green public frontage space.

3.4 Requiring Good Design

The design of the development at Blythe Vale aims to respond to the site specific constraints and includes sustainable elements, to create a well-designed development. The objectives for the site are to create a high quality, sustainable development, measures to achieve this include:

- Family orientated homes which foster community cohesion through high quality and

accessible public open space that can be shared by existing and new residents;

- Landscape-led design;
- Well-connected community forming a natural extension to the existing settlement;
- Incorporating the existing mature green infrastructure into the proposed urban block pattern;
- Integrate the diverted Public Right of Way (PRoW) along the eastern boundary into the development along with green corridors created;
- Properties will be orientated to front onto the green corridors which provide natural surveillance to the public open space;
- Retaining existing ponds and hedgerows into the design where possible;
- Energy efficiency, water efficiency and renewable energy measures and targets as detailed in Section 3.6.

The development proposal is based on the considerations forming part of the Building for Life 12 criteria. Further details on how the design of the development has evolved to incorporate a range of good design measures are set out in the DAS which accompanies the application.

3.5 Promoting Healthy Communities

The design of the development aims to respond to Policy C1 to create sustainable communities.

Measures to achieve this include:

- Green corridor and Public Open Space created along the northern boundary;
- Creation of an ecology area to the southeast of the site inclusive of Trim Trail and woodland walks;

New amenity play spaces using natural materials as 'doorstep parks' for the use of all residents. In addition the design of new homes will consider measures to improve internal living environments to promote health and wellbeing including:

- Prioritisation of natural ventilation, contributing to good internal air quality;
- Homes which are adaptable for the future; and,
- Utilisation of materials and services that have low emission rates and pollutants.

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

3.6 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 extend the UK Carbon reduction target to reduce carbon emissions by 100% 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 to encourage development to consider climate change adaptation and mitigation during the planning process.

The Council's adopted Local Plan support the Government's objectives for sustainable development reducing energy use and carbon dioxide emissions, adapting to and mitigating the effects of climate change.

In this context the following sections outlines the key climate change mitigation and adaptation measures considered appropriate for this development based on the latest national guidance.

3.6.1 Mitigating Climate Change

Developing energy efficient, low carbon buildings is a key objective of national policy and anticipated changes to the Building Regulations support the

reduction of energy demand through efficient building design to reduce carbon emissions.

In 2019 the Government published the Future Homes Standard consultation, the results were published in January 2021 and confirm that building standards from 2025 will require a 75% reduction in carbon emissions above the current Part L, with an interim 2021 target which requires homes to achieve a 31% carbon reduction beyond the current regulations.

The homes at Blythe Vale Phase 2 will be designed in accordance with the Building Regulations, taking into account future changes as appropriate which include a requirement for homes from 2022 to achieve as a minimum a 31% reduction in carbon emissions beyond Part L of the 2013 Building Regulations. Construction is anticipated to commence in early 2022.

The proposed dwellings will be developed in accordance with the energy hierarchy, as shown in **Figure 2**, 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.

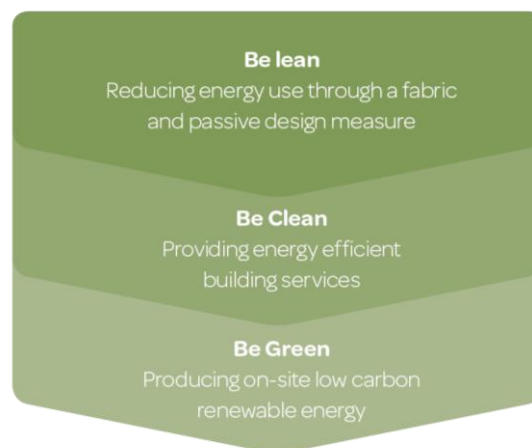


Figure 2: The Energy Hierarchy

The following sections set out the measures included to deliver an energy efficient, low 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) rather than the much shorter lifespan (around 25 years) of a renewable energy technology;
- 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.

