

SUSTAINABILITY PLAN

52 – 53 Russell Square
London WC1

Client: Ecole Jeannine Manuel UK

8th June 2018

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Document History

Issue	Date	Comment	Author	Chk'd
01	31.05.2018	Draft for comment	AJM	PJ
02	06.06.2018	Revised following receipt of comments	AJM	PJ

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1.0 EXECUTIVE SUMMARY

Peter Joel Associates Ltd has been instructed by École Jeannine Manuel UK to prepare a Sustainability Plan for the purposes of a Section 106 Agreement in relation to a new French International secondary school.

The Sustainability Plan will demonstrate compliance with the requirements of Camden London Borough Council's policy in terms of sustainability measures for developments of a similar scale.

The application is for the Change of Use from office to education use. This report is being submitted in accordance with paragraph 4.5 of the S106 agreement associated with planning permission ref. 2017/2285/P.

The school entrance, reception as well as visitor rooms will be accommodated on the ground floor with classrooms and seminar rooms on the upper floors with staff accommodation on the top floor.

This Sustainability Plan incorporates modelling results and proposals from Norman Bromley Partnership's Energy Efficiency and Renewable Energy Plan Report with reference BS 1516 dated December 2017

This plan is based on the understanding that there is a nil increase in floor area. The existing building footprint is 1,388 sq m² over six floors. The existing building is made up of two Grade II Listed terraced buildings forming part of the south side of Russell Square. The exterior of the building has been preserved in its original form with the interior having undergone modifications over time hence setting the scene for the current proposals.

In terms of landscaping, the external areas within the land ownership are limited to two small courtyards between the main houses and the rear extensions, as well as lightwells to the front spanning over the entrance stairs. These existing spaces are currently hard paved, and there are no changes proposed in the change of use permission.

The requirements of current National Planning Policy Framework have been addressed in the design and eventual delivery of the proposed development and as such will not have any adverse impact but rather serve to improve the local environment and provide a much desired local area.

This sustainability plan will address the sustainable features of the various components of this proposed development under separate headings highlighting key energy efficiency initiatives as well as other sustainable measures.

2.0 SUSTAINABILITY FEATURES

2.1 Energy Efficiency

The Energy Efficiency and Renewable Energy Plan prepared by Norman Bromley Partnership confirms that the following energy efficiency initiatives have been included in the design and specification of the proposed education / teaching use of 52-53 Russell Square, London

- The constraints of the building being Grade II Listed has limited scope for improvement on the fabric of the building other than the roof which has been considerably improved from 2.65 to 0.18 U value by installing a new insulation to the roof

U Values	Existing	Units
Wall	1.715	W/m2K
Roof	2.65	W/m2K
Floor	0.5	W/m2K
Windows	2.2	W/m2K
Infiltration	0.25	(Air Permeability of 3m ³ /h/m ² @50Pa)

U Values	Proposed	Units
Wall	1.715	W/m2K
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Source: Normal Bromley Report

- Replacement of lighting with high efficiency luminaires
- Inclusion of lighting controls including daylight / presence sensors in classrooms / offices and PIR's to corridors and WC's.
- Low energy lamps and good lighting controls (LED lighting)
- Retention of existing air source heat pump units and internal heating and cooling units to serve the classrooms utilising energy from the external air and converting this energy to either heating or cooling energy for the building.

As documented in the Energy Efficiency and Renewable Energy Plan prepared by Norman Bromley Partnership, a range of renewable energy technology have been identified with most of these discounted for reasons detailed in the report.

Technologies investigated include:

- Wind Turbines
- Photovoltaics
- Solar Water Heating
- Ground Source Heat Pump
- Air Source Heat Pump

Passive Design and Fabric First Approach

Passive design as an approach has been considered by the design team but these again have been limited due to the Listed Building status as well as the building already having an established location.

In addition to passive features and fabric first approach as earlier stated the design team has also considered the following technologies to assist in energy efficiency.

