DAEDALUS ENVIRONMENTAL

Land West of King Business Centre, Reeds Lane, Sayers Common

Energy & Sustainability Statement

November 2025

Contents

1 Introduction

1.1 This Statement

1.1.1 This *Energy & Sustainability Statement* supports the detailed planning application for the proposed residential development on Land West of King Business Centre, Reeds Lane, Sayers Common within Mid Sussex District. It has been commissioned by Reside Holdings Ltd (the Applicant).

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 and guidance, including the *Mid Sussex District Plan 2014-2031 (Adopted March 2018)*, the *Position Statement 1: Delivering Sustainable Development in Mid Sussex (Draft October 2025)* and current Building Regulations whilst looking ahead to the proposed Future Homes Standard, details of which are due to be announced later in 2025.

1.1.3 In particular, this Statement describes how the development proposals address sustainability, with a focus on climate change mitigation and adaption:

Energy Efficiency and Low Carbon Energy

- The dwellings will be 'zero-carbon ready', and will be futureproofed to become operationally zero carbon over time;
- 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.

Water Efficiency

- Potable water use demand from the mains network will be dramatically reduced compared to a standard development through the adoption of water efficient fixtures and fittings, alongside the installation of rainwater harvesting systems.

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

- Electric vehicle charging infrastructure will be incorporated in line with the requirements of Approved Document S;
- The homes will be fitted with the fastest broadband connections available locally within a cost cap as required by Approved Document R.

Embodied Carbon and Sustainable Waste Management

- The adoption of sustainable design and construction principles will reduce the embodied carbon of the development;
- 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 stage in the planning process. Where specifics are not available, the overall approach and design standards have been laid out to ensure that the sustainable quality of construction remains high throughout the lifetime of the development.

1.2 Site Description

1.2.1 The Site is located on the western edge of Sayers Common, to the north of Reeds Lane. It currently comprises a field parcel with boundary trees and hedges to the north, south and west.

1.2.2 It is bound by woodland to the north, a band of woodland and an agricultural field to the west, Reeds Lane and the DPSC3 draft allocation to the south, and King Business Centre and consented residential development for 38 dwellings to the east (Ref: DM/22/0640).

1.3 Description of Development

1.3.1 The detailed planning application has the following formal Description of Development:

Erection of 80 new residential dwellings (Use Class C3), including affordable housing units, vehicular, pedestrian and cycle access (including new footpath links to the east and west of the site along Reeds Lane), landscaping and open space, parking, sustainable drainage and other related works.

1.3.2 The image below shows the Site Layout. Detailed Site Layouts are provided in the appendices.

Figure 1: Site Layout (ECE Architecture)

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 commits the UK government to reducing greenhouse gas emissions by at least 100% of 1990 levels 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.

2.1.9 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

2.1.10 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.

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

2.1.12 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.

2.1.13 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.

2.1.14 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^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)

2.1.15 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.

2.1.16 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.

2.1.17 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).

2.2 Local Planning Policy

Mid Sussex District Plan 2014-2031 (Adopted March 2018)

2.2.1 The Mid Sussex District Plan sets out Mid Sussex District Council's (MSDC) spatial vision, key objectives and overall principles for development in the district. It forms the main basis for assessment in planning terms and this Statement has therefore been designed to address its requirements.

2.2.2 'Protecting and enhancing the environment' is a priority theme within the Strategic Objectives for the District Plan, including resource efficiency, climate adaptation, protecting green infrastructure and promoting sustainable transport networks.

2.2.3 Policy extracts from the District Plan which are of most relevance to this document are provided within the following table:

Policy	Extract
DP21	Transport (...) Where practical and viable, developments should be located and designed to incorporate facilities for charging plug-in and other ultra-low emission vehicles. (...)
DP23	Communication Infrastructure (...) The Council will encourage the incorporation of digital infrastructure including fibre to premises, in major new housing, employment and retail development. (...)
DP39	Sustainable Design and Construction (...) All development proposals must seek to improve the sustainability of development and should where appropriate and feasible according to the type and size of development and location, incorporate the following measures: • Minimise energy use through the design and layout of the scheme including through the use of natural lighting and ventilation; • Explore opportunities for efficient energy supply through the use of communal heating networks where viable and feasible; • Use renewable sources of energy; • Maximise efficient use of resources, including minimising waste and maximising recycling/ re-use of materials through both construction and occupation; • Limit water use to 110 litres/person/day in accordance with Policy DP42: Water Infrastructure and the Water Environment; • Demonstrate how the risks associated with future climate change have been planned for as part of the layout of the scheme and design of its buildings to ensure its longer term resilience.
DP41	Flood Risk and Drainage (...) Sustainable Drainage Systems (SuDS) should be implemented in all new developments of 10 dwellings or more, or equivalent non-residential or mixed development unless demonstrated to be inappropriate, to avoid any increase in flood risk and protect surface and ground water quality. (...). SuDS should be sensitively designed and located to promote improved biodiversity, an enhanced landscape and good quality spaces that improve public amenities in the area, where possible.
DP42	Water infrastructure and the Water Environment (...) Building Regulations – Part G applies to all new residential development in the district. Development must meet the following water consumption standards: • Residential units should meet a water consumption standard of 110 litres per person per day (including external water use); • Non-residential buildings should meet the equivalent of a 'Good' standard, as a minimum, with regard to the BREEAM water consumption targets for the development type.

Mid Sussex District Plan 2021-2039 Submission Draft (Regulation 19)

2.2.4 MSDC are currently preparing a new District Plan which will contain a suite of new policies to guide development in the area.

2.2.5 The Regulation 19 Pre-Submission Draft Local Plan was submitted to the Planning Inspectorate for examination in July 2024. Following examination hearing sessions in October 2024, the appointed Inspector wrote to the Council to advise that it was possible that the Plan would be failed on Duty to Cooperate grounds.

2.2.6 At the time of writing, the Plan remains at examination. However, given the Inspector's post hearing findings, the Council cannot currently give more than limited weight to the draft Plan when determining relevant planning applications.

2.2.7 The proposed Site is a draft allocation in the emerging District Plan under Policy DPSC6.

Mid Sussex Design Guide Supplementary Planning Document (Adopted November 2020)

2.2.8 The Mid Sussex Design Guide has been produced to influence the quality of developments across Mid Sussex district. It has been adopted as a Supplementary Planning Document (SPD) and is therefore of material consideration in the determination of planning applications.

2.2.9 A key objective of the Design Guide is to encourage sustainable design and construction, and it includes the following principle of relevance to this Statement:

Principle	Extract
DG37	Deliver high quality buildings that minimise their environmental impact (…) The Council welcomes innovative and inventive designs that respond to the sustainability agenda by minimising the use of resources and energy both through building construction and after completion. Applicants must demonstrate how this has informed their design and should consider in particular: • Orientation and design of buildings and roofs to maximise daylight / sunlight penetration and solar gain, whilst also avoiding overheating; • The use of green roofs or walls to reduce storm water run-off, increase sound-proofing and biodiversity; • The use of materials with low embodied energy (for example, renewably sourced timber and recycled materials); • The use of sustainable materials that are locally sourced wherever possible; • Incorporating high levels of insulation (in combination with air tightness and temperature control systems) including the use of materials with a high thermal mass, such as stone or brick, which store heat and release it slowly; • Incorporating renewable energy including photovoltaics, solar thermal water heating, ground and air source heat pumps; • The use of low flow technology in water fittings, rainwater harvesting systems and grey water recycling systems to reduce water consumption to 110 litres/person/day (maximum); and • Laying out development to support identified opportunities for decentralised renewable or low carbon energy systems. Further guidance is provided by District Plan policy DP39: Sustainable Design and Construction.

