CLIMATE CHANGE STATEMENT

Part 1: Applicant details

Name of applicant/agent: Rob Airey/Kenneth Okafor-Anene

Site Address: Fletcher House Farm, Lumb Lane, Huddersfield, West Yorkshire, HD4 6SZ

Description of Development: Converting a part derelict of Fletcher House Farm, a Grade II listed farmhouse located at Lumb Lane, Huddersfield, into a two-bedroom, two-storey residential dwelling. The proposal seeks to restore the building to sustainable use while safeguarding and enhancing its historic character.

Part 2: Climate Change Mitigation measures

Q1: What measures have been/will be taken to reduce the energy demand associated with your proposed development beyond the minimum required in Building Regulations?

The building envelope will be constructed using breathable and thermally efficient materials. These include 50mm internal wood fibre insulation and 25mm aerogel boards, both of which are highly effective in reducing heat loss. Importantly, these materials are also compatible with the building's historic fabric. Our choice of these materials is a deliberate strategy to significantly improve the building's thermal performance without compromising its heritage significance. For a more efficient use of energy, we plan to install user-friendly building services controls throughout the property. This system will feature programmable heating controls and thermostats in individual rooms, enabling residents to customize heating to specific areas and avoid unnecessary overheating. The heating will be provided by a centralized boiler system, located in the service zone of the house, which supports energy zoning across both floors. This design not only reduces plant duplication but also simplifies maintenance and monitoring, thereby improving efficiency. As part of our plan, we will integrate 'smart' energy metering. These meters will display real-time and cumulative energy consumption data, including cost estimates, to inform and empower occupants to actively manage and reduce their energy usage. We will also provide a 'welcome pack' detailing best practices for operating the heating and lighting systems effectively and sustainably to future residents. This initiative will not only promote a culture of conscious energy use but also align with the Council's broader climate goals. Lighting efficiency will be maximised by installing low-energy LED fixtures and lighting controls, such as occupancy sensors in circulation areas. Additionally, new timber-framed heritage slimline double-glazed windows will replace unsalvageable units. These windows significantly improve thermal performance while preserving the historic appearance, avoiding the draughts and heat loss commonly associated with single glazing. Retaining and repairing the building's existing timber elements where feasible also contributes to overall energy savings by minimising embodied carbon emissions.

Q2: What measures have been/will be taken to limit the carbon consumed through the implementation and construction processes, e.g. by reusing existing on-site materials or sourcing materials locally?

The proposed conversion of the part-derelict Fletcher House Farm into a two-bedroom residential dwelling centre on conservation-led principles that inherently limit carbon emissions during implementation. This conversion will not only bring a historic structure back to life but also provide much-needed housing in the local community. Instead of demolishing and rebuilding, the scheme retains and refurbishes the historic structure, preserving its stone walls, timber joists, and roof form. This approach significantly reduces embodied carbon that would otherwise result from new construction and materials manufacture. Key heritage elements, such as internal timber joinery and lime plaster, are being restored or reused where possible, in line with the guidance from Historic England and the Kirklees Local Plan (Policy LP24). Early engagement with waste minimisation strategies has been integral to the planning process. A waste management plan will guide construction practices by prioritising reuse and responsible disposal, following the waste hierarchy outlined in Policy LP43. Site clearance and construction activities will be tightly controlled to minimise