- i. **Wind Power** – Wind Power though considered as an option for the proposed development has been discounted on the basis that due to the proximity of adjacent buildings, suitable wind turbine would have to be mounted at some height, and require a suitable support structure, both highly visible which cannot be accommodated due to the property's listed status.
- ii. **Photovoltaic Panels** – Analysis by Norman Bromley Partnership confirms that the use of photovoltaic technology on the proposed building will be unsuitable as due to the Mansard roof style there is very limited useable roof space available, and suitable access has to be achieved for inspection and maintenance. The existing parapet walls would also cause significant shading to the panels. To provide further detailed insight into the potential use of photovoltaic panels a feasibility report will be undertaken.
- iii. **Solar Water Heating** – Similar to the use of PV panels there is very limited roof space available for the citing of solar hot water panels. To compound this, the hot water demand within this building will be very modest, so solar hot water technology would make only a limited contribution to the reduction in CO₂ emissions. As a result, it is not considered an appropriate option for this property.
- iv. **Ground Source Heating** – This building has virtually no available land for the installation of any form of ground pipework loop either at a shallow depth or throughout the height of a borehole. For that reason, this technology is not considered remotely viable for this building.
- v. **Air Source Heating/Cooling** – Retaining the existing air source heat pump units and internal heating and cooling units to serve the classrooms would result in significant contribution to reducing carbon emissions associated with this building, particularly when compared to the alternative heat source such as a gas fired boiler.
- vi. **Biomass** – A biomass boiler could be introduced at this building to provide a heat source for the central heating system. However, there is very limited space for fuel storage, thereby necessitating frequent deliveries to what is a very busy part of London.

Proportion of proposed building compact

The proposed development is change of use only with no changes to the building form and as such would remain as compact in form unchanged. Compact building design is necessary to support wider transportation choices and provides cost savings for localities and this application site demonstrates this successfully.

Landscaping

The external areas within the land ownership are limited to two small courtyards between the main houses and the rear extensions, and lightwells to the front spanned over by the entrance stairs. This configuration is to remain wholly intact other than the placement of 3 no. new linked Sheffield cycle stands in the rear ground level courtyard with the rest of the courtyard remaining hard paved.

2.2 Carbon

What are the total CO₂ emissions of the scheme (tonnes/yr)?

Noman Bromley Partnership has put together an Energy Efficiency and Renewable Energy Plan as part of the Planning permission and Section 106 Agreement. The Plan confirms that by implementing the passive design and energy efficiency measures the buildings change of use refurbishment is predicted to achieve a 44% reduction in CO₂ emissions due mainly to savings in energy demand reduction.

The table below provides a summary of the improvements achieved at each step of the energy hierarchy approach:

	Regulated Carbon Dioxide Emissions (Tonnes CO₂/Annum)	CO₂ Emissions Reduction (%)
Savings from Energy Demand Reduction	25.96	44
Savings from Low Carbon Energy Supply	0	0
Savings from Renewable Energy	0	0
Total Cumulative Savings	25.96	44
Total Target Savings	25.96	44

The building's change of use from an office to a school combined with the energy saving proposed is predicted to achieve reduced CO₂ omissions of **44 %**.

3.0 PRE-IMPLEMENTATION REVIEW

The following sustainability features are integral to the change of use development and would form part of the Sustainability Plan for the conversion at 52-53 Russell Square, London.

3.1 Energy Management

To confirm CO₂ emissions reductions, a BRUKL Output document will need to be provided for both design & post-construction stages as part of the BREEAM assessment. The thermal model should confirm a Performance Ratio (EPR_{NDR}) greater than or equal to **0.48** which is an equivalent of 8 credits under this issue. This involves a comparison of the base case (as existing) BRUKL epc against the proposed BRUKL epc. The BREEAM assessment consisting of both design and post construction stages will demonstrate that at least 13 credits should be achieved under the Energy Section out of a possible 21 credits equating to 62% to be achieved. This is made up of the following:

- a. Reduction of Energy Use & Carbon – 8 credits to be achieved
- b. Energy Monitoring – 1 credit to be achieved
- c. External Lighting – 1 credit to be achieved
- d. Low Carbon Design – 1 credit to be achieved
- e. Energy Efficient Transportation systems – 2 credits to be achieved

3.2 Management of Construction Works

The main contractor is required to operate an environmental management system (EMS) covering their main operations. The EMS must be either:

- a) Third party certified to ISO 14001/EMAS or equivalent or
- b) Have a structure that is compliant with BS 8555:2003 Phase 4 of the implementation stage and completed phase audits 1 to 4 as defined in BS 8555:2003

The contractor is to implement best practice pollution prevention policies and procedures on-site in accordance with PPG, Working at construction and demolition sites PPG61.

