

SUSTAINABLE DESIGN AND CONSTRUCTION STATEMENT

Proposed Development on Land to the Rear of 3 York Road

06.11.2023

1. Executive summary

1.1 The proposed development consists of the construction of 2no. 1-bedroom flats, on land to the rear of no. 3 York Road, Chichester.

1.2 To meet the planning policy requirements of Chichester District Council's Policy 40 'Sustainable Design and Construction' the development will be constructed to a high standard of fabric efficiency to reduce energy demand. Space and hot water needs will be met through efficient services meeting the energy needs of the building.

2. Development details

2.1 The proposed development consists of the construction of 2no. 1-bedroom flats, on land to the rear of no. 3 York Road, Chichester within an existing housing development for older people.

3. Policy

3.1 Policy 40: Sustainable Design and Construction For all new dwellings or for new non-domestic buildings, evidence will be required by the developer to demonstrate that all of the following criteria have been considered (proportionate to the scale of development):

1. How the proposal aims to protect and enhance the environment, both built and natural. Where this is not possible, how any harm will be mitigated;

2. The proposal achieves a minimum of 110 litres per person per day including external water use;

3. New development complies with Building for Life Standards or equivalent replacement national minimum standards, whichever are higher by ensuring it is accessible to all, flexible

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towards future adaptation in response to changing life needs, easily accessible to facilities and services; and takes into account the need for on-site waste reduction and recycling;

4. Where appropriate, the proposals apply sound sustainable design, good environmental practices, sustainable building techniques and technology, including the use of materials that reduce the embodied carbon of construction and the use of re-used or recycled materials;

5. Energy consumption will be minimised and the amount of energy supplied from renewable resources will be maximised to meet the remaining requirement, including the use of energy efficient passive solar design principles where possible;

6. The proposals include measures to adapt to climate change, such as the provision of green infrastructure, sustainable urban drainage systems, suitable shading of pedestrian routes and open spaces and drought resistant planting/landscaping;

7. The historic and built environment, open space, and landscape character will be protected and enhanced;

8. The natural environment and biodiversity will be protected and/or where appropriate provision will be made for improvements to biodiversity areas and green infrastructure;

9. The development is appropriate and sympathetic in terms of scale, height, appearance, form, siting and layout and is sensitively designed to maintain the tranquillity and local character and identity of the area; and

10. The reduction of the impacts associated with traffic or pollution (including air, water, noise and light pollution) will be achieved, including but not limited to the promotion of car clubs and facilities for charging electric vehicles.

4. Sustainable Design and Construction

4.1 The proposed development aims to protect and enhance both the natural and built environment through the following provisions.

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Sustainable transport

4.2 The development proposal aims to promote the use of transport methods that do not use fossil fuel resources. Using a hierarchy approach, walking should be promoted as the most sustainable means of transport, followed by cycling, public transport, car sharing and finally individual car use.

4.3 The site is located within 400m safe walking route of a food store (also providing an ATM), place of worship and public house. The proximity of these local amenities will enable residents to walk rather than relying on car use for short local journeys. The site is also located approximately 1km from Chichester City Centre with numerous facilities.

4.4 In terms of cycling provision, the site is within proximity to the local cycle network, connecting the site to the City Centre and Chichester railway station via a signed safe cycling route. Due to the demographic of tenants on Royal Close and the low proportion of cycle ownership, it is considered that the provision of secure buggy parking and charging is more appropriate in the context of the development given the proportion of residents which struggle with mobility. However, it is considered that if required by the tenants, the proposed secure buggy storage can double up to provide secure cycle storage. The existing development on Royal Close already exercises a similar policy with the existing buggy store on site.

4.5 Phases 1 and 2 have previously secured cycle hoop and EV parking provision. It is also expected that a condition will be placed on phase 2 to achieve a phased approach to increasing EV provision year on year. The charging points will be reserved for the exclusive use of residents, their visitors and staff of Chichester Greyfriars Housing Association with operational access controlled via a secure app or IRD card i.e. general public charging will not be permitted. Signage will be provided as required to this effect. Local management of the parking bays will be undertaken by the Association and line / bay marking requirements will be determined accordingly. Management of the charging facility will be by either the Association or their appointed third-party agent covering a data, billing and maintenance service. It is proposed that an approved proprietary dual charge post will be installed with 2 x 7kW rated charge points to which approved users may tether their own charging cable to. The charge points will be supplied with power from a new Landlord's electricity supply.

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4.6 The site is situated approximately 1.6km from the railway station at Chichester which provides a frequent connection towards both Portsmouth and Brighton. Bus services are available within 200m walking distance, with bus service 700 providing a frequent service to Chichester, Brighton and Portsmouth.

4.7 The development proposal consists of the construction of 2no. 1-bedroom flats on land to the rear of no. 3 York Road. An Ecological Appraisal recently approved confirms that there are no protected or notable species present.

4.8 The previous phases of development have secured ecological enhancement and mitigation features throughout the site. Considering the scale of this development and its siting on an area of minimal ecological value, there is no direct loss of ecological habitat. It is considered that the recent site wide approach to biodiversity will be sufficient to cover this development.

