HOARE LEA

Manor Road / Richmond

Sustainability Strategy

Hoare Lea

February 2019

Audit Sheet.

Rev.	Date	Description	Prepared	Verified
01	14/12/2018	Draft planning report for team comments	L. Wille	T. Spurrier
02	16/01/2019	Second draft for legal review	M. Wang	L. Wille
03	06/02/2019	Planning application issue	L. Wille	T. Spurrier

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Contents.

Foreword

Starting with sustainability.
No longer simply ticking boxes, today sustainability is about making real-term impacts. Increasingly, it has become the starting point – and the heart – of ambitious projects. On each and every project, we take an exciting journey together with clients and project teams to help shape a more sustainable world.

It's important to find experts who truly understand the often-complex sustainability standards. It's a complex language that we speak; comfortably interpreting it into simple, clear aims.

A sustainability framework.
Within the built environment, considering five defined factors and their value is key to a connected approach: the people, the building, the social network, the natural environment, and the economic aspects. These form the basis of our sustainability framework which is tailored to the needs of each project.

Stakeholder engagement.
Working with the project team we actively engage with the planning authorities, local community groups and the general public throughout the planning process. We collaborate with the client and project team as well as key stakeholders to create informed innovative strategies. Each strategy responds to the five elements of our framework, and we make sure we articulate it in an accessible and engaging way no matter the complexity.

Ahead of the industry.
Our team is actively shaping the future of sustainable practices. We conduct in-depth research, author industry guidance, build close links with sector-wide organisations, and sit on influential committees. The result is an unrivalled ability to provide informed, strategic advice that stays ahead of industry changes and is pivotal to our successful input to planning.

Purpose of this report
This Sustainability Strategy has been prepared on behalf of Avanton (hereafter referred to as the 'Applicant') in support of the application for planning permission for the proposed redevelopment of Manor Road, within the London Borough of Richmond Upon Thames ('LBRuT').

Executive Summary

This report presents the Sustainability Strategy for the Proposed Development which has been informed by national, regional and local policies – that is, Building Regulations Part L, the Greater London Authority (GLA) London Plan (2016), draft new London Plan (2018), the London supplementary planning guidance (SPG) on Sustainable Design and Construction (2014), the LBRuT Local Plan (2018), and the Applicant's own sustainability aspirations.

The Five Capitals Model is being applied to capture the multi-faceted sustainability benefits that the Proposed Development potentially brings to the Application Site, local community, surrounding businesses, and future building users.

Natural Capital – enhancing the environment
As a minimum, the Proposed Development will explore opportunities to protect and enhance site biodiversity. Consideration has been given to the use of recycled materials and materials with low environmental impact. Sustainable waste management practices will be promoted during both construction and operation phases of the Proposed Development.

A habitat survey was undertaken, which confirmed the Application Site is of negligible ecological value. All timber will be responsibly sourced, and the main contractor will be required to source materials in accordance with a documented sustainable procurement plan. A construction waste resource efficiency benchmark of ≤6.5 tonnes per 100m^2 has been targeted and 80% of non-demolition and 90% of demolition waste (by weight) will be diverted from landfill.

The Main Contractor will be required to implement an Environmental Management System (EMS) as well as a Site Waste Management Plan.

Human Capital – people centred design
The Proposed Development will seek to optimise the health and wellbeing of staff and visitors alike by seeking to achieve good levels of internal daylight levels, thermal comfort, safety and security. Measures to encourage physical exercise such as the promotion of staircases and provision of cycling facilities have been implemented.

In order to reduce the risk of health problems related to the flicker of compact fluorescent lighting (CFL), all lighting to be installed will either be LED lights or CFL specified with high frequency ballasts. Illuminance levels will be in line with current lighting design guides. External lighting will be designed to minimise night time light pollution and provide safe access to the Proposed Development.

Social Capital – partnerships and collaboration
The Proposed Development will add value to the local community, its activities and economic outputs by taking into account the needs of the local community. Pertinent regulatory and planning policy requirements applicable to the Proposed Development have been reviewed and Appendices 2 (GLA Sustainability Checklist) and 3 (LBRuT Sustainability Checklist) set out how the Proposed Development has addressed all policies with regards to energy and sustainability.

The Main Contractor will be required to register with the Considerate Constructors Scheme and achieve a good practice score.

Consultation inviting a number of key stakeholders to comment on the Proposed Development has been conducted.

Physical Capital – designed for performance
In addition to implementing high quality, sustainable design and construction, a Travel Plan has been developed; this sets out targets and measures for promoting sustainable transport by the occupants – including walking, cycling and public transport.

The Energy Strategy is in line with the principles of the Energy Hierarchy, that is "Be Lean", "Be Clean" and "Be Green". Prior to the implementation of any low or zero carbon (LZC) technologies, the total regulated energy consumption is estimated at circa **1,740 MWh/year**, with the majority of this arising from thermal energy uses, i.e. heating and hot water, which accounts for more than 75% of the expected total regulated energy consumption. The total energy consumption is estimated to result in regulated CO_2 emissions of circa **370 tCO_2/year** prior to the implementation of any low or zero carbon technologies.

The implementation of passive design measures and energy efficiency measures alone is expected to result in around a **7%** reduction in the overall CO_2 emissions compared with the Part L 2013 baseline in accordance with GLA policy in the Energy Planning Guidance. The deployment of Air Source Heat Pumps (ASHPs) and is anticipated to provide an additional **27%** CO_2 emissions reduction.

A number of potential renewables and LZC technologies were considered as part of a renewables feasibility appraisal, and PV is considered most appropriate for the Proposed Development. An array of 120m^2 panel area is proposed to be installed, resulting in a further **0.8%** reduction in regulated carbon emissions for the site.

Overall, a reduction in regulated CO_2 emissions of **35%** is anticipated, as shown in Figure 1.

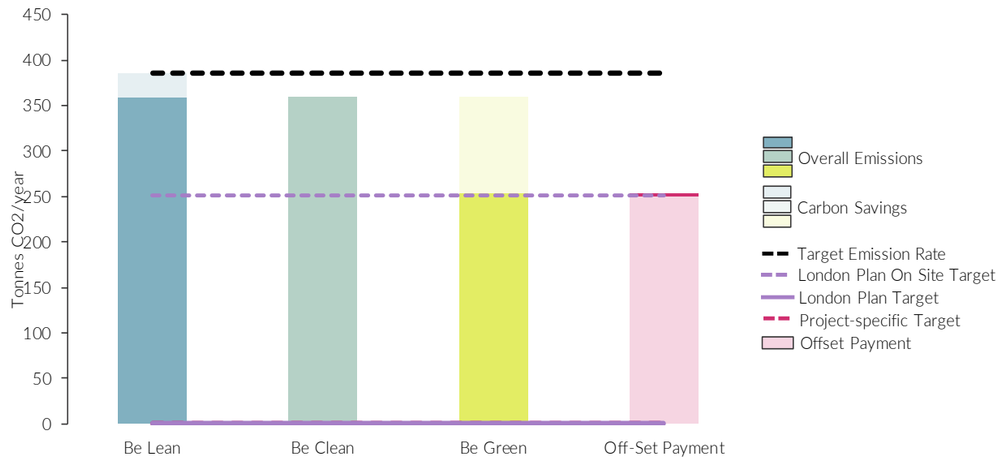
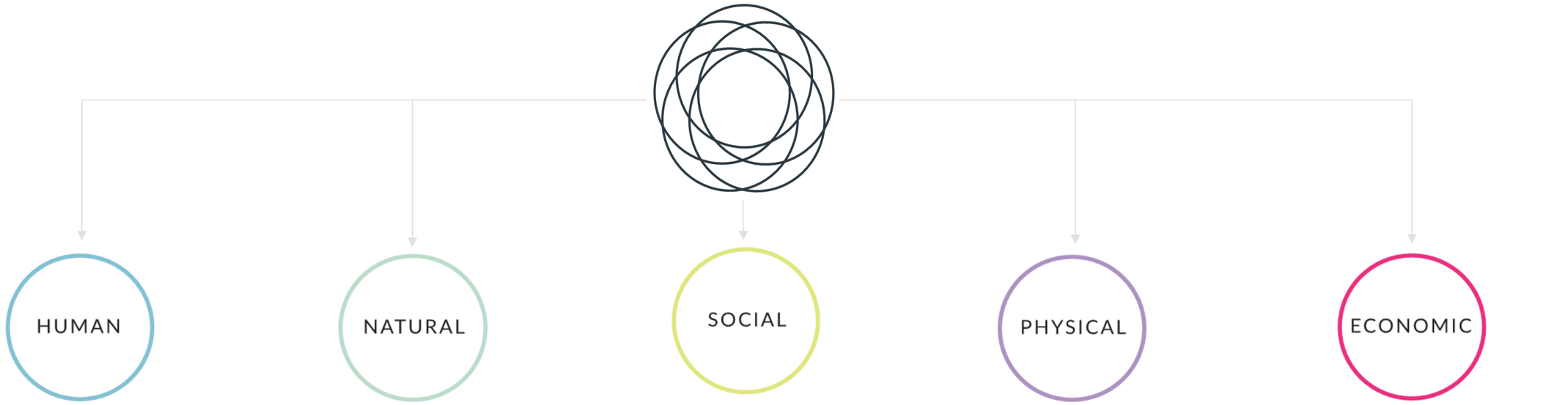


Figure 1: Comparison of regulated carbon emissions saving and carbon offset payment.

Economic Capital – productivity and growth
To deliver whole life value from the Proposed Development and promote economic sustainability, as well as boosting the local economy, the use of local businesses and suppliers will be encouraged.

The importance of the whole life cost of the project is recognised. As shown under the BREEAM credit Man 02, this improves the building design, specification and through-life maintenance and operation.

An elemental life cycle cost (LCC) analysis has been undertaken as part of the Stage 2 work.



PEOPLE-CENTRED DESIGN	ENHANCING THE ENVIRONMENT	PARTNERSHIP & COLLABORATION	DESIGNED FOR PERFORMANCE	PRODUCTIVITY & GROWTH
12 Dedicated accessible car parking spaces, and no spaces allocated for general use	**73** New mature trees and net increase in site's ecological value	**ENGAGEMENT** Local stakeholders engaged throughout consultation period	**10%** Improvement achieved over the Part L 2013 'gas boiler baseline' from passive design and energy efficiency alone	**LOCAL EMPLOYMENT** A Local Employment Plan will be prepared and implemented during construction phase
9,795 SQM Private and communal social amenity spaces created onsite	**EXCELLENT** Targeting BREEAM Excellent based on a score of 75%	**40** or more with 7 in each section in the Considerate Constructor's Scheme	**CAR FREE** No private car parking provided on-site	**£6M** Estimated additional annual household expenditure
100% Apartments tested meeting the requirements of TM59 in the base case and 'Adaptive Criteria'	**90%** Construction waste diverted from landfill and recycled offsite	**INCLUSIVE** Design principles followed	**30-35%** Carbon emission reductions achieved from on-site measures over the Part L 2013 'gas boiler baseline'.	**10-25** New jobs created

1. Introduction

1.1 The Application

This document has been prepared on behalf of Avanton Richmond Development Ltd, hereafter referred to as the 'Applicant', in support of the full planning application for Manor Road, hereafter referred to as the 'Proposed Development'.

The Energy and Sustainability Strategy summarises the pertinent regulatory and planning policies applicable to the Proposed Development and sets out how the Proposed Development addresses the relevant policy requirements.

1.2 Development Description

Demolition of existing buildings and structures and comprehensive residential-led redevelopment of four buildings of between four and nine storeys to provide 385 residential units (Class C3), flexible retail/ community/ office uses (Classes A1, A2, A3, D2, B1), provision of car and cycle parking, landscaping, public and private open spaces, and all other necessary enabling works.

