

JS LEWIS LTD

Energy and Sustainability Statement  
Land North East of Humber Doucy Lane

Revision C

Barratt David Wilson Homes / Hopkins Homes

February 2024

Client: Barratt David Wilson Homes / Hopkins Homes  
Report: Energy and Sustainability Statement – Land NE of Humber Doucy Lane  
Date: February 2024  
Revision Details: Revision C  
Previous Revisions: Draft for Review, Rev A, B

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## CONTENTS

Contents .....	3
List of Figures .....	4
1 Introduction .....	5
1.1 Context .....	5
1.2 Location and Scheme Description .....	5
1.3 Approach to Sustainability .....	6
1.3.1 BDW and Sustainability .....	6
1.3.2 Hopkins Homes and Sustainability .....	7
1.4 Purpose of this Document .....	7
2 Policy and Regulatory Context .....	8
2.1 National Policy .....	8
2.2 Local Policy .....	9
2.2.1 Ipswich Borough Council Policy .....	9
2.2.2 East Suffolk Policy .....	10
2.3 Regulatory Context .....	10
2.4 Analysis and Interpretation .....	10
3 Socio-Economic Sustainability .....	11
3.1 Context .....	11
3.2 Economic Benefits .....	11
3.3 Social Benefits .....	11
4 Environmental Sustainability .....	12
4.1 Water .....	12
4.1.1 Flood Risk and Sustainable Drainage .....	12
4.1.2 Water Conservation .....	12
4.2 Sustainable Transport .....	12
4.3 Materials and Resource Efficiency .....	12
4.4 Waste Strategy .....	13
4.4.1 Waste Context .....	13
4.4.2 Site Waste Management Plan .....	13
4.4.3 Masterplanning and Designing for Waste Minimisation .....	13
4.4.4 Waste in Operation .....	13
4.5 Ecology and Biodiversity .....	14
4.6 Pollution .....	14
4.7 BREEAM .....	14
5 Climate Change .....	15
5.1 Background .....	15
5.2 Mitigation and Adaptation .....	15
6 Energy Demand Assessment .....	16
6.1 Methodology .....	16
6.2 Indicative Accommodation Schedule .....	16
6.3 Energy Benchmarks .....	16
6.4 Results .....	17
7 Energy Efficiency .....	18
7.1 The Energy Hierarchy .....	18
7.2 Design Considerations .....	18
8 Low and Zero Carbon Technology .....	20
8.1 CHP and District Heating .....	20
8.2 Alternative District Heat-Based Solutions .....	20
8.3 Non-Heat Network Based Renewable Energy .....	21
8.3.1 Solar Thermal .....	21
8.3.2 Heat Pumps .....	21

8.3.3	Solar PV .....	21
8.3.4	Wind Power and Hydro Power .....	21
8.3.5	Non-Residential Opportunities .....	21
8.4	Summary .....	22
9	Conclusion .....	23
9.1	Sustainable Development .....	23
9.2	Proposed Development .....	23
9.3	Social and Economic Sustainability .....	23
9.4	Environmental Sustainability .....	23
9.5	Statement of Policy Compliance .....	24
	Appendix A – References .....	26

## LIST OF FIGURES

Figure 1 – Framework Masterplan .....	6
Figure 2 – Indicative Accommodation Schedule .....	16
Figure 3 – Estimated Energy Demands and CO2 Profile .....	17
Figure 4 – Extant vs New Build SAP Values .....	22

# 1 INTRODUCTION

## 1.1 Context

This document forms one of a suite of documents that form an outline application submitted by Barratt David Wilson Homes / Hopkins Homes for the land to the North East of Humber Doucy Lane. The site is allocated for development and is adjacent to the proposed Ipswich Garden Suburb site, for which a Supplementary Planning Document has been written. It is of strategic local importance in delivering housing numbers.

As with all aspects of the development, the energy and sustainability strategy will need to be flexible enough to encompass and address changes to policy, legislation, technology and economics that will occur during this development period. Both the planning policy framework and the regulatory framework for energy in new developments have been subject to very significant changes. For this reason, it is perhaps even more important that the energy strategy considers the impact of potential changes, and accounts for these in any proposed route forward.

## 1.2 Location and Scheme Description

The applicants are seeking outline planning permission for the following:

*“Hybrid Application - Full Planning Permission for the means of external access/egress to and from the site. Outline planning application (all matters reserved) for a mixed use development for up to 660 dwellings (Use Class C3), up to 400 sq m (net) of non-residential floorspace falling within Use Class E and/or Use Class F2(b), an Early Years facility, and associated vehicular access and highway works, formal and informal open spaces, play areas, provision of infrastructure (including internal highways, parking, servicing, cycle and pedestrian routes, utilities and sustainable drainage systems), and all associated landscaping and engineering works.”*

The site is currently agricultural land and has scattered trees and hedgerows along the boundaries of the existing network of fields.

