



1 MONTPELIER SQUARE, LONDON SW7

Client **COSTAS MICHAELIDES**

Document **SUSTAINABLE DESIGN STATEMENT**

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GarnettArchitecture

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Westminster City Council has set out a number of Sustainable Design Principles in Policy 38D of City Plan 2019-2040:

“Development will enable the extended lifetime of buildings and spaces and respond to the likely risks and consequences of climate change by incorporating principles of sustainable design, including:

- 1. use of high-quality durable materials and detail;*
- 2. providing flexible, high quality floorspace;*
- 3. optimising resource and water efficiency;*
- 4. enabling the incorporation of, or connection to, future services or facilities; and*
- 5. minimising the need for plant and machinery.”*

This document will set out how the design responds to the these Sustainable Design Principles.

Westminster City Council has kindly advised that the following document should include design implications arising from related policy in particular Policy 34B (City Greening), Policy 36 (Energy) and Policy 39 (Heritage). They read, in part, as follows:

Policy 34B - City Greening

“Developments will, wherever possible, contribute to the greening of Westminster by incorporating trees, green walls, green roofs, rain gardens and other green features and spaces into the design of the scheme.”

Policy 36 - Energy

“The council will promote zero carbon development and expects all development to reduce on-site energy demand and maximise the use of low carbon energy sources to minimise the effects of climate change...”

Policy 39 - Heritage

“Westminster’s unique historic environment will be valued and celebrated for its contribution to the quality of life and character of the city. Public enjoyment of, access to and awareness of the city’s heritage will be promoted...”

2.0

SUSTAINABLE DESIGN
PRINCIPLES

2.1

GENERAL PRINCIPLES



Photograph of Existing Property



Visual of Proposal

The general principles of this proposed development will enable the extended lifetime the property.

The approach generally is to retain and refurbish. Keeping as much material, and therefore as much embodied carbon, as possible.

The majority of the existing building will be retained, with the proposed works seeking only to replace fittings & finishes, with as much structure to be retained as possible.

All proposed new materials will all be specified to be high-quality & durable, to help increase the lifespan of the building.

2.2

BUILDING LIFESPAN



Photograph of 4th Floor Landing



Photograph of Master Bedroom Wall



Photograph of 3rd Floor Landing



Photograph of Floor in 2nd Floor Bedroom

Westminster City Council encourages durable buildings, with excellence in design quality and floorspace adaptability to support the lifespan of buildings. Refurbishments and/or retrofits are preferred ahead of substantial demolition & new building.

Several areas of the existing building are in desperate need of repair and refurbishment. This proposal seeks to address these, in such a way that the current building may serve, not just the current owner, but also generations to come.

However, these refurbishments are not financially viable on their own. With the supporting extension at the rear and new basement providing additional area as part of the owner's investment.

This increase in area will also bring the property in line with the amenities expected of other high-value properties, which will help protect the property from going under-used in the future.

2.3

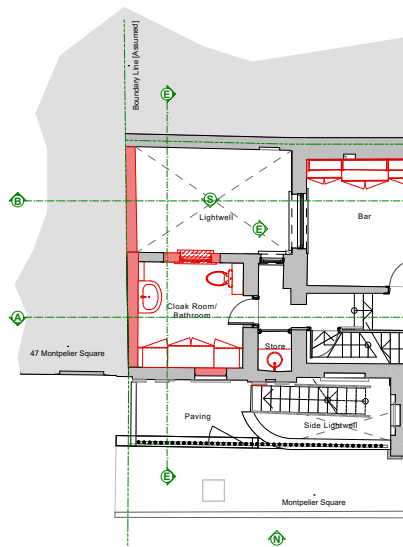
FLOORSPACE ADAPTABILITY

While the proposed demolition of existing structure has been minimised, the design will require the demolition of some structure to the existing extension. This is to increase the existing extension full-width of the property.

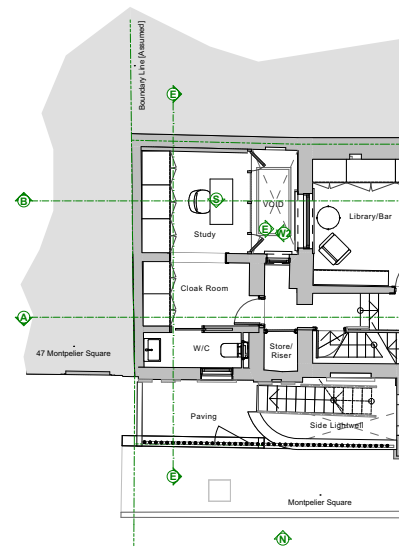
Increasing the current extension full-width of the property, will make these spaces far more usable, and potentially more adaptable in the future. Currently, the extension is used as a store, a cloak room, and an orangery on Lower Ground, Ground, & First Floors respectively. With each space feeling too large for their current uses, but feeling too small to be utilised as anything else.