Use type	Gross Internal Area (GIA) (m^2)
Residential (C3)	35,114
Residential Ancillary	1,924
Retail/ Community/ Office (A1/A2/A3/D2/B1)	480
Total	37,518

Table 1: Area schedule

1.3 Site Context

The site is located to the south of the A316 arterial Lower Mortlake Road and is shaped by the railway lines and by Manor Road on each of its 3 sides. It is 1.5 ha. in size. Only one side of the site has street frontage, along Manor Road. It is currently occupied by a large Homebase store and associated surface level carparking. There is a functioning bus depot on the northern section of the site which will remain as part of the design proposal.

The site surroundings are dominated by large amounts of surface level carparking servicing the Sainsbury's store to the east of the site and on the site itself. There is a small pocket park adjacent to the Sainsbury's car park and some allotments to the south of the railway. There are various bus stops along Manor Road and Lower Mortlake Road, and North Sheen station is just 100m away. The site benefits for a PTAL rating of 5.

Figure 2: Site Context of the Proposed Development

Figure 3: Artistic Impression of the Proposed Development.

2. Policy Context and Drivers

2.1 Relevant National and Local Policies

A detailed policy review has been undertaken, please see Appendix 2 for details.

As a summary, planning policy documents applicable to the Proposed Development have been identified and include the below listed:

- National Planning Policy Framework (2018)
- National Building Regulations (2013)
- Adopted London Plan (2016 amendments)
- LBRuT Local Plan (2018)
- Draft London Plan (2017/18; not yet adopted)

Key targets from these documents are summarised below:

- Site layout and sustainable design principles to reduce energy demand and increase efficiency.
- Minimum 35% reduction in regulated CO_2 beyond the Building Regulations Part L 2013 baseline for non-residential areas
- 'Zero Carbon' (i.e. 100% reduction in regulated CO_2 beyond the Building Regulations Part L 2013 baseline) for residential areas.
- BREEAM 'Excellent' rating for commercial spaces greater than 100 m^2.

2.2 Emerging Policy

The draft London Plan was launched for consultation in December 2017, and a version incorporating minor suggested changes was released in August 2018. It is currently in review and is likely to be adopted in 2019.

Key policy targets as follows:

- Major development to be Net Zero Carbon (taken to mean a 100% reduction in regulated CO_2 emissions from the relevant Building Regulations baseline).
- Minimum 35% on-site emissions reduction.
- Minimum 10% (residential) /15% (commercial) reduction in regulated CO_2 through energy efficiency measures.
- Proposed developments to demonstrate a pathway to zero carbon on-site by 2050.

Figure 4: Reviewed Policy Documents.

3. Proposed Sustainability Strategy

3.1 Approach to Sustainability

The following strategy addresses a wide range of sustainability subject areas and covers various headline sustainability categories. The strategy confirms the applicable policies, the Applicant's aspirations and measures of sustainability that will be implemented at the Proposed Development.

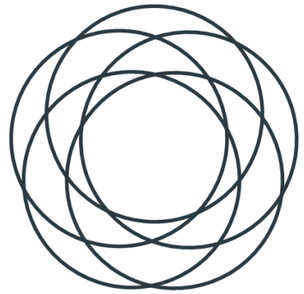
The design of the Proposed Development is based on sustainable design and construction principles as informed by planning requirements and industry best practice. It is on this basis that the Five Capitals Model as illustrated in Figure 5 is being applied to capture the multi-faceted sustainability benefits that the Proposed Development potentially brings to the:

- Application Site
- Local community
- Surrounding businesses, and
- Future occupants and other building users.

3.2 Achieving a Sustainable Development

The Delivery Framework
The overall energy and sustainability objectives for the Proposed Development have been encapsulated within the Five Capitals Model for Sustainability. More specifically to the energy aspect, the Energy Strategy is being delivered in line with the Energy Hierarchy – please refer to the separate energy strategy submitted in support of this planning application for further detail.

Environmental Assessment
In line with LBRuT policy, a BREEAM New Construction pre-assessment has been produced highlighting how the commercial spaces of the Proposed Development seek to achieve a BREEAM 'Excellent' rating as a minimum for the shell&core construction works. Please refer to Appendix 1 for a summary pre-assessment report with a schedule of the targeted credits and current anticipated performance score/rating.



A FRAMEWORK FOR
SUSTAINABLE DEVELOPMENT

CREATING VALUE

Natural Capital — Enhancing the natural environment
By seeking to achieve positive gain, **NATURAL VALUE** is increased where existing quality is protected and new complimentary resources are introduced.

Human Capital — People centred design
With a focus on people, **HUMAN VALUE** is increased where quality and longevity of life is improved and happiness is increased.

Social Capital — Partnership and collaboration
By enabling community identity, **SOCIAL VALUE** is increased where a great place beings people together, and creates a community.

Physical Capital — Designed for performance
Creating high quality buildings ensures **PHYSICAL VALUE** is increased where buildings and infrastructure project an image of design for longevity, and allow people to navigate easily on foot/by bicycle.

Economic Capital — Productivity and growth
By ensuring equity for all, **ECONOMIC VALUE** is increased where all users of a place feel the have a level of ownership of the asset and buy-in to the outcomes it is seeking to achieve.

Figure 5: Proposed Framework for Sustainability – The Five Capitals Model.

4. Sustainability Checklist

The following checklist is written in reference to the applicable Priority and Best Practice standards as outlined in the Mayor of London's supplementary planning guidance on Sustainable Design and Construction (2014), as required by Policy 5.3 of the London Plan (2016). Note priority standards are highlighted in blue.

Policy Targets	Proposed Development Response
Optimising the Use of Land Through both their Local Plans and planning decisions, boroughs should aim for 100% of development to be delivered on previously developed land. *Priority LP Policy Ref: 1.1, 3.3*	*Optimising the Use of Land* The Proposed Development will entirely be on previously developed land.
Optimising the Use of Land Developers should optimise the scale and density of their development, considering the local context, to make efficient use of London's limited land. *Priority LP Policy Ref: 3.4, 4.3, 7.6*	*Optimising the Use of Land* The site comprises of previously developed land in an accessible urban area (PTAL 5). Planning policy requires optimisation of site capacity, particularly in highly accessible locations. London Plan Policy 3.4 requires developments to optimise housing output in accordance with the relvant density range (200-700 habitable rooms per hectare for an 'urban' setting in PTAL 4-6). The Proposed Development optimises housing output in accordance with policy whilst ensuring that the new development respects the local context and enhances the character of the area.
Basements and Lightwells When planning a basement development, developers should consider the geological and hydrological conditions of the Site and surrounding area, proportionate to the local conditions, the size of the basement and lightwell and the sensitivity of adjoining buildings and uses, including green infrastructure. *Priority LP Policy Ref: 5.12, 5.13, 7.13, 7.19*	*Basements and Lightwells* There is only very limited basement planned at the Proposed Development. The ancillary basement is in one location on site, and uses include a cycle store, bin stores, and a cold water tank and pumproom. There are also six duplex apartments that inhabit the basement level. The construction of these basements will not negatively impact any adjoining buildings nor the amenity of immediate neighbours as there are none.
Basements and Lightwells When planning and constructing a basement development, developers should consider the amenity of neighbours. *Priority LP Policy Ref: 5.3, 5.18, 6.3, 7.14, 7.15*	
Local Food Growing To protect existing established food growing spaces. *Priority LP Policy Ref: 2.18, 3.2, 5.3, 5.10, 5.11, 7.18, 7.22.*	*Local Food Growing* The Application Site does not contain any existing established spaces for growing food.
Local Food Growing To provide space for individual or communal food growing, where possible and appropriate. *Best Practice LP Policy Ref: 2.18, 3.2, 5.3, 5.10, 5.11, 5.21, 7.18, 7.22*	*Local Food Growing* The Application Site does not contain any existing established spaces for growing food.
Local Food Growing To take advantage of existing spaces to grow food, including adapting temporary spaces for food growing. *Best Practice LP Policy 2.18, 3.2, 5.3, 5.10, 5.11, 5.21, 7.18, 7.22*	N/A
Site Layout & Building Design Any existing buildings that can be practically refurbished, retrofitted, altered, or extended should be retained and reused. *Best Practice LP Policy: 5.3, 5.4*	*Site Layout & Building Design* It is not deemed feasible or desirable to retain the existing building. By constructing a new development, the energy and operational efficiency of the building can be optimised without the fabric constraints of an existing building.
Building Design A mix of uses, where suitable should be included to provide a range of services commensurate to the public transport accessibility. *Best Practice LP Policy Ref: 4.3*	*Site Layout & Building Design* The redevelopment of the Manor Road plot sees an increase of floorspace, and a mix of uses has been proposed as follows: – Residential areas (C3) – Commercial areas (A1/A2/A3/B1) – Community areas (D2) A travel plan and transport strategy has been developed in discussion with LBRuT
Site Layout & Building Design The design of the Site and building layout, footprint, scale and height of buildings as well as the location of land uses should consider: *Existing Features* – The possible retention and reuse of existing buildings and structures;	*Site Layout & Building Design* *Existing Features* The Proposed Development is the redevelopment of a plot containing an existing building and will make use of previously developed land, demonstrated by the architectural plans included in this planning application. It is not deemed feasible or desirable to retain the existing building. By constructing a new development, the energy and operational

Policy Targets	Proposed Development Response
– The retention of existing green infrastructure, including trees and other ecological features, and potential for its improvement and extension; and – Access routes to public transport and other facilities that minimise the use of private transport. *New Design of Development* – The existing landform; – The potential to take advantage of natural systems such as wind, sun and shading; – The principles sets out London Plan policies 7.1 and 7.6; – The potential for adaption and reuse in the future; – Potential for incorporating green infrastructure, including enhancing biodiversity; – Potential for incorporating open space, recreation space and child play space; – Energy demands and the ability to take advantage of natural systems and low and zero carbon energy sources; – Site wide infrastructure; – Access to low carbon transport modes; – The promotion of low carbon transport modes, including walking and cycling; – Potential to address any local air quality, noise disturbance, flooding and land contamination issues; and – The potential effect on the micro-climate. *Priority LP Policy Ref: 2.18, 5.2, 5.3, 5.4, 5.6, 5.7, 5.9, 5.10, 5.11, 5.12, 5.13, 5.16, 5.18, 5.21, 6.1, 6.7, 6.9, 6.10, 6.11. 6.13, 7.1, 7.6, 7.14, 7.15, 7.18, 7.19, 7.21, 7.22*	efficiency of the building can be optimised without the fabric constraints of an existing building. The waste that arises from the demolition of existing buildings will be targeted to be used as aggregate for the Proposed Development where possible, and a pre-demolition audit will be undertaken to further assess the possibility of this. The Proposed Development will cause no change of access to local public transport and no on-site or on-street parking for general public use is being provided as part of the Proposed Development. *New Design of Development* Regarding LP Policy 7.1, it is considered that the Proposed Development will: – Enable people to live healthy and active lifestyles due to the provision of suitable cycle parking to encourage commuting by bike which is a low-carbon mode of transport. – Allow visitors of all ages and stages of life to enjoy the surroundings by ensuring suitable access provisions. The development is proposed as virtually 'car-free' to meet the requirements of the Local and London Plans. Minimal parking is proposed on site for vehicles, and car club vehicles are proposed to be operated from the site to meet residents requirements for vehicle trips. However, the site is highly accessible with ease of access to facilities within walking and cycling distance, and an appropriate level of long and short stay cycle parking is proposed. Access is also available to the bus and rail networks, thereby providing excellent opportunities for residents to travel by means other than the private car. Regarding LP Policy 7.6, it is considered that the Proposed Development is of high architectural quality and is of a proportion, composition, scale and orientation that enhances, activates and defines public realm. The Proposed Development will comprise details and materials that complement the local character, and will incorporate best practice in terms of resource management and climate change adaptation.

