7 Great James Street

Sustainability Statement

GFZ Development Ltd

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Executive Summary

In accordance with the Camden Council's planning requirements and the GLA's London Plan, the following Sustainability Statement has been developed for the proposed 7 Great James Street residential development, in Holborn, London.

The proposed development consists of a change of use from office use to residential (Class C3) to form a self-contained dwelling.

As this is a listed building, it will be refurbished with an intention to upgrade the existing systems to modern standards whilst retain the existing building fabric to avoid causing harm to the special architectural and historic interest of the building.

Low environmental impact is central to the design of the proposed 7 Great James Street residential development. The refurbishment and new extension consist of less than five dwellings and the gross internal floorspace is less than 500m^2, therefore, an energy statement is not required according to the London Borough of Camden. This Sustainability Statement outlines the development's approach to sustainability, energy efficiency and renewable energy strategies in order to meet the targets set out in the National Planning Policy Framework (NPPF), the GLA's London Plan and the Camden Planning Guidance.

In accordance with the London Borough of Camden, minor residential refurbishments should meet the Part L1B requirements for retained thermal elements, the GLA requirements as per Policies 5.4 and 5.7. As this is a listed building it is exempt from the energy efficiency requirements set out in Part L1B of the Building Regulations as compliance would unacceptably alter the character or appearance of the dwelling. As this is a minor development with gross internal area less than 1,000m^2, it is also exempt from the GLA requirements.

The following energy efficiency measures and sustainable features have been considered for the development:

Energy

The design team will look to specify all equipment and plant to exceed the minimum requirements of the Domestic Building Services Compliance Guide (2013). The following will be considered for the proposed development where possible:

Eco-Labelled Goods including A and A+ rated appliances;

- Low-energy Lighting;
- High performance heating, cooling and ventilation systems;
- Variable speed pumps and drives;
- Heating and cooling zoning and controls;
- Lighting controls, including timers, occupancy controls, and daylight sensors and dimming;
- Building Energy Management System (BEMS);
- Commissioning of the systems;
- Energy Metering.

Materials

- Building materials, where possible, will be sourced locally to reduce transportation pollution and support the local economy;
- Retaining the original façade and reusing the existing building structure will limit the embodied carbon associated with procuring virgin material for building;
- All timber will be procured from responsible forest sources;

Water

- Water use will be minimised by the specification of water efficient taps, dual flush toilets and low water use appliances;
- Water metering will be installed to monitor and minimise wastage;
- Minimise surface water run-off in the site.

Waste

- The construction site will be managed in an environmentally sound manner in terms of resource use, storage, waste management, pollution.
- Recycling facilities will be provided on site for construction and operational waste;

Site Environment

- Reduction of the impact of the development on the immediate environment;

Transport

- The site benefits from excellent transport links, reducing reliance on personal cars and local pollutants.

Contents

1.0

Introduction

1.0 Introduction

This Sustainability Statement has been prepared in support of the planning application for the 7 Great James Street development, located in Marylebone, London. It responds to the sustainable design and construction principles, and climate change adaptation requirements of the London Borough of Camden and the Greater London Authority (GLA).

The format of the statement is intended to reflect and respond to the issues raised in the GLA's 'Spatial Development Strategy for Greater London' - the 'London Plan'. The principal objectives are to reduce the site's contribution to the causes of climate change by reducing the site's needs for energy, minimising the emissions of CO_2, minimising waste generation and limiting consumption of finite resources.

1.1 Existing Site

The existing site is located at 7 Great James Street WC1N in the London Borough of Camden. The site consists of a 5-storey building arranged over basement, and ground to third floor. The building is located within the Bloomsbury conservation rea and it is a listed building.

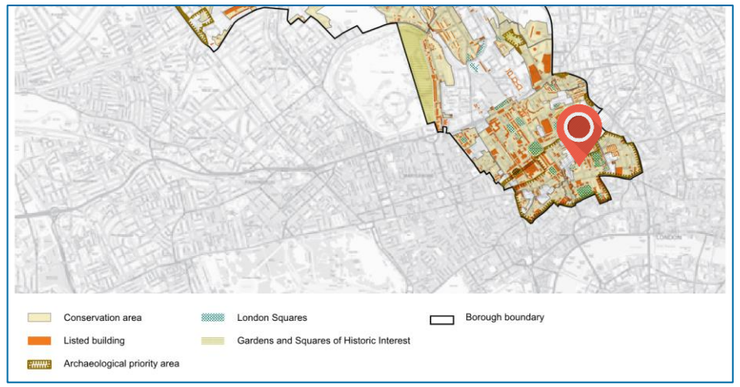


Figure 1: Heritage and Archaeological Sites, Camden Local Plan

1.2 Proposed Development

The proposed development consists of change of use from office use to residential (Class C3) to form a self-contained dwelling. This includes extension at ground floor level to provide a single storey rear extension, internal subdivision and refurbishment and associated works.

As this is a listed building, it will be refurbished with an intention to upgrade the existing systems to modern standards whilst retain the existing building fabric to avoid causing harm to the special architectural and historic interest of the building.

