

**Old Park Lodge, Slaugham Lane,
Warninglid, West Sussex, RH17 5TJ**



Sustainability Statement

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Report produced by -

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1.0 Introduction

- 1.1 Blewburton Limited has been commissioned to prepare a Sustainability Statement to support the application for planning permission for the creation of a replacement dwelling at Old Park Lodge, Slaugham Lane, Warninglid, West Sussex, RH17 5TJ.
- 1.2 As licensed BREEAM, Code for Sustainable Homes, HQM and energy assessors of several years standing, Blewburton Limited has considerable expertise in all issues of sustainability.
- 1.3 The site is located in a rural location in West Sussex, in between the villages of Slaugham and Warninglid.
- 1.4 The proposed scheme will see the demolition of the current dwelling on site, along with some of the outbuildings and the construction of a replacement two storey, three-bedroom dwelling with associated landscaping.
- 1.5 The existing site area and location is shown in the aerial photo in Figure 1 below, with proposed site layout shown in Figure 2 and a 3D view of the proposed dwelling in Figure 3.



Figure 1: Existing aerial photo of site location and area

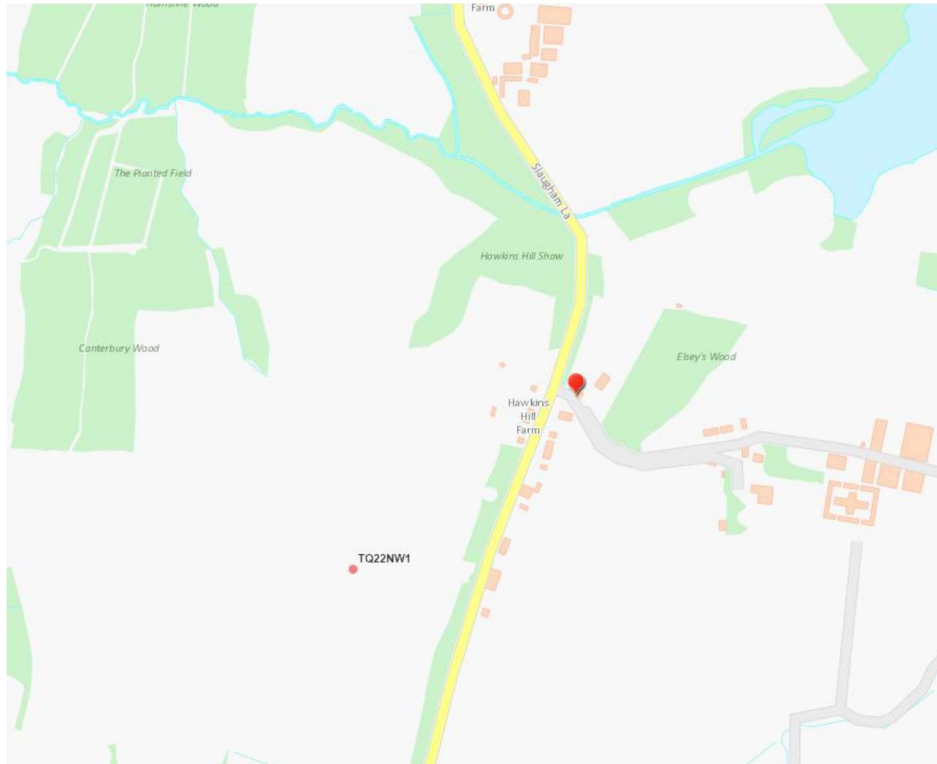


Figure 2: Site location plan

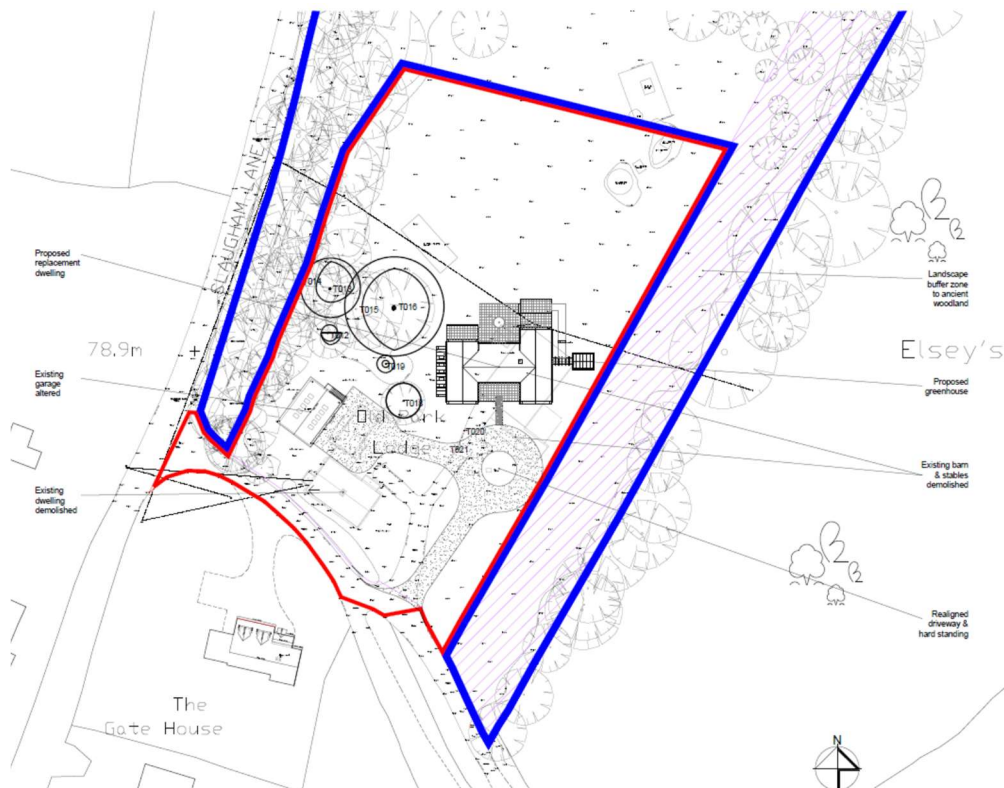


Figure 3: Proposed site plan

2.0 Proposed Approach to Sustainability

2.1 The local planning authority are Mid Sussex District Council (MSDC).

2.2 The MSDC District Plan 2014-31 states in policy DP39:

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.

2.3 Accordingly, the rest of this document will address the areas of sustainability raised within the policy above and other issues deemed to be important (and also covered in the District Plan under other policies).

3.0 Energy Conservation and Carbon Emissions

- 3.1 It is recognised that the generation of energy to heat, light and cool buildings is responsible for approximately half of the total CO₂ emissions of the UK. Part L of the Building Regulations requires a minimum standard of energy efficiency in new and refurbishment development, however, it is the intention with this development to go beyond this.
