Building Services Engineering Consultants

Delivering buildings that work efficiently

Akelius Residential Ltd
24 Wedderburn Road
London NW3 5QG

Planning Application
Supplementary Sustainability Report

JDP **Head Office:** 31 Wood Lane, Sonning Common, Reading RG4 9SJ

email@jdp-ltd.co.uk www.jdp-ltd.co.uk 0118 972 2911

Issue No.	ISS01	Author	DGM	Date	01/07/2019
Location	J:\JY57\7.0 Reports\JY57 Sustainability Statement_01.docx	Checked	DW	Date	08/08/2019

CONTENTS **PAGE NO.**

REPORT AMENDMENTS

ISSUE	AMENDMENT

1.0 INTRODUCTION

1.1 This report is in support of the proposed planning application as per the JMS Planning & Development Ltd Planning, Design and Access and Heritage Statement dated June 2019 for the proposed extension, refurbishment and reconfiguration and associated works at 24 Wedderburn Road, London, NW3 5QG.

1.2 As an overview, this project consists of the refurbishment of the existing dwellings, including the extension of the building and reconfiguring of internal partitions. All existing building services systems are to be stripped out and new building services will be provided throughout.

1.3 The aim of this report is to summarise the project's proposals to demonstrate alignment with the aims and motivation of the planning policies concerning the building services systems (energy and environment).

2.0 PLANNING POLICY

2.1 Planning documents referenced for this project are as follows:

- National Planning Policy Framework March 2012 (Department for Communities and Local Government)
- Camden Council Policy Map
- Camden Local Plan

2.2 The property is located in the Fitzjohns/Netherhall conservation area, as shown below:

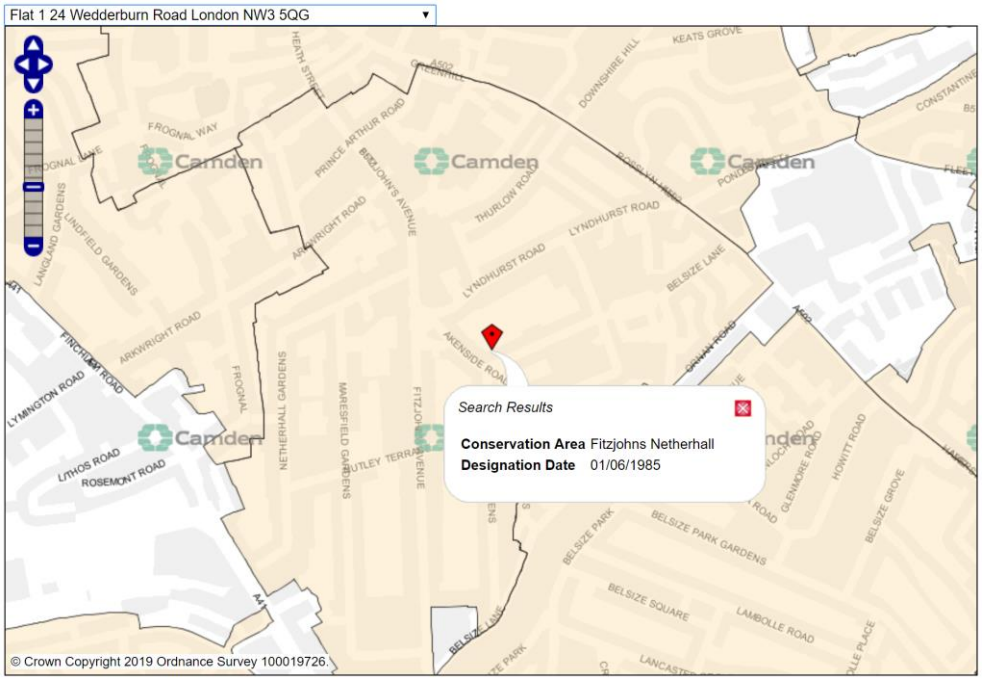

Figure 1 - Conservation Area Map for Camden

2.3 The Fitzjohns Netherhall Conservation Area Statement states that some buildings on Wedderburn Road have been developed in the past, and that No. 24 in particular is noted as having lost its original windows and the replacement units being "unsympathetic" to the areas aesthetic. Any windows replaced for reasons stated in clause will need to be selected with careful consideration to the conservation area's statement.