The proposal would expand these spaces into a guest bed suite, a study, and a library/office.

Currently, the bedrooms on the Third Floor are occupied by a study and a library/office, which detracts from the hierarchy of spaces within the listed building. The extension would create more adaptable floorspace, and enable the relocation of the study and library/office.



Proposed Demolition Ground Floor Plan - rear
Refer to drawing: 0951-GAR-A-0132-P01_DEMO_GF



Proposed Ground Floor Plan - rear
Refer to drawing: 0951-GAR-A-0152-P01_PROP_GF

3.0

HERITAGE

1 Montpelier Square forms part of the list entry; Nos. 1-7 Montpelier Square (NHLE ref 1223388). It also sits within the Knightsbridge Conservation Area.

Westminster City Council's Policy 39 - Heritage

*Please refer to document 21.59.Heritage Statement.F
Section 1.3: "Whilst the property has undergone numerous refurbishments over its history, it has not undergone significant renovation in recent years and is outdated and tired. The Applicant's aspirations seek to repair and update the property, in addition to extending the property with a basement and rear extension as part of the upgrading works."*

3.1

IMPROVEMENTS TO ENERGY EFFICIENCY

The Design Team has based our design principles on improvements to energy efficiency on Historic England's *Energy Efficiency and Historic Buildings: How to Improve Energy Efficiency*.

This proposal takes a whole building approach to energy and sustainability. With the entire building considered within the proposals; not only will the proposed extension and basement conform to current building regulations regarding conservation of energy, but the refurbishment to the main body of the building is also considered.

The following pages outline the strategy for proposed improvements to energy efficiency for the heritage elements of the property.

The following section is also referred to within document *0951-GAR-A-Design_And_Access_Statement*.

Following comments from WCC dated 17th August 2023, the description on the drawings have been revised to show the retention of all sashes, as well as retaining all existing window frames, shutters, linings, surrounds, sills, and joinery is to be retained.

In order to conserve the use of fuel and power, the proposals include the replacement of the existing, single glazing with slimline double-glazed units, within the existing sashes & frames.

A more detailed description of the proposals is provided on the following page.

While the Design Team does not wish to remove Heritage fabric where not necessary, the replacement of the glazing forms part of the proposals for the following reasons:

- Conservation of power during operation of heating and during operation of comfort cooling. The existing single-glazing has poor thermal performance, which would result in excess heat loss in the Winter or heat gain in the Summer. In order to maintain safe comfortable temperatures, a lot of power would be required to heat or cool the house. The improved thermal performance generated by upgrading to double glazing would allow the heating and cooling systems to work with greater efficiency, and therefore, use less power in comparison.

- Size of plant.

Without the improved efficiency of the heating and cooling systems that come with improved thermal performance of the windows, the plant required to maintain safe, comfortable temperatures would be larger than the current proposals.

For the heating, a less efficient system would require a larger boiler or a second boiler. Accommodating this could impinge on the plan form of the property.

For the comfort cooling, a less efficient system would require larger external plant than shown.

The improved thermal performance generated by upgrading to double glazing would allow the heating and cooling systems to work with greater efficiency, and therefore, prevent the requirement for larger plant units.

- Extent of comfort cooling available.

If the existing single glazing is retained, and the current plant proposals and expected power usage is unchanged, the level of comfort cooling available will be reduced. During the warmest days of the summer, this could result in comfort cooling running at full capacity, but not achieving desired comfort levels. Or this could result in the extent of comfort cooling being limited to fewer spaces within the property - limiting the owner's enjoyment of the property during the Summer months.

- Length of running time of comfort cooling.

The proposed upgrade of the glazing units also includes an improvement in the glazing's G-value, to reduce the thermal gain through solar transmittance. This improvement will keep the property at a lower temperature passively. This will result in the reduction of the period of time the comfort cooling will need to be active. In turn, this will reduce the power usage.

3.2

WINDOWS

The description of the proposals are as follows:

- All existing window frames, sashes, shutters, linings, surrounds, sills, and joinery is to be retained.
- Sash cords and weights to be retained where in good condition. If cords are frayed or snapped, cords are to be replaced like-for-like with waxed cotton sash cord. If weights are chipped or broken, they are to be replaced to match existing.
- Existing paint finishes are to be removed with non-abrasive paint stripper, with any cracks and chips in timber to be filled to match existing profiles.
- Timber to be neutralised and stabilised, and treated with organic solvent preservative, in order to extend lifespan.
- New paint finish to timber to be applied to match/replicate existing.
- Existing single-glazing units are to be removed, with new double-glazed units to be installed within existing sashes.
- Specialist manufacturer to measure each unit, to ensure new glazing fits within existing sashes.
- New double-glazing to have improved U-value thermal performance to conserve use of fuel and power. New glazing units to have improved G-value solar performance to reduce overheating from solar gains, and therefore further conserve use of fuel and power.
- Existing putties and beads will require replacing. Replacement will be achieved like-for-like, with replacement beads matching the profile of the existing bead profiles.

