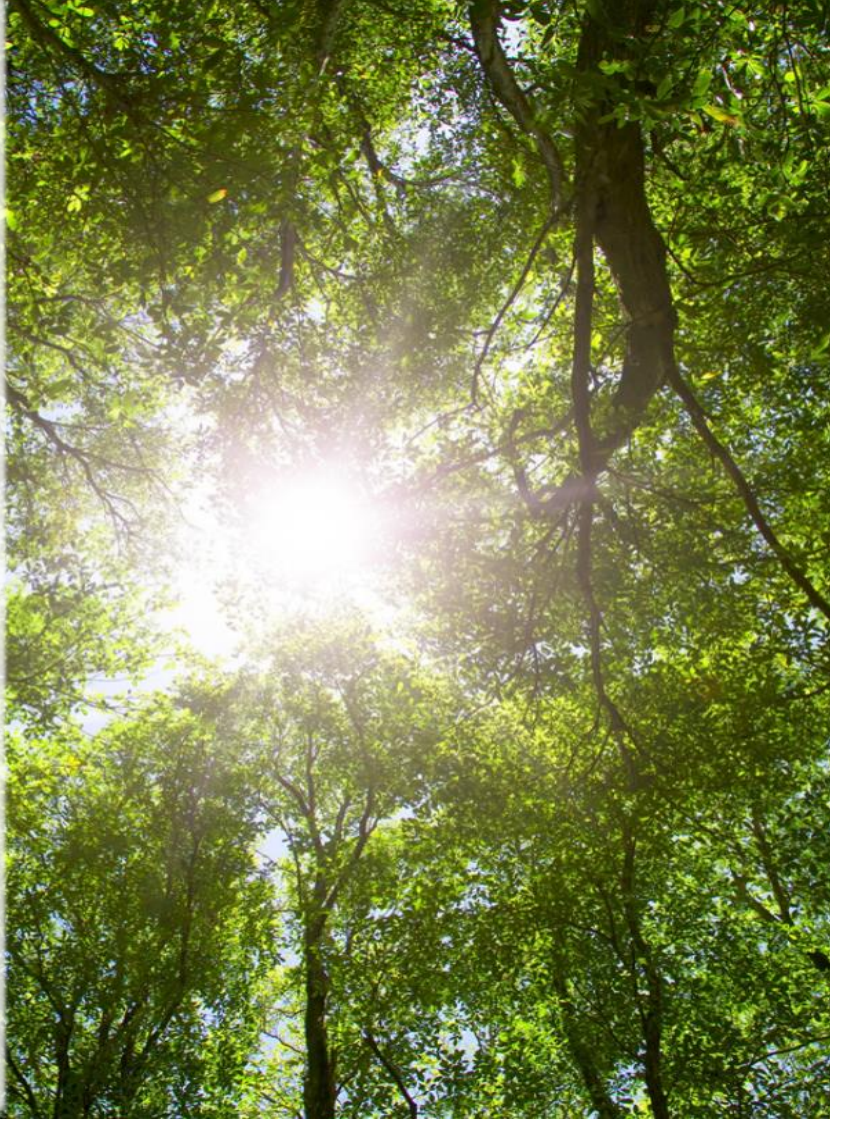


244 Power Mill Lane, Twickenham

Sustainability and Energy Report

Ensphere Group Ltd
on behalf of Linden Hill Capital Management



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244 Power Mill Lane, Twickenham

Sustainability & Energy Report

Client Name: Linden Hill Capital Management

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Quality Assurance Approval Status

This document has been prepared and checked in accordance with Ensphere Group Ltd's Quality Management System.

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Final	V1	Aura Tache Stephanie Grácio	Pete Jeavons	July 2024

Contents

1.	Executive Summary.....	1
2.	Introduction.....	2
3.	Planning Context	3
4.	Sustainable Design Proposals.....	5
5.	Summary	12
A.	Site Plans	15
B.	Key Local Planning Policy Requirements	17
C.	Sample Energy Model Outputs (SAP – Proposed).....	24
D.	Sustainable Construction Checklist	31
E.	General Notes	38

1. Executive Summary

- 1.1 This Sustainability and Energy Report presents the sustainability credentials at 244 Powder Mill Lane, Twickenham TW2 6EJ.
- 1.2 The proposed development is for the reconfiguration of two units into three 1 bed units within a recently completed development.
- 1.3 A range of sustainable design features are proposed consistent with the recently consented application for the wider site.
- 1.4 It is proposed to reduce energy demands in line with the Energy Hierarchy; with a priority given to energy reduction and efficiency. This is achieved through high performance building fabric and energy efficient lighting, services and equipment. Photovoltaics are proposed per each unit in line with the existing scheme. Space and hot water heating will be provided from the existing heating system.
- 1.5 The consented scheme was approved on the basis of a 35% improvement relative to Part L 2013. The proposed reconfiguration will maintain the existing fabric and systems and will therefore achieve a similar level of performance.
- 1.6 Overall, the proposals for the scheme are in line with the overarching principles of sustainable development as well as the policy requirements of the National Planning Policy Framework, London Plan and policies of the Council. When implemented, the scheme will provide an efficient and low carbon development.

2. Introduction

- 2.1 Ensphere Group Ltd was commissioned by Linden Hill Capital Management to produce a Sustainability and Energy Statement for the proposed redevelopment at 244 Powder Mill Lane, Twickenham TW2 6EJ consisting of the conversion of existing two flats (1-bed flat and 3-bed flat) from a recently completed development into three 1-bed flats.

Site and Surroundings

- 2.2 The site is located on a corner between Hanworth Road, Powder Mill Lane and Godfrey Way. Further to the west there is a landscape buffer, separating nearby residential units from a cemetery located further to the north.
- 2.3 The site is located in a suburban location with mostly 2-3 storey residential units and mixed use developments. A number of loft conversions have been completed to properties in the area. To the north of the site there are 2/3 storey buildings comprising of retail units on the ground floor and residential on the first floor with pitched roofs. The site is adjacent to a Baptist Church on the south east boundary.

Proposed Development

- 2.4 Conversion of the existing two units within a recently completed development into three 1-bed units.

Report Objective

- 2.5 The objective of the Sustainability and Energy Report is to outline how sustainability and the principles of sustainable development have been incorporated into the development proposals.

3. Planning Context

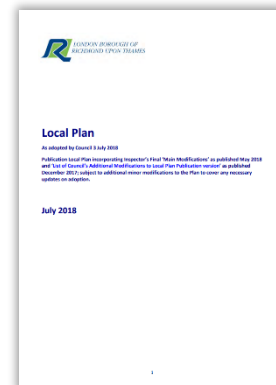
Local Context

Richmond upon Thames' Local Plan (2018)

3.1 The Local Plan sets out the key planning policies for the future development of the borough up to 2033 and acts as the central document in the Borough's Development Plan.

3.2 The following policies are considered pertinent to this report:

- Policy LP1 (*Local Character and Design Quality*) – requires proposals to consider sustainable design and construction, including adaptability.
- Policy LP10 (*Local Environmental Impacts, Pollution and Land Contamination*) – seeks to ensure that local environmental impacts of all development proposals do not lead to detrimental effects on the health, safety and the amenity of existing and new users or occupiers of the development site, or the surrounding land.
- Policy LP17 (*Green Roofs and Walls*) – encourages the incorporation of a green and/or brown roof into any major developments with roof plates of 100sqm or more. It sets an aim of 70% of any potential roof plate area to be a green or brown roof.
- Policy LP20 (*Climate Change Adaptation*) – requires energy efficient design, reduced need for cooling and encourages climate change resilience.
- Policy LP21 (*Flood Risk and Sustainable Design*) – All developments should avoid, or minimise, contributing to all sources of flooding, particularly with the consideration of climate change and without increasing flood risk elsewhere.
- Policy LP22 (*Sustainable Design and Construction*) – development of 1 dwelling or more or 100sqm or more of non-residential will be required to complete the Sustainable Construction Checklist. Includes carbon reduction targets and requires consideration of the Energy Hierarchy. Proposals for change of use to domestic will be required to meet BREEAM 'Excellent' standard (where feasible).
- Policy LP30 (*Health and Wellbeing*) – promotes and supports healthy and active lifestyles, including sustainable modes of travel.
- Policy LP44 (*Sustainable Travel Choices*) – promotes safe, sustainable, and accessible transport solutions, which minimise the impacts of the development including in relation to



congestion, air pollution, and carbon dioxide emissions. Sustainable transport solutions include walking, cycling and public transport over private car usage.

Richmond upon Thames' Sustainable Construction Checklist Guidance Document – (June 2020)

- 3.3 The Sustainable Construction Checklist SPD forms part of the assessment for planning applications for new build, conversion and retrofit properties within the London Borough of Richmond upon Thames.
- 3.4 Checklist issues include Minimum Compliance (energy assessment, BREEAM, water usage); Energy Use & Pollution; Transport; Biodiversity; Flooding & Drainage; Improving Resource Efficiency; Accessibility.
- 3.5 The Checklist allows for performance against these issues to be scored; with an overall score indicating the level of sustainability of the development.
- 3.6 This has been completed and has been submitted separately to this statement.

Draft Local Plan (2024/2025)

- 3.7 A draft Local Plan is currently in development due to be submitted between 2023 and 2024 for examination with an expected adoption date for winter 2024/2025. This new plan will set out updated planning policy to shape developments and guide decisions on the amount, type and location of new developments in Richmond. The new plan will replace the current Local Plan (2018) and the Twickenham Area Action Plan.