waste generation, with separation facilities established to allow sorting and on-site recycling of building materials. Additionally, waste storage areas will be designed into the final layout, allowing future occupants to segregate household waste and support the council's long-term recycling targets. Materials specified for this development have been selected based on thermal performance and environmental impact. For instance, internal insulation comprises breathable wood fibre and aerogel boards materials that not only deliver low U-values for heat retention but are also sustainably produced with low embodied carbon. Other components, such as wide-plank oak or reclaimed pine floorboards and FSC-certified structural timbers for internal partitions, reinforce the project's low-impact philosophy. The selection of long-life and low-maintenance materials further reduces the frequency of replacement cycles and associated emissions over time. The sourcing of construction materials has also been approached with a strong sustainability lens. Local suppliers within West Yorkshire will be prioritised to reduce transport-related emissions. This not only reduces our carbon footprint but also supports the local economy. This applies particularly to lime plaster and stonework repairs, using traditional materials matched to the existing building fabric. Where feasible, elements such as reclaimed slates, stone dressings, and joinery will be sourced from salvage yards or recovered from the site, thereby minimising the need for virgin materials and reducing overall environmental impact.In summary, the development at Fletcher House Farm demonstrates a conscientious effort to limit carbon emissions during construction through retaining and reusing historic fabric, selecting sustainable materials, and planning early-stage waste. These combined measures align with policies LP24, LP30 and LP43 of the Kirklees Local Plan, a testament to our respect for and consideration of local planning policies. This reflects a holistic commitment to climate resilience and responsible heritage conservation.

Q3: What measures have been/will be taken to utilise renewable or low carbon energy sources?

Although Fletcher House Farm is a single residential dwelling and not of a scale requiring a master plan, the proposed development has been carefully designed to incorporate low-carbon energy measures appropriate and sensitive to its Grade II listed status. Using a highly efficient, modern gas boiler, paired with smart, zone-based heating controls, will ensure reduced energy demand and lower emissions. While the connection to a District Energy Network is not applicable due to the site's rural and isolated location, the proposed system ensures high operational efficiency at the point of use. Importantly, this design aligns with the principles of Local Plan Policy LP26, demonstrating our commitment to meeting local regulations and guidelines. To supplement these core systems, the proposal explores the feasibility of incorporating renewable technologies in ways that do not detract from the heritage character of the building. For example, introducing slim-profile heritage double glazing will enhance thermal performance while preserving the traditional timber window appearance. Additionally, south-facing roof slopes may be considered for discreet solar photovoltaic installation in future phases, subject to Listed Building Consent and heritage impact assessments. This potential for future sustainability improvements instils optimism about the project's long-term impact; where viable, these panels would contribute to domestic electricity generation, reducing reliance on grid-supplied energy and supporting long-term decarbonisation. Complementing these strategies is our unique 'fabric-first' design approach, significantly reducing the base heating load and enhancing low-carbon systems' effectiveness. By using breathable, natural, insulative materials such as wood fibre and aerogel, we improve the internal environment and minimise environmental impact. These measures represent a balanced and contextually sensitive response to the climate emergency, ensuring the building performs efficiently in its renewed residential role without compromising its historic integrity.

Q4: What measures have been/will be taken to ensure the building design and layout has been optimised to energy efficiency beyond the minimum requirements in Part L of the Building Regulations?

The proposed restoration and conversion of Fletcher House Farm adopts a fabric-first approach to energy efficiency, which is crucial for long-term energy reduction. The design includes the insulation of all external walls and roof spaces with breathable wood fibre insulation (50mm) and aerogel boards

