



Land at Shortland Farm

Energy & Sustainability Statement

October 2025

Key Features of the Proposals

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

Air source heat pumps for heating and hot water

Renewable energy generation via photovoltaic panels

Zero carbon ready

100%
of properties with associated parking to have dedicated EV charging

Adapted to anticipated future changes in the climate

25%
reduction in potable water use against the national average

100%
of properties to be equipped with gigabit ready infrastructure

Construction waste will be managed in accordance with the Waste Hierarchy

The sustainable approach described within this Statement demonstrates that the proposals will meet the relevant requirements of the Guildford planning framework, creating a low carbon development which is adapted to future changes in the climate.

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Introduction

1 This Statement

- 1.1.1 This *Energy & Sustainability Statement* has been prepared by Daedalus Environmental Limited to accompany the application for outline planning permission for the redevelopment of Land at Shortland Farm, Guildford Road, Ash, Guildford. The application is submitted on behalf of Gleeson Land (the Applicant).
- 1.1.2 The Statement sets out how the proposed development responds to local and national policy and regulatory requirements pertaining to climate change, sustainable design and energy.
- 1.1.3 In particular, it demonstrates how the proposals meet the requirements of the *Local Plan: Strategy & Sites 2015-2034 (Adopted 2019)* Policy D2, the *Local Plan: Development Management Policies (Adopted 2023)* Policies D14, D15 and D16 and current Building Regulations whilst looking ahead to the emerging Future Homes Standard, details of which are due to be announced later in 2025:
- The homes will be 'zero carbon ready', and very low carbon from the outset;
 - High fabric standards for thermal efficiency will be specified;
 - There will be no natural gas connection to the proposed development;
 - Energy demand will be met from low and zero carbon sources;
 - The adoption of sustainable design and construction principles will reduce the embodied carbon of the development;
 - Construction waste will be minimised, and the use of recycled materials will be maximised through sustainable waste management practices;
 - Carbon emissions from transport will be reduced by incorporating electric vehicle charging and integrating the development with existing pedestrian, cycling and public transport infrastructure;
 - High levels of water efficiency will be achieved through considered design;
 - The development will anticipate future changes in the climate:
 - Overheating risk will be reduced with passive design measures;
 - Open space and landscaping will provide multiple benefits;
 - Surface water will be managed with the integration of SuDS.
- 1.1.4 Guildford Borough Council declared a Climate Emergency in July 2019 and set a goal for the borough to reach net zero emissions by 2030. The holistic approach to energy efficiency and low carbon energy described in this Statement aligns with these aspirations.
- 1.1.5 The overall approach and design standards have been described in as much detail as is possible at this outline planning stage and are presented in the format required by the *Climate Change, Sustainable Design, Construction & Energy Supplementary Planning Document (October 2024, Updated May 2025)*.

2 The Proposed Application Site

2.1 Application Site Description

- 2.1.1 The 10.18ha application site is described within the *Design and Access Statement* prepared by OSP Architecture which accompanies the planning application.

2.2 Description of Development

- 2.2.1 The outline application has the following description of development:

Outline planning application with all matters except for the accesses from Guildford Road and Wyke Lane reserved for subsequent approval for the demolition of the existing buildings and hardstanding and the erection of:

- *Up to 200 residential dwellings including affordable housing and plots of self-build plots (Class C3);*
- *Green and blue infrastructure; and*
- *Associated service and utility structures.*

- 2.2.2 The image below shows the Illustrative Masterplan for the proposed development:



Figure 1: Illustrative Masterplan (OSP Architecture)

3 Sustainability Policy Review

3.1 National Policies and Regulations

National Planning Policy Framework December 2024 (NPPF)

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

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

3.1.2 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*".

3.1.3 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

- 3.1.4 The Climate Change Act 2008 is the basis for the UK's approach for tackling and responding to climate change. It commits the UK government to reducing greenhouse gas emissions by at least 100% of 1990 levels by 2050.

Building Regulations

- 3.1.5 *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).
- 3.1.6 *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.
- 3.1.7 *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.
- 3.1.8 *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.
- 3.1.9 Water efficiency targets for new dwellings are driven by *Approved Document G: Sanitation, Hot Water Safety and Water Efficiency (2015)*. Within a domestic setting, the requirement is to limit water use to either 125 litres per person per day or, if required by the planning permission, an enhanced standard of 110 litres per person per day.

The Future Homes Standard

- 3.1.10 The Future Homes Standard (FHS) is part of the Government's strategy for achieving the Climate Change Act 2050 target. It will build on the current uplifts within Approved Document L and Approved Document F.
- 3.1.11 Under the proposed new Standard, an average home will have 75 – 80% fewer carbon emissions than one built to the Building Regulation 2013 requirements.
- 3.1.12 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.

3.1.13 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.

3.1.14 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 has proposed that the building fabric standards remain broadly as per those in Approved Document L (2021).

Building Element		Option 1	Option 2
U-Values (W/m ² K)	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 (m ³ /m ² .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)

3.1.15 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.

3.1.16 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.

3.1.17 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).

3.2 Local Planning Policy

Guildford Borough Local Plan: Strategy & Sites 2015-2034 (Adopted April 2019, Updated March 2023)

3.2.1 The *Local Plan: Strategy & Sites 2015-2034* (LPSS) document presents the vision for the Borough up to 2034, setting out overarching planning policies and allocating land for housing, employment, community facilities and other types of development. It sits alongside the second part of the Local Plan, the *Local Plan: Development Management Policies* document (see next section).

3.2.2 The policies from the LPSS which are of most relevance to this Statement include:

Policy	Extract
D2	Climate Change, Sustainable Design, Construction and Energy Sustainable Design and Construction (1) Proposals for zero carbon development are strongly supported. Applications for development, including refurbishment, conversion and extensions to existing buildings should include information setting out how sustainable design and construction practice will be incorporated including (where applicable): (a) the efficient use of mineral resources and the incorporation of a proportion of recycled and/or secondary aggregates (b) waste minimisation and reusing material derived from excavation and demolition (c) the use of landform, layout, building orientation, massing and landscaping to reduce energy consumption (d) water efficiency that meets the highest national standard and (e) measures that enable sustainable lifestyles for the occupants of the buildings, including electric car charging points (2) When meeting these requirements, the energy and waste hierarchies should be followed except where it can be demonstrated that greater sustainability can be achieved by utilising measures further down the hierarchy. (3) Major development should include a sustainability statement setting out how the matters in this policy have been addressed. Smaller developments should include information proportionate to the size of the development in the planning application. Climate Change Adaptation (4) All developments should be fit for purpose and remain so into the future. Proposals for major development are required to set out in a sustainability statement how they have incorporated adaptations for a changing climate and changing weather patterns in order to avoid increased vulnerability and offer high levels of resilience to the full range of expected impacts. Climate Change Mitigation, Decentralised, Renewable and Low Carbon Energy (8) All (C)CHP systems are required to be scaled and operated in order to maximise the potential for carbon reduction. (...)
D1	Place Shaping (2) All new development is expected to have regard to and perform positively against the recommendations set out in the latest Building for Life guidance and conform to the nationally described space standards as set out by the Ministry of Housing, Communities and Local Government (MHCLG). (...) (10) All new development will be designed with regard to efficient use of natural resources including passive solar gain to maximise the use of the sun's energy for heating and cooling. (...)