Policy Targets	Proposed Development Response
Energy and CO_2 Emissions The overall carbon dioxide emissions from a development should be minimised through the implementation of the energy hierarchy set out in London Plan Policy 5.2. *Priority LP Policy Ref: 5.2, 5.3*	*Energy and CO_2 Emissions* The Proposed Development has been assessed in accordance with the requirements of LP Policy 5.2, and the guidance within the GLA document on preparing energy strategies (October 2018). The target CO_2 emissions reduction applicable to the Proposed Development is zero carbon (100% reduction) for residential areas, and 35% beyond the requirements of the Building Regulations Part L 2013 for commercial areas. A CO_2 emissions reduction of 35% beyond the requirements of the Building Regulations Part L (2013) is expected to be achieved through a combination of passive design, energy efficiency measures, and LZC technologies. Please refer to the Detailed Energy Strategy, submitted in support of this planning application, for further details.
Energy and CO_2 Emissions Developments should be designed to meet the regulated carbon dioxide standards, in line with London Plan Policy 5.2. *Priority LP Policy Ref: 5.2*	
Energy and CO_2 Emissions Developments should contribute to ensuring resilient energy infrastructure and a reliable energy supply, including from local low and zero carbon sources. *Best Practice LP Policy Ref: 5.1, 5.5, 5.6, 5.7, 5.8, 5.17*	*Energy and CO_2 Emissions* The Proposed Development will be provided with Air Source Heat Pumps (ASHP) and Photovoltaic panels. A PV array of 120m^2 (panel area) will be provided. An appraisal of centralised distribution, and also of Combined Heat and Power (CHP) technology has been carried out, and this demonstrated that a centralised system is not expected to provide any CO_2 reduction benefit to the Proposed Development, and neither is a CHP. Further, it has been established that there is no single roof space on-site that would be large enough to incorporate all of the heating plant in one centralised location. The development has therefore been designed with a block-by-block energy system. However, space allowance has been made for heat interface units to the ground floor of each building, and a potential distribution route has been identified, should a district energy system become available in future which the Proposed Development could connect to. Please refer to the Energy Strategy, submitted in support of this planning application, for further details.
Energy and CO_2 Emissions Developers are encouraged to include innovative low and zero carbon technologies to minimise carbon dioxide emissions within developments and keep up to date with rapidly improving technologies.	*Energy and CO_2 Emissions* The Proposed Development benefits from passive design and energy efficiency measures. It is proposed to implement Air Source Heat Pumps (ASHP) and PVs in the proposed development. Please refer to the Detailed Energy Strategy, submitted in support of this planning application, for further details.

<table>
<tr><th>Policy Targets</th><th>Proposed Development Response</th></tr>
<tr><td>Best Practice LP Policy Ref: 5.2, 5.1, 7</td><td></td></tr>
<tr><td>Energy Demand Assessment

Development applications are to be accompanied by an energy demand assessment.

Priority LP Policy Ref: 5.2</td><td>Energy Demand Assessment

An energy demand assessment has been carried out for the Proposed Development. U-values and other fabric parameters are subject to change following final iterations of models.

<table>
<tr><th>Parameter modelled</th><th>Residential areas</th><th>Commercial areas</th></tr>
<tr><td>Roof U-value (W/m^2.K)</td><td>0.16</td><td>N/A</td></tr>
<tr><td>Floor U-Value (W/m^2.K)</td><td>0.22</td><td>0.13</td></tr>
<tr><td>External Wall (W/m^2.K)</td><td>0.15</td><td>0.15</td></tr>
<tr><td>External opaque door (W/m^2.K)</td><td>2.20</td><td>2.20</td></tr>
<tr><td>Glazing (W/m^2.K)</td><td>1.4</td><td>1.2</td></tr>
<tr><td>Glazing g-value</td><td>0.4</td><td>0.4</td></tr>
<tr><td>Fabric Air Permeability (m^3/(m^2.h) at 50Pa)</td><td>3.0</td><td>3.0</td></tr>
</table>

The Proposed Development will be designed to minimise the requirement for mechanical ventilation, heating and cooling.

The design will target best practice levels of insulation and limit of fabric air permeability to minimise heating requirements of the Proposed Development.</td></tr>
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<table>
<tr><th>Policy Targets</th><th>Proposed Development Response</th></tr>
<tr><td>Use Less Energy

The design of developments should prioritise passive measures.

Priority LP Policy Ref: 5.2, 5.3, 5.9

Best Practice Policies

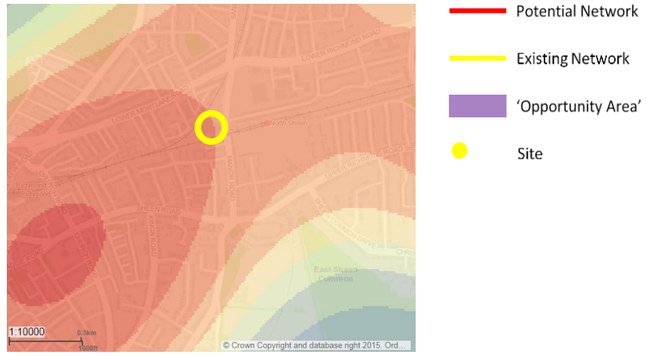
Developers should aim to achieve Part L 2013 Building Regulations requirements through design and energy efficiency alone, as far as is practical.

Best Practice LP Policy Ref: 5.2, 5.3</td><td>Use Less Energy

The design employs a fabric first approach to reduce energy demand and resultant CO_2 emissions.

Passive design measures are summarised in the previous response. Energy efficiency measures are summarised in the following table.

<table>
<tr><th>Parameter</th><th>Residential areas</th><th>Commercial areas</th></tr>
<tr><td>Space Heating</td><td>Building-by-building ASHP system (total 180% efficiency) with Heat Interface Units (HIU) per dwelling coupled to hot water systems and radiators.</td><td>Variable Refrigerant Flow (VRF) system with COP =5</td></tr>
<tr><td>Hot Water</td><td>Water efficient fixtures and fittings to minimise water demand.
HIU with minimal heat loss.
Tank in apartments insulated.</td><td>Electric point of use - no distribution losses.</td></tr>
<tr><td>Cooling</td><td>Cooling provided by ASHP in a proportion of apartments, with preference given to those apartments at risk of experiencing excessive noise from external sources. Cooling SEER = 4.05</td><td>Variable Refrigerant Flow (VRF) system with SEER = 6.5</td></tr>
<tr><td>Lighting</td><td>High efficiency lighting. Daylight and presence detection in common areas.</td><td>Target efficacy of >90 luminaire lumens per circuit Watt.
Display Lighting is 80 lamp lumens per circuit Watt.</td></tr>
<tr><td>Ventilation</td><td>MVHR with specific fan power 0.55 W/l.s (average) with Heat Recovery of 90% or better.</td><td>Target SFP of 1.6W/l/s and Heat Recovery of 80%</td></tr>
<tr><td>Metering & Controls</td><td>Zonal, programmable thermostatic controls for heating.
Separate programmable control for hot water.
Electricity meter and heat meter with potential link to energy display device.</td><td>To be provided in accordance with the requirements of the Building Regulations.</td></tr>
<tr><td>Pipework & Ductwork Insulation</td><td>To be provided in accordance with the requirements of the Building Regulations.</td><td>To be provided in accordance with the requirements of the Building Regulations.</td></tr>
<tr><td>O&M Manuals</td><td>Systems overview and detailed descriptions in plain and clear English.</td><td>To be provided in accordance with the requirements of the Building Regulations.</td></tr>
</table>
</td></tr>
</table>

Policy Targets	Proposed Development Response
Energy Efficient Supply Developers should assess the potential for their development to: – Connect to an existing district heating or cooling network; – Expand an existing district heating or cooling network, and connect to it; or – Establish a Site wide network, and enable the connection of existing buildings in the vicinity of the development. *Priority LP Policy Ref: 5.5, 5.6*	*Energy Efficient Supply* By reference to the London Heat Map (http://www.londonheatmap.org.uk/Mapping) it is demonstrated that the Application Site (yellow circle – see diagram on following page) is not in an opportunity area for DEN, or near any potential or existing networks. Therefore, connection to a District Energy Network (DEN) is not considered suitable to the Proposed Development at the current point in time. However, space allowance has been made for heat interface units to the ground floor of each building, and a potential distribution route has been identified, should a district energy system become available in future which the Proposed Development could connect to. 
Renewable Energy Major developments should incorporate renewable energy technologies to minimise overall carbon dioxide emissions, where feasible. *Priority LP Policy Ref: 5.7*	*Renewable Energy* The feasibility for inclusion of low and zero carbon technologies has been assessed. Please refer to the Energy Strategy for details. A PV array will be included in the Proposed Development to reduce CO_2 emissions.
Carbon Offsetting Where developments do not achieve the Mayor's carbon dioxide reduction targets set out in London Plan Policy 5.2, the developer should make a contribution to the local borough's carbon dioxide off-setting fund. *Priority LP Policy Ref: 5.2, 5.4*	*Carbon Offsetting* The Proposed Development is targeting zero carbon for residential areas (100% reduction), and 35% CO_2 emissions reduction beyond Part L 2013 ('gas boiler baseline) for commercial areas. This is in line with the London Plan target. A CO_2 emissions reduction of 35% beyond the requirements of the Building Regulations Part L 2013 (gas boiler baseline) will be achieved through a combination of passive design, energy efficiency measures, and LZC technologies.

Policy Targets	Proposed Development Response
	A carbon offset payment of £451,800 is anticipated to offset the remaining 65% for residential areas to reach the GLA 100% emissions reduction requirement for residential buildings.
Retrofitting Where works to existing developments are proposed developers should retrofit carbon dioxide and water saving measures. *Priority LP Policy Ref: 5.4, 5.1, 5*	*Retrofitting* N/A
Monitoring Energy Use Developers are encouraged to incorporate monitoring equipment, and systems where appropriate to enable occupiers to monitor and reduce their energy use. *Best Practice LP Policy Ref: 5.2, 5.3*	Monitoring Energy Use Metering of the cold water and electrical supplies will be provided. Energy metering of lighting, small power and all central systems will be included. Metering to allow billing of individual tenants of the building will be installed.
Monitoring Energy Use Developers are encouraged to incorporate equipment that would enable their schemes to participate in demand side response opportunities. *Best Practice LP Policy Ref: 5.2, 5.3*	Monitoring Energy Use Demand Side response opportunities will be considered during the detailed design stages.
Water Efficiency Developers should maximise the opportunities for water saving measures and appliances in all developments, including the reuse and using alternative sources of water. *Priority LP Policy 5.3, 5.13, 5.15*	*Water Efficiency* The Proposed Development will be provided with water efficient fixtures, fittings and appliances, and include measures to encourage efficient water use, including: – Installation of water meters with pulsed or other open protocol communication output to enable connection to a utility monitoring and management system. – A leak detection system on the mains water supply between the building and the utilities water meter. – Processes to reduce unregulated water demand.
Water Efficiency Developers should design residential schemes to meet a water consumption rate of 105 litres per person per day. *Priority LP Policy 5.3, 5.1, 5*	*Water Efficiency* Residential dwellings will be fitted with water efficient appliances, and will meet a water consumption rate of 105 litres per person per day, or less.