Hurstpierpoint and Sayers Common Neighbourhood Plan (Made March 2015)

2.2.10 The Hurstpierpoint and Sayers Common Neighbourhood Plan does not contain any policies of direct relevance to this Statement.

Position Statement 1: Delivering Sustainable Development in Mid Sussex (Draft – October 2025)

2.2.11 This Position Statement outlines MSDC's approach to delivering sustainable development. It has been approved by the Council and is a material consideration in the determination of planning applications during the period until a new District Plan for Mid Sussex is adopted.

2.2.12 It sets out eight principles which have been developed to reflect the chapters of the Submission Draft District Plan, including Principle 1: Sustainability which has the following overarching objective:

To ensure development takes an integrated and holistic approach to addressing the causes of climate change and to increase resilience to the effects of climate change by including mitigation and adaptation measures, and to ensure development enables and supports healthy lifestyles and addresses health and wellbeing needs.

2.2.13 Principle 1 includes a set of requirements to be applied to new developments alongside those contained in the adopted District Plan, including the following:

- Development will be expected to integrate measures to reduce carbon and other greenhouse gas emissions in its design, construction, operation and use, and to maximise opportunities for carbon sequestration including protecting carbon sinks and stores.
- Development will be expected to be designed to minimise vulnerability from the effects of climate change particularly in terms of overheating, flood risk and water supply. This includes incorporating green and blue infrastructure and nature-based solutions to moderate surface and air temperatures.
- Development must be positively planned to minimise its impact on water resources in order to provide resilience against the impacts of climate change including security of water supply. Development will be expected to achieve sustainable water consumption rates through incorporation of measures to reduce water use and reuse water such as water efficient fittings and appliances, rainwater harvesting, including incorporation of water butts, and greywater recycling.
- Development will be expected to follow the energy hierarchy to reduce energy use: i) minimise the demand for energy, ii) maximise energy efficiency, iii) utilise renewable energy.

2.2.14 Principle 5: Transport includes requirements for electric vehicle charging as follows:

- Electric vehicle (EV) charging facilities (including rapid and ultra-fast) should be provided in accordance with the WSCC Guidance on Parking at New Developments 2020 and subsequent iterations, the Mid Sussex Design Guide SPD, Schedule 1 Part S of the Building Regulations regarding Electric Vehicle Charging and the most up-to-date WSCC EV Charging Strategy

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

2.2.15 This guidance document includes standards for electric vehicle charging on new developments as follows:

<table>
<tr><th>Principle</th><th>Extract</th></tr>
<tr><td>B</td><td>Electric Vehicle Charging Infrastructure
4.7 ‘Active’ charging points for electric vehicles should be provided at a minimum of 20% of all parking spaces with ducting provided at all remaining spaces where appropriate to provide ‘passive’ provision for these spaces to be upgraded in future.</td></tr>
<tr><td>n/a</td><td>Electric Vehicle Charging Overarching Guidance (…)
4.20. The values in Table 2 include provision of EV spaces at new residential developments. To allow for increased sales in EVs over time and an increasing proportion of the overall vehicle fleet, it is proposed that current base levels of EV car sales in West Sussex be used as an index to base levels of active provision for EVs at new developments as set out in Principle B.
4.21. The Government’s ‘Road to Zero Strategy’ sets out an ambition for at least 50% — and as many as 70% — of new car sales to be ultra-low emission by 2030, alongside up to 40% of new vans. Taking a starting percentage of 20% active EV provision and using a linear growth between 2018 and 2030, produces a set of yearly EV provision indexes as set out in Appendix B. These values should be used as a guide to the level of ‘active’ EV spaces to be provided in the year of construction.
4.22. As the demand for electric vehicle charging points is expected to change rapidly over time, any standard for electric vehicle charging points is likely to become quickly out of date. Therefore, there is no specific standard for electric vehicle charging points but developers should consider the Guiding Principles when designing parking provision. This guidance will be subject to review in line with the development of technology and relevant legislation.
Appendix B: Electric Vehicle Space Allocations
<table>
<tr><th>Year</th><th>% Growth Index</th><th>% Spaces for Active EV Charging Facilities</th></tr>
<tr><td>2018</td><td>0</td><td>20</td></tr>
<tr><td>2019</td><td>4</td><td>24</td></tr>
<tr><td>2020</td><td>8</td><td>28</td></tr>
<tr><td>2021</td><td>13</td><td>33</td></tr>
<tr><td>2022</td><td>17</td><td>37</td></tr>
<tr><td>2023</td><td>21</td><td>41</td></tr>
<tr><td>2024</td><td>25</td><td>45</td></tr>
<tr><td>2025</td><td>29</td><td>49</td></tr>
<tr><td>2026</td><td>33</td><td>53</td></tr>
<tr><td>2027</td><td>38</td><td>58</td></tr>
<tr><td>2028</td><td>42</td><td>62</td></tr>
<tr><td>2029</td><td>46</td><td>66</td></tr>
<tr><td>2030</td><td>50</td><td>70</td></tr>
</table>
</td></tr>
</table>

2.2.16 The WSCC Guidance also outlines the County Council’s approach to encouraging and facilitating the use of sustainable modes of transport on new developments. This is discussed in further detail in the Transport Strategy accompanying this application.

Additional Planning Policy Documents and Commitments

2.2.17 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 Energy Efficiency and Low Carbon Energy

3.1.1 This section describes how the proposed development will balance solar gain against overheating risk, explains how energy use will be minimised through efficient construction detailing and outlines the preferred low carbon solution to meet heating and hot water demand.

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

3.1.3 Furthermore, it will ensure that the development comfortably achieves the requirements of District Plan Policy DP39, Mid Sussex Design Guide SPD Principle DG37 and Position Statement 1, Principle 1.

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 line with the requirements of Position Statement 1, Principle 1.

