

Elephant Park H1 Development

Sustainability Statement

May 2021

Prepared by HDR | Hurley Palmer Flatt



Application documents

Affordable Workspace Strategy

Application Form and Ownership Certificate

Arboricultural Method Statement

Archaeological Desk-Based Assessment

Basement Impact Assessment

CIL Additional Information Form

Construction Environmental Management Plan

Daylight and Sunlight Report

Development Consultation Charter Engagement Summary

Draft Delivery and Servicing Management Plan

Design and Access Statement

Detailed Circular Economy Statement

Drainage Strategy

Energy Statement

Environmental Statement

Existing and Proposed Drawings

Fire Statement

Flood Risk Assessment

Health Impact Assessment

Marketing Strategy

Phase 1 Geo-Environmental Assessment

Planning Statement

Reconciliation and Comparison Statement

Statement of Community Involvement

 **Sustainability Statement**

Transport Assessment (inc. Travel Plan)

Television and Radio Reception Impact Assessment

Utilities and Infrastructure Statement

Whole Life-Cycle Carbon Assessment

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1. INTRODUCTION

1.1. Introduction to Planning Application

- 1.1.1. This Sustainability Statement has been prepared by HDR | Hurley Palmer Flatt on behalf of Lendlease (Elephant & Castle) Limited (“Lendlease”) to support an application for full planning permission (“the Application”) for the redevelopment of Plot H1 (“the Site”) within the Elephant Park Masterplan, Elephant and Castle, London, SE1 (“the Elephant Park Masterplan”). This standalone development proposal is referred to as “the H1 Development”.
- 1.1.2. Plot H1 currently forms Phase MP5b within the Outline Planning Permission (“OPP”) granted on 23 March 2013 for the Elephant Park Masterplan (LBS Ref: 12/AP/1092). Outline planning permission was granted under the OPP for development of Plot H1 for a mix of land uses, with matters of scale, appearance and landscaping reserved. The approved development on Plot H1 under the OPP is referred to as “the OPP Plot H1 Parameters”.
- 1.1.3. The Application for Plot H1 seeks full planning permission to develop an office-led building (Class E) on the Site. It is being sought through a standalone planning application because it takes a form which is not capable of being approved in detail through the submission of reserved matters pursuant to the OPP. However, the H1 Development has been designed with the intention that it is to be delivered alongside the adjacent plots that have been and are being delivered under the OPP and will complete the Elephant Park Masterplan. In addition to the Application for the H1 Development, a non-material amendment application will be submitted in parallel to amend the Reserved Matters Application (RMA) approval for Plot H2, alongside a revised RMA for the Park, in order to align the public realm proposals hereby submitted with those approved on the neighbouring plots. This is explained further in Section 3.
- 1.1.4. The Elephant and Castle Town Centre has evolved significantly over the past decade and the Application for Plot H1 has been prepared to respond to the emerging context. Additionally, the New Southwark Plan and London Plan set ambitious targets for increasing employment space in the Borough within the Elephant and Castle Opportunity Area. The establishment of a new landmark commercial building in this location will provide new employment and business opportunities for local people and add to the vibrant mix of land uses at Elephant Park and the new Town Centre.

1.2. Introduction to the Sustainability Statement

- 1.2.1. This document has been produced to identify how the design and construction of the proposed H1 Development will meet relevant energy and sustainability requirements. The document herein is structured following the objectives set out in the London Plan.
- 1.2.2. The proposal has been developed with sustainable design principles at its core. An integrated and holistic design approach has been adopted, and this document aims to contextualise the ways in which opportunities to enhance the sustainability of the scheme have been addressed.
- 1.2.3. In addition to considering London Borough of Southwark’s declaration of a Climate Emergency (please refer to section 4.13), the Sustainability Strategy aims to:
 - Match or exceed today’s requirements;
 - Anticipate tomorrow’s needs; and
 - Adapt and remain relevant into the future.

2. SITE AND SURROUNDINGS

This section provides details of the Elephant Park planning permissions and the Site in its existing context.

2.1. Elephant Park

2.1.1. Elephant Park is located in Elephant and Castle, within the administrative boundary of Southwark Council (“the Council”). The Masterplan occupies an area of 9.71 hectares, and is bounded by:

New Kent Road (A201) to the north,
Rodney Place and Rodney Road to the east,
Wansey Street to the south; and
Walworth Road (A215) and Elephant Road to the west.

2.1.2. Heygate Street bisects Elephant Park with junctions to Walworth Road to the west and Rodney Place and Rodney Road to the east.

2.2. The Outline Planning Permission

2.2.1. The Council granted two planning permissions for Elephant Park on 27 March 2013: the OPP and the Demolition Planning Permission (ref: 12/AP/3203).

2.2.2. In summary, the OPP granted consent for up to 254,400 sqm of residential floorspace, up to 16,750 sqm of retail floorspace, up to 5,000 sqm of business floorspace and up to 10,000 sqm of community, culture and leisure floorspace, alongside a new energy centre, a new park (“The Park”), and public realm.

2.2.3. The OPP reserved the detailed design elements of Elephant Park for future approval at the Reserved Matters stage but did establish a series of approved parameters and principles for the Development within three approved application documents: the Parameter Plans, the Development Specification and the Design Strategy Document (“DSD”), as well as being accompanied by a section 106 agreement that was entered into on the same date that the OPP was granted.

2.2.4. The OPP introduced five specific character areas within Elephant Park which were established to create a variety of experience and richness to the development: 1 - The Park; 2 - Walworth Road; 3- New Kent Road; 4- Walworth Local and 5- Rodney Neighbourhood. These are shown on Figure 1 below.



Figure 1 - Extract of character areas from the consolidated Design Strategy Document (Feb 2013)

2.2.5. Elephant Park was further sub-divided into 12 individual development plots (H1 to H7, H10, H11a, H11b, H12, and H13) plus a Pavilion to be located in the new park at the centre of the scheme (known as plot 'PAV1'), refer to Figure 2 below. The individual development plots comprise a mix of residential and/or other land uses and included varying heights and massing to fit into the specific character areas in which they are located and the surrounding urban context. In particular, the height and massing of all tall buildings within Elephant Park was informed by a townscape assessment that takes into account both local and strategic London views. The plots are delivered within five phases, which are defined on the Phasing Plan (the most recent version of which is provided in Figure 2 below).

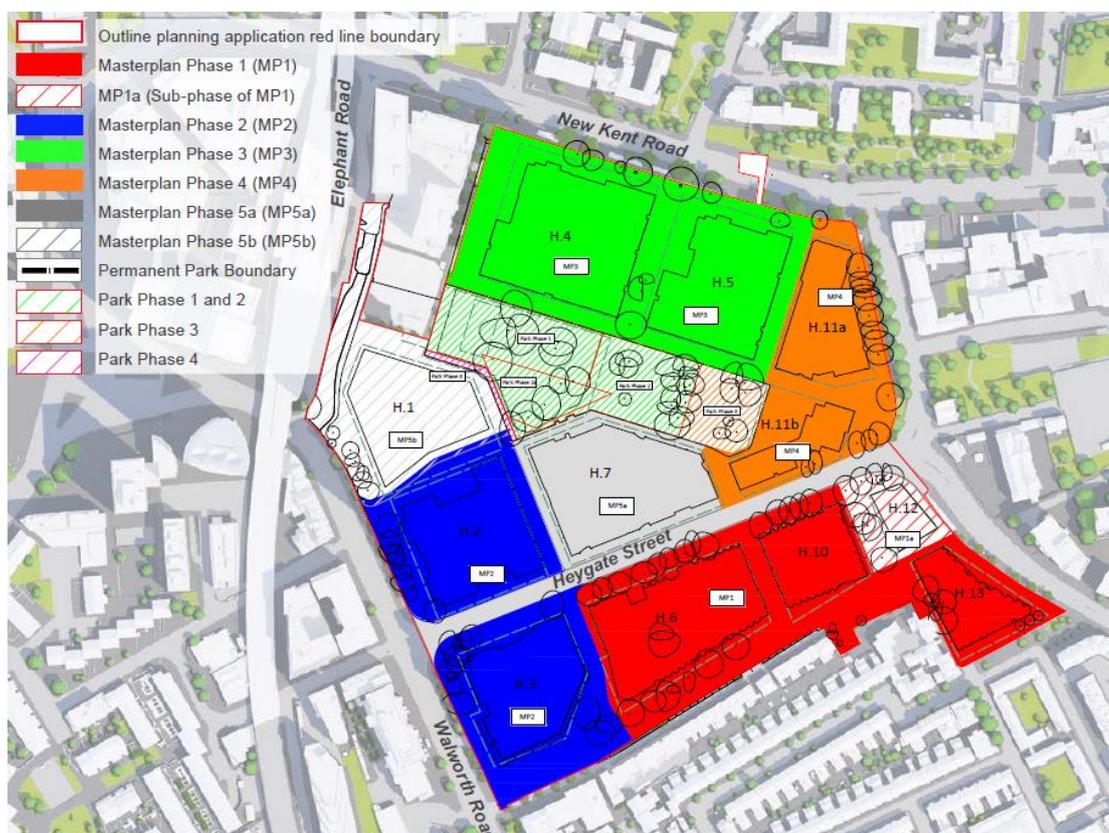


Figure 2 – Elephant Park phasing plan identifying the individual development plots

2.2.6. In addition to the built floorspace, the OPP provides significant areas of open space, including The Park, gateway spaces, pocket parks and new streets. Mature trees have been retained where possible and will be complemented with new landscape and new trees, which will ensure that there will be no net loss of trees on the Elephant Park site.

2.2.7. In March 2021, the Council approved a Detailed Phasing Plan for Elephant Park (Figure 2) setting out the current proposed sequence of construction works in respect of all phases and plots in the development. This Detailed Phasing Plan identified that Plot H1 would form part of the final phase MP5, sub-phase MP5b, of the Masterplan.

2.2.8. The Council approved the RMAs for the first phase of Elephant Park comprising Plots H6, H10 and H13 and associated public realm in February 2014. In December 2014, the Council approved the Reserved Matters Application for the second phase comprising Plots H2 and H3 and associated public realm. In October 2015, the Reserved Matters for the Energy Hub (Plot H12) and associated public realm were approved by the Council. RMAs for the third phase comprising Plot H4 and associated public realm, were approved by the Council in May 2017, and for Plot H5 and associated public realm in September 2017. RMAs for the fourth phase, comprising Plots H11a and H11b and associated public realm, were approved by the Council in September 2018. Most recently, the RMA for Plot H7 within Phase MP5a was approved by

the Council in March 2020, and Reserved Matters for the Pavilion (Plot PAV1) were approved in October 2020. Plot H1 is the only plot within the Masterplan that does not have Reserved Matters Approval.