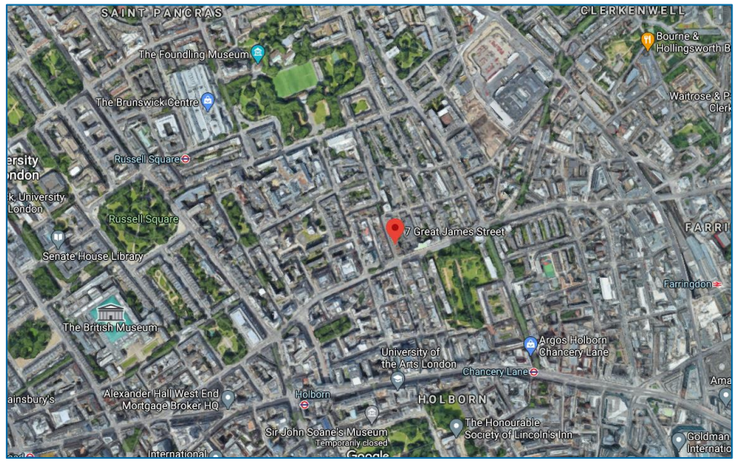


Figure 2: Site location, 7 Great James Street,Holborn, London

Figure 3: Proposed ground floor

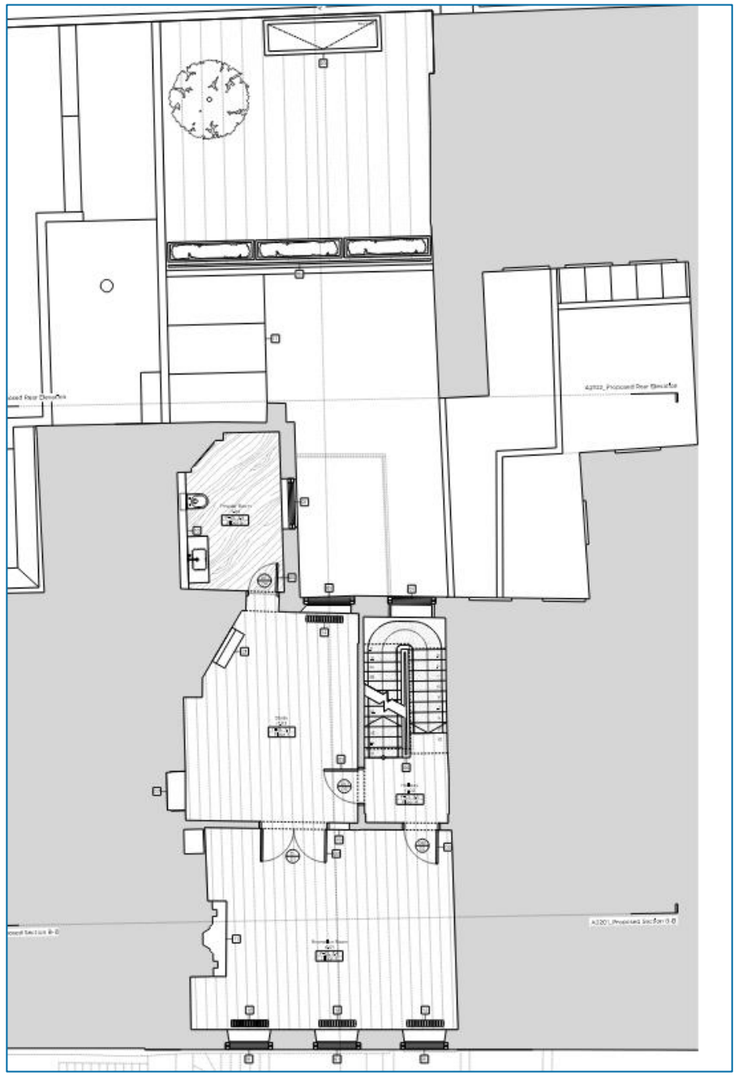


Figure 4: Proposed first floor

2.0

Planning Policy

2.0 Planning Policy

2.1 National Policy

The revised National Planning Policy Framework (NPPF) was published in February 2019 (with correction made in June 2019) and sets out the government's planning policies for England and states a clear presumption in favour of sustainable development. The revised Framework replaces the previous NPPF published in March 2012.

The NPPF supports the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encourages the reuse of existing resources, including conversion of existing buildings, and encourages the use of renewable resources.

The NPPF, Section 14 outlines its energy and climate change policies. New development should be planned for in ways that:

- 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
- 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.

To support the move to a low carbon future, local planning authorities should:

- Plan for development in ways which reduce greenhouse gas emissions;
- Actively support energy efficiency improvements to existing buildings; and
- When setting any local requirement for a building's sustainability, do so in a way consistent with the Government's zero carbon buildings policy and adopt nationally described standards.

The NPPF states that in determining planning applications, local planning authorities should expect new development to:

- 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
- take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.

When determining planning applications for renewable and low carbon development, local planning authorities should:

- not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and
- approve the application if its impacts are (or can be made) acceptable49. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas.

The key focus of the NPPF is to support local and regional planning authorities.

2.1 Regional Policy Requirements

The Greater London Authority (GLA) London Plan 2016 and the GLA's Energy Assessments Guidance October 2018 document are the benchmark for London planning regulation. Together they provide a useful tool to undertake energy and sustainability assessments.

2.1.1 The London Plan

The London Plan (March 2016) sets out a number of core policies for major developments with regards to reducing CO_2 emissions and providing energy in a sustainable manner.

This development is not considered to be referable or classed as major and as such many of the London Plan policies are not applicable. However reference to the policies below here to demonstrate how the proposed development embraces the sustainable aspirations of the London Plan.