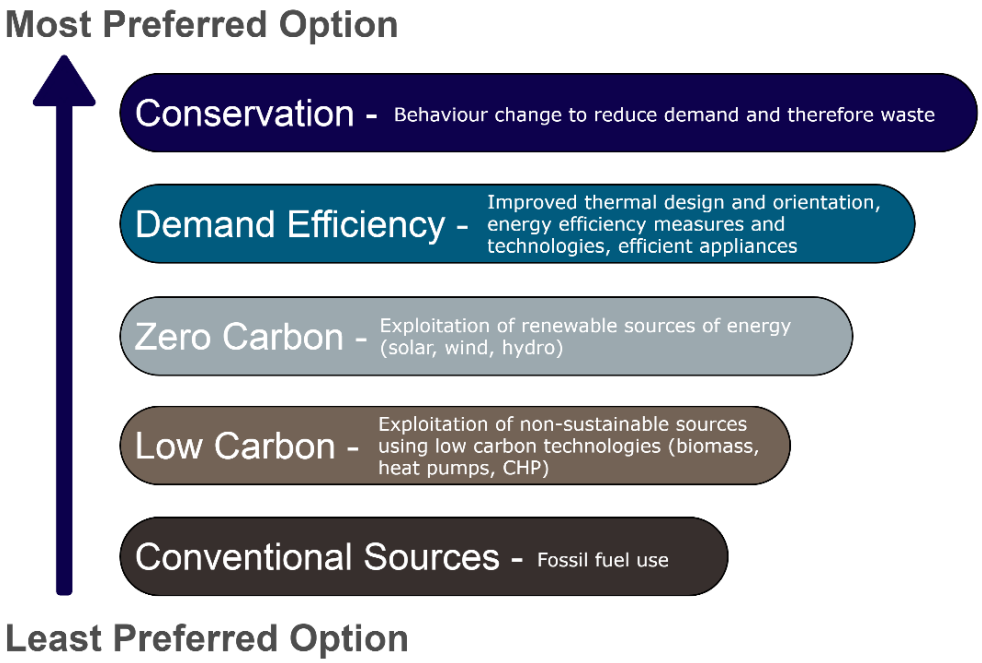

Figure 2: The Energy Hierarchy

3.3 Property Orientation and Passive Solar Design

3.3.1 The proposed layout of the Site has been 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 have a south-easterly, a southerly or a south-westerly orientation. This will ensure that they are able to benefit from the heat and light of the sun during the day from mid-morning to mid-afternoon, thus reducing the requirement to use fuels to perform the same function.

3.3.2 Furthermore, the relatively low density of the development will ensure appropriate spaces around dwellings, reducing overshadowing.

3.3.3 Section 3.7 of this Statement discusses the impact of property orientation on the viability of solar photovoltaic panels which may be required, subject to the prevailing regulatory requirements which will apply to the development at the point of construction. Section 5.2 discusses approaches to addressing and managing overheating risk.

3.4 Highly Efficient Building Envelope

Thermal Insulation

3.4.1 A 'fabric first' approach to building specification will be established, ensuring the building envelope of each dwelling (including the wall, roof, floor, glazing and doors) will be highly energy efficient, minimising energy demand and increasing comfort.

3.4.2 The proposed u-values for different thermal elements are provided in Table 2 in Section 3.9.

Thermal Bridging

3.4.3 Construction detailing in respect of insulation will seek to minimise the creation of thermal bridges which can have a significant impact on heat loss and thermal bypass.

3.4.4 Approved Document L (2021) includes best practice guidance and requirements for ensuring continuity of insulation, and 'Thermal Bridging Option 2' within that document is a recommended route to ensuring heat losses through thermal bridging are minimised.

Air Tightness

3.4.5 The air tightness of a building is important in reducing heat loss and in the prevention of draughts. The target for the development will be to ensure that the properties are built with a design air permeability level of less than $5m^3/m^2$@50Pa. The energy compliance calculations presented in Section 3.10 are based on an air permeability level of $3m^3/m^2$@50Pa.

3.4.6 This will help reduce the size of the required heating systems, thus reducing energy use and carbon emissions. Other benefits include the reduction in the risk of interstitial condensation,

improving the buildings' lifespan and reducing sound transmission through the building structure.

Controlled Ventilation

3.4.7 All ventilation will be in line with the requirements of Approved Document F.

3.4.8 As a lower density development, the houses and the flats will benefit from natural ventilation via openable windows. This will enable rapid purges of air to maintain good levels of internal air quality when required.

3.4.9 The houses will also have mechanical extract ventilation: the energy compliance calculations provided in Section 3.10 currently assume a whole house Mechanical Ventilation Heat Recovery (MVHR) system, which is recommended on the basis of its energy saving impact and its technical efficacy when dealing with the low levels of air permeability described above. The final choice of system will be dependent on detailed recommendations from the developer's M&E consultant to be fixed at the time of construction.

3.4.10 The flats will each feature an exhaust air heat pump which combines heating, hot water and whole property ventilation (see Paragraph 3.6.2-3.6.3 for further details).

3.5 Lighting, Fixtures and Fittings

3.5.1 All internal and external fixed electric lighting will be highly efficient in line with Building Regulations to minimise lifetime energy use and associated emissions.

3.5.2 All appliances where installed will be high efficiency, further minimising the use of both electricity and hot water. There will be space in all gardens for clothes drying to discourage the use of tumble dryers.

3.5.3 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 4.

3.6 Space and Water Heating

3.6.1 Each of the houses on the development will be fitted with an air source heat pump (ASHP) to provide space and water heating. High quality, well installed ASHP units using lower flow temperatures in efficient buildings can deliver a Seasonal Coefficient of Performance (SCOP) which exceeds 320%. This significantly reduces both operational costs for occupiers and carbon emissions when compared to gas or direct electric alternatives.

3.6.2 Space constraints mean that each of the flats will be fitted with an exhaust air heat pump (such as the NIBE Fighter 470). These are suitable for thermally efficient new build flats, and they do not require space for an external heat pump unit. They combine the efficient operation of a heat

pump, providing space heating via underfloor distribution and generating hot water, with a dwelling's ventilation system.

3.6.3 Exhaust air heat pump systems have carbon reduction benefits which are similar to ASHPs, although overall SCOPs are typically lower. Furthermore, as an individual dwelling system, exhaust air heat pumps do not suffer from the distribution losses that would occur under traditional heating networks which are typically found within apartment buildings.

3.6.4 Both of these options align closely with the nationwide approach to the low carbon energy transition and the country's climate change targets, 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:

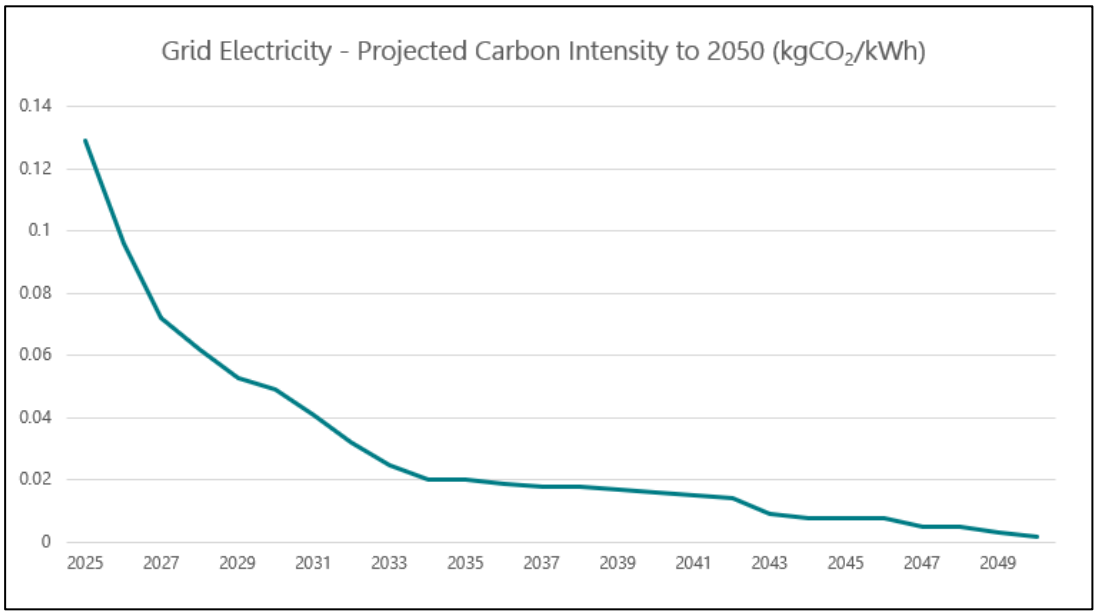

Figure 3: Projected Grid Decarbonisation
(Source: UK Government Green Book, Supplementary Guidance, November 2023)

