RIDGE

STUKELEY STREET, LONDON
SUSTAINABILITY STATEMENT

ROYAL MAIL GROUP

02 October 2019

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SUSTAINABLITY STATEMENT

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Prepared for

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Version Control

Project	5009735
Issue Date	02 October 2019
Originator	KA
Checked	AH
Version	(A)
Notes	Captured Comment

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1. EXECUTIVE SUMMARY

Ridge & Partners LLP have been appointed to complete a Sustainable Buildings Statement for the change of use planning application associated with Stukeley Street, London Ground and Mezzanine Level. This report has been written in support of the planning application for the scheme.

The statement has been complete in accordance with the Camden Planning Guidance (CPG) 3 documentation on sustainability. The purpose of this sustainability report is to review and establish viable avenues to the design team to ensure the 'Change of Use' at Stukeley Street Esavian House relating to the proposed Planning Application is undertaken in a manner in keeping with the philosophy and guidance of the Borough of Camden and specifically the stated guide CPG 3.

Sustainability measures that consider the existing site have been integrated into the design in line with the requirements of national, regional and local planning policy.

The integration of key sustainability measures across a myriad of environmental issues are proposed and have been guided by the sustainability principles laid out within local planning policy. Key measures are summarised below:

- Energy – Although working with an existing building, a fabric first approach is proposed where possible for the development – with the specification of some fabric improvements and systems to support the sustainable use of energy within the buildings. The existing heating, domestic and chilled water free cooling systems are to be retained and re-used till the end of their current economic life.

- Materials – A strategy has been set to focus on the procurement of materials that are sourced in a responsible way and have a low embodied carbon impact over their life to reduce the impact of construction materials through design, maintenance and repair;

- Contaminated Land – This is an existing site with change of use. This therefore is inherently more sustainable than constructing a new development on greenfield land.

- Travel – The site is in close proximity to existing public transport networks to aid in reducing transport related pollution and congestion impacts. Pedestrian and cycling infrastructure are already included to aid in facilitating the uptake of these sustainable means of transport by building users. There are no on-site car parking facilities.

- Waste – A Site Waste Management Plan is to be undertaken to reduce the amount of waste generated during the construction process via the application of the waste management hierarchy. Commercial bin stores are provided to deal with the anticipated volumes of general and recyclable operational waste from the re-use of this site;

- Water – A metering strategy has been adopted across the site for both tenancy metering, but also for alarm monitoring/leakage of water use on a central landlord energy panel. The Sustainable urban Drainage System (SuDS) hierarchy has been reviewed, however being an existing building, the drainage remains connected to public sewers and watercourses.

- Air Quality – The ground floor and mezzanine areas are mechanically ventilated with high grade filtration to ensure good air quality is maintained within the proposed office areas. This will good air quality within the offices when in both heating or cooling operation.

This report also reviews the possibility of considering ‘Be Lean’. ‘Be Clean’ and ‘Be Green’ and considerations for renewable technologies for the site.

2. INTRODUCTION

Esavian House or Stukeley Street is located at 181 High Holborn and 7-11 Stukeley Street, London.

The development site is owned by Royal Mail Group and has been occupied over the years by several other smaller organisations as office space.

The building is closely connected and interlinked with other surrounding tenanted offices.

The building layout / site location is as below.