- 2.2.9. In response to the increased employment targets of the Council and in the context of the evolving Town Centre, the H1 Development is being brought forward as an office, further enhancing the mixed use nature of the Elephant Park Masterplan. The H1 Development and the OPP have been designed to interface and co-exist to deliver the Elephant Park Masterplan, and it is the intention that H1 will be delivered alongside the development that has been constructed and/or approved under the OPP. The Application has been structured to interface with the OPP so that the OPP and the H1 Development can be developed out harmoniously and without either prejudicing the other. It is intended that a planning obligation will accompany the H1 Development and will secure that, upon commencement of the H1 Development, no further development will be undertaken pursuant to the OPP within the areas of the OPP that also benefit from the permission granted pursuant to the Application. In this way, it will be clear that the H1 Development supersedes the OPP in this area of the Elephant Park Masterplan. The H1 Development is brought forward without prejudice to the lawfulness, deliverability and acceptability of what has gone before under the OPP, and is capable of implementation alongside the OPP.
- 2.2.10. The Planning Statement submitted in support of the Application describes how this planning application has been structured in relation to the OPP. In order to explain the relationship between the H1 Development and the OPP more generally, a Reconciliation and Comparison Statement is included in Appendix 1. The Reconciliation and Comparison Statement provides a technical overview of the H1 Development in comparison with the OPP Plot H1 Parameters and a reconciliation of the Elephant Park Masterplan to show how the H1 Development and the composite RMA approvals for all other Plots granted under the OPP come together to provide a final reconciliation against the development controls of the OPP.

2.3. Plot H1

- 2.3.1. The Site is bounded by:
- Castle Square and Sayer Street to the north,
Sayer Street, the Pavilion and The Park to the east,
Walworth Road and Elephant Road to the west; and
Deacon Street and Plot H2 to the south.
- 2.3.2. As shown in Figure 3 below, the Site is largely surrounded by other elements of Elephant Park and sits at the confluence of The Park and Walworth Road Character Areas, marking the westernmost plot within the Masterplan. The Site is largely vacant however, at present, it contains a temporary modular building providing staff welfare in relation to the ongoing construction of the Elephant Park Masterplan along with accommodating the meanwhile use of the Urban Farm, as consented by Southwark (20/AP/2612) in November 2020.
- 2.3.3. The land uses surrounding the Site, particularly within the Elephant Park Masterplan, are primarily residential in character with commercial uses at ground level. To the east of the Site is The Park, the main public open space within the Elephant Park Masterplan. The southern boundary is characterised by Plots H2 and H7 which comprise mixed residential and commercial land uses. The area to the north and west is more varied and is characterised by the commercial uses within Castle Square and along Walworth Road, one of the main arterial routes in the Borough. There are no designated heritage assets (Conservation Areas or Listed Buildings) in close proximity to the Site.
- 2.3.4. The Site is situated within close proximity to the significant transport infrastructure around Elephant and Castle, with the Underground Railway Station to the north-west, and mainline Railway Station on the west side of Elephant Road. Further details are provided in the Design and Access Statement, prepared by Acme, that accompanies the Application.



Figure 3 - Application Site boundary shown in red. OPP boundary line shown in blue.

3. DESCRIPTION OF DEVELOPMENT

This section describes what is being applied for in the Application for the H1 Development, explains why it is coming forward as a standalone planning application and how it relates to the Elephant Park Outline Planning Permission (OPP).

3.1. Description of Development

3.1.1. This section should be read in conjunction with the Design and Access Statement which is submitted in support of the Application and describes the principal components of the H1 Development.

3.1.2. This Application seeks full planning permission for the H1 Development. Specifically, the Application seeks approval for:

'Redevelopment of the site to provide a building of ground plus 17-storeys (including a mezzanine floor) with basement and rooftop plant providing office floorspace (Class E) and areas of flexible floorspace for the following uses; office/retail/services/food and drink/medical or health floorspace (Class E), including ancillary cycle parking, accessible car parking, servicing, landscaping, public realm improvements and other associated works incidental to the development.'

3.2. The Proposed Development

3.2.1. Working in partnership with Southwark Council, Lendlease is delivering a £2.5 billion regeneration programme on 28 acres of land in the centre of Elephant and Castle creating one of the capital's most exciting places to live, work and visit. The vision for Elephant Park is to breathe new life into this special part of Central London, building on Elephant and Castle's heritage to create thousands of high-quality new homes, jobs, business opportunities and green space for locals and Londoners.

3.2.2. The H1 Development will contribute to this vision by delivering an employment led development with an emphasis on health and wellbeing which maximises the connection with The Park. The vision for the Site is a direct response to its location, which will complement the transformation of Elephant and Castle Town Centre by diversifying the mix of uses in the neighbourhood and providing local employment and business opportunities to the area, whilst strengthening the connection between Elephant and Castle Town Centre and Walworth.

3.2.3. The H1 Development comprises ground plus 17 storeys (including mezzanine) with a basement level and rooftop plant, extending to a maximum height of 85.730 m AOD (including rooftop plant). The building will serve as a key focal point within Elephant Park and along Walworth Road, with the tallest element situated adjacent to the railway line and stepping down towards the neighbouring residential buildings.

3.2.4. The Application proposes 63,599 sqm (GIA) of floorspace, comprising 49,351 sqm (GIA) of offices, 8,681 sqm (GIA) of flexible of floorspace at ground floor, mezzanine and first floor level suitable for office, retail, food and drink, medical and health uses, alongside 5,566 sqm of shared plant, servicing and cycle parking facilities. All proposed uses fall within Use Class E of The Town and Country Planning (Use Classes) Order 1987 (as amended). A full breakdown of the proposed floorspace is provided in Table 3.1.

Table 3.1: Total Development Floorspace

Land Use (All Class E)	Floor Level	NIA (sqm)	GIA (sqm)	GEA (sqm)
Offices	02 - 16	40,783	49,351	49,565
Offices / medical or health	Mezzanine - 01	4,300	6,728	6,795
Offices / retail / services / medical or health	GF	259	264	277
Offices / retail / services / food and drink	GF	1,683	1,689	1,728
Ancillary (loading bay, plant, cycle facilities and other BOH space)	GF / Roof / Basement	-	5,566	6,258
Total	All	47,025	63,599	64,624

- 3.2.5. The H1 Development also proposes to provide 10% (GIA equivalent) of the office floorspace in the H1 Development as affordable workspace in line with emerging policy. As an alternative to the proposed affordable workspace, there is also a possibility that a new health hub to serve the local area could be provided within the H1 Development. Further information is provided in the supporting Affordable Workspace Strategy.
- 3.2.6. A key ambition of the H1 Development is to be open and accessible, evident through the provision of the active lobby - an extensive, publicly accessible ground floor space serving both future office occupants and the wider public. The ground floor frontages around the building will reflect the hierarchy of the adjacent streets and routes, with the frontages along Sayer Street North, Elephant Road and Walworth Road providing the main active frontages. This will enhance the surrounding streetscape and the relationship between the H1 Development and The Park, whilst also helping to strengthen the relationship between Elephant and Castle Town Centre and Walworth. The main office entrance is situated along the north elevation fronting Sayer Street North as it turns to meet Elephant Road, ensuring maximum visibility and accessibility for workers and visitors accessing the building from Elephant and Castle Railway and Underground Stations (through the viaduct archway pedestrian routes to be delivered as part of Delancey's Elephant and Castle Town Centre development).
- 3.2.7. The proposed H1 Development building will be complemented by the enhancement of the surrounding public realm, including Sayer Street North, which will be a pedestrian priority route and cycle route, along with improvements to Deacon Street and completion of the Elephant Road and Walworth Road landscape. The H1 Development public realm proposals have been developed in response to the key landscape Character Areas identified in the OPP, which define Elephant Park. The stepped approach to the massing facilitates the provision of external amenity space serving the office accommodation in the form of roof terraces, which will also allow for a strong visual connection between The Park and the building, whilst responding positively to the Site's prominent position on Walworth Road. The outdoor terraces and integration of public realm in the design of the H1 Development is also increasingly important in supporting occupier health and wellbeing in a post-Covid-19 workplace environment.
- 3.2.8. All servicing will be carried out from an internal loading dock, accessed from Deacon Street, with vehicles both entering and exiting Deacon Street from Walworth Road to minimise disruption to the wider street network within the Masterplan. The H1 Development will be car free other than allocated accessible spaces located on Deacon Street. Long stay cycle parking is proposed within the basement of the H1 Development, accessed from Walworth Road with further short stay cycle parking in the surrounding public realm.

4. POLICY BACKGROUND

4.1.1. This section outlines the policies which have been used to inform design decisions specifically related to sustainability for the H1 Development.

- The UK Government Strategy for Sustainable Development
- National Planning Policy Framework (2019) and Relevant Planning Policy Guidance documents (PPS 10)
- Building Regulation Part L
- The London Plan
- London Borough of Southwark: Core Strategy (2011)
- London Borough of Southwark: Supplementary Planning Document - Sustainability Assessments (February 2009)
- London Borough of Southwark: Supplementary Planning Document - Sustainability Design and Construction (February 2009)
- London Borough of Southwark: New Southwark Plan (Southwark council's proposed changes to the submitted new Southwark Plan) 2018-2033 (August 2020)

4.2. Government Policy

UK Government Strategy for Sustainable Development

4.2.1. In 1999, the UK Government published its initial strategy for sustainable development, 'A Better Quality of Life: A Strategy for Sustainable Development in the UK.' This has four main objectives:

- Social progress which recognises the needs of everyone
- Effective protection of the environment
- Prudent use of natural resources and
- Maintenance of high and stable levels of economic growth and employment.

4.2.2. The Sustainable Development Task Force reviewed this Strategy and a revised UK Government Sustainable Development Strategy "Securing the Future" was put into place on 7 March 2005.

4.2.3. A range of environmental and planning legislation and fiscal instruments for specific issues support the UK Government Sustainable Development Strategy. For example, the Climate Change Levy, the Landfill Tax, and the Environmental Protection Act. The UK Government's Sustainable Development Strategy is disseminated throughout its own estates through a variety of strategies.

4.2.4. This is also being delivered at a local level through Local Authorities' Unitary Development Plans (UDP) and Local Development Plans (LDP).

4.3. National Planning Policy Framework and Planning Policy Statements (February 2019)

4.3.1. The National Planning Policy Framework (2019) sets out the Government's planning policies on the delivery of sustainable development through the planning system. It replaces the following documents:

Planning Policy Statement 1: Delivering Sustainable Development (January 2005), Planning Policy Statement 9: Biodiversity and Geological Conservation (August 2005), Planning Policy Guidance 13: Transport (January 2011), Planning Policy Statement 22: Renewable Energy (August 2004), Planning Policy Statement 23: Planning and Pollution Control (November 2004), Planning Policy Guidance 24: Planning and Noise (October 1994), Planning Policy Statement 25: Development and Flood Risk (March 2010).