Energy Efficiency Measures – The design of new buildings will reduce thermal energy demand by targeting improved insulation levels and air leakage and fabric u-values where possible exceeding the current Building Regulations requirements. The proposed interim carbon reduction target to be introduced later this year includes a circa 25% improvement in baseline fabric u-values.

The following measures to reduce energy use and carbon emissions will be incorporated into the detailed design of individual buildings:

- Design to promote passive solar gains, maximise natural daylight, sunlight and ventilation;
- Design which aims to optimise natural daylight;

- Buildings which target element u-values and air tightness in accordance with current Building Regulations requirements;
- 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; and
- Where appropriate, specification of high energy efficient equipment will be provided that use less energy and water.

Through these measures it is anticipated the development will reduce energy demand and carbon emissions beyond the requirements of the current Building Regulations and as necessary in line with the FHS.

The final design and specification of new buildings will be determined during detailed design in accordance with the appropriate changes to the Building Regulations.

Be Clean – Efficient Energy

The next stage of the Energy Hierarchy is the provision of energy efficiently, i.e. from a decentralised energy system such as a Heat Network.

District Heating Networks (DHN) comprise a centralised heat generator, typically a gas fired Combined Heat and Power (CHP) engine. CHP systems generate electricity and waste heat which can be fed into a network of insulated pipes which deliver low carbon heat to buildings to provide heating and hot water via individual heat transfer units.

DHNs are suited to development with high thermal demand, typically provided by sufficient density or a large anchor load, i.e. high density flats, leisure centres and industrial process.

The continued decarbonisation of the national electricity grid as supported by the draft SAP10.1 document published in October 2019 and to be incorporated into the update of the Building

Regulations in 2021 is also reducing the carbon benefit of gas CHP systems.

While other technologies are available to generate heat as part of a heat network, including heat pumps and fuel cells these have higher running costs and do not benefit from the sale of energy generated through CHP systems which is sold back the grid. The use of alternative technologies could lead to significant costs for residents and therefore at this time it is not considered economically viable to make use of an electricity lead district heating system.

In this context given the type of development proposed it is considered that the installation of a heat network is unsuitable for this development because:

- There are no known nearby heat networks or potential anchor loads to support a network;
- The enhanced fabric performance of the development reduces the heat demand and limits the potential efficiency of a CHP system;
- The decarbonisation of the heat network reducing the potential carbon benefit of gas fired systems; and
- Increased residential costs for residents using alternative heat led networks.

Be Green – Low Carbon Renewable Energy

The final stage of the energy hierarchy is the generation of on-site low carbon renewable energy. The use of a fabric first approach to design and construction and provision of energy efficiency measures recognises that the most effective route to delivering long term energy and carbon reductions is through efficient building design.

This approach is reflected by government guidance that aims to improve developments energy use and carbon emissions through changes to the Building Regulations. The FHS changes are likely to require the use of low carbon renewable energy technology.

A review of potential low carbon renewable energy technologies which may be suitable for inclusion in

building designs, taking into account changes to the Building Regulations have been completed below.

Solar Photovoltaics (PV)

Solar photovoltaic (PV) systems generate zero carbon electricity from sunlight and are well suited to dwellings with unobstructed south-east to south-west facing roof space. Excess power is exported to the grid or can be harnessed using battery storage. Maintenance requirements are typically minimal. The detailed design of the development will aim to ensure homes are orientated towards the south to enable installation of Solar PV if specified.

Solar Thermal

Solar thermal systems generate zero carbon hot water from sunlight in a similar manner to Solar PV. 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 particularly where mains gas supplies are not available, however in energy efficient new homes their benefit can be limited.