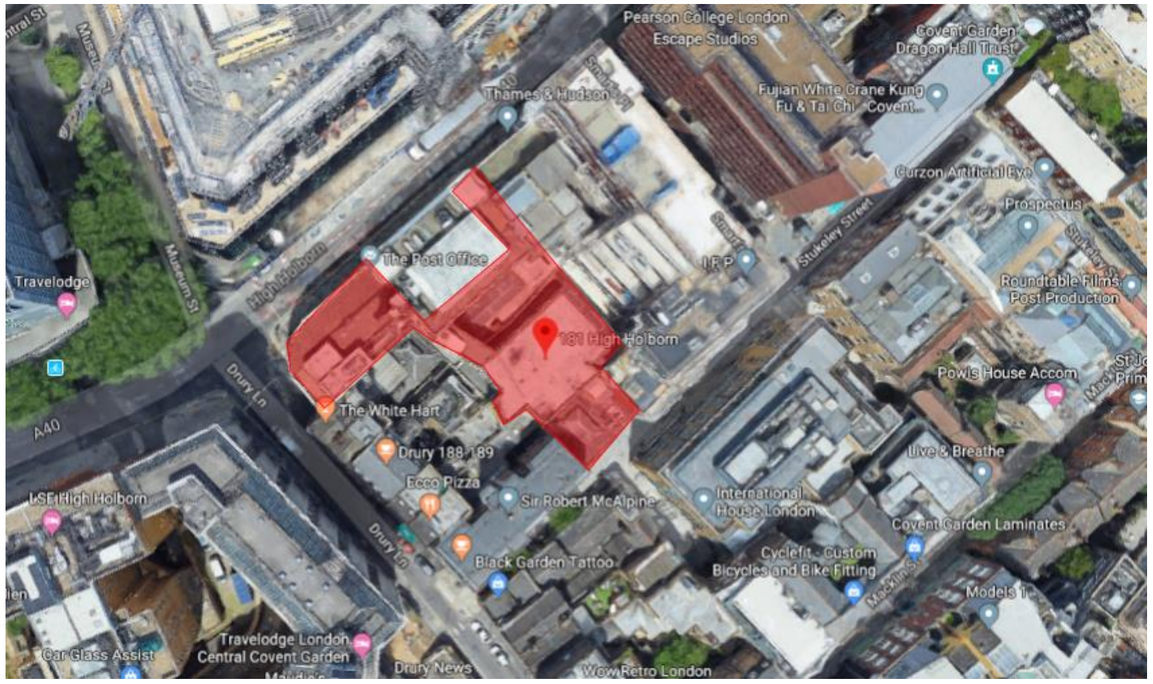


Figure 1: Proposed Site Plan

3. POLICY CONTEXT

3.1. Overview

The sustainability strategy for the Stukeley Street building has been developed in accordance with the relevant national, regional and local planning policy.

The relevant key policies that have informed the development of the adopted strategy are detailed further within this section of the report.

3.2. UK Sustainable Development Strategy

Securing the Future – Delivering UK Sustainable Development Strategy was launched by the UK Government in March 2005.

The strategy sets out a new integrated vision for sustainable development - with shared priorities agreed across the UK, including the Devolved Administrations.

These shared priorities are outlined below:

- Sustainable Consumption and Production – 'Sustainable consumption and production is about achieving more with less. This means not only looking at how goods and services are produced, but also the impacts of products and materials across their whole lifecycle and building on people's awareness of social and environmental concerns. This includes reducing the inefficient use of resources which are a drag on the economy, so helping boost business competitiveness and to break the link between economic growth and environmental degradation.';

- Climate Change and Energy – 'The effects of a changing climate can be seen. Temperatures and sea levels are rising, ice and snow cover are declining, and the consequences could be catastrophic for the natural world and society. Scientific evidence points to the release of greenhouse gases, such as carbon dioxide and methane, into the atmosphere by human activity as the primary cause of climate change. We will seek to secure a profound change in the way we generate and use energy, and in other activities that release these gases. At the same time, we must prepare for the climate change that cannot be avoided. We must set a good example and will encourage others to follow it.';

- Natural Resource Protection and Environmental Enhancement – 'Natural resources are vital to our existence and that of communities throughout the world. We need a better understanding of environmental limits, environmental enhancement and recovery where the environment is most degraded to ensure a decent environment for everyone, and a more integrated policy framework.'; and

- Sustainable Communities – 'Our aim is to create sustainable communities that embody the principles of sustainable development at the local level. This will involve working to give communities more power and say in the decisions that affect them; and working in partnership at the right level to gets things done. The UK uses the same principle of engagement, partnership, and programmes of aid in order to tackle poverty and environmental degradation and to ensure good governance in overseas communities.'