4.3.2. Department for Communities and Local Government (DCLG) published the revised version of the National Planning Policy Framework (NPPF) for consultation in March 2018. The revised

version was updated on 19 February 2019 and sets out the Government's planning policies for England and how these are expected to be applied. The NPPF outlines the strategic priorities to be applied in planning policies at regional and local level. The NPPF 2019 covers the following sections: Section 2; Achieving sustainable development, Section 9; Promoting sustainable transport, Section 12; Achieving well-designed places, Section 14; Meeting the challenge of climate change, flooding and coastal change, Section 15; Conserving and enhancing the natural environment.

- 4.3.3. The revised update provided a number of additional actions, more specifically in relation to sustainable development. The NPPF 2019 states that,

'The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.'

4.4. Building Regulation Part L Summary

- 4.4.1. Building Regulation Part L 2013 (Conservation of fuel and power in buildings) is a legal requirement for new and refurbished buildings to meet minimum energy efficiency standards.

4.5. London Plan

- 4.5.1. The London Plan was ratified by the Secretary of State on 29th January 2021 and subsequently formally adopted by the Mayor.

- 4.5.2. The London Plan includes policies such as the following:

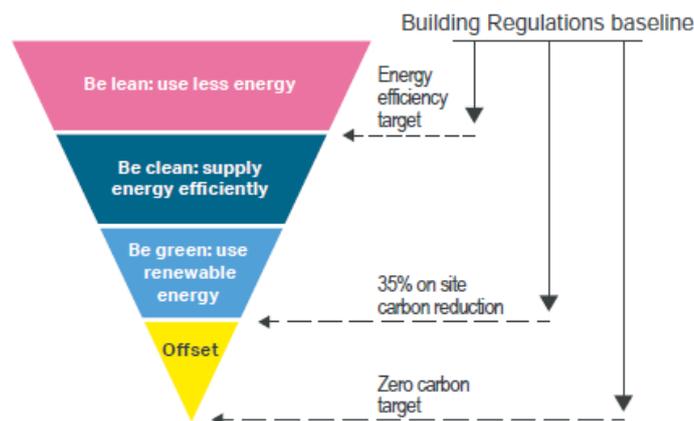
- Policy GG2 Making the best use of land
- Policy GG3 Creating a healthy city
- Policy GG6 Increasing efficiency and resilience
- Policy D1A Infrastructure requirements for sustainable densities
- Policy D1B Optimising site capacity through the design-led approach
- Policy D13 Noise
- Policy G5 Urban greening
- Policy G6 Biodiversity and access to nature
- Policy G7 Trees and woodlands
- Policy G8 Food growing
- Policy SI1 Improving air quality
- Policy SI2 Minimising greenhouse gas emissions
- Policy SI3 Energy infrastructure
- Policy SI4 Managing heat risk
- Policy SI5 Water infrastructure
- Policy SI7 Reducing waste and supporting the circular economy
- Policy SI12 Flood risk management
- Policy SI13 Sustainable drainage
- Policy T1 Strategic approach to transport
- Policy T5 Cycling
- Policy T6 Car parking

Of particular note is Policy SI2 Minimising greenhouse gas emissions

- A. Major development should be net zero-carbon. This means reducing greenhouse gas emissions in operation and minimising both annual and peak energy demand in accordance with the following energy hierarchy:

- Be Lean: use less energy and manage demand during operation

- Be Clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly
 - Be Green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site
 - Be Seen: monitor, verify and report on energy performance
- B. Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy.
- C. A minimum **on-site reduction of at least 35 per cent** beyond Building Regulations is required for major development. Residential development should achieve 10 per cent, and non-residential development should 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, in agreement with the borough, either:
- 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 carbon reductions. The operation of offset funds should be monitored and reported on annually.
- E. Major development proposals should calculate and minimise carbon emissions from any other part of the development, including plant or equipment, that are not covered by Building Regulations, i.e. unregulated emissions.
- F. Development proposals referable to the Mayor should calculate whole life-cycle carbon emissions through a nationally recognised Whole Life-Cycle Carbon Assessment and demonstrate actions taken to reduce life-cycle carbon emissions.



Source: Greater London Authority

4.6. London Borough of Southwark: Core Strategy (2011)

- 4.6.1. The core strategy is a planning document that sets out how Southwark will change up to 2026 to be the type of place set out in the sustainable community strategy.
- 4.6.2. The core strategy is one of the most important documents in a set of planning documents called the Local Development Framework. The core strategy sets out Southwark's long-term vision, spatial strategy and strategic policies with an implementation plan up until 2026 to deliver sustainable development.

- 4.6.3. This includes targets for development from 2009 until 2026 unless specified otherwise. This spatial planning is a process where Southwark consults on all the important aspects that are needed to create successful places. As well as setting out what the places should look like and how to create them, the strategy also sets out a plan for Southwark to deliver this through proactive partnerships within Southwark and London. This demonstrates the local authority's approach to development and planning across the whole of Southwark and sets out the framework for policies they will use to make decisions on planning applications.
- 4.6.4. Policies as stated in the core strategy that have been considered within this Sustainability Statement for the H1 Development have been listed below:
- Strategic Policy 1 – Sustainable development
 - Strategic Policy 2 – Sustainable transport
 - Strategic Policy 11 – Open spaces and wildlife
 - Strategic Policy 12 – Design and conservation
 - Strategic Policy 13 – High environmental standards including target for non-residential developments to achieve at least BREEAM “excellent”.

4.7. London Borough of Southwark: Supplementary Planning Document - Sustainability Assessments (February 2009)

- 4.7.1. The Sustainability Assessment document forms part of the London Borough of Southwark's supplementary planning document (SPD). It provides guidance on how to carry out a sustainability assessment of planning applications. The SPD sets out how new development will be assessed for sustainability. This will help to ensure that development within the borough is sustainable by balancing environmental, social and economic needs to ensure a good quality of life for the community, now and in the long term. In particular, it provides:
- A checklist which should be completed and submitted with planning applications
 - Minimum standards which proposals will be expected to meet, as well as preferred standards
 - Guidance on what evidence needs to be submitted along with the checklist

This checklist has been incorporated within the Sustainability Statement for the H1 Development and is provided in the Appendices. The checklist includes:

- Cover sheet which summarises the H1 Development
- Social checklist
- Economic checklist
- Environmental checklist

4.8. London Borough of Southwark: Supplementary Planning Document- Sustainability Design and Construction (February 2009)

- 4.8.1. This document is known as a supplementary planning document (SPD). It provides guidance on how new developments in Southwark should be designed and built so that they have a positive impact on the environment. It covers the following topics
- Energy use and minimising climate change
 - Adapting to climate change that is unavoidable
 - Avoiding pollution and environmental nuisance
 - Avoiding waste and minimising landfill
 - Protecting and enhancing biodiversity
 - Conserving water
 - Planning for flood risk
- 4.8.2. This document outlines general design principles that new developments should follow and also sets minimum and preferred standards for each of the topics above. The Sustainability

Statement addresses all the minimum standards as set out by the Sustainable Design and Construction guidance.

4.9. London Borough of Southwark: New Southwark Plan (Southwark Council's proposed changes to the submitted new Southwark Plan) 2018-2033 (August 2020)

4.9.1. The New Southwark Plan will be a new borough-wide planning and regeneration strategy up to 2033. Once finalised and adopted, it will replace the current local plan, comprised of the saved Southwark Plan policies and the Core Strategy. The plan includes the following sustainability related policies:

- SP6 Cleaner, greener, safer
- P13 Design quality
- P17 Efficient use of land
- P52 Cycling
- P53 Car parking
- P55 Protection of amenity
- P56 Open space
- P57 Open water space
- P58 Green infrastructure
- P59 Biodiversity
- P60 Trees
- P61 Reducing waste
- P62 Land for waste management
- P63 Contaminated land and hazardous substances
- P64 Improving air quality
- P65 Reducing noise pollution and enhancing soundscapes
- P66 Reducing water use
- P67 Reducing flood risk
- P68 Sustainability standards
- P69 Energy

4.10. Climate Emergency Declaration

4.10.1. Southwark Council declared a climate emergency at a meeting of the full council in March 2019. Although not a policy, this declaration influences their policy. The declaration recommends that the council accelerates its target of making Southwark carbon neutral by 2050 to 2030 and halve the emissions by 2022.

4.10.2. It also includes:

- Cutting the council's carbon emissions by 25%
- Divesting pension funds away from fossil fuels into sustainable alternatives
- Introducing idling fines for drivers who leave their engines running while idle
- Closing roads around schools to improve air quality
- Ensuring more people are walking and cycling rather than using greenhouse gas emitting vehicles
- Protecting Southwark's biodiversity
- Keeping recycling rates high: Southwark's are currently the highest in inner London
- Committing to ending single use plastic in the council, halving it in the borough, and introducing water fountains to reduce plastic bottle use

4.10.3. In line with the climate emergency declaration, the H1 Development proposes the following measures:

- Car parking spaces only for disabled visitors

- Framework travel plan setting out measures to be adopted to encourage use of sustainable modes of transport to and from the H1 Development
- Provision of pedestrian and cycle routes
- 96 cycle parking spaces provided within the public realm and a further 855 spaces provided in the basement levels of the H1 Development
- Vertical greening will continue around the public realm and up the facade with trellis planting and small shrubs
- Retention of the existing trees and further landscape planting along the edge of Walworth Road
- The landscape and public spaces will be a key feature of the completed H1 Development, playing a crucial part in mitigating the impacts of climate change, providing new habitats for wildlife, and creating a healthier and more pleasant environment
- Reduced building carbon emissions through energy efficiency design.

5. SUSTAINABLE DESIGN

This section formally outlines how the H1 Development will meet the objectives of the London Plan and other Local policies as applicable.

5.1. Land

5.1.1. Optimising the use of land

London Plan

GG 2 Making the best use of land

- Enable the development of brownfield land, particularly in Opportunity Areas, on surplus public sector land, and sites within and on the edge of town centres, as well as utilising small sites
- Prioritise sites which are well-connected by existing or planned public transport
- Proactively explore the potential to intensify the use of land to support additional homes and workspaces, promoting higher density development, particularly in locations that are well-connected to jobs, services, infrastructure, and amenities by public transport, walking and cycling
- Applying a design-led approach to determine the optimum development capacity of sites
- Understand what is valued about existing places and use this as a catalyst for growth, renewal, and place-making, strengthening London's distinct and varied character
- Protect and enhance London's open spaces, including the Green Belt, Metropolitan Open Land, designated nature conservation sites and local spaces, and promote the creation of new green infrastructure and urban greening, including aiming to secure net biodiversity gains where possible
- Plan for good local walking, cycling and public transport connections to support a strategic target of 80 per cent of all journeys using sustainable travel, enabling car-free lifestyles that allow an efficient use of land, as well as using new and enhanced public transport links to unlock growth
- Maximise opportunities to use infrastructure assets for more than one purpose, to make the best use of land and support efficient maintenance

H1 Development Response

5.1.1.1. 100% of the H1 Development is on previously developed land. The H1 Development proposes a total of 63,598 sqm (GIA) of floorspace, comprising 49,351 sqm (GIA) of offices, 8,681 sqm (GIA) of flexible of floorspace at ground floor, mezzanine and first floor level suitable for office, retail, food and beverage, medical and health uses, alongside 5,566 sqm of shared plant, servicing and cycle parking facilities. The Site has a PTAL rating of 6B (the highest available) and is located close to major transport facilities, with excellent access to services and amenities (shopping, leisure, green space etc). The H1 Development is car-free with the exception of the accessible parking and expect to achieve in excess of 95% of trips to be made via walking, cycling or public transport. The Site is located within 400m of cycleway and superhighway.