The client body has appointed a full design team to develop proposals that address local and national policy, and to submit this planning application. A framework masterplan and supporting parameter plans have been developed in collaboration with the design team which demonstrate the principles of development, and the land use. The site is 31.52Ha in total with a 60:40 split between residential and secondary uses.



*Figure 1 – Framework Masterplan*

### 1.3 Approach to Sustainability

The application is an outline application submitted by Barratt David Wilson Homes / Hopkins Homes, and some key aspects of their approach to sustainability are set out below.

#### 1.3.1 BDW and Sustainability

All BDW homes will be zero carbon in use (for regulated energy) by 2030, and the organisation will be net zero carbon across direct operations by 2040. 99% of BDW homes achieve an EPC rating of A or B, compared to 3% of existing properties – saving customers up to £2,200 a year on their energy bills.

In 2023 BDW maintained their position as the 'Leading National Sustainable Housebuilder', receiving the Gold Award for the 7th consecutive year, Crystal Award for Transparency for the third time, and the Innovation Award for the Zed House.

BDW were the first national housebuilder to implement science-based targets on carbon emissions, in line with what is required to limit global warming to 1.5°C:

- Reduce absolute scope 1 & 2 (operational) emissions by 29% by 2025 (from 2018 levels);
- Reduce scope 3 (indirect) emissions intensity by 24% by 2030 (from 2018 levels).

BDW used modern methods of construction (MMC) in 5,578 (32%) of homes in 2022. Further, the organisation is increasing its use of timber frames, which take less time to build, generate less waste,

and have lower embodied carbon than traditional masonry techniques, saving 75 tonnes of CO<sub>2</sub>e emissions over the lifespan of each home.

### 1.3.2 Hopkins Homes and Sustainability

Hopkins Homes aim to create spaces that enhance the local environment and improve with age. They work with local suppliers and trades where they can because it's important to do so.

Hopkins Homes install energy-efficient features and select products and materials carefully for their provenance. Many of their homes are heated with efficient air-source heat pumps instead of conventional gas boilers. They have introduced flue gas heat recovery and waste-water heat recovery into many of their new homes to reduce carbon emissions. The measures taken result in homes that meet all requirements for energy saving all while staying practical and beautiful.

The green spaces are designed to be in keeping with existing surroundings and to mature beautifully, enhancing the natural environment. Hopkins Homes seek to provide sustainable drainage solutions for surface water rather than standard soakaways. Landscaping plans will carefully take into account existing trees, hedgerows and natural features wherever possible. Areas of wildflower seeding in open spaces are often incorporated to enhance biodiversity alongside habitat creation measures such as swift bricks to help the species thrive.

### 1.4 Purpose of this Document

This document reviews the planning policy framework and the regulatory framework for development and identifies opportunities for the site for both sustainability and energy issues to inform the plans. It should be read in conjunction with the planning statement and the associated reports supporting the application.

## 2 POLICY AND REGULATORY CONTEXT

### 2.1 National Policy

#### National Planning Policy Framework (December 2023)

The National Planning Policy Framework sets out a framework for positive growth, making progress in environmental, social and economic areas, and enhancing existing areas. It is a material consideration in planning decisions and reinforces the need for decisions to be determined in accordance with the local plan, unless material considerations indicate otherwise.

The policies throughout the NPPF constitute the government's view of what sustainable development is, and requires the planning process to perform a number of roles:

1. An economic role – building a strong economy, supporting growth and innovation;
2. A social role – supporting communities through providing housing supply, a high-quality built environment, and accessible local services;
3. An environmental role – contributing to natural and built environments, improving biodiversity, using resources prudently, minimizing waste and addressing climate change, including moving to a low carbon economy.

The 2023 National Planning Policy Framework retains a presumption in favour of sustainable development. Section 14 concerns itself with climate change:

158. Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.

159. *New development should be planned for in ways that:*

*a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and*

*b) can help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards.*

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

*a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and*

*b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.*

The NPPF sets out the importance of dealing with climate change, and the use renewable energy. Development should be in sustainable locations to reduce CO2 emissions. It notes the need to align local policies with the national timeline for low carbon buildings.



## 2.2 Local Policy

### 2.2.1 Ipswich Borough Council Policy

#### **CORE STRATEGY AND POLICIES DEVELOPMENT PLAN DOCUMENT REVIEW**

Ipswich Council adopted the Core Strategy Review in March 2023. The key policies within that document are set out below:

#### **Policy CS1 – Sustainable Development**

In Ipswich a comprehensive approach will be taken to tackling climate change and its implications through the policies of this plan. In particular, developers should address the requirements set out in Local Plan Policies: CS2(h); CS5; CS16; DM1; DM2; DM4; DM5; DM6; DM9; DM12; and DM21 in order to comply with Objective 4 of the Core Strategy.