A set of 5 principles have also been agreed by the UK Government, Scottish Executive, Welsh Assembly Government and the Northern Ireland Administration to facilitate a shared sustainable development purpose, as set out below:

- Achieving a Sustainable Economy – Building a strong, stable, and sustainable economy which provides prosperity and opportunities for all, and in which environmental and social costs fall on those who impose them (polluter pays), and efficient resource use is incentivised;

- Promoting Good Governance – Actively promoting effective, participative systems of governance in all levels of society – engaging people's creativity, energy and diversity;

- **Using Sound Science Responsibly** – Ensuring policy is developed and implemented on the basis of strong scientific evidence, whilst taking into account scientific uncertainty (through the precautionary principle) as well as public attitudes and values;

- **Living within Environmental Limits** – Respecting the limits of the planet's environment, resources and biodiversity – to improve our environment and ensure that the natural resources needed for life are unimpaired and remain so for future generations; and

- **Ensuring a Strong, Healthy and Just Society** – Meeting the diverse needs of all people in existing and future communities, promoting personal wellbeing, social cohesion and inclusion, and creating equal opportunity for all.

3.3. National Planning Policy Framework

A revised *National Planning Policy Framework* (NPPF) was published in February 2019 which sets out the government's planning policies for England and how they are expected to be applied. This framework confirms on page 5 that:

"The purpose of the planning system is to contribute to the achievement of sustainable development."

Highlighting sustainability as a critical issue that runs throughout all of the planning policies and also the importance of taking local circumstances into account in order to meet with the ethos of sustainable development.

The NPPF outlines how three overarching objectives need to be pursued in mutually supportive ways in order to achieve sustainable development. These objectives are outlined below:

a. **An economic objective** – 'To help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure.';

b. **A social objective** – 'To support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being.'; and

c. **An environmental objective** – 'To contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.'.

4. SUSTAINABILITY ANALYSIS

4.1. Overview

The sustainability of the proposed development has been a key consideration from the outset. In addition to the design team's own vision to deliver a sustainable development, the adoption of sustainable principles has also been driven by the sustainability vision outlined in the planning policy (refer to Section 3). Further to this, a series of pre-application meetings has also informed the design.

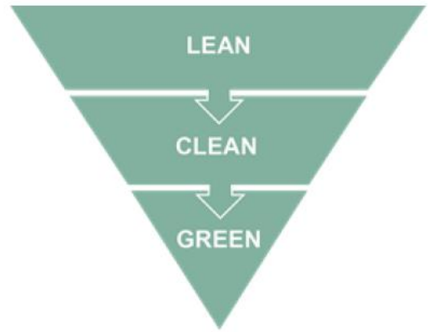
This section of the report will provide a review of the key sustainability measures that have been integrated within the development proposals.

4.2. Energy

The refurbishment of the existing office accommodation at Stukeley Street will be developed to improve in energy efficiency and minimise associated CO2 emissions that the building has operated throughout its life span. This will be done following the energy hierarchy as below. The design team setting out the refurbishment of the ground and mezzanine areas have used the principles set out in the Energy Hierarchy.

The steps of the energy hierarchy are detailed below:

1. **Be Lean**: Use Less Energy.
2. **Be Clean**: Supply Energy Efficiency.
3. **Be Green**: Use Renewable Energy.



The energy hierarchy prioritises the reduction of energy demand and energy efficiency measures prior to the application of 'bolt on' renewable technologies.

4.2.1. Be Lean

Firstly, Be Lean – to target the building fabric and building services efficiency to reduce the amount of energy that the building consumes. The existing building services such as the high efficiency boilers, roof mounted chilled water free cooling, high COP single and multi-split air conditioning units and associated controls will all be retained as part of the refurbishment. Thermal improvements shall consider the adoption of secondary glazing, and replacement of some areas of roof lights replaced with newer thermally broken framed units. The cost of the improvements will exceed the Camden target of 10% of the construction cost being invested in energy efficient improvement measures.

is proposed for the building fabric parameters to are to exceed the minimum performance standards, as set out in Table 2, below.

Table 2: Proposed Building Fabric Performance Parameters

Element	Limiting Fabric U Value Standards	Typical Target U Value
External Wall (W/m²K)	0.3	0.3 (Existing Building)
Party Wall (W/m²K)	0.2	0.00 (No Heat Losses)
Ground Floor (W/m²K)	0.25	0.25 (Existing Slab)
Roof (W/m²K)	0.2	0.3 (Existing Building)
Glazing (W/m²K)	2	1.6 (Where Replaced)
Air Permeability (m³/(h.m²) at 50 Pa	25	25 (Existing 1930s Building)

Further proposed passive measures are listed below:

- Natural ventilation has been adopted where possible.
- Where appropriate, the existing thermal mass will be utilised to enhance the thermal attenuation properties of the constructions and therefore aid in mitigating overheating risk.
- Procuring materials sustainably using local suppliers.
- The existing building has good levels of daylight and this will be used to reduce the need to artificial lighting.