5.1.1.2. The H1 Development is in keeping with the London Plan Inner London strategic spatial vision. The Park that sits to the north of the H1 Development, at the heart of the Masterplan, follows a green route through different parks and surrounding areas leading to a series of diverse experiences, from shady green spaces, community gardens and wild habitat areas to the sports centre with tennis and rugby fields, adventure playgrounds with go-karts and BMX tracks as well as cafés and peaceful picnic areas found in the vast Burgess Park.

BREEAM Strategy

5.1.1.3. The H1 Development is currently targeting LE 1 Reuse of land to recognise developments on brownfield land as over 75% of the proposed development's footprint is on an area of land which has previously been occupied.

5.1.2. Basements and Lightwells

London Plan

D 10 Basement development

- Boroughs should establish policies in their Development Plans to address the negative impacts of large-scale basement development beneath existing buildings, where this is identified as an issue locally.

H1 Development Response

5.1.2.1. The H1 Development includes a basement and, therefore, has been assessed in accordance with Southwark Council Basement Impact Assessment guidelines (SFRA Appendix I). A Basement Impact Assessment forms a standalone document within the Application.

5.1.2.2. Construction of the basement may result in a rise in groundwater level locally around the basement footprint; however it is considered unlikely that groundwater would rise to a sufficient level to emerge at the surface. Perched groundwater could be encountered during the excavation works to construct the basement and foundations and could lead to an ingress of groundwater and potential flooding of excavated areas. However, the concrete box will not impact the groundwater on site or around it as the deep aquifer is located at depths beyond the proposed base of the basement. In summary, groundwater on site will not be affected by the construction of this shallow basement.

5.1.2.3. Therefore, with the mitigation measures proposed above (and others not directly related to the basement), the risk of groundwater flooding affecting the development and groundwater flood risk increasing elsewhere is deemed to be low.

5.1.3. Local Food Growing

London Plan

G 8 Food Growing

- Protect existing allotments and encourage provision of space for urban agriculture, including community gardening, and food growing within new developments and as a meanwhile use on vacant or under-utilised sites.
- Identify potential sites that could be used for food production.

H1 Development Response

5.1.3.1. Development of the Site will not impact on any current food growing spaces. The current landscaping plans do not include for food production however should an occupant wish to, a terrace area could be converted for food production.

5.2. Site Layout and Building Design

5.2.1. Site layout and design

London Plan

GG 3 Creating a healthy city

- Ensure that the wider determinants of health are addressed in an integrated and co-ordinated way, taking a systematic approach to improving the mental and physical health of all Londoners and reducing health inequalities;
- Promote more active and healthy lives for all Londoners and enable them to make healthy choices;
- Use the Healthy Streets Approach to prioritise health in all planning decisions;
- Assess the potential impacts of development proposals and Development Plans on the mental and physical health and wellbeing of communities, in order to mitigate any potential negative impacts, maximise potential positive impacts, and help reduce health inequalities, for example through the use of Health Impact Assessments;
- Plan for appropriate health and care infrastructure to address the needs of London's changing and growing population;
- Seek to improve London's air quality, reduce public exposure to poor air quality and minimise inequalities in levels of exposure to air pollution;
- Plan for improved access to and quality of green spaces, the provision of new green infrastructure, and spaces for play, recreation, and sports;
- Ensure that new buildings are well-insulated and sufficiently ventilated to avoid the health problems associated with damp, heat and cold;
- Seek to create a healthy food environment, increasing the availability of healthy food and restricting unhealthy options.

H1 Development Response

5.2.1.1. The Park that sits to the north of the H1 Development, at the heart of the Elephant Park Masterplan follows a green route through different parks and surrounding areas leading to a series of diverse experiences, from shady green spaces, community gardens and wild habitat areas to the sports centre with tennis and rugby fields, adventure playgrounds with go-karts and BMX tracks as well as cafés and peaceful picnic areas found in the vast Burgess Park.

5.2.1.2. The H1 Development reflects the underlying key principles of the Healthy Streets/Active Travel agenda:

- Sustainable growth: The site is well connected to public transport links.
- Modal shift and Access to Cycling: The site is located close to several docking stations for the Santander Cycle Hire scheme, with the closest being located off Walworth Rd outside the Strata SE1 building, where there are 36 bikes available.

5.2.1.3. The H1 Development is to be connected to the existing district heat network. The network is run by EON and comprises a decentralised energy centre which houses natural gas Combined Heat and Power plant and natural gas boilers which supply Low Temperature Hot Water (LTHW) for space heating and domestic hot water. The H1 Development is considered to be 'Air quality positive' and therefore has minimised both pollutant emissions and exposure of future occupants.

5.2.1.4. The H1 Development is seeking to achieve a WELL Building standard 'gold' accreditation.

5.3. Energy and Carbon Dioxide Emission

5.3.1. Energy and Carbon Dioxide Emission

London Plan

GG 6 Increasing efficiency and resilience

- To help London become a more efficient and resilient city, those involved in planning and development must:
 - Seek to improve energy efficiency and support the move towards a low carbon circular economy, contributing towards London becoming a zero-carbon city by 2050

SI 2 Minimising greenhouse gas emissions

- Major development should be net zero-carbon. This means reducing greenhouse gas emissions in operation and minimising both annual and peak energy demand in accordance with the following energy hierarchy:
 - Be lean: use less energy and manage demand during operation
 - Be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly
 - Be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site
 - Be seen: monitor, verify and report on energy performance.
- Development proposals referable to the Mayor should calculate whole life-cycle carbon emissions through a nationally recognised Whole Life-Cycle Carbon Assessment and demonstrate actions taken to reduce life-cycle carbon emissions.

SI 3 Energy Infrastructure

- Major development proposals within Heat Network Priority Areas should have a communal low-temperature heating system. The heat source for the communal heating system should be selected in accordance with the following heating hierarchy:
 - Connect to local existing or planned heat networks
 - Use zero-emission or local secondary heat sources (in conjunction with heat pump, if required)
 - Use low-emission combined heat and power (CHP) (only where there is a case for CHP to enable the delivery of an area-wide heat network, meet the development's electricity demand and provide demand response to the local electricity network)
 - Use ultra-low NOx gas boilers
- CHP and ultra-low NOx gas boiler communal or district heating systems should be designed to ensure that they meet the requirements in Part B of Policy SI 1 Improving air quality.
- Where a heat network is planned but not yet in existence, the development should be designed to allow for the cost-effective connection later.

LB Southwark Core Strategy 2011

Strategic Policy 13 – High environmental standards

- Major development should achieve a 44% saving in carbon dioxide emissions above the building regulations (2010 regulations at the time of publication, equivalent to 35% over Part L 2013) from energy efficiency, efficient energy supply and renewable energy generation.

H1 Development Response

- 5.3.1.1. 38% in regulated CO2 emission savings are currently predicted, thus not only meeting the 35% carbon savings requirement reduction for non-domestic buildings, but exceeding this, and therefore striving towards zero carbon through onsite measures based on the approach,

information, analysis and contents reported in the Energy Statement which accompanies this Application.

5.3.1.2. The London Plan also requires that developments follow an energy hierarchy when considering reducing CO₂ emissions. The energy hierarchy must consider incorporation of energy efficiency measures including passive design, supplying energy efficiently (with emphasis on decentralised energy generation including CHP) and using renewable energy technologies. The responses to the subsequent topic areas include specific measures incorporated in the design.

5.3.1.3. The CO₂ savings estimated by the energy strategy are predicted as up to 271 tCO₂ when compared against the Part L 2013 baseline scenario. The tables below show the breakdown in predicted savings for each stage of the energy hierarchy. The combined savings equate to up to a predicted 38% reduction in regulated CO₂ emissions over the baseline Part L 2013 compliant scheme.

5.3.1.4. An Energy Statement detailing the energy strategy for the H1 Development accompanies this Application.

Table 1 – Summary of the H1 Development regulated and unregulated CO₂ emissions.

	CO ₂ Emissions (tCO ₂ /yr)		
	Regulated	Unregulated	Total
Notional building using SAP10 (TER)	712	657	1,369
Be Lean	541	657	1,198
Be Clean	442	657	1,099
Be Green	441	657	1,098

Table 2 – Summary of the H1 Development total carbon dioxide emissions savings for each stage of the hierarchy

Savings from:	Regulated CO ₂ savings		Regulated & Unregulated CO ₂ savings	
	Tonnes CO ₂ per annum	(%)	Tonnes CO ₂ per annum	(%)
Be Lean	171	24%	171	12%
Be Clean	99	14%	99	7%
Be Green	0	0%	0	0%
Total cumulative savings	271	38%	271	20%