Policy 5.2: Minimizing Carbon Dioxide Emissions – Development proposals should make the fullest contribution to minimising carbon dioxide emissions in accordance with the following energy hierarchy:

- Be lean: use less energy;
- Be clean: supply energy efficiently;
- Be green: use renewable energy.

Policy 5.4: Retrofitting – Existing developments should reduce carbon dioxide emissions, improve the efficiency of resource use (such as water) and minimise the generation of pollution and waste from existing building stock.

Policy 5.9: Cooling and Overheating – requires developments to reduce potential overheating and reliance on conditioning systems via a range of measures.

Policy 5.12: Flood Risk Management – Development proposals must comply with the flood risk assessment and management requirements set out in the NPPF and the associated technical Guidance on flood risk over the lifetime of the development and have regard to measures proposed in Thames Estuary 2100 and Catchment Flood Management Plans.

Policy 5.13: Sustainable Drainage – Development should utilise sustainable urban drainage systems (SUDS) unless there are practical reasons for not doing so, and should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible.

Policy 5.15: Water Use and Supplies – Development should minimise the use of mains water by***:***

a. incorporating water saving measures and equipment;

b. designing residential development so that mains water consumption would meet a target of 105 litres or less per head per day.

Policy 5.17: Waste Capacity – Proposals for waste management should be evaluated against the following criteria:

a. locational suitability;

b. proximity to the source of waste;

c. the nature of activity proposed and its scale;

d. minimising waste and achieving high reuse and recycling performance;

e. achieving a positive carbon outcome of waste treatment methods and technologies (including the transportation of waste, recycles and waste derived products) resulting in greenhouse gas savings.

Policy 6.9: Cycling – Developments should:

a. provide secure, integrated, convenient and accessible cycle parking facilities in line with the minimum standards set out in Table 6.3 and the guidance set out in the London Cycle Design Standards (or subsequent revisions);

b. provide on-site changing facilities and showers for cyclists;

c. contribute positively to an integrated cycling network for London by providing infrastructure that is safe, comfortable, attractive, coherent, direct and adaptable and in line with the guidance set out in the London Cycle Design Standards (or subsequent revisions);

d. provide links to existing and planned cycle infrastructure projects including Cycle Superhighways, Quietways, the Central London Grid and the 'mini-Hollands';

e. facilitate the Mayor's cycle hire scheme through provision of land and/or planning obligations where relevant, to ensure the provision of sufficient capacity.

Policy 7.19: Biodiversity and Access to Nature – Development Proposals should, wherever possible, make a positive contribution to the protection, enhancement, creation and management of biodiversity.

2.1.2 Draft New London Plan

In December 2017 the Mayor released a draft new London Plan. The Plan is currently under the Examination in Public and as such has not been formally adopted. It is not clear when the Plan will be adopted, however it is not likely to be until the beginning of 2020.

The draft new London Plan is likely to adopted following this application's submission and while it is undergoing determination. As such consideration has been made for the draft policies currently published. In relation to energy and sustainability the Plan looks to further push the requirements on referable developments, with very limited focus upon minor small-scale developments. Even with no specific energy or sustainability requirements applicable this development from the draft new London Plan the following policies will be embraced on the development:

- Policy D14 Noise
- Policy G5 Urban greening
- Policy G6 Biodiversity and access to nature
- Policy SI1 Improving air quality
- Policy SI 2 Minimising greenhouse gas emissions
- Policy SI 5 Water infrastructure
- Policy 12 Flood risk management
- Policy T3 Transport capacity, connectivity, and safeguarding

2.2 Policy T5 Cycling

2.3 Local Policy – Camden

The Camden's Local Plan (2017) and the Camden's Planning Guidance (CPG) on energy efficiency and adaptation (March 2019) are the main documents to support the planning decisions for developments within the London Borough of Camden.

2.3.1 Camden Local Plan

The Camden's Local Plan, adopted in 2017, sets out the Council's planning policies and replaces the Core Strategy and Development Policies planning documents (adopted in 2010). The Local Plan covers the period from 2016-2031 and includes the following policies regarding sustainable development

Policy CC1 Climate change mitigation – The Council will require all development to minimise the effects of climate change and encourage all developments to meet the highest feasible environmental standards that are financially viable during construction and occupation. Developments are required to:

a. promote zero carbon development and require all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy;
b. require all major development to demonstrate how London Plan targets for carbon dioxide emissions have been met (N/A to 7 Great James Street);
c. ensure that the location of development and mix of land uses minimise the need to travel by car and help to support decentralised energy networks;
d. support and encourage sensitive energy efficiency improvements to existing buildings;
e. require all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building; and
f. expect all developments to optimise resource efficiency.

Policy CC2: Adapting to climate change – The Council will require development to be resilient to climate change. All development should adopt appropriate climate change adaptation measures such as:

a. the protection of existing green spaces and promoting new appropriate green infrastructure;
b. not increasing, and wherever possible reducing, surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems;
c. incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and
d. measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy.

