DAEDALUS ENVIRONMENTAL

# Land North of Guildford Road, Rudgwick

# Energy & Sustainability Statement

June 2025

# Key Features of the Proposals

Highly energy efficient properties, adopting a 'fabric first' approach

Air source heat pumps for heating and hot water

Renewable energy generation via photovoltaic panels

**Low carbon** development from the outset

A secure and identified trajectory to net zero emissions over time

**100%** of properties with associated parking will have a dedicated EV charging point

Adapted to future changes in the climate

**100%** of properties to have gigabit-ready physical infrastructure

Construction waste will be managed in accordance with the Waste Hierarchy

The sustainable approach described within this Statement demonstrates that the proposals align with the policies of the Horsham District Planning Framework, creating a zero-carbon ready development which is adapted to future changes in the climate.

Contents

# 1 Introduction

## 1.1 This Statement

1.1.1 This *Energy & Sustainability Statement* supports the outline planning application for the proposed development on land north of Guildford Road, Rudgwick within the district of Horsham. It has been commissioned by Welbeck Strategic Land IV LLP (the Applicant) to demonstrate how the proposals address environmental sustainability, with a focus on climate change mitigation and adaptation.

1.1.2 The policy framework encouraging sustainable new development is comprehensive at both a national and local level. This Statement responds to existing policy, including the *Horsham District Planning Framework (2015)* and current Building Regulations whilst looking ahead to the proposed Future Homes Standard, details of which are due to be announced in 2025.

1.1.3 In particular, this Statement demonstrates how the proposals meet the requirements of Policy 35, Policy 36 and Policy 37 of the Horsham District Planning Framework.:

Low and Zero Carbon Energy

- The dwellings will be 'zero-carbon ready', and will be futureproofed to become operationally zero carbon over time;
- High fabric standards will be specified which will exceed Building Regulation requirements for thermal efficiency;
- There will be no natural gas connection to the proposed development;
- Energy demand will be met from low and zero carbon sources.

Climate Resilience and Adaptation

- The development designs will anticipate future changes in the climate;
- Overheating risk will be reduced through passive design measures as required by Approved Document O;
- Open space and landscaping will provide multiple benefits;
- Surface water will be managed with the integration of SuDS.

Reducing Carbon Emissions from Transport

- Accessibility to local services and sustainable transport options will encourage residents to prioritise active travel and public transport over private car use;
- Electric vehicle charging infrastructure will be incorporated in line with the requirements of Approved Document S;
- Gigabit-ready infrastructure will be provided as required by Approved Document R.

Materials and Sustainable Waste Management

- The use of sustainable building materials will be prioritised;
- Construction and operational waste will be managed according to the principles of the Waste Hierarchy, with a focus on waste prevention, re-use and recycling.

1.1.4 The recommendations provided are described in as much detail as is possible at this outline planning stage. If other alternative solutions become an option in the future and prior to construction, then the approach currently proposed may be refined, whilst ensuring the performance of the dwellings meets the required standards.

## 1.2 Site Description

1.2.1 The proposed site is situated to the southwest of the village of Rudgwick and to the northeast of Bucks Green. It currently comprises two pastoral fields which are bordered by mature trees and hedgerows along the western, southern, and eastern boundaries. Internally, a belt of mature trees divides the two fields, and a small number of additional trees are scattered across the site.

1.2.2 It is bordered by Guildford Road (A281) and residential gardens to the south, Lynwick Street and agricultural land to the west, school sports fields to the east and agricultural land to the north.

## 1.3 Description of Development

1.3.1 The outline planning application has the following description of development:

*Outline Planning Application for up to 90 No. residential dwellings including 40% affordable, all matters to be reserved except access.*

1.3.2 The following image shows the Site Layout:


Figure 1: Site Layout (Thrive Architects)

# 2 Sustainability Policy Review

## 2.1 National Policies and Regulations

### The National Planning Policy Framework December 2024 (NPPF)

2.1.1 The NPPF Section 2 states that the purpose of the planning system is to contribute to the achievement of sustainable development, and it includes three overarching objectives 'to be pursued in mutually supportive ways':

- An economic objective, contributing to a strong, responsive and competitive economy;
- A social objective, supporting vibrant and healthy communities and;
- An environmental objective, protecting and enhancing our natural, built and historic environment.

2.1.2 As such, the NPPF at its heart contains a 'presumption in favour of sustainable development'. Emphasising the need to achieve well designed places, the NPPF states that "*Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities*".

2.1.3 The NPPF sets out a number of principles which should underpin both plan-making and decision-taking, and of which many are particularly relevant to this document. In this context, planning should:

- Promote healthy and inclusive places that encourage social interaction, enhance healthy lifestyles, and which are safe and accessible;
- Seek to secure a high-quality of design and a good standard of amenity for occupants;
- Support the transition to a low-carbon future, avoid increased vulnerability to climate change impacts, take account of flood risk and coastal change and seek to reduce greenhouse gas emissions. Plans should include a positive strategy to help increase the use and supply of renewable and low carbon energy;
- Help conserve and enhance the natural environment, achieve net gains in biodiversity and reduce the impact of all forms of pollution;
- Plan and manage development to make full use of public transport, walking and cycling, and take into account the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles;
- Support the expansion of electronic communications networks, including next generation mobile technology (such as 5G) and full fibre broadband connections, which are seen as essential for economic growth and social wellbeing.

## The Climate Change Act

2.1.4 The Climate Change Act 2008 is the basis for the UK's approach for tackling and responding to climate change. It originally set a binding target to reduce the UK's carbon emissions by at least 80% in 2050 from 1990 levels. In June 2019, this target was replaced with achieving net zero emissions by 2050.