Policy Targets	Proposed Development Response
Water Efficiency New non-residential developments, including refurbishments, should aim to achieve the maximum number of water credits in a BREEAM assessment or the 'best practice' level of the AECB (Association of Environment Conscious Building) water standards. *Priority LP Policy 5.3, 5.1, 5*	*Water Efficiency* Water credits have been targeted as part of the BREEAM pre-assessment report, which includes: – Installation of water meter(s) with pulsed or other open protocol communication output to enable connection to a utility monitoring and management system. – Processes to reduce unregulated water demand. Installation of water appliances will be carried out by future tenants.
Water Efficiency Where a building is to be retained, water efficiency measures should be retrofitted. *Priority LP Policy 5.3, 5.4, 5.1, 5*	*Water Efficiency* N/A
Water Efficiency All developments should be designed to incorporate rainwater harvesting. *Priority LP Policy 5.3, 5.4, 5.1, 5*	*Water Efficiency* Rainwater harvesting for re-use in irrigation of planted areas is not being considered for the Proposed Development, as this is not efficient in providing irrigation water when required (i.e. during periods of drought). However rainwater is being collected, attenuated and infiltrated on site, providing significant benefit to the local water table and illustrating an efficient management of stormwater. A large proportion of the site is proposed as permeable to increase infiltration and decrease stormwater runoff and collection. This includes: – 6,765m^2 permeable surfaces on ground, – 4,685m^2 green roofs and – 120m^2 planting on paved terraces Amounting to 11,570m^2 out of a total site area of 18,470m^2 (approximately 63%).
Design Phase The design of development should prioritise materials that: – Have a low embodied energy, including those that can be re-used intact or recycled; – At least three of the key elements of the building envelope (external walls, windows roof, upper floor slabs, internal walls, floor finishes / coverings) are to achieve a rating of A+ to D in the BRE's The Green Guide of specification; – Can be sustainably sourced; – At least 50% of timber and timber products should be sourced from accredited Forest Stewardship Council (FSC) or Programme for the Endorsement of forestry Certification (PEFC) source; – Are durable to cater for their level of use and exposure; and – Will not release toxins into the internal and external environment, including those that deplete stratospheric ozone. *Priority LP Policy Ref: 5.3, 5.20, 7.6, 7.14*	*Design Phase* 100% of the timber used at the Proposed Development will be FSC certified or similar. Wherever feasible, selected materials will be in the range of A+ to D as confirmed by the BRE Green Guide to Specification. Finishes and other materials will not contain or emit toxic substances.
Design Phase The design of developments should maximise the potential to use pre-fabrication elements. *Best practice LP Policy Ref: 5.3, 7.6*	*Design Phase* The scheme has been designed based on a grid allowing for a simply structural solution. Structural elements including floor slabs, beams, and columns are able to be pre-fabricated and transported to site. Stone details, including lintels, arches, stairs, and columns have been unified across the project to reduce the number of moulds required for fabrication. These elements will all be pre-fabricated off-site to improve construction time and reduce on-site waste. Further assessments in detail will take place at the next design stages.
Construction Phase Developers should maximise the use of existing resources and materials and minimise waste generated during the demolition and construction process through the implementation of the waste hierarchy. *Priority LP Policy Ref: 5.3, 5.20*	*Construction Phase* A pre-demolition audit has been undertaken, to investigate how recycling of construction, demolition and excavation material can be maximised, The main contractor will be required to produce a Site Waste Management Plan prior to commencement of any demolition or construction works on-site. One of the aims of the document will be to highlight means to divert specific waste streams from landfill.
Occupation Phase Developers should provide sufficient internal space for the storage of recyclable and compostable materials and waste in their schemes.	*Occupation Phase* A waste strategy has been prepared. Waste segregation is incorporated in the design, and waste stores will be accessible to building users and refuse collectors.

Policy Targets	Proposed Development Response
Priority LP Policy Ref: 5.3, 5.17	A dedicated centralised recyclable waste storage facility will be provided for commercial areas, as required under the BREEAM Wst 03 credit requirements.
Occupation Phase The design of development should meet borough requirements for the size and location of recycling, composting and refuse storage, and its removal. *Priority LP Policy Ref: 5.3, 5.17*	
Nature & Biodiversity There is no net loss in the quality and quantity of biodiversity. *Priority LP Policy Ref: 5.3, 7.19*	*Nature & Biodiversity* Existing habitats will largely be retained and enhanced where possible, and new habitat created on-site in line with local planning policy and the Richmond Upon Thames Biodiversity Action Plan (BAP). New habitats will be of native and of local provenance where possible. In addition, enhancements for specific species groups will be provided post-construction including bird and bat boxes to increase the number of nest and nesting sites across the site, and hedgehog boxes and highways and bug hotels to provide a net biodiversity gain.
Nature & Biodiversity Developers make a contribution to biodiversity on their development Site. *Priority LP Policy Ref: 5.3, 7.19*	*Nature & Biodiversity* Measures to ensure the site contributes to local biodiversity will include: – Sensitive lighting along south and west rail corridors to avoid disturbance of commuting bats along the south and west site boundaries. – Planting of native flora in retained or newly created habitats; including dense scrub, scattered scrub and trees, tall ruderal and marginal vegetation, particularly planting of native trees along rail corridors to the south and west of the site. Thus, providing new opportunities for fauna. – Green Infrastructure; Inclusion of brown; sedum roofs and terrace gardens as per A3004 Manor Road GLA pre-app document 1, to increase areas of accessible green space and provide a net biodiversity gain on site; – Placement of bug hotels within terrace gardens, sedum roofs, and newly created habitats across the site to encourage insects to the site.

Policy Targets	Proposed Development Response
Tackling Increased Temperature and Drought	
Overheating Developers should include measures, in the design of their schemes, in line with the cooling hierarchy set out in London Plan Policy 5.9 to prevent overheating over the scheme's lifetime. *Priority LP Policy Ref: 5.3, 5.9*	*Overheating* The Proposed Development is being designed in accordance with the cooling hierarchy as set out in LP Policy 5.9. A separate overheating risk assessment has been produced for a sample of residential dwellings in accordance with the methodology set out with CIBSE Technical memorandum (TM) 59. Any areas demonstrating an increased risk of overheating have been redesigned, and mitigation measures included where technically and economically feasible. Please refer to the Detailed Energy Strategy, submitted in support of this planning application, for further details.
Heat and Drought Resistant Planting The design of developments should prioritise landscape planting that is drought resistant and has a low water demand for supplementary watering. *Best Practice LP Policy Ref: 5.3, 5.15*	*Heat and Drought Resistant Planting* The Proposed Development will provide at least 30% native plants and the planting list generally is selected to include resilient plants suited to local London conditions. The planting selected from the recommended plant palette will therefore be appropriate for the site, typically drought resistant, and have a lower demand for supplementary watering.
Resilient Foundations Developers should consider any long-term potential for extreme weather events to affect a building's foundations and to ensure they are robust. *Best Practice LP Policy Ref: 5.3, 7.6*	*Resilient Foundations* The development will be on piled foundations (rather than shallow foundations). The piled foundations will be bounded in strata, which means the foundation will not be influenced by the weather.
Urban Greening Developers should integrate green infrastructure into development schemes, including by creating links with wider green infrastructure network. *Priority LP Policy Ref: 2.18, 5.3, 5.10, 5.11*	*Urban Greening* The Landscape Masterplan includes a significant area of soft landscape (planting and lawn) around the buildings on site, in paved areas, and on building roofs. This greening of the site, combined with the tree planting proposed, including street trees and buffer planting to the edges of the site (south and west) contribute to the Green Infrastructure of the locality and create linkages to the existing green infrastructure in Richmond.
Urban Greening Major developments in the Central London Activity Area (CAZ) should be designed to contribute to the Mayor's target to increase green cover by 5% in this zone by 2030. *Priority LP Policy Ref: 5.10*	*Urban Greening* The development is not within the CAZ.

Policy Targets	Proposed Development Response
Trees Developments should contribute to the Mayor's target to increase tree cover across London by 5% by 2025.	*Trees* The Proposed Development will increase the extent of total tree cover owing to the improved planting conditions through contemporary soil volume creation systems. It is estimated that the development will add 73 trees in addition to 40 replacements and 24 retained trees, resulting in a 90% increase in tree numbers. The approximate canopy cover currently (60 live trees) based upon an average of 15 m^2/live tree equates to 900 m^2 total. Proposed new trees, based upon an average canopy development of 60 m^2/live tree (subject to contemporary planting and maintenance) provides a projected approximate canopy cover of 6.780 m^2. This is a projected approximate increase of canopy cover by 750% (15-20 years). Thus, the proposed landscaping including tree planting makes a significant contribution to the locality in terms of additional tree cover over an estimated 15-20 years, and goes far beyond the 5% target sought by the GLA.
Trees Any loss of a tree/s resulting from development should be replaced with an appropriate tree or group of trees for the location, with the aim of providing the same canopy cover as that provided by the original tree/s.	
Surface Water / Sustainable Drainage Developers should maximise all opportunities to achieve greenfield runoff rates in their developments. *Priority LP Policy Ref: 5.12, 5.13*	*Surface Water / Sustainable Drainage* A Flood Risk Assessment and Drainage Strategy have been produced. The surface water disposal system has been designed to ensure the drainage hierarchy has been implemented in the most practical and viable approach to benefit to the site; as per the SuDS Manual 2015. Furthermore, the design has considered the Non-Statutory Technical standards for sustainable drainage systems and ensured these standards have been addressed. The proposed drainage strategy manages all water within the site by infiltration discharge. There will therefore be no runoff from the development out of its boundaries (subject to infiltration tests being completed and proving favourable ground conditions).
Surface Water / Sustainable Drainage When designing their schemes developers should follow the drainage hierarchy set out in London Plan Policy 5.13. *Priority LP Policy Ref: 5.13*	
Surface Water / Sustainable Drainage Developers should design Sustainable Drainage Systems (SuDS) into their schemes that incorporate attenuation for surface water runoff as well as habitat, water quality and amenity benefits. *Priority LP Policy Ref: 5.3, 5.13, 5.14*	
Flood Resilience Development in areas at risk from any form of flooding should include flood resistance and resilience measures in line with industry best practice. *Priority LP Policy Ref: 5.3, 5.12, 5,13*	*Flood Resilience* By reference to the Environment Agency Flood Risk Map and Flood Risk Assessment, it is understood that the Proposed Development is in Flood Zone 1, corresponding to a low annual risk of flooding, as shown in the following image:

Policy Targets	Proposed Development Response
	
Flood Risk Management Developments incorporate the recommendation of the TE2100 plan for the future tidal flood risk management in the Thames estuary. *Priority LP Policy Ref: 5.3, 5.12*	*Flood Risk Management* The site is located in Flood Zone 1 corresponding to a low annual risk of flooding.
Flood Risk Management Where development is permitted in a flood risk zone, appropriate residual risk management measures are to be incorporated into the design to ensure resilience and the safety of occupiers. *Priority LP Policy Ref: 5.3, 5.12*	*Flood Risk Management* The Proposed Development is located in Flood Zone 1 corresponding to a low annual risk of flooding, as confirmed by the FRA.
Other Flooding All sources of flooding need to be considered when designing and constructing developments. *Priority LP Policy Ref: 5.3, 5.12*	*Other Flooding* The Flood Risk Assessment (FRA) and Drainage Strategy confirms that all sources of flooding have been considered, which includes: – Tidal/fluvial – Surface water and drainage – Groundwater – Reservoirs, canals and other artificial sources – Sewers The FRA also states the mitigation measures to be provided as required.