Heat Pumps

Heat pumps provide low carbon heat sourced either from the ground (Ground Source Heat Pumps) or air (Air Source Heat Pumps). This type of system is suited to thermally efficient buildings. They require main electricity to operate but typically generate at around three units of heat for every unit of electricity that is consumed. Because the heat generated is at a lower temperature than that produced by a gas boiler, heat pumps typically require underfloor heating or over-sized radiators to ensure the heat is distributed efficiently. Heat pumps do however require ongoing and fairly frequent maintenance. The government anticipates that the decarbonisation of the electricity network will shift design to using electric heating systems, including heat pumps.

Biomass

Biomass provides useable heat from a range of solid fuels including wood and straw. The installation of a biomass boiler, flue and associated fuel store require significant space and is not considered appropriate for the development.

At this stage potentially suitable technologies for consideration during the detailed design of individual homes in conjunction with future changes to the Building Regulations include Solar PV and Heat Pumps. These are noted within the FHS as the most likely technologies to be used to meet the forthcoming interim carbon reduction target.

Summary

In summary, the proposed dwellings will be designed in accordance with the principles of the energy hierarchy to include measures to reduce the primary energy use and carbon emissions which will achieve compliance with the Building Regulations, including relevant updates as a result of the FHS.

Energy performance at this level will ensure the development minimises carbon emissions through the utilisation of the fabric first methodology in accordance with the latest national guidance and reflects the objectives of the spatial strategies in Part 1 of the Local Plan.

Table 3 indicates the estimated energy use of the Proposed Development in line with Building Regulations Part L 2013.

Table 1: Estimated energy and carbon emissions

House Type	Energy Use (kWh/yr)	CO ₂ Emissions (kgCO ₂ /yr)
Baseline Energy and CO ₂ Emissions	1,346,910	346,718

The use of low carbon and renewable energy technologies will be assessed during the detailed

design of individual homes, to ensure the buildings are designed in line with the relevant Building Regulations.

New homeowners will be given options for additional green upgrades when purchasing homes to further enhance the dwellings.

3.6.2 Climate Change Adaptation

To ensure the proposed development is resilient to the effects of climate change it will incorporate a number of key design measures in response to the climate predictions set out in the UKCP18 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 UK Climate Change Risk Assessment updated in 2017 identifies key risks associated with the effects of climate change and in relation to the built environment and the proposed development these include reduced summer water availability, increased winter rainfall and increased summer temperatures.

This section identifies key measures which will be incorporated into the design of new buildings 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 in an area of moderate or severe water stress the conservation of water is becoming a more significant sustainability metric.

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; and
- Where appropriate, water efficient equipment.

Through the use of these measures new homes will target a water consumption rate of 110l/p/d, beyond the baseline requirement of 125l/p/d and significantly below the UK average of 150l/p/d.

Flood Risk and Drainage

A Flood Risk Assessment (FRA) and Drainage Strategy has been prepared by Baynham Meikle Partnership Ltd in May 2021. The site is within Flood Zone 1 which is land assessed as having less than a 1 in 1,000 annual probability of river or sea flooding. Therefore the site is considered of low risk of fluvial flooding and no mitigation measures are required. Additionally, the site is not at risk of surface water flooding as risk probability ranges from very low to low.

The site currently does not have any formal land drainage system and surface water is believed to percolate naturally into the ground or flow overground to the highway ditch along the southern boundary.

The proposed development proposes a new hard landscaped impermeable area of approximately 55% of the proposed area.

The River Blithe flows approximately 500m from the southwest boundary of the site. The proposed surface water drainage strategy will discharge site drainage into the existing watercourse southeast of the site. The flow will be restricted to greenfield rates at 1 in 1, 30 and 100 year plus climate change.

Additional storage of peak storm water can be facilitated for the 1 in 100 year annual exceedance event plus an allowance for climate change. Other measures include considering oversized surface water pipes, filter strips adjacent to private parking areas, below ground attenuation, and surface water controls to limit discharge rates. Finished floor levels will be carefully considered and a series

of maintenance measures have also been recommended.