When considering development proposals, the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. It will always work proactively and jointly with applicants to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.

Planning applications that accord with the policies in this Local Plan (and, where relevant, with policies in neighbourhood plans) will be approved without delay, unless material considerations indicate otherwise.

#### **Policy DM1 – Sustainable Construction**

New residential development will be required to meet a high standard of environmental sustainability.

The following standards should be achieved as a minimum unless, in exceptional circumstances, it can be clearly demonstrated that this is either not feasible or not viable:

1. a) A 19% improvement in the reduction of CO2 emissions above the Target Emission Rate of the 2013 Edition of the 2010 Building Regulations (Part L); and
2. b) The water efficiency standards of 110 litres/person/day as set out in Requirement G2, Part G of Schedule 1 and regulation 36 to the Building Regulations 2010, as amended.

Development will also be expected to incorporate sustainable drainage and water efficiency measures as required by DM4. Surface water should be managed as close to its source as possible. This will mean the use of Sustainable Drainage systems including measures such as green or blue roofs, soakaways and permeable paving.

The Council will also encourage non-residential development of 500 sq. m and above to achieve a minimum of BREEAM Very Good standard or equivalent.

#### **Policy DM2 – Decentralised Renewable Energy or Low Carbon Energy**

All new build development of more than 10 dwellings or in excess of 1,000 sq. m of other residential or non-residential floorspace shall provide at least 15% of their energy requirements from decentralised and renewable or low-carbon sources. Only if it can be clearly demonstrated that this would not be

technically feasible or financially viable, then the alternative of reduced provision and/or equivalent carbon reduction in the form of additional energy efficiency measures will be required. The design of development should allow for the development of feed in tariffs.

### 2.2.2 East Suffolk Policy

East Suffolk has adopted an SPD on Sustainable Construction that refers back to the adopted policies within the Suffolk Coastal Local Plan. It covers water, energy, materials, waste, siting, form, orientation, low carbon technology and construction methods. Key policy requirements include:

- SCLP9.2 expects:
  - A 20% reduction below the Building Regulations target;
  - Water efficiency of 110 litres per person per day;
  - The use of local, reused and recycled materials;
  - BREEAM Very Good for developments over 1,000sqm;
  - Maximising daylighting and passive solar gain.

## 2.3 Regulatory Context

### **Future Homes Standard**

Part L was updated in 2021 and adopted June 2022 to provide CO2 reductions of 31%. Another revision is anticipated in 2025 which will aim to achieve an 80% improvement over Part L 2013. This will drive high development standards in terms of climate change and carbon reduction. In terms of compliance, and local policy targets, it is worth noting that achieving the new regulatory standard should suffice in meeting the adopted policy target of a 19% improvement over Part L 2013 as basic compliance would represent a 31% improvement.

## 2.4 Analysis and Interpretation

The proposed development is an outline application across two planning authorities. Those elements within the IBC area are expected to consider a 15% renewable energy onsite (or passive measures) where viable, a 19% CO2 improvement over Part L 2013 where viable and is encouraged to adopt BREEAM Very Good for major non-residential uses as well as addressing wider sustainability issues. Those within the East Suffolk area are expected to achieve a 20% reduction in CO2 emissions.

### 3 SOCIO-ECONOMIC SUSTAINABILITY

#### 3.1 Context

The current Housing Strategy sets out the Council's vision:

*"Promote sustainable communities by raising the standard of existing homes and enabling provision of quality new ones; resulting in suitable, affordable, decent housing for all Ipswich residents that meets their needs and enable them to live longer healthier lives reaching their full potential. "*

It was observed in the Ipswich Housing Strategy (2010-2015) that the average SAP rating of private sector property in Ipswich was 51, and that 39% of them would not meet decent homes standards.

#### 3.2 Economic Benefits

As noted in the section above, the delivery of housing is seen by the local authority as key to achieving sustainable communities. As a strategic site, the application has the opportunity to provide a significant quantum of both open market housing and affordable housing. Not only does this provide the direct benefits of significant investment and job creation during the construction period, but it creates long term affordable housing, and a diversity of housing that the private market needs too.

As well as the provision of affordable housing the site will enable other local benefits through direct investment in upgrading infrastructure. It also will make contributions through the Section 106/CIL and local supporting non-residential uses.

#### 3.3 Social Benefits

The site is an edge of town site. The proposals incorporate green infrastructure, sustainable drainage solutions, ecological areas and enhanced local pedestrian, cycle and bus routes. The scheme will provide good quality new private and affordable homes in an area of need. As part of the wider local plans, this will help to diversify the local economy. The provision of housing is key to the social sustainability of the area.