- 3.2 As a first step in dealing with carbon emissions arising from energy use within buildings it is important to consider designing in energy efficiency measures as part of the construction of the building as these will be difficult to retrofit in the future and this will also reduce the amount of energy required by a building.
- 3.3 Reduction of heat loss is a key element of this and it is proposed that insulation within floors, roofs and walls will exceed the minimum standards required under Part L1 (Conservation of Fuel and Power) of the Building Regulations (under which this development will fall), as will the U-values for glazing and doors.
- 3.4 Initial thoughts are to aim for the following U-values and these will be confirmed once detailed design commences, once/should planning permission be granted –
- Ground floor – 0.12 (Part L1 compliance is 0.18)
 - External walls – 0.18 (Part L1 compliance is 0.26)
 - Roof – 0.10 (Part L1 compliance is 0.16)
 - Windows/doors – 1.2/1.4 (Part L1 compliance is 1.6/1.6)
- 3.5 An air tight building will also play a major part in the reduction of heat loss via the external envelope and coupled with adequate ventilation to ensure internal air quality, is an important element in energy efficient building design. Accordingly, an improvement on the minimum Building Regulations requirement for building air permeability rate will be sought, with an initial target of 4.0m³/hm² (@50Pa) or lower being the intention (Part L1A sets a target of 8.0m³/hm² (@50Pa).
- 3.6 Attention will also be paid to the designing out of non-repeat thermal bridges and this will involve the use of a standard such as Recognised Construction Details and/or bespoke modelled psi-values for specific junctions. It is increasingly recognised that as standards of insulation improve, this issue, in conjunction with air leakage, plays a vital role in the energy efficiency of a building and getting both right at design stage and ensuring they are then implemented during construction is considered to be important for this development.
- 3.7 The exact heating and hot water system for the proposed dwelling has yet to be finalised, however, with the government's desire to move away from gas boilers, current thought is to install Air Source Heat Pump (ASHP) technology, with time and temperature zone control for separate control of heating in different areas of the dwelling and to allow hot water delivery independently of the main heating, meaning energy is only used as and where required. Additional smart control systems such as