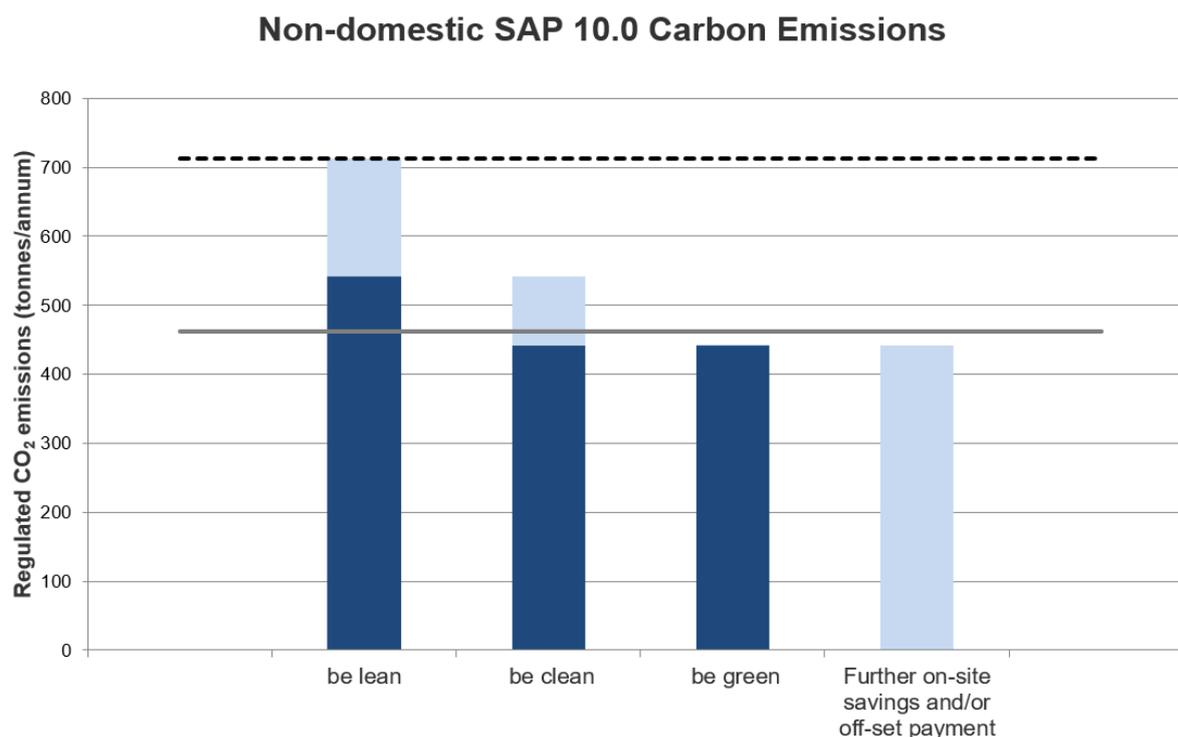


Figure 4 - Summary of the H1 Development total carbon dioxide emissions for each stage of the hierarchy

BREEAM Strategy

- 5.3.1.5. The H1 Development is currently targeting 8, potentially 10 credits + 2 exemplary credits under Ene 01 Reduction of Energy Use and Carbon Emissions to recognise and encourage minimising the CO₂ emissions associated with operational energy consumption.
- 5.3.1.6. Credit Ene 04 Low Carbon Design has been potentially targeted which requires a feasibility study to be carried out to reduce carbon emissions and atmospheric pollution by encouraging local energy generation from renewable sources to supply a significant proportion of the energy demand.
- 5.3.1.7. Additional Energy Modelling following CIBSE TM54 methodology is being undertaken to generate predicted operational energy consumption figures and assess potential design strategies that can reduce energy in use for the H1 development.

5.3.2. Energy Demand Assessment

London Plan

GG 6 Increasing efficiency and resilience

To help London become a more efficient and resilient city, those involved in planning and development must:

- Seek to improve energy efficiency and support the move towards a low carbon circular economy, contributing towards London becoming a zero-carbon city by 2050.

SI 2 Minimising greenhouse gas emissions

Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy.

SI 3 Energy Infrastructure

Major development proposals within Heat Network Priority Areas should have a communal low-temperature heating system. The heat source for the communal heating system should be selected in accordance with the following heating hierarchy:

- Connect to local existing or planned heat networks.
- Use zero-emission or local secondary heat sources (in conjunction with heat pump, if required).
- Use low-emission combined heat and power (CHP) (only where there is a case for CHP to enable the delivery of an area-wide heat network, meet the development's electricity demand and provide demand response to the local electricity network).
- Use ultra-low NOx gas boilers.
- CHP and ultra-low NOx gas boiler communal or district heating systems should be designed to ensure that they meet the requirements in Part B of Policy SI 1 Improving air quality.
- Where a heat network is planned but not yet in existence, the development should be designed to allow for the cost-effective connection at a later date.

LB Southwark Core Strategy 2011

Strategic Policy 13 – High environmental standards

Major development should achieve a 44% saving in carbon dioxide emissions above the building regulations (2010 regulations at the time of publication, equivalent to 35% over Part L 2013) from energy efficiency, efficient energy supply and renewable energy generation.

H1 Development Response

- 5.3.2.1. 38% in regulated CO2 emission savings are currently predicted, thus not only meeting the 35% carbon savings requirement reduction for non-domestic buildings, but exceeding this, and thus striving towards zero carbon through onsite measures based on the approach, information, analysis and contents reported in the Energy Statement which accompanies this Application.
 - 5.3.2.2. A preliminary assessment of District Heat Networks (DHN) show that there is an existing network located in the Energy Centre in Plot H12 serving the wider Elephant Park Masterplan.
 - 5.3.2.3. The network is fed from a natural gas CHP, which will aim to offset emissions through the Green Gas Certification Scheme (GGCS).
 - 5.3.2.4. The network is run by EON and comprises a decentralised energy centre which houses natural gas Combined Heat and Power plant and natural gas boilers which supply Low Temperature Hot Water (LTHW) for space heating and domestic hot water.
 - 5.3.2.5. Whole Life Cycle Assessment accompanies the Application and achieves a One Click LCA 'Carbon Heroes Benchmark' rating of B, demonstrating 409kgCO2e/m2.
- 5.3.3. Use Less Energy

London Plan

GG 6 Increasing efficiency and resilience

To help London become a more efficient and resilient city, those involved in planning and development must:

- Seek to improve energy efficiency and support the move towards a low carbon circular economy, contributing towards London becoming a zero-carbon city by 2050

Policy SI2 Minimising greenhouse gas emissions

Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy:

- Be lean: use less energy and manage demand during operation
- Be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly
- Be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site
- Be seen: monitor, verify and report on energy performance.

A minimum on-site reduction of at least 35 per cent beyond Building Regulations is required for major development. Residential development should achieve 10 per cent, and non-residential development should 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, in agreement with the borough, either:

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

LB Southwark Core Strategy 2011

Strategic Policy 13 – High environmental standards

Major development must achieve a reduction in carbon dioxide of 20% from using on-site or local low and zero carbon sources of energy.

H1 Development Response

- 5.3.3.1. 38% in regulated CO2 emission savings are currently predicted, thus not only meeting the 35% carbon savings requirement reduction for non-domestic buildings, but exceeding this, and therefore striving towards zero carbon through onsite measures, based on the approach, information, analysis and contents reported in the Energy Statement which accompanies this Application. In order to reach 100% CO2 savings, a carbon offset payment will be made,
- 5.3.3.2. 24% CO2 emission savings are currently predicted at the 'Be Lean' stage of the energy hierarchy in comparison to the 15% GLA policy expectation.
- 5.3.3.3. 14% CO2 emission savings are currently predicted at the 'Be Clean' stage of the energy hierarchy.

BREEAM Strategy

- 5.3.3.4. The H1 Development is currently targeting 8, potentially 10 credits + 2 exemplary credits under Ene 01 Reduction of Energy Use and Carbon Emissions to recognise and encourage minimising the CO2 emissions associated with operational energy consumption.

5.3.4. Energy Efficient Supply

London Plan

GG 6 Increasing efficiency and resilience

To help London become a more efficient and resilient city, those involved in planning and development must:

- Seek to improve energy efficiency and support the move towards a low carbon circular economy, contributing towards London becoming a zero-carbon city by 2050.

SI 2 Minimising greenhouse gas emissions

Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy.

- Be lean: use less energy and manage demand during operation.
- Be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly.
- Be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site.
- Be seen: monitor, verify and report on energy performance.

SI 3 Energy Infrastructure

Major development proposals within Heat Network Priority Areas should have a communal low-temperature heating system: the heat source for the communal heating system should be selected in accordance with the following heating hierarchy:

- Connect to local existing or planned heat networks.
- Use zero-emission or local secondary heat sources (in conjunction with heat pump, if required).
- Use low-emission combined heat and power (CHP) (only where there is a case for CHP to enable the delivery of an area-wide heat network, meet the development's electricity demand and provide demand response to the local electricity network).
- Use ultra-low NOx gas boilers.
- CHP and ultra-low NOx gas boiler communal or district heating systems should be designed to ensure that they meet the requirements in Part B of Policy SI 1 Improving air quality.
- Where a heat network is planned but not yet in existence, the development should be designed to allow for the cost-effective connection at a later date.

H1 Development Response

5.3.4.1. There is an existing network serving the wider Elephant Park Masterplan.

5.3.4.2. The network is run by EON and comprises a decentralised energy centre which houses natural gas Combined Heat and Power plant and natural gas boilers which supply Low Temperature Hot Water (LTHW) for space heating and domestic hot water.

5.3.4.3. The table below sets out the H1 Development's assessment against the district heat network hierarchy.

Table 3 - District Heat Network Hierarchy

District Heat Network Hierarchy	
Connect to local existing or planned heat networks	Connection to the Elephant Park district heating network is proposed.
Use available local secondary heat sources (in conjunction with heat pump, if required, and a lower temperature heating system)	The use of secondary heat sources is not proposed.
Generate clean heat and/or power from zero-emission sources	The building benefits from connection to a dedicated heating network for the wider masterplan fed from a natural gas CHP, which will aim to offset emissions through the Green Gas Certification Scheme (GGCS).

<p>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)</p>	<p>Fuel cells are not included in this design. However, due to the centralised energy centre serving Elephant Park, the opportunity exists to install innovative technologies such as fuel cells in the future which would benefit all connected buildings, including the H1 Development.</p>
<p>Use low emission combined heat & power (CHP) (where legal air quality limits are exceeded, development proposals to provide evidence to show that any emissions related to energy generation equivalent / lower than ultra-low NOx gas boiler)</p>	<p>The Elephant Park district heating network is based upon CHP which is suited to a masterplan scale context.</p>
<p>Use ultra-low NOx gas boilers.</p>	<p>Boilers within the Elephant Park energy centre are low NOx in line with the GLA requirements</p>

BREEAM Strategy

5.3.4.4. The H1 Development is currently targeting 8, potentially 10 credits + 2 exemplary credits under Ene 01 Reduction of Energy Use and Carbon Emissions to recognise and encourage minimising the CO2 emissions associated with operational energy consumption.

5.3.5. Renewable Energy

London Plan

GG 6 Increasing efficiency and resilience

To help London become a more efficient and resilient city, those involved in planning and development must:

- Seek to improve energy efficiency and support the move towards a low carbon circular economy, contributing towards London becoming a zero-carbon city by 2050.

SI 2 Minimising greenhouse gas emissions

Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy.

- Be lean: use less energy and manage demand during operation.
- Be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly.
- Be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site.
- Be seen: monitor, verify and report on energy performance.

SI 3 Energy Infrastructure

Major development proposals within Heat Network Priority Areas should have a communal low-temperature heating system: the heat source for the communal heating system should be selected in accordance with the following heating hierarchy:

- Connect to local existing or planned heat networks
- Use zero-emission or local secondary heat sources (in conjunction with heat pump, if required)

- Use low-emission combined heat and power (CHP) (only where there is a case for CHP to enable the delivery of an area-wide heat network, meet the development's electricity demand and provide demand response to the local electricity network)
- Use ultra-low NOx gas boilers
- CHP and ultra-low NOx gas boiler communal or district heating systems should be designed to ensure that they meet the requirements in Part B of Policy SI 1 Improving air quality.
- Where a heat network is planned but not yet in existence, the development should be designed to allow for the cost-effective connection at a later date.