4. Sustainable Design Proposals

4.1 This section presents an overview of the proposed sustainable design features for the scheme.

Energy

4.2 The assessment falls under the “Regulations 6 and 22: Material change of use and change to energy status” of the Approved Document Part L1 as it meets criterion 11.5c. (“contains a greater or lesser number of dwellings that it did, having previously contained at least one dwelling”) and it is in line with the GLA Energy Assessment Guidance (June 2022).

4.3 The existing thermal elements meet the limiting standards in Table 4.3 of the Approved Document Part L.

4.4 Any of the fixed building services including building automation and control systems and/or on-site electricity generation that are provided or extended are in line with the Approved Document Part L standards in Sections 5 and 6.

4.5 The indicative SAP assessments for the proposed are attached in the Appendix showing the annual kgCO₂/ m² per each unit.

4.6 The Baseline model follows the GLA Energy Assessment Guidance (June 2022) approach for refurbishment following Table 12: Residential notional specification for existing buildings and in line with the As Built SAP models for the former two units. For instance as the existing condition of the building is of a higher performance, the actual energy performance of the building element from the As Built report is being used rather than the Notional Specification for Existing Buildings.

4.7 The assessment methodology follows the Energy Hierarchy, on the basis that it is preferable to firstly minimise carbon dioxide emissions through reduced energy demand; prior to considering low carbon and renewable energy supply options.

4.8 The tiers of the Energy Hierarchy are:

- Be Lean Demand Reduction
- Be Clean Use Energy More Efficiently
- Be Green Use Renewable Energy
- Be Seen Monitor, Verify & Report

4.9 Where opportunities to improve the efficiency of the design have been maximised, consideration is then given to the second principle whereby priority is given to the efficient use

of energy. This is on the basis that low carbon technologies can be cost-effective and provide significant carbon savings when compared to conventional technologies.

- 4.10 The third principle of the hierarchy promotes the use of renewable technologies. Whilst these technologies can be relatively expensive to install, they do offer the potential to significantly reduce carbon emissions.
- 4.11 Following the application of renewable technologies, the final tier of the Hierarchy requires monitoring, verification and reporting on energy performance.

Demand Reduction

- 4.12 In line with the first principle of the Hierarchy, the design has explored measures to reduce demand as follows:

- It is anticipated that the building will have the potential to be ventilated naturally via openable windows and / or trickle vents. This has the advantage of lower energy consumption; decreased costs associated with capital expenditure, operation and maintenance. Mechanical ventilation heat recovery will also be included where necessary to ensure that energy is used efficiently in cooler months, and when it is less desirable to open windows.
- It is intended that the performance of the building fabric will incorporate relatively low U-Values to reduce the rate at which the building loses heat, preserving the heat within the space and reducing the requirement for mechanical heating. The U-values for the basic building elements shall be enhanced compared to minimum Building Regulations standards (updated 2021); indicative upper limits are given below:

Table 6.1 Baseline Building Fabric U-Values (Part L 2021 – Domestic)

Fabric Element	Part L 1 (W/m ² K)	As Designed (W/m ² K)	As Built (W/m ² K)
External Wall	0.55	0.14	0.14
Roof	0.16	0.14	0.11
Ground Floor	0.25	0.14	0.14
Windows	1.6	1.4	1.4
External Doors	1.6	1	0.81

- An improved level of air tightness is proposed at Design stage for the previous scheme with 4m³/h/m² targeted, meaning that air infiltration between the internal and the external

environment will be largely controlled, and space heating demand further reduced. The As Built air test shows an air tightness of 3.37m³/h/m².

- Lighting design is intended to be highly efficient and in excess of Building Standards requirements and considerate of appropriate CIBSE guidance. Light fittings should be predominately LED 100% L.E.L.
- Thermal bridging is the penetration of the insulation layer by a highly conductive non-insulating material allowing rapid heat transfer from an interior to exterior environment (and vice versa). In well insulated buildings, as much as 30% of heat loss can occur through thermal bridges. The building fabric shall be constructed so that there are no reasonably avoidable thermal bridges in the insulation layers caused by gaps within the various elements. A “Y” value of 0.04 has been assumed for the purposes of the indicative SAPs and it is expected that Accredited Construction Details (ACDs) will be applied.
- Time and temperature controls by suitable arrangement will be installed within each dwelling, in order to maximise the efficiency of the heating system.
- The external lighting strategy shall be designed to minimise light spillage and night time light pollution in line with the ILP’s Guidance notes for the reduction of obtrusive light; low illuminance levels, fittings and controls shall be employed accordingly.
- Good internal air quality will be achieved through the creation of a building envelope with a low air permeability; meaning that the building fabric will reduce the infiltration of pollution from the external environment.

Energy Supply & Low Carbon / Renewable Technology Options Appraisal

- 4.13 The Amendment Regulations and accompanying Approved Documents L: Volumes 1 and 2 have recently been published by the Ministry of Housing, Communities & Local Government. These contain revised carbon conversion factors to address the carbon intensity projections from the National Grid, with consideration given to the rapidly reducing emission rates associated with electricity in the context of the energy strategy. The newly adopted factors (SAP10.2) are presented below in relation to the previous SAP2012 and SAP10 factors, demonstrating the continued trend of electricity decarbonisation.

Table 4.2 Carbon Factors SAP2012, SAP10 and SAP10.2

	SAP2012	SAP10	SAP10.2
Gas	0.216kgCO ₂ /kWh	0.210kgCO ₂ /kWh	0.210kgCO ₂ /kWh
Electricity	0.519kgCO ₂ /kWh	0.233kgCO ₂ /kWh	0.136kgCO ₂ /kWh

- 4.14 As a reconfiguration project which solely focus on the rearrangement of the internal layout it is proposed to use the existing and installed heating system for space and hot water. Nevertheless, the PV system that has already been incorporated into the building will also be incorporated into the proposed new units.

Carbon Savings

- 4.15 Energy modelling has been undertaken using SBEM software and the carbon savings delivered by each of the three steps of the Energy Hierarchy have been estimated (indicative output is included in the appendices).

Table 4.3 CO₂ Emissions after Each Stage of the Energy Hierarchy (SAP10.2) (Domestic & Non-domestic)

	Residential CO2 Emissions (tonnes/annum)	% Savings	Residential CO2 Emissions (tonnes/annum)	% Savings
Building Regulations 2013 Baseline) former development	19.43		13.90	
Be Lean (after demand reduction)) former development	16.69	14%	10.97	21%
Be Clean (after efficiency measures)) former development	16.69	0%	10.97	0%
Be Green (after renewable energy) former development	12.70	21%	8.36	19%
Proposed unit change (after renewable energy) modified development	14.35	18.5%	8.36	19%
Total Cumulative Savings (OLD)		35%		40%
Total Cumulative Savings (NEW)		32.5%		40%

- 4.16 The updated Part L 2021 SAP 10.2 software remains under development at the time of writing, and thus the modelling uses SAP10 carbon factors. Sample SAP outputs have also been included in the appendices. As the new SAP 10.2 carbon factors account for further decarbonisation of the National Grid, and since the new systems are all electric, it is anticipated that the building will perform better under Part L 2021 and effectively become net-zero overtime.

- 4.17 The energy strategy is therefore reliant on highly efficient building fabric and ASHPs space heating in the commercial area, and communal gas boiler 95% efficient on space and domestic hot water in the residential units. Example SAP assessments appended illustrating savings in excess of 32.5% relative to the baseline model.
- 4.18 Overall, the proposed energy strategy is considered consistent with the National Planning Policy Framework and London Plan. The policies of the Council encourage a reduction in predicted carbon dioxide emissions of 10% from on-site renewable energy generation for residential uses. The provision of renewable technologies has been maximised in the proposals, with technologies such as PV and ASHPs proposed. Based on the current energy strategy, carbon savings from renewable technologies are expected to exceed this 10%, relative to the baseline.

Overheating Mitigation

- 4.19 The issue of overheating will need detailed and considered assessment at a later stage of design on the basis that, as buildings become progressively better sealed and insulated, the potential for overheating increases. The following is, nevertheless, relevant and should be considered in conjunction and interrelationship with the ventilation strategy, to ensure thermal comfort for occupants and energy savings:
- Solar control glazing shall be installed to the elevations most affected; the precise specification of glazing types for windows is to be based upon further analysis at later stages so that the appropriate balance is found between limiting summer heat gains without compromising daylight harvesting and winter solar gains.
 - Thermal mass and internal occupant-controlled shading elements will be considered at the more detailed design stage along with heat reflective finishes of the external building surfaces.
- 4.20 Heat losses from the Hot Water and Low Temperature Hot Water (LTHW) distribution network are considered to be a significant source of potential overheating in well insulated buildings. This issue can be a significant factor affecting comfort and will therefore need full consideration during the detailed design of the mechanical systems. Attention will be given to:
- The positioning of the distribution network and its potential impact on surrounding spaces;
 - The (mechanical) ventilation of spaces where heating pipework is distributed (e.g. corridors);
 - The implementation of combined passive/active ventilation systems for air exhaust of spaces into corridors and to the outside;
 - Maximising the natural ventilation potential of spaces;

- The performance of the insulation, with calculations undertaken assessing heat losses from the pipework relative to the heat losses from the spaces.

