

**5 GRASS HILL  
READING  
RG4 7TJ**

**SUSTAINABILITY STATEMENT**

**SEPTEMBER 2020**

## **1. Summary**

- 1.1. This Sustainability Statement accompanies the application for planning consent to erect two 3-bed detached, self-build dwellings with associated garaging as shown on the submitted proposed site plan 3707/203A.
- 1.2. The site is close to local centres and within Zone 4, Wider Urban Area, of the Councils Revised Parking Standards and Design SPG 2011 which characterizes this area as having some support by direct bus services. In this case, there is a bus stop 5 minutes-walk away on Highmoor Road serving a route into central Reading.
- 1.3. This statement is required by the provisions of Reading Borough Council's Local Plan 2019 (notably policies CC3 Adaptation to Climate Change and Policy H5 Standard for New Housing) and includes details about how the development has been designed to optimise the use of solar energy, natural daylighting and ventilation and how the design of the building would make efficient use of energy.

## **2. Introduction**

- 2.1. This statement outlines the considerations used as part of the design process as it relates to sustainable construction and the commitment to reduce carbon emissions throughout the lifecycle of the development.
- 2.2. The statement includes details about how the development has been designed to optimise solar energy, natural daylighting and ventilation and how the design of the building would make efficient use of energy.

## **3. Solar Energy**

- 3.1. The proposed development will have large south-west facing roofs which will be ideal for installing both photovoltaic and solar thermal panels.
- 3.2. Solar thermal roof panels that link to hot water could provide up to 60% of all hot water requirements of the dwellings
- 3.3. In addition, photovoltaic cells could be installed with the electricity generated linked to batteries and any excess power being fed back into the National Grid. This electricity should be adequate to power all lighting requirements as a minimum.
- 3.4. Investigations will be made into the benefits of installing an air source heat pump system to each house to provide heating. With the use of suitable control systems, heat can be generated at times when maximum solar energy is being generated. This system can generate up to 75% of the energy requirements for heating and can be topped up with solar power. This system would be designed to run an efficient radiator heating system.

- 3.5. The proposed dwellings have also been designed to incorporate an element of solar shading, with covered terracing and roof overhangs on the south-west elevation, thereby reducing solar gains in summer months.

## **4. Natural Daylight**

- 4.1. High levels of natural daylight will be achieved through locating increased levels of glazing on the south-west elevation. The buildings have been designed to face in a southerly direction, thereby ensuring living areas and outdoor amenity areas receive high levels of sun and daylight into that elevation, in addition to solar gain in the winter.
- 4.2. The south-east elevation will also benefit from higher levels of glazing. Less glazing is proposed to the north-east and north-west elevations to limit heat loss.

## **5. Natural Ventilation**

- 5.1. The proposed units would make maximum use of natural ventilation as it is acknowledged that this is a more sustainable option than air conditioning systems. The use of openings on opposite walls would draw air through the space where these windows would be openable. If any mechanical ventilation is required to supplement the natural ventilation this would be energy efficient, requiring only small levels of energy to run, yet achieve significant benefits in the development.
- 5.2. Roof lights on the north-easterly roof areas will also be incorporated to create a chimney ventilation effect.

## **6. Efficient use of energy in the design**

- 6.1. It is important to recognise that the make-up of the external walls, roof and elements of glazing are critical factors in storing energy (thermal mass) and reducing the need to heat a building through air leakage. Good building practice standards will be applied together with very high insulation values to create an excellent SAP rating.
- 6.2. The use of permeable hard surfacing would reduce the risk of surface water run-off and water butts would also be fitted to rain-water pipes to collect water running off the roofs. Suitable landscaping using plants of local provenance which can adapt to changing circumstances will also be provided.
- 6.3. It is proposed to use low energy, LED lighting throughout this development and ensure it is built to the robust standards required of NHBC and the local building control. These properties will also achieve high standard results against air leakage through a quality specification.
- 6.4. The sites sustainable location helps to reduce the need to travel, especially by car and the development would be provided with safe and secure cycle storage to encourage this more sustainable mode of transport. The site is also within easy walking distance of local services and transport links.

- 6.5. It is important to recognise the level of emissions created by choosing the wrong materials that create high levels of greenhouse gas through the manufacturing process. The applicant is very aware that it is important to pick locally sourced and processed materials and labour and avoiding the use where possible of steel, concrete blocks and UPVC. It is also important to try and reduce toxins by avoiding cement, concrete and mass-produced products.

## **7. Water Efficiency**

- 7.1. The new dwellings will be designed to provide maximum levels of water efficiency to ensure there is no excess water waste.
- 7.2. The estimated consumption of wholesome water resulting from the design of the cold and hot water system will not exceed 110 litres per person per day. This will be achieved by ensuring the appropriate fittings are provided to appliances, taps and showerheads to limit the consumption of water in day-to-day activities.

## **8. Waste Minimisation**

- 8.1. Waste minimisation is a significant element in international, national, regional and local environmental policy and has been identified as one of the most pressing environmental challenges we face.
- 8.2. The applicant recognises the importance of minimising waste throughout the life cycle of the development and would recycle all demolition and construction waste where possible. Reclaimed materials would be sourced and used as appropriate in the construction process.
- 8.3. The development would provide for adequate levels of bin storage including recycling bins as appropriate and would incorporate potential for domestic composting.

## **9. Conclusion**

- 9.1. This Sustainability Statement set outs how the proposal complies with the guidance set out in the Reading Borough Local Plan policies CC3 and H5.
- 9.2. The site is close to local centres and there is a bus stop 5 minutes-walk away on Highmoor Road serving a route into central Reading.
- 9.3. Opportunities to fully maximise the natural lighting on the site have been taken. Natural ventilation will be factored into the development where appropriate and all units will have access to light and ventilation through ample windows.
- 9.4. The south-westerly roofs make the dwellings suitable for solar capture technology where the energy and electricity produced could be linked to hot water storage and lighting

requirements. Further to this, consideration is being given to the installation of air source heat pumps, which could be utilised to run an efficient heating system.

- 9.5. The development would utilise high levels of insulation to the roof, walls and floors in order to reduce heat loss from the building. Recycled materials would be sourced where appropriate and consideration is being given to the installation a rain-water harvesting system.
- 9.6. This statement has set out the design principles that have informed the development in terms of its environmental impact. It is considered that the proposal represents a sustainable form of development that, with the right use of technology, would off-set at least 19% of predicted carbon emissions.

September 2020