LB Southwark Core Strategy 2011

Strategic Policy 13 – High environmental standards

Major development must achieve a reduction in carbon dioxide of 20% from using on-site or local low and zero carbon sources of energy.

H1 Development Response

- 5.3.5.1. A feasibility study has been undertaken to determine the most appropriate renewable energy source for the H1 Development (for more details please refer to the Energy Statement included with the Application submission).
- 5.3.5.2. PV and Air Source Heat Pumps are both considered viable low and zero carbon technologies for the site, however there is very limited roof space for PV panels and all heat demand is being met by the existing district heating network. Current proposals include no Low and Zero Carbon Technologies. As described in Appendix 3 of the Energy Strategy, the stepped massing of the H1 Development means the roof area available is very limited. The current design allocates the majority of the roof space to building services plant. Due to the reduced roof space, services plant has been double stacked, with the upper level plant deck being dedicated to heat rejection equipment, which is incompatible with a PV array above. The roof area surrounding the plant screen is dedicated to BMU tracks and cannot incorporate photovoltaic cells. Consideration has been given to incorporation of photovoltaic arrays in the terraces that are not heavily overshadowed by surrounding buildings. However, the terraces are a key part of the amenity and biodiversity/greenery proposals of the development and as such deemed not suitable as a location for PVs.

BREEAM Strategy

- 5.3.5.3. The H1 Development is currently targeting 8, potentially 10 credits + 2 exemplary credits under Ene 01 Reduction of Energy Use and Carbon Emissions to recognise and encourage minimising the CO2 emissions associated with operational energy consumption.
- 5.3.6. Carbon dioxide off-setting

London Plan

SI 2 Minimising greenhouse gas emissions

- Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy.
- A minimum on-site reduction of at least 35 per cent beyond Building Regulations is required for major development. Residential development should achieve 10 per cent, and non-residential development should 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, in agreement with the borough, either:
 - Through a cash in lieu contribution to the borough's carbon offset fund, or
 - Off-site provided that an alternative proposal is identified, and delivery is certain.

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

H1 Development Response

5.3.6.1. 38% in regulated CO2 emission savings are currently predicted, thus not only meeting the 35% carbon savings requirement reduction for non-domestic buildings, but exceeding this, and therefore striving towards zero carbon through onsite measures based on the approach, information, analysis and contents reported in the Energy Statement which accompanies this Application. In order to reach 100% CO2 savings, a carbon offset payment will be made.

BREEAM Strategy

5.3.6.2. The H1 Development is currently targeting 8, potentially 10 credits + 2 exemplary credits under Ene 01 Reduction of Energy Use and Carbon Emissions to recognise and encourage minimising the CO2 emissions associated with operational energy consumption.

5.3.7. Monitoring Energy Use

London Plan

SI 2 Minimising greenhouse gas emissions

Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy.

- Be lean: use less energy and manage demand during operation
- Be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly
- Be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site
- Be seen: monitor, verify and report on energy performance.

H1 Development Response

5.3.7.1. Extensive sub-metering will be present to allow monitoring as well as separate billing of individual tenants.

BREEAM Strategy

5.3.7.2. The H1 Development is targeting Ene 02 - Energy Monitoring to recognise and encourage the installation of energy sub-metering that facilitates the monitoring of operational energy consumption.

5.3.7.3. An appropriate energy monitoring and management system enables min. 90% of building energy consumption to be assigned to end uses where relevant (i.e. in accordance with building regulations Part L and CIBSE TM39).

5.3.8. Supporting a Resilient Energy Supply

London Plan

GG6 Increasing efficiency and resilience

To help London become a more efficient and resilient city, those involved in planning and development must:

- Take an integrated and smart approach to the delivery of strategic and local infrastructure by ensuring that public, private, community and voluntary sectors plan and work together.

Policy SI2 Minimising greenhouse gas emissions

Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met within the framework of the energy hierarchy.

- Be lean: use less energy and manage demand during operation
- Be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly
- Be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site
- Be seen: monitor, verify and report on energy performance.

Major development proposals should calculate and minimise carbon emissions from any other part of the development, including plant or equipment, that are not covered by Building Regulations, i.e. unregulated emissions.

H1 Development Response

5.3.8.1. The H1 Development's overall energy demand has been minimised through the implementation of the sustainable design measures outlined in this statement; this will reduce overall impact on the wider energy network. Some of the energy reduction measures include:

- Heat recovery on mechanical ventilation and air handling plant.
- Lamps / luminaires to be specified with high efficacy in the office areas.
- Lighting to all other areas of the buildings will be highly efficient and incorporate efficient lighting controls (e.g. occupancy sensors) where applicable.
- Variable speed drives and sensors pumps and fans responding to variable building loads.
- Use of energy efficient passive chilled beams for cooling.

5.3.8.2. These measures reduce dependency on the energy infrastructure and assist the proposed development in reducing greenhouse gas emissions.

BREEAM Strategy

5.3.8.3. The H1 Development is currently targeting 8, potentially 10 credits + 2 exemplary credits under Ene 01 Reduction of Energy Use and Carbon Emissions to recognise and encourage minimising the CO₂ emissions associated with operational energy consumption.

5.4. Water Efficiency

5.4.1. Water efficiency

London Plan

SI 5 Water infrastructure

- In order to minimise the use of mains water, water supplies and resources should be protected and conserved in a sustainable manner.
- Development Plans should promote improvements to water supply infrastructure to contribute to security of supply. This should be done in a timely, efficient, and sustainable manner taking energy consumption into account.
- Achieve at least the BREEAM excellent standard for the 'Wat 01' water category or equivalent (commercial development).
- Incorporate measures such as smart metering, water saving and recycling measures, including retrofitting, to help to achieve lower water consumption rates and to maximise future-proofing.

H1 Development Response

5.4.1.1. The design recognises that the threat of future water shortage is a serious issue for London; whilst demand is growing due to increasing population and higher temperatures, climate change will increase the seasonality of water supply. Sustainable water sourcing and usage will be of utmost importance for adapting to the changing climatic conditions, and water efficiency and recycling has been made a key priority in the design.

5.4.1.2. The approach to water efficiency for the development has three stages:

- Reduce mains water consumption on site.
- Reuse water on site where possible thus reducing water to sewerage.
- Specify water efficient internal sanitary ware and appliances.

5.4.1.3. Pulsed output water meters will be installed at the Site boundary and the building entry points to provide leak detection between the building and Site boundary, as well as for monitoring large water uses in the building. Water sub meters will be installed to allow metering of high-water consuming plant and areas within the building.

5.4.1.4. The H1 Development will endeavour to achieve 5 credits for Retail and 3 credits for Office under BREEAM Wat 01 (exceeding that required for an 'Excellent' rating), and install water saving devices as detailed below.

5.4.1.5. Greywater harvesting – A greywater system has been included in the design. It recovers the water from showers at basement level and distributes to all WCs in the building.

5.4.1.6. Water Saving Devices – The following range of water efficient measures have been incorporated into the design to reduce water consumption demand:

- Dual flush WCs.
- Reduced-flow taps and showers.

BREEAM Strategy

5.4.1.7. A minimum of 3 Wat 01 Water Consumption credits have been targeted (exceeding that required for an 'Excellent' rating), as a commitment to specify water efficient sanitary ware.

5.4.1.8. The H1 Development has targeted Wat 02 which involves installing a water meter on the supply to the building and sub meters within the building which have pulsed outputs.

5.4.1.9. Wat 03 Water leak detection has also been targeted which entails installing a leak detection system and flow control devices regulating the supply of water to each WC area/facility according to demand to be specified, for example a time controller, volume controllers and PIR/Solenoid Valves.

5.5. Materials and Waste

5.5.1. Design phase

London Plan

SI 7 Reducing waste and supporting the circular economy

Resource conservation, waste reduction, increases in material re-use and recycling, and reductions in waste going for disposal will be achieved by the Mayor, waste planning authorities and industry working in collaboration to:

- Promote a more circular economy that improves resource efficiency and innovation to keep products and materials at their highest use for as long as possible.
- Referable applications should promote circular economy outcomes and aim to be net zero-waste. A Circular Economy Statement should be submitted, to demonstrate:
 - How all materials arising from demolition and remediation works will be re-used and/or recycled;
 - How the proposal's design and construction will reduce material demands and enable building materials, components and products to be disassembled and re-used at the end of their useful life;
 - Opportunities for managing as much waste as possible on site;
 - Adequate and easily accessible storage space and collection systems to support recycling and re-use;
 - How much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy; and
 - How performance will be monitored and reported.
- Development Plans that apply circular economy principles and set local lower thresholds for the application of Circular Economy Statements for development proposals are supported.

H1 Development Response

5.5.1.1. Materials will be chosen that have a minimal environmental impact, are from sustainable or recycled sources and, where feasible, are locally sourced to reduce transportation impacts, prioritising the following factors:

- Life cycle costing (£ and CO2)
- Use renewable materials
- Source materials locally
- Recycled content
- Minimise waste to landfill
- Synthetic or non-sustainably sourced materials to be minimised
- Off-site manufacturing
- Ethical sourcing
- Minimise embodied energy; see below for Life Cycle Assessment
- Design for deconstruction
- Recyclability of materials
- Design mechanical fixings to facilitate deconstruction
- Specify materials and plant that can be re-used
- Lowest available embodied carbon option MEP Materials Specification
- Minimise gluing and composite materials

5.5.1.2. The project team will recognise and encourage measures to optimise construction product consumption efficiency and the selection of products with a low environmental impact, including embodied carbon, over the life cycle of the building.

5.5.1.3. A Sustainable Procurement Plan will be produced for the H1 Development, which will be in place before the end of RIBA stage 2. This plan will include sustainability aims, objectives and strategic targets to guide procurement activities including local construction products whenever

possible. The plan will detail the procedures in place to check and verify the effective implementation of the sustainable procurement plan.