Further information on the sites flood risk and the proposed surface water management system can be viewed in the accompanying FRA and Drainage Strategy.

Overheating

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

In recognition of this, Part L 'Conservation of Fuel & Power' of the Building Regulations are scheduled to be updated in 2020 to take better account of potential summertime overheating risks as a result of future climate change.

Buildings considered to be at risk of overheating will be assessed, taking into account the future climate scenarios to reduce the risk of overheating.

Through the provision of mitigation measures, buildings will be able to adapt to and be resilient to future climatic changes.

3.7 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, as well as incorporate measures to reduce pollution from the site.

3.7.1 Ecology

A Preliminary Ecological Appraisal has been prepared by FPCR Environment and Design, to establish the ecological status of the site and the ecological implications of the proposed development. Additional species surveys have been undertaken including for great crested newt (GCN), bats and reptiles.

The current site is comprised of several fields of moderately diverse semi-improved grassland, bounded and divided by outgrown native species hedgerows and mature trees, providing variable nature conservation value. Other habitats include ruderal vegetation, scattered scrub, and a number of existing waterbodies.

No part of the site is covered by any international or national statutory designations. There are no statutory designated sites of international or national natural conservation value identified within 5km and 2km of the site boundary respectively. Furthermore, there are no non-statutory designated sites recorded within 1km of the site boundary.

No evidence of bats or confirmed roost sites were recorded during the survey. 12 trees were considered to provide bat roost potential. The site itself is not considered to provide a significant proportion of the local foraging/commuting resources for the local population of bats.

The ponds recorded on-site and off-site within 500m of the site boundary were subject to presence/absence surveys which identified a small breeding population of GCN on the site.

No reptiles were recorded during presence/absence surveys despite suitable habitat on the site. The site offers many opportunities for nesting bird within the scrub and outgrown hedgerows. No evidence of badgers was recorded within the site and the site is not considered of high value for badgers.

To protect the site habitats and species a range of mitigation and enhancement measures have been proposed and recommended as part of the Ecological Appraisal. They can be summarised as follows:

Mitigation Measures

The following mitigation measures are proposed to protect site habitats during construction:

- Retention of the 12 trees assessed as having moderate bat roost potential;
- If works are required which may affect the trees, further inspection of the trees will be undertaken to determine presence of a bat roost;
- Vegetation removal will be undertaken outside of the bird nesting season (March to August inclusive) where possible, or during these season a pre-clearance nesting bird check will be undertaken within 48 hours of works;
- All proposed works within 250m of the ponds supporting GCN will be completed under a Natural England European Protected Species (EPS) License, accompanied by a detailed mitigation strategy; and
- Avoidance of lighting of habitat corridors, hedgerows and biodiversity features.

Enhancement Measures

To enhance the site habitats and species a range of mitigation and enhancement measures have been proposed and recommended as part of the Ecological Appraisal. They can be summarised as follows:

- Additional planting to connect isolated trees in surrounding habitats;
- Protection of existing hedgerows with additional species planting.

With the integration of the above mitigation and enhancement measures, the development is capable of achieving a net gain in biodiversity. More information is available in the Ecological Appraisal accompanying the planning application.

3.7.2 Pollution

The proposed development will aim to minimise any negative impacts on the natural environment considering the impacts of water use, materials, and air quality.

Water – Throughout construction water quality will be maintained by the following measures:

- Reduce erosion and run-off by minimising land disturbance and leaving vegetation cover where possible;
- Cover skips and trucks loaded with construction materials and continually damp down with low levels of water;
- Use non-toxic paints, solvents and other hazardous materials wherever possible; and
- Segregate, tightly cover and monitor toxic substances to prevent spills and possible site contamination.

The construction works will be carried out in such a manner as to avoid adverse effects on the ponds, streams and downstream habitats in accordance with Environment Agency Pollution Prevention Guidance (PPG).

To improve water quality during the occupation of homes the surface water drainage strategy includes consideration to measures to minimise pollution run-off.