2.4 The proposed modifications to the flue arrangements are proposed to be covered under permitted development as the proposed flue system meets the following condition:

a) Flues on the rear or side elevation of the building are allowed to a maximum of one metre above the highest part of the roof.

3.0 THE LONDON PLAN

3.1 The Draft London Plan July 2019 was consulted with regards to the energy policies which would be applicable to this development.

3.2 The policies within the London Plan relating to energy reduction are focused on major developments. This refurbishment and minor extension is considered minor works, however, the general principle and approach are used below in order to demonstrate the consideration of carbon emissions.

3.3 The systems proposed have all been specified to minimise carbon emissions within the practicality of the existing building's constraints. The building services systems proposed are more energy efficient than those systems being removed as part of this refurbishment and extension project. The systems are described in section 5.0 below.

3.4 The London Heat Map has been consulted and we can confirm that the site is not in proximity to any existing or proposed district heating schemes.

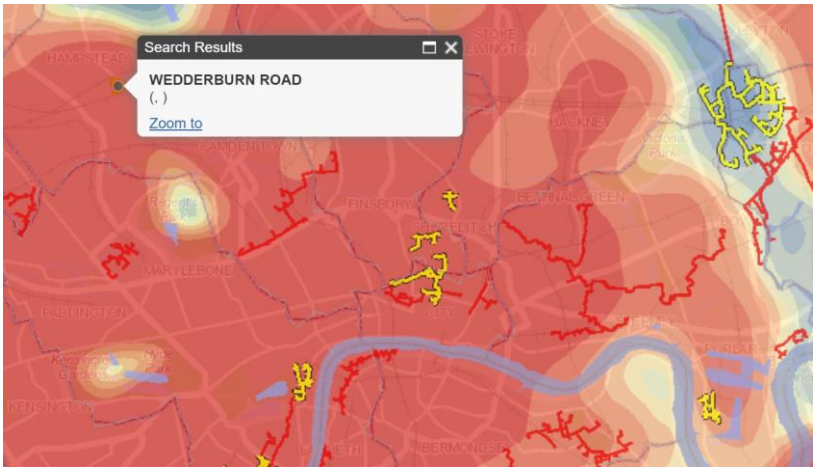

Figure 2 – London Heat Map showing existing and proposed district heating schemes

3.5 A consideration of renewable technology was included during the concept phase of the project.

3.6 The result of the assessment is that the use of any onsite renewable technology which is visible from the street, or mounted on the exterior of the property, such as photovoltaics or solar thermal systems, would not be in keeping with the local area and would likely breach the requirements of the Fitzjohns Netherhall Conservation Area and as such these have been discounted from the project.

3.7 Systems which would not be visible from the street, such as combined heat and power (CHP) would not be economically feasible for the development.

3.8 An assessment of the local air quality has been undertaken by reviewing the information provided by the London Atmospheric Emissions Inventory (LAEI) 2016. There are no significant issues with poor air quality and the use of unfiltered air for natural ventilation is suitable. This is shown in Figure 3 below.

3.9 Overheating risks are minimised through the use of openable windows to provide purge ventilation, increased thermal performance of the fabric of the building and an increase in external amenity space with the scheme. Additional units

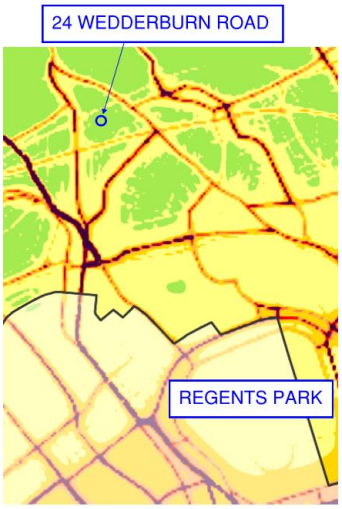

Figure 3 – Local Air quality LAEI 2016

3.10 Demand-side response through the integration of battery storage and smart meters is not feasible in this development.