ID3	Sustainable Transport for New Developments 1) New development will be required to contribute to the delivery of an integrated, accessible and safe transport system, maximising the use of the sustainable transport modes of walking, cycling and the use of public and community transport. (2) New development will be required, in so far as its site's size, characteristics and location allow, to maximise: (...) (b) the provision of secure, accessible and convenient cycle parking (...)
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Guildford Borough Local Plan: Development Management Policies (Adopted March 2023)

3.2.3 The *Local Plan: Development Management Policies* (LPDMP) sits alongside the LPSS described above to provide further and more detailed planning policies to use in determining planning applications.

3.2.4 The following LPDMP policies are of relevance to this Statement:

Policy	Extract
D14	Sustainable and Low Impact Development Fabric first 1) Development proposals are required to demonstrate how they have followed a 'fabric first' approach in line with the energy hierarchy. Embodied carbon 2) Development proposals are required to demonstrate that embodied carbon emissions have been minimised by: a) sourcing materials locally where possible; and b) taking into account the embodied carbon emissions of materials based on information provided in a respected materials rating database. 3) Proposals for major development are required to demonstrate how they have considered the lifecycle of buildings and public spaces and the materials used to construct them to reduce lifetime carbon emissions. (...) Waste 5) Proposals for major development, and development proposals that involve the demolition of at least one building and/or engineering works that involve the importation or excavation of hard core, soils, sand and other material, are required to submit a Site Waste Management Plan. Water efficiency 6) New developments are expected to incorporate measures to harvest rainwater and conserve water resources and, where possible, water recycling/reuse systems.
D15	Climate Change Adaptation 1) Development proposals are required to demonstrate how new buildings will: a) be designed and constructed to provide for the comfort, health, and wellbeing of current and future occupiers over the lifetime of the development, covering the full range of expected climate impacts and with particular regard to overheating; and b) incorporate passive heat control measures, and the exclusion of conventional air conditioning, in line with the cooling hierarchy. (...)

Policy	Extract
	4) Development proposals are required to demonstrate adaptation for more frequent and severe rainfall events through measures including: a) retaining existing and incorporating new water bodies; b) designing planting and landscaping schemes to absorb and slow down surface water; and c) the use of permeable ground surfaces wherever possible. 5) Development proposals in and around areas of high risk of wildfire are required to be designed and managed to prevent the ignition and spread of fire, taking into account the risk to health and potential damage to significant habitats.
D16	Carbon Emissions from Buildings 1) The development of low and zero carbon and decentralised energy, including low carbon heat distribution networks, is strongly supported and encouraged. 2) Where low carbon heat distribution networks already exist, new developments are required to connect to them or be connection-ready unless it can be clearly demonstrated that utilizing a different energy supply would be more sustainable or connection is not feasible. 3) Proposals for development within Heat Priority Areas as shown on the Policies Map and all sufficiently large or intensive developments must demonstrate that low carbon heat networks have been given adequate consideration as the primary source of heat. 4) New buildings must achieve an emission rate no higher than the relevant Target Emission Rate (TER) set out in the Building Regulations (Part L). 5) Development proposals are strongly encouraged to improve upon the standards in paragraph 4.
ID10	Parking Standards for New Development (...) d) the provision of electric vehicle charging will provide at least the minimum requirements set out in the Building Regulations (Part S); (...)

Climate Change, Sustainable Design, Construction & Energy Supplementary Planning Document (Adopted October 2024, Factually Updated May 2025)

- 3.2.5 The *Climate Change, Sustainable Design, Construction & Energy Supplementary Planning Document (SPD)* provides detailed guidance on how the policies contained within the LPSS and LPDMP should be interpreted and implemented, and practical advice on how development can become more sustainable. It is a material consideration in the determination of planning applications.
- 3.2.6 The approach to energy and sustainability at the proposed development has been designed with due regard to the guidance, and this Statement has been set out in line with the SPD requirements.

Additional Planning Policy Documents

- 3.2.7 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.

Energy Statement

4 Energy Statement

4.1 Non-Technical Summary

Summary of the Heat Network Appraisal

4.1.1 The Heat Network Appraisal has concluded that connecting to an existing, or installing a new heat network would not be feasible at this proposed development:

- There are no existing heat networks in the vicinity of the application site nor are there plans for the installation of any heat networks in this area;
- Ash sits outside of the Guildford Heat Priority Areas;
- Installing a heat network for a relatively small residential development of very thermally efficient properties would not be a viable commercial or investable proposition.

Summary of the Low and Zero Carbon Energy Appraisal

4.1.2 The Low and Zero Carbon Energy Appraisal has concluded that low carbon air source heat pumps and solar photovoltaic panels are the most suitable options for a residential development of this size in this location.

Table of Calculations

4.1.3 As this is an outline application, there are no fixed housetype designs to model so it has not been possible to complete detailed Building Regulation calculations to establish energy performance.

4.1.4 This is something that can be done as part of a subsequent Reserved Matters application once the accommodation schedule and housetypes have been fixed to finalise the specification and demonstrate compliance with Building Regulations, the Future Homes Standard and local policy, specifically Policies D14 and D16 of the LPDMP.

4.2 The Energy Hierarchy

- 4.2.1 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 orientated buildings.

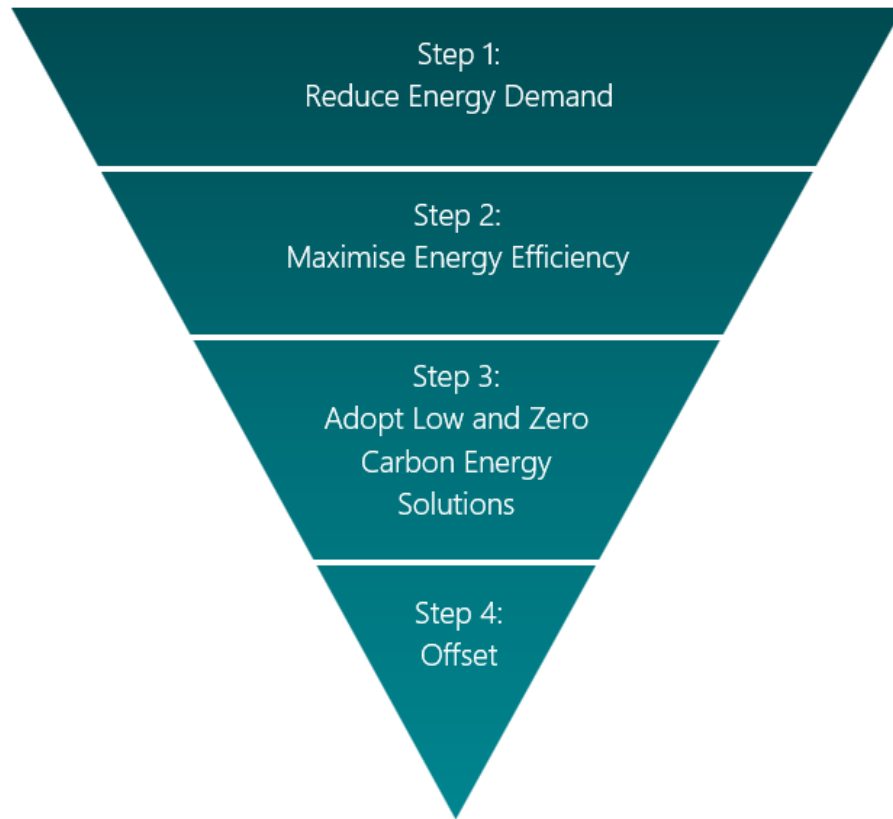


Figure 2: The Energy Hierarchy

4.3 Step 1: Reduce Energy Demand

Site Layout – Orientation and Passive Solar Design

- 4.3.1 The orientation of dwellings, along with the size and location of glazing and the extent of overshadowing, plays an important role in energy performance. Improving a dwelling'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.
- 4.3.2 When a dwelling has a southerly orientation, it 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 the dwelling still benefits as much as possible from sunlight during the winter when the Sun's path is shortened.
- 4.3.3 However, there is a balance to be struck between maximising solar gain and the risk of overheating. Section 7 of this Statement discusses approaches to addressing and managing this risk which align with the requirements of Building Regulations Approved Document O.
- 4.3.4 The proposed layout of the application site will be developed with respect to identified spatial, topological and visual constraints, all of which need to be carefully considered. Within these parameters, a proportion of the dwellings will have a southerly orientation. Furthermore, the relatively low density of the development will ensure appropriate spaces around dwellings, reducing overshadowing.
- 4.3.5 The impact of orientation on the viability of photovoltaic panels is discussed in paragraphs 4.5.8-4.5.9.