3.3

INSULATION

The decision has been made not to increase insulation to the existing walls of the property, as this will erode the Heritage Asset.

External insulating cladding is not feasible in this case, as it would cover the Heritage facade and its features.

While the interior of the property has been significantly altered and the historic character eroded due to previous refurbishments and adaptations, the plan form still holds a broadly traditional layout. *(Please refer to sections 4.25 - 4.34 in document 21.59. Heritage Statement.F)*. Internal wall linings would compromise this plan form, and necessitate the alterations of features such as window surrounds, cornices, stairs & balustrades.

All areas of the proposed new extension and basement will conform to current building regulations regarding thermal performance.

The proposed repairs to the roof grants an opportunity to add/increase loft insulation.

4.0

SURFACE DRAINAGE &
CITY GREENING

4.1

SURFACE-WATER DRAINAGE

The following section is also referred to within document *0951-GAR-A-Design_And_Access_Statement*.

Please refer to *3606-EVE-00-XX-T-C-0130 Sustainable Drainage Strategy* for further details.

Previous pre-application advice from Westminster states;

“Policy 45 requires that a margin of undeveloped is maintained. It is therefore advised that the proposed basement extension should be set back from extending under the lightwell area to preserve an area of permeable land to ensure sustainable drainage and the re-provision of soft landscaping.”

However, the Design Team counters that the existing condition is not permeable, and so an extension of basement below this area does not remove any permeable land. The proposed basement does not extend under the front or side lightwells, or the pavement vaults.

The area of the proposed extension does not increase the non permeable surface area.



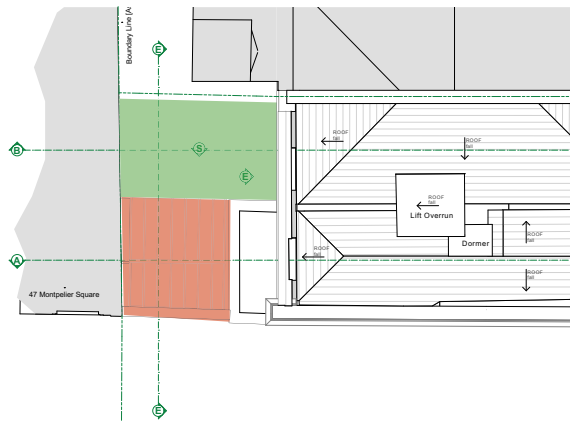
Photograph of Existing lightwell from 2nd Floor



Photograph of Existing ground covering in lightwell

4.2

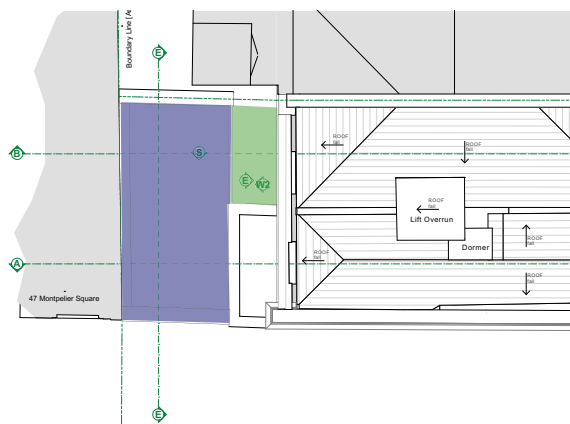
BLUE ROOF DRAINAGE



Existing Roof Plan

Approximate footprint of non permeable roof area: 10.2m²

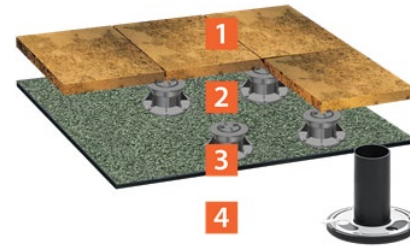
Approximate footprint of non permeable lightwell area: 12.1m²



Proposed Roof Plan

Approximate footprint of proposed Blue roof area: 18.8m²

Approximate footprint of non permeable lightwell area: 3.5m²



BauderBLUE STORMvoid system

The following section is also referred to within document 0951-GAR-A-Design_And_Access_Statement.

Please refer to 3606-EVE-00-XX-T-C-0130 Sustainable Drainage Strategy for further details.

The Design Team seeks to improve upon the condition of the drainage, by integrating a Blue roof system into the rear extension.

