WMEboom

SUSTAINABILITY STATEMENT

19 SOUTH STREET

LONDON, W1K 2XB

March 2021

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
00	26/03/2021	FH	DM	MW	Draft for comment
01	28/03/2021	FH	DM	MW	For Planning

Contents

1 Introduction

WMEBoom have been appointed to provide a Sustainability Statement in support of the full planning application for the new residential home proposed at 19 South Street, London, W1K 2XB. This report is one of several other reports and supplementary documents that are part of the planning application and should be read in conjunction with all relevant documents.

Figure 1: Aerial View of existing building

The existing property at 19 South Street is a three-storey residential home located in the Mayfair Conservation Area close to Hyde Park. The property is dated and in poor condition in terms of environmental performance and modern living standards. The scope to improve the performance of the existing building is compromised as the extent of the changes required to address the shortfalls of the building fabric would require fundamental renovation to the walls, floors, roof, windows, structure and the services, and there would only be limited opportunities to use passive environmental techniques to reduce energy use.

The proposed scheme involves the construction of a new home in its place that will be of the highest environmental standards and achieve outstanding results.

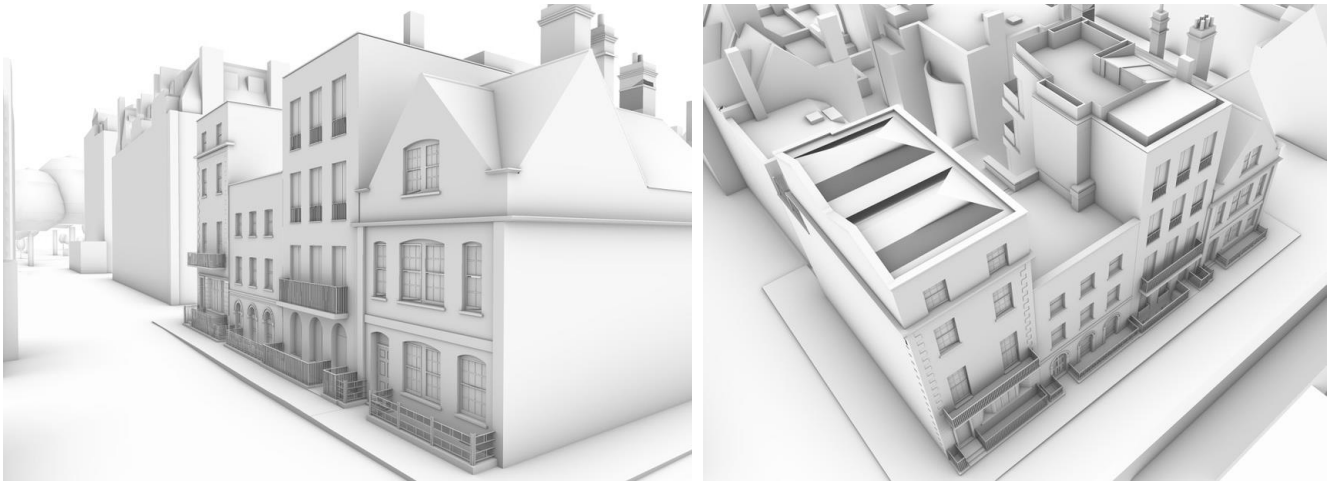

Figure 2: Street and aerial view of proposed building

Figure 3: CGI Render of Street View

The following sections look at the details of the energy and sustainability aspects that the development will implement and predicted environmental performance.

2 Policy Review

The proposals for 19 South Street will be in accordance with;

- The National Planning Policy Framework (NPPF)
- Building Regulations Approved Document Part L
- Westminster's City Plan (2016)
- Unitary Development Plan (2007) (saved policies not replaced by the City Plan)
- London Plan (2016/2021)
- Adopted Neighbourhood Plans (Mayfair) (Knightsbridge)
- The City Plan 2019 – 2040 will replace both the adopted City Plan (2016) and saved UDP policies and is currently under public examination.