Any development involving 5 or more residential units and 500 sqm or more of any additional floorspace is required to demonstrate the above in a Sustainability Statement (N/A 7 Great James Street). The Council will promote and measure sustainable design and construction by:

e. ensuring development schemes demonstrate how adaptation measures and sustainable development principles have been incorporated into the design and proposed implementation;
f. encourage new build residential development to use the Home Quality Mark and Passivhaus design standards (N/A to 7 Great James Street);
g. encouraging conversions and extensions of 500 sqm of residential floorspace or above or five or more dwellings to achieve "excellent" in BREEAM domestic refurbishment (N/A to 7 Great James Street); and
h. expecting non-domestic developments of 500 sqm of floorspace or above to achieve "excellent" in BREEAM assessments and encouraging zero carbon in new development from 2019(N/A to 7 Great James Street).

Policy CC3: Water and flooding – The Council will seek to ensure that development does not increase flood risk and reduces the risk of flooding where possible. Developments are required to:

a. incorporate water efficiency measures;
b. avoid harm to the water environment and improve water quality;
c. consider the impact of development in areas at risk of flooding (including drainage);
d. incorporate flood resilient measures in areas prone to flooding;
e. utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible; and
f. not locate vulnerable development in flood-prone areas.

Where an assessment of flood risk is required, developments should consider surface water flooding in detail and groundwater flooding where applicable.

Policy CC4: Air quality – The Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough. The Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality. Consideration must be taken to the actions identified in the Council's Air Quality Action Plan. Air Quality Assessments (AQAs) are required where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission unless measures are adopted to mitigate the impact. Similarly, developments that introduce sensitive receptors (i.e. housing, schools) in locations of poor air quality will not be acceptable unless designed to mitigate the impact. Development that involves significant demolition, construction or earthworks will also be required to assess the risk of dust and emissions impacts in an AQA and include appropriate mitigation measures to be secured in a Construction Management Plan.

Policy CC5: Waste – The Council will seek to make Camden a low waste borough. Developments are required to:

a. aim to reduce the amount of waste produced in the borough and increase recycling and the reuse of materials to meet the London Plan targets of 50% of household waste recycled/composted by 2020 and aspiring to achieve 60% by 2031;
b. deal with North London's waste by working with our partner boroughs in North London to produce a Waste Plan, which will ensure that sufficient land is allocated to manage the amount of waste apportioned to the area in the London Plan;
c. safeguard Camden's existing waste site at Regis Road unless a suitable compensatory waste site is provided that replaces the maximum throughput achievable at the existing site; and
d. make sure that developments include facilities for the storage and collection of waste and recycling.

Policy T1: Prioritising walking, cycling and public transport – The Council will promote sustainable transport by prioritising walking, cycling and public transport in the borough.
In order to promote walking in the borough and improve the pedestrian environment, we will seek to ensure that developments:

a. improve the pedestrian environment by supporting high quality public realm improvement works;
b. make improvements to the pedestrian environment including the provision of high-quality safe road crossings where needed, seating, signage and landscaping;
c. are easy and safe to walk through ('permeable');
d. are adequately lit;
e. provide high quality footpaths and pavements that are wide enough for the number of people expected to use them. Features should also be included to assist vulnerable road users where appropriate; and
f. contribute towards bridges and water crossings where appropriate.

In order to promote cycling in the borough and ensure a safe and accessible environment for cyclists, the Council will seek to ensure that development:

g. provides for and makes contributions towards connected, high quality, convenient and safe cycle routes, in line or exceeding London Cycle Design Standards, including the implementation of the Central London Grid, Quietways Network, Cycle Super Highways and;
h. provides for accessible, secure cycle parking facilities exceeding minimum standards outlined within the London Plan (Table 6.3) and design requirements outlined within our supplementary planning document Camden Planning Guidance on transport. Higher levels of provision may also be required in areas well served by cycle route infrastructure, taking into account the size and location of the development;
i. makes provision for high quality facilities that promote cycle usage including changing rooms, showers, dryers and lockers;
j. is easy and safe to cycle through ('permeable'); and
k. contribute towards bridges and water crossings suitable for cycle use where appropriate.

In order to safeguard and promote the provision of public transport in the borough we will seek to ensure that development contributes towards improvements to bus network infrastructure including access to bus stops, shelters, passenger seating, waiting areas, signage and timetable information. Contributions will be sought where the demand for bus services generated by the development is likely to exceed existing capacity. Contributions may also be sought towards the improvement of other forms of public transport in major developments where appropriate.
Where appropriate, development will also be required to provide for interchanging between different modes of transport including facilities to make interchange easy and convenient for all users and maintain passenger comfort.

2.4 Planning Policy Summary

In support of the planning submission this standalone sustainability statement has been produced. Due to the size and scope of the proposed works (minor and non-referable), the policies included in the below documents will be addressed where appropriate and feasible as detailed in this report.

- National Planning Policy Framework (July 2018);
- Building Regulations Part L1B 2013;
- GLA London Plan 2016 (& supporting guidance);
- GLA draft London Plan (emerging)
- Camden's Local Plan (2017);
- Camden's Planning Guidance on energy efficiency and adaptation (2019).

Energy Reduction Targets, Residential	
Development should comply with these standards/ provide this information	Residential Refurbishment (assessed under L1B)
	Minor
	up to 4 units and <500m^2
Energy Statement (Local Plan CC1, London Plan 5.2, 5.3) follows GLA Guidance on Preparing Energy Assessments	Not required - however, performance against carbon reduction targets should be included in a Sustainability Statement
Overall carbon reduction targets	Greatest possible reduction - meeting Part L1B for retained thermal elements (London Plan 5.4, Local Plan CC1)

Table 2: Energy Reduction Targets for Residential Buildings, Camden Planning Guidance

3.0

Sustainability Strategy

3.0 Sustainability Strategy

3.1 Energy

The energy strategy for the proposed 7 Great James Street residential development has been developed in accordance with the National Planning Policy Framework (NPPF), the GLA's London Plan and the Camden Council's planning requirements.