3.7 Solar Photovoltaics

3.7.1 Roof integrated solar photovoltaic (PV) panels will be installed to complement the heat pump solution if required by regulations. This will be determined when the details and transition period arrangements for the FHS have been announced: At the time of writing, it expected that the FHS will be mandatory from the end of 2027, following a transition period between regulatory requirements up to that point.

3.7.2 The Applicant is therefore taking a precautionary approach, seeking to secure permission for the PV panels should they be required at a later date.

3.7.3 The Site layout has therefore been designed to enable the installation of solar PV at a level that is broadly aligned to current expectations of what the FHS will require, and the roof designs support the opportunity for solar panels if required.

3.7.4 To ensure the provision will meet the required standard, the current PV panel layout shown on the Detailed Site Layout (see Appendix A) has been sized to deliver a c.75% reduction in emissions when compared to current Building Regulations. This is above the 60% reduction currently expected under FHS, and may be amended once the full details of the FHS are released.

3.7.5 This application therefore seeks to establish the principle of installing solar PV on these dwellings where required, rather than providing a fixed and final layout.

3.7.6 Energy compliance calculations have been completed and presented in Section 3.10 to illustrate the potential energy performance of the dwellings both with PV panels, to demonstrate compliance with the FHS should it be required, and without PV panels to demonstrate performance against current Building Regulations.

3.8 Control Systems

3.8.1 The dwellings will feature smart control systems to help future residents control their energy use and maximise the efficiency of their heating systems. This is likely to include time and temperature zoned control for the heat pump systems. Clear and straightforward user guides will be provided to incoming residents as part of their welcome packs.

3.9 Building Energy Performance

3.9.1 Table 2 provides a summary of the illustrative levels of performance which will be applied to the development. This specification has been used within the SAP10.2 calculations presented in Section 3.10 below which have been undertaken to inform the approach:

Building Element		Illustrative Specification for the Proposed Development
U-Values (W/m^2K)	Roof	0.11
	External Wall	0.18
	Floor	0.13
	Windows, Doors	1.1
Airtightness ($m^3/m^2.h@50Pa$)		3
Heat Source		Air source heat pump
Photovoltaic System		High efficiency panels where required by the FHS
Ventilation		Mechanical ventilation with heat recovery (MVHR) Natural ventilation

Table 2: Summary of Proposed U-Values and Specifications (Illustrative)

3.9.2 Building Regulations allow for flexibility in how standards are achieved, and it may be that this specification evolves as the design progresses. However, the overall performance standards required at the point of construction will be achieved.

3.10 Baseline Energy Calculations

3.10.1 Design stage (SAP10.2) calculations have been completed for a representative sample of the dwellings designed for the development to establish the regulated energy demands for space heating, domestic hot water and electricity under two scenarios:

- Scenario 1: Applying the illustrative specification described above including the application of air source heating (standard or exhaust air versions), but excluding solar PV to demonstrate compliance with Building Regulations Approved Document L 2021;
- Scenario 2: Using the same specification as in Scenario 1 but with the addition of solar PV to demonstrate that the dwellings are 'futureproofed' to comply with the Future Homes Standard, should it be required at this development. For the purpose of the calculations, the PV systems are sized at between 0.9kWp (or two panels) for the flats and up to 3.15kWp (7 panels) for the largest homes.

Scenario 1

CURRENT REGULATIONS, NO PV			Part L 2021 (SAP) Calculation Results								
Residential Accommodation			Target Emission Rate and Dwelling Emission Rate			Target Primary Energy Rate and Dwelling Primary Energy			Target Fabric Energy Efficiency and Dwelling Fabric Energy Efficiency		
House Types		Total Floor Area (m2)	TER (kgCO2/m2)	DER (kgCO2/m2)	% Reduction	TPE (kWhPE/m2)	DPE (kWhPE/m2)	% Reduction	TFEE (kWh/m2)	DFEE (kWh/m2)	% Reduction
1	HT21	79	9.69	4.1	57.7%	50.32	43.76	13.0%	28.4	26.2	7.75%
2	HT23	83	11.51	4.6	60.0%	60.05	48.84	18.7%	38.7	35.3	8.79%
3	HT31	93	10.48	4.15	60.4%	54.64	44.03	19.4%	35.8	32.7	8.66%
4	HT32	95	10.53	4.14	60.7%	54.84	43.96	19.8%	37	33.9	8.38%
5	HT31 (alt)	93	10.53	4.15	60.6%	54.94	44.11	19.7%	35.8	32.7	8.66%
6	HT42	116	10.5	3.88	63.0%	54.81	41.11	25.0%	41.5	38.9	6.27%
7	HT44	145	9.68	3.54	63.4%	50.81	37.47	26.3%	41.4	39.1	5.56%
8	HT45	171	9.17	3.35	63.5%	48.29	35.41	26.7%	42.5	40.2	5.41%
9	HT33	109	10.6	3.84	63.8%	55.4	40.71	26.5%	36.1	33	8.59%
10	HT24	84	11.41	4.8	57.9%	61.45	50.37	18.0%	51.8	49.7	4.05%
13	Flat 1	57	11.98	3.93	67.2%	63.17	41.92	33.6%	26.3	23.9	9.13%
14	Flat 2	70	10.96	3.53	67.8%	57.44	37.65	34.5%	27.4	24.2	11.68%
AVERAGE					62.2%			23.4%			7.74%

Table 3: Scenario 1 – SAP 10.2 Calculations without Solar PV

3.10.2 As shown in the table, the properties as designed exceed current Building Regulation Approved Document L (2021) requirements across all three Part L Volume 1 metrics, with the difference between the Dwelling Emission Rate (DER) and Target Emission Rate (TER) showing an average improvement of 62.2%.