Policy Targets	Proposed Development Response
Land Contamination	
Land Contamination Developers should set out how existing land contamination will be addressed prior to the commencement of their development. *Priority LP Policy Ref: 3.2, 5.3, 5.21*	*Land Contamination* A desk study has been carried out to address the risks of contamination site. Please refer to the 'Geotechnical and Geoenvironmental Preliminary Risk Assessment' submitted in support of this planning application. Ground investigation will be carried out at a later stage to investigate contamination prior to works.
Land Contamination Potentially polluting uses are to incorporate suitable mitigation measures. *Priority LP Policy Ref: 3.2, 5.3, 5.21*	*Land Contamination* The Proposed Development is not proposing to include uses that would lead to land contamination.
Air Quality Developers are to design their schemes so that they are at least 'air quality neutral'. *Priority LP Policy Ref: 7.14*	*Air Quality* The air quality assessment has determined that the development will not have a negative impact on the local air quality and on the local AQMA. The development complies with the AQN benchmarks as it is electrically powered i.e. there are no gas-fired combustion systems and therefore no emissions.
Air Quality Developments should be designed to minimise the generation of air pollution. *Priority LP Policy Ref: 5.3, 7.14*	*Air Quality* The development proposal discourages private vehicle use through the omission of general use car parking on site. The development site has excellent accessibility and public transport links to both bus and rail, which will meet the transport demand of building occupants. It is proposed that the minimal requirement for transport trips by cars (as drivers or passengers) will be undertaken using he proposed Car-Club vehicles or by taxi. The development is expected to meet the air quality neutral (AQN) benchmarks for transport and building emissions as it is electrically powered, therefore will produce no emissions. The proposed energy strategy reduces the overall energy demand as far as practically and economically possible, by implementing energy efficiency measures before applying renewable energy generating technologies. The remaining energy demand during standard building operation conditions is to be met with all electric systems, which will not increase local air pollution. The development will aim to achieve the AQN benchmarks for building emissions. During the construction phase, emissions of dust and exhaust gases from construction activities will be effectively controlled through the use of suitable mitigation measures implemented through the Construction Environmental Management Plan and a dedicated Dust Management Plan, which will be in place prior to the start of construction.
Air Quality Developments should be designed to minimise and mitigate against increased exposure to poor air quality. *Priority LP Policy Ref: 3.2, 5.3, 7.14*	*Air Quality* The development is expected to meet the AQN benchmarks for transport and building emissions, as well as demonstrate that the construction phase impacts are managed to a low risk. As a result, there are not expected to be adverse effects on air quality for the sensitive receptors identified.
Air Quality Developers should select plant that meets the standards for emissions from combined heat and power and biomass plants set out in Appendix 7. *Priority LP Policy Ref: 7.14*	*Air Quality* CHP and biomass plants have not been proposed for the development.
Air Quality Developers and contractors should follow the guidance set out in the emerging The Control of Dust and Emissions during Construction and Demolition SPG when constructing their development. *Priority LP Policy Ref: 5.3, 7.14*	*Air Quality* During the construction phase, emissions of dust and exhaust gases from construction activities will be effectively controlled through the use of suitable mitigation measures implemented through the Construction Environmental Management Plan and a dedicated Dust Management Plan, which will be in place prior to the start of construction. The main contractor shall register under the Considerate Constructors Scheme and achieve compliance beyond best practice.
Noise Areas identified as having positive sound features or as being tranquil should be protected from noise. *Priority LP Policy Ref: 3.2, 7.15*	*Noise* The Noise Impact Assessment carried out for the Proposed Development has not identified areas classified as having positive sound features or as being tranquil within proximity of the Application Site.
Noise Noise should be reduced at source, and then designed out of a scheme to reduce the need for mitigation measures. *Priority LP Policy Ref: 3.2, 5.3, 7.6, 7.15*	*Noise* The Proposed Development will seek to reduce noise at source and then design noise out of the scheme to reduce the need for mitigation measures. The proposed design includes three residential courtyards – the north and central courtyards are protected from external noise via the planted buffer zone, and the south courtyard is slightly more exposed. This will be mitigated via other design measures at a later stage.

Policy Targets	Proposed Development Response
Light Pollution Developments and lighting schemes should be designed to minimise light pollution. *Priority LP Policy Ref: 5.2, 5.3, 6.7*	*Light Pollution* All external lighting provided as part of the Proposed Development will be designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011, and will be automatically switched off between 23:00 and 07:00.
Surface Water Runoff In their aim to achieve a greenfield runoff rate, developers should incorporate sustainable urban drainage systems (SuDS) into their schemes which also provide benefits for water quality. *Priority LP Policy Ref: 5.3, 5.13, 5.14*	*Surface Water Runoff* The London Plan calls for a reduction of surface water runoff to either the greenfield runoff rate or 50% betterment of the existing surface water runoff rate where possible. The existing site is currently 100% hardstanding, with no connection to the public sewer. It drains via infiltration, which is being carried through to the proposed drainage strategy for the new development.
Surface Water Runoff Encourage good environmental practice to help reduce the risk from business activities on the London water environment. *Best Practice Policy Ref: 5.3, 5.13, 5.14*	*Surface Water Runoff* The Building User Guide will advise tenants of good environmental practice to reduce risk on the London water environment.
Surface Water Runoff Encourage those working on demolition and construction-Sites to prevent pollution by incorporating prevention measures and following best practice. *Best Practice Policy Ref: 5.3, 5.14*	*Surface Water Runoff* The main contractor will be required to operate an EMS and demonstrate best practice pollution prevention management / control procedures via a Construction Management Plan.
Wastewater Treatment Commercial developments discharging trade effluent should connect to the public foul sewer or combined sewer network where it is reasonable to do so subject to a trade effluent consent from the relevant sewerage undertaker. *Priority Policy Ref: 5.3, 5.14*	*Wastewater Treatment* The Proposed Development will discharge foul water to the public sewer as agreed by Thames Water in principle. Connection agreements will be made with Thames Water prior to construction when final uses are confirmed.

Policy Targets	Proposed Development Response
Wastewater Treatment Developments should be properly connected, and post construction checks should be made by developers to ensure that misconnections do not occur. *Priority Practice Policy Ref: 5.3, 5.14*	

5. Appendix 1: BREEAM Pre-assessment

A pre-assessment under the BREEAM 2018 New Construction (NC) scheme has been conducted for the commercial areas.

The development is currently assessed using a 'shell only' assessment type due to its speculative nature. In line with local policy requirements, the assessment will be targeting a BREEAM 'Excellent' rating as a minimum.

The current anticipated baseline score is 74.2% which is equivalent to an 'Excellent' rating, exceeding the minimum required score for an 'Excellent' rating of 70% by 4.2%.

Figure 6 summarises the current anticipated score relative to the minimum required score for each BREEAM rating threshold.

Figure 7 details a breakdown of the targeted credits. Please refer to the full BREEAM pre-assessment report for further details of the targeted credits and detailed requirements.

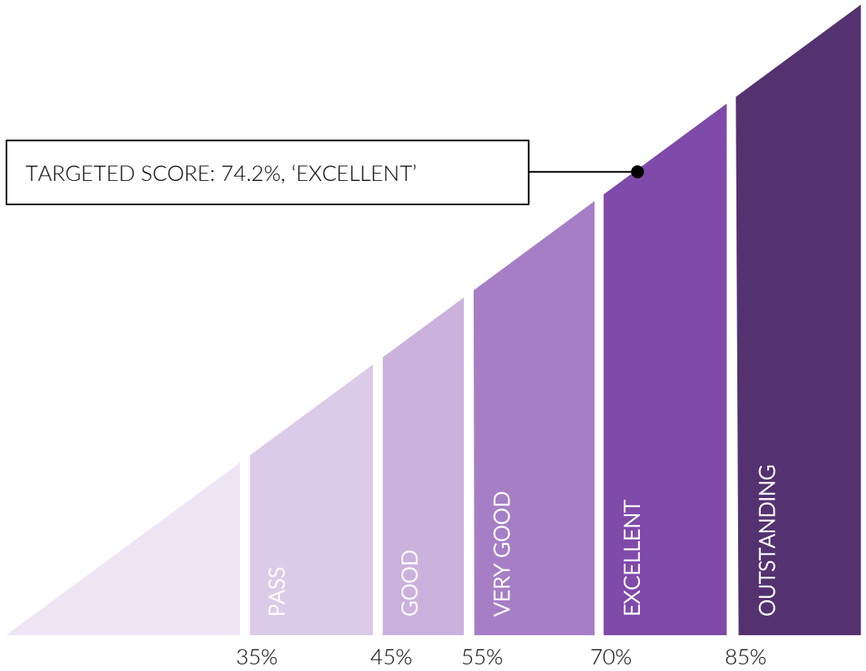
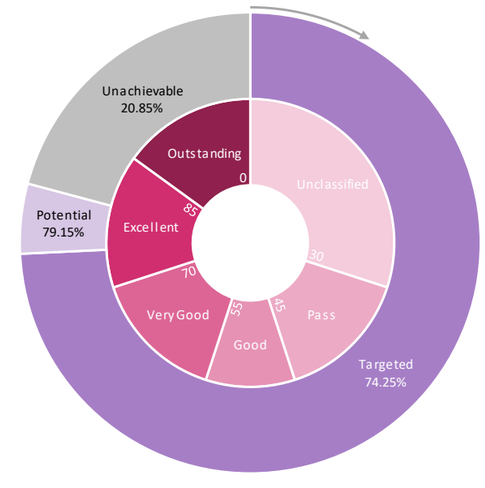


Figure 6: Targeted BREEAM score and associated rating for the Proposed Development.



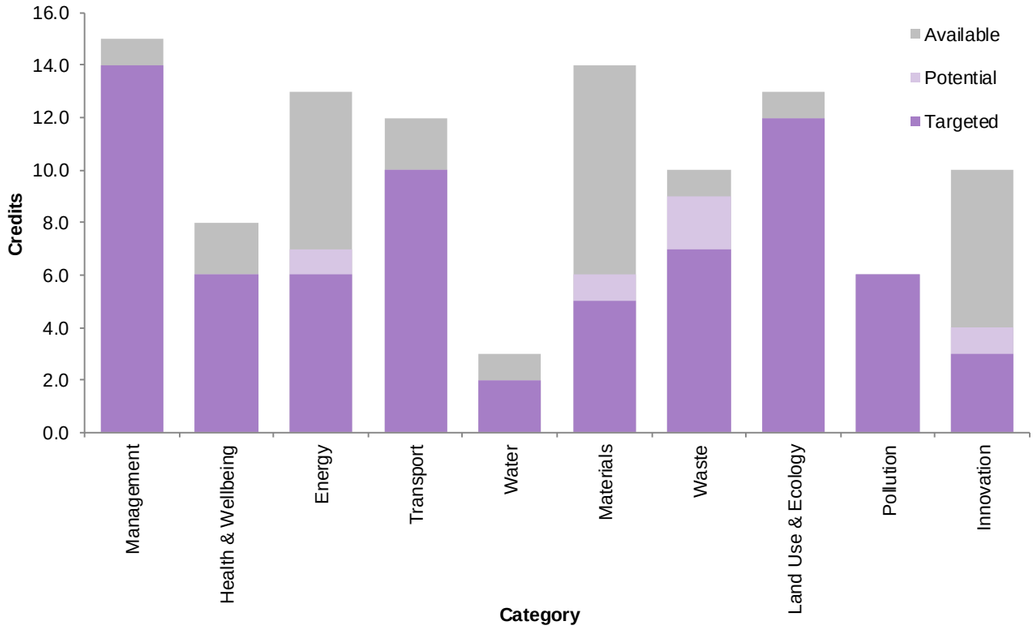


Figure 7: Performance summary and targeted credits.

Table 2: BREEAM 2014 credit summary for the 'shell only' assessment of retail areas.