Through the provision of a mix of uses the development will be more sustainable than a single use development. Community assets including play areas, public open space, new local onsite pedestrian, cycle and bus infrastructure will all add to the local social fabric and are direct social benefits of the scheme itself. It responds to the need for market housing and affordable housing in the area and is designed to an appropriate density for an edge of town site. Refer to the Design and Access Statement for further details.

As the density of development will allow shallow plan and dual aspect dwellings, it is anticipated that daylighting levels and internal air-quality in dwellings will be good. This will help to promote good health and wellbeing.

## 4 ENVIRONMENTAL SUSTAINABILITY

### 4.1 Water

#### 4.1.1 Flood Risk and Sustainable Drainage

The application has been informed by the flood risk considerations, and sustainable drainage and green infrastructure are being used to minimize surface water run-off. The scheme is located within Flood Zone 1, which represents an area of low flood risk. Further, a sustainable water management strategy has been developed that applies sustainable drainage techniques to minimize outfall from the site. Full details are provided in the Flood Risk Assessment and Drainage Strategy.

#### 4.1.2 Water Conservation

Water efficient specifications are now required by building regulations. A maximum consumption of 125 litres per person per day has to be achieved for regulations. The scheme will incorporate measures to achieve a consumption of 110lpppd in line with Policy DM1 and SCLP9.2 – this target is in line with standard specifications. This is likely to include measures such as efficient kitchen taps with flow restrictors and shower flow rates of 8-9litres per minute. An exact specification will be required at the building control stage.

### 4.2 Sustainable Transport

There are good opportunities for promoting sustainable transport choices. The site is well connected to existing paths and bus stops for onward travel for work, school and leisure journeys. Further, there are good cycle and pedestrian links within the site that then link into the surrounding area. This includes a dedicated cycle path within the main access route onsite and along some of Humber Doucy Lane. EV charging will be integrated into the scheme to allow for low carbon, sustainable electric vehicles for private transport. Finally, Westerfield railway station is within striking distance with routes to Lowestoft, Felixstowe, and central Ipswich. Full details are provided in the Transport Assessment.

### 4.3 Materials and Resource Efficiency

Materials resource efficiency will be achieved through the scale of development. The site will be delivered by volume house builders who can achieve high materials efficiencies and low waste volumes. Many of the materials used for low density housebuilding now achieve A and A+ ratings under the Green Guide to Specification. Certified timber such as FSC and PEFC is widely available and commonly used throughout major development schemes. The key elements of the strategy are as follows:

- Utilize the Green Guide to Specification for comparing the environmental impact of options, with a view to selecting A and A+ ratings wherever possible.
- Utilize certified timber throughout;
- Utilize standard house-types to deliver efficiencies in construction.

#### 4.4 Waste Strategy

##### 4.4.1 Waste Context

Waste will be appropriately considered for both construction stage and operational phase for the proposed development, with the principle of the waste hierarchy underpinning the strategy:

1. Reduce waste;
2. Reuse;
3. Recycle;
4. Other recovery;
5. Disposal.

##### 4.4.2 Site Waste Management Plan

In time for the commencement of works on each phase, a detailed Site Waste Management Plan will be drawn up that aims to monitor and reduce waste.

##### 4.4.3 Masterplanning and Designing for Waste Minimisation

The site is a greenfield site that will not create demolition arisings. However, inert waste from landscaping and sub-structure works will be minimized through the use of cut and fill on the site. Further, a top soil resource survey will be undertaken to maximize reuse onsite and reduce the large vehicle movements. Key processes that will create arisings include:

- Landscaping including the creation of sustainable drainage features including attenuation ponds and swales;
- Grading of levels for the built environment;
- Excavation for foundations and sub-structures.

Another key aspect of masterplanning for waste includes the integration of highways design for waste collection. All detailed phases will demonstrate how they meet the local standards for access.

The delivery of large developments relies on developers who have efficient supply chains in place, and often rely on standard house types, and an element of repetition. Standard house types and repetition in themselves are mechanisms for achieving efficiencies. Each house type is typically optimized for materials, resource and waste minimization. One of the key issues that creates waste on building sites is over-ordering of materials. Volume house builders have optimized to avoid exactly that as it represents unnecessary build costs. Typical specifications for housing are likely to incorporate solutions including beam and block flooring or engineered timber I-joists and trusses that can reduce waste onsite through accurate design and calculation of requirements.

##### 4.4.4 Waste in Operation

During occupation, all units will be required to provide waste segregation and recycling both internally and externally to the local authority standards. This will incorporate internal and external waste provision in line with the local authority requirements. Residents will be provided with information on the local recycling collections as part of a home user guide.

#### 4.5 Ecology and Biodiversity

Ecological surveys have been undertaken and these have identified a number of ecological features and habitats onsite. The existing hedgerows and trees form the main areas of value as the fields are mainly low value arable land. The ecological surveys that support this application make certain recommendations to conserve where possible existing site value, and measures for creating new habitats and areas of value. The design and access statement demonstrates how green corridors have been incorporated.