Whilst all of the above policy documents relate primarily to major developments, our sustainability strategy does endeavour to address most of the issues to ensure the proposed design excels in the field of conservation and sustainability. Particular attention has been made to the London Plan (2016/2021) with a clear energy hierarchy of;

1. **Be Lean:** Use less energy
2. **Be Clean:** Supply energy efficiency
3. **Be Green:** Use Low Zero Carbon Technologies

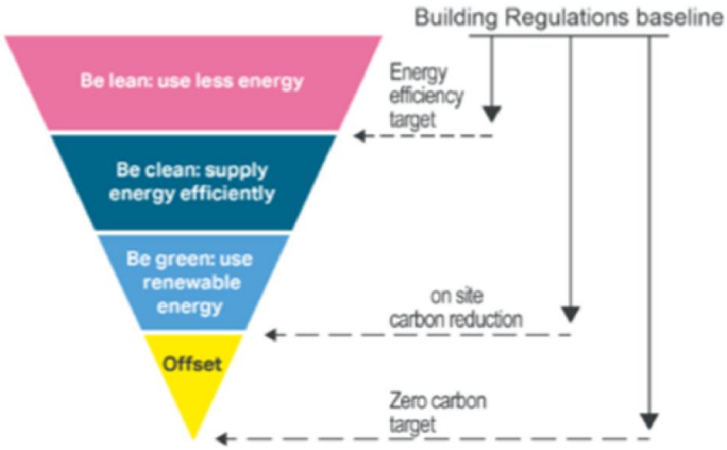

Figure 4: Energy Hierarchy

The exerts below highlight the standards and expectations of sustainable design and construction policy.

Policy 5.3 Sustainable design and construction

A The highest standards of sustainable design and construction should be achieved in London to improve the environmental performance of new developments and to adapt to the effects of climate change over their lifetime.

Planning decisions

B Development proposals should demonstrate that sustainable design standards are integral to the proposal, including its construction and operation, and ensure that they are considered at the beginning of the design process.

C Major development proposals should meet the minimum standards outlined in the Mayor's supplementary planning guidance and this should be clearly demonstrated within a design and access statement. The standards include measures to achieve other policies in this Plan and the following sustainable design principles:

a minimising carbon dioxide emissions across the site, including the building and services (such as heating and cooling systems)

b avoiding internal overheating and contributing to the urban heat island effect

c efficient use of natural resources (including water), including making the most of natural systems both within and around buildings

d minimising pollution (including noise, air and urban runoff)

e minimising the generation of waste and maximising reuse or recycling

f avoiding impacts from natural hazards (including flooding)

g ensuring developments are comfortable and secure for users, including avoiding the creation of adverse local climatic conditions

h securing sustainable procurement of materials, using local supplies where feasible, and

i promoting and protecting biodiversity and green infrastructure.

3 Sustainable Design

3.1 Minimising Carbon Emissions

3.1.1 The Existing Building

As mentioned, the existing property at 19 South Street is a three-storey home that is dated and in poor condition from an environmental performance and modern living standard, this can be seen from the existing EPC (see below).

