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SUSTAINABILITY STATEMENT

Site:	Vale Cottage, Paxton Hill, Great Paxton, St Neots, Cambridgeshire, PE19 6RB
Proposal:	Demolition of existing garaging and store buildings on the northern part of the site and erection of a detached two-storey HUF house on the resulting sub-plot (circa 0.18 ha).

Document	**This Sustainability Statement**
Companion Document	Design, Access and Planning Statement (WvH Planning, October 2026)

1. Introduction

1.1 This Sustainability Statement is submitted by WvH Planning on behalf of Ms Ruta Balandyte-Smart in support of an application for a detached HUF house on the northern part of the Vale Cottage plot, replacing the existing garaging and store buildings. It should be read with the Design, Access and Planning Statement (WvH Planning, October 2026) and provides the technical detail behind the sustainability case summarised there.

1.2 The house is designed to achieve net-zero operational carbon: a factory-made, highly insulated and airtight envelope, no fossil fuels, an air source heat pump, a photovoltaic array sized to the dwelling's demand, heat-recovery ventilation and water efficiency to the higher Building Regulations standard. The Framework gives substantial weight to designs of this kind, and this statement sets out the evidence so that the weight can be applied.

2. Climate Change and Sustainability Policy

2.1 National Planning Policy Framework (August 2026)

2.1.1 Chapter 5 (Policies CC1 to CC3) supports the transition to net zero by 2050. Policy CC2 requires proposals to use design approaches that save energy and other resources (CC2(1)(c), with DP3(2)(b)), to reuse existing structures and materials on site (CC2(1)(d)) and to align with Policies TR3 and TR4 so that infrastructure supports zero-emission vehicles (CC2(1)(a)); CC2(2) gives substantial weight to renewable and low-carbon energy, expressly including heat pumps and solar panels. Policy CC3 requires development to account for climate impacts over its lifetime, including sustainable drainage (CC3(1)(c)) and design that minimises overheating with green infrastructure and tree planting (CC3(1)(d)).

2.1.2 Policy DP3(2)(b) asks proposals to contribute to mitigation, adaptation and net zero through layout, orientation, massing, landscaping and materials, and Policy DP3(5) gives substantial weight to outstanding or innovative designs that promote high levels of sustainability. Policy DM7 provides that planning should not duplicate the Building Regulations; this statement imposes no additional standard but evidences how far the proposal exceeds regulatory minima so that the benefits attract the weight Policies CC2(2) and DP3(5) require.

2.2 Local Planning Policy

2.2.1 Huntingdonshire's Local Plan to 2036 requires development to make efficient use of energy, water and other resources, applying the optional higher water-efficiency standard of 110 litres per person per day which the Local Plan Inspector found justified by water stress in the district (Policy LP 12(j)); supports renewable and low-carbon energy where its impacts are acceptable (Policy LP 35); and requires surface water to be managed by sustainable drainage (Policy LP 15). The proposal exceeds all of them.

2.3 Objectives of This Development

2.3.1 The development is designed to minimise energy demand through passive design and a fabric-first envelope, to eliminate fossil fuels, to generate on site the energy it uses, to reduce water consumption, to adapt to a warming climate, to minimise construction impacts through offsite manufacture, and to leave the site richer in wildlife than it found it.

3. Sustainable Design and Fabric Efficiency

The house will be delivered by HUF Haus, a German precision timber-frame system refined over decades to deliver exceptional thermal performance and airtightness. Wall and roof elements are manufactured off-site to tolerances unachievable on site, giving a consistently verified building envelope. This fabric-first approach drastically reduces heating demand before any low-carbon technology is applied.

3.1 Key Fabric Features

- Airtightness far exceeding Building Regulations limits and comparable to Passivhaus standards
- Insulation well beyond Part L, with wall and roof U-values below those achievable by standard construction
- Argon-filled, triple-glazed low-emissivity windows and doors with thermally broken frames throughout, including the clerestory glazing
- Deep overhanging eaves to all glazed elevations, moderating summer solar gain while admitting low winter sun
- The lower floor set into the slope, where the surrounding ground gives thermal mass and stable temperatures through the year

3.2 Fabric Performance Against Building Regulations

3.2.1 The HUF Haus specification substantially exceeds the Part L 2021 limits for new dwellings: indicatively, external walls approximately 0.14 W/m²K (Part L limiting value 0.26; notional dwelling 0.18), roof approximately 0.11 W/m²K (limiting 0.16; notional 0.11) and triple glazing approximately 0.8 W/m²K (limiting 1.6; notional 1.2). These standard HUF Haus figures are to be confirmed at technical design stage.