## Building Regulations

2.1.5 *Approved Document L, Conservation of Fuel and Power, Volume 1: Dwellings (2021)* came into force in June 2022. It sets out the Building Regulation standards for energy performance in new developments, placing a greater emphasis on reducing primary energy use, in addition to achieving carbon and fabric efficiency targets, compared to the previous standards. The tightening of fabric energy efficiency standards, air tightness and carbon performance targets are accompanied by updated calculation and modelling requirements within the compliance mechanism (SAP10.2 for dwellings).

2.1.6 *Approved Document F, Ventilation, Volume 1: Dwellings* details requirements for ventilation in domestic properties to ensure that increased air tightness (as required by the updates to Approved Document L) does not impact on internal air quality.

2.1.7 *Approved Document O: Overheating* has been put into place to limit overheating risk in new residential buildings. It expands on the provision in the previous Part L and requires the use of passive methods where feasible. Compliance can be demonstrated through a prescriptive or thermal simulation compliance path.

2.1.8 *Approved Document S: Infrastructure for Charging Electric Vehicles (December 2021)* details regulations for the installation of electric vehicle charging points and cable routes. Requirement S1 from Part S of Schedule 1 and regulation 44D of the Building Regulations states that every new home with an associated parking space must have access to an EV charging point.

## The Future Homes Standard

2.1.9 The Future Homes Standard (FHS) is part of the Government's strategy for achieving its 2050 target as set under the Climate Change Act. It will build on the current uplifts within Approved Document L and Approved Document F.

2.1.10 Under the proposed new Standard, an average home will have 75 – 80% fewer carbon emissions than one built to the Building Regulation 2013 requirements.

2.1.11 The details of the Standard are still to be confirmed, with various options having been consulted upon as part of the Future Homes and Buildings Standards Consultation which was launched in December 2023.

2.1.12 However, what is clear is that the Standard will require new homes to be built with high fabric standards and low carbon heating (instead of fossil fuel powered boilers which will be banned)

so that they are 'zero-carbon ready'. This means that no future retrofitting will be needed to enable the properties to benefit from the ongoing decarbonisation of the Grid.

2.1.13 Two options for the notional building specification have been presented as part of the FHS Consultation, both of which are designed with the aim of reducing running costs and maintaining thermal comfort while balancing build costs. In both cases, the Consultation proposed that the building fabric standards remain broadly as they are in Approved Document L (2021).

| Building Element | | Option 1 | Option 2 |
|---|---|---|---|
| U-Values ($W/m^2K$) | Roof | 0.11 | 0.11 |
| | External Wall | 0.18 | 0.18 |
| | Floor | 0.13 | 0.13 |
| | Window | 1.2 | 1.2 |
| | Door | 1.0 | 1.0 |
| Wastewater Heat Recovery | | Yes | No |
| Heat Source | | A notional air source heat pump equivalent to ErP A++ | A notional air source heat pump equivalent to ErP A++ |
| Hot Water System | | Hot water storage vessel, 120mm insulation | Hot water storage vessel, 120mm insulation |
| Airtightness (m3/m2.h@50Pa) | | 4 | 5 |
| Ventilation | | dMEV | Natural ventilation with intermittent extract fans |
| Renewable Energy | | High efficiency solar PV panels covering equivalent of 40% of ground floor area | None |

Table 1: Proposed Main Notional Building Specifications for Homes (Future Homes Standard Consultation, Dec 2023)

2.1.14 Other areas under consideration include improving the guidance and minimum standards for heat losses from building services, improving the real-world performance of homes and supporting the expansion of cleaner heat networks.

2.1.15 Two options are being considered for transitional arrangements – either a 6-month or 12-month period between the Future Homes Standard legislation being laid in 2025 and it coming into force, followed by a 12-month transitional period.

2.1.16 The Government has also consulted on a new calculation methodology which will be used to demonstrate compliance with the FHS. Known as the Home Energy Model (HEM), this will replace the existing SAP compliance tool, and will also be used to produce Energy Performance Certificates (EPCs).

## 2.2 Local Planning Policy

### Horsham District Planning Framework (Adopted 2015)

2.2.1 The *Horsham District Planning Framework* (2015) (HDPF) sets out the planning strategy for Horsham district (outside of the South Downs National Park) for the years up to 2031. It is part of the Local Plan for the district and forms the main basis for assessment in planning terms.

2.2.2 Policy extracts from the HDPF which are of particular relevance to this document include the following:

| Policy | Extract |
|---|---|
| 33 | Development Principles<br><br>In order to conserve and enhance the natural and built environment developments shall be required to: (...)<br>7. Ensure buildings and spaces are orientated to gain maximum benefit from sunlight and passive solar energy, unless this conflicts with the character of the surrounding townscape, landscape or topography (...)<br>8. Incorporate where appropriate convenient, safe and visually attractive areas for the parking of vehicles and cycles, and the storage of bins/recycling facilities without dominating the development or its surroundings; (...) |
| 35 | Strategic Policy: Climate Change<br><br>Development will be supported where it makes a clear contribution to mitigating and adapting to the impacts of climate change (...).<br><br>Measures which should be used to mitigate the effects of climate change include;<br>1. Reduced energy use in construction;<br>2. Improved energy efficiency in new developments, including influencing the behaviour of occupants to reduce energy use;<br>3. The use of decentralised, renewable and low carbon energy supply systems;<br>4. The use of patterns of development which reduce the need to travel, encourage walking and cycling and include good accessibility to public transport and other forms of sustainable transport; and<br>5. Measures which reduce the amount of biodegradable waste sent to landfill.<br><br>Development must be designed so that it can adapt to the impacts of climate change, reducing vulnerability, particularly in terms of flood risk, water supply and changes to the district's landscape. Developments should adapt to climate change using the following measures:<br>1. Provision of appropriate flood storage capacity in new building development;<br>2. Use of green infrastructure and dual use SuDS to help absorb heat, reduce surface water runoff, provide flood storage capacity and assist habitat migration;<br>3. Use of measures which promote the conservation of water and/or greywater recycling; and<br>4. Use of site layout, design measures and construction techniques that provide resilience to climate change (opportunities for natural ventilation and solar gain). If it is not possible to incorporate the adaption and mitigation measures proposed, an explanation should be provided as to why this is the case. |