- 5.5.1.4. The team will procure all timber and wood-based products covered by at least one of the following (but the webpage below should be checked for changes):
- Third party, independent forest certification schemes – Category A (e.g. FSC or PEFC)
 - Evidence on a case-by-case basis in line with the Framework for Evaluating Category B evidence – Category B.
- 5.5.1.5. For the avoidance of doubt, 100% of the timber and timber-based products must be compliant. Further information on the UK Government's TPP and compliant responsible sourcing certification schemes is available from the CPET website www.gov.uk/guidance/.
- 5.5.1.6. Insulation materials for building elements and building services will be specified with low embodied environmental impact (minimal global warming potential and zero ozone depleting properties).
- 5.5.1.7. The opportunity to source construction materials from a factory/plant, quarry, railhead or recycling centre close to the site will be investigated, with priority given to use of prefabricated elements, where feasible.
- 5.5.1.8. Appropriately sourced aggregates and durable materials will be emphasised in the hard landscaping.
- 5.5.1.9. The specification of recycled and reused materials will be a main design consideration, wherever feasible.
- 5.5.1.10. The H1 Development will aim to maximise the proportion of materials and components that can be re-used at the end of the building's life. 'Designing for robustness' will ensure that damage to the building due to wear and tear, for example in areas of heavy usage, is minimised and can be repaired with minimal environmental or cost impact.
- 5.5.1.11. A Circular Economy Statement accompanies the Application. The circular economy strategy sets out the approach to reducing virgin material demands and thus reducing the embodied carbon of the H1 Development. The Circular Economy Statement demonstrates the project adheres to the GLA's circular economy principles and policy requirements and has a calculated Building Circularity score of 39%. This represents the total materials circularity both in use of materials for the project as well as end of life handling. It is calculated as the average of Materials Recovered (representing use of circular materials in the project) and Materials Returned (representing how effectively materials are returned, instead of disposed of or downgraded in value). The calculation is purely mass based without material weighing.
- 5.5.1.12. A Whole Life-Cycle Carbon Assessment in accordance with the GLA requirements has been undertaken for the H1 Development and accompanies the Application. This has been done with the aim of recognising and encouraging measures to optimise construction product, consumption efficiency, and the selection of products with a low environmental impact (including embodied carbon) over the life cycle of the building. The proposed H1 Development achieved One Click LCA 'Carbon Heroes Benchmark' rating of B, demonstrating 409kgCO₂e/m².
- 5.5.1.13. The use of CLT slabs as well as high-recycled-content aluminium façade system significantly contributes to reducing the embodied carbon of the H1 Development.

BREEAM Strategy

- 5.5.1.14. 5 credits + 1 Exemplary credit under Mat 1 Environmental Impacts from Construction Products - Building Life cycle Assessment (LCA) have been targeted which will recognise and encourage the use of construction materials with a low environmental impact over the full life cycle of the building.

5.5.1.15. Mat 03 Responsible Sourcing of Construction Materials has been targeted to recognise and encourage the specification of responsibly sourced materials for key building elements.

5.5.2. Construction Phase

London Plan

SI 7 Reducing waste and supporting the circular economy

Resource conservation, waste reduction, increases in material re-use and recycling, and reductions in waste going for disposal will be achieved by the Mayor, waste planning authorities and industry working in collaboration to:

- Promote a more circular economy that improves resource efficiency and innovation to keep products and materials at their highest use for as long as possible,
- Encourage waste minimisation and waste prevention through the reuse of materials and using fewer resources in the production and distribution of products,
- Meet or exceed the targets for each of the following waste and material streams:
 - Construction and demolition – 95 per cent reuse/recycling/recovery & excavation – 95 per cent beneficial use

LB Southwark Core Strategy 2011

Strategic Policy 13 – High environmental standards

Recycling or reusing 95% of construction, excavation and demolition waste by 2020.

H1 Development Response

5.5.2.1. The H1 Development will adhere to sustainable design principles with high standards of environmental performance. Consideration has been given to the waste generated by the building during all phases of the development; demolition, construction, operation and through to its eventual decommissioning. As a result, the waste strategy has the below aims:

5.5.2.2. To contribute towards achieving current and long-term government GLA and the London Borough of Southwark targets for waste minimisation, recycling and reuse.

5.5.2.3. To ensure that all legal requirements for the handling and management of operational waste are complied with.

5.5.2.4. To provide tenants with a convenient, clean and efficient waste management systems that enhance the operation of the building and promote high levels of recycling.

5.5.2.5. The following points are key to the design and construction of the project and will be considered within the Construction Management Plan (CMP) as it is developed during the progression of the project:

5.5.2.6. During Construction:

- Site wide waste management plan.
- Opportunities for prefabrication.
- At least 70% (volume) or 80% (tonnage) of non-demolition waste is to be diverted from landfill. At least 80% (volume) or 90% (tonnage) of demolition waste is to be diverted from landfill.
- Non-hazardous waste relating to on-site construction, and dedicated off-site manufacture or fabrication processes, is to be maximum of 9.2-12.9m³ per 100m² GIA or 4.7-6.5 tonnes per 100m² GIA.
- Overall target of 95% diversion of construction waste from landfill.
- Site travel efficiency.

5.5.2.7. During Operation:

- Sufficiently sized and centralised space for recycling collection
- Minimise volume of waste to landfill

5.5.2.8. The Principal Contractor will have responsibility for writing, implementing and updating the Site Waste Management Plan (SWMP) throughout the development process. The SWMP will identify all waste streams and will discuss the potential to reduce, re-use, and recycle all materials wherever possible. This commitment to minimisation will be achieved in several ways, including but not limited to, the following:

- Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take back scheme.
- Implementation of a 'Just in Time' material delivery system to avoid materials being stockpiled on Site for long periods of time, which increases risk of damage and disposal as waste.
- Attention to material quantity requirements to avoid over ordering and generation of waste materials.
- Re-use of materials wherever feasible.
- Segregation of waste at source where practical.
- Re-use and re-cycling of materials off-site where re-use on-site is not practical.

5.5.2.9. Modular construction/off-site prefabrication will be considered (where feasible), which will result in less time on Site and reduced impact on the Site's neighbours.

5.5.2.10. A Circular Economy Statement accompanies the Application. The circular economy strategy sets out the approach to reducing virgin material demands and thus reducing the embodied carbon of the H1 Development. The Circular Economy Statement demonstrates the project adheres to the GLA's circular economy principles and policy requirements and has a calculated Building Circularity score of 39%. This score represents the total materials circularity both in use of materials for the project as well as end of life handling. It is calculated as the average of Materials Recovered (representing use of circular materials in the project) and Materials Returned (representing how effectively materials are returned, instead of disposed of or downgraded in value). The calculation is purely mass based without material weighing.

BREEAM Strategy

- 5.5.2.11. 5 credits + 1 exemplary credit under Mat 1 Environmental Impacts from Construction Products - Building Life Cycle Assessment (LCA) have been targeted which will recognise and encourage the use of construction materials with a low environmental impact over the full life cycle of the building.
- 5.5.2.12. Mat 03 Responsible Sourcing of Construction Materials has been targeted to recognise and encourage the specification of responsibly sourced materials for key building elements.
- 5.5.2.13. Wst 1 Construction Waste Management is currently targeting 3 credits to promote resource efficiency via the effective and appropriate management of construction site waste.
- 5.5.2.14. 4 credits under Man 2 Considerate Constructors has been targeted and 6 credits under Man 3 Construction Site Impacts has also been targeted to recognise and encourage construction sites which are managed in an environmentally and socially considerate and accountable manner.

5.5.3. Occupation phase

London Plan

SI 7 Reducing waste and supporting the circular economy

Resource conservation, waste reduction, increases in material re-use and recycling, and reductions in waste going for disposal will be achieved by the Mayor, waste planning authorities and industry working in collaboration to:

- Design developments with adequate, flexible, and easily accessible storage space and collection systems that support, as a minimum, the separate collection of dry recyclables (at least card, paper, mixed plastics, metals, glass) and food.
- Referable applications should promote circular economy outcomes and aim to be net zero-waste. A Circular Economy Statement should be submitted, to demonstrate:
 - Adequate and easily accessible storage space and collection systems to support recycling and re-use.
 - How much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy how performance will be monitored and reported.
- Development Plans that apply circular economy principles and set local lower thresholds for the application of Circular Economy Statements for development proposals are supported.

H1 Development Response

- 5.5.3.1. The H1 Development has been designed to be functionally adaptable and climate resilient, whilst minimising material use and waste creation. A WLCA assessment has been undertaken to assess the embodied carbon of the materials and a Circular Economy Statement has been undertaken to assess the circularity of the materials.
- 5.5.3.2. The Circular Economy Statement demonstrates the development has a calculated Building Circularity score of 39%. This score represents the total materials circularity both in use of materials for the project as well as end of life handling. It is calculated as the average of Materials Recovered (representing use of circular materials in the project) and Materials Returned (representing how effectively materials are returned, instead of disposed of or downgraded in value). The calculation is purely mass based without material weighing.
- 5.5.3.3. A Delivery and Servicing Management Plan accompanies this Application which includes a waste strategy. The waste strategy details the likely waste arising based on surveying similar office developments. Appropriate waste storage provision has been included based on the calculated likely waste arisings allowing for waste to be separated into the following stream; general waste, cardboard, mixed recyclables, organics and glass.

BREEAM Strategy

- 5.5.3.4. The H1 Development is currently targeting 1 credit under Wst 03 Operational Waste which aims to recognise the provision of dedicated storage facilities for a building's operational-related recyclable waste streams, so that such waste is diverted from landfill or incineration.
- 5.5.3.5. The H1 Development is also targeting the Wst 05 Adaptation to Climate Change credit which entails a systematic risk assessment to identify the impact of expected extreme weather conditions arising from climate change on the building over its projected life cycle. The assessment covers the installation of building services and renewable systems, as well as structural and fabric resilience aspects.

5.6. Nature Conservation and Biodiversity

5.6.1. Nature conservation and biodiversity

London Plan

GG 2 Making the best use of land

Protect and enhance London's open spaces, including the Green Belt, Metropolitan Open Land, designated nature conservation sites and local spaces, and promote the creation of new green infrastructure and urban greening, including aiming to secure net biodiversity gains where possible.

GG 3 Creating a healthy city

Plan for improved access to and quality of green spaces, the provision of new green infrastructure, and spaces for play, recreation and sports.

G5 Urban greening

Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage.

G6 Biodiversity and access to nature

Development proposals should manage impacts on biodiversity and aim to secure net biodiversity gain. This should be informed by the best available ecological information and addressed from the start of the development process.

G7 Trees and Woodland

Development proposals should ensure that, wherever possible, existing trees of value are retained.