#### 4.6 Pollution

New developments as standard achieve good performance on pollution issues now. As well as site management issues being closely monitored by the authorities, issues such as low impact insulation (zero ozone depletion potential, low global warming potential) have been addressed by the supply chains associated with these products. Significant improvements have been made since the introduction of standards over the last 20 years. Air quality and noise pollution are the subject of specific studies included in the application. The development is expected to rely on heat pump technology rather than natural gas boilers meaning that NOx emissions from boilers will not be a consideration. Further, charging points for electric cars will be integrated to allow for electric vehicles, again reducing the impact of exhaust gas pollutants.

#### 4.7 BREEAM

The exact nature of the non-residential uses is yet to be determined although the anticipated provision is for 400sqm of class E or F2(b). This is unlikely to be big enough to warrant a BREEAM assessment as the threshold is typically 1,000sqm.

## 5 CLIMATE CHANGE

### 5.1 Background

The national policy on future homes and future buildings reflects the wider climate change agenda and is one of a raft of measures the Government is using to mitigate emissions. The Building Regulations are being used as the preferred vehicle for implementing this policy.

The historical purpose of the Building Regulations was to avoid condensation risk and to conserve fuel and power at a time when global energy price shocks were causing problems for the UK security of supply. Since this time, the regulations have been refined to focus first on energy efficiency, and then latterly on CO2 emissions as climate change became the key issue.

Through the recent versions of Part L, regulated emissions in both domestic and non-domestic have been controlled through setting maximum emissions targets that buildings are permitted to achieve. These regulated emissions come from uses including heating, hot water, lighting, fans, pumps, and cooling.

### 5.2 Mitigation and Adaptation

The impacts of climate change are also only partially covered by regulation. The key impacts include the potential for buildings to over-heat in summer; for increased flooding events; and for increased water stress, and the knock-on impacts on landscape, ecology and potable water supply management.

As part of an encompassing strategy for new development, these elements need to be addressed. The scheme addresses these issues as follows:

- Summer Overheating:
  - Residential overheating controlled and tested through Part O of the Building Regulations;
  - Mitigation measures include generating the potential for good cross-ventilation;
  - Buildings can be oriented to minimise the cost and maximise the effectiveness of this.
- Flooding:
  - A flood risk assessment has been undertaken which accounts for the impacts of climate change;
  - A sustainable drainage strategy has been incorporated into the design, utilising the site area for attenuating site run-off.
- Water Stress:
  - All residential units will have water-consuming fittings controlled by both the Building Regulations and the local policy standards;
  - Ecology and landscape strategies have been drawn up to support the application;
  - At reserved matters stages, detailed design measures will address the implications of water stress and climate change.

## 6 ENERGY DEMAND ASSESSMENT

### 6.1 Methodology

This chapter explains the methodology for assessing energy demand and CO2 emissions profile and for undertaking options appraisal for low carbon and renewable energy solutions. It provides details of the process of identifying and assessing the likely significant environmental effects of the proposed development.

The content and conclusions of the strategy are based on an assessment of the proposed development identified in Section 1. Some broad estimates have been made of the floor areas in order to provide an overall indication of the likely energy demands and resulting emissions. These would be firmed up with reserved matters applications.

### 6.2 Indicative Accommodation Schedule

The schedule below has been extrapolated from the description of development. It is indicative only at this stage:

Uses	Total residential	59,400	sqm
	Class E / F2(b)	400	sqm

*Figure 2 – Indicative Accommodation Schedule*

### 6.3 Energy Benchmarks

To determine an energy demand, benchmarks are applied to the indicative accommodation schedule. Regulatory CO2 factors are then applied to determine the emissions profile. The benchmarks used for this assessment were based on an extrapolation from low density residential examples, using the latest Part L carbon factors.



## 6.4 Results

The indicative energy demand profile of the proposed development is as follows:

Residential units (upper limit)	660	units		
Residential area (estimated)	59,400	sqm		
		kWh/sqm	MWh	tCO2
Space heating demand		36	2,112	444
Domestic hot water demand		24	1,428	300
Regulated electricity demand		11	647	88
Unregulated electricity demand		35	2,069	281
Regulated		70	4,187	831
Unregulated		35	2,069	281
Total		105	6,256	1,113
Non-residential area	400	sqm		
		kWh/sqm	MWh	tCO2
Space heating		157	63	3
Hot water		8	3	0
Electricity		127	51	7
Cooling		-	-	-
Total energy demand		293	117	11

*Figure 3 – Estimated Energy Demands and CO2 Profile*

## 7 ENERGY EFFICIENCY

### 7.1 The Energy Hierarchy

The energy hierarchy is a widely accepted principle that provides a framework for energy policy making, helping to bring some logic to how solutions should be prioritised. Typically, it is stated as follows:

- Fabric first;
- Wider energy efficiency;
- Clean technology;
- Renewable energy.