Sustainability Standards

- 4.21 It is understood that a development at 244 Powder Mill Lane, Twickenham TW2 6EJ has recently been completed (Existing consent: 21/0156/FUL) which included the erection of two buildings, consisting of a retail unit and community centre at ground floor alongside 15 residential units above, parking and associated hard and soft landscaping.
- 4.22 The project team are now seeking to reconfigure two of the built-out units to create three 1 bed units, which would create an additional residential unit in the development
- 4.23 Local policy includes reference to the BREEAM Domestic Refurbishment standard in the context of projects which include a change of use or conversion to residential and residential extensions which do not result in a new dwelling. The policy in question states that an 'Excellent' rating is to be achieved where feasible.

BREEAM Credentials

- 4.24 This section of the report has been completed by licensed assessors with years of experience in delivering BREEAM Certifications for similar building types:
- Pete Jeavons: BREEAM Assessor (ENSPPJ06) and BREEAM Advisory Professional (BREEAMAP0356).
 - Stephanie Grácio: BREEAM Assessor (ENSPSG61).

Technical Feasibility

- 4.25 The development constitutes two fully built out flats above a retail unit in Building A. The reconfiguration works proposed are to change the layout of two flats to provide an additional one-bedroom unit by converting the existing three-bedroom into two one-bedroom units.
- 4.26 Due to the nature of the assessment, a variety of credits would require the completion of early stage (RIBA 2 – Concept Design Stage) reports and collation of evidence. As the development has already been built out by the team, a number of the required reports are unlikely to have been procured as part of the initial planning application as the residential element was not being assessed under BREEAM.
- 4.27 Additionally, as the development has already been built out by the project team and the proposed works are primarily to reconfigure the spaces provided rather than fully refurbish the spaces, the scope of works is limited to internal walls which is relevant to almost none of the credits under BREEAM.

- 4.28 It is therefore not technically feasible to assess the development against BREEAM Domestic Refurbishment.

Financial Viability

- 4.29 Typically, planning policies that request a BREEAM Assessment apply to buildings with a minimum size of 1,000m², and whilst it is recognised that planning policy in Richmond only includes a limit of 100m² for non-residential schemes. This is a relevant factor because as buildings become smaller, technical constraints and financial viability considerations become more significant
- 4.30 Certification to BREEAM Domestic Refurbishment (as with other BREEAM schemes) requires the employment of various advisors that would not otherwise be required; simply for the purpose of generating the necessary evidence. A BREEAM Assessor would also need to be employed and the BRE audit costs covered. All of which would add a level of additional cost and management to the construction, which in this case, would be disproportionate to the scale of development. For a development of this scale, the reconfiguration of a flat, BREEAM Domestic Refurbishment is not considered financially viable.

5. Summary

5.1 This Sustainability & Energy Statement provides an overview as to how the proposed scheme contributes to sustainable development in the context of the strategic, design and construction considerations.

5.2 Sustainability is a broad concept and covers a range of environmental, social and economic considerations. A review of the Richmond Council's planning policies has identified a number of requirements relating to sustainable development, including Policy LP22 (*Sustainable Design and Construction*).

5.3 The proposed development consists in the conversion of two units into three 1bed units.

Strategic Sustainability

5.4 Both nationally and regionally there is a shortfall in housing, which is leading to property prices rising significantly faster than earnings, with implications for affordability and ownership.

5.5 The lack of access to housing is often most acutely felt by for those people who are not yet on the housing ladder and who have not benefited in the increase in property asset values. Typically, these people will be the younger and those with lower incomes; the consequence being that the supply and demand imbalance is contributing towards intergenerational inequality by compromising the ability of current and future generations in meeting their own housing needs. This is inconsistent with the principles of "sustainable development" as defined by Brundtland; and if not addressed, will have longer term societal and economic implications.

5.6 A need is therefore considered to exist on the basis that the nature of the proposed development will help relieve anticipated future demand pressures on housing and assist with the rebalancing of the socio-economic factors.

Sustainable Design and Construction

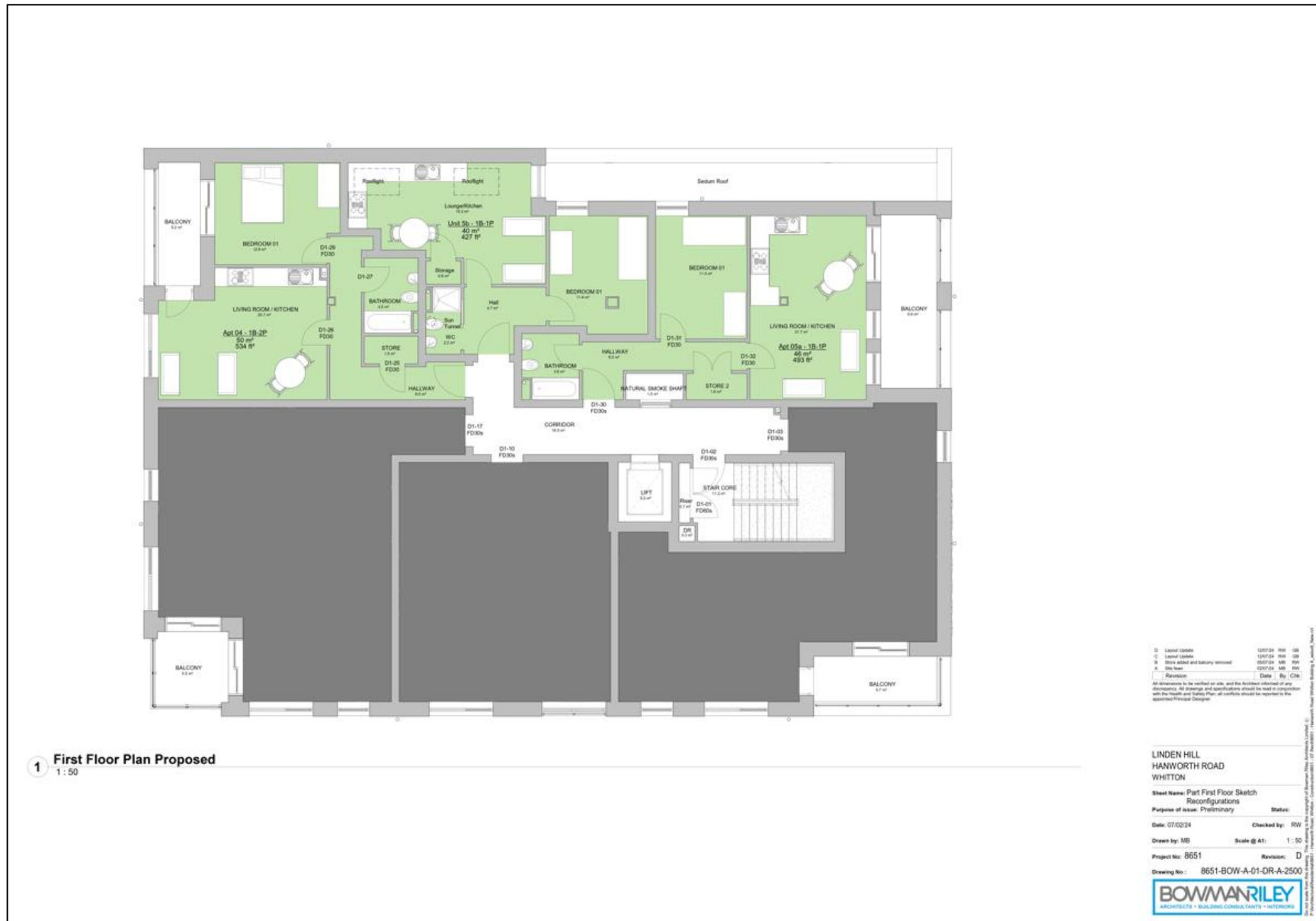
5.7 A range of sustainable design and construction features are proposed including:

- Highly thermally efficient building fabric.
- Highly efficient lighting.
- Water saving sanitary fittings and appliances to deliver a water efficient development (<105litre / person / day).
- The use of materials with a low lifecycle environmental impact and embodied carbon.
- Consideration of the principles of Secured by Design.
- Efficient construction and operational waste management.

- 5.8 Overall, the proposals for the scheme are in line with the overarching principles of sustainable development as well as the policy requirements of the planning authority.

Appendices

A. Site Plans



1 First Floor Plan Proposed
1:50

□	Level Update	12/07/24	MB	MB
□	Level Update	12/07/24	MB	MB
□	Store added and balcony removed	05/07/24	MB	MB
□	Site Issue	02/07/24	MB	MB
	Revision	Date	By	Chk

All dimensions to be verified on site, and the Architect retained of any discrepancies. All drawings and specifications should be read in conjunction with the contract and building rules. All conflicts should be reported to the Architect/Principal Designer.

LINDEN HILL
HANWORTH ROAD
WHITTON

Sheet Name: Part First Floor Sketch
Reconfigurations

Purpose of Issue: Preliminary Status:

Date: 07/02/24 Checked by: RW

Drawn by: MB Scale @ A1: 1:50

Project No: 8651 Revision: D

Drawing No: 8651-BOW-A-01-DR-A-2500



B. Key Local Planning Policy Requirements

Richmond upon Thames' Local Plan (2018)

Policy LP1 Local Character and Design Quality

- A. The Council will require all development to be of high architectural and urban design quality. The high quality character and heritage of the borough and its villages will need to be maintained and enhanced where opportunities arise. Development proposals will have to demonstrate a thorough understanding of the site and how it relates to its existing context, including character and appearance, and take opportunities to improve the quality and character of buildings, spaces and the local area.