The refurbishment and new extension consist of less than five dwellings, therefore, an energy statement is not required according to the London Borough of Camden. This Sustainability Statement demonstrates how the sustainable design and construction principles, and climate change adaptation measures, have been incorporated into the design.

In accordance with the Camden Planning Guidance (March 2019), minor residential refurbishments should meet the Part L1B requirements for retained thermal elements, the GLA requirements as per Policies 5.4 and 5.7. This is a listed building; therefore, it is exempt from the energy efficiency requirements set out in Part L1B of the Building Regulations as compliance would unacceptably alter the character or appearance of the dwelling. As this is a minor development with gross internal area less than 1,000m^2, it is also exempt from the GLA requirements.

3.1.1 Building Fabric

As this is a listed dwelling, the refurbishment requires careful consideration before energy efficiency measures are incorporated. Discussions have been held with the project's heritage consultant to establish which aspects of the building fabric can be upgraded in accordance with Part L1B of the Building Regulations. The table below highlights a summary of the review

- Where compliance with the energy efficiency requirements would unacceptably alter the character or appearance of the dwelling technical details are based on the SBEM default values for retained thermal elements and the date of construction of the building.
- Where upgrades are suitable the technical values will look to align with the requirements of Part L2B.
- The new extension thermal elements are based on the Part L1B minimum standards.

Elements	Comments	Thermal Elements
Floor average area weighted U-value (W/m^{2}K)	Retained existing performance align with L1B	0.58
Roof (W/m^{2}K)	Previous refurbishment may contain a layer of insulation. Additional layers not practical due to height limits in the top floor	TBC at next design stage
Retained External wall average area weighted U-value (W/m^{2}K)	Heritage constraints restrict lining	1.70
External windows (including frame) average area weighted U-value (W/m^{2}K)	Replaced with heritage complimenting style, thermal performance to strive for L1B compliance	Due to require style u-value may be comprised
Entrance doors U-value (W/m^{2}K)	Retained	3.00

Table 3: Building fabric performance of the refurbishment

3.1.2 Energy Efficient Systems

The aim is to reduce CO_2 emissions by selecting efficient mechanical, electrical and control systems to manage the energy use during operation. The design team will look to specify all equipment and plant to exceed the minimum requirements of the Domestic Building Services Compliance Guide (2013). The following energy efficiency measures will be considered for the proposed development where possible:

- Eco-Labelled Goods including A and A+ rated appliances;
- Low-energy Lighting;
- High performance heating, cooling and ventilation systems;
- Heating and cooling zoning and controls;
- Lighting controls, including timers, occupancy controls, and daylight sensors and dimming;
- Commissioning of the systems;
- Energy Metering.

3.1.3 Relevant Policy

It is anticipated that the above contributes to the requirements for:

- London Plan Policy 5.2, 5.4, 5.4A, 5.9;
- New London Plan (Emerging) SI2, SI4
- Camden Policy CC1 Climate change mitigation and Policy CC2 Adapting to climate change.

3.2 Materials

Building and construction activities worldwide consume 3 billion tonnes of raw material each year, which account for approximately 50% of total global consumption. Using green/sustainable building materials and products promotes conservation of dwindling non-renewable resources. In addition, integrating sustainable building materials into building projects can help reduce the environmental impacts associated with the extraction, transport, processing, fabrication, installation, reuse, recycling, and disposal of these source materials.

The 7 Great James Street development can reduce embodied carbon emissions through reuse of the existing site materials and structure and careful selection of new building materials. The opportunity to reuse certain elements means that CO_2 emissions associated with the procurement, manufacture and transportation of new materials can be reduced.

3.2.1 Environmental Impact of Materials

Materials with low overall environmental impact will be chosen and advice from the Green Guide to Specification will be taken into consideration for the selection. The Green Guide rates the environmental impact of different materials and components, considering factors like toxicity, ozone depletion, ease of recycling, and waste disposal (core issues marked with an asterisk under Environmental Issue). Where viable, at least 80% (by area) of the main elements in the building, fabric & building services insulation should be specified to achieve the best performing "A" and "A+" ratings from the Green Guide.

Environmental Issue
Climate Change*
Water extraction
Mineral extraction
Stratospheric ozone depletion*
Human toxicity
Ecotoxicity to freshwater
Higher level nuclear waste
Ecotoxicity to land
Waste disposal
Fossil fuel depletion
Eutrophication*
Photochemical ozone creation*
Acidification*

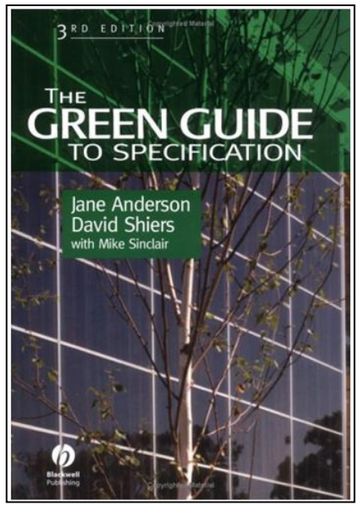


Figure 6: Green Guide to Specification, to be included in the Green Fit-Out Guide

3.2.2 Sustainable Timber

All timber used for basic or finishing building elements in the scheme will be sourced from responsibly managed and sustainable forests or plantations. Such timber products are the only truly renewable construction material in common use and the responsible management of forests for timber helps to lock in CO_2. By maximising the use of timber for structural or finishing purposes the embodied carbon impact of the development can be reduced.