Scenario 2

FUTURE HOMES EQUIVALENT WITH PV			Part L 2021 (SAP) Calculation Results								
Residential Accommodation			Target Emission Rate and Dwelling Emission Rate			Target Primary Energy Rate and Dwelling Primary Energy			Target Fabric Energy Efficiency and Dwelling Fabric Energy Efficiency		
House Types		Total Floor Area (m2)	TER (kgCO2/m2)	DER (kgCO2/m2)	% Reduction	TPE (kWhPE/m2)	DPE (kWhPE/m2)	% Reduction	TFEE (kWh/m2)	DFEE (kWh/m2)	% Reduction
1	HT21	79	9.69	2.39	75.3%	50.32	25.97	48.4%	28.4	26.2	7.75%
2	HT23	83	11.51	2.62	77.2%	60.05	28.22	53.0%	38.7	35.3	8.79%
3	HT31	93	10.48	2.13	79.7%	54.64	27.97	48.8%	35.8	32.7	8.66%
4	HT32	95	10.53	2.17	79.4%	54.84	28.22	48.5%	37	33.9	8.38%
5	HT31 (alt)	93	10.53	2.14	79.7%	54.94	28.04	49.0%	35.8	32.7	8.66%
6	HT42	116	10.5	2.22	78.9%	54.81	27.78	49.3%	41.5	38.9	6.27%
7	HT44	145	9.68	2.22	77.1%	50.81	23.69	53.4%	41.4	39.1	5.56%
8	HT45	171	9.17	2.24	75.6%	48.29	23.74	50.8%	42.5	40.2	5.41%
9	HT33	109	10.6	2.5	76.4%	55.4	29.51	46.7%	36.1	33	8.59%
10	HT24	84	11.41	2.82	75.3%	61.45	28.23	54.1%	51.8	49.7	4.05%
13	Flat 1	57	11.98	2.78	76.8%	63.17	29.8	52.8%	26.3	23.9	9.13%
14	Flat 2	70	10.96	2.6	76.3%	57.44	27.7	51.8%	27.4	24.2	11.68%
AVERAGE					**77.3%**			**50.6%**			**7.74%**

Table 4: Scenario 2 – SAP 10.2 Calculations with Solar PV

3.10.3 The Future Homes Standard is set to deliver a c.60% improvement on Approved Document L (2021) standards. The results presented above exceed current Building Regulation requirements across all three Part L Volume 1 metrics, with the difference between the Dwelling Emission Rate (DER) and Target Emission Rate (TER) showing an average improvement of 77.3%, thus exceeding the level of improvement required.

4 Water Efficiency

4.1 Introduction

4.1.1 Water efficiency becomes increasingly important in a changing climate with diminishing water resources.

4.1.2 Position Statement 1, Principle 1 states that development must be positively planned to minimise its impact on water resources and achieve sustainable water consumption rates, while District Plan policies DP39 and DP42, and the Design Guide SPD Principle DG37 all include a specific target for new residential developments to achieve a water efficiency equivalent of 110 litres per person per day (l/p/d). This matches the enhanced standard described within Building Regulations Approved Document G.

4.1.3 This development, however, will go further, introducing rainwater harvesting to supply toilets in each property, and for irrigation/watering of external spaces. As such, and depending on the final specification of fixtures and fittings, it is expected that the final potable water demand from the mains network will be less than 90l/p/d.

4.1.4 By way of comparison, the national average for water consumption is around 143 l/p/d.

4.2 The Water Hierarchy

4.2.1 The management of water at the proposed development will follow the principles of the Water Hierarchy:

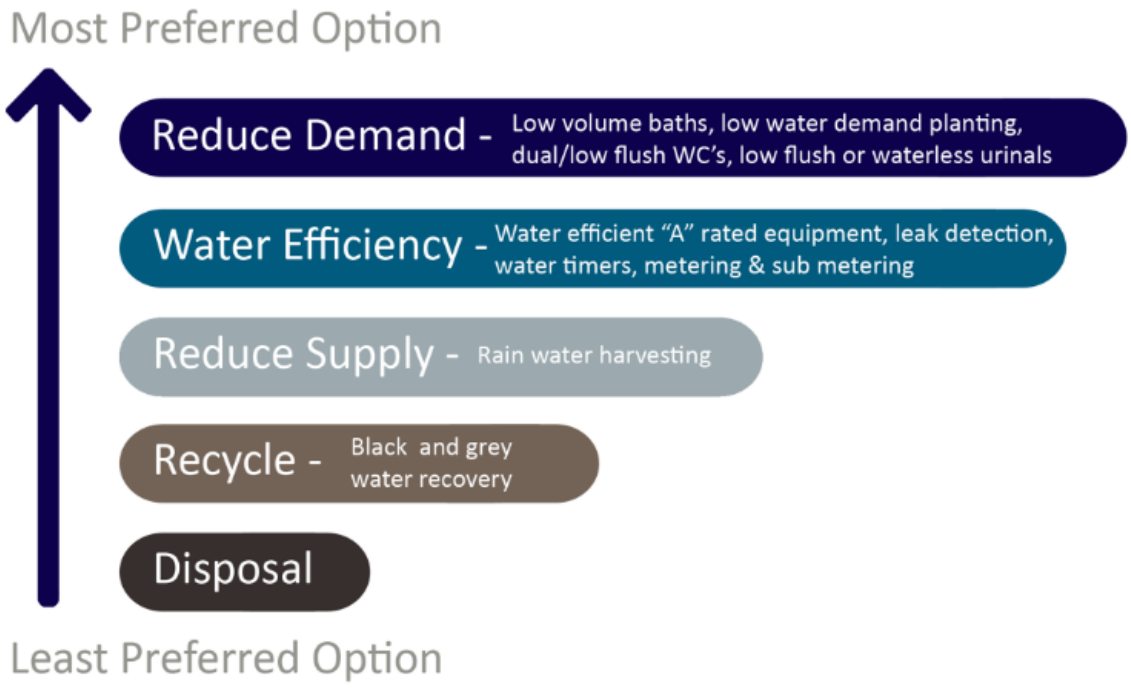

Figure 4: The Water Hierarchy

4.3 Water Reduction Measures

4.3.1 A large proportion of the potable water consumed in a domestic setting is used for washing (personal and clothes) and WC flushing:

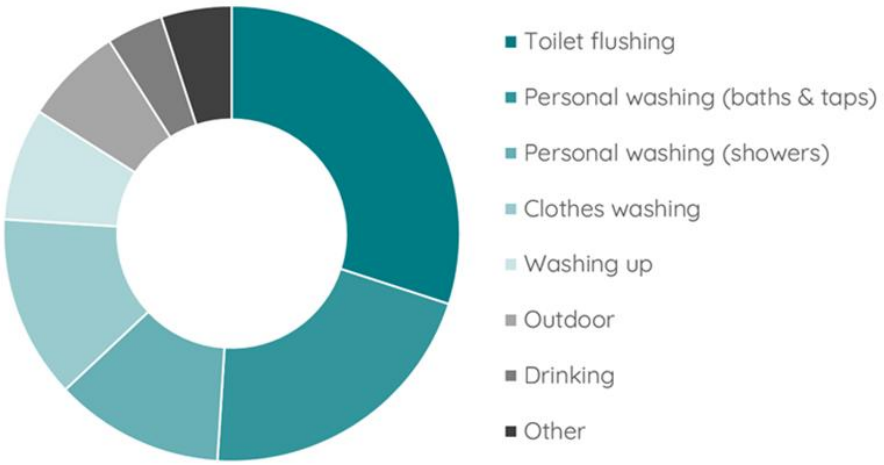

Figure 5: Domestic Water Consumption by End Use

4.3.2 Considerable savings will be made at the proposed development by specifying water efficient fixtures, fittings and appliances along with rainwater recycling systems, so that daily water use will be considerably lower than the 110 l/p/d planning requirement.