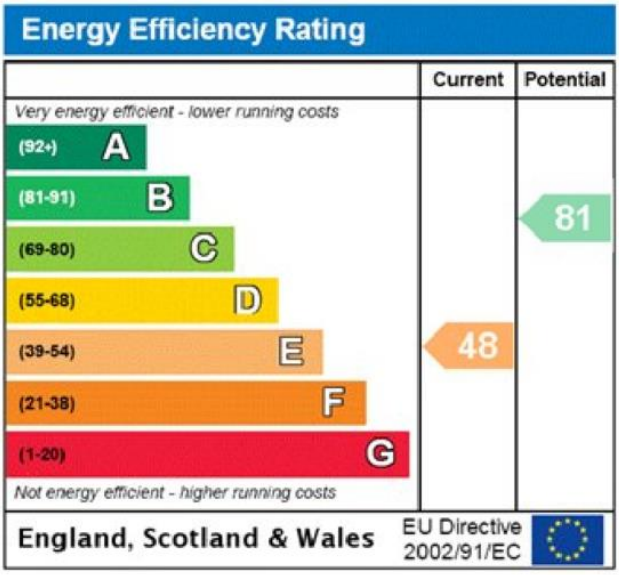

Figure 5: Existing EPC Ratings

The 'Potential' score in the existing EPC looked promising but when evaluating the building in further detail and the feasibility of improving the existing building fabric it became clear that there were clear practical limitations to this.

- The scope for applying additional insulation was limited and would results in details and build-ups with limited performance and longevity over the buildings lifetime.
- Large proportions of the existing building need to be replaced due to the poor condition or unsuitability e.g. single pane glazing)
- Existing air tightness and cold bridging is likely very poor, cold drafts and heat losses would significantly contribute to additional heating requirements.
- Retaining the existing fabric meant architectural constraints would reduce the quality of the indoor environment (key to improve wellbeing of residents) and the adoption of passive environmental strategies such as increased natural daylight and ventilation and linked to high levels of satisfaction and wellbeing.

The images below are of the exiting property in its current condition.

Figure 6: Existing Building Fabric Condition

3.1.2 The Proposed Building

The proposed design aims to significantly reduce the energy/resource consumption by;

- Constructing to a high standard (beyond regulations) of building fabric performance
- Create a Low Energy Design, adopting new energy efficient technologies and controls in the new design such as LED lighting, PIR and daylight sensors
- Utilising low and zero carbon (LZC) technologies and or systems such as Air Source Heat Pumps (ASHPs)
- Capturing rainwater to re-use in the building, reducing potable (drinking) water consumption

3.1.3 Building Fabric Performance

The target U-values and building fabric performance are given in the Table 1 below, the improvement over limiting fabric parameters stated in Building Regulations Part L are significant any possible due to the new construction.

Element	Building Regulations Limiting Fabric Parameters	Proposed Fabric Performance
External Wall	0.30 (W/(m².K)	0.14 (W/(m².K)
Party Wall	0.20 (W/(m².K)	0.0 (W/(m².K) (assumed fully fitted cavity with effective sealing)
Floor	0.25 (W/(m².K)	0.11 (W/(m².K) – Basement 0.13 (W/(m².K) – Terrace
Windows / Doors	2.00 (W/(m².K)	1.30 (W/(m².K) – North/North-West Elevation 1.30 (W/(m².K) – South & West Elevation
Air Permeability	10 m³/(h.m² at 50Pa)	5 m³/(h.m² at 50Pa)

Table 1: Limiting and Proposed Fabric Performance

3.1.4 Low Carbon & Energy Design

A low energy design has been the aspiration from the beginning and has adopted the following strategies;

- The design maximises a passive solution by optimizing the orientation as well as providing a highly insulated and a highly airtight dwelling.
- With a Fabric First approach, the thermal performance of the building fabric targets a significant improvement on current Building Regulations Part L1A (2013).
- A low energy lighting strategy will be adapted, using light emitting diode (LED) technology and low energy fluorescent fittings.
- Mixed mode ventilation strategy with mechanical heat recovery will be adapted for the whole dwelling. Whilst openable windows will also be provided, which is highly recommended for residential properties.
- A centralised air source heat pumps will provide space heating throughout the property and cooling to select areas only.
- New high efficiency boiler (at least 92% ErP) for domestic hot water only with use of timers and highly insulated storage.
- Rainwater harvesting to reduce water consumption on site and help to attenuate surface water run off into the main sewer.

