

Sustainability Statement

Change of Use from F1 to C3 and 2 Proposed Residential Buildings
Following Demolition of Existing Religious Building

at

30a Cumberland Road

Reading

Berkshire

RG1 3LB



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Revision B



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1. Introduction

JE Architecture has been instructed by to prepare a Sustainability Statement to support the application for Change of Use from F1 to C3 and 2 Proposed Residential Buildings Following Demolition of Existing Religious Building at 30a Cumberland Road, Reading, Berkshire, RG1 3LB

Having worked for a number of large companies most notable being Huf Haus GmbH for 15 years as their Technical Director and Sustainability Advisor helping the company gain a number of Carbon Neutral Schemes as well as Passive House and Code for Sustainable Homes Level 6 schemes, JE Architecture has considerable knowledge and expertise in all issues of sustainability.

The site is in a city centre location within a sustainable location close to the centre of Reading and within 50m of the District Centre of Cemetery Junction. It faces Cumberland Road where there are residential buildings with off street parking. Kings Road and London Road are less than 500ft away which has a number of bus routes.

A 'fabric first' approach has been taken and concentrates on specifying high levels of insulation with exceptional levels of air tightness and the use of whole house mechanical ventilation in conjunction with natural ventilation via openable windows as part of an overheating prevention strategy for summertime.

The proposed scheme will see the existing building demolished and replaced with 2 new buildings to incorporate 14 1-bedroom flats. Part of the scheme also provides green spaces for the occupants of the flats.

The existing site area and location is shown in the aerial photo in Figure 1 below, with the proposed site location plan shown in Figure 2, which details the difficulties in being able to achieve the high levels of energy performance required, but through the fabric first approach this is possible.



Figure 1: Existing Aerial Photo

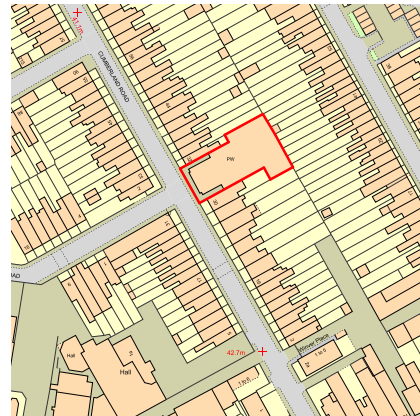


Figure 2: Site Location Plan

2. Proposed Approach to Sustainability

This statement sets out the approach that the applicant is proposing to adopt to ensure that the proposal meets high standards of sustainability. The report includes a discussion of the full range of sustainability issues as shown below:

- Energy & carbon emissions
- Water conservation
- Flood risk, surface & waste water management

- Ecology & biodiversity
- Waste & pollution
- Materials selection and sustainable construction methods

This will demonstrate that this proposed development will meet the requirements of policies CS1 & CS2 of the Reading Core Strategy.

Reading Borough Council's (RBC) Sustainable Design and Construction SPD (2011) also requires proposals such as this to demonstrate 19% improvement in the dwelling emission rate over the target emission rate, as defined in the 2013 Building Regulations. In 2022 Part L of the building regulations was updated to a considerably higher standard compared 2013, so this will be achieved through meeting the requirements of Part L 2023. The report details how this will be met for this development and the details stated in this report dovetail with this requirement.

3. Energy Conservation and Carbon Emissions

It is recognised that the generation of energy to heat, light and cool buildings is responsible for approximately half of the total CO2 emissions of the UK. Part L of the Building Regulations requires a minimum standard of energy efficiency in new development, however, it is the intention with this development to go beyond this.

As a first step in dealing with carbon emissions arising from energy use within buildings it is important to consider designing in energy efficiency measures as part of the construction of the buildings as these can be difficult and/or disruptive to retrofit in the future and this will also reduce the amount of energy required by a building.

Reduction of heat loss is a key element of this and it is proposed that insulation within floors, roofs and walls will exceed the minimum standards required under Part L1 (Conservation of Fuel and Power) of the Building Regulations, as will the U-Values for replacement glazing and doors (within the context of permissions required under the Listed Building context).

Initial thoughts are to aim for U-values below minimum Part L compliance and these will be confirmed once detailed design commences, should planning permission and listed building consent be granted.

An air tight building will also play a major part in the reduction of heat loss via the external envelope and coupled with adequate ventilation to ensure internal air quality, is an important element in energy efficient building design. Accordingly, attention will be given to potential areas of air ingress, such as where services enter the residential unit and seals around window units.

The exact heating and hot water system for the proposed dwellings has yet to be finalised, however, current thought is to install high efficiency gas based heating, with full time and temperature zone controls for both heating and hot water delivery, meaning energy is only used as and when its required. Additional smart control systems such as a weather compensation unit may also be incorporated into the heating specification.

The use of passive solar design is important, but in this context will neither be improved or reduced as there will be no alteration to opening areas for the building as a whole. Where artificial light is required, the focus will be on the provision of the energy efficient lighting systems as appropriate to locational requirements.