Due to this being a refurbishment scheme, there are limited, or no alterations proposed to the building's façade. Therefore, based on the above, there is little or no possibility to replace constructions in their entirety. However, as noted above, secondary glazing will be considered to improve the thermal performance of any retained existing windows. This will lead to a reduction in heat losses and heating load. This will overall improve comfort and potentially reduce solar gains / cooling load.

Ridge have undertaken a thermal model of Stukeley Street and been able to develop existing and proposed EPC models which currently sit at a D-E which is good considering the buildings age. There will be further improvement should any end of life services be upgraded with new.

Lighting within the building is a mix of fluorescent and LED. Should any new lighting be installed to the building, it will be LED to reduce artificial lighting energy consumption. This in conjunction with good lighting control, occupancy detection and daylight dimming, further energy savings can be made. Typically, this can be attributed to around 15-20% of the total building energy consumption, however due to the higher CO2 weighting of electricity compared to natural gas, this typically translates to 25-30% of the building CO2 emissions. Note, small power is not considered in the energy model due to this being a non-building, unregulated item.

The buildings space Heating demand associated with office buildings is steady state throughout the heating season. Where there is higher office occupancy, heat gains from people and equipment aid to offset this load. The heating boilers are operated only during the heating season.

Domestic water generation is created on site by a stand-alone hot water heater within the basement for the building, localised electric water heaters have been used else where to reduce standing storage and circulation heat losses from the distant basement level domestic water boiler.

Overall the building 'base' load is very low with only a small quantity of domestic water load for toilet services, and a seasonal load for the heating. This therefore does not warrant renewable connections or interfaces with the district heating schemes.

Cooling to the building is provided by a number of high efficiency air to air source heat pump units. Some are reverse cycle and provide heating service also. There are also some larger systems that use variable refrigerant flow (VRF) to meet the comfort cooling and space heating demands.in all areas. These types of systems are classed as a Renewable Energy Technologies and eligible under the (RHI Renewable Heat Incentive scheme. These existing systems contribute towards the Camden Planning Guidance CPG 3 on sustainability.

4.2.2. Be Clean

Secondly, Be Clean. The design considers the use of using clean energy by either connecting into any local district heating network, or consideration of using on site energy generation such as CHP (Combined Heat and Power) systems.

In order to meet the remaining loads efficiently, the following building services systems are proposed:

- Mechanical ventilation to meet the requirements of Part F of the Building Regulations and meet the CIBSE overheating criteria (TM59). The majority of the systems will be mechanical ventilation from the basement level air handling plant, or local natural ventilation.
- Room by room temperature and time control for energy reduction where installed new or retained existing cellular VRF systems.
- High efficiency LED lighting will be used where lighting replaced and enhanced lighting controls to minimise energy use when spaces are unoccupied. This will be considered also as part of the user occupation.

The Camden Planning Guidance CPG 3 identifies that the feasibility of connecting into the London District Heating system should be investigated. The Euston Road district network is the nearest available network within the area, however this would require approximately 1.5km of additional extension to reach the site at Stukeley Street. This would be a very costly connection for such a small building load. The Camden Planning Guidance CPG3 on sustainability suggests that a development within 500m of an existing or proposed districting heating network may be viable for future connection. Due to the distance of the nearest currently available network, and the low and inconsistent heat demand of the building it is not considered viable to make provision for district heating networks within this development.

Similar to the London District heating network, Combined Heat and Power (CHP) has also been ruled out due to there being a minimal 'base' load for seasonal heating and low domestic hot water demand. It should also be noted that due to the ongoing decarbonisation of the electricity grid, CHP will become an even less attractive alternative going forward.

4.2.3. Be Green

Finally, be Green, is where you consider the viability of renewable energy sources with an effort to achieve the Core Strategy Policy CS13 of a target 20% reduction in Carbon Dioxide Emission (CO2) through on-site renewables.