3.1.5 Carbon Savings

The proposed strategy shows a **56% improvement** on current Building Regulations using SAP10.1 carbon factors and an **EPC rating of 87 (B**), again, significant improvement upon the existing and even the optimistic 'potential' score.

Fuel	SAP 10.1
Gas (kgCO2/kWhr)	0.21
Electricity (kgCO2/kWhr)	0.136

Target Emission Rate (kgCO2/m²)	10.97
Dwelling Emission Rate (kgCO2/ m²)	4.83
Compliance % Improvement	56%

Table 2: SAP 10.1 Carbon Factors
Table 3: Proposed Design Carbon Dioxide Emission Rates

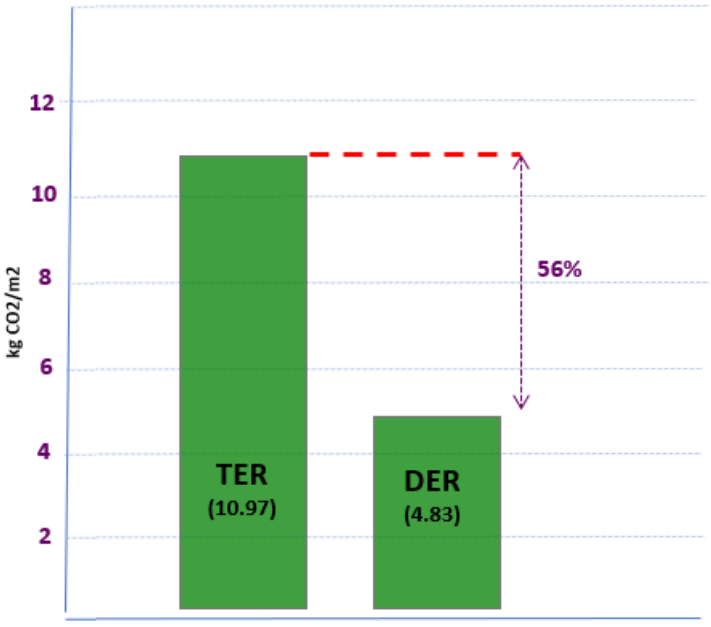

Figure 7: Proposed Design Carbon Dioxide Emission Rates

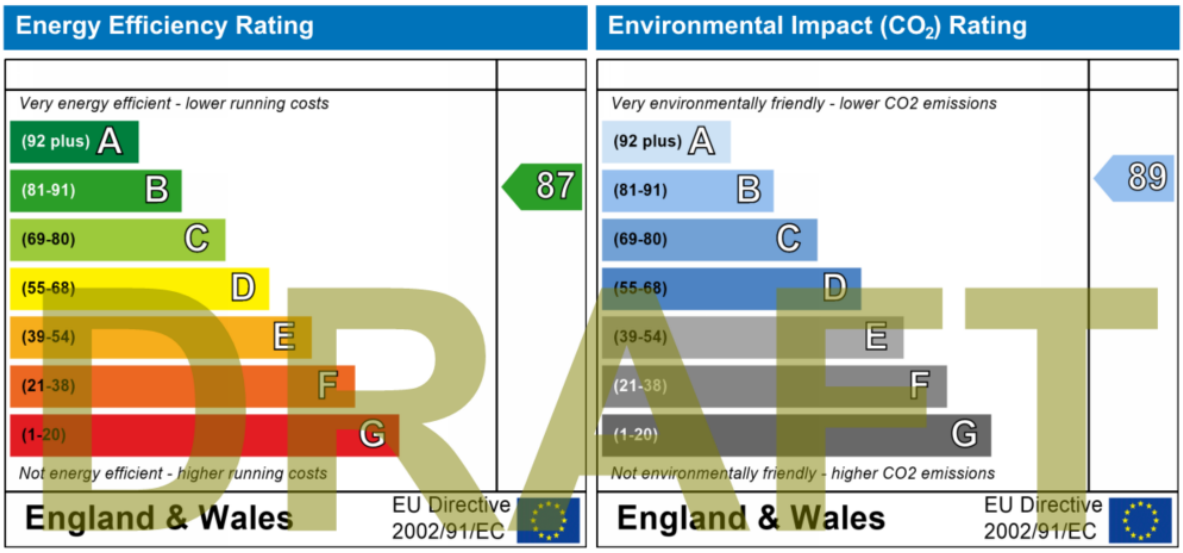

Figure 8: Draft Energy Efficiency Rating & Environmental Impact Rating

3.1.6 Energy Consumption on Site

Reducing the regulated power consumption, as shown above provides great saving in overall carbon dioxide emissions and utilising energy efficient LED lighting, using ASHPs for heating and cooling all help drive down the carbon emissions. Un-regulated loads often referred to a 'plug loads' are things like appliances and electrical devices within the property, where appropriate these shall be A+ rated devices.

The high sustainable aspirations of the project mean we are also looking at the possibility of procuring all future energy supplied to the property via 100% renewable or as close to as possible. For example, electricity can be procured from one of many specialist renewable suppliers who guarantee that all energy consumed on site will be offset by power generated from 100% renewable sources, effective offsetting the use and making the scheme zero carbon in operation. The diagram below shows how this is achieved by Good Energy, a electricity provider.