To ensure development respects, contributes to and enhances the local environment and character, the following will be considered when assessing proposals:

1. compatibility with local character including the relationship to existing townscape, development patterns, views, local grain and frontages as well as scale, height, massing, density, landscaping, proportions, form, materials and detailing;
2. sustainable design and construction, including adaptability, subject to aesthetic considerations;
3. layout, siting and access, including making best use of land;
4. space between buildings, relationship of heights to widths and relationship to the public realm, heritage assets and natural features;
5. inclusive design, connectivity, permeability (as such gated developments will not be permitted), natural surveillance and orientation; and
6. suitability and compatibility of uses, taking account of any potential adverse impacts of the co-location of uses through the layout, design and management of the site.

All proposals, including extensions, alterations and shopfronts, will be assessed against the policies contained within a neighbourhood plan where applicable, and the advice set out in the relevant Village Planning Guidance and other SPDs relating to character and design.

Shopfronts

- B. The Council will resist the removal of shopfronts of architectural or historic interest. Shopfronts, including signage and illumination, should complement the proportions, character, materials and detailing, surrounding streetscene and the building of which it forms part. Blinds, canopies or shutters, where acceptable in principle, must be appropriate to the character of the shopfront and the context within which it is located. External security grilles and large illuminated fascias will only be allowed in exceptional circumstances. In sensitive areas, such as Conservation Areas and relevant Character Areas as identified in the Village Planning Guidance SPDs, rigid and gloss finish blinds will generally be unacceptable.

Advertisements and hoardings

- C. The Council will exercise strict control over the design and siting of advertisements and hoardings to ensure the character of individual buildings and streets are not materially harmed, having regard to the interests of amenity and public safety (including highway safety).

Policy LP10 Local Environmental Impacts, Pollution and Land Contamination

- A. The Council will seek to ensure that local environmental impacts of all development proposals do not lead to detrimental effects on the health, safety and the amenity of existing and new users or occupiers of the development site, or the surrounding land. These potential impacts can include, but are not limited to, air pollution, noise and vibration, light pollution, odours and fumes, solar glare and solar dazzle as well as land contamination.

Developers should follow any guidance provided by the Council on local environmental impacts and pollution as well as on noise generating and noise sensitive development. Where necessary, the Council will set planning conditions to reduce local environmental impacts on adjacent land uses to acceptable levels.

Air Quality

B. The Council promotes good air quality design and new technologies. Developers should secure at least 'Emissions Neutral' development. To consider the impact of introducing new developments in areas already subject to poor air quality, the following will be required:

1. an air quality impact assessment, including where necessary, modelled data;
2. mitigation measures to reduce the development's impact upon air quality, including the type of equipment installed, thermal insulation and ducting abatement technology;
3. measures to protect the occupiers of new developments from existing sources;
4. strict mitigation for developments to be used by sensitive receptors such as schools, hospitals and care homes in areas of existing poor air quality; this also applies to proposals close to developments used by sensitive receptors.

Noise and Vibration

C. The Council encourages good acoustic design to ensure occupiers of new and existing noise sensitive buildings are protected. The following will be required, where necessary:

1. a noise assessment of any new plant and equipment and its impact upon both receptors and the general background noise levels;
2. mitigation measures where noise needs to be controlled and managed;
3. time limits and restrictions for activities where noise cannot be sufficiently mitigated;
4. promotion of good acoustic design and use of new technologies;
5. measures to protect the occupiers of new developments from existing sources.

Light Pollution

D. The Council will seek to ensure that artificial lighting in new developments does not lead to unacceptable impacts by requiring the following, where necessary:

1. an assessment of any new lighting and its impact upon any receptors;
2. mitigation measures, including the type and positioning of light sources;
3. promotion of good lighting design and use of new technologies.

Odours and Fume Control

E. The Council will seek to ensure that any potential impacts relating to odour and fumes from commercial activities are adequately mitigated by requiring the following:

1. an impact assessment where necessary;
2. the type and nature of filtration to be used;
3. the height and position of any chimney or outlet;
4. promotion and use of new abatement technologies;

Land Contamination

F. The Council promotes, where necessary, the remediation of contaminated land where development comes forward. Potential contamination risks will need to be properly considered and adequately mitigated before development proceeds.

Construction and Demolition

G. The Council will seek to manage and limit environmental disturbances during construction and demolition as well as during excavations and construction of basements and subterranean developments. To deliver this the Council requires the submission of Construction Management Statements (CMS) for the following types of developments:

1. all major developments;
2. any basement and subterranean developments;
3. developments of sites in confined locations or near sensitive receptors; or

4. if substantial demolition/excavation works are proposed.

Where applicable and considered necessary, the Council may seek a bespoke charge specific to the proposal to cover the cost of monitoring the CMS.

Policy LP17 Green Roofs and Walls

Green roofs and/or brown roofs should be incorporated into new major developments with roof plate areas of 100sqm or more where technically feasible and subject to considerations of visual impact. The aim should be to use at least 70% of any potential roof plate area as a green / brown roof.

The onus is on an applicant to provide evidence and justification if a green roof cannot be incorporated. The Council will expect a green wall to be incorporated, where appropriate, if it has been demonstrated that a green / brown roof is not feasible.

The use of green / brown roofs and green walls is encouraged and supported in smaller developments, renovations, conversions and extensions.

Policy LP20 Climate Change Adaption

- A. The Council will promote and encourage development to be fully resilient to the future impacts of climate change in order to minimise vulnerability of people and property.
- B. New development, in their layout, design, construction, materials, landscaping and operation, should minimise the effects of overheating as well as minimise energy consumption in accordance with the following cooling hierarchy:
 1. minimise internal heat generation through energy efficient design
 2. reduce the amount of heat entering a building in summer through shading, reducing solar reflectance, fenestration, insulation and green roofs and walls
 3. manage the heat within the building through exposed internal thermal mass and high ceilings
 4. passive ventilation
 5. mechanical ventilation
 6. active cooling systems (ensuring they are the lowest carbon options).
- C. Opportunities to adapt existing buildings, places and spaces to the likely effects of climate change should be maximised and will be supported.

Policy LP21 Flood Risk and Sustainable Design [Extract]

- A. All developments should avoid, or minimise, contributing to all sources of flooding, including fluvial, tidal, surface water, groundwater and flooding from sewers, taking account of climate change and without increasing flood risk elsewhere. Development will be guided to areas of lower risk by applying the 'Sequential Test' as set out in national policy guidance, and where necessary, the 'Exception Test' will be applied. Unacceptable developments and land uses will be refused in line with national policy and guidance, the Council's Strategic Flood Risk Assessment (SFRA) and as outlined in the table below.

In Flood Zones 2 and 3, all proposals on sites of 10 dwellings or more or 1000sqm of non-residential development or more, or on any other proposal where safe access/egress cannot be achieved, a Flood Emergency Plan must be submitted [...]

[...] Sustainable drainage

- B. The Council will require the use of Sustainable Drainage Systems (SuDS) in all development proposals. Applicants will have to demonstrate that their proposal complies with the following:
 1. A reduction in surface water discharge to greenfield run-off rates wherever feasible.
 2. Where greenfield run-off rates are not feasible, this will need to be demonstrated by the applicant, and in such instances, the minimum requirement is to achieve at least a 50% attenuation of the site's surface water runoff at peak times based on the levels existing prior to the development.

Flood defences

- C. Applicants will have to demonstrate that their proposal complies with the following:

1. Retain the effectiveness, stability and integrity of flood defences, riverbanks and other formal and informal flood defence infrastructure.
2. Ensure the proposal does not prevent essential maintenance and upgrading to be carried out in the future.
3. Set back developments from riverbanks and existing flood defence infrastructure where possible (16 metres for the tidal Thames and 8 metres for other rivers).
4. Take into account the requirements of the Thames Estuary 2100 Plan and the River Thames Scheme, and demonstrate how the current and future requirements for flood defences have been incorporated into the development.
5. The removal of formal or informal flood defences is not acceptable unless this is part of an agreed flood risk management strategy by the Environment Agency.

Policy SP22 Sustainable Design and Construction

- A. Developments will be required to achieve the highest standards of sustainable design and construction to mitigate the likely effects of climate change. Applicants will be required to complete the following:
1. Development of 1 dwelling unit or more, or 100sqm or more of non-residential floor space (including extensions) will be required to complete the Sustainable Construction Checklist SPD. A completed Checklist has to be submitted as part of the planning application.
 2. Development that results in a new residential dwelling, including conversions, change of use, and extensions that result in a new dwelling unit, will be required to incorporate water conservation measures to achieve maximum water consumption of 110 litres per person per day for homes (including an allowance of 5 litres or less per person per day for external water consumption).
 3. New non-residential buildings over 100sqm will be required to meet BREEAM 'Excellent' standard.
 4. Proposals for change of use to residential will be required to meet BREEAM Domestic Refurbishment 'Excellent' standard (where feasible).

Reducing Carbon Dioxide Emissions

- B. Developers are required to incorporate measures to improve energy conservation and efficiency as well as contributions to renewable and low carbon energy generation. Proposed developments are required to meet the following minimum reductions in carbon dioxide emissions:
1. All new major residential developments (10 units or more) should achieve zero carbon standards in line with London Plan policy.
 2. All other new residential buildings should achieve a 35% reduction.
 3. All non-residential buildings over 100sqm should achieve a 35% reduction. From 2019 all major non-residential buildings should achieve zero carbon standards in line with London Plan policy.

Targets are expressed as a percentage improvement over the target emission rate (TER) based on Part L of the 2013 Building Regulations.

