



# SUMMERFIELD PLANNING LIMITED

Land west of Church Hill, Exeter

Net Zero Carbon Statement

Prepared on behalf of Verto Homes Ltd

July 2023

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## 1. Introduction

1.1 This Net Zero Carbon Statement has been prepared in support of a full planning application for residential development on land to the west of Church Hill, Pinhoe. The application is submitted by Verto Homes Ltd and planning permission is sought for the following:

**Construction of 18 zero carbon bungalows, together with access and associated landscaping, open space and infrastructure and demolition of existing buildings.**

1.2 The proposed development is described and explained in detail in the architectural plans and technical reports that have been submitted with the planning application.

1.3 In accordance with the Council's published planning application validation requirements (see Local List June 2022), the purpose of the Statement is to addressing Core Strategy Polices CP13, CP14 and CP15, and paragraphs 154 and 157 of the National Planning Policy Framework (NPPF).

## 2. Policy requirements

### Exeter Core Strategy

#### 2.1 Core Strategy Policy CP13 states:

*Decentralised Energy Networks will be developed and brought forward. New development (either new build or conversion) with a floorspace of at least 1,000 square metres, or comprising ten or more dwellings, will be required to connect to any existing, or proposed, Decentralised Energy Network in the locality to bring forward low and zero carbon energy supply and distribution. Otherwise, it will be necessary to demonstrate that it would not be viable or feasible to do so. Where this is the case, alternative solutions that would result in the same or better carbon reduction must be explored and implemented, unless it can be demonstrated that they would not be viable or feasible.*

#### 2.2 Core Strategy Policy CP14 states:

*New development (either new build or conversion) with a floorspace of at least 1,000 sq. metres, or comprising ten or more dwellings, will be required to use decentralised and renewable or low carbon energy sources, to cut predicted CO<sup>2</sup> emissions by the equivalent of at least 10% over and above those required to meet the building regulations current at the time of building regulations approval, unless it can be demonstrated that it would not be viable or feasible to do so.*

#### 2.3 Core Strategy Policy CP15 states:

*Proposals for development are expected to demonstrate how sustainable design and construction methods will be incorporated. All development must be resilient to climate change (particularly summer overheating) and optimise energy and water efficiency through appropriate design, insulation, layout, orientation, landscaping and materials, and by using technologies that reduce carbon emissions.*

*Residential development will be required to achieve the above (Para 10.29) Code for Sustainable Homes Level (overall performance across the code categories and complying with minimum standards).*

*All non-domestic development will be required to achieve BREEAM 'Very Good' standards increasing to 'Excellent' standards from 2013. Non-domestic buildings are expected to be zero carbon from 2019.*

*Due to their scale the Monkerton/Hill Barton, Newcourt and Alphington urban extensions should achieve levels of sustainability in advance of those set out nationally.*

#### National Planning Policy Framework

2.4 Paragraph 154 of the NPPF states:

*New development should be planned for in ways that:*

- a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and*
- b) can help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards.*

2.5 Paragraph 157 of the NPPF states:

*In determining planning applications, local planning authorities should expect new development to:*

- a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and*
- b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.*

#### Towards a Carbon Neutral Exeter

2.6 Exeter City Council declared a climate emergency in July 2019 and there is an aim to be a carbon neutral city by 2030. In response, Exeter City Futures created a roadmap to carbon neutrality: the Net Zero Exeter 2030 Plan, which has been officially adopted by the Council.

2.7 The Plan identifies 12 goals which are as follows:

Energy

- Reduced energy consumption
- Access to renewable energy
- Affordable healthy homes

Mobility

- Reliable journeys and resilient roads
- Reduced dominance of cars

Sustainability

- Green spaces and local produce
- Clean air
- Efficient resource management
- Regenerative design

Capability

- Collective action
- An analytical approach
- Locally controlled finance

2.8 A number of actions are identified in the Plan to support the achievement of the identified goals. The actions that are most relevant to the proposed development are as follows:

- Refine local planning policy so that it requires the highest energy efficiency standards (e.g. passive) in all new domestic, industrial, commercial and public buildings;
- Ensure that 100% of electricity consumed by the city is generated from clean sources;
- Enable retrofit of domestic homes across the city to achieve energy performance ratings of C+;
- Revise the local plan to identify sites for new housing and commercial developments that can be served by quality public transport links and attractive cycle and walking connections;
- Increase Exeter's tree canopy cover by a quarter, compared to 2018 figures; and
- Enable a shift to all private cars across the city being in the ULEV category.

### 3. Response to local and national policy

#### Zero Carbon Smart Homes

- 3.1 Verto Homes specialise in designing and building intelligent and sustainable zero carbon smart homes, which produce and use their own renewable energy. The homes do not burn fossil fuels, and use highly sustainable materials and feature intuitive home-automation technology to manage energy usage and maximise efficiency.
- 3.2 Verto Homes have incorporated a range of innovative technologies into their zero carbon smart homes on previous developments. This field is constantly evolving and the company are always updating their specification and design features to ensure that the houses are at the cutting edge of the latest technology and sustainability features. Key elements included on recently built developments to date are:
- Integrated solar PV systems for each dwelling to generate renewable energy;
  - Super insulation to prevent heat loss;
  - Sustainable Construction Methods with fully FSC/PEFC wood sourcing;
  - Recycled materials used in construction and finishes;
  - LED chip lighting systems;
  - Home automation system for full control of heating, entertainment, lighting and management of energy usage;
  - Electrical vehicle charging points for houses and visitor parking; and
  - Air and ground Source Heat Pumps, mechanical ventilation with heat recovery systems.