Thermal Elements

- 4.3.6 A 'fabric first' building specification will be developed to ensure that the envelope of each dwelling, including the walls, roof, floor, glazing and doors, will be highly energy efficient. This will reduce energy demand and increase comfort.
- 4.3.7 Thermal bridges will be minimised through the application of design details and products that provide continuous insulation, such as insulated lintels.
- 4.3.8 The specification will be confirmed at a later stage in the planning process once housetypes have been finalised and the details of the Future Homes Standard have been announced.
- 4.3.9 In the meantime, Table 2 in Section 4.8 provides an indication of the levels of performance required, including illustrative u-values for different thermal elements.

Air Tightness and Controlled Ventilation

- 4.3.10 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.
- 4.3.11 The current target for the development will be to ensure the dwellings are constructed with a design air permeability level of $5\text{m}^3/\text{m}^2@50\text{Pa}$ or less.
- 4.3.12 Where the as-designed air permeability is less than $5\text{m}^3/\text{m}^2@50\text{Pa}$, 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.
- 4.3.13 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.

4.4 Step 2: Maximise Energy Efficiency

Lighting, Fixtures and Fittings

- 4.4.1 Further energy savings will be made by maximising the efficiency of appliances, lighting, fixtures and fittings.
- 4.4.2 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.
- 4.4.3 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.
- 4.4.4 Taps and shower fixtures and fittings that reduce hot water consumption with low and/or aerated flows will be specified; more detail in relation to potable water management is provided in Section 6.6.

4.5 Step 3: Adopt Low and Zero Carbon Energy Solutions

- 4.5.1 The Low Carbon Heat Distribution Network Appraisal presented in Appendix A concludes that connecting to an existing, or installing a new, heat network would not be the most appropriate solution for this development.
- 4.5.2 It has therefore been necessary to investigate alternative options, and the Low and Zero Carbon Energy Appraisal in Appendix B has concluded that air source heat pumps and solar photovoltaic panels will be the most suitable solution.

Air Source Heat Pumps

- 4.5.3 Air source heat pumps will be installed to provide space and water heating to all dwellings at this development.
- 4.5.4 High quality, well installed units can deliver a seasonal heating efficiency in excess of 320%, significantly reducing both operational costs for occupiers and carbon emissions when compared to gas or direct electric baselines.
- 4.5.5 The heat pump solution will ensure the homes are 'zero carbon ready', setting the development on a trajectory to net zero emissions over time: 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 to 2050:

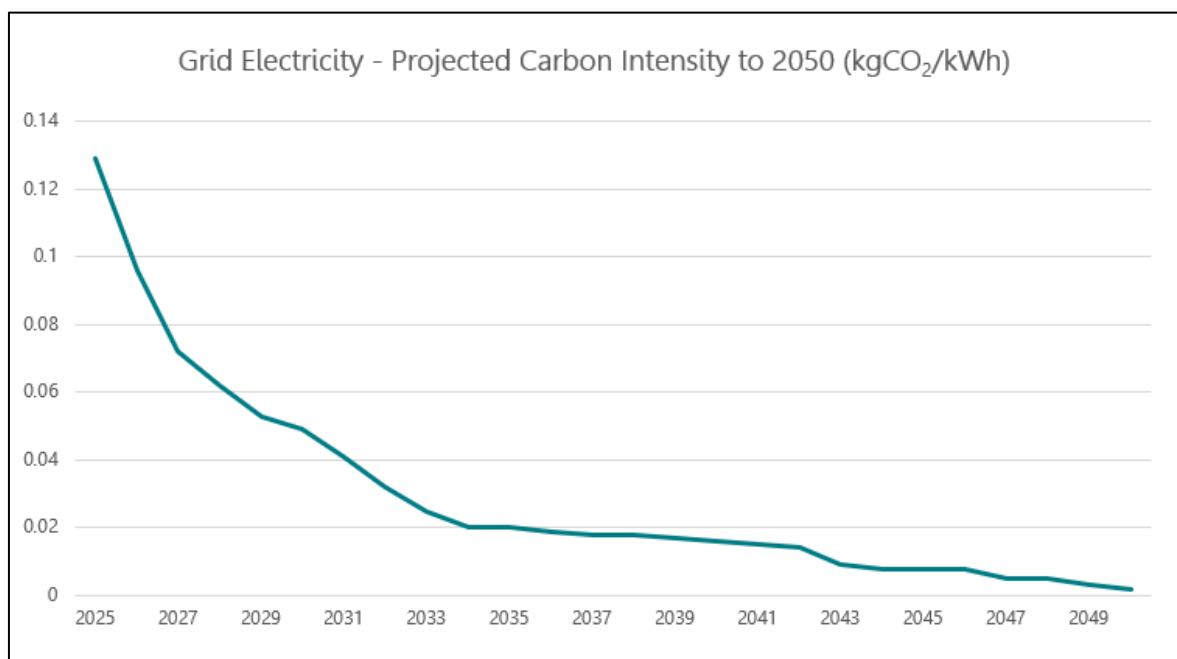


Figure 3: Projected Grid Decarbonisation
(Source: UK Government Green Book, Supplementary Guidance, November 2023)

Photovoltaic Panels

- 4.5.6 Solar photovoltaic (PV) panels will be installed to complement the heat pump solution where required by regulations.
- 4.5.7 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. The designs will seek to minimise or avoid roof features on southerly orientations that significantly limit the installation of PV, such as hipped roofs and dormers.
- 4.5.8 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.
- 4.5.9 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.
- 4.5.10 The quantity of PV installed at each dwelling will align with regulatory requirements and will be determined later in the design process once housetypes have been finalised.

Smart Meters and Control Systems

- 4.5.11 The dwellings will feature smart control systems to help future residents maximise the efficiency of their heating and energy generation systems. These are likely to include highly granular time and temperature zone control and weather compensation. Clear and straightforward system user guides will be provided to incoming residents as part of their welcome packs.
- 4.5.12 Smart meters will also be installed in each property in line with regulations and supplier requirements.

Battery Storage

- 4.5.13 In addition, the introduction of domestic energy storage (battery) systems will be considered where PV is installed, 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.

4.6 Step 4: Offset Carbon Emissions

- 4.6.1 The development will be low carbon from the outset and will become operationally zero carbon overtime in line with the decarbonisation of the Grid. There will therefore not be a need to implement any carbon offsetting programme.