A feasibility study of potential applicable renewable technologies has been undertaken. The study has identified the potential implementation of air source heat pumps for the office spaces, however there are already a small number of these spread across the site. Photovoltaics have also been identified as an appropriate form of LZC, as they provide a flexible use of the energy output and there is the potential for future battery storage of the electricity as this technology develops further.

Further details of the proposed energy use can be located within the energy performance rating report for the building produced by Ridge & Partners LLP. Renewables that have been considered as identified by the Department for Energy and Climate Change (DECC) that may be considered for the Esavian House development are as follows:

Ground, Water and Air Source Heat Pumps - Heat pumps use a refrigeration cycle to upgrade thermal energy in the external environment to a higher temperature suitable for heating. Whilst energy in the form of electricity is required to drive the pumps, heat pumps are classed as a renewable technology due to the high efficiency of the units. Seasonal co-efficient of performance (COPs) in excess of 5 can be achieved; meaning kW of electrical energy can provide 5kW of heating. The efficiencies are dependent on the external conditions, such that higher temperatures lead to increased system efficiency. As a result, ground and water sourced systems yield greater energy efficiency albeit at an increased capital cost.

Water Source heat pumps are not feasible on this site as no large water body is located on site.

Ground Source heat pumps are not feasible due to the large amount of ground works required for collectors again not available due to the confined nature of the site at Stukeley Street.

Air Source heat pumps, some of which are already in place offering air to air heat exchanger on a variable refrigerant cycle will provide an efficient means of providing space heating and comfort cooling in a highly energy efficient manner. In areas where this can replace existing electric heating or radiators fed by existing gas fired boiler plant can make significant reductions in space heating energy and associated CO2 emissions be made.

Biomass Boilers - Energy is produced from biomass through the combustion process. Although this process produces carbon dioxide, this is equal to that 'absorbed' by the plant/tree during growth. As such no carbon is added to the atmosphere through the life cycle of the plant/tree, and the technology is considered carbon neutral. However, a small carbon dioxide contribution is applied due to the processing and transport of the fuel. Capital costs of a biomass boiler are greater than conventional systems, however significantly reduced carbon emissions and potentially cheaper running

costs may make the system advantageous. However, biomass boilers also contribute significantly to particulate emissions and require vehicular access for lorries to make delivery of wood fuel or pellets. Due to the constraints of the existing site and plantroom sufficient space is not available for the additional plant requirements, back up boilers and fuel storage required for a biomass system. Biomass heating will not be considered a viable option for this project.

Photovoltaic (PV) - systems convert energy from the sun into electrical energy through systems of semiconductor cells, which are joined together to form PV modules. An inverter is then used to convert the direct current, DC, into an alternating current, AC, to provide mains electricity. Photovoltaic panels are ideally mounted facing south inclined at an angle of 35 degrees. However, any angle between east and west facing may prove acceptable.

The planning proposal for Esavian House relates to two internal floors of the ground floor and mezzanine levels and as such, there are no available external roof areas available where a PV array could be mounted. The only feasible location is roof lights that would be blocked or structurally not support PVs on this orientation. Photovoltaic panels will not be considered a viable option for this project.

Solar hot water panels utilise the energy of the sun to heat water for domestic use within the building. Solar hot water panels can reduce the energy required for domestic water heating, producing hot water in a sustainable manner. As noted above, there is not adequate roof space for this system like the PVs. There is also no local plantroom to the available roof area in order to heat a cylinder or water for the office space.

Wind turbines are driven by the power of the wind, which in turn drives a generator to produce electricity. The energy generated by wind turbines is completely sustainable, generated from an infinite resource. Due to the enclosed location of the site, and limited external space as per PVs and Solar wind turbines are not considered viable.

4.3. Waste and Recycling

One of the other key consideration is waste and recycling

Resource efficiency means utilising the earth's limited natural resources in a sustainable manner and in turn mitigating negative environmental impacts. The management of waste is increasingly recognised by local authorities as an area that should be addressed in the development of design proposals. This section of the report will outline a strategy for a resource efficient development. The Waste Hierarchy aids in identifying actions that can improve resource efficiency by prioritising waste management options in line with their relative impact. The Waste Hierarchy aids in identifying actions that can improve resource efficiency by prioritising waste management options in line with their relative impact.