4. Operational Carbon Performance

4.1 On the basis of the HUF Haus fabric, the elimination of fossil fuels and on-site generation, the house is designed to achieve operational net-zero carbon, with the following projected metrics:

Performance Metric	Projected Outcome
EPC Rating	Projected EPC Band A, based on SAP assessment of the completed dwelling
Fabric Performance vs Part L	HUF Haus wall, roof and glazing specifications substantially exceed the Part L 2021 limiting and notional values; precision factory manufacture delivers consistent, verified performance well beyond what conventional construction achieves
Operational Carbon	Net-zero operational carbon: on-site photovoltaic generation sized to meet or exceed the dwelling's full operational energy demand, with no fossil fuel supply to the house
Regulated CO_2 vs Part L Target	Dwelling emission rate substantially below the Target Emission Rate; the all-electric, heat-pump-and-PV specification removes combustion emissions entirely

4.2 These outcomes place the house among the highest-performing new homes in the country. Net zero is achieved through the fabric (Section 3), the elimination of fossil fuels by the heat pump and on-site photovoltaic generation meeting full operational demand (Section 5).

5. Energy Generation and Systems Integration

5.1 Air Source Heat Pump

5.1.1 A high-efficiency air source heat pump (the specified unit is a WPL 25 AS, rated 8.32 kW at A2/W35 with a coefficient of performance of 3.96, energy class A++, composite system A+++) will provide all space heating and hot water. The low heating demand of the HUF Haus fabric allows it to run at a high coefficient of performance throughout the heating season. The external unit stands on a concrete base on the north side of the house, away from

neighbouring windows, with a sound pressure level of 34 dB(A) at 5 m in free field; the hot water cylinder, inverter and controls are in the lower-floor plant room.

5.2 Photovoltaic Array

5.2.1 A photovoltaic array across the pebble-finished flat roof, laid flat and not visible from Paxton Hill, is sized to meet the dwelling's full operational demand including the heat pump. The open roof, largely unshaded by the retained trees, maximises generation, so that the house generates as much energy as it uses in operation.

5.3 Mechanical Ventilation with Heat Recovery

5.3.1 A whole-house mechanical ventilation system housed in the plant room supplies filtered fresh air to habitable rooms and extracts from wet rooms, recovering the heat from outgoing air. It is the essential complement to the airtight fabric, maintaining indoor air quality without opening windows; with the argon-filled triple glazing it also ensures quiet internal conditions notwithstanding the railway to the west.

5.4 LED Lighting and Smart Energy Management

5.4.1 All lighting will be LED. A smart energy management system will monitor generation and consumption in real time, maximising self-consumption of PV output (for example by pre-heating hot water and charging the car when the array is generating) and minimising grid import. A 7 kW electric vehicle charging point is provided at the carport.

6. Water Efficiency and Climate Adaptation

6.1 Water Consumption Target

6.1.1 The house is designed to use less than 110 litres of potable water per person per day, the higher standard in Building Regulations optional requirement G2 adopted by Policy LP 12(j), through aerated taps, low-flow showers, dual-flush WCs and a rainwater harvesting system for garden irrigation.

6.2 Passive Overheating Prevention

6.2.1 The principal glazing faces west over the garden. The deep HUF Haus eaves shade it from high summer sun while admitting low winter sun, the clerestory windows allow stack and cross ventilation, and the earth-sheltered lower floor stays cool. External shading to the west-facing glazing will be specified at technical design stage. This passive approach removes the need for mechanical cooling and future-proofs the dwelling against hotter summers, consistent with Policy CC3(1)(d).

6.3 Surface Water

6.3.1 Surface water from the roofs and drive will be managed by sustainable drainage: soakaways if infiltration testing of the clay soils permits, otherwise attenuation with a controlled discharge, with permeable surfacing to the drive and rainwater harvesting reducing run-off at source (Policies LP 15, F8 and CC3(1)(c)).