The contractor is required to have on site a 'Sustainability Champion' to monitor the project during construction and report accordingly.

All site timber used on the project is sourced in accordance with the UK Government's Timber Procurement Policy.

The main contractor should keep monthly records of all on site energy consumption, water consumption and logs of all transport of construction materials during the fit-out contract works.

The principal contractor must achieve Scheme certification and a CCS score as follows:

- A CCS score between 35 and 39

A score of 7 in each of the 5 sections must be achieved

Post-Occupancy Evaluation (POE) should be carried out and shared one year after building occupation, to gain building performances feedback.

The POE should be carried out by an independent third party and will cover: -

- Review of the design and construction process
- Feedback from a wide range of building users on: -
 - o Internal environmental conditions.

- o Control, operation and maintenance
- o Facilities and amenities
- o Access and layout
- o Other relevant issues
- Sustainable performance

The building occupier is to carry out the appropriate dissemination of information on the building's post occupancy performance to share good practice and lessons learned as well as inform changes in user behaviour, building operational processes and procedures and system controls.

3.3 **White Goods and Cycle Storage**

Where White Goods are provided, Fridges, Freezers, Washing Machines and Dishwashers (where provided) are to be A+ rated.
Tumble dryers or washer dryers where provided are to be B rated appliances.
EU Energy Efficiency Labelling Scheme information to be provided to all users on completion.

All security and space lighting where installed are to have dedicated energy efficient fittings with appropriate control systems such as timers and switch controls as required.

There should be provision of 3 No. cycle racks within the inner courtyard to facilitate cycling to work by the building users. Suitable changing facilities including showers for use by cyclists should be considered. In addition to the provisions in the inner courtyard this scheme is also providing 28 cycle spaces for staff and pupils.

3.4 **Water**

An analysis of the existing toilet and wc area(s) to be carried out to identify how efficient the fittings are and where inadequate remodelled to allow for low-flow water consuming sanitary fittings achieving at least a 25% improvement against the notional baseline performance.

A water meter should be fitted to the mains water supply of the building which should have a pulsed output as well as the capability of being connected to a Building Management System (BMS) if required. If existing meter is being considered then this must meet the above standards.

The project should achieve a BREEAM score of 6 credits out of a maximum 9 credits for both design and post construction stages equating to an achieved 67% in the water section. This is made up of the following:

- a. Water Consumption – 2 credits to be achieved
- b. Water Monitoring – 1 credit to be achieved
- c. Water Leak Detection – 2 credits to be achieved
- d. Water Efficient Equipment – 1 credit to be achieved

3.5 **Materials**

Robust environmental performance information required for all specified materials including those to be retained in situ. As this is a change of use only it is anticipated that there should only be a minimal amount of new materials introduced. Points are allocated using the BREEAM Mat 01 Calculator based on the percentage of the following:

- a. Reused insitu
- b. Reused in situ with minor repairs
- c. Specified with robust environmental performance information

Appointed contractor(s) will be required to provide evidence that suppliers for all elements hold up-to-date Environmental Management Systems (EMS) certification such as ISO 14001.

All insulation products to be used in the development are also to have a Green Guide rating of A/A+ as well as proof of responsible sourcing and have a global warming potential less than 5.

The project should achieve a BREEAM score of 6 credits out of a maximum 12 credits for both design and post construction stages equating to an achieved 50% in the Materials section. This is made up of the following:

- a. Environmental Impact of Materials – 4 credits to be achieved
- b. Responsible sourcing of Materials – 1 credit to be achieved
- c. Insulation (Embodied energy) – 1 credit to be achieved

3.6 **Surface Water Run-Off**

Location/height of local services such as sockets, vents etc and location of wiring/pipework/ductwork in relation to the flood level and other measures to protect local services should be considered by the designers.

All proposed function areas/spaces below the flood level where applicable (eg sacrificial spaces) should be limited to those which are not susceptible to flood damage. Also the resilience of materials used for partitions, walls, floors, ceiling finishes, furniture and fittings as well as equipment should be considered.

3.7 **Waste**

A pre-fit out audit of all existing materials prior to the fit-out works should be undertaken by a competent person independent of the project prior to any strip-out works.

Actual waste arisings and waste management routes used should be compared with those forecast from the audit and barriers to achieving targets should be investigated. The audit should be referenced in the resource management plan.