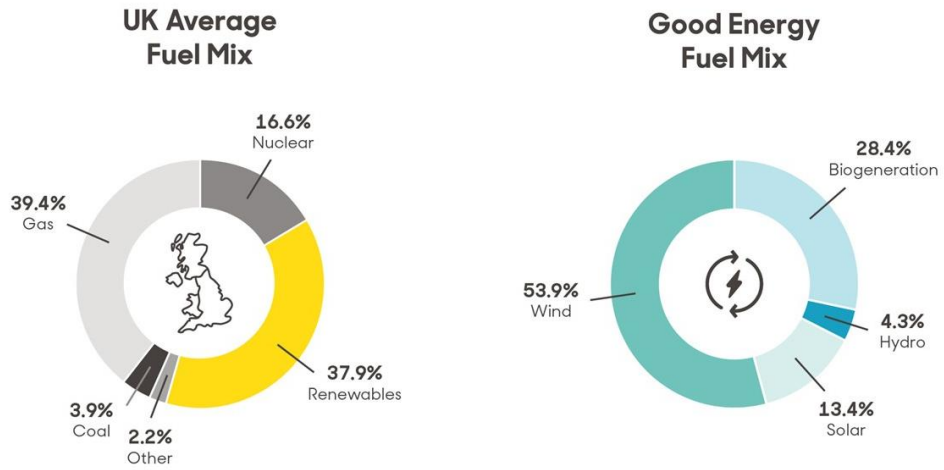

Figure 9: UK Electrical Fuel Mix Vs 100% Renewable Source

The added benefit of offsetting all on site consumption in the future is being considered and should be noted as the carbon savings would be very significant, making the property virtually **zero carbon in operation**.

3.1.7 Minimising and Avoiding Overheating

The potential risk of overheating will be mitigated by incorporating passive and active design measures, in line with the London Plan cooling hierarchy, as follows;

Minimising internal heat generation through energy efficient design:
- Low energy lighting
- Energy labelled white goods will be labelled where possible
- Heat sources and pipework will be sufficiently insulated.

Reducing the amount of heat entering the building in summer:
- Glazing ratios have been developed such that they look to optimise natural daylight without exposing occupied spaces to excessive levels of solar gain.
- All windows will be fitted with internal blinds.

Passive ventilation:
- All rooms will have openable windows to encourage the circulation of air and help reduce internal temperatures during the summer months.

Mechanical ventilation:
- Mixed mode ventilation strategy with mechanical heat recovery will be adapted for the whole dwelling.

