Sustainable Construction, Energy and Water Statement
New dwellinghouse, 32 Coanwood Cottages, Wareside, Ware, SG12 7RT

1.0 Materials

The dwelling will be constructed with masonry cavity walls. The outer brickwork leaf will be in masonry to match existing. The inner leaf will be lightweight thermal concrete blocks to improve the U-value of the walls. Masonry has been chosen in order to provide thermal mass. The cavity will be a minimum of 150mm, clear from mortar snots and packed with Knauf mineral wool insulation.

The roof structure will be attic trusses with 90mm rigid insulation board installed between trusses and a continuous layer of 90mm rigid insulation board laid over, boards tightly abutted and joints sealed. Breathable membrane laid over insulation followed by counter battens, battens and clay tiles. Internally, VCL/air membrane to be installed to inside face of timber members/ insulation and lapped over where wall junctions where necessary to ensure air tightness.

It is envisaged that the build will use low-emissivity paints, timbers etc. internally.

2.0 Optimising Resources (energy and water)

Energy Efficient Measures	**Y**	**N**	**N/A**
Natural/passive ventilation to reduce the need for mechanical plant	√		
MVHR		√	
Active cooling systems	√		
Potentially as part of air source heat pump system			
Draught-proofing	√		
The construction will follow the Accredited Construction Details (ACD's) to ensure that the dwelling is airtight with a maximum air permeability of 3.5 m^3/hm^2			
Insulation	√		
High-levels of mineral wool insulation to walls. Rigid insulation boards to roofs and floor slab. Insulation to be continuous and follow ACD's. U-values to exceed Part L.			
High performance glazing	√		
Double glazed units throughout to exceed required U-value of 1.4W/m2K			
Renewable energy technologies	√		
Solar panels to south facing roof slope feeding into hot water tank			
Smart meters	√		
Energy efficient lighting	√		
LED lighting throughout with lighting on motion sensors/timers where necessary. All lighting to be controlled remotely			
Heating system	√		

Underfloor heating throughout ground floor and radiators with TRV at first floor level. All heating to be controlled remotely.				
Water Efficient Measures				
Water efficient fittings:		√		
WC's x 5	4/2 litres dual flush			
Shower x 4	6 L/min			
Bath x 1	170 litres			
Basin taps x 5	5 L/min			
Kitchen sink tap x 1	6 L/min			
Dishwasher	1.25L/place setting			
Washing machine	8.17/kg			
Water efficient A or B rated appliances		√		
Water meter		√		
Rainwater harvesting			√	

3.0 Carbon Reduction Template

Unit number	Target Emission Rate (TER)	Dwelling Emission Rate (DER)/Building Emission Rate (BER)	% improvement on building regulations Part L
1	6.8kgCO_2/m^2	3.11kgCO_2/m^2	45

Refer to attached Design Project Summary for further information.

4.0 Biodiversity and Climate Resilience

Opportunities for greening/enhancing biodiversity	Y	N	N/A
Does the development involve the loss of an ecological feature or habitat?		√	
Does the development include the loss of green or garden space?	√		
The proposed dwellinghouse has an increased footprint from the original semi-detached dwellighouse and therefore the development will include the loss of garden space. However, the garden directly adjacent to the existing is of low ecological value and there are no plants, trees or potential habitats that could be of significance.			
A green roof or wall		√	
Being semi-detached, the development needs to follow the vernacular of the neighbouring property and therefore a green wall/roof is not appropriate.			
Pond or rain garden		√	
None planned although the occupant would have space to form a small pond in their rear garden if they wish.			

Other greening including tree planting, landscaping/planting	√		
The front and rear gardens will be landscaped with areas of grass and mixed planting to encourage biodiversity.			
Wildlife enhancement features		√	
Does the development result in an increase in hard surfacing?		√	
Does the development use permeable materials for hard standings/parking areas to reduce run-off?	√		