4.7 The Performance Gap

- 4.7.1 Minimising any potential 'performance gap' (the difference between anticipated 'as designed' and actual building performance) will be a key consideration during the construction of the development.
- 4.7.2 Appropriate steps will be taken to optimise actual building performance, including:
- Instructing experienced contractors with a strong track record of high-quality delivery;
 - Providing induction and training to all staff to communicate the required performance targets;
 - Following national guidance, for example the Building Energy Performance Improvement Toolkit (Bioregional);
 - Appointing a nominated individual responsible for the delivery of the energy performance aspect of the construction;
 - Implementing a monitoring and oversight plan to track progress and evaluate quality.

4.8 Indicative Specification: A Summary

- 4.8.1 By adopting the approach to energy outlined in this Section, including the use of low carbon air source heat pumps complemented with solar PV panels where required, the proposed development will comfortably meet the requirements of the Guildford planning policy framework.
- 4.8.2 This approach will also ensure that the development achieves the requirements of current Building Regulations and will be 'zero carbon ready' in line with the emerging Future Homes Standard.
- 4.8.3 The outline nature of this application and the fact that the details of the Future Homes Standard are still being finalised means it is not possible to provide an exact specification for the dwellings. It is also not possible to complete energy compliance calculations to establish energy performance.
- 4.8.4 Table 2 instead provides a summary of the *illustrative* levels of performance which will be applied at the proposed development:

Element Type	Illustrative 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	<5.0m ³ /m ² /hour@50Pa
Ventilation system	dMEV
Heating system	Air source heat pump
Photovoltaic system	High efficiency panels where required by regulations

Table 2: Illustrative Specification Summary

- 4.8.5 The actual specification 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.

Sustainability Statement

5 Natural Resources – Embodied Carbon and Sustainable Waste Management

5.1 Introduction

- 5.1.1 This section discusses how the issue of embodied carbon will be considered at the proposed development in line with the requirements of LPDMP Policy D14, from considered material selection and sustainable waste management through to flexible design solutions.

5.2 Sustainable Building Materials

- 5.2.1 The extraction, manufacturing, refinement and transportation of a raw material will all contribute to its embodied carbon. The sourcing of materials used on the development will therefore be a key consideration:
- Materials derived from recycled, repurposed or reused products will be specified where possible;
 - Low carbon concrete mixes will be considered where appropriate;
 - Less carbon-intensive materials will be used in place of more carbon intensive materials where possible;
 - Robust systems and products with long lifespans will be prioritised;
 - Local suppliers of materials will be used where viable to reduce transportation.
- 5.2.2 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.
- 5.2.3 In addition, the Applicant will use suppliers that have recognised environmentally focused accreditations and management systems such as ISO:14001, and all timber will be sustainably sourced with full FSC or PEFC accreditation.

5.3 Future Flexibility

5.3.1 Later in the design process, the durability, flexibility and adaptability of the dwellings can be considered:

- Ensuring there is synchronicity between materials selected and building life expectancy reduces waste and the need for replacement (and reduces in-use costs);
- Ensuring the building is adapted now to future climate scenarios reduces the need for future intervention (see Section 7);
- Flexible layouts will allow homes to be reconfigured over time to adapt to residents' changing needs.

5.3.2 Designing homes in this way from the outset ensures building longevity and minimises the need for extensive refurbishment which has implications for waste minimisation and embodied carbon.

5.4 Sustainable Waste Management

The Waste Hierarchy

5.4.1 Waste generation, storage, treatment and disposal before, during and after construction will be managed in accordance with the Waste Hierarchy:



Figure 4: The Waste Hierarchy

Demolition Waste

- 5.4.2 It is proposed that the existing structures on the application site will be demolished to make way for the construction of the new development.
- 5.4.3 There will be an opportunity to reduce the environmental impact of waste arising from this process, and to reuse components on the development site in accordance with the different stages of the Waste Hierarchy, identifying:
- Materials to be reused or repurposed on-site with minimal processing;
 - Materials to be reused on-site following some form of processing (for example crushed concrete for aggregates);
 - What can be retained and sold into the wider supply chain for use off-site;
 - Materials to be recycled using licenced waste contractors;
 - What must be disposed of, and how this can be done in the safest and most sustainable way given existing waste management practices.

Construction and Excavation Waste Management

- 5.4.4 During the construction design stage, opportunities for the on-site reuse of materials arising from site clearance and preparations will be identified. The designs will also identify opportunities to maximise the use of reclaimed and recycled materials procured off-site, for example in the sub-base for roads.
- 5.4.5 The sustainable procurement procedures will be followed to ensure that only materials needed are ordered to prevent overordering and unnecessary wastage.
- 5.4.6 A detailed Waste Management Plan (WMP) will be produced ready for the construction phase. This will require all contractors to implement strict waste management processes, including:
- Identifying a key individual responsible for delivering the overall WMP for the development;
 - Management of waste by site operatives through site induction and ongoing training / site talks;
 - Obtaining all appropriate licences from contractors to confirm contractual requirements;
 - Storing materials appropriately to avoid weathering or accidental damage and ultimate wastage;
 - Identifying suitable locations for the separation and storage of waste prior to removal from site to encourage higher levels of recycling;
 - Measuring and reporting waste disposal, reuse and recycling;
 - Identifying additional measures to reduce waste and increase reuse/recycling during the construction process;
 - Scaffolding, hoarding and surplus building materials to be removed from site for use on subsequent construction projects.

- 5.4.7 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.
- 5.4.8 In addition to the above, it will be a contractual 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.
- 5.4.9 The combined impact of these measures will be a reduction in construction waste arising from the proposed site, in accordance with local policy and guidance.

6 Sustainable Design

6.1 Introduction

- 6.1.1 This section sets out the proposed approach to sustainable design and construction at the proposed development, as required by the *Climate Change, Sustainable Design, Construction and Energy SPD*.

6.2 Zero Carbon Development

- 6.2.1 Policy D2 of the LPSS states that the council strongly supports proposals for zero carbon development.
- 6.2.2 The Energy Statement in Section 3 describes the design principles which will be applied at the proposed development to ensure that it is 'zero carbon ready' from the outset, and will continue on a trajectory to net zero emissions by c.2050 in line with the decarbonisation of the National Grid.

6.3 The Energy Hierarchy

- 6.3.1 Section 3 describes how the development designs adhere to the principles of the Energy Hierarchy.

6.4 Building For Life

- 6.4.1 Policy D1 of the LPSS requires that new development complies with the *Building for Life* standards.
- 6.4.2 *Building for Life 12 (2018)* has been replaced by the updated *Building for a Healthy Life (2020)* (BHL) design tool. It reflects changes in legislation and has been written in partnership with Homes England, NHS England and NHS Improvement.
- 6.4.3 BHL includes 12 considerations which are to be used as a starting point for discussions during the design process for new development. A traffic light system can be used to indicate whether the required standard has been achieved in each case: 'green' indicates good practice, 'red' indicates poor practice and 'amber' is given where a particular aspect of a scheme has not been fully resolved but where there is the opportunity to improve the approach as the design process evolves.
- 6.4.4 The designs for the proposed development have been tested against the BHL standards in as much detail as possible at this outline planning stage, and it achieves 'green' for all 12 considerations. The results are summarised in Appendix C.