a weather compensation unit may also be incorporated into the heating specification. This system offers significant carbon savings over mains gas, oil or LPG boiler systems and this should only further improve into the future with the continued 'greening' of the UK electricity generation mix.

- 3.8 The use of passive solar design has been considered and where possible good levels of glazing have been designed in to the proposal to allow for natural light penetration, without causing a summertime overheating issue. Where artificial light is required, the focus will be on the provision of the energy efficient lighting systems as appropriate to locational requirements.
- 3.9 The option to utilise solar energy technologies has also been considered – thermal for water heating and photovoltaics (PV) for electricity generation (see image below) – with the conclusion that there is plenty of southerly aspected roof space proposed to host an unshaded solar system of either technology and the options will be fully explored once SAP Part L1 calculations are commissioned once/if planning permission is granted.

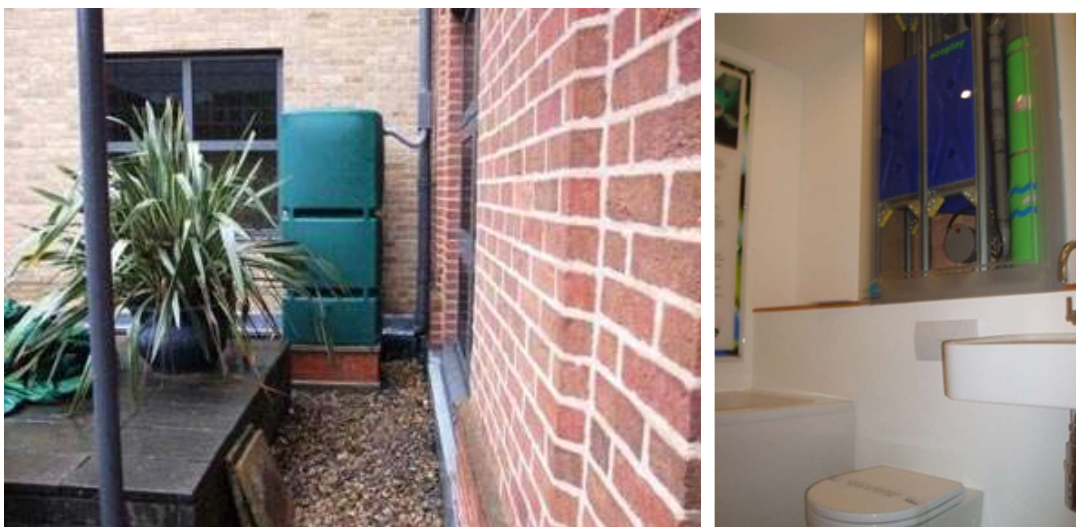


Figures 4: Solar PV installations on new build houses

- 3.10 All 'White Goods' supplied to the proposed dwelling – fridge-freezer, washing machine and dishwasher – will be rated as highly as possible under the EU Energy Labelling Scheme and attention will be paid to the energy specification of all electrical equipment to be installed within the dwelling.
- 3.11 Finally, at least one electric vehicle charging point will be installed within the existing and retained garage to allow for the use of electric vehicle technology.
- 3.12 The use of energy conscious design principles and a fabric first approach means that the building should remain energy efficient for its entire lifetime and the overall requirement for energy input is reduced for heating and hot water.