| | |
|---|---|
| 36 | Strategic Policy: Appropriate Energy Use<br><br>Energy hierarchy<br>All development will be required to contribute to clean, efficient energy in Horsham based on the following hierarchy:<br>1. Lean – use less energy – e.g. through demand reduction<br>2. Clean – supply energy efficiently – e.g. through heat networks<br>3. Green – use renewable energy sources<br><br>District Heating and Cooling<br>Commercial and residential developments in Heat Priority Areas or the strategic development locations will be expected to connect to district heating networks where they exist using the following hierarchy, or incorporate the necessary infrastructure for connection to future network.<br>Development should demonstrate that the heating and cooling systems have been selected in accordance with the following heating and cooling hierarchy;<br>1. Connection to existing (C)CHP distribution networks<br>2. Site wide renewable (C)CHP<br>3. Site wide gas-fired (C)CHP<br>4. Site wide renewable community heating/cooling<br>5. Site wide gas-fired community heating/cooling<br>6. Individual building renewable heating<br>7. Individual building heating, with the exception of electric heating<br>All (C)CHP must be of a scale and operated to maximise the potential for carbon reduction. Where site-wide (C)CHP is proposed, consideration must be given to extending the network to adjacent sites.<br><br>Energy Statements<br>All applications for residential or commercial development must include an Energy Statement demonstrating and quantifying how the development will comply with the Energy Hierarchy.<br><br>Developments in Heat Priority Areas and strategic developments should demonstrate and quantify how the development will comply with the heating and cooling hierarchy. Horsham District Council will work proactively with applicants on major developments to ensure these requirements are met. (…). |
| 37 | Sustainable Construction<br><br>Proposals must seek to improve the sustainability of development. To deliver sustainable design, development should incorporate the following measures where appropriate according to the type of development and location:<br>1. Maximise energy efficiency and integrate the use of decentralised, renewable and low carbon energy;<br>2. Limit water use to 110 litres/person/day;<br>3. Use design measures to minimise vulnerability to flooding and heatwave events;<br>4. Be designed to encourage the use of natural lighting and ventilation;<br>5. Be designed to encourage walking, cycling, cycle storage and accessibility to sustainable forms of transport;<br>6. Minimise construction and demolition waste and utilise recycled and low-impact materials;<br>7. Be flexible to allow future modification of use or layout, facilitating future adaptation, refurbishment and retrofitting;<br>8. Incorporate measures which enhance the biodiversity value of development.<br>All new development will be required to provide satisfactory arrangements for the storage of refuse and recyclable materials as an integral part of design.<br>New homes and workplaces should include the provision of high-speed broadband access and enable provision of future technologies where available. |

### Horsham District Local Plan 2023-2040 - Regulation 19 Proposed Submission (January 2024))

2.2.3 Horsham District Council have been working on a new Horsham District Local Plan 2023 – 2040 to guide development in the district up to 2040.

2.2.4 The draft Local Plan Regulation 19 document was submitted to the Secretary of State for examination in late 2024. However, the Inspector suspended the hearing sessions after the first week citing "significant concerns about the soundness and legal compliance of the Plan in respect of a number of areas."

2.2.5 The Inspector has since recommended that the Council withdraw the Plan and, at the time of writing, the Council is still to clarify its position. As a result of this uncertainty, the emerging Local Plan will carry little to zero weight in the determination of the application.

### West Sussex County Council Guidance on Parking at New Developments (September 2020)

2.2.6 This document sets out requirements for electric vehicle charging on new developments. However, the advice given has been superseded by Approved Document S as described above.

### Rudgwick Neighbourhood Development Plan 2020-2031 (Made June 2021)

2.2.7 The Rudgwick Neighbourhood Development Plan forms part of the development plan for the parish. The Plan has been reviewed and it does not contain any policies of direct relevance to this Statement.

### Additional Planning Policy Documents and Commitments

2.2.8 Further guidance exists relating to transport, parking, flood risk and ecology. These are covered in more detail in the other reports accompanying this submission. This Statement does however refer to the outputs of these reports where relevant to give a rounded picture of the approach to sustainable design and construction issues.

# 3 Low and Zero Carbon Energy

## 3.1 Introduction

3.1.1 This section describes how the homes on the proposed development will be 'zero-carbon ready', with high fabric efficiency standards, low carbon air source heat pumps and renewable energy provided via roof integrated solar photovoltaic panels.

3.1.2 The hierarchy of solutions proposed will set the new development on a pathway to zero emissions over time in line with wider national and local aspirations to address climate change.

3.1.3 Furthermore, it will ensure that the development comfortably achieves the requirements of Approved Document L (2021) and the HDPF, while anticipating the requirements of the Future Homes Standard, details of which are due to be announced in 2025.