(25mm). These materials not only provide excellent thermal performance but also maintain the historic structure's integrity. The use of limecrete floors and lime plaster finishes supports moisture regulation and reduces thermal bridging, enhancing the indoor environment's efficiency and comfort. All proposed new windows and external doors will be fitted with heritage-style timber frames. These frames, incorporating ultra-slim double glazing (such as Pilkington Spacia or Histoglass), preserve the building's character while improving U-values. The argon-filled glazing units with low emissivity coatings significantly reduce unwanted heat loss and improve airtightness across the building envelope, without compromising the farmhouse's historic appearance. The heating system will comprise a high-efficiency gas boiler with programmable smart controls and zoning. This allows different rooms to be heated only when necessary, optimising energy use and improving comfort. The boiler system will be capable of responding to solar gain through intelligent sensors, thereby adjusting output based on ambient conditions. This aligns with Kirklees Local Plan Policy LP24's emphasis on sustainable building services and responsible energy management. Efficient lighting design is a key component of the proposal. Low-energy LED fittings will be used throughout, paired with occupancy sensors in less frequently used areas such as circulation and storage. These measures will minimize lighting demand, thereby reducing carbon emissions. The design also maximizes daylight where possible, with new windows strategically located to increase natural light penetration into habitable rooms, particularly in the south-facing living and kitchen areas. The layout and internal reconfiguration have been carefully planned to take advantage of natural ventilation. This reduces the need for mechanical air conditioning or cooling, especially during warmer months. Features such as openable windows on opposing elevations, internal voids, and natural materials that buffer internal temperature swings help regulate indoor climate without reliance on active systems. These strategies promote comfort and resilience to rising summer temperatures brought about by climate change. Where shading or solar gain may present an issue in the summer, consideration has been given to passive cooling measures such as internal blinds and deep window reveals. Although external louvres or roof overhangs are not characteristic of this heritage building, their effect is mirrored through traditional deep-set windows and recessed masonry detailing. These details provide some measure of solar shading while preserving the building's historic fabric and visual coherence. In conclusion, the design and layout of the proposed development at Fletcher House Farm exemplify a sensitive and robust response to energy efficiency requirements beyond Part L. It harmoniously combines traditional building techniques with modern technologies and intelligent systems, ensuring high thermal comfort, minimal operational energy demand, and preservation of the building's historic value. This approach aligns with Policies LP24 and LP47 of the Kirklees Local Plan and demonstrates an ongoing commitment to environmental sustainability and heritage conservation.

Q5: What measures have been/will be taken to reduce potential impacts of flooding associated with your proposed development?

The proposed conversion of Fletcher House Farm incorporates several measures to reduce the potential impacts of flooding, in accordance with Local Plan Policies LP27 and LP28. Although the site is not located within a designated flood risk zone, the design adopts a precautionary approach by minimising impermeable surfacing around the building and using natural landscaping to encourage surface water infiltration. Rainwater will be directed away from the building through traditional guttering into soakaways or water butts where feasible, supporting sustainable water management. Internally, breathable limecrete floors and natural lime plaster finishes allow moisture regulation and promote resilience to damp ingress, ensuring the historic building remains protected against both surface and groundwater risks over the long term.

Q6: What measures have been/will be taken to reduce water stress associated with your proposed development? (e.g. Water retention and minimisation measures)

To address water stress and promote long-term sustainability, the proposed development at Fletcher House Farm will implement a comprehensive water efficiency strategy that aligns with Policies LP24 and LP34 of the Kirklees Local Plan and Section 7 of the Climate Change Guidance. The scheme is

designed to reduce domestic water consumption to no more than 125 litres per person per day, by Approved Document G2. A water efficiency assessment will be carried out using the 'Water Efficiency Calculator for New Dwellings', a tool that evaluates the water efficiency of a building's design and fixtures before the commencement of works. The results will be submitted to Building Control to ensure compliance. Water-saving sanitaryware, carefully selected for comfort and functionality, will be specified throughout the development. All toilets will be dual-flush with a 5/3 litre configuration, significantly reducing per-flush water usage. Taps in bathrooms and WCs will be low-flow with integrated aerators, and where appropriate, self-closing or infrared-controlled units will be considered to prevent waste through taps being left on. These measures help to lower daily water consumption while maintaining comfort and functionality for future occupants. The bathing facilities will be selected to reduce water consumption, with a preference for thermostatically controlled showers rather than full-sized baths. Where baths are proposed, low-volume tapered models reduce unnecessary water usage while maintaining user comfort. All showers will be fitted with water-efficient heads delivering no more than 8 litres per minute, ensuring the dwelling performs well in water conservation. Although the developer will not supply white goods such as washing machines and dishwashers, guidance will be included within the welcome pack to recommend water-efficient appliances with low usage profiles. Based on the standard Code for Sustainable Homes Level 3/4 metrics, this commitment to sustainability means the anticipated appliance consumption figures are 8.17 litres per cycle for washing machines and 1.25 litres per place setting for dishwashers. This will support future occupants in making sustainable purchasing decisions aligned with the overall water-saving strategy. A water meter will be installed to promote occupant awareness and behavioural change and provide clear usage information and billing based on actual consumption. Research shows that water metering can reduce usage by up to 15% as residents become more conscious of their daily consumption patterns. This simple yet effective intervention will not only help reinforce the long-term sustainability of the dwelling but also alleviate pressure on the local water infrastructure, supporting Kirklees Council's aims to reduce water stress and promote long-term sustainability. While the proposal does not include rainwater harvesting or greywater recycling systems due to the constraints of the listed building fabric, the site layout encourages soft landscaping and permeable surfacing to retain and slow surface water runoff. This passive water retention supports the local water table and complements the broader water efficiency measures adopted internally. Consideration has also been given to using drought-resistant planting in future landscaping schemes to minimise irrigation demand during summer. In line with the Code for Sustainable Homes Level 3/4 standards, the predicted per capita water consumption for the development is estimated at approximately 103.28 litres per person per day. This figure is derived from a calculated breakdown of component water uses, including WC (5/3 litre dual flush), taps (4 litres/min), bath (180 litres capacity), and shower (8 litres/min), based on typical usage frequencies and flow rates. Though not a formal requirement under current Building Regulations, adherence to this benchmark demonstrates the applicant's commitment to delivering beyond-compliance performance. In summary, the water strategy for Fletcher House Farm employs a combination of efficient fixtures, appliances, metering, and occupant education to minimise water consumption and reduce pressure on existing infrastructure. The approach is sensitive to the building's historic character while aligning with contemporary standards for sustainable design. These measures ensure compliance and a proactive contribution to local and national policy, thereby contributing to broader environmental goals in the context of climate change adaptation.