4.0 Water Resource Management

- 4.1 The UK has a poor record in being profligate with its abundant water resource and the South-East of England is recognised as suffering from water stress, therefore, on this site only water efficient products will be specified.
- 4.2 The actual specifications of the water using products are yet to be established, however, the following notional specification is considered realistic for this type of development and an assessment of the efficiency of the residential unit's domestic water-consuming components has been undertaken using the Building Research Establishment's water calculator.
- 4.3 The water consumption (L/person/day) for the proposed dwelling shows a figure of 100.6l/p/d with the following proposed specification (which is below the 110.00l/p/d require by Mid-Sussex District Council):
- Dual 6.0/3.0 litre flush WCs
 - Shower average flow rate of 8.0L/min
 - Basin average tap flow rates of 3.0L/min
 - Kitchen tap average flow rate of 6.0L/min
 - Bath average overflow capacity of 165 litres
 - Water efficient washing machine and dishwasher
- 4.4 Should a more generous specification for internal water using products be decided upon, then thought will be given to the installation of grey-water harvesting systems, such as the EcoPlay unit, pictured below, however, rainwater harvesting will not be utilised as the carbon footprint arising from the pumps involved with such a system is heavy and it is more efficient to specify the low flush WCs detailed above in 4.3.



Figures 5 & 6: External rainwater harvesting tank & EcoPlay unit above WC

- 4.5 Externally, a rainwater harvesting butt will be provided, with an external tap for use in the gardens and for car washing – see example above.
- 4.6 The provision of water meters is also recognised as an important tool in reducing water usage and in a domestic context they can encourage people to monitor and reduce their water consumption by an average of 10% to 15%. Therefore, the dwelling will have an individual, easily accessible water meter installed as part of the specification.

5.0 Flood Risk, Surface & Waste Water Management

- 5.1 The Environment Agency's Flood Mapping for the area shows the site is not located within an area considered to be at risk from flooding from rivers or surface water – see <https://check-long-term-flood-risk.service.gov.uk/map?easting=525162.74&northing=127230.75&map=SurfaceWater>.
- 5.2 A Foul and Surface Water Drainage Statement has been developed for the scheme by CGS Civils to show compliance with Building Regulations and to minimise the risk and impact of localised flooding on and off-site, watercourse pollution and other environmental damage.
- 5.3 All options for the destination of run-off generated on site have been assessed in line with the SUDS hierarchy as set out in Building Regulations Part H document and DEFRA's Draft National Standards for SUDS.
- 5.4 Surface water runoff is to be discharged into a proposed raingarden, designed to recorded infiltration rate of $1.0 \times 10^{-6} \text{m/s}$. To ensure compliance with the 'half time empty storage' condition, surface water to be additionally discharged into the existing shallow watercourse with at a restricted flow rate of 1.0 l/s.
- 5.5 All hard paved areas are to be constructed from permeable surface to allow runoff to freely drain to ground via infiltration, such as that shown below in Figure 7.



Figure 7: Example of a permeable paving solution on a housing development

- 5.6 Foul water will be discharged into the proposed cesspool tank due to the absence of an existing drainage sewer and any nearby watercourse.

6.0 Ecology & Biodiversity

- 6.1 The site comprises a house with associated garden and outbuildings. The garden is mostly made up of primarily of modified grassland, which is species poor, along with a scattering of individual trees. A single species, non-native hedgerow forms the southern boundary of the site. Images of the site from ground level are shown below in figures 8, 9 & 10.
- 6.2 Arun Ecology have undertaken a Preliminary Ecological Assessment and this report recommends that additional dusk/dawn bat surveys are undertaken to establish if bats are present on site. If found, mitigation measures will be suggested and implemented.
- 6.3 The report also states that vegetation clearance (if required)/building demolition should be undertaken outside of the breeding bird season or under supervision of ecologist following a breeding bird survey if during the season. Additional guidance is also supplied with regards management and removal of vegetation and all of this guidance will be implemented as required.



Figure 8: Existing dwelling on site to be demolished

- 6.4 Protection measures are also recommended for fauna such as badgers and great crested newts during construction, along with appropriate pollution control measures and lighting during and post construction relating to bats, all of which will be implemented.



Figure 9: Looking south from the rear of the property

- 6.5 The provision of sparrow and bee boxes is also recommended and will be followed, in appropriate locations, along with appropriate soft landscaping of the site, with a focus on native or wildlife enhancing plant selections.



Figure 10: Modified grassland and woodland edge on site boundary

- 6.6 Recommendations for the enhancement of the retained semi-natural habitat within the 15m ancient woodland buffer that falls within the site ownership boundary will also be fully implemented.