Category	Issue	Credits		
		Available	Targeted	Potential
Management	Man 01: Project brief and design	4	4	-
	Man 02: Lifecycle cost and service life planning	4	3	-
	Man 03: Responsible construction practices (M_e), (M_o)	6	6 (+1)	-
	Man 04: Commissioning and handover (M_e), (M_o)	1	1	-
	Man 05: Aftercare (M_e), (M_o)	N/A	-	-
Health & Wellbeing	Hea 01: Visual comfort	4	2	-
	Hea 02: Indoor air quality	N/A	-	-
	Hea 04: Thermal comfort	N/A	-	-
	Hea 05: Acoustic performance	1	1	-
	Hea 06: Security	1	1	(+1)
	Hea 07 Safe and healthy surroundings	2	2	-
Energy	Ene 01: Reduction of energy use and carbon emissions (M_e) (M_o)	9	4	+1
	Ene 02: Energy monitoring (M) (M_e) (M_o)	N/A	-	-
	Ene 03: External lighting	1	1	-
	Ene 04: Low carbon design	3	1	-
	Ene 05: Energy efficient cold storage	N/A	-	-
	Ene 06: Energy efficient transportation systems	N/A	-	-
	Ene 07 Energy efficient laboratory systems	N/A	-	-
	Ene 08: Energy efficient equipment	N/A	-	-
Transport	Tra 01: Transport assessment and travel plan	2	2	-
	Tra 02: Sustainable transport measures	10	8	+2
Water	Wat 01: Water consumption (M) (M_e) (M_o)	5	-	-
	Wat 02: Water monitoring (M) (M_e) (M_o)	1	1	-
	Wat 03: Water leak detection	1	0	-
	Wat 04: Water efficient equipment	1	1	-
Materials	Mat 01: Environmental impacts from construction products - Building life cycle assessment (LCA)	7	0	-
	Mat 02: Environmental impacts from construction products - Environmental Product Declarations (EPD)	1	1	-
	Mat 03: Responsible sourcing of construction products (M) (M_e) (M_o)	4	2	+1
	Mat 05: Designing for durability and resilience	1	1	-
	Mat 06: Material efficiency	1	1	-
Waste	Wst 01: Construction waste management (M_o)	4	3	+1
	Wst 02: Use of recycled and sustainably sourced aggregates	1	1	-
	Wst 03: Operational waste (M_e), (M_o)	1	1	-
	Wst 04: Speculative finishes	N/A	-	-
	Wst 05: Adaptation to climate change	1	1	-
	Wst 06: Design for disassembly and adaptability	2	1	+1
Land Use and Ecology	LE 01: Site Selection	2	1	-
	LE 02: Identifying and understanding the risks and opportunities for the project	2	2 (+1)	-
	LE 03: Managing negative impacts on ecology	3	3	-
	LE 04: Change and enhancement of ecological value	4	4 (+1)	-
	LE 05: Long term ecology management and maintenance	2	2	-
Pollution	Pol 01: Impact of refrigerants	N/A	-	-
	Pol 02: Local air quality	N/A	-	-
	Pol 03: Flood and surface water management	5	5	-
	Pol 04: Reduction of night time light pollution	1	1	-
	Pol 05: Reduction of noise pollution	N/A	-	-
Innovation	Inn 01: Approved Innovation Credits	10	-	-
	Targeted weighted score rating:	74.2% 'Excellent'		
	Potential score rating	79.1% 'Excellent'		

6. Appendix 2: Policy Context

Current Policy Framework
The policies considered when preparing this strategy are contained in the London Plan (GLA, 2015) and the local planning policy of the London Borough of Richmond upon Thames (LBRuT).

The Proposed Development constitutes a 'major development' (>10 dwellings and/or >1,000m^2 of non-residential floor space) and is therefore subject to the policies of the GLA, contained within the London Plan.

6.1.1 National Policy

Approved Document Part L
Part L of the Building Regulations is the mechanism by which government is driving reductions in the regulated CO_2 emissions from new buildings.

Current Requirements: Part L 2013
Part L has five key criteria which must be satisfied as follows:

a. Criterion 1 - Achieving the Target Emission Rate (TER)
b. Criterion 2 - Limits on design flexibility
c. Criterion 3 - Limiting the effects of solar gains in summer
d. Criterion 4 - Building performance consistent with the Building Emission Rate (BER)
e. Criterion 5 - Provision for energy efficient operation of the building

Criterion one requires that the building as designed is not predicted to generate CO_2 emissions in excess of that set by the Target Emission Rate (TER) calculated in accordance with the approved Standard Assessment Procedure (SAP) 2012. Part L (2013) requires the following reductions:

a. A 6% aggregate reduction in CO_2 emissions beyond the requirements of Part L 2010 for dwellings; and
b. A 9% aggregate reduction in CO_2 emissions beyond the requirements of Part L 2010 for non-domestic buildings.

Criterion two places upper limits on the efficiency of controlled fittings and services for example, an upper limit to an external wall U-value of 0.35W/m^2.K (non-domestic buildings).

A Fabric Energy Efficiency Standard (FEES) has been introduced for new buildings although no definitive targets have been set in this regard. Part L 2013 requires the following Fabric Energy Efficiency performance targets to be met:

– Target Fabric Energy Efficiency (TFEE). The TFEE is calculated for the building, based upon an elemental recipe of efficiency parameters, applied to the geometry of the building in question. This would generate a notional value which would then be relaxed by 15% to generate the TFEE

Criterion three requires that zones in non-residential buildings are not subject to excessive solar gains. This is demonstrated using the Simplified Building Energy Model (SBEM) or Dynamic Simulation Method (DSM) for non-residential buildings.

6.1.2 London Policy

London Plan - 'Minor Alterations to the London Plan' (MALP)
Final versions of the 'Minor Alterations to the London Plan (MALPs) were published and adopted in March 2016 and are current for any Stage 1 submissions to the GLA. The MALPs address parking and housing standards.

Recent alterations also include amendments to the 'Housing Supplementary Planning Guidance' (SPG) and 'Energy Planning' guidance, clarifying the CO_2 emissions reduction targets that currently apply and the changes that will be introduced from 1st October 2016 which are summarised in the table below.

Table 11.1: Uplift in CO_2 emissions targets

Use Type	CO_2 Reduction Target (beyond Part L 2013)	
	2013 – 2016	2016 – 2019 (1st October 2016)
Residential Buildings	35%	'Zero Carbon'
Non-Domestic Buildings	35%	35%

The target reduction in CO_2 emissions for 'Residential Buildings' was historically 35% until 1st October 2016, at which point it was uplifted to 'Zero Carbon' for Stage 1 applications. In this context, this is assumed to be a 100% reduction in regulated CO_2 emissions. The policy requires that at least 35% should be achieved on site, with the remainder achieved by a combination of off-site measures and a cash in lieu payment (currently set at £1,800 per tonne of CO_2 of remaining emissions to achieve a total reduction of 100%).

The target reduction in CO_2 emissions for 'Non Domestic Buildings' remains at 35% and will not be uplifted in the near future, despite the consultation document indicating that this would be set at 50%. The GLA comment that the 35% target will provide a smooth trajectory towards the upcoming requirement for 'Nearly Zero Energy Buildings' by 2020. It should be noted that the UK Government has yet to ratify the EU requirement for 'Nearly Zero Energy Buildings' and this may not occur in light of the UK vote to leave the EU.

The 'Energy Planning' guidance document (March 2016) also includes an update to the guidance on compliance with overheating policy that design teams should be aware of when undertaking risk analysis and thermal comfort modelling.

It is the GLA's expectation that dynamic thermal modelling should be undertaken to determine overheating risk and demonstrate compliance with London Plan Policy 5.9. This should be in addition to the Building Regulations 'Criterion 3' assessment of heat gains in summer months.

The GLA has set out that dynamic modelling should be carried out in accordance with the guidance and data sets in CIBSE TM49 'Design Summer Years' for London (2014) using the three design weather years as follows:

– 1976: a year with a prolonged period of sustained warmth.
– 1989: a moderately warm summer (current design year for London).
– 2003: a year with a very intense single warm spell.

For developments in high density urban areas (e.g. Canary Wharf) and the 'Central Activity Zone' the 'London Weather Centre' data set should be used. In lower density urban and suburban areas the 'London Heathrow' dataset should be used. These data sets have been adjusted to account for future climate effects.

The modelling should also consider the additional guidance contained in CIBSE TM52 'The Limits of Thermal Comfort: Avoiding Overheating in European Buildings'.

London Plan Policy
Development within Richmond are subject to the policy requirements of the London Plan 2016. The following policies of the London Plan (2016) have informed this strategy.

Policy 5.2: Minimising CO_2 Emissions
As of October 1st 2016, Policy 5.2 requires new-build domestic homes to be 'zero carbon' (equivalent to reducing regulated CO_2 emissions by 100%). Non-domestic development are to reduce CO_2 emissions by 35% beyond the Building Regulations Part L (2013) Target Emission Rate (TER). A minimum of a 35% reduction of CO_2 emissions is expected to apply for planning for domestic developments, with the remainder provided through a carbon offset payment to the relevant borough.

Policy 5.6: Decentralised Energy in Development Proposals
Policy 5.6 requires development proposals to evaluate the feasibility of Combined Heat & Power (CHP) systems and where a new CHP system is appropriate, examine opportunities to extend the system beyond the Site boundary. Developments should select energy systems on the following hierarchy:

c. Connection to existing heating or cooling networks
d. Site wide CHP network
e. Communal heating and cooling

Where future network opportunities are identified, proposals should be designed to connect to these networks.

Policy 5.7: Renewable Energy
Policy 5.7 requires that developments should provide a reduction in expected CO_2 emissions through the use of on-site renewable energy generation, where feasible.

Policy 5.9: Overheating and Cooling
Policy 5.9 requires that development proposals reduce potential overheating & reliance on air conditioning systems, demonstrated in consideration of the following cooling hierarchy:

a. Minimisation of internal heat generation through efficient design
b. Reduction of external heat gains through consideration of orientation, shading, albedo, fenestration, insulation, and green roofs & walls
c. Management of internal heat gains through exposed thermal mass
d. Passive ventilation
e. Mechanical ventilation
f. Active cooling

Development proposals should demonstrate how the design, materials, construction and operation of the development would minimise overheating and also meet its cooling needs.

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

1. Store rainwater for later use
2. Use infiltration techniques, such as porous surfaces in non-clay areas
3. Attenuate rainwater in ponds or open water features for gradual release
4. Attenuate rainwater by storing in tanks or sealed water features for gradual release
5. Discharge rainwater direct to a watercourse
6. Discharge rainwater to a surface water sewer/drain
7. Discharge rainwater to the combined sewer.

Drainage should be designed and implemented in ways that deliver other policy objectives of this Plan, including water use efficiency and quality, biodiversity, amenity and recreation.

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

a. Incorporating water saving measures and equipment
b. Designing residential development so that mains water consumption would meet a target of 105 litres or less per head per day

Policy 7.1: Lifetime Neighbourhoods
Development should be designed so that the layout, tenure and mix of uses interface with surrounding land and improve people's access to social and community infrastructure (including green spaces), the Blue Ribbon Network, local shops, employment and training opportunities, commercial services and public transport.

Development should enable people to live healthy, active lives; should maximize the opportunity for community diversity, inclusion and cohesion; and should contribute to people's sense of place, safety and security. Places of work and leisure, streets, neighbourhoods, parks and open spaces should be designed to meet the needs of the community at all stages of people's lives, and should meet the principles of lifetime neighbourhoods.

The design of new buildings and the spaces they create should help reinforce or enhance the character, legibility, permeability, and accessibility of the neighbourhood.

Policy 7.2: An Inclusive Environment
Design and access statements submitted with development proposals should explain how, following engagement with relevant user groups, the principles of inclusive design, including the specific needs of older and disabled people, have been integrated into the Proposed Development, whether relevant best practice standards such as British Standard BS 8300:2009 + A1:2010 have been complied with, and how inclusion will be maintained and managed.

Policy 7.3: Designing Out Crime
Development should reduce the opportunities for criminal behaviour and contribute to a sense of security without being overbearing or intimidating. In particular:

a. Routes and spaces should be legible and well maintained, providing for convenient movement without compromising security
b. There should be a clear indication of whether a space is private, semi-public or public, with natural surveillance of publicly accessible spaces from buildings at their lower floors
c. Design should encourage a level of human activity that is appropriate to the location, incorporating a mix of uses where appropriate, to maximize activity throughout the day and night, creating a reduced risk of crime and a sense of safety at all times
d. Places should be designed to promote an appropriate sense of ownership over communal spaces
e. Places, buildings and structures should incorporate appropriately designed security features
f. Schemes should be designed to minimise on-going management and future maintenance costs of the particular safety and security measures proposed

The above measures should be incorporated at the design stage to ensure that overall design quality is not compromised.

Draft London Plan
The draft London Plan 2018 is currently undergoing Examination in Public, whilst draft policies will have some weight in the determination fo planning applications, they will only have full weight once the Plan is formally adopted.

Policy GG2 Making the Best Use of Land
- Creating high density development in order to "make the best use of land", whilst protecting London's open spaces.
- Promote urban greening.
- Encourage development that can encourage sustainable transport connections.