3.2.3 Locally Sourced Materials

A building that is truly sustainable must be constructed using locally sourced, sustainable materials i.e. materials that can be supplied without any adverse effect on the environment. Therefore, where practical, materials should be sourced from local suppliers, reducing the environment impacts and CO_2 emissions associated with transportation to the site.

3.2.4 Recycled Materials

Scope for increased recycling will be incorporated by specifying recycled materials where possible and ensuring that even where new materials are used, as much as possible can be recycled at the end of the building's life.

Specifying materials with a high-recycled content is also another method of saving processing or manufacturing energy. The recycled content of a material can be described as either post-consumer or post-industrial to indicate at what point in the life cycle a material is reclaimed.

3.2.5 Ozone Depletion and Global Warming

CFCs and HCFCs, compounds commonly used in insulation materials and refrigerants, can cause long-term damage to the Earth's stratospheric ozone layer, exposing living organisms to harmful radiation from the sun. They also significantly increase global-warming if they leak into the atmosphere. Following the Montreal Protocol, production and use of CFCs is no longer permitted. However, products that replaced these gases are often still potent global warming contributors.

All insulation materials specified for the proposed scheme will have zero Ozone Depleting Potential and low Global Warming Potential, (GWP<5) in either manufacture or composition. This will include insulation for building elements (ceiling, internal & external walls, and floor – including foundations) as well as insulation for hot water vessels and pipe or duct work.

3.2.6 Relevant Policy

It is anticipated that the above contributes to the requirements for:

- London Plan Policy 5.17 Waste Capacity;
- New London Plan (Emerging) SI1
- Camden Policy CC5 Waste.

3.3 Water Conservation

Water consumption in the UK has risen by 70% over the last 30 years. Trying to meet the increasing demand by locating new sources of water supply is both expensive and damaging to the environment. Therefore, the design team have focused on reducing the demand for water and managing the existing resources.

3.3.1 Water Demand Reduction and Water Efficiency

The aim is to minimise internal and external potable water use within the development. Good water management can contribute to reducing the overall level of water consumption maintaining a vital resource and having environmental as well as cost benefits in the life-cycle of the building. The dwelling will be design to limit operational water consumption to less than 125 litres/person/day. The following water saving measures are being considered:

Dual Flush Cisterns on WC's - These units have the ability to provide a single flush of 3L and/or a full flush of 6L. It is proposed that these are used throughout the development in order to minimise water consumption.

Flow Restrictors to Taps - Flow restrictors reduce the volume of water discharging from the tap. Spray taps have a similar effect and are recommended to reduce both hot and cold-water consumption. Low flow taps in one of the above forms will be installed in all of areas.

Low Flow Showers - The average shower uses 15 litres of water a minute, by restricting the output of the showers in the development to a maximum of 9 litres/ min a 40% water saving can be achieved. Flow rate can be reduced down to 6 litres/ minute without compromising on water pressure and hence will be considered as the design develops.

Water Meters - In 1995 approximately 33,200 million litres of water a day were extracted in England and Wales, this increased to 44,130 million litres/day in 2001, and much of this was for domestic water supply. To reduce this figure, accurate information on usage is required for management of a building's consumption. Water meters will be specified on the main supply and sub-metering.

3.3.2 Sustainable Urban Drainage

The Environment Agency's Flood Map indicates that the site is in Flood Zone 1. This means that the development does not require a flood risk assessment as there is a low probability of flooding – less than a 1 in 1,000 annual probability of river or sea flooding.

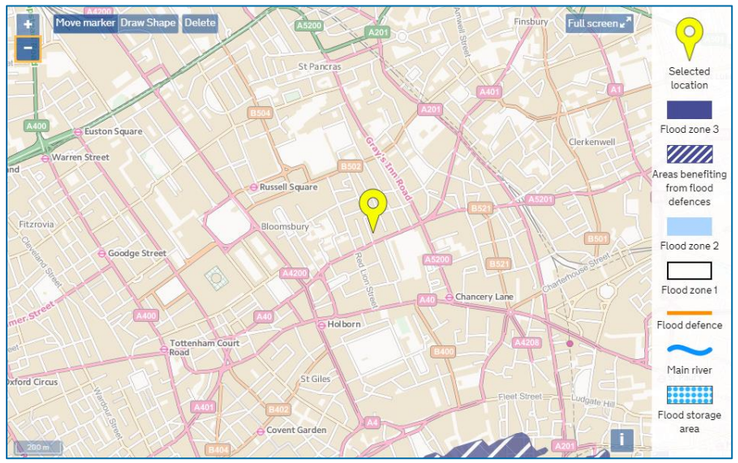


Figure 7. Flood Map of 7 Great James Street development, marking the site in a low-risk area

The site is currently completely impermeable with hard landscaping and building areas. The main aim of the drainage strategy is to make surface water run-off no worse than it was previously.

3.3.3 Relevant Policy

It is anticipated that the above contributes to the requirements for:

- London Plan Policy 5.12 Flood Risk Management, Policy 5.13 Sustainable Drainage, Policy 5.15 Water Use and Supplies;
- New London Plan (Emerging) SI12, SI13
- Camden Policy CC3 Water and flooding.