Pollution

4.9 The proposed building services have a very low potential noise impact. Space and water heating will be via gas fired combi boilers and these have minimal noise impact. Ventilation is likely to be provided via continuous extraction which has no noise impact externally. In order to minimise the impact on local air quality, boilers will be specified to have NOx emissions of less than 40mg/kWh.

Climate Change Adaptation

4.10 As demonstrated above, suitable measures have been taken within the design of the scheme to avoid the potential for overheating anticipating future climate change.

4.11 Green roofs have not been incorporated, as roofs have been proposed as a pitched design to blend with the existing adjoining buildings. For external planting, native species

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have been proposed within the Ecological assessment of the site for the previous development phases.

4.12 The Drainage Strategy for the site confirms that, in line with the strategy for the existing site, surface water will drain to soakaways. Calculations have been provided within the Strategy to confirm that the soakaways have the potential to accommodate a 1 in 100 year storm event with allowance for climate change.

Waste management

4.13 Chichester District Council provide a kerbside collection service for mixed recyclables including paper and card, foil, plastics, cans and glass. Within each dwelling space will be provided for the storage of both general waste and recycling. Externally the proposed development will meet the requirements of Chichester District Council's 'Waste Storage and Collection Guidance' by providing the following:

4.14 The proposed dwelling will have waste and recycling storage and this will be incorporated into the existing storage areas on site. The standard wheelie bin provided by Chichester District Council is 240 litres, however given that the maximum occupancy of each dwelling will be two people, a smaller 140 litre bin may be acceptable. Given the tenure of the proposed accommodation, storage areas will be easily accessible to collection crews to accommodate assisted collection where required.

Sustainable construction

4.15 During both the design and construction phases of the proposed development actions will be taken to reduce the amount of waste generated, and to ensure that waste generated is managed in accordance with the principles of the waste hierarchy. The waste hierarchy sets out the overarching principles that are applied to waste management, setting out the

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priorities for managing waste with waste reduction being at the top of the hierarchy, through to disposal to landfill at the bottom.

4.16 The key benefits of an effective waste and materials strategy will be to:

- Reduce the use of raw materials
 - Design for durability, creating higher quality housing with lower ongoing maintenance costs
 - Design buildings that are easier to adapt for future needs
 - Promote the use of local suppliers and manufacturers of construction materials, retaining investment in the local economy and reducing transport related emissions
 - Reduce carbon emissions associated with manufacture of materials and disposal via incineration
 - Reduce waste sent to landfill and associated costs
- 6.18 In order to benchmark the use of materials, methodologies such as the BRE Green Guide to Specification will be used, along with sustainable procurement of materials from suppliers that hold nationally recognised certification such as ISO14001 or BES6001.

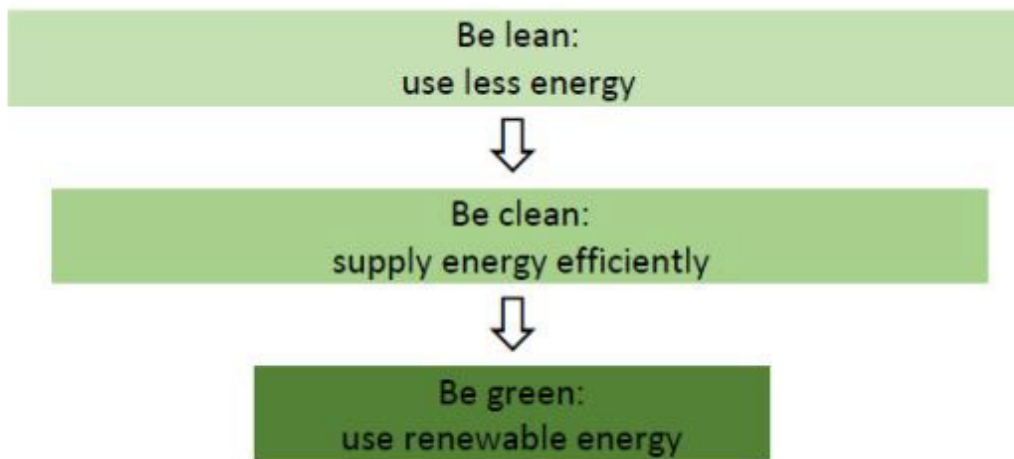
5. Energy

The energy hierarchy

5.1 The energy hierarchy sets out the key measures that should form an energy strategy for any new building, in order of their priority. Reducing energy demand is at the top of the hierarchy, followed by supplying energy efficiently, finally supplying energy from renewable energy sources.

5.2 In line with best practice, the energy strategy for the Proposed Development has been set out in accordance with the structure of the energy hierarchy

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[Demand Reduction](#)

5.3 Measures to reduce the energy demand within the building can be classified as either 'passive' or 'active'. Passive design measures are those such as site layout, solar gain and solar shading, insulation to reduce heat loss, thermal bridging, air tightness. 'Active' design measures relate to energy efficient services such as lighting, ventilation,

5.4 Measures which help the occupant to further reduce their energy use can also be considered here, and these include measures such as smart heating controls and smart meters.