4.3.3 The following table is an illustrative list of specifications which can achieve this level of reduced water demand, although there is significant flexibility in how the combination of fixtures and fittings can be specified to achieve the same outcome:

	Measure	Unit	Performance / Specification
1	Showers	Litres per minute	8
2	Aerated taps	Litres per minute	5
3	Kitchen sink taps	Litres per minute	6
4	Bath	Litre capacity to overflow	170
5	WC	Litres per flush	4 / 2.6 (dual flush)
6	Washing machine	Litres per kg dry load	8.17
7	Dishwasher	Litres per place setting	1.25

Table 5: Illustrative Water Specifications

4.3.4 There are two options which are currently being considered for rainwater harvesting – a communal system or individual systems (the latter requiring individual tanks buried within the curtilage of each property).

4.3.5 In either case, the systems will be designed to provide sufficient water for toilet flushing (c. 13.5l/p/d) and any irrigation/watering needs (5l per person per day, as per Approved Document G requirements). Thus in a typical home with 2.4 people, that's sufficient daily storage for around 45l.

4.3.6 The final choice of rainwater harvesting system (individual or communal) will be fixed prior to construction, taking account of the ongoing liabilities for management and maintenance requirements in each case. The final choice of fixtures and fittings to be applied at the development will be confirmed at detailed design stage, at which point the Approved Document G calculation can be used to demonstrate compliance.

5 Climate Resilience and Adaptation

5.1 Adapting to the Future

5.1.1 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.

5.1.2 This section details how the Applicant is addressing climate resilience and adaptation at the proposed development in line with the requirements of Position Statement 1, Principle 1.

5.2 Reducing Overheating Risk Through Design

5.2.1 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)*.

5.2.2 Overheating risk modelling will be undertaken for the proposed properties as part of the design process.

5.2.3 Approved Document O details acceptable strategies to help overcome any overheating risks identified and to ensure compliance with the regulations, with a focus on passive design features:

- 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.

5.2.4 The ventilation strategy for the dwellings is described in Section 3.4.

5.3 The Multiple Benefits of Open Space and Vegetation

5.3.1 The proposals include retaining and enhancing the majority of the hedgerows and trees around the Site boundaries and enhancing them with additional native planting. A large area of green space along the western portion of the Site will provide a buffer between the area of built development and the rural landscape beyond.

5.3.2 An attenuation basin in the northwestern corner will provide opportunities for wetland marginal species, while tree planting within the streets and open spaces throughout the development will enhance the landscape features of the Site.

5.3.3 This approach will provide multiple benefits in a changing climate:

- The retained trees and those planted as part of the landscape design (including large canopy trees where space allows) will together provide shading in the summer months, reducing heat gain into dwellings and therefore reducing the need for mechanical cooling;
- Trees throughout the Site will also help maintain a comfortable external environment in hot periods by providing shading in gardens and shared spaces;
- The selection of native, deciduous tree species will ensure this shading is most effective during the summer months when it is needed, but will allow sunlight to filter through in the winter, when the trees are leaf-free;
- The areas of greenspace and planting throughout the Site will reduce any urban heat island effect;
- The trees, hedges and shrubs will contribute to the reduction of wind speeds, improving comfort levels by reducing air infiltration (draughts) into buildings on windier days;
- Vegetation sequesters carbon dioxide and improves air quality through dry deposition of gases (including NOx, SOx, PM10 and O_3).

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

5.4 Managing Water in a Changing Climate

5.4.1 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. 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 40% allowance for the impacts of climate change on rainfall distribution throughout the year.

5.4.2 The Flood Risk Assessment (FRA) which accompanies this application provides further details in relation to the level of flood risk and the management of surface water flows at the proposed development and this should be referred to for full details in this regard.

6 Reducing Carbon Emissions from Transport

6.1 Accessibility

6.1.1 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 facilities and to facilitate commuting.

6.1.2 The Transport Statement which accompanies this application demonstrates that the proposed Site is well located, being within walking and cycling distance of the local amenities in Sayers Common. These include Albourne Church of England School, a pre-school and nursery, the local convenience store, a park and a public house and restaurant.

6.1.3 Furthermore, the land to the south of the Site has a draft allocation in the emerging District Plan under Policy DPSC3 for up to 2,000 dwellings, employment provision, a primary/secondary school and community facilities, all of which would provide additional amenities within walking distance of the Site.

6.2 Sustainable Transport

6.2.1 The Site is well situated to make the most of existing pedestrian provision, road networks and public transport routes. Moreover, as part of the development proposals, multiple improvements are proposed which will enhance sustainable travel options. The provision is summarised below, and the Transport Statement should be referred to for full details.

6.2.2 There are several public rights of way (PRoW) and footways located within and surrounding the Site which will be incorporated into the scheme. Additional pedestrian and cycling connections will be provided between the Site and the adjacent developments/allocations to the east and south, and the village centre, including the following:

- A proposed footway and cycleway will connect the Site in the southwest corner with the purpose of providing a crossing over the ditch and linking onto Reeds Lane from where the existing PRoWs can be accessed. This will also allow onwards connections into allocated site DPSC3 where a new neighbourhood centre and local schools are expected;
- A proposed pedestrian and cycle connection at the eastern extent of the Site into the adjacent development (Ref: DM/22/0640) to the east will allow the residents from the adjacent development to travel through the Site and onwards into allocated site DPSC3;
- A footway will link the Site to the village via the existing PRoW and footways along Reeds Lane.

6.2.3 National Cycle Route 20 is approximately 200m to the east of the Site via the B2118 London Road, running between Brighton and London. In addition, a number of the local roads are suitable for

use by cyclists. To encourage cycling, all the proposed properties will include a secure and weatherproof means of cycle storage in line with local policy requirements.

6.2.4 The closest bus stops are located on B2118 London Road, approximately 800m (10-minute walk) away from the centre of the Site. These stops serve bus routes 100 and 273 which operate regularly throughout the day, providing services to destinations including Crawley, Horsham, Pulborough and Brighton.

6.2.5 There are two railway stations in the vicinity, both of which benefit from good levels of cycle parking provision:

- The station at Burgess Hill is served by Southern, Thameslink and Gatwick Express services and is approximately 7km to the east of the Site. The station can be accessed via the No.100 bus service, with a journey time of less than 20 minutes, or via a 25-minute bike ride.
- Hassocks Railway Station is approximately 6km away and can be accessed within a 22-minute cycle, or alternatively a 14-minute journey on the 273 bus service, with a c.5-minute walk to the train station after departing.

6.2.6 A Travel Plan Statement has been developed which sets out a suite of measures which will be put into place to promote sustainable travel (walking, cycling and public transport) with the aim of reducing reliance on the private car.

6.3 Provision of Electric Vehicle Charging Points

6.3.1 The power network will be designed and managed to provide the level of EV charging infrastructure required by Approved Document S.

6.3.2 The proposed provision at the Site is shown on the Masterplan which forms part of this application, and which is included in Appendix A.