- C. This should be achieved by following the Energy Hierarchy:

1. Be lean: use less energy
2. Be clean: supply energy efficiently
3. Be green: use renewable energy

Decentralised Energy Networks

- D. The Council requires developments to contribute towards the Mayor of London target of 25% of heat and power to be generated through localised decentralised energy (DE) systems by 2025. The following will be required:
1. All new development will be required to connect to existing DE networks where feasible. This also applies where a DE network is planned and expected to be operational within 5 years of the development being completed.

2. Development proposals of 50 units or more, or new non-residential development of 1000sqm or more, will need to provide an assessment of the provision of on-site decentralised energy (DE) networks and combined heat and power (CHP).
3. Where feasible, new development of 50 units or more, or new non-residential development of 1000sqm or more, as well as schemes for the Proposal Sites identified in this Plan, will need to provide on-site DE and CHP; this is particularly necessary within the clusters identified for DE opportunities in the borough-wide Heat Mapping Study. Where on-site provision is not feasible, provision should be made for future connection to a local DE network should one become available.

Applicants are required to consider the installation of low, or preferably ultra-low, NOx boilers to reduce the amount of NOx emitted in the borough.

Local opportunities to contribute towards decentralised energy supply from renewable and low-carbon technologies will be encouraged where appropriate.

Policy LP30 Health and Wellbeing

Planning, at all levels, can play a crucial role in creating environments that enhance people's health and wellbeing. The Council promotes and supports healthy and active lifestyles and measures to reduce health inequalities.

- A. The Council will support development that results in a pattern of land uses and facilities that encourage:
1. Sustainable modes of travel such as safe cycling routes, attractive walking routes and easy access to public transport to reduce car dependency.
 2. Access to green infrastructure, including river corridors, local open spaces as well as leisure, recreation and play facilities to encourage physical activity.
 3. Access to local community facilities, services and shops which encourage opportunities for social interaction and active living, as well as contributing to dementia-friendly environments.
 4. Access to local healthy food, for example, allotments and food growing spaces.
 5. Access to toilet facilities which are open to all in major developments where appropriate (linked to the Council's Community Toilet Scheme).
 6. An inclusive development layout and public realm that considers the needs of all, including the older population and disabled people.
 7. Active Design which encourages wellbeing and greater physical movement as part of everyday routines.
- B. This policy will be delivered by requiring developments to comply with the following:
1. A Health Impact Assessment must be submitted with all major development proposals.
 2. The Council will manage proposals for new fast-food takeaways (A5 uses) located within 400 metres of the boundaries of a primary or secondary school in order to promote the availability of healthy foods.
 3. Existing health facilities will need to be retained where these continue to meet, or can be adapted to meet, residents' needs.
 4. Applications for new or improved facilities or loss of health and social care facilities will be assessed in line with the criteria set out in the Social and Community Infrastructure policy.

Policy LP44 Sustainable Travel Choices

The Council will work in partnership to promote safe, sustainable and accessible transport solutions, which minimise the impacts of development including in relation to congestion, air pollution and carbon dioxide emissions, and maximise opportunities including for health benefits and providing access to services, facilities and employment. The Council will:

A. Location of development

Encourage high trip generating development to be located in areas with good public transport with sufficient capacity, or which are capable of supporting improvements to provide good public transport accessibility and capacity, taking account of local character and context.

B. Walking and cycling

Ensure that new development is designed to maximise permeability within and to the immediate vicinity of the development site through the provision of safe and convenient walking and cycling routes, and to provide opportunities for walking and cycling, including through the provision of links and enhancements to existing networks.

C. Public transport

Ensure that major new developments maximise opportunities to provide safe and convenient access to public transport services. Proposals will be expected to support improvements to existing services and infrastructure where no capacity currently exists or is planned to be provided.

Protect existing public transport interchange facilities unless suitable alternative facilities can be provided which ensure the maintenance of the existing public transport operations. Applications will need to include details setting out how such re-provision will be secured and provided in a timely manner.

D. The road network

Ensure that new development does not have a severe impact on the operation, safety or accessibility to the local or strategic highway networks. Any impacts on the local or strategic highway networks, arising from the development itself or the cumulative effects of development, including in relation to on-street parking, should be mitigated through the provision of, or contributions towards, necessary and relevant transport improvements.

In assessing planning applications the cumulative impacts of development on the transport network will be taken into account. Planning applications will need to be supported by the provision of a Transport Assessment if it is a major development, and a Transport Statement if it is a minor development.

E. River transport

Encourage the use of the River Thames for passenger and freight transport through the protection of, improvement to, and provision of new relevant infrastructure including wharves, slipways and piers.

F. Safeguarding of routes and facilities

Land required for proposed transport schemes as identified in the London Plan and the Council's Local Implementation Plan for Transport will be protected from developments which would prevent their proper implementation.

Local filling stations and supporting services such as car repair facilities will be protected from redevelopment

for alternative uses unless exceptional circumstances can be demonstrated that warrant their loss.

G. Taxis and private hire vehicles

Ensure that taxis and private hire vehicles are adequately catered for in appropriate locations.

C. Sample Energy Model Outputs (SAP – Proposed)

Summary for Input Data



Property Reference	Unit 1-Be Green	Issued on Date	12/07/2024
Assessment Reference	00001	Prop Type Ref	Unit 1
Property	244, Powder Mill Lane, Twickenham, Greater London, TW2 6EJ		

SAP Rating	88 B	DER	17.76	TER	
Environmental	88 B	% DER < TER			N/A
CO ₂ Emissions (t/year)	0.72	DFEE	36.20	TFEE	
Compliance Check	See BREL	% DFEE < TFEE			
% DPER < TPER		DPER	90.26	TPER	

Assessor Details	Mr. Peter Jeavons	Assessor ID	J526-0001
Client	24-E076, Arif Sheikh		

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	Southwest
Property Tenure	ND
Transaction Type	5
Terrain Type	Urban
1.0 Property Type	Flat, Detached
Position of Flat	Mid-floor flat
Which Floor	1
2.0 Number of Storeys	1
3.0 Date Built	2024
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown
6.0 Thermal Mass Parameter	Precise calculation
7.0 Electricity Tariff	Standard
Smart electricity meter fitted	No
Smart gas meter fitted	No

7.0 Measurements	Ground floor:	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
		12.92 m	48.03 m ²	2.40 m

8.0 Living Area	23.22	m ²
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Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area (m ²)	Net Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation
External Wall 1	Cavity Wall	Cavity wall - dense plaster, dense block, tiled cavity, any outside structure	0.14	190.00	31.01	23.36	0.00	None	7.63	Enter Gross Area

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Internal Wall 1	Plasterboard on timber frame	9.00	38.65

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.03

Description	Storey Index	Construction	Kappa (kJ/m ² K)	Area (m ²)
Party Floor 1	Lowest occupied	Precast concrete planks floor, screed, carpeted	30.00	48.03

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m ² K)
Opening Type 1	Manufacturer	Window	Double glazed			0.40		0.70	1.20

Name	Opening Type	Location	Orientation	Area (m ²)	Pitch
Opening 1	Opening Type 1	External Wall 1	North East	1.84	

Summary for Input Data



Opening 2	Opening Type 1	External Wall 1	South East	3.25
Opening 3	Opening Type 1	External Wall 1	South East	1.27
Opening 4	Opening Type 1	External Wall 1	South East	1.27

14.0 Conservatory	None
15.0 Draught Proofing	100 %
16.0 Draught Lobby	No

17.0 Thermal Bridging	Calculate Bridges
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Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E2 Other lintels (including other steel lintels)	Non Gov Approved Schemes	4.65	0.02	0.02	No
E3 Sill	Non Gov Approved Schemes	2.84	0.02	0.02	No
E4 Jamb	Non Gov Approved Schemes	12.80	0.02	0.02	No
E7 Party floor between dwellings (in blocks of flats)	Non Gov Approved Schemes	12.92	0.03	0.03	No
E9 Balcony between dwellings, wall insulation continuous	Table K1 - Default	5.22	0.15	0.15	No
E18 Corner (normal)	Non Gov Approved Schemes	2.40	0.04	0.04	No
E18 Party wall between dwellings	Non Gov Approved Schemes	4.80	0.03	0.03	No
P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	Non Gov Approved Schemes	22.66	0.14	0.14	No

Y-value	0.16	W/m ² K
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18.0 Pressure Testing	No
Test Method	Blower Door

19.0 Mechanical Ventilation	
Mechanical Ventilation System Present	No

20.0 Fans, Open Fireplaces, Flues	
21.0 Fixed Cooling System	No

22.0 Lighting											
No Fixed Lighting	No										
	<table border="1"> <thead> <tr> <th>Name</th> <th>Efficacy</th> <th>Power</th> <th>Capacity</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>Lighting 1</td> <td>110.00</td> <td>6.00</td> <td>660.00</td> <td>15</td> </tr> </tbody> </table>	Name	Efficacy	Power	Capacity	Count	Lighting 1	110.00	6.00	660.00	15
Name	Efficacy	Power	Capacity	Count							
Lighting 1	110.00	6.00	660.00	15							

24.0 Main Heating 1	Database
Percentage of Heat	100.00 %
Database Ref. No.	18560
Fuel Type	Mains gas
In Winter	83.40
In Summer	79.80
Model Name	ECO COMPACT 30 COMBI
Manufacturer	Baxi Heating
System Type	Combi boiler
Controls SAP Code	2110
Delayed Start Stat	No
Flue Type	Balanced
Fan Assisted Flue	Yes
Is MHS Pumped	Pump in heated space
Heating Pump Age	2013 or later
Heat Emitter	Underfloor
Underfloor Heating	Yes - Pipes in thin screed
Flow Temperature	Unknown
Boiler Interlock	No
Combi boiler type	Standard Combi
Combi keep hot type	None

25.0 Main Heating 2	None
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Summary for Input Data



26.0 Heat Networks

Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1									
Heat source 2									
Heat source 3									
Heat source 4									
Heat source 5									

28.0 Water Heating

Water Heating

SAP Code

Flue Gas Heat Recovery System

Waste Water Heat Recovery Instantaneous System 1

Waste Water Heat Recovery Instantaneous System 2

Waste Water Heat Recovery Storage System

Solar Panel

Water use <= 125 litres/person/day

Cold Water Source

Bath Count

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
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28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

In Airing Cupboard

32.0 Photovoltaic Unit

Export Capable Meter?