6.5 Incorporation of Measures that Enable Sustainable Lifestyles for Occupants

Provision of Electric Vehicle Charging Points

- 6.5.1 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.
- 6.5.2 There is therefore a need to provide charging infrastructure to support this wholesale shift to cleaner vehicle technology and this is supported by policy:
- Approved Document S of the Building Regulations sets out the comprehensive standards and detailed specifications required at new residential development;
 - LPDMP Policy ID10 states that new development should provide the EV infrastructure required by Approved Document S as a minimum.
- 6.5.3 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 access to an EV charging point which will need to have a minimum nominal output of 7kW and be fitted with a universal socket.
- 6.5.4 Approved Document S should be referred to for full details including installation requirements, the cost cap and standards for charging points and cable routes.
- 6.5.5 The actual charging provision to be installed on the application site will be investigated at Reserved Matters once the layout is fixed, in line with Approved Document S.

Cycle Parking

- 6.5.6 The proposed properties will include a secure and weatherproof means of cycle storage in line with local requirements and national guidance and regulations.

Public and Shared Transport

- 6.5.7 The Transport Statement which accompanies this application demonstrates that there is good public transport in the vicinity, with bus services running from the nearby bus stops on Guildford Road to nearby towns and villages including Ash, Aldershot, Guildford, Farnborough and Camberley.
- 6.5.8 Regular train services operate from the railway station in Ash, providing access to towns and cities including Guildford and Reading.

Provision of Fibre-to-the-Property

- 6.5.9 Enabling residents to access services and employment from their own homes via high-quality, reliable broadband infrastructure can reduce the need to travel. Indeed, such provision is increasingly viewed as critical to the functioning of a development and its continued attractiveness to incoming residents.
- 6.5.10 The availability of high quality, reliable internet connections also has broader social ramifications, reducing the risk of exclusion from services and enabling people to better connect with society as a whole.
- 6.5.11 The provision at the development will align with *Approved Document R Volume 1 (2022 Edition)* which sets out requirements to ensure that, during construction, new homes are installed with the fastest broadband connections available within a cost cap. Where a gigabit-capable connection is not possible within the defined cost cap, it requires that new homes are future-proofed with physical infrastructure to support gigabit-capable connections when they become available.

Operational Waste Management

- 6.5.12 Property occupants will be encouraged to manage waste sustainably, and this will be considered in full at the Reserved Matters stage.
- 6.5.13 For example, houses will have a private rear garden area with direct external access while any flats will have communal waste storage facilities. These features will 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.
- 6.5.14 Facilities will be easy to access and will be designed in line with the collection regime of the council.

6.6 Water Efficiency

- 6.6.1 In the UK, the national average for water consumption is around 143 litres per person per day (l/p/d) which includes potable water being used for flushing the toilet, washing the car and irrigating gardens:

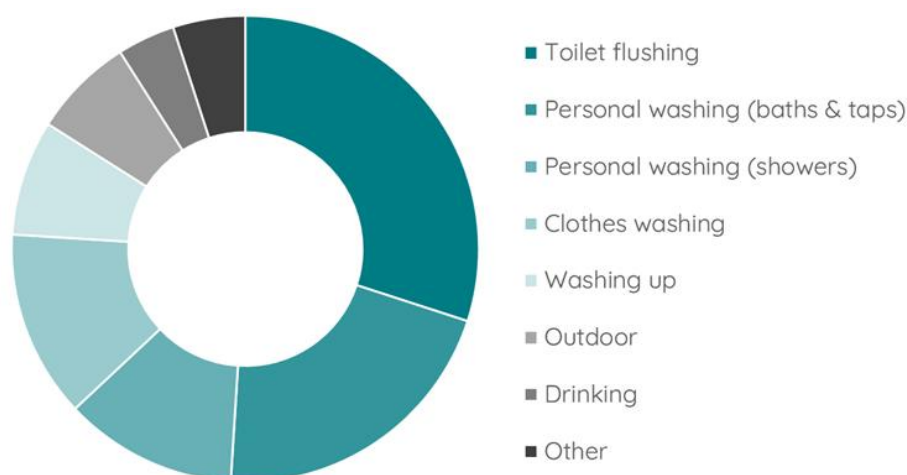
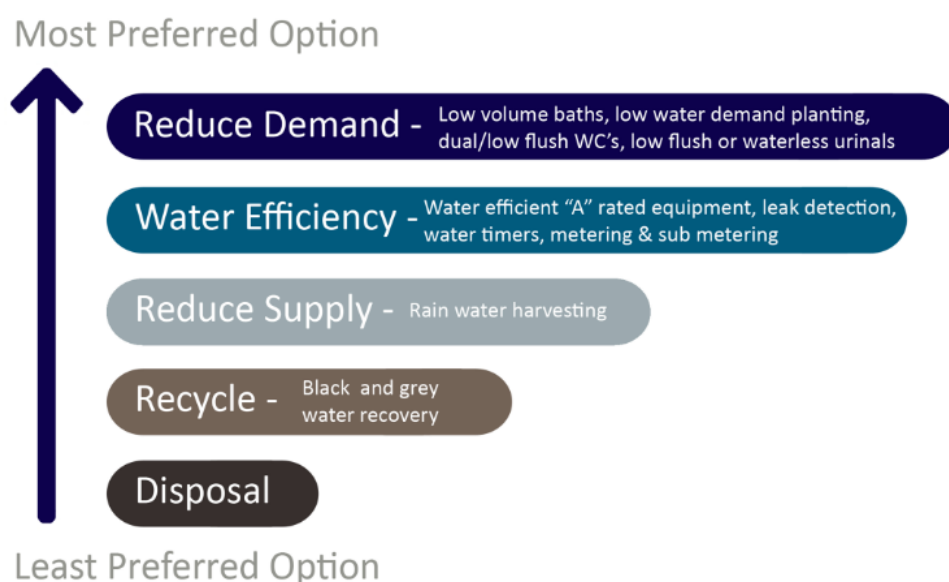


Figure 5: Domestic Water Consumption by End Use (UK)

- 6.6.2 In order to reduce this figure, the management of water at the proposed development will follow the principles of the Water Hierarchy:



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Figure 6: The Water Hierarchy

Water Reduction Measures

- 6.6.1 Water efficiency targets are driven by Approved Document G of the Building Regulations, the enhanced target of which requires new residential developments to achieve a water efficiency equivalent of no more than 110 l/p/d.
- 6.6.2 The dwellings at the proposed development will include water efficient fixtures, fittings and appliances plus rainwater recycling via water butts to ensure that daily water use will be calculated to not exceed the 110 l/p/d target. The following table is an illustrative list of specifications which typically achieve this standard:

	Measure	Unit	Performance / Specification
1	Showers	Litres per minute	10
2	Aerated taps	Litres per minute	3
3	Kitchen sink taps	Litres per minute	4
4	Bath	Litre capacity to overflow	140
5	WC	Litres per flush	4 / 2.6 (dual flush)
6	Washing machine	Litres per kg dry load	7
7	Dishwasher	Litres per place setting	1.08

Table 3: Illustrative Water Specifications

- 6.6.3 The final specification to be applied at the development can be confirmed at detailed design stage, at which point the Approved Document G Water Efficiency Calculator can be used to demonstrate compliance.

7 Climate Change Adaptation

7.1 Adapting to the Future

- 7.1.1 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.
- 7.1.2 This section discusses how the Applicant is addressing the challenges of climate resilience and adaptation at the proposed development in line with the requirements of Policy D2 of the LPSS and Policy D15 of the LPDMP.