## 3.2 The Energy Hierarchy

3.2.1 The Energy Hierarchy underpins the entire approach to building performance for this development, thus prioritising a reduction in the demand for energy as far as possible through thermally efficient, easily controlled, well designed and oriented buildings. This is in line with the requirements of Policy 36 of the HDPF:

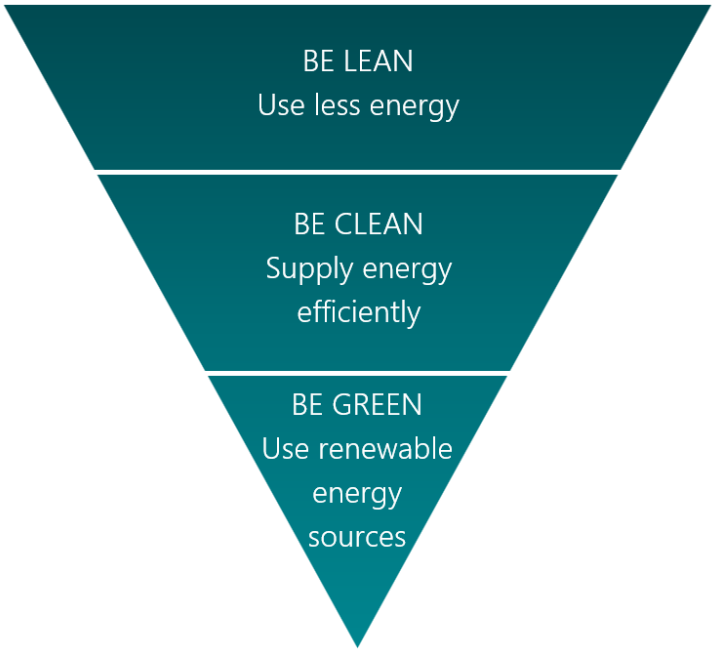


Figure 2: The Energy Hierarchy

## 3.3 Be Lean: Use Less Energy

### Orientation and Passive Solar Design

3.3.1 The orientation of buildings, along with the size and location of glazing and the extent of overshading, plays an important role in energy performance. Improving a building's orientation so that the main living spaces benefit from the heat and light of the Sun can reduce the requirement to use fuels to perform the same function thus reducing costs, energy use and associated carbon emissions.

3.3.2 When buildings have a southerly orientation, they can benefit from the Sun during the middle portion of the day without suffering from potential overheating later in the afternoon. This orientation can also help to ensure that they still benefit as much as possible from sunlight during the winter when the Sun's path is shortened.

3.3.3 However, there is a balance to be struck between maximising solar gain and the risk of overheating. Section 4 of this Statement discusses approaches to addressing and managing this risk to align with the requirements of Approved Document O of the Building Regulations.

3.3.4 The proposed layout of the site will be developed with respect to identified topological and visual constraints. Within these parameters, the majority of the properties will have a southerly orientation, while others will benefit from an east/west orientation which will provide more sunlight into the homes during the morning and evening. Furthermore, the relatively low density of the development will ensure appropriate spaces around dwellings, reducing overshadowing.

3.3.5 The impact of orientation on the viability of solar photovoltaic panels is discussed in Paragraph 3.5.6 - 3.5.7.

### Thermal Elements

3.3.6 A 'fabric first' building specification will be developed to ensure that the envelope of each dwelling, including the wall, roof, floor, glazing and doors, will be highly energy efficient. This will reduce energy demand and increase comfort.

3.3.7 Thermal bridges will be minimised through the application of design details and products that provide continuous insulation, such as insulated lintels.

3.3.8 The specification will be confirmed at a later stage in the planning process once housetypes have been finalised and the details and timings of the Future Homes Standard have been announced.

3.3.9 In the meantime, Table 2 in Section 3.6 provides an indication of the levels of performance required, including u-values for different thermal elements.

## Air Tightness and Ventilation

3.3.10 It is vital that buildings have sufficient levels of air tightness to reduce heat loss and minimise draughts. Air tightness is also an important factor in managing interstitial condensation and reducing sound transmission through structures.

3.3.11 The current target for the development will be to ensure the dwellings are constructed with a design air permeability level of $5m^3/m^2$@50Pa or less.

3.3.12 Where the as-designed air permeability is less than $5m^3/m^2$@50Pa (and as-built is less than $3m^3/m^2$@50Pa), it will be necessary to install mechanical extract ventilation units (ideally with heat recovery) in each dwelling to ensure adequate and controlled ventilation, in line with the requirements of Approved Document F.

3.3.13 The dwellings will also benefit from natural cross ventilation via openable windows which will enable rapid purges of air and will contribute to maintaining internal air quality.

## Lighting, Fixtures and Fittings

3.3.14 Further energy savings will be made by maximising the efficiency of appliances, lighting, fixtures and fittings.

3.3.15 All internal and external fixed electric lighting will be categorised as 'energy efficient' in line with regulations to minimise lifetime energy use and associated emissions.

3.3.16 All appliances where installed will be high efficiency, further minimising the use of both electricity and hot water. Moreover, where these are not installed, they will be provided to incoming residents within the list of optional extras. There will be space in all gardens for clothes drying to discourage the use of tumble dryers.

3.3.17 A further option that could be explored is the installation of Waste Water Heat Recovery units (WWHR) in those dwellings that can accommodate them. WWHR units enable heat to be recovered from the waste water produced in bathrooms via baths or showers. This heat is then used to pre-warm water in the system, therefore reducing the amount of energy needed to provide hot water for use within the property.

## 3.4 Be Clean: Supply Energy Efficiently

3.4.1 The decision regarding heating and hot water supply for the development has been considered in line with the requirements of Policy 36 of the HDPF and Strategic Policy 7 of the Local Plan Regulation 19 Proposed Submission Document, both of which require a hierarchy of heating solutions to be considered:

- Desk top research has established that there are no existing or planned district heating networks in the vicinity. It will therefore not be possible to connect to existing infrastructure.
- Decentralised district heating is not considered viable for this site for the following reasons:
    - The infrastructure costs required would be disproportionately high for a low density development;
    - Technical viability of a decentralised system is compromised given the exclusively domestic nature of the proposals, the relatively low heat demand from a small number of highly thermal efficient dwellings and the associated heat profiles this generates.

3.4.2 It is therefore clear that installing a new, or linking to an existing, heat network would not be viable. The Applicant is instead looking to low carbon and renewable options for energy supply and heating at this development.