Whilst early adopters of planning-based energy and carbon performance standards for new developments focussed heavily on renewable energy, there was then a marked shift towards overall CO<sub>2</sub>-savings. This shift was also evident in the regulatory system, which then started to refocus on increasing fabric performance specifically in preference to technology solutions. The current Part L includes maximum energy demands through the target fabric energy efficiency standard (TFEE) as well as overall carbon targets.

### 7.2 Design Considerations

Reserved matters applications will have to address energy efficiency as a key consideration. This will involve the layout planning for solar gain and shading. The residential element of the scheme will be driven by the national building regulations.

The development will have to comply with Part L, and therefore achieve a demanding specification. Later phases may have to deal with increasingly stringent standards as the Future Homes Standard is implemented. Other energy saving measures are likely to include:

- The use of heat pumps in preference to gas boilers;
- Extract fans with low specific fan power;
- Heating controls including programmers and thermostats;
- Energy usage displays;
- Low wattage extract fans for bathrooms and kitchens;
- Clothes drying facilities;
- Information on low energy white goods;
- Low flow showers and hot taps to reduce hot water consumption;
- Wastewater heat recovery.

At the building control compliance stage, orientation for solar gain makes a significant difference to the performance of dwellings. Where solar gain is not effectively harvested, there is a potentially significant cost implication for the housebuilder as they will have to make up the performance levels through very high fabric standards. Planning for solar gain will be a significant factor when bringing forward reserved matters.

Part L2a will determine how the non-residential elements address energy efficiency. Reserved matters applications that deal with the non-residential will be required to demonstrate how this has been addressed. The non-domestic uses will have different priorities in achieving energy efficiency. Each reserved matters application should address efficiency specifically. Some key priorities are as follows:

- Reduction of cooling requirements through appropriate orientation and solar shading;
- Maximising opportunities for natural ventilation through appropriate floorplate depths and cross-ventilation;

- Reduction in lighting demand through the use of natural daylighting and efficient luminaires; and
- High fabric performance to reduce heat loss.

## 8 LOW AND ZERO CARBON TECHNOLOGY

### 8.1 CHP and District Heating

Gas CHP is reliant upon a heat network to distribute its energy, and at low densities, the costs of heat networks become unviable. This has been shown on the adjacent Garden Suburb. Under the new SAP 10.2 methodology, gas CHP will now struggle to comply with the primary energy metric as well as the CO<sub>2</sub> metric. It is no longer an option for property development seeking to achieve low carbon development. This is largely due to the significant decarbonization of grid electricity that has come about over the last decade. Gas CHP now struggles with compliance issues too and is not technically feasible, nor financially viable.

### 8.2 Alternative District Heat-Based Solutions

The key capital cost consideration for a site-wide CHP scheme is the heat network. This in itself creates a problem for any other technology that relies on district heat networks. These include the following:

- Biomass Heating;
- Biomass CHP;
- Anaerobic Digestion.

Anaerobic digestion (“AD”) is a technically complex biological process that is dependent on quality and homogeneity of feedstock, careful process control, and appropriate scale. The market for anaerobic digestion technology providers and suppliers of turn-key solutions is highly diverse. Broadly, AD plant can be run from a waste stream, or from crops that are grown specifically as energy crops. In the UK, and in Germany where AD is far more widely spread, much of the focus on crops for AD has been on maize. Where crops are grown specifically, the CO<sub>2</sub> benefits can be reduced very significantly, often with little benefit over traditional gas systems.

AD systems that run from waste resources are typically in the control of whoever is producing the waste resource. This means that it is a difficult technology to develop speculatively in the hope of securing a waste stream at a later date. If a suitable source of digestible matter could be secured, there remain technical considerations including air quality/olfactory impacts. It is unlikely that AD would be applicable to the development.

Biomass heating requires a central heating plant with back up boilers and a district heat network. As a result, biomass heat where a distribution network is required suffers from the same financial issues as gas CHP. The cost of the network would be prohibitive.

Whilst biomass CHP has a lot to recommend it in principle, including potentially very high CO<sub>2</sub> savings, the practicalities of implementation are more complex:

- A biomass fuel supply needs to be secured;
- A heat network is required;
- Power outputs for the larger scale systems (ORC and gasification) are not very high compared with heat outputs, limiting the effectiveness;
- Smaller gasification/pyrolysis systems show good potential theoretically but remain unproven technology at the residential scale.

Biomass CHP has proven to be an impractical solution. The cost of the network again would be prohibitive, and concerns regarding the technology mean that it would be a high-risk solution.