Connected To Dwelling

Diverter

Battery Capacity [kWh]

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
1.50	South	30°	None Or Little		No	1.00		

34.0 Small-scale Hydro

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Recommendations

Lower cost measures
None

Further measures to achieve even higher standards

Typical Cost	Typical savings per year	Ratings after improvement SAP rating	Environmental Impact
		0	0
		0	0
		0	0

Summary for Input Data



Property Reference	Unit 2-Be Green		Issued on Date	12/07/2024
Assessment Reference	00002	Prop Type Ref	Unit 1	
Property	244, Powder Mill Lane, Twickenham, Greater London, TW2 6EJ			
SAP Rating	88 B	DER	18.26	TER
Environmental	89 B	% DER < TER		N/A
CO ₂ Emissions (t/year)	0.62	DFEE	34.30	TFEE
Compliance Check	See BREEL	% DFEE < TFEE		
% DPER < TPER		DPER	92.45	TPER
Assessor Details	Mr. Peter Jeavons		Assessor ID	J526-0001
Client	24-E076, Anf Sheikh			

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	Southwest
Property Tenure	ND
Transaction Type	5
Terrain Type	Urban
1.0 Property Type	Flat, Detached
Position of Flat	Mid-floor flat
Which Floor	1
2.0 Number of Storeys	1
3.0 Date Built	2024
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown
6.0 Thermal Mass Parameter	Precise calculation
7.0 Electricity Tariff	Standard
Smart electricity meter fitted	No
Smart gas meter fitted	No

7.0 Measurements	Ground floor:	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
		11.23 m	40.00 m ²	2.40 m

8.0 Living Area	20.00	m ²
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9.0 External Walls	Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area (m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation
External Wall 1	Cavity Wall	Cavity wall - dense plaster, dense block, tiled cavity, any outside structure		0.14	190.00	26.96	23.69	0.00	None	3.27	Enter Gross Area

9.2 Internal Walls	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Internal Wall 1	Plasterboard on timber frame		9.00	29.16

10.1 Party Ceilings	Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted		30.00	48.03

11.1 Party Floors	Description	Storey Index	Construction	Kappa (kJ/m ² K)	Area (m ²)
Party Floor 1	Precast concrete planks floor, screed, carpeted	Lowest occupied		30.00	40.00

12.0 Opening Types	Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m ² K)
Opening Type 1	Manufacturer	Window	Double glazed				0.40		0.70	1.20

13.0 Openings	Name	Opening Type	Location	Orientation	Area (m ²)	Pitch
Opening 1	Opening Type 1	External Wall 1	North East	1.84		

Summary for Input Data



Opening 2	Opening Type 1	External Wall 1	South East	1.43		
14.0 Conservatory	None					
15.0 Draught Proofing	100 %					
16.0 Draught Lobby	No					
17.0 Thermal Bridging	Calculate Bridges					
17.1 List of Bridges	Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
	E2 Other lintels (including other steel lintels)	Non Gov Approved Schemes	2.04	0.02	0.02	No
	E3 Sill	Non Gov Approved Schemes	2.04	0.02	0.02	No
	E4 Jamb	Non Gov Approved Schemes	6.40	0.02	0.02	No
	E7 Party floor between dwellings (in blocks of flats)	Non Gov Approved Schemes	11.23	0.03	0.03	No
	E16 Corner (normal)	Non Gov Approved Schemes	2.40	0.04	0.04	No
	E18 Party wall between dwellings	Non Gov Approved Schemes	4.80	0.03	0.03	No
	P3 Party wall - intermediate floor between dwellings (in blocks of flats)	Non Gov Approved Schemes	22.66	0.14	0.14	No
	E17 Corner (everted - internal area greater than external area)	Non Gov Approved Schemes	2.40	-0.07	-0.07	No
Y-value	0.14	W/m ² K				
18.0 Pressure Testing	No					
Test Method	Blower Door					
19.0 Mechanical Ventilation	Mechanical Ventilation System Present					
	No					
20.0 Fans, Open Fireplaces, Flues						
21.0 Fixed Cooling System	No					
22.0 Lighting	No Fixed Lighting					
	No					
	Name	Efficacy	Power	Capacity	Count	
	Lighting 1	110.00	6.00	660.00	15	
24.0 Main Heating 1	Database					
Percentage of Heat	100.00 %					
Database Ref. No.	18560					
Fuel Type	Mains gas					
In Winter	83.40					
In Summer	79.80					
Model Name	ECO COMPACT 30 COMBI					
Manufacturer	Baxi Heating					
System Type	Combi boiler					
Controls SAP Code	2110					
Delayed Start Stat	No					
Flue Type	Balanced					
Fan Assisted Flue	Yes					
Is MHS Pumped	Pump in heated space					
Heating Pump Age	2013 or later					
Heat Emitter	Underfloor					
Underfloor Heating	Yes - Pipes in thin screed					
Flow Temperature	Unknown					
Boiler Interlock	No					
Combi boiler type	Standard Combi					
Combi keep hot type	None					
25.0 Main Heating 2	None					

Summary for Input Data



26.0 Heat Networks

Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1									
Heat source 2									
Heat source 3									
Heat source 4									
Heat source 5									

28.0 Water Heating

Water Heating	<input type="text" value="Main Heating 1"/>
SAP Code	<input type="text" value="901"/>
Flue Gas Heat Recovery System	<input type="text" value="No"/>
Waste Water Heat Recovery Instantaneous System 1	<input type="text" value="No"/>
Waste Water Heat Recovery Instantaneous System 2	<input type="text" value="No"/>
Waste Water Heat Recovery Storage System	<input type="text" value="No"/>
Solar Panel	<input type="text" value="No"/>
Water use <= 125 litres/person/day	<input type="text" value="No"/>
Cold Water Source	<input type="text" value="From mains"/>
Bath Count	<input type="text" value="1"/>

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To

28.3 Waste Water Heat Recovery System

29.0 Hot Water Cylinder

<input type="text" value="None"/>
In Airing Cupboard <input type="text" value="No"/>

32.0 Photovoltaic Unit

<input type="text" value="One Dwelling"/>								
Export Capable Meter? <input type="text" value="No"/>								
Connected To Dwelling <input type="text" value="Yes"/>								
Diverter <input type="text" value="No"/>								
Battery Capacity [kWh] <input type="text" value="0.00"/>								
PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
1.50	South	30°	None Or Little		No	1.00		

34.0 Small-scale Hydro

<input type="text" value="None"/>											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Recommendations

Lower cost measures
None

Further measures to achieve even higher standards

Typical Cost	Typical savings per year	Ratings after improvement SAP rating	Environmental Impact
		0	0
		0	0
		0	0

Summary for Input Data



Property Reference	Unit 3-Be Green			Issued on Date	12/07/2024
Assessment Reference	00003	Prop Type Ref	Unit 1		
Property	244, Powder Mill Lane, Twickenham, Greater London, TW2 6EJ				
SAP Rating	88 B	DER	18.15	TER	
Environmental	88 B	% DER < TER		N/A	
CO ₂ Emissions (t/year)	0.74	DFEE	38.24	TFEE	
Compliance Check	See BREEL	% DFEE < TFEE			
% DPER < TPER		DPER	92.43	TPER	
Assessor Details	Mr. Peter Jeavons			Assessor ID	J526-0001
Client	24-E076, Anif Sheikh				

SUMMARY FOR INPUT DATA FOR: Conversion (As Designed)

Orientation	Southeast
Property Tenure	ND
Transaction Type	5
Terrain Type	Urban
1.0 Property Type	Flat, Detached
Position of Flat	Mid-floor flat
Which Floor	1
2.0 Number of Storeys	1
3.0 Date Built	2024
4.0 Sheltered Sides	2
5.0 Sunlight/Shade	Average or unknown
6.0 Thermal Mass Parameter	Precise calculation
7.0 Electricity Tariff	Standard
Smart electricity meter fitted	No
Smart gas meter fitted	No

7.0 Measurements	Ground floor:	Heat Loss Perimeter	Internal Floor Area	Average Storey Height
		12.95 m	48.86 m ²	2.40 m

8.0 Living Area	20.30	m ²
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Description	Type	Construction	U-Value (W/m ² K)	Kappa (kJ/m ² K)	Gross Area (m ²)	Nett Area (m ²)	Shelter Res	Shelter	Openings	Area Calculation
External Wall 1	Cavity Wall	Cavity wall, dense plaster, dense block, filled cavity, any outside structure	0.14	190.00	31.08	23.35	0.00	None	7.73	Enter Gross Area

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Internal Wall 1	Plasterboard on timber frame	9.00	37.18

Description	Construction	Kappa (kJ/m ² K)	Area (m ²)
Party Ceiling 1	Precast concrete planks floor, screed, carpeted	30.00	48.03