The Building Research Establishment (BRE) outline the following steps in identifying a route to resource efficiency:

- Where is waste being produced?
- What is the cause of this and is it avoidable?
- If not avoidable, what opportunities are there for this material to be used internally, or by another business through recycling or refurbishing?
- Can improvements be made to the way waste is currently handled?

Construction waste can be minimised during the construction process via the effective and appropriate management of construction site waste. It is proposed that this is implemented on the development site through the production of a Site Waste Management Plan (SWMP) outlining procedures and good practice measures that can be adopted on Site.

It is proposed that a SWMP will be developed for the site in accordance with guidance from:

- DEFRA (Department for Environment, Food and Rural Affairs);
- BRE (Building Research Establishment);
- Envirowise;
- WRAP (Waste & Resources Action Programme); and
- Environmental performance indicators and / or key performance indicators (KPI) from Envirowise or Constructing Excellence.

The target benchmarks for resource efficiency will be set using best practice and will be reviewed throughout the construction process.

The design of the scheme will also consider the end of life of the buildings with the following options explored as the scheme develops to minimise the amount of waste that the development could generate at end of life;

- The use of prefabricated components may make them easier to dismantle on demolition and therefore more appropriate for re-use;
- Utilising simple connections and avoiding non-standard connection details will allow for efficient deconstruction and will reduce the need for multiple tools;
- Designing with reusable and adaptable materials. Materials such as bricks, steel beams / columns and wood can be easily re-used / repurposed to avoid them going to landfill on demolition; and
- Resilience to climate change may extend the lifetime of the buildings and therefore their economic life.

As well as construction related waste, the waste management strategy for the development when it is operational is also critical as this is where the majority of waste will be generated from; therefore, appropriately sized communal bin stores are proposed that can deal with the anticipated volumes of both general and recyclable waste for the residential and commercial areas that comprise the scheme. Metropolitan Workshop's Design and Access Statement confirms that these will be located in discreet parts of the site but will be accessible to waste collection vehicles away from the footpaths, with management strategies implemented where necessary.

4.4. Water

One of the other key consideration is water;

The *World Economic Forum's Global Risks 2018* report listed water security as one of the top five global risks in terms of impact. Therefore, the importance of reducing water consumption is becoming an increasingly critical priority.

It is proposed to reduce the consumption of potable water for sanitary use through the use of water efficient components and low flow devices. Any new sanitaryware will be installed with low flow water saving technology.

It is also proposed to install water meters to each individual tenant within the commercial unit. In addition to facilitating billing, this will enable the effective monitoring and management of water usage for development.

5. CONCLUSION

Sustainable development encompasses a myriad of factors - both during the construction phase and throughout a building's operational life.

This Sustainable Buildings Statement has demonstrated how a number of measures across a series of environmental issues have been proposed to enhance the sustainability of the development.

This report has reviewed the national, regional and local planning requirements with regards to sustainability and has aimed to summarise - with reference to the relevant technical reports that have been completed - how the proposed development will meet these requirements.

As required under the Camden Planning Guidance CPG 3 it identifies that the feasibility of connecting into the London District Heating system should be investigated. The Euston Road district network is the nearest available network within the area, however this would require approximately 1.5km of additional extension to reach the site at Stukeley Street. This would be a very costly connection for such a small building load. The Camden Planning Guidance CPG3 on sustainability suggests that a development within 500m of an existing or proposed districting heating network may be viable for future connection. Due to the distance of the nearest currently available network, and the low and inconsistent heat demand of the building it is not considered viable to make provision for district heating networks within this development.

It is noted that there are a number of access / existing site constraints that mean there is limited opportunity to improve the existing building. It has been determined that there will be improvements to constructions and systems where replacement proposed on site such as significant savings with the adoption of high efficiency LED lighting where possible with appropriate automatic controls.

Where ever possible the existing high efficiency air source heat pump units will be retained and re-used on site to retain some renewable technologies on site, particularly within the ground floor cellular offices and mezzanine deck. Due to the limited roof space no further renewables will be feasible for the site. The proposed considered improvements will offset carbon emissions in the absence of a feasible district heat connection.

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