Policy GG3 Creating a healthy city
- Improve overall health and reduce health inequality.
- Promote a more active and healthy lifestyle, encouraging healthy choice (empowering healthy choice).
- Healthy streets approach, prioritise health in planning.
- Consider health and wellbeing on communities in planning applications - both health and health inequality (use Health Impact Assessments)
- Include access to green spaces and provision of green infrastructure.
- Ensure high quality, well insulated ventilated to avoid issues associated with damp, heat and cold.
- Create healthy food environments. Restrict unhealthy options.

Policy GG5 Growing a Good Economy
- Promote strength and potential of the wider city region
- Encourage diversified economy, with the benefits being shared more equitably across London.
- Plan for sufficient employment and industrial space in the right locations - supporting development/regeneration.
- Provide high quality housing and infrastructure to support growth
- Continue to provide innovation. Be an incubator and centre for learning
- Develop/enhance future transport network.

Policy GG6 Increasing Efficiency and resilience
- Improve energy efficiency, movement toward low carbon, circular economy. Target of zero carbon city by 2050.
- Buildings/infrastructure resilient against a changing climate, efficient use of water, reduction of impact from natural hazards such as flooding and heatwaves
- Avoid contribution to the heat island effect.
- Safe and secure environments, resilient against impacts such as fire/terrorism etc.
- Stakeholder contributions taken from all relevant public, private, community sectors.

Policy D1 London's form and characteristics
- Developments should optimise density and connectivity, be inclusive and use street spaces that have well defined public and private realm, provide outlook, privacy and amenity, be safe and secure, provide spaces for social interaction, play relaxation and physical activity.
- Provide and facilitate active travel with convenient and inclusive pedestrian and cycling routes.
- Mitigate or prevent the impacts of noise and poor air quality.
- Development design should respond to local context by delivering developments of appropriate scale, appearance and shape that responds successfully to the character of the local area.
- Be of high quality architecture that includes flexibility and appropriate building lifespan, delivering attractive robust materials that will mature well.
- Respect/enhance the heritage assets
- Maximise opportunities for urban greening to create attractive resilient places that effectively manage surface water.
- Achieve comfortable indoor and outdoor environments.

Policy D2 Delivering good design
- Boroughs should determine Development Plans and Strategies that include a wide range of physical and socio economic factors.
- Development should inform the type and scale of development projects taking account of:
  - Design analysis and visualisation
  - Design quality and development certainty
  - Design scrutiny
  - Managing design quality

Policy D3 Inclusive design
Deliver an inclusive environment and meet the needs of all Londoners: Proposals to be accessible and inclusive to allow development that can be entered and used safely (and with dignity by all), are convenient and welcoming with no disabling barriers. That can provide independent access without undue effort separation or special treatment including safe and dignified emergency evacuation to all users.

Policy D7 Public realm
- Development plans should ensure they are of good design, including being safe attractive spaces, landscaping, planting etc. The spaces should maximise the contributions public realm can make to active travel, discouraging travel by car and excessive on street parking, traffic noise etc.
- Public realm should develop sense of place and enhance relationships between the realm and its surrounding buildings.
- Incorporate Green Infrastructure to support rainwater/surface water management, exposure to air pollution, urban heat island and nature corridors
- Create spaces that are attractive and encouraging for community events.

Policy D8 Tall buildings
Tall building locations should be considered as part of development plans, identifying where tall buildings would be appropriate and their potential heights. Visual, Functional and Environmental Impact should be fully considered and include Wind, daylight, sunlight penetration and temperature conditions. The buildings must not compromise comfort or enjoyment of open spaces including around the building, air movement around the building and the building itself should not reduce the quality of surrounding spaces in terms of noise and air pollution.

Cumulative impacts from consented buildings should be fully included.

Policy D12 Agent of Change

Particularly in reference to the noise environment, the Agent of Change aims to encourage mitigation of existing impacts through the design of the proposed development (particularly in the case of residential development).

Policy D13 Noise
- Reduce manage and mitigate noise levels. The policy aims to encourage the use of the Agent of Change principle to ensure measures do not unduly impact on existing noise levels. Where levels unduly impact on the development, mitigation of the existing noise levels is considered.
- Noise levels of the development itself are limited. Quiet areas and spaces of Tranquillity are protected, and if possible improved and enhanced. Separation of new noise sensitive development from major noise sources, through the use of distance, screening or internal layout in preference to using sound insulation is encouraged. If standards are not achieved, acoustic design principles and insulation are then encouraged.

Policy D1 London's form and characteristics
- Developments should optimise density and connectivity, be inclusive and use street spaces that have well defined public and private realm, provide outlook, privacy and amenity, be safe and secure, provide spaces for social interaction, play relaxation and physical activity.
- Provide and facilitate active travel with convenient and inclusive pedestrian and cycling routes.
- Mitigate or prevent the impacts of noise and poor air quality.
- Development design should respond to local context by delivering developments of appropriate scale, appearance and shape that responds successfully to the character of the local area.
- Be of high quality architecture that includes flexibility and appropriate building lifespan, delivering attractive robust materials that will mature well.
- Respect/enhance the heritage assets
- Maximise opportunities for urban greening to create attractive resilient places that effectively manage surface water.
- Achieve comfortable indoor and outdoor environments.

Policy E1 Offices
- New office developments of varying sizes in new, refurbished and mixed use development types to be supported. This should be based on the anticipated demand for office floorspace to 2041 (100% increase by 2041).
- Spatial development areas should be supported by development works for offices.

Policy G1 Green infrastructure
Green network of infrastructure to be protected and managed as integrated features across the city. Boroughs to prepare green infrastructure strategies that integrate open space provision, biodiversity, flood management, health and wellbeing and sports and recreation.

Policy G5 Urban greening
Major development should contribute to greening as a fundamental part of the design. Boroughs to develop urban greening factor to identify appropriate level for new development proposals.

Policy G6 Biodiversity and access to nature
- Site of importance should be fully protected, including identifying all relevant areas within the proximity of any development proposals. Any locations or linkages that may be impacted upon by development proposals should be assessed and mitigated.
- Proposals should seek to create or enhance habitats of relevance in an urban context.
- Where harm is identified to be unavoidable, a hierarchy approach should be taken to limit the proposed damage as much as possible.

Policy G7 Trees and woodlands
- Trees should be protected wherever possible with new trees provided wherever possible to increase the urban forest proportion.
- Boroughs to identify locations for strategic tree planting.

Policy SI2 Minimising Greenhouse Gas Emissions
A. Major development should be net zero-carbon. This means reducing carbon dioxide emissions from construction and operation, and minimising both annual and peak energy demand in accordance with the following energy hierarchy:

1. Be lean: use less energy and manage demand during construction and operation.
2. Be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly. Development in Heat Network Priority Areas should follow the heating hierarchy in Policy SI3 Energy infrastructure.
3. Be green: generate, store and use renewable energy on-site.

As a minimum, energy strategies should contain the following information:

a. A calculation of the energy demand and carbon dioxide emissions covered by Building Regulations and, separately, the energy demand and carbon dioxide emissions from any other part of the development, including plant or equipment, that are not covered by the Building Regulations (i.e. the unregulated emissions), at each stage of the energy hierarchy.

b. Proposals to reduce carbon dioxide emissions beyond Building Regulations through the energy efficient design of the site, buildings and services, whether it is categorised as a new build, a major refurbishment or a consequential improvement.

c. Proposals to further reduce carbon dioxide emissions through the use of zero or low-emission decentralised energy where feasible, prioritising connection to district heating and cooling networks and utilising local secondary heat sources. (Development in Heat Network Priority Areas should follow the heating hierarchy in Policy SI3 Energy infrastructure).

d. Proposals to further reduce carbon dioxide emissions through the generation and use of on-site renewable energy, utilising storage technologies where appropriate.

e. Proposals to address air quality risks (see Policy SI1 Improving air quality). Where an air quality assessment has been undertaken, this could be referenced instead.

f. The results of dynamic overheating modelling which should be undertaken in line with relevant Chartered Institution of Building Services Engineers (CIBSE) guidance, along with any mitigating actions (see Policy SI4 Managing heat risk).

g. Proposals for demand-side response, specifically through installation of smart meters, minimising peak energy demand and promoting short-term energy storage, as well as consideration of smart grids and local micro grids where feasible.

h. Proposals for how energy demand and carbon dioxide emissions post-construction will be monitored annually (for at least five years).

i. Proposals explaining how the site has been future-proofed to achieve zero-carbon on-site emissions by 2050.

j. Confirmation of offsetting arrangements, if required.

k. Proposals to minimise the embodied carbon in construction.

l. Analysis of the expected cost to occupants associated with the proposed energy strategy.

B. Major development should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy and will be expected to monitor and report on energy performance.

C. In meeting the zero-carbon target a minimum on-site reduction of at least 35 per cent beyond Building Regulations is expected. Residential development should aim to achieve 10 per cent, and non-residential development should aim to achieve 15 per cent through energy efficiency measures. Where it is clearly demonstrated that the zero-carbon target cannot be fully achieved on-site, any shortfall should be provided:

1. Through a cash in lieu contribution to the relevant borough's carbon offset fund, and/or
2. Off-site provided that an alternative proposal is identified and delivery is certain.

D. Boroughs must establish and administer a carbon offset fund. Offset fund payments must be ring-fenced to implement projects that deliver greenhouse gas reductions. The operation of offset funds should be monitored and reported on annually.

Policy SI3 Energy Infrastructure

A. Boroughs and developers should engage at an early stage with relevant energy companies and bodies to establish the future energy requirements and infrastructure arising from large-scale development proposals such as Opportunity Areas, Town Centres, other growth areas or clusters of significant new development.

B. Energy masterplans should be developed for large-scale development locations which establish the most effective energy supply options. Energy masterplans should identify:

1. major heat loads (including anchor heat loads, with particular reference to sites such as universities, hospitals and social housing)
2. heat loads from existing buildings that can be connected to future phases of a heat network
3. major heat supply plant
4. possible opportunities to utilise energy from waste
5. secondary heat sources
6. opportunities for low temperature heat networks
7. possible land for energy centres and/or energy storage
8. possible heating and cooling network routes
9. opportunities for futureproofing utility infrastructure networks to minimise the impact from road works
10. Infrastructure and land requirements for electricity and gas supplies
11. Implementation options for delivering feasible projects, considering issues of procurement, funding and risk, and the role of the public sector.

C. Development Plans should:

1. Identify the need for, and suitable sites for, any necessary energy infrastructure requirements including upgrades to existing infrastructure
2. Identify existing heating and cooling networks and opportunities for expanding existing networks and establishing new networks.

D. Major development proposals within Heat Network Priority Areas should have a communal heating system

1. The heat source for the communal heating system should be selected in accordance with the following heating hierarchy:
   a. connect to local existing or planned heat networks
   b. use available local secondary heat sources (in conjunction with heat pump, if required, and a lower temperature heating system)
   c. generate clean heat and/or power from zero-emission sources
   d. use fuel cells (if using natural gas in areas where legal air quality limits are exceeded all development proposals must provide evidence to show that any emissions related to energy generation will be equivalent or lower than those of an ultra-low NOx gas boiler)
   e. use low emission combined heat and power (CHP) (in areas where legal air quality limits are exceeded all development proposals must provide evidence to show that any emissions related to energy generation will be equivalent or lower than those of an ultra-low NOx gas boiler)
   f. use ultra-low NOx gas boilers.
2. CHP and ultra-low NOx gas boiler communal or district heating systems should be designed to ensure that there is no significant impact on local air quality.
3. Where a heat network is planned but not yet in existence the development should be designed for connection at a later date.

Policy SI4 Managing heat risk

A. Development proposals should minimise internal heat gain and the impacts of the urban heat island through design, layout, orientation and materials.

B. Major development proposals should demonstrate through an energy strategy how they will reduce the potential for overheating and reliance on air conditioning systems 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 through orientation, shading, albedo, fenestration, insulation and the provision of green roofs and walls
3. manage the heat within the building through exposed internal thermal mass and high ceilings
4. provide passive ventilation
5. provide mechanical ventilation
6. provide active cooling systems.