## 3.5 Be Green: Use Renewable Energy Sources

### Low Carbon Air Source Heat Pumps

3.5.1 Following a high-level analysis of heat demand and carbon impacts, air source heat pumps, combined with smart controls, have been selected as the most suitable option for space and water heating at this development.

3.5.2 High quality, well installed units can deliver a seasonal heating efficiency in excess of 300%, significantly reducing both operational costs for occupiers and carbon emissions when compared to gas or direct electric baselines.

3.5.3 The heat pump solution will address HDPF Policy 37 which requires low / renewable energy to be incorporated into developments where appropriate. It will also ensure the homes are 'zero-carbon ready', setting the development on a trajectory to net zero emissions: the rapid expansion in renewable and low carbon energy supply within the Grid in recent years means that Grid electricity is considerably cleaner per unit than natural gas, and will continue to decarbonise over time:

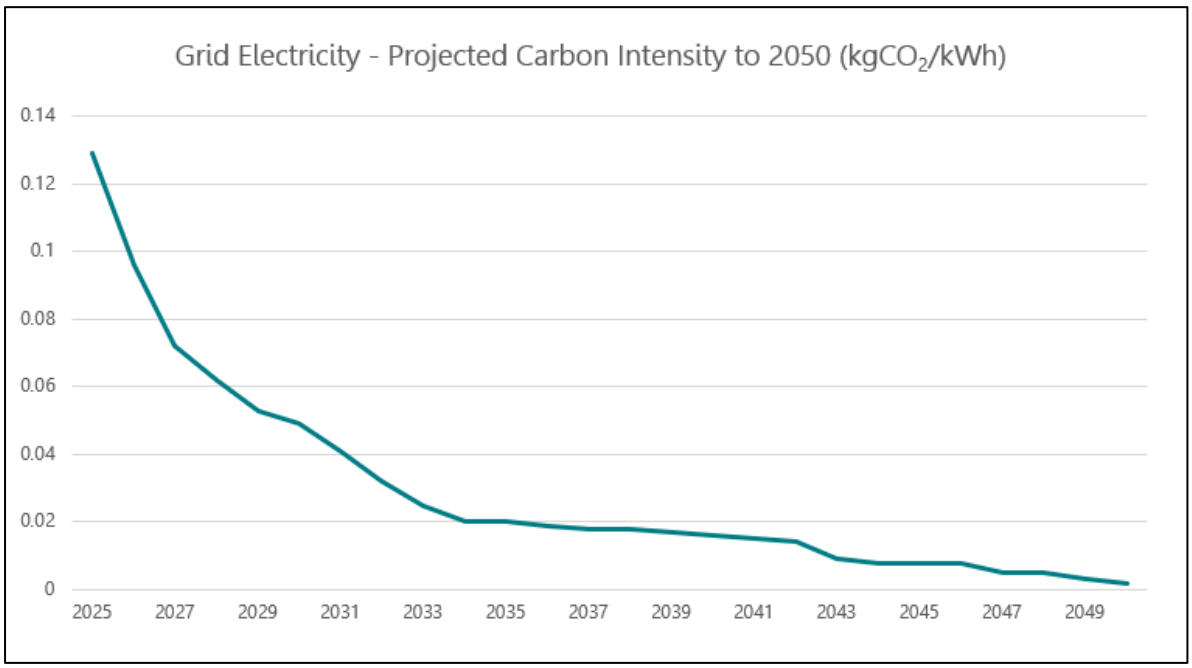


Figure 3: Projected Grid Decarbonisation
(Source: UK Government Green Book, Supplementary Guidance, November 2023)

## Solar Photovoltaics

3.5.4 The Applicant will also install photovoltaic (PV) panels to complement the heat pump solution where required by policy and regulations. This option will result in further carbon reductions and energy cost savings by generating electricity on-site.

3.5.5 The quantity of PV installed at each property will be determined later at the Reserved Matters stage once housetypes have been designed and the details of the Future Homes Standard have been finalised.

3.5.6 The PV panels will be roof integrated to minimise visual impact, so the orientation and design of the buildings and roofscapes will be carefully considered. For example, the designs will avoid roof features on southerly orientations that significantly limit the installation of PV, such as hipped roofs and dormers.

3.5.7 Certain elevations will also be avoided where possible, including those facing WNW or ENE (although it is recognised that orientation to maximise solar PV potential is just one of many considerations when determining residential development layouts). Increasingly, east-west facing split systems are being adopted, providing a more even amount of generation through

the day, without any significant loss in annual output. It should not therefore be assumed that all roofs need to face between south east and south west when finalising the layout.

3.5.8 PV diverters may also feature within homes - these allow excess electricity produced during the summer months to be diverted to the hot water tank to generate domestic hot water. This minimises any export and maximises the benefits to the resident.

3.5.9 The introduction of domestic energy storage (battery) systems will also be considered, potentially as an optional extra for incoming residents. The use of battery technology provides far greater flexibility and control for residents, enabling them to benefit from the value of the energy generated and to capitalise on flexible tariffs designed for heat pump users

3.5.10 If other alternative solutions become an option in the future and prior to construction, then the solution currently proposed may be substituted, whilst ensuring the carbon performance of the dwellings meets the required standards.

## 3.6 Building Energy Performance

3.6.1 Table 2 below provides an indication of the levels of performance for the different building elements for the proposed development.

