CLIMATE CHANGE ASSESSMENT

Planning Application: 105 Derby Road, Duffield, Derbyshire, DE56 4FQ

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1. Introduction

This Climate Change Assessment has been prepared to accompany the planning application for the conversion of the existing barn outbuilding to a short term let property at 105 Derby Road, Duffield. It demonstrates how the proposal addresses the requirements of Amber Valley Local Plan Policy EN1 in relation to climate change and sustainable development.

2. Energy Efficiency

Heating System - The proposal will utilise a fully electric heating system. An efficient air source heat pump will provide the primary heating, supplemented by underfloor heating at ground floor level and local electric radiators at first floor level. This system eliminates the need for fossil fuel combustion and provides a low-carbon heating solution.

Insulation - Internal insulation will be installed to meet the requirements of Building Regulations as a minimum for new installations. The existing stone walls provide significant thermal mass, which will enhance the overall thermal performance of the building, resulting in a fabric efficiency that out-performs the minimum standards required under Building Regulations.

Thermal Stability and Overheating - The thermal mass of the external stone walls, combined with upgraded roof insulation, will ensure the building is thermally stable and resistant to overheating. All principal rooms have access to openable windows or barn doors to allow purge ventilation. Mechanical ventilation with heat recovery will be provided to the new bathroom to ensure adequate air circulation.

3. Renewable Energy

Solar photovoltaic (PV) panels will be installed as shown on the proposed drawings. A total of four panels are proposed, reflecting the limited available roof area. These panels will generate renewable electricity to offset a proportion of the property's energy demand.

4. Water Efficiency

Rainwater will be harvested from downpipes via water butts for use in garden irrigation. This reduces demand on the mains water supply and provides a sustainable source of water for outside use.

5. Flood Risk

The site is not located within Flood Zone 2 or Flood Zone 3. A Flood Risk Assessment is therefore not required for this application.

6. Electric Vehicle Charging

An electric vehicle charging point will be provided to encourage low-carbon transport and support the transition to electric vehicles.

7. Materials and Construction

External Appearance - Externally, no changes are proposed to the appearance of the existing walls. Roofing slates will be reused once new insulation is installed, minimising waste and preserving the character of the building. The new extension will be formed from materials to match the existing building from reclaimed sources or local quarries, etc.

Windows and Doors - New windows and doors will meet current Building Regulations requirements and will be of a conservation-style design to match the modern windows on the main property, ensuring the proposals preserve the character and appearance of the building and the surrounding area.

8. Expected Energy Performance

Based on the proposed measures, the development is expected to achieve an EPC rating of B+ or above, significantly exceeding the minimum standards required by Building Regulations.

9. Summary

The proposed development incorporates a range of measures to address climate change, including:

- Efficient all-electric heating (air source heat pump, underfloor heating, electric radiators)
- Solar PV renewable energy generation
- High levels of insulation exceeding Building Regulations minimums
- Thermal mass to improve fabric performance and prevent overheating
- Rainwater harvesting for garden irrigation
- Electric vehicle charging provision
- Reuse of existing materials and conservation-appropriate detailing

The proposal therefore satisfies the requirements of Local Plan Policy EN1 in demonstrating how climate change issues have been considered.