The main contractor will be required to develop and implement a compliant resource management plan for covering waste arisings from the refurbishment/fit-out works with the aim of minimising waste. A Resource efficiency benchmark for non-hazardous waste per 100 m² of floor area should be no more than ≤ 3.5 tonnes or ≤ 11.3 m³

In addition, the main contractor will be required to divert at least 90% by weight or 85% by volume of non-demolition waste from landfill. Where demolition is part of the project then the diversion requirement should be no less than 95% by weight or 90% by volume.

Feasibility study into the Reuse and direct recycling of materials to be undertaken to determine how this will be best employed if considered appropriate for this project

The project should achieve a BREEAM score of 4 credits out of a maximum 8 credits for both design and post construction stages equating to an achieved 50% in the Waste section. This is made up of the following:

- a. Construction Waste Management – 3 credits to be achieved
- b. Functional Adaptability – 1 credit to be achieved

3.8 **Pollution**

All insulation products (thermal and Building Services) are to have a Global Warming Potential (GWP) less than 5 (in manufacture and installation).

Space and water heating to be provided with heating systems with NOx emissions less than 40mg/kWh. No open flue space and/or water heating systems will be specified or allowed to be installed.

3.9 **Health and Wellbeing**

All new internal & external lighting will need to comply with relevant CIBSE standards and should be carefully chosen to be sympathetic to the listed status of the assessed building. Ideally where practical replacements are to be limited.

Manual lighting controls should be easily accessible.

All fluorescent and compact fluorescent lamps where specified are to be fitted with high frequency ballasts.

All internal lighting to be designed and installed in accordance with SLL Code for Lighting 2012, CIBSE Lighting Guide 7 and any other relevant industry standard.

The building should be designed to achieve sound insulation, indoor ambient noise levels and reverberation levels as recommended in Section 7 of BS 8233:20145. This again should be reviewed in line with the limits of a listed building. The scope of the acoustician's appointment should include a programme of pre-completion acoustic testing.

3.10 **Management**

Commissioning of all building services should be carried out in line with current Building Regulations, BSIRA and CIBSE standards. Commissioning manager & specialist commissioning manager will be appointed. Additional or altered services where applicable should be carefully considered to reflect the listed status of the assessed building

There is a requirement for a compliant Building User Guide to be developed prior to handover for distribution to the building occupier and premises manager with a draft copy developed and discussed with users first to ensure the guide is most appropriate and useful to the occupier.

3.11 **Maintenance**

A comprehensive maintenance management plan is to be developed to ensure that regular checks and maintenance by suitably qualified personnel of all Building services, fixtures including heritage assets are carried out in an efficient, auditable and sustainable manner. Aftercare services and training should be provided by the main contractor prior to and also immediately after handover. Data monitoring of energy and water use by the school should form part of the Aftercare exercise with reviews after 12 months and 3 years following occupation. The school management is to ensure that a comprehensive Post Occupancy Evaluation is carried out within the first 12 months following occupation.

3.12 **BREEAM**

A Design (RIBA Stages 1 – 5) as well as Post Construction (RIBA Stages 5 and 6) assessment of the project is to be undertaken by a Building Research Establishment (BRE) Licensed Organisation undertaken by an assessor qualified to carry out Education projects and also a qualified BREEAM Accredited Professional (AP). The assessment should involve the client as well as the main contractor's teams and should commence with a workshop where the commitments of this sustainability plan relating to the S106 agreement are discussed in detail with the various BREEAM issues highlighted identifying which team member is responsible for providing the required evidence and when. A report will be prepared and submitted to the BRE by the suitably qualified assessor and a post construction (final) certificate confirming that the target rating of 'Very Good' with minimum percentages within the Energy, Materials, Water and Waste sections have been achieved.

3.13 **Information Dissemination - Liaison with the Local Authority**

Information on how the project team is managing all targets and commitments in this sustainability plan will be communicated to the local authority by the project lead at key stages during the project.

A copy of the final Post Construction BREEAM certificate will be issued to the local authority as soon as this is made available to the appointed qualified BREEAM assessor

4.0 **CONCLUSION**

This Sustainability Plan highlights various sustainable features of the proposed change of use development as well as carbon reduction commitments in response to the requirements of the agreed Section 106 agreement for 52-53 Russell Square, London. This requirement relates to the provision of a Sustainability Plan for the development prior to the implementation of the planning permission.