Q7: What measures have been/will be taken to provide biodiversity net gains?

To support biodiversity net gain as part of the proposed conversion of Fletcher House Farm, the development will retain and enhance existing natural features within the site, including surrounding stone boundary walls and mature vegetation that contribute to local habitats. Native and drought-tolerant planting will be introduced around the dwelling to minimise water usage while supporting pollinators and local wildlife. Where feasible, bird and bat boxes will be discreetly installed on existing outbuildings or within sheltered eaves, providing roosting opportunities that align with the rural character of the site. These measures, while modest in scale, are appropriate to the setting of the

listed building and will contribute positively to the wider ecological value of the Green Belt landscape in accordance with Kirklees Local Plan Policy LP30.

Q8: What measures have been/will be taken to reduce air pollution associated with your proposed development?

The development will implement a locally sourced materials strategy, a move that minimises the impact of air pollution associated with the conversion of Fletcher House Farm and brings significant benefits to the environment and the local community. By procuring traditional materials such as reclaimed stone, oak, and lime plaster from local or regional suppliers, we can reduce the carbon footprint and associated vehicle emissions related to material transport. This approach is compatible with the conservation-led restoration of the Grade II listed building and strengthens regional supply chains in line with Policy LP51 of the Kirklees Local Plan. During the construction phase, a waste minimisation strategy supporting a circular construction approach will further reduce emissions. By consolidating material orders and carefully sequencing works, we can minimise the number of deliveries and avoid unnecessary transportation and disposal of on-site materials such as timber joists and masonry. This approach reduces emissions and supports a circular construction approach, avoiding air pollution from material extraction, processing, and vehicle movements. The completed building will include a state-of-the-art mechanical ventilation system where appropriate to ensure healthy indoor air quality without excessive heating or cooling, both of which contribute to emissions when powered by fossil fuels. This ventilation system, designed for maximum efficiency, will operate seamlessly alongside the breathable building fabric, creating a passive, low-energy indoor environment while maintaining the structure's heritage character. Integrating modern services will follow best practices to ensure that any equipment selected produces minimal NOx and particulate emissions. Finally, the building's design encourages sustainable living behaviours that indirectly reduce air pollution over time. This includes providing adequate space for drying clothes naturally rather than using tumble dryers, ensuring efficient heating controls to avoid overconsumption of energy, and including information in resident welcome packs about low-emission transport options and energy-efficient appliance use. These combined design and operational choices reflect a proactive commitment to minimising air quality impacts and instilling confidence in the project's sustainability, supporting the council's broader environmental object.