3.6.2 This has been compiled using the notional building specifications for homes under the Future Homes Standard Option 1 as set out in the Future Homes Consultation 2023:

| Element Type | Indicative Specification for the Proposed Development |
|---|---|
| Roof / Sloped Roof | 0.11 W/($m^2$.K) |
| External walls | 0.18 W/($m^2$.K) |
| Ground floor | 0.13 W/($m^2$.K) |
| Glazing | 1.2 W/($m^2$.K) |
| Doors | 1.0 W/($m^2$.K) |
| Air permeability | <5.0$m^3$/$m^2$/hour@50Pa |
| Ventilation system | dMEV |
| Heating system | Air source heat pump |
| Photovoltaic system | High efficiency panels |

Table 2: Indicative Specification Summary

3.6.3 The precise specification to be applied at the site will be for determination as part of a Reserved Matters application. At that point, detailed energy calculations can be provided, demonstrating more accurately the impact of the proposed approach and how it complies with the local policies and national regulations in place.

# 4 Climate Resilience and Adaptation

## 4.1 Adapting to the Future

4.1.1 The ability of the development to adapt to anticipated future changes in the climate is an important aspect of its longevity, and ultimate habitability. The principle of adaptation applies to both the built and external environment, and indeed how they interact.

4.1.2 This section details how the Applicant is addressing the challenges of climate resilience and adaptation at the proposed development in line with the requirements of HDPF Policy 35.

## 4.2 Reducing Overheating Risk Through Design

4.2.1 The risk of the overheating of living spaces is of increasing concern, given our knowledge of future climate. *Approved Document O: Overheating (2021)* details requirements for mitigating the risk of overheating and methods for demonstrating compliance including the use of a compliance checklist or the CIBSE Guide TM59 Design Methodology for the Assessment of Overheating Risk in Homes (CIBSE, June 2017).

4.2.2 It is recommended that the designs for the dwellings undergo overheating risk modelling at the appropriate detailed design or Reserved Matters stage. The majority of the dwellings can be assessed using the simplified method, while any apartments should be assessed using the CIBSE TM59 Guidance. This will provide a robust, evidence-based approach to inform design.

4.2.3 Acceptable strategies for reducing overheating risk described in Approved Document O focus on passive design features and include:

- Limiting solar gains:
  - Fixed shading devices such as shutters, external blinds, overhangs or awnings;
  - Glazing design including size, orientation, glass g-value and depth of window reveal;
  - Shading provided by adjacent permanent structures.
- Removing excess heat:
  - Opening windows and ideally cross ventilation;
  - Ventilation louvres in external walls;
  - A mechanical ventilation system;
  - A mechanical cooling system as a last resort.

## 4.3 The Multiple Benefits of Open Space and Vegetation

4.3.1 It is proposed that the mature trees and hedgerows within the site and on its boundaries will be retained, and the existing tree belt will be incorporated into an area of greenspace running north to south through the site. New trees and hedgerows will be planted, and SuDS features along the northern perimeter and to the south of the site will provide the opportunities for wetland marginal species.

4.3.2 This landscape led approach will provide multiple benefits in a changing climate. For instance, from a microclimatic perspective, the retained trees will provide shading in the summer months, reducing heat gain into dwellings. The trees throughout the site will also help maintain a comfortable external environment in hot periods by providing shading in gardens and shared spaces.

4.3.3 The trees and hedges will also contribute to the reduction of wind speeds, improving comfort levels and reducing air infiltration into buildings on windier days.

4.3.4 Furthermore, vegetation acts as a 'carbon sink' and improves air quality through dry deposition of gases (including $NO_x$, $SO_x$, PM10 and $O_3$). Trees, hedges and shrubs also help reduce levels of ambient noise.

4.3.5 This landscape led approach will also result in biodiversity gains through ecosystem improvement. The Ecological Assessment should be referred to for full details in this regard.

## 4.4 Managing Water in a Changing Climate

4.4.1 Any new development on a previously undeveloped site will inevitably increase the amount of hard standing (roofs, roads, pavements) and therefore the amount of surface water run-off. Furthermore, rainfall levels in 20-30 years' time are expected to be very different to current levels, not necessarily in annual total volume, but with respect to the rainfall distribution throughout the year and the number of heavy downpours and storm events.

4.4.2 The integration of different SuDs features into the landscape layout will therefore be pivotal in its development, in order to enable the necessary storage volumes associated with a 1 in 100 year storm event, plus a 40% allowance for the impacts of climate change. Consideration should also be given to design features such as increased diameter guttering and downpipes to cope with additional intensity of storm water, reducing the risk of backing up.

4.4.3 The accompanying Flood Risk Assessment (FRA) provides further details in relation to the level of flood risk and the management of surface water flows at the site including the integration of SuDS into the development. This should be referred to for full details.

# 5 Reducing Carbon Emissions from Transport

## 5.1 Accessibility

5.1.1 Accessibility is a key aspect of sustainability and is described as such in the NPPF. Any new development needs to have easy to use, safe and obvious links into the surrounding community to prevent isolation and disconnection, to encourage the use of existing amenities and to facilitate commuting.

5.1.2 The Transport Assessment which accompanies this application demonstrates that the site is in an accessible location:

- Rudgwick Village Hall, Recreational Ground, Tennis Club, Cricket Club, Youth Centre and the Fox Inn Public House are all less than 500m from the site;
- Rudgwick Primary School, Pennthorpe Preparatory School and Rudgwick Preschool are within 1.1km of the site;
- A range of facilities including a supermarket, post office, GP surgery and chemist are approximately 1.2km away;
- Public right of way (Footpath 1386) runs along the eastern boundary, linking Guildford Road to Lynwick Street near Canfields Farm.

## 5.2 Sustainable Transport

5.2.1 As detailed in the Transport Assessment, the site is well situated to make the most of existing pedestrian, cycle and road networks and public transport routes in line with HDPF Policy 37.

5.2.2 The nearby bus stops on Guildford Road are served by Bus Number 63, which provides an hourly service to surrounding towns and villages including Horsham and Guildford.