Policy SI5 Water infrastructure

- Development plans to be produced to identify areas of specific water stress. Development proposals should minimise the use of water in residential developments in line with Building Regulations. Commercial developments should achieve at least the BREEAM Excellent standard.
- Smart metering encouraged including in retrofit situations.
- Development proposals to take account of local wastewater infrastructure, reduce instanced of shared sewerage connections.

Policy SI6 Digital connectivity infrastructure

Provide sufficient digital infrastructure to allow for current and future connections of digital infrastructure. Use public realm features, such as street furniture to camouflage mobile digital infrastructure

Policy SI7 Reducing waste and supporting the circular economy

Waste reduction, improved recycling rates and improved reuse rates are targeted by:

- Promotion of a circular economy, improving resource efficiency and innovation, encourages waste minimisation waste avoidance through reuse of materials and through using fewer resources in the production and distribution of products.
- Target of zero biodegradable or recyclable waste to landfill by 2026.
- Recycling targets for London in line with the below:
  - Municipal waste: 65% by 2030.
  - Construction, demolition and excavation waste: 95% by 2020
- Applications where relevant to include a circular economy statement identifying how above aims will be achieved.

6.1.3 Local Planning Policy

The policies of the London Borough of Richmond upon Thames (LBRuT) applicable to the Proposed Development are contained in the development plan. The following documents have been reviewed:

- London Borough of Richmond upon Thames (LBRuT) Local Plan (2018)

Policy LP10: Local Environmental Impacts, Pollution and Land Contamination

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

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

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

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

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

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

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 LP 12: Green Infrastructure

Green infrastructure is a network of multi-functional green spaces and green features, which provides multiple benefits for people, nature and the economy.

To ensure all development proposals protect, and where opportunities arise enhance, green infrastructure, the following will be taken into account when assessing development proposals:

1. the need to protect the integrity of the green spaces and features that are part of the wider green infrastructure network; improvements and enhancements to the green infrastructure network are supported;

2. its contribution to the wider green infrastructure network by delivering landscape enhancement, restoration or re-creation;
3. incorporating green infrastructure features, which make a positive contribution to the wider green infrastructure network.

The hierarchy of open spaces, as set out in the table within the local plan, will be protected and used in accordance with the functions shown.

Policy LP 15: Biodiversity

The Council will protect and enhance the borough's biodiversity, in particular, but not exclusively, the sites designated for their biodiversity and nature conservation value, including the connectivity between habitats. Weighted priority in terms of their importance will be afforded to protected species and priority species and habitats including National Nature Reserves, Sites of Special Scientific Interest (SSSI) and Other Sites of Nature Importance as set out in the Biodiversity Strategy for England, and the London and Richmond upon Thames Biodiversity Action Plans. This will be achieved by:

1. protecting biodiversity in, and adjacent to, the borough's designated sites for biodiversity and nature conservation importance (including buffer zones), as well as other existing habitats and features of biodiversity value;
2. supporting enhancements to biodiversity;
3. incorporating and creating new habitats or biodiversity features, including trees, into development sites and into the design of buildings themselves where appropriate; major developments are required to deliver net gain for biodiversity, through incorporation of ecological enhancements, wherever possible;
4. ensuring new biodiversity features or habitats connect to the wider ecological and green infrastructure networks and complement surrounding habitats;
5. enhancing wildlife corridors for the movement of species, including river corridors, where opportunities arise; and
6. maximising the provision of soft landscaping, including trees, shrubs and other vegetation that support the borough-wide Biodiversity Action Plan.

Where development would impact on species or a habitat, especially where identified in the relevant Biodiversity Action Plan at London or local level, or the Biodiversity Strategy for England, the potential harm should:

1. firstly be avoided (the applicant has to demonstrate that there is no alternative site with less harmful impacts),
2. secondly be adequately mitigated; or
3. as a last resort, appropriately compensated for.

Policy LP 16: Trees, Woodlands and Landscape

The Council will require the protection of existing trees and the provision of new trees, shrubs and other vegetation of landscape significance that complement existing, or create new, high quality green areas, which deliver amenity and biodiversity benefits.

To ensure development protects, respects, contributes to and enhances trees and landscapes, the Council, when assessing development proposals, will:

Trees and Woodlands

1. 1. resist the loss of trees, including aged or veteran trees, unless the tree is dead, dying or dangerous; or the tree is causing significant damage to adjacent structures; or the tree has little or no amenity value; or felling is for reasons of good arboricultural practice; resist development that would result in the loss or deterioration of irreplaceable habitat such as ancient woodland;
2. resist development which results in the damage or loss of trees that are considered to be of townscape or amenity value; the Council will require that site design or layout ensures a harmonious relationship between trees and their surroundings and will resist development which will be likely to result in pressure to significantly prune or remove trees;
3. require, where practicable, an appropriate replacement for any tree that is felled; a financial contribution to the provision for an off-site tree in line with the monetary value of the existing tree to be felled will be required in line with the 'Capital Asset Value for Amenity Trees' (CAVAT);
4. require new trees to be of a suitable species for the location in terms of height and root spread, taking account of space required for trees to mature; the use of native species is encouraged where appropriate;
5. require that trees are adequately protected throughout the course of development, in accordance with British Standard 5837 (Trees in relation to design, demolition and construction – Recommendations).

The Council may serve Tree Preservation Orders or attach planning conditions to protect trees considered to be of value to the townscape and amenity and which are threatened by development.

Landscape

1. require the retention of important existing landscape features where practicable;
2. require landscape design and materials to be of high quality and compatible with the surrounding landscape and character; and
3. encourage planting, including new trees, shrubs and other significant vegetation where appropriate.

Policy LP 17: 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 LP 20: Climate Change Adaption

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.

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).

Opportunities to adapt existing buildings, places and spaces to the likely effects of climate change should be maximised and will be supported.

Policy LP 21: Flood Risk and Sustainable Drainage

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 within the policy.

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.

Where a Flood Risk Assessment is required, on-site attenuation to alleviate fluvial and/or surface water flooding over and above the Environment Agency's floodplain compensation is required where feasible.

Policy LP 22: Sustainable Design and Construction

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

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.

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

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 LP 23: Water Resources and Infrastructure

The borough’s water resources and supplies will be protected by resisting development proposals that would pose an unacceptable threat to the borough's rivers, surface water and groundwater quantity and quality. This includes pollution caused by water run-off from developments into nearby waterways.

Water Quality

The Council encourages proposals that seek to increase water availability or protect and improve the quality of rivers or groundwater.

The development or expansion of water supply or waste water facilities will normally be permitted, either where needed to serve existing or proposed new development, or in the interests of long term water supply and waste water management, provided that the need for such facilities outweighs any adverse land use or environmental impact.

Where rivers have been classified by the Environment Agency as having ‘poor’ status, any development affecting such rivers is encouraged to improve the water quality in these areas.

Water and sewerage provision

New major residential or major non-residential development will need to ensure that there is adequate water supply, surface water, foul drainage and sewerage treatment capacity to serve the development. Planning permission will only be granted for developments which increase the demand for off-site service infrastructure where:

1. sufficient capacity already exists, or
2. extra capacity can be provided in time to serve the development, which will ensure that the environment and the amenities of local residents are not adversely affected.

Applicants for major developments will be required to provide evidence in the form of written confirmation as part of the planning application that capacity exists in the public sewerage and water supply network to serve their development.

Any new water supply, sewerage or waste water treatment infrastructure must be in place prior to occupation of the development. Financial contributions may be required for new developments towards the provision of, or improvements to, such infrastructure.

Policy LP 24: Waste Management

The Council will ensure that waste is managed in accordance with the waste hierarchy, which is to reduce, reuse or recycle waste as close as possible to where it is produced. The Council will require the following:

1. All developments, including conversions and changes of use are required to provide adequate refuse and recycling storage space and facilities, which allows for ease of collection and which residents and occupiers can easily access, in line with the guidance and advice set out in the Council's SPD on Refuse and Recycling Storage Requirements.
2. All developments need to ensure that the management of waste, including the location and design of refuse and recycling facilities, is sensitively integrated within the overall design of the scheme, in accordance with policies on Local Character and Design.
3. Development proposals, where appropriate, should make use of the rail and the waterway network for the transportation of construction, demolition and other waste. Development proposals in close proximity to the river should utilise the river for the transport of construction materials and waste where practicable.
4. All major developments, and where appropriate developments that are likely to generate large amounts of waste, are required to produce site waste management plans to arrange for the efficient handling of construction, excavation and demolition waste and materials.

Proposals affecting existing waste management sites, as well as proposals for new or additional waste management facilities, will be assessed against the policies of the West London Waste Plan (2015).

Policy LP 28: Social and Community Infrastructure

The Council will work with service providers and developers to ensure the adequate provision of community services and facilities, especially in areas where there is an identified need or shortage.

New social and community infrastructure

Proposals for new or extensions to existing social and community infrastructure will be supported where:

1. it provides for an identified need;
2. is of a high quality and inclusive design providing access for all; and
3. where practicable is provided in multi-use, flexible and adaptable buildings or co-located with other social infrastructure uses which increases public access.

Loss of social or community infrastructure

Loss of social or community infrastructure will be resisted. Proposals involving the loss of such infrastructure will need to demonstrate clearly:

1. that there is no longer an identified community need for the facilities or they no longer meet the needs of users and cannot be adapted; or
2. that the existing facilities are being adequately re-provided in a different way or elsewhere in a convenient alternative location accessible to the current community it supports, or that there are sufficient suitable alternative facilities in the locality; and
3. the potential of re-using or redeveloping the existing site for the same or an alternative social infrastructure use for which there is a local need has been fully assessed. This should include evidence of completion of a full and proper marketing exercise of the site for a period of at least two consecutive years in line with the requirements set out in Appendix 5.

Where the Council is satisfied that the above evidence has been provided and the change of use away from social and community infrastructure use has been justified, redevelopment for other employment generating uses or affordable housing should be considered.

Impacts on existing social infrastructure

Development proposals for 10 or more residential units should assess the potential impacts on existing social and community infrastructure in order to demonstrate to the Council that there is sufficient capacity within the existing infrastructure to accommodate the needs arising from the new development.

Policy LP 29: Education and Training

The Council will work with partners to encourage the provision of facilities and services for education and training of all age groups to help reduce inequalities and support the local economy, by the following means:

1. supporting the provision of facilities to meet the needs for primary and secondary school places as well as pre-school and other education and training facilities;
2. safeguarding land and buildings in educational use;
3. identifying new sites for educational uses as part of this Plan; the Council will work with landowners and developers to secure sites for pre-schools, primary and secondary schools as well as sixth forms to ensure sufficient spaces can be provided for children aged 2-18;
4. encouraging the potential to maximise existing educational sites through extensions, redevelopment or refurbishment to meet identified educational needs;
5. encouraging flexible and adaptable buildings, multi-use and co-location with other social infrastructure.

The Council will promote local employment opportunities and training programmes. Where the employment opportunities generated by construction as well as the end use of the development create more than 20 (Full Time Equivalent) jobs, a Local Employment Agreement, secured through a Section 106 agreement, will be required.

Policy LP 30: 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.

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.

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 LP 40: Employment and local economy

The Council will support a diverse and strong local economy in line with the following principles:

1. Land in employment use should be retained in employment use for business, industrial or storage purposes.
2. Major new employment development should be directed towards Richmond and Twickenham centres. Other employment floorspace of an appropriate scale may be located elsewhere.
3. The provision of small units, affordable units and flexible workspace such as co-working space is encouraged.
4. In exceptional circumstances, mixed use development proposals which come forward for specific employment sites should retain, and where possible enhance, the level of existing employment floorspace. The inclusion of residential use within mixed use schemes will not be appropriate where it would adversely impact on the continued operation of other established employment uses within that site or on neighbouring sites.

Policy LP 44: 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:

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.

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.

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.

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.

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.

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