6.4 Provision of Fibre to the Premises

6.4.1 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.

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

6.4.3 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.

6.4.4 The provision at the development will align with *Approved Document R Volume 1 (2022 Edition)* which sets out requirements to ensure that, during construction, 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.

7 Embodied Carbon and Sustainable Waste Management

7.1 Introduction

7.1.1 District Plan Policy DP39 requires that developers minimise waste and maximise recycling, while the Design Guide SPD Principle DG37 requires applications to consider materials with low embodied energy. Furthermore, Principle 1 of Position Statement 1 states that development will be expected to reduce carbon in its design and construction.

7.1.2 Embodied energy is more commonly measured in terms of embodied carbon, and this refers to the 'upfront' carbon associated with building construction, including the extraction and processing of materials, and the energy and water consumption in the production, assembly, and construction of the building. It also includes the 'in-use' stage (e.g. maintenance, replacement), and the 'end of life' stage (demolition, disassembly, and disposal of any parts of product or building) plus any transportation.

7.1.3 This section therefore discusses how the issue of embodied carbon will be addressed through considered material selection and sustainable waste management.

7.2 Sustainable Building Materials

7.2.1 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 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.

7.2.2 The homes have been 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.

7.2.3 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.

7.3 The Waste Hierarchy

7.3.1 In order to reduce construction waste, waste generation, storage, treatment and disposal before, during and after construction will be managed in accordance with the Waste Hierarchy:

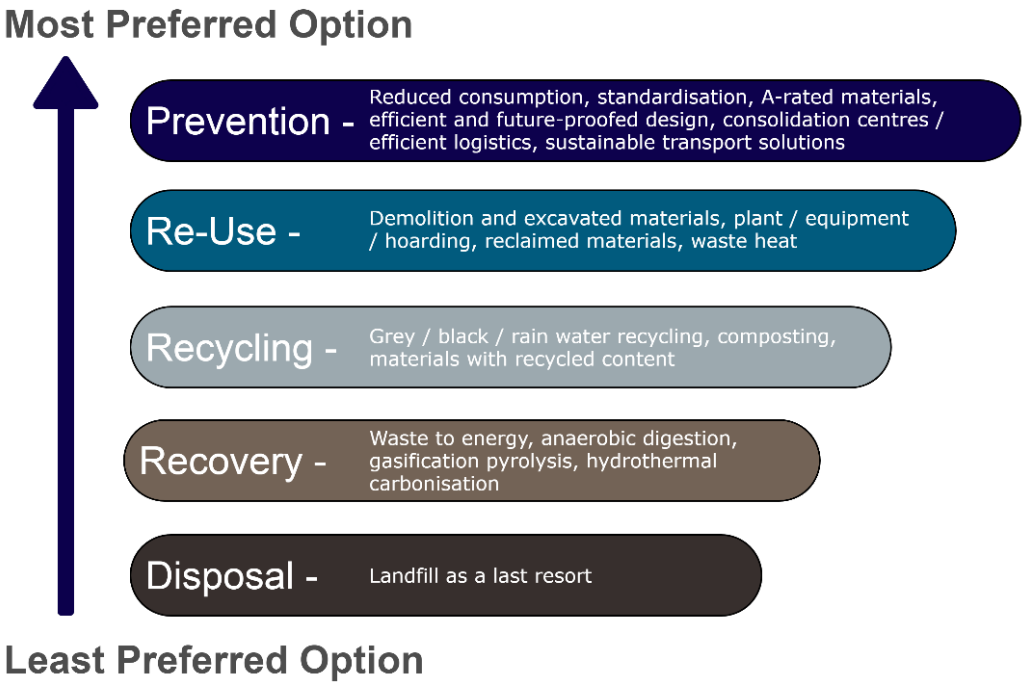

Figure 6: The Waste Hierarchy

7.4 Waste Management

Construction Waste

7.4.1 A Waste Management Plan will be developed and implemented for the development which will:

- Identify a lead person responsible for the Waste Management Plan delivery;
- Provide site induction and training to all staff;
- Identify waste streams, plan for their management and set targets for waste reduction;
- Identify suitable locations for the efficient separation and storage of waste prior to removal from Site to encourage higher levels of recycling;
- Identify opportunities for the on-site reuse of materials including excavated materials;
- Re-use scaffolding, hoarding and other such materials on subsequent construction projects.

7.4.2 Where waste must be removed from the Site, only licenced waste management contractors with a proven track record of delivering high levels of recycling will be appointed. 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.

Operational Waste

7.4.3 Easy to access facilities will be provided to encourage property occupants to manage waste sustainably.

7.4.4 For example, the houses will have a private rear garden area with direct external access while the apartments will have communal waste storage facilities. These features will provide sufficient space for refuse and recycling bins and composting facilities, keeping waste storage away from the public domain. Discrete refuse collection points will also be provided along the shared private drives in line with regulations.

7.4.5 The waste storage points are shown on the Detailed Site Layout plans in Appendix A.

8 Summary

8.1.1 This *Energy & Sustainability Statement* describes how the proposed residential development on Land West of King Business Centre, Reeds Lane, Sayers Common incorporates sustainable design and construction principles with a focus on carbon reduction and resource efficiency. It has been commissioned by Reside Holdings Ltd (the Applicant).

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

8.1.3 In particular, the Statement provides as much detail as is possible at this stage in the planning process to demonstrate compliance with the local policy position and current Building Regulations:

- The dwellings will be highly energy efficient, adopting a fabric first approach. They will be orientated to maximise solar gain where possible;
- There will be no natural gas connection to the Site;
- Heating and hot water will be supplied via low carbon air source heat pumps;
- Solar photovoltaic panels will be installed where required by regulations;
- The development will employ a combination of highly efficient fixtures, fittings and rainwater recycling to reduce potable water demand from the mains network to approximately 90l/p/d;
- The development will be designed to adapt to a changed climate:
    - Overheating will be managed through considered 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;
    - Surface water will be managed via the integration of SuDS into the development.
- Electric vehicle charging points will be installed in line with policy requirements;
- High quality broadband will be provided in line with Approved Document R;
- The embodied carbon of the development will be considered and addressed through sustainable material choices;
- Construction and operational waste will be managed in accordance with the principles of the Waste Hierarchy.

8.1.4 As the planning and development process progresses, and as the wider regulatory environment develops, the approach proposed will be kept under review.

8.1.5 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.