Sustainable Materials – Insulation materials containing substances known to contribute to stratospheric ozone depletion or with the potential to contribute to global warming will not be used. Natural insulation materials such as mineral wool, rock wool or cork board will be considered as they are amongst the lowest Global Warming Potential (GWP) rating.

To further enhance the development a number of additional measures will be considered during the detailed design of new homes to minimise pollution, including:

- The use of key internal finishes and fittings which comply with best practice emissions levels of Volatile Organic Compounds (VOCs) and other substances;
- Where appropriate, the use of low NOx emission boilers, further reducing the impact of the development; and
- Specification of low Global Warming Potential (GWP) and zero Ozone Depleting Potential (ODP) insulation materials.

Additionally, the development will aim to make use of local and sustainability sourced materials, including use of FSC or equivalent timber.

Air Quality – SLR Consulting has undertaken an assessment of potential air quality impacts associated with the proposed development. Through good practice and implementation of mitigation measures, dust during construction would be controlled and mitigated. During the operation phase of the development it is concluded that no material constraint to the development and air pollution from additional trips is considered a negligible impact.

3.8 Waste Management

Construction Waste Management

Prior to the construction phase a Construction Environmental Management Plan (CEMP) 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 demolition and construction works.

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.

In addition the development will be registered with the Considerate Constructors Scheme and achieve certification against the Code of Considerate Practice.

Operational Waste Management

In accordance with the principles of the waste hierarchy the development will make provision for the storage of non-recyclable waste and recyclable waste including dedicated storage for waste in new homes to encourage residents to recycle waste materials.

Full consideration will be given to the Council's waste management infrastructure and services to ensure that the occupiers have the necessary

infrastructure to participate in any kerbside recycling services. Further details of the operational waste management can be found in the DAS.



4. Conclusion

This Sustainability Statement has been prepared to demonstrate how the proposed development responds positively to national and local sustainable policy requirements.

The proposed development at Blythe Vale Phase 2 has been designed to respond positively to national and local plan policy incorporating measures to deliver social and economic benefits, while also protecting and enhancing the environment where possible. This includes the consideration of measures to mitigate and adapt to the effects of climate change.

The Sustainability Statement which accompanies the application sets out key sustainable design measures incorporated at this stage and to be considered during the detailed design of homes.

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 200 new homes as part of a wider allocation providing opportunities for local people during both construction and operation of the development.
- A development in a sustainable location with a wide range of services and amenities available via sustainable transport links.
- A development designed in accordance with the Building for Life criteria.

- Homes designed to create healthy living environments which are flexible for the future.

Environmental Protection and Enhancement –

Through a range of design measures the development aims to protect and enhance the local environment, including:

- Buildings which will be designed to make use of sustainable materials to reduce environmental impacts of construction.
- Development designed to prioritise sustainable and active modes of travel including walking and cycling.
- Provision of measures to protect on-site ecology and enhancement measures to achieve a net gain in biodiversity which also helps reduce the impact of climate change on site habitats.
- Provision of measures through construction and operation of the site to reduce pollution, minimise waste and encourage recycling.

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

- Buildings designed to reduce carbon emissions in accordance with the current and applicable Building Regulations through the use of energy hierarchy, using a fabric first approach to design to reduce energy demand, helping mitigate the effects of climate change.
- Specification of water efficient fittings to reduce water consumption to 110 litres per person per day in line with the government's higher water efficiency standard.
- Development of new homes in Flood Zone 1 and provision of a surface water drainage

system and infiltration basins designed to manage a 1 in 100 annual probability, including an allowance for climate change.

- Homes designed to take into account increasing annual temperatures set out in the UKCP18 climate projections to minimise the risk of overheating.

St Modwen is committed to the delivery of sustainable homes which include measures which provide economic and social benefits, protect and enhance the environment, as well as mitigating and adapting to the long term effects of climate change.

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