7.0 Waste & Pollution

- 7.1 Waste arising from the construction process has been an area of focus for some years now, with the industry making good strides in re-use and reduction of materials, which not only helps the environment, it also engenders significant cost savings to developers.
- 7.2 With this in mind, the appointed contractor for the scheme will be required to develop a site waste management plan (SWMP) prior to the start of construction reflecting the recognition that reduction of waste begins in the design and ordering stage of a project and carries on through to the sign-off of the building. This SWMP will set targets and procedures for the sorting, reusing and recycling of construction waste into defined waste groups, either on site or through a licensed contractor.
- 7.3 The generation of waste does not stop at the end of the construction process and adequate provision will be supplied to the proposed dwelling, both internally and externally, to allow for the sorting of general waste from recyclable materials.
- 7.4 Provision for composting of food waste arising from the kitchen will also be supplied in the form of a compost cone to the exterior, along with information on how to successfully compost, to further reduce waste streams arising from the new dwelling.
- 7.5 Pollution can occur in various guises and attempts will be made to design out or mitigate against a number of issues identified below.
- 7.6 At the construction stage there can potentially be noise nuisance for neighbouring properties and all contractors will be made aware of and expected to comply with policies to prevent this issue. They will also be expected to have and operate policies to facilitate against air and water pollution from their activities and to have procedures in place should an accident occur.
- 7.7 Light pollution will be countered by the use of external lighting which only involves energy efficient fittings, daylight detectors and angling/capping to prevent unnecessary glare.

8.0 Materials Selection and Sustainable Construction Methods

- 8.1 The material specification proposed is fairly defined, but not finally confirmed for this project and will ultimately be subject to planning considerations, however, the developer is committed to ensuring that all materials score as highly as possible in the Building Research Establishment's Green Guide to specification – see Figure 11 to right.
- 8.2 In addition, wherever possible, all building and finishing materials will be sought from local suppliers and manufacturers registered to an environmental management scheme such as FSC, BES6001, ISO14001 or EMAS. This will ensure that the materials have been sourced from suppliers certified as ethical and responsible as far in to the supply chain as possible.
- 8.3 All insulation materials selected for the building will have a Global Warming Potential of below 5 and where possible be made from natural products.
- 8.4 Finally, attention will also be paid to materials specified for the internal environment with a focus on materials/finishes containing low/no volatile organic compounds (VoCs) in an effort to improve the internal environment for occupants as internal air pollution is increasingly recognised as having negative impacts on health.

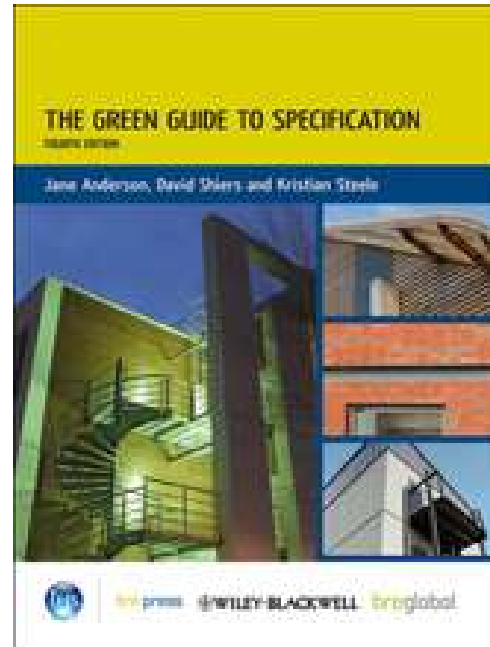


Figure 11: BRE Green Guide to Specification

9.0 Summary

- 9.1 In summary, this development demonstrates a strong commitment to sustainability, incorporating many features that market leaders in the sustainable assessment of buildings, such as the Building Research Establishment (BRE), would expect to see included in a project of this nature.
- 9.2 Areas of strong approach involve the plans for energy and water efficiency and the ecology measures proposed. Where issues have standards to be met under the Building Regulations, the proposed approach is to exceed these minimum standards and in some cases, significantly.
- 9.3 In short, the proposals outlined within this report demonstrate that the proposed development will meet the high levels of sustainability as required by Mid Sussex District Council.

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