The option to utilise solar energy technologies has also been considered however, it is considered that the listed status of the building precludes these as options.

Finally, White Goods within the proposed dwelling attention will be paid to the energy specification of all electrical equipment to be installed within the dwelling.

The use of energy conscious design principles and a fabric first approach means that the building should remain energy efficient for its entire lifetime, within the context of the Listed status and the overall requirement for energy input is reduced for heating and hot water.

4. Water Resource Management

The UK has a poor record in being profligate with its abundant water resource and the South-East of England is recognised as suffering from water stress, therefore, on this site only water efficient products will be specified.

The actual specifications of the water using products are yet to be established, however, the following notional specification is considered realistic for this type of development and an assessment of the efficiency of the residential dwelling's domestic water-consuming components has been undertaken using the Building Research Establishment's water calculator.

The water consumption (L/person/day) for the proposed dwellings show a figure of 107.4l/p/d with the following proposed specification (which is below the 125.00l/p/d allowed under Building Regulations):

- Dual 6.0/3.5 litre flush WCs
- Shower average flow rates of 10.0L/min
- Basin average tap flow rates of 7.0L/min
- Kitchen tap average flow rates of 8.0L/min
- Bath average overflow capacities of 180 litres

Having looked into the possibility of water saving devices such as rainwater harvesting and grey water systems these will not be utilised as the carbon footprint arising from the pumps involved with such a system is heavy and it is more efficient to specify the low flush WCs detailed above in 4.3. Included to this is there is no outdoor space that can benefit from the installation of a rainwater harvesting butt.

The provision of water meters is also recognised as an important tool in reducing water usage and in a domestic context they can encourage people to monitor and reduce their water consumption by an average of 10% to 15%. Therefore, the dwelling will have an easily accessible water meter installed as part of the specification.

5. Flood Risk, Surface & Waste Water Management

The Environment Agency's Flood Mapping for the area shows the site is not located within an area considered to be at risk from flooding. This can be viewed online via www.gov.uk

There are no additional areas of hard-standing or roof area on site as result of the proposed scheme. The roof area will be reduced and soft permeable landscaping provided. The existing surface water runoff provision is considered to be adequate for site needs and will be reduced following the implementation of the proposed scheme.

6. Waste & Pollution

Waste arising from the construction process has been an area of focus for some years now, with the industry making good strides in re-use and reduction of materials, which not only helps the environment, it also engenders significant cost savings to developers.

The appointed contractor for the scheme will be encouraged to develop a comprehensive site waste management plan (SWMP) prior to the start of construction reflecting the recognition that reduction of waste begins in the design and ordering stage of a project and carries on through to the sign-off of the building. This SWMP will set targets and procedures for the sorting, reusing and recycling of construction waste into defined waste groups, either on site or through a licensed contractor at a waste transfer station.

As the proposal is to demolish the existing building, prior to demolition an audit will be undertaken to see if any of the materials being removed can be recycled for use on this or other building projects in the area or the materials recycled for use by others.

The generation of waste does not stop at the end of the construction process and adequate provision will be supplied to the proposed dwelling, both internally and externally to the rear of the dwelling to allow for the sorting of general waste from recyclable materials.

Pollution can occur in various guises and attempts will be made to design out or mitigate against a number of issues identified below.

Light pollution will be countered by the use of external lighting which only involves energy efficient fittings, daylight detectors and angling/capping to prevent unnecessary glare. This will also be kept to a minimum.

7. Materials Selection & Sustainable Construction Methods

The final material specification in terms of actual product and suppliers has not yet been confirmed for this project and will be subject to planning considerations. The applicant is committed to ensuring that all materials used score as highly as possible in the Building Research Establishment's Green Guide to specification.

In addition, wherever possible all building and finishing materials will be sought from local suppliers and manufacturers registered to an environmental management scheme such as FSC or PEFC (for timber based products), BES6001, ISO14001 or EMAS. This will ensure that the materials have been sourced from suppliers certified as ethical and responsible as far in to the supply chain as possible.

All insulation materials selected for the building will have a Global Warming Potential of below 5 and where possible be made from natural products.

Finally, attention will also be paid to materials specified for the internal environment with a focus on materials/finishes containing low/no volatile organic compounds (VoCs) in an effort to improve the internal environment for occupants as internal air pollution is increasingly recognised as having negative impacts on health.

8. Summary

In summary, this development demonstrates a strong commitment to sustainability by following the requirements of the Building Regulations and where possible sourcing materials locally.

It incorporates many sustainable features that are consistent with achieving a high level of overall sustainability and, subject to confirmation of certain issues that can only be resolved post the granting of planning permission, will meeting the high standards set in the Approved Documents.

In short, given the nature of the scheme and the detailed care being taken towards sustainability, along with the intentions outlined within this report, the proposed development is deemed to meet the levels of sustainability required by RBC.