Description	Storey Index	Construction	Kappa (kJ/m ² K)	Area (m ²)
Party Floor 1	Lowest occupied	Precast concrete planks floor, screed, carpeted	30.00	48.86

Description	Data Source	Type	Glazing	Glazing Gap	Filling Type	G-value	Frame Type	Frame Factor	U Value (W/m ² K)
Opening Type 1	Manufacturer	Window	Double glazed			0.40		0.70	1.20

Name	Opening Type	Location	Orientation	Area (m ²)	Pitch
Opening 1	Opening Type 1	External Wall 1	North West	3.24	

Summary for Input Data



Opening 2	Opening Type 1	External Wall 1	North East	1.64
Opening 3	Opening Type 1	External Wall 1	North West	2.85

14.0 Conservatory	None
15.0 Draught Proofing	100 %
16.0 Draught Lobby	No

17.0 Thermal Bridging	Calculate Bridges
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Bridge Type	Source Type	Length	Psi	Adjusted Reference:	Imported
E2 Other lintels (including other steel lintels)	Non Gov Approved Schemes	4.75	0.02	0.02	No
E3 Sill	Non Gov Approved Schemes	2.95	0.02	0.02	No
E4 Jamb	Non Gov Approved Schemes	10.00	0.02	0.02	No
E7 Party floor between dwellings (in blocks of flats)	Non Gov Approved Schemes	12.95	0.03	0.03	No
E9 Balcony between dwellings, wall insulation continuous	Table K1 - Default	5.74	0.15	0.15	No
E16 Corner (normal)	Non Gov Approved Schemes	4.80	0.04	0.04	No
E18 Party wall between dwellings	Non Gov Approved Schemes	4.80	0.03	0.03	No
P3 Party wall - Intermediate floor between dwellings (in blocks of flats)	Non Gov Approved Schemes	22.29	0.14	0.14	No
E17 Corner (inverted - internal area greater than external area)	Non Gov Approved Schemes	2.40	-0.07	-0.07	No

Y-value	0.16	W/m ² K
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18.0 Pressure Testing	No
Test Method	Blower Door

19.0 Mechanical Ventilation	Mechanical Ventilation System Present	No
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20.0 Fans, Open Fireplaces, Flues	
21.0 Fixed Cooling System	No

22.0 Lighting	No Fixed Lighting	No			
	Name	Efficacy	Power	Capacity	Count
	Lighting 1	110.00	6.00	660.00	15

24.0 Main Heating 1	Database
Percentage of Heat	100.00 %
Database Ref. No.	18560
Fuel Type	Mains gas
In Winter	83.40
In Summer	79.80
Model Name	ECCO COMPACT 30 COMBI
Manufacturer	Baxi Heating
System Type	Combi boiler
Controls SAP Code	2110
Delayed Start Stat	No
Flue Type	Balanced
Fan Assisted Flue	Yes
Is MHS Pumped	Pump in heated space
Heating Pump Age	2013 or later
Heat Emitter	Underfloor
Underfloor Heating	Yes - Pipes in thin screed
Flow Temperature	Unknown
Boiler Interlock	No
Combi boiler type	Standard Combi
Combi keep hot type	None

Summary for Input Data



25.0 Main Heating 2

26.0 Heat Networks

Heat Source	Fuel Type	Heating Use	Efficiency	Percentage Of Heat	Heat	Heat Power Ratio	Electrical	Fuel Factor	Efficiency type
Heat source 1									
Heat source 2									
Heat source 3									
Heat source 4									
Heat source 5									

28.0 Water Heating

Water Heating

SAP Code

Flue Gas Heat Recovery System

Waste Water Heat Recovery Instantaneous System 1

Waste Water Heat Recovery Instantaneous System 2

Waste Water Heat Recovery Storage System

Solar Panel

Water use <= 125 litres/person/day

Cold Water Source

Bath Count

28.1 Showers

Description	Shower Type	Flow Rate [l/min]	Rated Power [kW]	Connected	Connected To
28.3 Waste Water Heat Recovery System					

29.0 Hot Water Cylinder

In Airing Cupboard

32.0 Photovoltaic Unit

Export Capable Meter?

Connected To Dwelling

Diverter

Battery Capacity [kWh]

PV Cells kWp	Orientation	Elevation	Overshading	FGHRS	MCS Certificate	Overshading Factor	MCS Certificate Reference	Panel Manufacturer
1.50	South	30°	None Or Little		No	1.00		

34.0 Small-scale Hydro

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Recommendations

Lower cost measures
None

Further measures to achieve even higher standards

Typical Cost	Typical savings per year	Ratings after improvement SAP rating	Environmental Impact
		0	0
		0	0
		0	0

D. Sustainable Construction Checklist

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LBRUT Sustainable Construction Checklist - June 2020

This document forms part of the Sustainable Construction Checklist SPD. This document must be filled out as part of the planning application for the following developments: all residential development providing **one or more new residential units (including conversions leading to one or more new units)**, and all other forms of development providing **100sqm or more of non-residential floor space**. Developments including new non-residential development of less than 100sqm floor space, extensions less than 100sqm, and other conversions are strongly encouraged to comply with this checklist. Where further information is requested, please either fill in the relevant section, or refer to the document where this information may be found in detail, e.g. Flood Risk Assessment or similar. **Further guidance** on completing the Checklist may be found in the Justification and Guidance section of this SPD.

Property Name (if relevant): Application No. (if known):

Address (include, postcode):

Completed by:

For Non-Residential Size of development (m2) For Residential Number of dwellings

1 MINIMUM COMPLIANCE (RESIDENTIAL AND NON-RESIDENTIAL)

Energy Assessment

Has an energy assessment been submitted that demonstrates the expected energy and carbon dioxide emissions saving from energy efficiency and renewable energy measures, including the feasibility of CHP/CCHP and community heating systems? If yes, please select TRUE.

Carbon Dioxide emissions reduction

What is the on site carbon dioxide emissions reduction against a Building Regulations Part L (2013) baseline
Policy LP 22 B. and Draft London Plan Policy 9.2.5 require a 35% onsite reduction in CO₂ emissions beyond Building Regulations 2013. %

What is the percentage reduction from efficiency measures alone
Policy LP 22 C. and Draft London Plan Policy 9.2.6 require a 10% onsite reduction in CO₂ emissions beyond Building Regulations 2013 from efficiency measures for residential and 15% for non-residential. %

Percentage of **total** site CO₂ emissions saved through renewable energy installation? %

What is the total remaining carbon to be offset
Policy LP 22 B. and Draft London Plan Policy 9.2.4 require Major developments to achieve Zero Carbon after offsetting. Tonne

Are remaining emissions going to be offset through offset fund payment in accordance with current guidelines issued for the cost per tonne of CO₂?

What is the total predicted cost of offset?
The London Plan sets this as £95/tonne per year over 30 years, this should be updated based on As Build calculations. £

1A MINIMUM POLICY COMPLIANCE (NON-RESIDENTIAL AND DOMESTIC REFURBISHMENT)

Please check the Guidance Section of this SPD for the policy requirements

Environmental Rating of development:

Non-Residential new-build (100sqm or more) BREEAM Level <input type="text" value="Excellent"/> <i>Excellent required under Policy LP22 A 3</i>	Have you attached a pre-assessment to support this?	<input type="text" value="TRUE"/>
Extensions and conversions for residential dwellings BREEAM Domestic Refurbishment <input type="text" value="Please Select"/> <i>Excellent required under Policy LP22 A 4</i>	Have you attached a pre-assessment to support this?	<input type="text" value="FALSE"/>
Extensions and conversions for non-residential buildings BREEAM Level <input type="text" value="Please Select"/> <i>Excellent required under Policy LP 22</i>	Have you attached a pre-assessment to support this?	<input type="text" value="FALSE"/>

Score awarded for Environmental Rating: Subtotal

BREEAM: Good = 0, Very Good = 4, Excellent = 8, Outstanding = 16

1B MINIMUM POLICY COMPLIANCE (RESIDENTIAL)

Water Usage

Internal water usage after gray/rainwater systems limited to 105 litres person per day. (Excluding an allowance 5 litres per person per day for external water consumption). Calculations using the water efficiency calculator for new dwellings have been submitted.
110l/p/d Required for new dwellings under Policy LP22 A 2 105l/p/d required under Draft London Plan Policy S15

Subtotal

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2. ENERGY USE AND POLLUTION		
2.1 Need for Cooling	Score	
a. How does the development incorporate cooling measures? Tick all that apply:		
Energy efficient design incorporating specific heat demand to less than or equal to 15 kWh/sqm	6	FALSE
Reduce heat entering a building through providing/improving insulation and living roofs and walls	2	TRUE
Reduce heat entering a building through shading	3	TRUE
Exposed thermal mass and high ceilings	4	FALSE
Passive ventilation	3	TRUE
Mechanical ventilation with heat recovery	1	TRUE
Active cooling systems, i.e. Air Conditioning Unit	0	FALSE
<i>See Draft London Plan S14</i>		
2.2 Heat Generation		
b. How have the heating and cooling systems, with preference to the heating system hierarchy, been selected (defined in London Plan policy S13) Tick all heating and cooling systems that will be used in the development:	Score	
Connection to existing heating or cooling networks powered by renewable energy	6	FALSE
Connection to existing heating or cooling networks powered by gas or electricity	5	FALSE
Site wide CHP network powered by renewable energy	4	FALSE
Site wide CHP network powered by gas	3	FALSE
Communal heating and cooling powered by renewable energy	2	FALSE
Communal heating and cooling powered by gas or electricity	1	TRUE
Individual heating and cooling	0	FALSE
<i>See Draft London Plan S13</i>		
2.3 Pollution: Air, Noise and Light		
a. Does the development plan to implement reduction strategies for dust emissions from construction sites?	2	TRUE
b. Does the development plan to include a biomass boiler? If yes, please refer to the biomass guidelines for the Borough of Richmond, please see guidance for supplementary information. If the proposed boiler is of a qualifying size, you may need to complete the information request form found on the Richmond website.		FALSE
c. Has an air quality impact assessment been provided? If yes, has 'Emissions Neutral' been achieved If yes, have occupants of new development been protected from existing pollution If no to any of the above are there any sensitive receptors as defined in Policy LP 10 present?	1 1 1 -1	TRUE FALSE TRUE FALSE
<i>see Policy LP 10</i>		
d. Please tick only one option below: Has the development taken measures to reduce existing noise and enhance the existing soundscape of the site? Has the development taken care to not create any new noise generation/transmission issues in its intended operation?	3 1	FALSE TRUE
<i>see Policy LP 10</i>		
e. Has the development taken measures to reduce light pollution impacts on character, residential amenity and biodiversity? <i>see Policy LP 10</i>	3	FALSE
f. Have you attached a Lighting Pollution Report?	-	
	Subtotal	14
Please give any additional relevant comments to the Energy Use and Pollution Section below		