5.2.3 The bus service connects to Horsham Railway Station from where regular train services to destinations including London Victoria, Southampton, Gatwick Airport and Bognor can be accessed.

5.2.4 While final designs will be provided later in the planning process, all the proposed properties will include a secure and weatherproof means of cycle storage in line with policy requirements. For example, some of the houses will have garages and those that do not can have sheds, while any apartments will have access to a secure communal cycle store.

5.2.5 A Travel Plan to promote the use of these sustainable modes of transport to future residents will be produced at the appropriate stage in the planning process.

## 5.3 Provision of Electric Vehicle Charging Points

5.3.1 Increasingly, energy and transport systems are becoming interlinked as the nation transitions from the use of petrol and diesel vehicles to zero emission solutions based around electric charging.

5.3.2 There is therefore a need to provide charging infrastructure to support this wholesale shift to cleaner vehicle technology and this is supported by policy: HDPF Policy 41 states that consideration should be given to charging plug in or other low emissions vehicles, while the *West Sussex County Council's Guidance on Parking at New Developments* details the minimum levels of electric vehicle charging points currently required.

5.3.3 However, Approved Document S of the Building Regulations described in Section 2 effectively supersedes the requirements of the local planning position, with more comprehensive standards and detailed specifications for new residential development.

5.3.4 The Applicant will therefore design and manage the power network to provide the level of EV charging infrastructure required by Approved Document S. To this end, each dwelling with associated parking will have a dedicated 7.4kW EV charging point installed.

5.3.5 Full details of the charging provision to be installed on the proposed site will be provided at Reserved Matters once the layout is fixed.

## 5.4 Provision of Fibre to the Premises

5.4.1 The availability of high-quality, reliable broadband infrastructure is increasingly viewed as critical to the functioning of a development and its continued attractiveness to incoming residents.

5.4.2 Indeed, such provision can facilitate better home working, enabling clear video calling and effective file sharing, which can contribute to a reduction in commuting.

5.4.3 Better quality, reliable internet connections for all have wider social ramifications too – reducing the risk of exclusion, a lack of access to services (which are increasingly internet based) and enabling people to better connect with society as a whole.

5.4.4 The provision at the development will align with *Approved Document R Volume 1 (2022 Edition)* which sets out requirements to ensure that, during construction, all new homes are equipped with gigabit ready infrastructure.

# 6 Materials and Sustainable Waste Management

## 6.1 The Waste Hierarchy

6.1.1 Waste generation, storage, treatment and disposal will be managed in accordance with the Waste Hierarchy, in line with Policy 37 which requires that developments minimise construction and demolition waste and utilise recycled and low-impact materials:

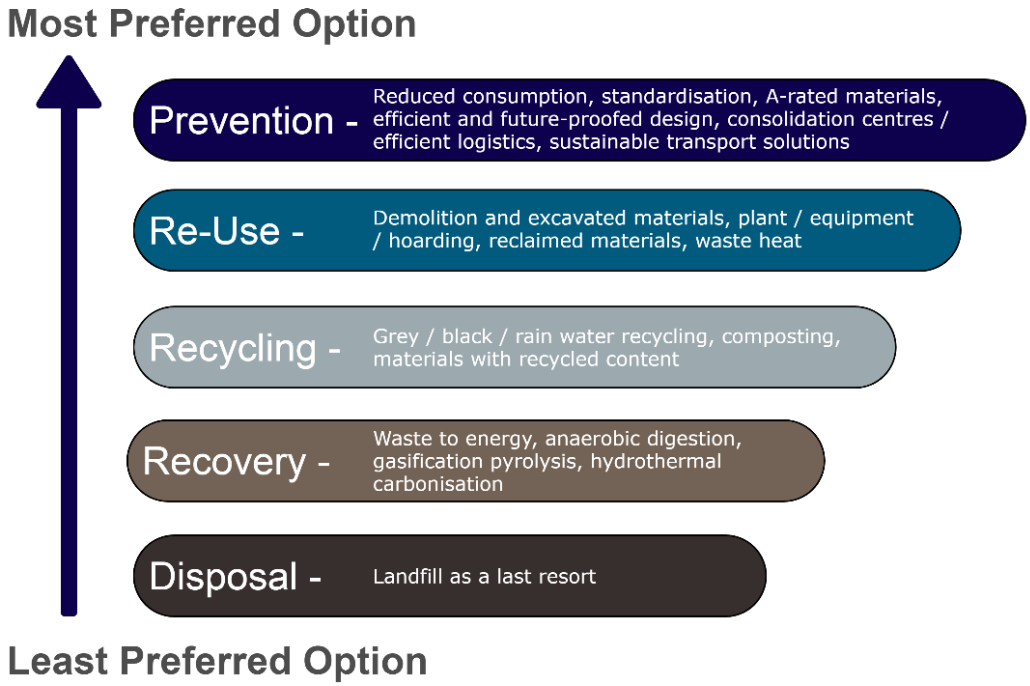


Figure 4: The Waste Hierarchy

## 6.2 Sustainable Building Materials

6.2.1 Materials to be used on the development will be sourced using suppliers that have recognised environmentally focused accreditations and management systems such as ISO:14001. Materials with low embodied carbon will be prioritised, all timber will be sustainably sourced with full FSC or PEFC accreditation, and materials derived from recycled or reused products will be specified where appropriate.

6.2.2 Local suppliers of materials will be used where viable, and the homes will be designed with a palette of materials that is both appropriate and in keeping with the local architectural vernacular. As such the form of construction will not require the use of unusual materials, those with significant environmental impact or those that require significant off-site processing and development before use on site.

## 6.3 Sustainable Waste Management

### Construction Waste

6.3.1 Waste will be sustainably managed throughout the development process.

6.3.2 During the design stage, opportunities for the on-site reuse of materials arising from site clearance and preparations will be identified. For example, the detailed design of gardens and other outdoor spaces will take account of retained soils to ensure they can be incorporated into the site.