3.4 Waste Management

Buildings and building sites produce a significant amount of waste per year. Most of the waste produced in the UK is disposed of in landfill sites and only a small percentage of it is recycled or reused.

3.4.1 Waste Targets

Under EU legislation the UK will have to ensure that less than a third of its waste is sent for burial in landfill sites by 2020 and the figure at present is about 80%. To achieve this target several measures are implemented, including landfill tax, aiming to discourage disposal of waste to landfill. Good waste management is a key component of sustainable development and is an important means of:

- Reducing unnecessary expenditure;
- Reducing the amount of natural resources for production of new materials;
- Reducing energy for waste disposal;
- Reducing levels of contamination and pollution arising from waste disposal.

3.4.2 Construction

During the construction phase a large amount of waste material will be generated through the strip out and refurbishment procedures. In building construction, the primary waste products in descending percentages are wood, asphalt/concrete/masonry, drywall, roofing, metals, and paper products.

An appropriate pre-refurbishment audit should be carried out at the Design Stage prior to strip-out or demolition works. A compliant resource management plan covering the waste arisings from the refurbishment should be developed and implemented that complies with the requirements of current legislation. This plan will identify the local waste haulers and recyclers, determine the local

salvage material market, identify and clearly label site spaces for various waste material storage and require a reporting system that will quantify the results and set targets.

As the proposed 7 Great James Street development constitutes a refurbishment, there is the potential for using waste materials from the existing buildings and hard paved areas. Bricks and concrete could possibly be reused as hard-core materials etc. Opportunities for introducing more reused or reusable materials/ components will be explored during detailed design.

3.4.3 Waste Management and Reporting in Operation

The detailed design phases will identify the potential waste streams that the development will produce. As a minimum, plans will be formulated to handle the separation, collection, and storage of common recyclable materials such as paper, glass, plastics, and metals. The collection points will be easily accessible to all users.

The main aim will be to recycle as much waste as possible, this will be achieved by making sure that waste recycling facilities are strategically placed in convenient locations.

Dedicated storage space for recyclable materials generated by the site during occupation, will include the following:

- Be clearly labelled for recycling;
- Be placed within accessible reach of the buildings;
- Be in a location with good vehicular access to facilitate collections.

A section will be included in the Building User Guide outlining the options for recycling on site and explaining the different waste streams for the end user.

It is recommended that area is set aside to securely locate the necessary waste disposal bins.

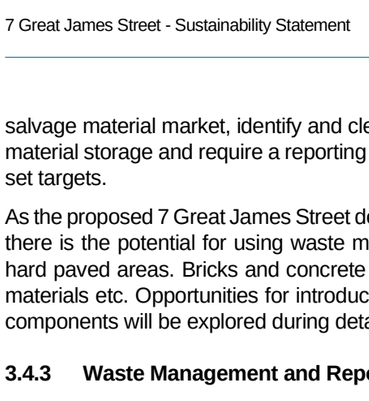
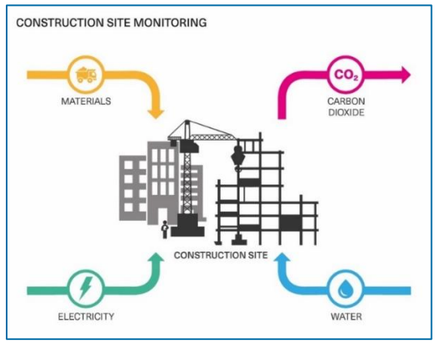


Figure 8: Recycling Waste Streams

3.4.4 Construction Environmental Management

Construction sites are responsible for significant impacts, especially at a local level. These arise from noise, potential sources of pollution, waste and other disturbances. Impacts such as increased energy and water use are also significant. Therefore, attention is being given to site-related parameters with the aim to protect and enhance the existing site and its ecology.

The aim is to have a construction site managed in an environmentally sound manner in terms of resource use, storage, waste management, pollution and good neighbourliness. To achieve this, there will be a commitment to comply with the Considerate Constructors Scheme.



3.4.4.1 Considerate Construction Scheme

Areas that can be taken into consideration in order to minimise the impact of the construction site on its surroundings and the global environment as follows:

- Monitor, report and set targets for CO_2 or energy usage from site activities;
- Monitor, report and set targets for CO_2 or energy usage arising from transport to and from site;
- Monitor, report and set targets for water consumption from site activities;
- Monitor construction waste on site, sorting and recycling construction waste where applicable;
- Adopt best practice policies in respect of air and water pollution arising from site activities;
- Operates an Environmental Management System;
- Additionally, all timber used on site will be responsibly sourced.

3.4.5 Relevant Policy

It is anticipated that the above contributes to the requirements for:

- London Plan Policy 5.17 Waste Capacity;
- New London Plan (Emerging) SI7
- Camden Policy CC5 Waste.

3.5 Pollution

Global concern for environmental pollution has risen in recent years, as concentrations of harmful pollutants in the atmosphere are increasing. Buildings have the potential to create major pollution both from their construction and operation, largely through pollution to the air (dust emissions, NOx emissions, ozone depletion and global warming) but also through pollution to watercourses and ground water. The proposed development will aim to minimise the above impacts, both at the design stage and onsite.