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3. TRANSPORT		
3.1 Provision for the safe efficient and sustainable movement of people and goods		
a.	Does your development provide opportunities for occupants to use innovative travel technologies?	<input type="checkbox"/> FALSE
Please explain:		
<div style="background-color: #d9ead3; height: 30px;"></div>		
		Score
b.	Does your development provide for 100% active provision for electric vehicle charging point(s) and have you successfully demonstrated that it would be able to operate satisfactorily in the future expectation of all vehicles being electrically powered?	2 <input type="checkbox"/> FALSE
c.	For major developments ONLY: Has a Transport Assessment been produced for your development based on TfL's Best Practice Guidance? If you have provided a Transport Assessment as part of your planning application, please tick here and move to Section 3 of this Checklist. <i>See policy LP44</i>	5 <input type="checkbox"/> FALSE
d.	For smaller developments ONLY: Have you provided a Transport Statement?	5 <input type="checkbox"/> TRUE
e.	Does your development provide cycle storage? (Standard space requirements are set out in the Council's Parking Standards - Local Plan Appendix 3) If so, for how many bicycles? Is this shown on the site plans? <i>See Local Plan Appendix 3</i>	2 <input checked="" type="checkbox"/> TRUE 44 <input type="checkbox"/> TRUE
f.	Will the development create or improve links with local and wider transport networks? If yes, please provide details.	2 <input type="checkbox"/> FALSE
		Subtotal <input type="text" value="7"/>
Please give any additional relevant comments to the Transport Section below		
<div style="background-color: #d9ead3; height: 30px;"></div>		

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4 BIODIVERSITY			
4.1 Minimising the threat to biodiversity from new buildings, lighting, hard surfacing and people			
a.	Does your development involve the loss of an ecological feature or habitat, including a loss of garden or other green space? (Indicate if yes) If so, please state how much in sqm?	-2 0 sqm	FALSE
b.	Does your development involve the removal of any tree(s)? (Indicate if yes) If so, has a tree report been provided in support of your application? (Indicate if yes)		FALSE FALSE
c.	Does your development plan to add (and not remove) any tree(s) on site? (Indicate if yes)		FALSE
d.	Please indicate which features and/or habitats that your development will incorporate to improve on site biodiversity:		
	Pond, reedbed or extensive native planting	6	Area provided: sqm FALSE
	An extensive green roof	5	Area provided: sqm FALSE
	An intensive green roof	4	Area provided: sqm FALSE
	Garden space	4	Area provided: 124 sqm TRUE
	Additional native and/or wildlife friendly planting to peripheral areas	3	Area provided: 50 sqm TRUE
	Additional planting to peripheral areas	2	Area provided: sqm FALSE
	A living wall	2	Area provided: sqm FALSE
	Bat boxes	0.5	FALSE
	Bird boxes	0.5	FALSE
	Swift boxes	0.5	FALSE
	Other	0.5	FALSE
e.	Does your development use at least 70% of available roof plate as green/brown roof Policy LP 17 requires 70%	1	FALSE
Please give any additional relevant comments to the Biodiversity Section below		Subtotal	7

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5 FLOODING AND DRAINAGE		
5.1 Mitigating the risks of flooding and other impacts of climate change in the borough		
a.	Is your site located in a high flood risk zone (Zone 3)? (Indicate if yes)	-2
	Have you submitted a Flood Risk Assessment? (Indicate if yes)	FALSE
		FALSE
b.	Which of the following measures of the drainage hierarchy are incorporated onto your site? (tick all that apply)	
	Store rainwater for later use	5
	Use of infiltration techniques such as porous surfacing materials to allow drainage on-site	3
	Attenuate rainwater in ponds or open water features	4
	Store rainwater in tanks for gradual release to a watercourse	3
	Discharge rainwater directly to watercourse	2
	Discharge rainwater to surface water drain	1
	Discharge rainwater to combined sewer	0
	Have you submitted a Drainage Statement (Indicate if yes)	
	See Policy LP 21 and Draft London Plan SL 13	
c.	Please give the change in area of permeable surfacing which will result from your development proposal. please represent a loss in permeable area as a negative number.	-200 sqm
	Please provide details of the permeable surfacing below	
		Subtotal 6
Please give any additional relevant comments to the Flooding and Drainage Section below		
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>		

6 IMPROVING RESOURCE EFFICIENCY		
6.1 Reduce waste generated and amount disposed of by landfill through increasing level of re-use and recycling		
a.	Will demolition be required on your site prior to construction? (Points will only be awarded if 10% or greater of demolition waste is reused/recycled)	1
	If so, what percentage of demolition waste will be reused in the new development?	%
	What percentage of demolition waste will be recycled?	%
b.	Does your site have any contaminated land?	1
	Have you submitted an assessment of the site contamination?	2
	Are plans in place to remediate the contamination?	2
	Have you submitted a remediation plan?	1
	Are plans in place to include composting on site?	1
c.	Will a waste management plan and facilities be in place in line with Policy LP24	Yes
6.2 Reducing levels of water waste		
a.	Will the following measures of water conservation be incorporated into the development? (Please tick all that apply):	
	Fitting of water efficient taps, shower heads etc	1
	Use of water efficient A or B rated appliances	1
	Rainwater harvesting for internal use	4
	Greywater systems	4
	Fit a water meter	1
		Subtotal 2
Please give any additional relevant comments to the Improving Resource Efficiency Section below		
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>		

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7 ACCESSIBILITY		
7.1	Ensure flexible adaptable and long-term use of structures	
a.	If the development is residential , will it meet the requirements of the nationally described space standard for internal space and layout? If the standards are not met, in the space below, please provide details of the functionality of the internal space and layout	1 <input type="checkbox"/> TRUE
[Redacted]		
AND		
b.	If the development is residential , will it meet Building Regulation Requirement M4 (2) 'accessible and adaptable dwellings'? If this is not met, in the space below, please provide details of any accessibility measures included in the development.	2 <input type="checkbox"/> TRUE
[Redacted]		
	For major residential developments, are 10% or more of the units in the development to Building Regulation Requirement M4 (3) 'wheelchair user dwellings'?	1 <input type="checkbox"/> FALSE
OR		
c.	If the development is non-residential , does it comply with requirements included in Richmond's Local Plan LP1, LP28.B, LP30 & LP45 Please provide details of the accessibility measures specified in the Local Plan that will be included in the development	2 <input type="checkbox"/> FALSE
[Redacted]		
		Subtotal <input type="text" value="3"/>
Please give any additional relevant comments to the Design Standards and Accessibility Section below		
[Redacted]		

LBRUT Sustainable Construction Checklist- Scoring Matrix for New Construction (Non-Residential and domestic refurb)			TOTAL <input type="text" value="48"/>
Score	Rating	Significance	
84 or more	A+	Project strives to achieve highest standard in energy efficient sustainable development	
75-83	A	Makes a major contribution towards achieving sustainable development in Richmond	
56-74	B	Helps to significantly improve the Borough's stock of sustainable developments	
40-55	C	Minimal effort to increase sustainability beyond general compliance	
39 or less	FAIL	Does not comply with SPD Policy	

LBRUT Sustainable Construction Checklist- Scoring Matrix for New Construction Residential new-build			TOTAL <input type="text" value="48"/>
Score	Rating	Significance	
85 or more	A++	Project strives to achieve highest standard in energy efficient sustainable development	
68-84	A+	Project strives to achieve higher standard in energy efficient sustainable development	
59-67	A	Makes a major contribution towards achieving sustainable development in Richmond	
39-58	B	Helps to significantly improve the Borough's stock of sustainable developments	
24-38	C	Minimal effort to increase sustainability beyond general compliance	
23 or less	FAIL	Does not comply with SPD Policy	

Authorisation:
 I herewith declare that I have filled in this form to the best of my knowledge
 Signature  Date

E. General Notes

The report is based on information available at the time of the writing and discussions with the client during any project meetings. Where any data supplied by the client or from other sources have been used it has been assumed that the information is correct. No responsibility can be accepted by Ensphere Group Ltd for inaccuracies in the data supplied by any other party.

The review of planning policy and other requirements does not constitute a detailed review. Its purpose is as a guide to provide the context for the development and to determine the likely requirements of the Local Authority.

No site visits have been carried out, unless otherwise specified.

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