[Passive design measures](#)

5.5 Site layout and building orientation is important to achieve a balance between useful solar gain which can reduce the energy demand of the building, whilst avoiding the potential for overheating from excessive solar gain. Low emissivity glazing will be specified, and additional measures could be taken in the form of blinds to reduce excess gains in south facing units.

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5.6 In terms of thermal mass, it is anticipated that the building will be of masonry construction, this allows the building to respond to changes in temperature by absorbing, storing, and releasing heat in response to changes in internal and external temperatures.

5.7 A 'fabric first' approach to the design will be taken. Heat loss will be minimised by achieving low U-values which represent the rate of heat loss through the external elements of the building. Full construction build ups are not known currently.

5.8 As the heat loss through each of the elements in the building is reduced through the specification of lower U-values, the heat loss at the junctions of each of these elements becomes much more significant. This process is known as thermal bridging. As a minimum thermal bridging will be addressed by following the Government Accredited Construction Details (ACDs), these provide details for typical junctions which address the continuity of insulation and include a process of sign-off checklists for the Contractor to confirm that the relevant details have been adhered to on site.

5.9 Alternatively, as the detailed design is progressed it may be possible to use thermal bridging details from individual manufacturers, and this will be considered in greater detail as the design is progressed.

5.10 Air tightness is a measure of the air leakage from the dwelling, uncontrolled exchange of air between the internal and external environment leads to unwanted heat loss. To minimise heat loss in this way, a target has been set for air tightness of 4 m³/h.m². Full testing will be carried out within the building envelope to confirm that this target is achieved.

Active measures: energy efficient services

5.11 High efficiency lighting will be specified in order to reduce energy consumption for both internal and external lighting. Lighting will be LED fittings, providing an efficacy of 45 lumens per circuit watt as a minimum. Externally and within the communal areas, lighting

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will be controlled with photocell and PIR sensors to ensure it is only operational during hours of darkness and in response to demand.

5.12 Efficient ventilation to enable air pollutants and moisture to be removed from the building, and fresh air to be provided, is essential to ensure that occupants have a healthy internal environment, and that levels of moisture within the building do not have the potential to cause condensation. SAP modelling has been undertaken on the basis of decentralised continuously running extract fans. This type of ventilation provides an efficient continuous low level of background ventilation and is appropriate for the target level of air tightness for the building.

[Demand side response](#)

5.13 Further measures to reduce the demand of the building include the provision of smart meters and a home user guide to aid the occupant to reduce their energy use. Smart meters provide real time data on energy consumption via an energy display device, allowing residents to see their energy use, associated carbon emissions, and running costs. This allows occupants to have greater control of their energy use, rather than relying on estimated meter readings for billing.

5.14 A home user guide will be provided to new occupants to ensure that they have adequate information to enable them to operate heating, hot water, ventilation, and lighting systems in the most cost-effective manner.

[Cooling and overheating](#)

5.15 The energy strategy for each block is based on individual heating systems. High efficiency gas combi boilers will provide both space heating and hot water and therefore no hot water cylinders will be required. It is recommended that boilers should be located in

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close proximity to the kitchen and / or bathroom areas in order to minimise heat loss through distribution and to help to mitigate against overheating.

5.16 It should be noted that Current Building Regulations (2013) and SAP (2012) are not an effective means of assessing true thermal comfort during summer months. Thermal comfort is subjective and the vulnerable are at higher risk of impacts caused by extreme temperatures. If required by the client, a thermal dynamic modelling assessment and report against CIBSE TM59 'Design methodology for the assessment of overheating risk in homes' can be undertaken.

Efficient heating infrastructure (Be Clean) Heat networks and communal heating systems.

5.17 Space heating and domestic hot water can be provided through communal systems in order to improve efficiencies, and this could take the form of connection to an existing district heating system, or provision of a new communal system for the development. No heat networks are known to exist in proximity to the proposed development, and therefore this would not be a feasible option. At this stage individual heating systems are therefore proposed.

Domestic hot water

5.18 The proposed development is for 2no. 1-bedroom units with a single bathroom with a shower only (no bath), the demand for domestic hot water is therefore expected to be low and will be provided via a high efficiency combi boiler enabling hot water to be provided on demand, with no standing losses through hot water cylinder storage. Electric showers, which are expensive to run, will not be specified. The combi boilers will deliver mains pressure hot water. A thermostatic mixing safety will be provided.



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6. Water

6.1 To comply with limits associated with nitrates from foul water, the additional nitrate load added from the 2 units will be offset. This will be achieved by making water performance specification upgrades to existing housing on the Royal Close estate with a view to reducing these homes to a predicted max water use of 100-110 litres/person/day specification. The existing water performance of the older existing flats on the site will be assessed to determine current usage and from this it will be determined how much of an improvement can be made through a new upgraded specification. For example, dual flush toilets may be installed and the flow rates from showers and taps could be reduced with new water saving fittings. This approach has been found acceptable by Natural England during phase 2.