7.2 Reducing Overheating Risk Through Design

- 7.2.1 The risk of the overheating of living spaces is of increasing concern, given our knowledge of future climate. Approved Document O details requirements for mitigating this risk in new residential dwellings and methods for demonstrating compliance, including the use of either a compliance checklist or the *CIBSE Guide TM59 Design Methodology for the Assessment of Overheating Risk in Homes* (CIBSE, June 2017).
- 7.2.2 The dwelling designs for the development will undergo overheating risk modelling at the appropriate design stage.
- 7.2.3 Acceptable strategies for reducing overheating risk described in Approved Document O focus on passive design features and include:
- Limiting solar gains:
 - Glazing design including size, orientation, glass g-value and depth of window reveal;
 - Fixed shading devices such as shutters, external blinds, overhangs or awnings;
 - 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.

7.3 The Multiple Benefits of Open Space and Vegetation

- 7.3.1 A large proportion of the overall site area will be provided as green space, and the majority of the existing mature trees and hedgerows will be retained. Additional planting, including shrubs and street trees throughout the development will provide further benefits.
- 7.3.2 This landscape led approach will provide multiple benefits in a changing climate:
- The trees will provide shading in the summer months, reducing heat gain into buildings and therefore reducing the need for mechanical cooling;
 - Trees throughout the application site will also help maintain a comfortable external environment by providing shading in gardens and shared spaces and reducing any urban heat island effect;
 - The trees, hedges and shrubs will contribute to the reduction of wind speeds, improving comfort levels and reducing air infiltration into buildings on windier days;
 - Vegetation sequesters carbon and improves air quality through dry deposition of gases (including NO_x, SO_x, PM₁₀ and O₃);
 - Trees, hedges and shrubs also help reduce levels of ambient noise.
- 7.3.3 This approach will also result in biodiversity gains through ecosystem improvement. The Ecological Appraisal should be referred to for full details in this regard.

7.4 Managing Water in a Changing Climate

- 7.4.1 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.
- 7.4.2 The integration of different Sustainable Urban Drainage (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 45% allowance for the impacts of climate change. Consideration will 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.
- 7.4.3 The Flood Risk Assessment accompanying this application provides full detail in relation to the level of flood risk and management of surface water flows at the application site and should be referred to for full details in this regard.

Summary

8 Summary

- 8.1.1 This *Energy & Sustainability Statement* has been prepared by Daedalus Environmental Limited to accompany an application for outline planning permission for the redevelopment of Land at Shortland Farm, Guildford Road, Ash, Guildford. The application is submitted on behalf of Gleeson Land (the Applicant).
- 8.1.2 The Statement demonstrates a commitment to address the issues of climate adaptation and mitigation, and to facilitate a meaningful shift towards a low and zero carbon future:

Energy Statement

- The buildings will be zero carbon ready from the outset, and will become operationally zero carbon over time, in accordance with Grid decarbonisation projections
- High fabric standards will be specified to maximise thermal efficiency;
- There will be no natural gas connection to the proposed development;
- Heat demand will instead be met using low carbon air source heat pumps;
- Solar photovoltaics will be installed where required to generate renewable energy on site.

Sustainability Statement

Natural Resources – Embodied Carbon and Sustainable Waste Management

- Embodied carbon will be reduced by applying sustainable design principles, including informed material selection and the use of re-used and recycled materials during construction;
- Construction and operational waste will be managed in accordance with the principles of the Waste Hierarchy.

Sustainable Design

- The development proposals comply with the Building for a Healthy Life (2020) standard;
- Accessibility to local services and sustainable transport options will encourage residents to prioritise active travel and public transport over private car use;
- Comprehensive electric vehicle charging infrastructure will be incorporated in line with regulatory requirements
- High water efficiency standards will be achieved through considered design.

Climate Change Adaptation

- The development designs will anticipate future changes in the climate;
- Overheating risk will be reduced through passive design features;
- Surface water will be managed with the integration of SuDS;
- 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.

8.1.3 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 will be provided at the Reserved Matters stage.

Appendices

9 Appendix A – Low Carbon Heat Distribution Network Appraisal

9.1 Introduction

- 9.1.1 Policy D16 of the LPDMP states that the development of low and zero carbon and decentralised energy, including low carbon heat distribution networks, is strongly supported and encouraged.
- 9.1.2 If a proposed development is in the vicinity of an existing low carbon heat distribution network, then it should either connect to the network or be 'connection-ready' to enable future connection.
- 9.1.3 Alternatively, if a proposed development is within an identified Heat Priority Area, or is "sufficiently large or intensive", then the option of a low carbon heat network as the primary source of heat should be given adequate consideration.
- 9.1.4 To align with this requirement, the feasibility of installing a low carbon heat network has been assessed for the proposed application site and the results are summarised below.

9.2 Developments within the Vicinity of Existing Heat Networks

- 9.2.1 Desk top research has been undertaken to establish the proximity of the application site to existing district heating networks. This includes a review of the following sources:
 - Guildford Borough Council Renewable Energy Mapping Study (Guildford Borough Council, CSE) which was completed in 2015;
 - The *BEIS: Heat Networks Planning Database* (Updated 13 February 2024) and the *DESNZ: Heat Networks Planning Database* (Updated 29 August 2025) which provide a picture of both district and communal heat network deployment across the UK;
 - Recent planning applications to Guildford Borough Council.
- 9.2.2 Figure 7 shows a map of the existing and planned heat networks in Guildford according to the above research, using an adapted map from the DESNZ database. As this shows, there are no existing networks in the vicinity of the proposed application site.

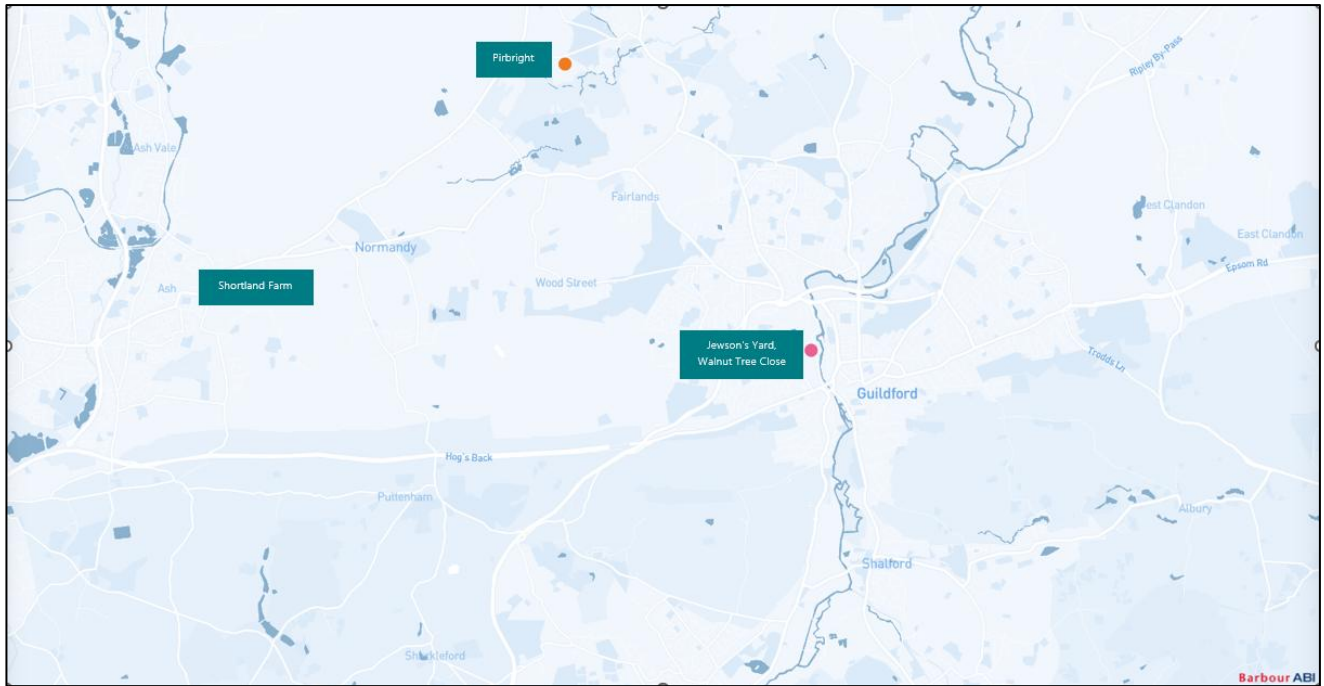


Figure 7: Existing and Planned Heat Networks in relation to Shortland Farm
Adapted from Heat Networks Planning Database (DSNEZ and Barbour ABI)