7. Biodiversity and Environmental Enhancement

7.1 The red-line site is 1,805 m^2, below the 0.2 ha threshold, and no priority habitat is affected, so the development is exempt from mandatory biodiversity net gain under the exemptions in force since 6 August 2026. Consistent with Policy N2, which expects proposals to retain established features, use nature-based solutions and incorporate nest boxes, and with the recommendations of the Preliminary Ecological Appraisal, the proposal nonetheless delivers the following enhancements:

Measure	Detail	Benefit
Retained hedges and trees	Cypress hedges to the north and east boundaries and all category A and B trees retained and protected to BS 5837:2012	Nesting habitat, bat commuting corridor and screening retained intact
Native planting	New native hedge and tree planting to the western and southern edges of the sub-plot, with compensatory planting for the low-value trees removed	Strengthens the ecological network; buffers the wider landscape
Swift, bird and bat boxes	Boxes mounted on retained trees and the carport (integrated bricks within the airtight HUF Haus panels being technically inappropriate, as Policy N2(1)(f) allows)	Nesting and roosting habitat without compromising the certified airtight envelope
Hedgehog highways	13 cm gaps at the base of any new fencing	Maintains hedgehog movement between gardens
Log piles and pond retention	Deadwood piles from the trees removed; the existing garden pond retained	Refuges for amphibians, reptiles and invertebrates
Low-spill external lighting	Warm-white LED fittings below 2,700 K, downward-facing, on timers and PIR sensors	Maintains dark corridors for bats; reduces light pollution in the countryside (LP 10(c))
Rainwater harvesting	Roof rainwater harvested for garden irrigation	Reduces mains water demand; supports garden ecology

7.2 Together these measures secure a net gain in biodiversity on the site, consistent with the Government's expectation that exempt development should still incorporate nature-friendly features.

8. Construction Sustainability and Lifecycle Impact

The sustainability benefits of the HUF Haus system extend to the construction process and the lifecycle of the building.

8.1 Offsite Prefabrication

8.1.1 All structural wall and roof elements are factory-made and delivered as prefabricated panels for rapid assembly, giving:

- far less construction waste, with factory offcuts recycled
- fewer vehicle movements than conventional material deliveries on a fast road without a footway
- shorter and less disruptive site works, reducing noise and dust for the neighbouring bungalows
- lower embodied carbon through efficient use of material

8.2 Sustainably Sourced Timber

8.2.1 The primary structure is certified sustainably sourced engineered timber, a renewable material of low carbon intensity that sequesters carbon for the life of the building.

8.3 Construction Programme

8.3.1 The HUF Haus structure is weathertight approximately 16 weeks after groundworks, far quicker than conventional construction, minimising disruption, vehicle movements and construction emissions.

8.4 Demolition and Material Recovery

8.4.1 Demolition of the four outbuildings will prioritise salvage, reuse and recycling: brick and concrete will be crushed for reuse as hardcore beneath the drive and bases, as Policy CC2(1)(d) encourages, and the corrugated metal and timber will be recycled. Vegetation clearance and excavation will follow the method statements in the Preliminary Ecological Appraisal, and tree protection will follow the Arboricultural Method Statement.

9. Commitment to Long-Term Carbon Reduction

9.1 The house is designed so that its performance endures. The smart energy system allows the occupiers to monitor generation and consumption and verify net-zero performance, the heat pump, photovoltaic array, ventilation and controls are specified to be maintained at design efficiency, self-consumption of renewable generation is maximised automatically, and an electric vehicle can be charged from the array. The HUF Haus system is delivered with a full operation and maintenance handover so that these benefits pass to whoever occupies the house.

10. Conclusion

10.1 The proposed house at Vale Cottage is an exceptional scheme in sustainability terms. Built to the HUF Haus system and equipped with a full suite of low-carbon technologies, it is designed to achieve net-zero operational carbon, with a projected EPC Band A, fabric well beyond Part L, no fossil fuels, on-site renewable generation meeting full demand, heat-recovery ventilation, water efficiency below 110 litres per person per day, low-carbon offsite construction and a package of biodiversity enhancements on a site that is exempt from mandatory net gain.

10.2 These benefits attract substantial weight under Policies CC2(2) and DP3(5) of the Framework and satisfy Policies LP 12, LP 15 and LP 35 of the Local Plan. The proposal is respectfully commended to Huntingdonshire District Council.

Prepared by WvH Planning on behalf of Ms Ruta Balandyte-Smart