9 Appendix A: Detailed Site Layout

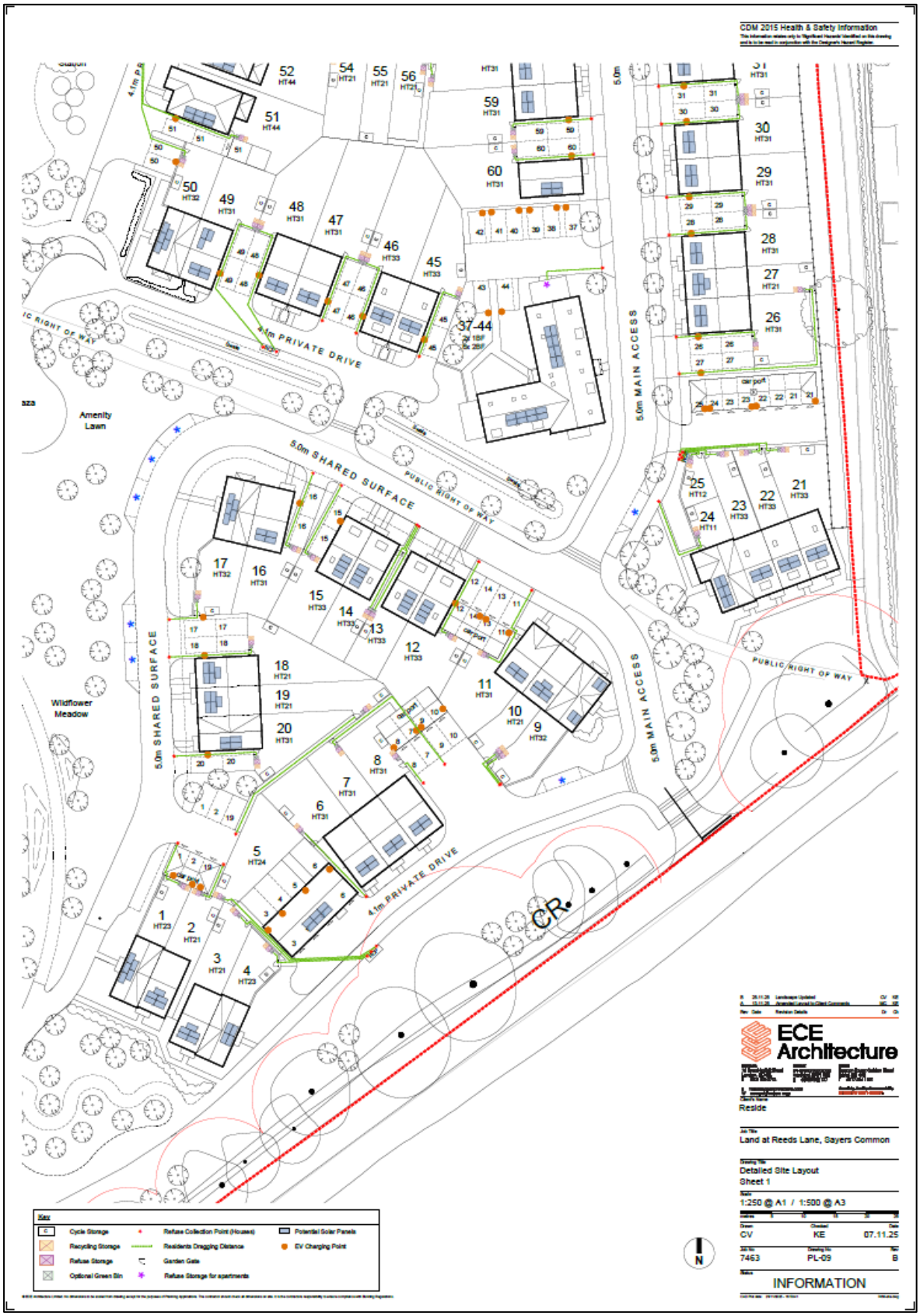

Figure 7: Detailed Site Layout Sheet 1 (ECE Architecture)

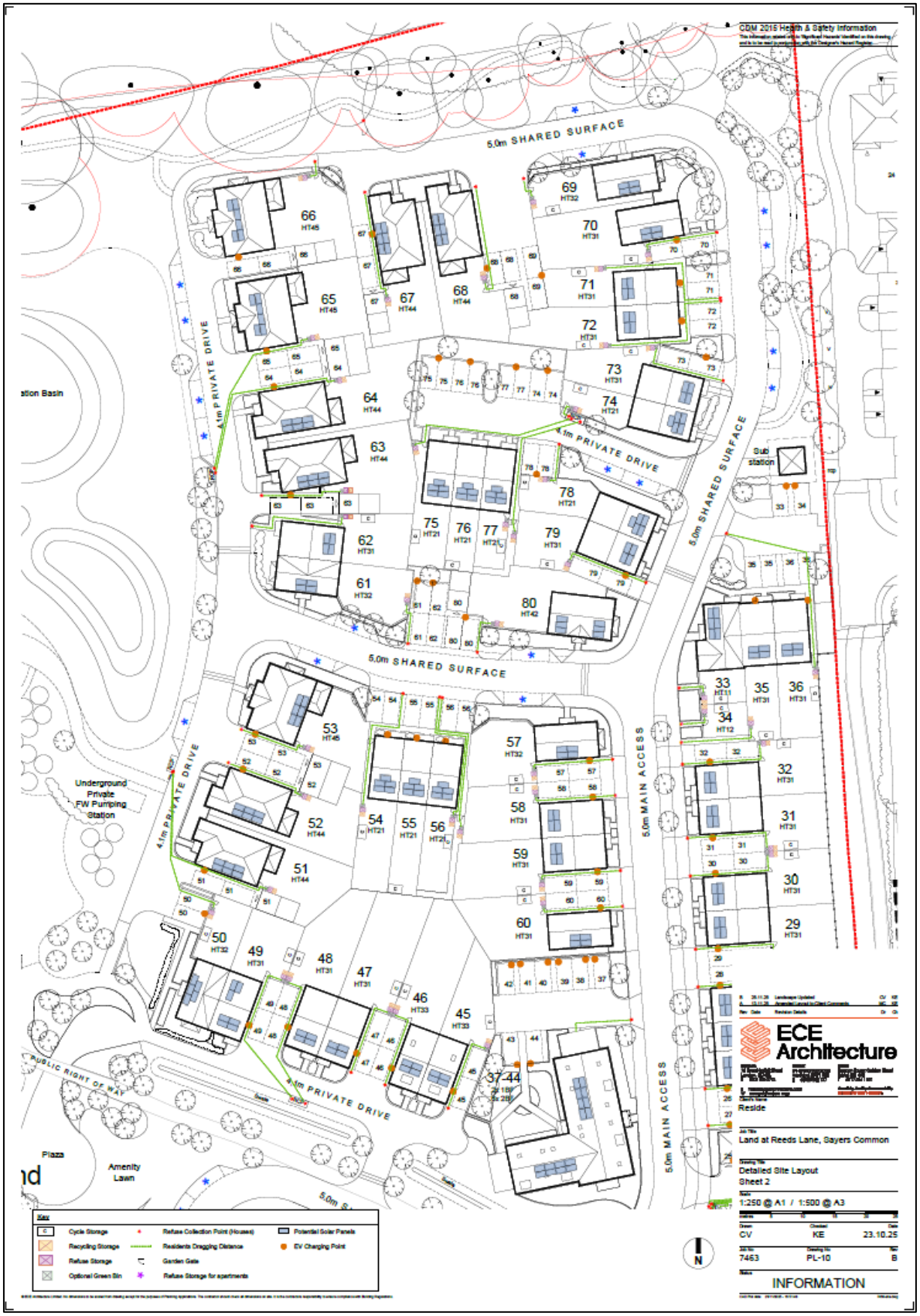

Figure 8: Detailed Site Layout Sheet 2 (ECE Architecture)

Completed on behalf of:

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