Active cooling:
- A select number of rooms will have the option of active cooling via a highly efficient air source heat pump.

NOTE: active cooling has been included as an option in account of the ever-rising summer temperatures and future climate change.

Natural ventilation via openable windows is possible in all spaces and will reduce the number of hours the active cooling is needed to maintain internal temperatures. The design, however, is focused on using mechanical ventilation to ensure the internal air quality is satisfactory as well as maintain comfortable and compliant acoustic conditions.

3.1.8 Efficient Use of Resources

To achieve a low environmental impact, water systems will be designed, used and managed efficiently, saving water and reducing associated energy and CO2 emissions.

The scheme proposes to go beyond the Building Regulations standards and targets a daily water consumption of 105L/person/day.

This will be achieved by specifying;

- Low flow sanitary fixtures and fittings where possible (e.g. dual flush toilets, flow restrictors etc)
- 'A' rated water efficient domestic white goods
- Rainwater will be collected via SUD planters and the extended roof areas (circa 85m2), and used to serve all of the WC flush.

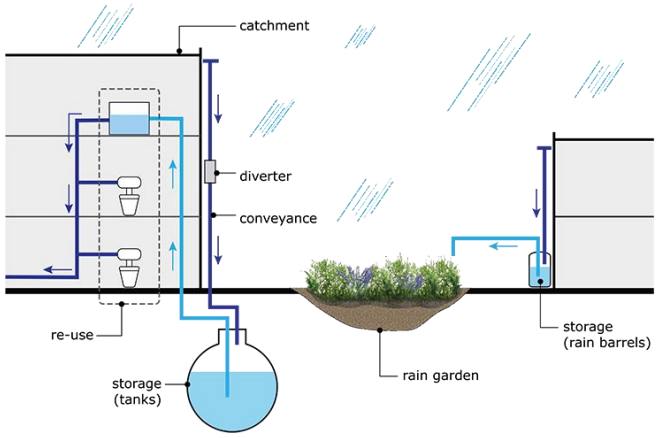

Figure 10: Principles of Rainwater Harvesting

3.1.9 Sustainable Drainage Systems

The site sits in an area of low risk to flooding (fluvial, surface water and ground water). The proposed drainage strategy implements several factors to reduce peak rainwater runoff, water consumption on site and promote biodiversity.

- Water attenuation – SuDS planters and a rain garden will be located on the roof terrace, third floor and second floor balconies. Rain gardens are designed to mimic the natural water retention of undeveloped land and to reduce the volume of rainwater running off into drains from impervious areas. SuDS planters will help attenuate water as well as reduce the impermeable area.
- Rainwater harvesting - water collected via the SuDS planters will drain to a rainwater harvesting tank located at basement level. This water will be used to serve the WC flush throughout the dwelling. It is anticipated that all of the WC flush, can be provided by rainwater harvesting.
- Green/Brown Roof - The SuDS planters within the roof will consist of troughs, they will be vegetated with plants suited to deluge and drought conditions, with a substrate that will provide a growing medium. These will slow the runoff of rainwater hitting these areas and allow for attenuation.