3.11 The proposed heat generation system includes the communal generation of heat for hot water. This system will be subject to monitoring by the building owner such that major fluctuations with the heat generation demand can be identified. If these fluctuations are caused by leaks in the system or user behaviour (running the hot water for excessive periods of time) then these issues will be rectified to reduce the carbon emissions associated with the system.

4.0 BUILDING FABRIC

4.1 The existing building's windows are predominantly single glazed sash windows. These windows have a very poor thermal performance which is further exacerbated by the existing state of repair leading to a poor fit. The infiltration through many of the window units is significant as the units do not shut completely.

4.2 As part of the proposed works new double glazed window units are to be installed. These units have a significantly smaller heat loss during the winter, reducing the heating demand and in turn the carbon emissions associated with the heating system.

4.3 In order to improve the thermal and acoustic performance of the fabric the use of new insulated walls is proposed to line both existing external walls and in new internal partitions. This will reduce the carbon emissions associated with the heating of the dwellings through the reduction in heat loss through the walls to both external and adjacent internal spaces.

4.4 The proposed floor includes a new insulation layer to also reduce the heat loss from the dwelling to ensure minimal heating will be required.

5.0 BUILDING SERVICES SYSTEMS

5.1 Centralised gas fired heating and hot water storage were utilised previously. The plant was located in a dedicated boiler house at the rear of the property with water storage in the Basement. This system has reached the end of its economic life. The plant included two boilers, two calorifiers, circulating pumps and radiators. The efficiency of the existing in estimated to be in the order of 75-80% given the units' age.

5.2 The existing system provided little control over heating and the entire building, including those dwellings which may have been unoccupied where heated at the same time. A very limited number of radiators had been fitted with thermostatic radiator valves.

5.3 Hot water storage in the basement included two calorifiers with only minimal thermal insulation leading to relatively high standing losses from the system. Very little thermal insulation was included on pipework leading to further standing losses.

5.4 One flat included a combi-boiler and was independent of the buildings communal systems.

5.5 The proposed heating system is electric underfloor heating. The use of electric heating is advantageous for these very small dwellings as the heat loss is very low due to the small size and increased thermal performance of the walls, windows and floors. The use of localised independently controlled electric underfloor heating, which includes thermostatic and timeclock control, will reduce the overall carbon emissions of the development.

5.6 The use of electrical energy will reduce its carbon impact overtime as the grid continues to decarbonise.

5.7 The use of air source heat pumps for hot water generation was considered, however, due to the suburban nature of the local area, the conservation area status and concerns that the additional noise would impact both the new private and communal amenity spaces at 24 Weddernburn Road or potentially neighbouring properties which include terraces/balconies.

5.8 The proposed hot water generation system is via gas-fired hot water heaters. These units have a very high efficiency, 92%. Two units will be provided in order to provided some redundancy in the system during periods of maintenance or faults. The units have high efficiency at part-load and will be controlled by a single controller which will determine the most energy efficient operation, such as running both units at part load to meet lower demands with even higher efficiency.

5.9 The existing lighting was a mixture of incandescent and fluorescent luminaires with estimated efficacy's of 20Lm/W and 60Lm/W respectively. The proposed luminaires are LED technology exclusively, offering in efficacys in excess of 120 Lm/W.

5.10 Previously luminaires where manually switched. Under the new proposals, the communal areas will feature automatic controls (presence detection and photocell). The proposed luminaires and automated controls reduce electrical energy consumption serving lighting by an estimated 50%.

5.11 Ventilation was previously provided by localised fan units which were in disrepair. The use of new extract fans is proposed with specific fan powers which meet the minimum requirements as set out in the Domestic Building Services Compliance Guide 2013.

6.0 CONCLUSION

6.1 The proposed scheme at 24 Wedderburn Road has been designed in consideration of the Camden Planning Policy and the draft London Plan, July 2019.

6.2 The scheme improves the energy efficiency of all services compared with the previous systems and the enhancement of the thermal envelope further reduces the energy consumption and carbon emissions of the site.