The cost of a heat network for the proposed development means that any clean or renewable energy technology that relies on a heat network is unlikely to be financially viable. The operational economics are also poor for a number of these solutions. If the replacement of the district heat network were to be factored in, the operational costs would be even worse. It is noted that CHP and district heating tend to be viable only on very large, very high density sites. This site is relatively low density and as a result, CHP and district heating are not viable.

### 8.3 Non-Heat Network Based Renewable Energy

Policy DM2 sets a target of 15% renewable energy onsite compared with a baseline of Part L 2014, albeit with wording to allow for fabric measures as well. The East Suffolk policy is for 20% renewable energy. The advent of Part L 2022, which achieves a saving of 31% over Part L 2014, effectively supersedes the Ipswich BC policy requirement for an improvement of 19% over Part L 2014.

#### 8.3.1 Solar Thermal

The larger units may have hot water cylinder provision, meaning that solar hot water could be integrated. However, the contribution to overall CO<sub>2</sub> savings is well short of the 15% policy target. Further, it represents a cost that the development needs to incorporate on top of all of the other extra-over costs including infrastructure, affordable housing, and S106/CIL contributions.

#### 8.3.2 Heat Pumps

The provision of heat using heat pumps is becoming far more commonplace, driven by the reduced CO<sub>2</sub> emissions associated with grid electricity. The proposed strategy is for heat pumps to provide all heating and hot water for the proposed development, and a key option for compliance with the stringent Building Regulations standards. The use of heat pumps would exceed the 15% renewable energy requirement for a dwelling substantially.

#### 8.3.3 Solar PV

Solar PV is a simple technology and under the current Building Regulations is expected as part of the base specification. Although heat pumps are likely to push compliance beyond, there is likely to be a role for solar PV to play and may well be driven by market demand for lower carbon, lower cost dwellings.

#### 8.3.4 Wind Power and Hydro Power

Wind power is generally not suitable for the urban environment. There are no known hydro power opportunities within the vicinity of the site.

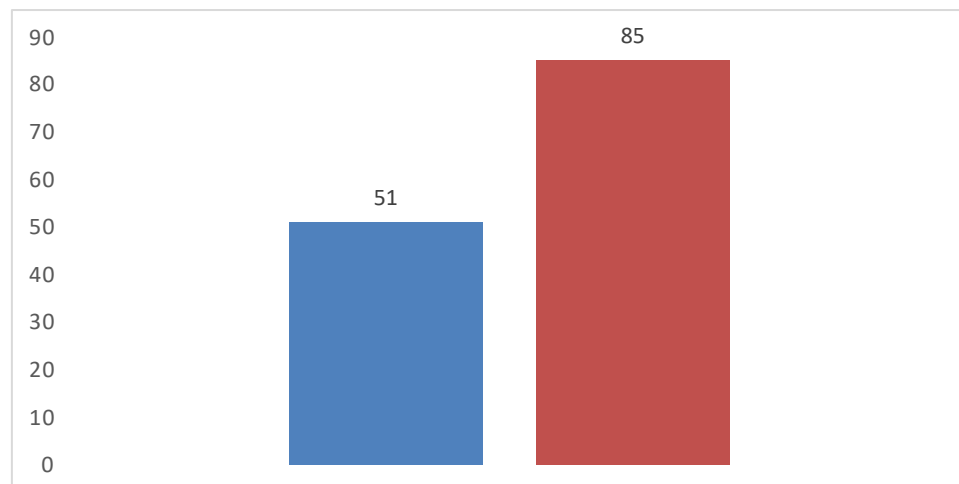
#### 8.3.5 Non-Residential Opportunities

The non-residential elements are more difficult to predict in nature, and in energy demand at this stage. As with the residential, it is recommended that the commercial elements review their options at the reserved matters and building control stages. Heat pumps and solar PV would be the likely basis for low carbon specifications on top of good fabric standards.

#### 8.4 Summary

A comparison can be drawn though between the current average SAP rating of dwellings in the locality (51), and the likely ratings of new dwellings. These are likely to achieve values of 85+, a significant step up from the existing average. The SAP rating only tells part of the story, as it refers mainly to costs. The Future Homes Standard will improve upon this even more substantially. The CO2 rating of the new dwellings will improve significantly on the existing stock.

The likely average SAP rating of new build properties as compared with the monitored rating of dwellings within the Ipswich area is set out below:



*Figure 4 – Extant vs New Build SAP Values*

The SAP rating of the new dwellings will be very much higher than the existing stock. This represents a very significant improvement over the average dwelling in the locality.

Compliance with the dual policies for 15% and 20% renewable energy onsite will be achieved through heat pumps with solar PV likely to play a role. The 19% IBC target is superseded by Part L 2021 as the target reduction is 31%. This being the case, all policy targets will be met and exceeded. Each reserved matters application will be required to set out a detailed strategy demonstrating how the regulatory targets are being achieved.