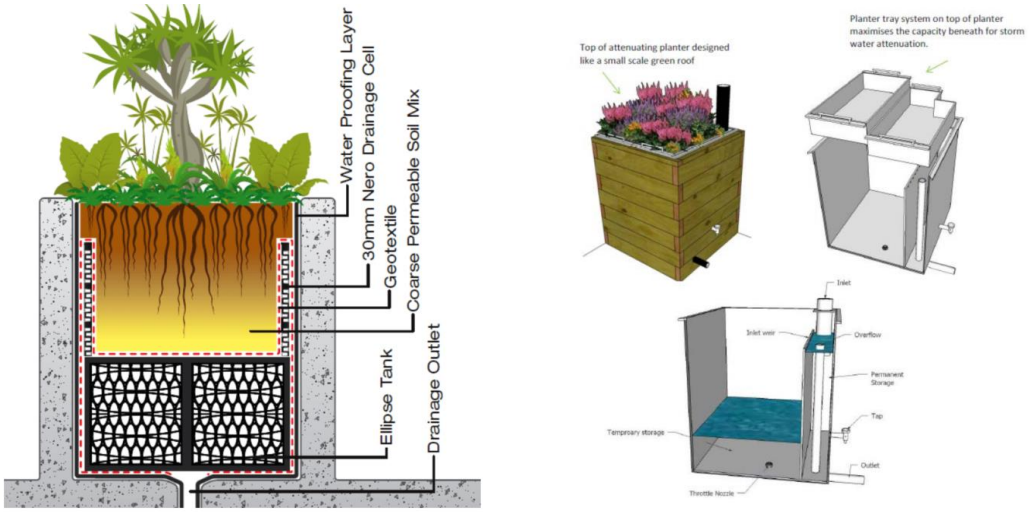

Figure 11: SuDS Planters with Attenuation & Cross Section

3.1.10 Minimising Pollution

- Noise: The air source heat pump is located internally within the plant room on the basement floor, with significant attenuation and acoustic lining to the intake and exhaust routes, ensuring there is no noise impact at street level.
- Air: Air source heat pump technology has been selected as the primary heating source. These run from 'clean' electricity therefore with no flues and no associated localized NOx emissions.
- A highly efficient, low Nox gas boiler has been specified to meet the domestic hot water load and satisfy acoustic requirements (which would have been challenged if an additional air source heat pump had been specified).
- The proposed SuDS planters will have he trays, containing a vegetated substrate, similar to a sedum green roof. These can help catch dust and smog particulars, improving localised air quality.
- Light: Light emitting diode (LED) technology and low energy fluorescent fittings will also be incorporated throughout the dwelling.
- All external lighting will be specified with low energy fittings and dusk to dawn sensors and / or timers to reduce energy use.

3.1.11 Health & Wellbeing

By being able to define a new architectural layout the proposed design benefits from many passive design techniques that create a quality indoor environment that has been shown to promote wellness and heath (both physical and mental) in occupants.

The proposed open plan spaces to both the front and rear aspects allow much more natural light to flood deep into the building, creating bright and airy spaces with a direct connection to the outdoor world. This configuration also promotes natural ventilation (cross ventilation) when conditions suit to provide very agreeable indoor environment, this also reduces the risk of overheating as mentioned previously.

3.1.12 Sustainable Materials and Minimising Waste

All materials will be selected with environmental impact considered alongside functionality, aesthetics and durability.

New materials will be sustainability procured and using local supplies where feasible, following the BRE Green Guide to Specification. The construction build-up for each element can be rated from A+, where A+ is least likely to affect the environment and E is likely to have the most impact.

The materials for the new development will aim to achieve a rating between A-C.
All timber used during the site preparation and construction will be Forest Stewardship Council (FSC) or Programme for the Endorsement of Forestry Certification (PEFC) and all non-timber materials to be sourced from organisation with an environmental management system such as ISO 140001 or BED 6001.

Site Waste Management Plan

A Site Waste Management Plan will be produced and implemented by the appointed Contractor. It will monitor the waste generated on site and set targets on resource efficiency, detail how the waste will be measured and monitored, name a person responsible for implementing the plan and show how the plan will be implemented.

Due to the nature of this development, which will include demolition and new build, the targets set in the plan will relate to each stage of construction.

Demolition waste and subsequent construction waste will either be reused or recycled on site or sorted on site and collected for recycling. Any hazardous waste will be segregated to avoid cross contamination prior to the implementation of any remediation practices.

Figure 12: Hierarchy of Waste

The Site Waste Management Plan will describe procedures for minimising waste generated on site and commit to sort, reuse and recycle construction waste (either on site or through an external contractor). This will include procedures for ordering handling and storage of materials.