6.3.3 The design of the site will also identify opportunities to maximise the use of reclaimed and recycled materials, for example in the sub-base for roads.

6.3.4 Where earth moving activity is needed, excavated materials will be retained on site where possible and, during the process of movement of that material, any storage will follow best practice guidelines to reduce loss to the weather and/or erosion.

6.3.5 A Waste Management Plan (WMP) will be produced ready for the construction stage which will require all contractors to implement strict waste management processes on site, including:

- Identifying a key individual responsible for the delivery of the WMP;
- Providing site induction and training to all staff;
- Obtaining all appropriate licences/permits from contractors to confirm contractual requirements;
- Identifying waste streams, planning for their management and setting targets for waste reduction;
- Identifying suitable locations for the efficient separation and storage of waste prior to removal from site to encourage higher levels of recycling;
- Identifying opportunities for the on-site reuse of materials and scaffolding, hoarding and other such materials to be removed from site for use on subsequent construction projects;
- Measuring and reporting waste disposal, reuse and recycling.

6.3.6 The WMP will be a live document that will be updated throughout the design and construction process to reflect and respond to progress on site.

6.3.7 In addition, it will be a requirement that any contractor operating on the site commits to the Considerate Constructors Scheme and aims to achieve best practice under assessment. This will help further minimise the impact on the surrounding area and neighbours to the site.

## Operational Waste

6.3.8 Property occupants will be encouraged to manage waste sustainably, and this will be considered in full at the Reserved Matters stage.

6.3.9 For example, it is proposed that the houses will have a private rear garden area with direct external access to provide sufficient space for bins and composting facilities, keeping waste storage away from the public domain. Discrete refuse collection points will also be provided along any shared private drives in line with regulations.

6.3.10 Facilities will be easy to access and will be designed in line with the collection regime of the council.

# 7 Summary

7.1.1 This *Energy & Sustainability Statement* describes how the proposed residential development on land north of Guildford Road, Rudgwick incorporates sustainable design and construction principles. It has been commissioned by Welbeck Strategic Land IV LLP (the Applicant).

7.1.2 Throughout the Statement, national and local planning policy objectives and standards have been addressed to demonstrate the Applicant's commitment to these issues.

7.1.3 In particular, the Statement provides as much detail as is possible at this outline planning stage to demonstrate compliance with related policies from the *Horsham District Planning Framework (2015)* and current Building Regulations whilst looking ahead to the proposed Future Homes Standard:

- The homes will be 'zero-carbon ready', and very low carbon from the outset;
- High fabric standards will be specified which will exceed Building Regulation requirements for thermal efficiency;
- There will be no natural gas connection to the development;
- Heating and hot water will be supplied via highly efficient, low carbon air source heat pumps which will be complemented with PV panels where required;
- Buildings will be designed and specified to adapt to a changed climate:
    - Overheating will be managed through good design;
    - The retention of existing trees and additional planting will provide more comfortable microclimates in warmer weather;
    - The landscape design will provide multi-functional benefits, supporting increased biodiversity and enhancing the overall aesthetic.
- Electric vehicle charging points will be provided to every dwelling with associated parking in line with Approved Document S requirements;
- Construction and operational waste will be managed according to the principles of the Waste Hierarchy with a focus on waste prevention, re-use and recycling.

7.1.4 A summary of the recommendations made in order to achieve policy requirements are provided in Appendix A.

7.1.5 As the planning and development process progresses, and as the wider regulatory environment develops, the approach proposed will be kept under review. The final design solution and associated detail can be provided at the Reserved Matters stage.

7.1.6 It can be concluded that the proposals for the development maximise the site's assets and layout in relation to sustainable design, creating an attractive, environmentally sound development.

# 8 Appendix A – Key Recommendations

| Section | | Policies Addressed | Key Recommendations |
|---|---|---|---|
| 3 | Low and Zero Carbon Energy | Horsham District Planning Framework<br><br>33, 35, 36, 37 | - Follow the priorities of the Energy Hierarchy.<br>- Ensure building orientation is such that dwellings maximise solar gain as far as possible.<br>- Adopt a fabric first approach, specifying a highly efficient building envelope to minimise energy consumption.<br>- Air permeability levels should be $5m^3/m^2$@50Pa or less.<br>- Specify energy efficient lighting and appliances.<br>- Install low carbon air source heat pumps (ASHP) for space and water heating.<br>- Complement the ASHP solution with photovoltaic (PV) panels where required.<br>- Consider WWHR for properties where feasible. |
| 4 | Climate Resilience and Adaptation | Horsham District Planning Framework<br><br>35, 37 | - Complete overheating risk modelling to ensure any overheating risk is reduced, as required by Approved Document O.<br>- Include street trees, shrubbery and open spaces on the site to provide a more comfortable microclimate.<br>- Incorporate SuDS into the site design to manage surface water drainage as recommended in the FRA. |
| 5 | Reducing Carbon Emissions from Transport | Horsham District Planning Framework<br><br>33, 35, 37 | - Provide EV charging points to all properties with associated parking in line with the requirements of Approved Document S.<br>- Provide secure and weatherproof cycle parking in line with local policy requirements.<br>- Provide gigabit ready telecoms infrastructure. |
| 6 | Materials and Sustainable Waste Management | Horsham District Planning Framework<br><br>33, 35, 37 | - Source materials from suppliers with environmental accreditations, using local suppliers where possible<br>- Follow the priorities of the Waste Hierarchy<br>- Ensure contractors implement strict waste management processes and commit to Considerate Constructor Scheme<br>- Consider opportunistic on-site reuse of materials where feasible<br>- Provide sufficient and accessible bin storage to facilitate waste management and recycling |

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