Sustainability Statement

Site: 'Staindrop', New Inn Lane, Bartley

Proposal: Replacement Dwelling

Date: 6/7/22

Details of how the Proposal reduces carbon emissions and incorporates measures to reduce its contribution to climate change:

1. **Making the most efficient use of land, buildings and natural resources including site layout and building design.** Guidance: Energy consumption can be significantly reduced through the location of development, site layout and building design, the type of materials used, the use of existing and new resources and the efficient management of the construction process.
The replacement dwelling makes muse of solar gain with large areas of glazing to the southern (rear) elevation. Non habitable uses and smaller spaces have been planned to the north side of the building where less importance on solar gain is required. This allows the habtable rooms to utilise the sunpath. Robust materials are specified and will be sourced from responsible suppliers, using local workforce where possible.

2. **Energy Hierarchy***   Guidance: Level 1 – Reduce the need for energy; Level 2 – Using energy more efficiently; Level 3 – Supplying energy efficiently; Level 4 – Use low carbon and renewable energy. There are opportunities in all types of development to use low carbon and renewable energy sources, however what is appropriate will depend on the physical nature of the building, its site characteristics and the surrounding landscape.
Boiler, integrated appliances and light fittings will be energy efficent. Material from the existing dwelling will be recycled and repurposed where possible. The use of Photovoltaic panels will be investigated during the building regulation stage, it is anticipated the rear slope (south facing) will be used for this purpose. No chimney is proposed, reducing the possibility of heat escape, double glazed window units are proposed.

3. Minimising Flood Risk**

Guidance: Directing development away from flood risk areas, reducing overall risk from flooding within the National Park and areas outside it, upstream and downstream.

The application site is not located within a flood risk area. The existing building has a footprint of 80sq/m, the proposed buliding has a footprint of 59 sq/m, this is a reduction of built form and so less surface water run off.

Paving and hardstanding will be permeable, additional areas of planting are also proposed.

The use of water butts will also help reduce surface water run off.

4. Carbon Reductions

Guidance: Consideration of means of reducing carbon emissions for the development. Seeking to take every opportunity to reduce carbon and build sustainably.

Materials will be sourced from a respoinsible supplier. Labour and workforce will be local where possible.

The existing dwelling has an EPC rating of 'F', the proposed dwelling will greatly improve upon this, thus reducing the need for heating / energy requirement through modern building techniques and materials.

5. Water Efficiency.

Guidance: Water conservation methods include ensuring that the design of buildings and their surrounding landscape maximises water efficiency and minimises water wastage; identifying opportunities to use water more efficiently during the construction of the development; designing surface water drainage systems to take into account future changes in rainfall.

The proposed dwelling will have energy effecient fittings, thus an improvement over the exisitng dwelling.

A soakaway will be located in the rear amenity area along with 2 water butts, to reduce surface water run off.

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*Energy Hierarchy

Level 1 – Reduce the need for energy

The energy hierarchy places great emphasis on Integrated Passive Design. Key methods include:

- *Orientation* – making best use of high summer sun angles & low winter sun angles on southern exposures;
- *Thermal mass* – to store heat in the winter and act as a heat sink for cooling in the summer;
- *Natural ventilation* – designing controlled flows through buildings for cooling;
- *Zoning* – to allow different thermal requirements to be compartmentalised.

Level 2 – Using energy more efficiently

Using energy more efficiently means not wasting energy or using more than is required. The following potential energy efficiency measures should be considered:

- High levels of insulation.
- Utilising appropriate forms of glazing
- Installing heating controls.
- Using energy efficient heating and heat recovery systems.
- Adding draught strips on doors, windows & letter boxes.
- Fitting chimney balloons.
- Installing zoned low energy lighting and presence sensors.
- Replacing doors in existing buildings.
- Upgrading to a high efficiency condensing boiler
- Adding a sun pipe/tunnel

Level 3 – Supplying energy efficiently

Supplying energy efficiently refers to connecting to existing low carbon heat networks. Connection to, or development of, a mini district heating network can be a carbon efficient means of energy supply.

Level 4 – Use low carbon and renewable energy

Once the energy needs of a new building have been minimised through design, consideration needs to be given as to how the remaining energy needs can be met through:

- Heat pumps: ground source heat pumps and air source heat pumps.
- Wood burning stoves/biomass boilers.
- Solar thermal/hot water panels.
- Solar photovoltaic/electric panels.
- Hydro power, small scale water turbines.
- Anaerobic digesters.

**Minimising Flood Risk

Sustainable Urban Drainage Systems (SuDS) remove water quickly and efficiently and should be included in the original design and layout of a proposal wherever possible. The approach used will differ with each application and the circumstances of each site.