The proposal is to use a Bauder BLUE STORM void system or similar. This creates a void under hard landscaping to the Plant Maintenance/ Amenity Space using pedestals. This forms a 'reservoir' within the waterproof membrane, which discharges to empty at a reduced flow rate by use of a throttled outlet with built in overflow. In the event of heavy rain, this system would significantly reduce the rate of flow into the public drains.



Photograph of Existing lightwell from 2nd Floor



Precedent images of removable green wall screens

WCC Policy 34B

“Developments will, wherever possible, contribute to the greening of Westminster by incorporating trees, green walls, green roofs, rain gardens and other green features and spaces into the design of the scheme.”

The existing lightwell does not provide any green space, due to its non-permeable flagstone covering & lack of direct sunlight. The proposal does not worsen the existing condition.

The existing condition also does not provide suitable amenity space for the property, due to the lack of direct sunlight.

While the proposals considered incorporating a sedum roof on the blue roof of the extension, this was not desired. As the provision of amenity space for the property was the preferred option. This would give the property amenity space, for the owner to pot some plants. This option is also more suitable for safe access to the air-conditioning plant for maintenance.

The air-conditioning plant is required to be within an acoustic enclosure, but it will also be screened with a detachable green wall visual screen. This has the dual benefit of improving biodiversity to the site.

5.0

WATER CONSUMPTION

The water consumption rates for this proposal has not yet been calculated, with the final calculations to be determined following detailed design stages.

However, the Design Team will commit to designing the proposed water fittings, such that they do not exceed the 125 litres per person per day requirement as set out in Requirement G2 and Regulation 36 of the Building Regulations.

Analysis of the existing sanitary and public health fittings has not been undertaken, as the proposal is to remove all existing plumbing. However, should Westminster City Council condition aspects of the plumbing, the commitment to 125L/person/day may not be feasible. Therefore, 150L/person/day was given as the answer to the Water Management section of the Application Questions on the Planning Portal for this application.

6.0

E+M TECNICA SUSTAINABLE
STATEMENT

6.0 E+M TECNICA SUSTAINABLE STATEMENT

E+M Tecnica 2nd June 2023 1 Montpelier Square – Energy Statement Summary

Introduction

Following the issue of our MEP Proposed Services document, issue 5 of May 2023, we have prepared a brief statement on the sustainability issues associated with this project.

An assessment was carried out on the range of possible sustainable options for the mechanical services including the following:

1. Solar photo voltaic
2. Solar hot water heating
3. Wind turbine
4. Ground source heat pumps
5. Rainwater harvesting
6. Grey water harvesting
7. Heat recovery ventilation
8. Solar louvres

The above options had to be considered alongside the proposed minor alterations and refurbishment work being considered for the main existing part of the house and the construction of the new basement.

The property is located within a conservation area, and we understand it is also listed by the national authority.

Proposed Property Thermal Upgrades

The architect is proposing to carry out the following thermal upgrades to the existing parts of the property:

- Replacement of all the single glazing with double glazed units
- Upgrading of the loft insulation

In addition, the new basement level will be constructed to suit new Building Regulation thermal standards.

Proposed New Services

After careful consideration of the architectural aims that the client was looking to achieve and the building's listed and conservation area status, the following services are proposed:

- Replacement of the entire gas fired heating system with a new system, extended to serve the new basement, comprising a high efficiency modular output boiler, associated inverter driven pumps and safety equipment. The main existing house will be heated via radiators selected in keeping with the listed features, whilst the new basement will feature underfloor heating. Both air and water source heat pumps were considered but eventually ruled out as there was insufficient space available for the outdoor equipment.

- Heat recovery ventilation to the new basement. Extract ventilation will serve the existing part of the property, to minimise the impact on the listed features.
- Replacement of the entire plumbing system, including new cold water booster sets located in the lower ground floor vaults, one serving the main system and another serving the outside taps to comply with water regulations. The current cold water storage tank is in the loft space, so relocating it to the vaults lowers the risk of water leaks and building damage etc. The system will feature a high efficiency indirect cylinder, sized to match the proposed water fittings, complete with pumped secondary pipe circuit to minimise water usage. Water harvesting was considered but ruled impractical given the usage of the property and available space for the equipment.
- Comfort cooling is proposed to a limited number of rooms due to overheating during peak summer periods, which is a particular issue for the client. Cooling will be provided by a variable refrigerant volume (VRV) system comprising outdoor condenser units, located within an acoustic enclosure to comply with the local authority noise criteria and various indoor fan coil units. Solar shading would have reduced the cooling load; however, this was ruled out due to the buildings listed status.

Summary

The entire building services, including electrical services, will be replaced with new systems as described. These will then provide an economical and comfortable solution for the client and with suitable maintenance, will help to extend the lifespan of the building.

Garnett Architecture