3.5.1 Ozone Depletion

CFCs and HCFCs, compounds commonly used in insulation materials and refrigerants, can cause long-term damage to the Earth's stratospheric ozone layer, exposing living organisms to harmful radiation from the sun. They also significantly increase global-warming if they leak into the atmosphere. Following the Montreal Protocol, production and use of CFCs is no longer permitted. However, products that replaced these gases are often still potent global warming contributors. Where refrigerants are used for air-conditioning and comfort cooling, they will be CFC and HCFC-free.

3.5.2 Internal pollutants

Volatile organic compounds (VOCs) are emitted as gases (commonly referred to as off-gassing) from certain solids or liquids. VOCs include a variety of chemicals, some of which are known to have short-term and long-term adverse health effects. Concentrations of many VOCs are consistently higher indoors (up to ten times higher) than outdoors.

VOCs are emitted by a wide array of products numbering in the thousands. Examples include: paints and lacquers, paint strippers, cleaning supplies, pesticides, building materials, furnishings, adhesives, Urea-formaldehyde foam insulation (UFFI), pressed wood products (hardwood plywood wall panelling, particleboard, fibreboard) and furniture made with these pressed wood products.

'No' or 'low' VOC paints are available from most standard mainstream paint manufacturers. There 'eco-friendly' paints are made from organic plant sources and also powdered milk-based products.

The design team will seek to select internal finishes and fittings with low or no emissions of VOCs and comply with European best practice levels as a minimum.

An indoor air quality plan will be produced and implemented, with the objective of facilitating a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during the design, construction and occupation of the building.

3.5.3 Night Sky Pollution

The intention is to be a good neighbour and not to introduce nuisance glare or light pollution of the night sky from miss directed or unnecessary lighting. Feature lighting, where required, will be focussed to the task/ subject. Where necessary luminaires will be further screened in cases where there may be an issue of close proximity and light spill to the adjacent neighbouring residential areas, although the intention is to avoid this situation arising wherever possible from the outset. The external lighting design will take into consideration the relevant guidance from the British Standards and other recommended documents including the following Standards and Design Guides:

- CIBSE Lighting Guide for the Outdoor Environment;

- CIBSE Lighting Design Guides;
- BS5489 Code of Practice for the Design of Road Lighting;
- BS EN 13201-1 Road Lighting, Selection of Lighting Classes;
- BSEN 13201-2 Road Lighting, Performance requirements;
- Institute of Lighting Engineers Guidance Notes for the Reduction of Obtrusive Light.

3.5.4 Relevant Policy

It is anticipated that the above contributes to the requirements for:

- Camden Policy CC4 Air quality.
- New London Plan (emerging) SI1

3.6 Transport

The transport of people between buildings is the second largest source of CO_2 emissions in the UK after energy use in buildings and remains the main source of many local pollutants. Energy use and emissions from transport are growing at 4% per year, while the effects of climate change are becoming more severe.

3.6.1 Site Location

The existing site offers multiple public transport options within an easily walkable distance. Reflecting the variety of transport options, the London Public Transport Accessibility Level (PTAL) for the site is 6b, indicating excellent transport links.

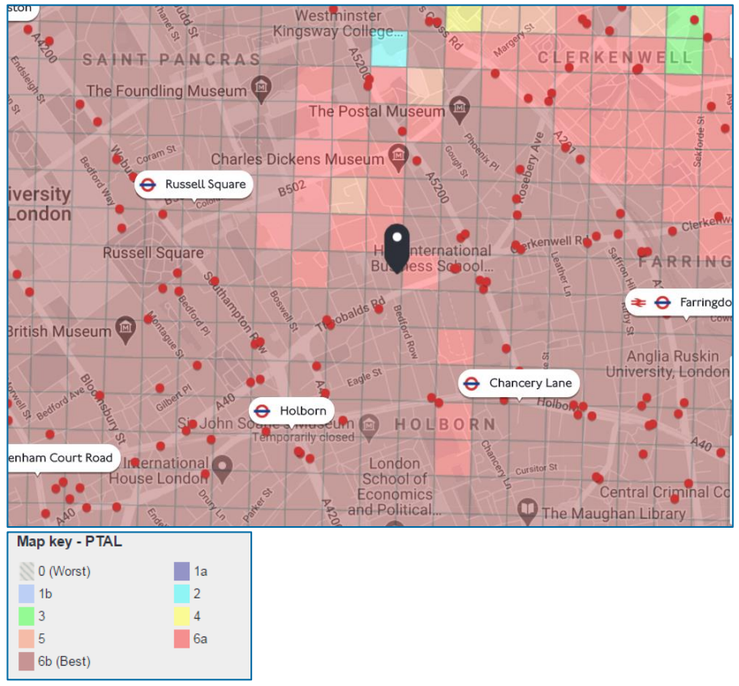


Figure 9: Public transport availability map for the development

3.6.2 Cycling Facilities

Details of the dwelling's cycle storage options can be found within the Design and Access statement.

The nearest public cycle hire docking stations (Santander Bikes) is located within 5-minute walk of the building on Guildford Street. The London Q10 cycle route exists close to the development as well as many other well connected cycle routes around the site.

3.6.3 Relevant Policy

It is anticipated that the above contributes to the requirements for:

- London Plan Policy 6.9 Cycling;
- New London Plan (Emerging) T3, T5
- Camden Local Policy T1 Prioritising walking, cycling and public transport.

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