9.3 Developments Within Heat Priority Areas

- 9.3.1 The Heat Priority Areas in Guildford borough are centred around Guildford town centre as shown in Figure 8. The proposed application site therefore sits some way from these Heat Priority Areas and therefore connection is not viable on either technical or financial grounds.

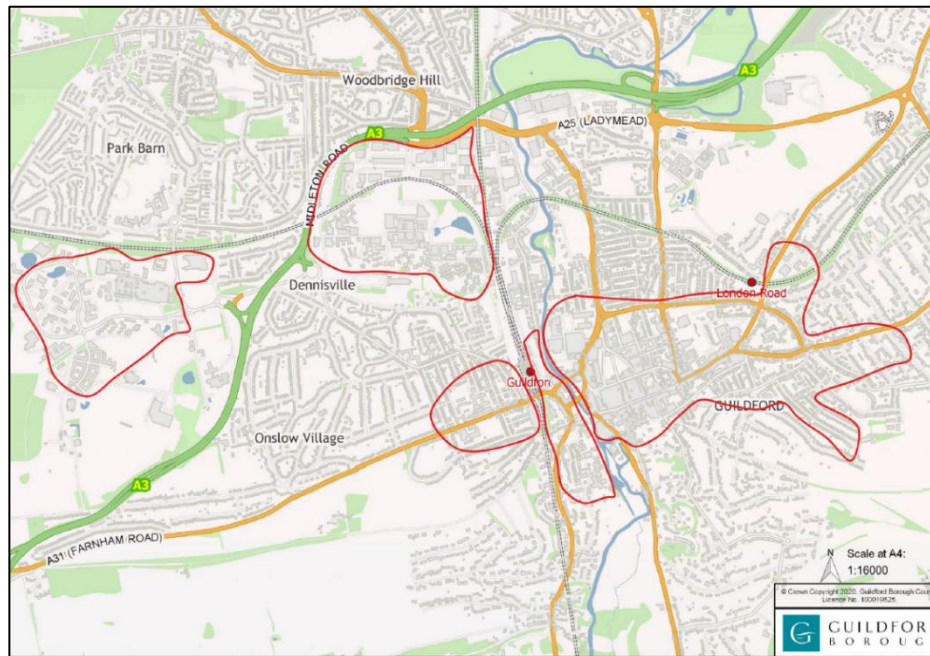


Figure 8: Heat Priority Areas (Guildford Borough Council)

9.4 'Sufficiently Large or Intensive Developments'

- 9.4.1 As a small residential development, this proposed site is neither 'sufficiently large' or 'intensive'. The introduction of a low carbon heat network is therefore not considered viable for this development:

- The infrastructure costs required would be disproportionately high for a relatively low-density development;
- Technical viability of a decentralised system would be 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);
- Low density developments of this kind are not typically subject to long-term agreements which lock residents into one heat network. There are therefore concerns about the market viability and attractiveness to residents of such an arrangement and the appropriate consumer protections that would be required.

9.5 Heat Networks - Conclusion

- 9.5.1 Whilst it is recognised that in the right scenario a low temperature heat network that adopts water to water heat pump technology in buildings is a compelling solution for heat supply, it is not proposed that this option is pursued for this development for the reasons outlined above.
- 9.5.2 Instead, the proposed hierarchy of solutions presented in this document represent a low risk, proven, cost competitive approach that will deliver net zero carbon homes over time as the Grid decarbonises, and will provide energy affordability for all residents within the new development.

10 Appendix B: Low and Zero Carbon Energy Appraisal

- 10.1.1 In line with the requirements set out in the *Climate Change, Sustainable Design, Construction and Energy SPD*, the appraisal provided below has considered 'all reasonable options' for renewable and low carbon energy provision at the application site, assessing the feasibility of each in turn.
- 10.1.2 The technologies which are considered reasonable on a site of this size and in this location, and which have therefore been subject to this appraisal are:
- Ground source heat pumps (GSHP);
 - Air source heat pumps (ASHP);
 - Solar photovoltaic (Solar PV);
 - Energy storage (battery) technologies;
 - Solar thermal;
 - Small scale wind turbines;
 - Biomass heat and power.
- 10.1.3 As this is an outline planning application, the appraisal is, by necessity, high level.
- 10.1.4 However, based on the current analysis, ASHPs and solar photovoltaic (PV) panels are both proven technologies which are considered the most viable solutions in this location.

	Considerations	Advantages	Disadvantages	Feasibility	Conclusion
GSHP	Require appropriate ground conditions for piping which is either buried in loops in trenches, or vertically in boreholes. Operative very efficiently to provide low carbon heating and hot water to dwellings. Require an immersion heater back up system to ensure domestic hot water all year round.	Run on electricity, enabling them to benefit from the continued decarbonisation of the Grid over time. Do not combust fuels directly so have no detrimental impact on local air quality. Can be used in conjunction with locally installed renewable energy technology e.g. PV.	Expensive, disruptive installation requirements. Large area required for installation of coil systems, borehole based systems can be higher in cost. Coils can be damaged by intensive gardening.	Cost £24000-£49000 Energy Saving Trust). CO₂ saving approx. 3000kg per year compared to an A rated gas boiler.	This is not considered viable in this location.
ASHP	Use electricity very efficiency to provide low carbon heating and hot water to a dwelling. Well suited to maintaining constant temperatures in properties with an efficient thermal envelope. Require an immersion heater back up system to ensure domestic hot water all year round.	Run on electricity, enabling them to benefit from the continued decarbonisation of the Grid over time. Do not combust fuels directly so have no detrimental impact on local air quality. Can be used in conjunction with locally installed renewable energy technology e.g. PV.	Noise and vibrations from the external unit are possible but placing it away from the property overcomes this issue.	Cost £6000-£12000 per dwelling. CO₂ saving approx. 3000kg per year compared to an A rated gas boiler	This is considered viable in this location.
Solar PV	The average house with 28m² roof could have up to c.4kWp system installed. Work most effectively on south facing roof with 30-45 degree pitch. However, east/west systems are also very effective.	Electricity generated can be used on site and any surplus can be exported to the Grid (with appropriate licences). If installed with battery storage then provides greater efficiencies. Low/zero maintenance costs.	Can be considered visually unappealing if not installed 'in-roof'. Output is reduced where orientation is sub-optimal.	Cost £5000-6000 per 4kWp system. Approximately 900kWh/kWp yearly output in this location. CO₂ saving dependent on system size but given current carbon intensity of Grid c.125kg/kWp.	This is considered viable at this location.