3.1.13 Biodiversity

The existing site and proposed scheme presents a limited to promote biodiversity across the scheme and where possible SuDs planters will be planted with a range of plantings to promote the biodiversity in the local area as much as possible.

3.1.14 Sustainable Transport

The development is located in central London surrounded by a plethora of transport nodes, providing excellent accessibility and encouraging use of public transport in line with national planning policy. There is no dedicated parking and cycle storage for 2 bicycles within the basement lightwell at the rear of the dwelling.

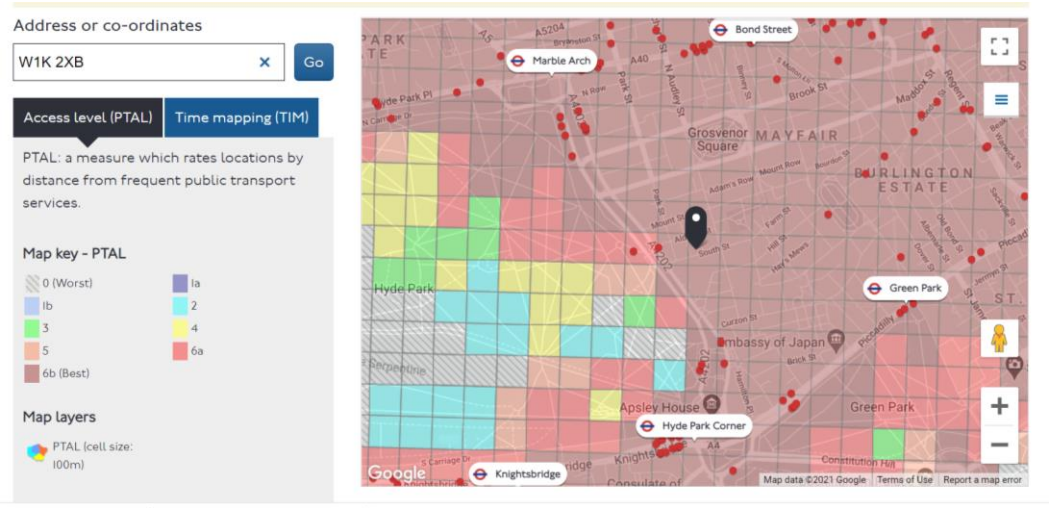

Figure 13: Local Public Transport Nodes

4 Summary

Energy Efficiency:

- 56% improvement on the Building Regs 2013 (Sap 10.1 carbon factors)
- Predicted EPC rating of B86 (significant improvement on existing E47)
- Improvement on thermal performance, helping reduce the energy required for heating
- LED lighting throughout, reducing electricity consumption
- Highly efficient air source heat pump providing heating throughout and cooling to a select number of spaces.
- Highly efficient, low Nox gas boiler for domestic hot water.

Low Risk of Overheating:

- Glazing ratios developed to optimise natural daylight.
- All windows will be fitted with internal blinds.
- Openable windows throughout .
- Mixed mode ventilation with mechanical ventilation & heat recovery .
- Optional active cooling via highly efficient air source heat pump technology .

Minimising Pollution:

- Acoustic attenuation on air source heat pump in take and exhaust to reduce noise impact at street level.
- Highly efficient low Nox boiler for domestic hot water.
- All external lighting to be fitted with dusk/dawn sensors.

Low water consumption:

- Low flow sanitary fixtures and fittings.
- 'A' rated water efficient domestic white goods.
- Rainwater will be collected used as greywater for the WC flush.

Sustainable Urban Drainage Systems:

- Bespoke SuDS planters located in the roof terrace, third floor and second floor balconies.
- Rainwater harvesting for stormwater volume control as well as supplying grey water for re-use with the proposed dwelling.

Materials:

- Existing materials to be re-used where possible.
- All new materials to be A-C rated in line with the BRE Green Guide to Specification.