Sustainability Statement

Site: 31 Anderwood Drive, Sway, SO41 6AW

Proposal: 2-storey side extension; alterations to fenestration; render,

wood cladding

Date: 10/01/2022

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.
By relocating the large Utility to the North side of the house and creating a Sitting Room with larger, high performing windows on the South and West side of the house, will reduce the need to heat and light one of the most used rooms. The new first floor bedrooms will be naturally ventilated. The Shower Room will be mechanically ventilated on a sensor timed system. The proposed new extension will enable both the existing and proposed roofs and dormers to be highly insulated. By recladding and reinsulating the existing rear extension at the same time as the proposed extension build, will enhance thermal performance and reduce the need for heating. By reconfiguring the house to take advantage of the sun and provide enough bedrooms for a family with 3 children means they will not outgrow the house. If the house is then able to provide the space they need, they do not ned to move and therefore they can invest in highly efficient energy systems that can perform well into the future.

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.

The new extension will be built with a thermally efficient envelope reducing the need for heating.

The glazing will incorporate Argon or similar inert gas cavity fill and Low Emissivity glass.

Heating will be zoned and will have thermostatic valves for individual radiator control.

The lighting will be installed/upgraded to low energy (LED or similar) throughout.

The owner will consider utilising electricity from a renewable energy supplier and is currently exploring ideas such as a ground source heat pump.

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 site lies in Flood Zone 3, an area denoted as probability of flooding. That being said, the stream at the bottom of the site is situated around 3000mm lower than the existing house and the proposed extension sits entirely within the footprint of the existing house. Therefore, the proposed extension does not create a higher risk to flooding than the current dwelling or those houses surrounding it.

The small scale of the proposed development means the runoff from the proposed roof will be absorbed by existing soakaways and water butts.

Localised surface water flooding risk can be minimised through the removal of the tarmac driveway and replacement of a new permeable gravel driveway.

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.

Lighting to be low energy LED fittings throughout the dwelling.

All timber used in the construction and cladding sourced will be FSC certified and will act as a carbon store.

The thermal and lighting efficiency of the building will reduce carbon emissions in use.

All materials will be locally sourced where possible. The high standard of construction of the alterations, together with upgrading areas such as lighting, heating and insulation within the existing property, will considerably reduce carbon emissions.

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.
In the new shower room taps with temperature controls will be fitted to conserve energy without unnecessary overheating. The new utility to have latest appliances to minimise energy and water consumption. All sanitary ware will be water saving to minimise the use of water.

*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.