## 9 CONCLUSION

### 9.1 Sustainable Development

The NPPF sets out clearly the three key elements to a sustainable development:

1. An economic role – building a strong economy, supporting growth and innovation;
2. A social role – supporting communities through providing housing supply, a high-quality built environment, and accessible local services;
3. An environmental role – contributing to natural and built environments, improving biodiversity, using resources prudently, minimizing waste and addressing climate change, including moving to a low carbon economy.

It sets the context for local policies to follow the national guidance on low carbon development, and it also recommends that local policies be followed where feasible.

### 9.2 Proposed Development

The applicant is seeking permission for the following:

*“Hybrid Application - Full Planning Permission for the means of external access/egress to and from the site. Outline planning application (all matters reserved) for a mixed use development for up to 660 dwellings (Use Class C3), up to 400 sq m (net) of non-residential floorspace falling within Use Class E and/or Use Class F2(b), an Early Years facility, and associated vehicular access and highway works, formal and informal open spaces, play areas, provision of infrastructure (including internal highways, parking, servicing, cycle and pedestrian routes, utilities and sustainable drainage systems), and all associated landscaping and engineering works.”*

### 9.3 Social and Economic Sustainability

The need for new housing is stated within the local planning policy documentation and within the local housing strategy documentation. Further, housing is identified as being fundamental to social and economic wellbeing of the community.

Following studies commissioned by the local authorities, the site of the proposals for this planning application has been identified as having the potential to deliver much needed housing.

The site itself has the potential to provide up to 660 new homes, with 30-33% affordable units, good transport links and public open space. Community assets including play spaces, open space, flood mitigation and habitat creation are all considered in the proposals. The development phase of the project will create local employment in construction and associated fields. During occupation, the ongoing upkeep, maintenance and servicing of the properties will help support longer term jobs. The development of good quality housing will help attract people to the locality and help local employers attract employees.

### 9.4 Environmental Sustainability

The site is of strategic local importance in delivering housing numbers, and the wider strategy set out in the local plan. It will also achieve the following;

- Climate change
  - Adaptation measures;

- Mitigation measures.
- Energy and CO2
  - Application of the energy hierarchy;
  - Demanding fabric standards;
  - SAP ratings very significantly better than the current average in the locality;
  - Use of heat pumps for heating and hot water;
  - Passive design including natural ventilation;
  - High performance glazing and good daylighting;
  - Demanding U-values;
  - High levels of airtightness;
  - Low energy lighting;
  - Energy metering.
- Transport;
  - Bus stops within walking distance of all dwellings;
  - New bus link through the site;
  - New cycle and pedestrian links through the site.
- Water
  - Flood risk zone 1 (low risk);
  - Sustainable drainage strategy;
  - Efficient water fittings to reduce demand for water.
- Waste and materials
  - Waste and recycling management procedures during construction;
  - Waste and recycling provision in line with local standards for operation;
  - Resource efficiency for the new dwellings.
- Pollution
  - Low impact insulation used;
  - Air quality improved using modern heating technology.
- Ecology
  - Masterplanning to retain key green infrastructure elements;
  - Conservation of existing biodiversity;
  - Protection measures for the construction phase;
  - Habitat creation for biodiversity value.

The 2021 Part L has been shown to exceed significantly the 19% CO2 savings target set by Ipswich Borough Council. The renewable energy targets of 15% in the Ipswich adopted policy and the 20% in the East Suffolk policy will be met through heat pumps with solar PV likely to play a role. Each reserved matters application will be required to set out a detailed strategy demonstrating how the regulatory targets are being achieved.

#### 9.5 Statement of Policy Compliance

In the development of the proposals, the design team has reviewed, interpreted and addressed the relevant planning policy on energy and CO2 emissions and sustainable development. The proposals have reviewed early-stage opportunities for efficiency and clean and renewable energy technology.

The scheme will have to comply with the current adopted national standards, and the Future Homes Standards, implemented through the Building Regulations, as it evolves. Through this the scheme will exceed the policy targets on CO2 and onsite renewable energy.

The design team has considered economic, social and environmental sustainability in the development of the plans for the proposals. In doing so, local and national policy has been addressed. There are elements that future reserved matters applications will be required to consider. Regulatory requirements



on energy, water and other matters will be addressed in detail at the building control stage. This document addresses each of these issues, and an appropriate strategy for economic, social and environmental sustainability has been set out. The scheme therefore has addressed policy and is fully compliant.

## APPENDIX A – REFERENCES

National Planning Policy Framework, December 2023

IBC Core Strategy and Policies Development Plan Document Review (2022)

East Suffolk Sustainable Design and Construction SPD

AND

*Drawings and information from the proposed scheme.*

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