#### Proposed specification

- 3.3 Creating a zero carbon home requires a specification that is different to conventional new build houses. This enhances sustainability and not only creates a home that is less harmful to the environment, but also provides a building that has very low or zero energy bills and thus creates a sustainable home for both the environment and the inhabitants. The smart home element of the houses is integral to this and means they 'learn' how occupiers live to make them as efficient as possible and manage energy usage to maximise energy efficiency.
- 3.4 Key components of the proposed development are outlined below.
- **Solar PV panels:** The proposed site layout has been designed to ensure that each dwelling has a roof pitch that faces within 30 degrees of south. In addition, a number

of properties incorporate an asymmetrical roof design allowing the south facing pitch to be as large as possible to accommodate PV panels.

- **Highly insulated air tight construction:** Each house will be constructed using very high levels of insulation and the design of the building fabric will ensure a high level of air tightness that will prevent heat loss. This will allow residual heat to be retained within the dwelling, meaning less heat needs to be generated from the heating system.
- **Mechanical ventilation with heat recovery:** In addition to the highly insulated and air-tight building fabric, a mechanical ventilation and heat recovery system will be installed to supply fresh, filtered pre-heated air into the dwellings. These systems enable fresh air to be distributed to all the living spaces and bedrooms while extracting it from the kitchens, bathrooms and utilities. The fresh input air is filtered and pre-heated with the exhaust air that is being removed from the buildings, reducing condensation, dust and smells from the house.
- **Air and Ground Source Heat Pumps:** These will service the underfloor heating systems and supply DHW to all dwellings. As well as having zero CO<sup>2</sup> emissions, the zonal heating enables the homes to be more efficient and reduces the need for higher water temperatures by 30% compared to normal radiators.
- **Smart Home integration:** The smart home system pulls everything together and creates a fully integrated ecosystem that not only provides the user with total control of all features, but also 'learns' how the occupants live so that only relevant parts of the house are heated, reducing energy consumption. This can be fully automated but also controlled via a mobile app so it is accessible anywhere in the world. Additional features such as security and entertainment systems can also be incorporated depending on the final specification of the house.
- **High quality triple glazed windows:** The majority of windows and doors will be triple glazed and openable to allow natural ventilation and prevent over heating in the summer months.

3.5 As well as creating houses which reach a zero carbon standard on their own, the development will also look to be sustainable as a whole, with a net gain in ecological habitat and enhancements across the site. It also includes proposal for the planting of a significant number



of new trees and will promote sustainable travel methods via existing footpath connections and give easy access to local facilities and public transport connections by foot and cycle.

### Technical performance

- 3.6 The homes that Verto build are highly energy efficient and rely largely on their own power generation. The aim of our developments is not only to provide zero carbon smart homes, but also to insulate against the cost of rising energy prices. Most of Verto’s existing properties do not cost their occupiers anything to heat or otherwise power, with the cost of any electricity drawn from the grid offset by the sale of the unit’s solar generated electricity.
- 3.7 When operational, the average dwelling emission rate for a house in the UK is circa 6 tonnes of carbon per annum, but our zero carbon homes achieve a rate of -2 tonnes, equating to a reduction of 133%. The table below highlights the carbon saving of the proposed Verto development consisting of 18 zero carbon smart homes.

Proposed Homes	Carbon saving per annum – per unit	Carbon saving per annum – 18 homes	Carbon Saving over 25 year period – 18 homes
18	6 tonnes	144 tonnes	3,600 tonnes

- 3.8 Based on the above data, 3,600tonnes of carbon will be saved over a 25 year period.

## 4. Conclusion

4.1 In terms of the proposed development's response to the identified policy requirements, this can be summarised as follows:

- Core Strategy Policy CP13 – The site is not in a location where there is an available existing or proposed Decentralised Energy Network.
- Core Strategy Policy CP14 – The proposed development utilises renewable energy sources with the provision of PV panels and air source heat pumps.
- Core Strategy Policy CP15 – The proposed development incorporates sustainable design and construction methods including highly insulated air tight construction, mechanical ventilation and heat recovery, Smart Home integration and high quality triple glazed windows.
- NPPF Paragraph 154 – The proposed development will help reduce greenhouse gas emissions through design of the buildings and renewable energy generation.
- NPPF Paragraph 157 – The proposed development has been designed to maximise solar gain along with the ability to utilise south facing roof slopes for renewable energy production.

4.2 In addition to the above, the proposed development will also contribute to the delivery of the goals set out in the Council's Net Zero Exeter 2030 Plan through the utilisation of highest energy efficiency standards; the generation of electricity consumed from clean sources; locating the new homes in an area well served by quality public transport links and attractive cycle and walking connections; increase tree cover and encouraging the shift to private cars being in the ULEV category.

4.3 Alongside Verto's existing project in Exeter that is under construction, the proposed development can serve as an exemplar project, leading the way for future residential development in the city by demonstrating that sustainable and true zero carbon construction is deliverable at larger scales than has previously been the case.