Energy Storage (Batteries)	Building level energy storage linked to solar generation offers significant value both to Grid infrastructure and the householder in terms of maximising value of energy generated and capitalising on innovative tariffs. Space within building designs will need to be allocated to enable storage to be located wherever PV is installed.	Offers significant added value to energy generated at building level, and can be specified to optimise energy use and minimise costs. Enables building owners to benefit from time of use tariffs in the future. Widely available technology. Helps reduce impact of new development on Grid infrastructure	Comes at additional construction cost. Will need replacement to maintain performance after 12-15 years. Requires access and space in the property.	Depending on dwelling and PV array size systems optimised between 5 and 15kWh capacity. Supply costs will vary between £2,500 and £9,000 depending on the system, although this can be considerably reduced through bulk developer purchase for new build development.	This is considered viable in this location.
Solar Thermal	Require suitable roof orientation, working most effectively on south facing roof with 30-45 degree pitch.	Can provide 50-60% of a dwelling's annual hot water demand	Performance is limited by the demand for hot water in the dwelling. Annual maintenance costs significantly higher than for solar PV.	Cost £4500 on average (Solar Trade Association). Output depends on the size of the system and associated demand for hot water. Typically 400kWh heat energy is generated per m² of collector area in this location.	This is considered viable in this location. However, the cost/benefits associated with solar PV in respect of energy generated, energy bill savings and carbon emissions are significantly better.
Small Scale Wind	Turbines of approximately 0.5-2.5kW can be roof mounted on individual dwellings. Require wind speed minimum of 5 meters per second	Electricity generated can be used on site and any surplus can be exported to the Grid (with appropriate licences).	Aesthetic considerations and planning restrictions often prevent installation. Nearby buildings and trees can affect wind speed thus reducing performance.	Cost per 0.5-2.5kW roof mounted turbine - £3000 (EST) plus annual maintenance. Approx. 1750kWh yearly output. Average windspeed at GU12 6DF at 8m is 4.2 meters per second (www.rensmart.com). Trees around the site may reduce this figure.	Not considered viable in this location.

Biomass	Low carbon fuel source, generating heat from biofuels such as wood chip, wood pellets or biodiesel. Systems require a back up fuel source in case of interruption of supply.	Very low carbon, where sourced locally and from a sustainable supply.	High levels of NOx gases are emitted from biomass boilers. Require fuel deliveries and adequate and accessible storage of large quantities of fuel. Inadequate and robust supply chains to serve domestic properties. Running costs similar to natural gas.	Cost £9000-£21000 approximately.	Not considered viable in this location.
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11 Appendix C: Building for a Healthy Life High Level Assessment

BHL Consideration	Proposal	
Integrated Neighbourhoods		
Natural Connections	The proposed development has been designed to respect and enhance the landscape character of the local area so it can fully integrate into its surroundings, providing appropriate access and respecting existing land uses and the wider context of the site. This includes consideration of the existing residential properties to the north, east and west. Areas of greenspace and boundary trees and hedgerows contribute to the visual integration with the local landscape, enabling a sensitive transition between the settlement and the surrounding rural area.	G
Walking, Cycling and Public Transport	The proposed development will be linked by a network of connections which will follow a sustainable movement hierarchy. The development will connect into the existing pedestrian infrastructure and active travel connections currently found on Guildford Road and will incorporate Public Footpath 356 which crosses the application site, running west from Wyke Lane and adjoining fields towards Harpers Lane and the new housing developments beyond before reaching Ash Railway Station. The accessibility of the application site is described in detail within the Transport Statement which accompanies this application.	G
Facilities and Services	There will be both formal and informal open space for the enjoyment of residents, encouraging healthy living and social interaction. Each dwelling with associated parking will have access to EV charging, while all properties will include an FTTP connection in line with regulations. A range of services and facilities are available within the village of Ash which is immediately to the west of the application site. A railway station, church, pubs, several convenience stores and a recreation ground are all within easy walking and cycling distance. The number and types of refuse and recycling bins provided for each property will comply with the requirements of Guildford Borough Council. The refuse provision will be primarily in the form of bins kept in rear gardens with rear access or within garages.	G
Homes for Everyone	The proposals are designed to meet local housing needs and will include a housing mix to align with local policy. The illustrative masterplan includes 1-5-bedroom houses and apartments and 3-bedroom bungalows. 50% of the properties will be affordable units, and the development will align with Policy H1 in terms of accessible homes (M4(2) category and M(4)3 category).	G
Distinctive Places		
Making the Most of What's There	The parameter plan for the development respects the topography of the application site and is designed around existing features of value, including boundary vegetation, areas of lowland acid grassland and the existing footpath that runs through the site. The drainage strategy for the application site has been designed with due regard for the site topography and existing landscape features.	G

	A Demolition Audit will be completed to ensure that opportunities to reduce the environmental impact of waste arising from the demolition of the existing buildings/areas of hardstanding, and to reuse components on the development site in accordance with the different stages of the Waste Hierarchy are identified. The illustrative layout ensures sufficient space around dwellings, reducing overshadowing and increasing opportunities for natural lighting and ventilation.	
A Memorable Character	The illustrative layout of the development has drawn inspiration from the local area to ensure the buildings and landscaping design integrate well with the surroundings. The retained trees and hedges within the application site provide character to the area and will help create a welcoming, landscape-led environment. An open central view corridor will allow provide views towards the Surrey Hills National Landscape to the south.	G
Well-Defined Streets and Spaces	The dwellings, parking and landscaping will be arranged to respond to the local vernacular and enhance the street character. Street views will be addressed by distinct buildings, and the layout will ensure routes and spaces are attractive.	G
Easy to Find Your Way Around	A clear hierarchy of routes and network of spaces will be designed to maximise connections and address way finding.	G
Streets for All		
Healthy Streets	A network of footpaths along streets and lanes and within the open space areas will provide a variety of safe routes within a pedestrian and cyclist friendly residential environment. Footpath links provide connectivity to Public Footpath 356 which passes through the application site from Wyke Lane on the eastern boundary in a westerly direction and in turn provides connection to the wider footpath network in the surrounding area. Footpaths along the primary and secondary streets ensure good accessibility to all homes for people with mobility issues. Cycling on streets and lanes within the development will be on carriageway where traffic speeds will be restricted by design to a maximum of 20mph. Pedestrian routes through the extensive areas of open space offer recreational opportunities for residents and the local community. The extensive greenspaces will provide a green framework for play, informal recreation and naturalistic Sustainable Drainage Systems (SuDS). The greenspaces and tree and shrub planting throughout the development will help to maintain comfortable temperatures in hot weather, providing shading and reducing any urban heat island impact. There will be no natural gas connection to the application site, and therefore no localized air pollution from gas boilers - heating and hot water demand will be met from low and zero carbon technologies	G
Cycle and Car Parking	A combination of on-plot parking (garages and driveways) and on-street parking with carefully positioned landscape features will reinforce the landscape-led character of the	G

	development. Cycle storage will be provided in either garages, lockable sheds or secure communal parking. All parking provision will be confirmed at Reserved Matters and will be in accordance with local requirements.	
Green and Blue Infrastructure	A large proportion of the overall site area will be provided as green space, including lowland acid grassland, neutral grassland and wetland meadow. The majority of the existing mature trees and hedgerows will be retained and enhanced. Additional planting, including shrubs and street trees throughout the development will provide further benefits.	G
Back of Pavement; Front of Home	The private gardens will be clearly defined with strong boundary treatments. There will be sufficient space for bins and composting facilities, keeping waste storage away from the public domain.	G

Completed on behalf of:

Gleeson Land

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