H1 Development Response

- 5.6.1.1. A Preliminary Ecological Appraisal has been undertaken by Tyler Grange Group Limited for the Site and accompanies the Application. The appraisal confirms the Site is of low ecological value.
- 5.6.1.2. The H1 Development includes a series of 16 south and south-easterly terraces designed to integrate and connect the H1 Development with the adjacent park. Vertical greening will continue around the public realm and up the facade with trellis planting and small shrubs.
- 5.6.1.3. Green infrastructure in the H1 Development will be incorporated where feasible, including creating links with wider green infrastructure. Existing plants and trees on site are to be retained where practical and proposals include for new ecological enhancements in the form of a biodiverse roof, drought resistant wildlife friendly planting surrounding the H1 Development. Bird and bat boxes as well as invertebrate habitat features may be included in the final landscape strategy.
- 5.6.1.4. The Urban Greening Factor has been calculated at 0.2474 as shown on the table below:

KEY	SURFACE COVER TYPE	FACTOR	TOTAL AREA (sqm)	UGF AREA (sqm)	NOTES
	Semi-natural vegetation (e.g woodland, flower-rich grassland) created on site	1	0	0	
	Wetland or open water (semi-natural, not chlorinated) created on site	1	0	0	
	Intensive green roof or vegetation over structure. Vegetated sections only, substrate minimum settled depth of 150mm - GF public realm	0.8	62.3	48.8	Includes ground floor planting over basement
★	Intensive green roof or vegetation over structure. Vegetated sections only, substrate minimum settled depth of 150mm - Building / Roof	0.8	634	507	
	Standard trees planted in natural soils or connected tree pits (with minimum soil volume equivalent to 2/3 mature canopy area)	0.8	216	172.8	Includes retained existing trees
	Extensive green roof with substrate of minimum settled depth 80mm	0.7	0	0	
	Flower-rich perennial planting	0.7	627.5	439.3	
	Rain gardens and other vegetated sustainable drainage elements	0.7	25.4	17.8	
	Hedges	0.6	0	0	
	Standard trees planted in pits with soil volumes less than 2/3 mature canopy area	0.6	486.5	291.9	Includes retained existing trees
★	Green wall - modular systems or climbers rooted in soil	0.6	1640	984	
	Groundcover planting	0.5	36.5	18.3	
	Amenity grassland	0.4	0	0	
	Extensive green roof sedum mat	0.3	0	0	
	Permeable paving	0.1	0	0	
	Sealed surfaces - GF public realm	0	2765	0	
★	Sealed surfaces - Building and terraces	0	3535	0	
	TOTAL AREA		10,028.15	2480.98	
URBAN GREENING FACTOR					0.2474

★ Areas not illustrated on adjacent ground floor plan - refer to Spacehub's information

5.6.1.5. The landscape and public spaces in Elephant Park will be a key feature of the completed development, playing a crucial part in mitigating the impacts of climate change, providing new habitats for wildlife, and creating a healthier and more pleasant environment.

BREEAM Strategy

5.6.1.6. The H1 Development is targeting LE 01 Site Selection, LE 02 Ecological Risks and Opportunities, LE 03 Managing Impacts on Ecology, LE 04 Ecological Change and Enhancement and LE 05 Long Term Ecological Management and Maintenance to encourage actions to maintain and enhance the ecological value of the Site as a result of the H1 Development.

5.7. Tackling Increased Temperatures and Drought

5.7.1. Overheating

London Plan

SI 4 Managing heat risk

Development proposals should minimise adverse impacts on the urban heat island through design, layout, orientation, materials and the incorporation of green infrastructure.

Major development proposals should demonstrate through an energy strategy how they will reduce the potential for internal overheating and reliance on air conditioning systems in accordance with the following cooling hierarchy:

- Reduce the amount of heat entering a building through orientation, shading, high albedo materials, fenestration, insulation and the provision of green infrastructure.
- Minimise internal heat generation through energy efficient design.
- Manage the heat within the building through exposed internal thermal mass and high ceilings.
- Provide passive ventilation.
- Provide mechanical ventilation.
- Provide active cooling systems.

H1 Development Response

5.7.1.1. Supplementary Planning Guidance encourages developers to undertake dynamic modelling to assess the risk of overheating in their development. Such an assessment is generally an expectation of the GLA regarding Policy SI 2 'Overheating and Cooling' under climate change adaptation, as stated in GLA's energy planning guidance document (April 2020). Table 4 details how the H1 Development responds to the overheating hierarchy.

Table 4 – The H1 Development response to the overheating hierarchy

Overheating Hierarchy	
Minimising internal heat generation through energy efficient design	Internal heat gains for the H1 Development will be optimised to reduce reliance on active cooling such as the specification of highly efficient lighting.
Reducing the amount of heat entering the building in summer	Maximising fabric and window performance, in combination with external shading, based on thermal performance analysis of each façade will reduce the solar gains entering the building.
Use of thermal mass and high ceilings to manage the heat within the building	High floor-to-ceiling heights allow for warm air to rise to the ceiling and enable lower level occupied spaces to remain cool in the summer months.
Passive Ventilation	Natural ventilation has not been included within the H1 Development due to the internal gains (from IT equipment in the office spaces and deep floorplates) combined with noise and air pollution ingress associated with road traffic and close proximity of a mainline railway.
Mechanical Ventilation	The proposed cooling strategy for the commercial office areas is mechanical cooling via passive chilled beams with floor plenum ventilation.

BREEAM Strategy

- 5.7.1.2. The H1 Development is targeting HEA 04 Thermal Comfort which ensures, with the use of design tools, that the appropriate thermal comfort levels are achieved within regularly occupied spaces. Thermal modelling Has been carried out using software selected and applied in accordance with CIBSE AM11 Building Energy and Environmental Modelling.

5.8. Heat and Drought Resistant Planting

H1 Development Response

- 5.8.1.1. By stepping the H1 Development from its highest point facing towards Elephant and Castle town centre down towards The Park with landscaped terraces, green elements mediate between the building and The Park. The terraces on the H1 Development benefit from a south facing elevation aspect. The majority of the terraces will receive sunlight throughout the year. The lower terraces will receive the least amount of light, being shaded by the H2 building. Spacehub propose that the lower terraces will have a high percentage of shade/partial shade tolerant plants which will change as the terraces move up the building. The colour palette of the planting has been considered alongside the building design.
- 5.8.1.2. The landscape and public spaces will be a key feature of the completed H1 Development, playing a crucial part in mitigating the impacts of climate change, providing new habitats for wildlife, and creating a healthier and more pleasant environment.
- 5.8.1.3. The proposed biodiverse roof will provide valuable habitats for wildlife. It will be low maintenance and will not require automated irrigation.

BREEAM Strategy

- 5.8.1.4. The H1 Development is currently targeting LE 02 Protection of Ecological Features, LE 04 Enhancing Site Ecology and LE 05 Long Term Impact on Biodiversity to encourage habitat protection and creation, and improvement of long-term biodiversity for the building's Site and surrounding land. Issues in this section relate to the protection of ecology during refurbishment, enhancement of ecology and long-term biodiversity management.
- 5.8.1.5. The H1 Development is also targeting the Wst 05 Adaptation to Climate Change credit which entails a systematic risk assessment to identify the impact of expected extreme weather conditions arising from climate change on the building over its projected life cycle. The assessment covers the installation of building services and renewable systems, as well as structural and fabric resilience aspects.
- 5.8.1.6. The H1 Development is targeting Wat 04 to reduce unregulated water consumption by encouraging specification of water efficient equipment.

5.9. Increasing Green Cover and Trees

5.9.1. Urban Greening & Trees

London Plan

GG2 Making the best use of land

Protect and enhance London's open spaces, including the Green Belt, Metropolitan Open Land, designated nature conservation sites and local spaces, and promote the creation of new green infrastructure and urban greening, including aiming to secure net biodiversity gains where possible.

GG3 Creating a healthy city

Plan for improved access to and quality of green spaces, the provision of new green infrastructure, and spaces for play, recreation and sports.

G5 Urban greening

Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage.

G6 Biodiversity and access to nature

Development proposals should manage impacts on biodiversity and aim to secure net biodiversity gain. This should be informed by the best available ecological information and addressed from the start of the development process.

G7 Trees and Woodland

Development proposals should ensure that, wherever possible, existing trees of value are retained.

H1 Development Response

- 5.9.1.1. A series of 16 south and south-easterly terraces have been designed to integrate and connect the H1 Development with the adjacent park. Vertical greening will continue around the public realm and up the facade with trellis planting and small shrubs.
- 5.9.1.2. Green infrastructure in the H1 Development will be incorporated where feasible, including creating links with wider green infrastructure. Existing plants and trees on site are to be retained where practical and proposals include for new ecological enhancements in the form of a biodiverse roof and drought resistant wildlife friendly planting surrounding the H1 Development. Bird and bat boxes as well as invertebrate habitat features may be included in the final landscape strategy.
- 5.9.1.3. Mature trees will be retained where possible and will be complemented with new landscape and new trees, which will ensure that there is no net loss of trees on the Site.
- 5.9.1.4. Gradual steps form terraces which are emphasised with green climbers planted along their edges. The planting is supported by elements of the facade acting as trellises. Along Walworth Road, existing trees are maintained and new trees are planted along Deacon Street, Elephant Road and Sayer Street North.
- 5.9.1.5. The Urban Greening Factor has been calculated at 0.2474. Planting of trees within the H1 Development will help tie the proposed public realm into the wider Elephant Park Masterplan, whilst creating a clear green link between The Park, existing mature trees, and the Site. The following principles have shaped the location and types of trees proposed:
 - Indicative species creating colour, contrast and interest throughout the year;
 - Creation of a strong landscape structure which complements the character of the plot and helps create a human-scaled public realm;

- Street tree planting to provide a buffer between adjacent roads and the development; and
- Multi-stem placement against the facade to soften the building and ground it as an extension of The Park.

BREEAM Strategy

5.9.1.6. The H1 Development is targeting LE 01 Site Selection, LE 02 Ecological Risks and Opportunities, LE 03 Managing Impacts on Ecology, LE 04 Ecological Change and Enhancement and LE 05 Long Term Ecological Management and Maintenance to encourage actions to maintain and enhance the ecological value of the Site as a result of the H1 Development.

5.10. Flooding

5.10.1. Surface water flooding and sustainable drainage, other sources of flooding, surface water pollution

London Plan

SI 13 Sustainable drainage

- Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:
 - Rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)
 - Rainwater infiltration to ground at or close to source
 - Rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)
 - Rainwater discharge direct to a watercourse (unless not appropriate)
 - Controlled rainwater discharge to a surface water sewer or drain
 - Controlled rainwater discharge to a combined sewer
- Development proposals for impermeable surfacing should normally be resisted unless they can be shown to be unavoidable, including on small surfaces such as front gardens and driveways.
- Drainage should be designed and implemented in ways that promote multiple benefits including increased water use efficiency, improved water quality, and enhanced biodiversity, urban greening, amenity and recreation.

LB Southwark Core Strategy 2011

Strategic Policy 13 – High environmental standards

Major development must reduce surface water run-off by more than 50%

H1 Development Response

- 5.10.1.1. Robert Bird Group have produced a drainage strategy for the H1 Development, which details the following SuDS measures included in the design:
- 220m³ attenuation tank; and
 - Flow controls.
- 5.10.1.2. The attenuation required for the H1 Development will be provided by a ground floor attenuation tank incorporated into the structure. Further assessment of the discharge rate from the Site has been undertaken for this and will discharge via gravity into the sitewide network, except for the basement network, which will be pumped to high level. Petrol interceptors will not be provided within the H1 Development due to the site classification and use. Trapped gullies will be used within the loading area and routed to the basement network.
- 5.10.1.3. Rainwater harvesting using the attenuation tank is not possible as they are incorporated into the substructure below the building with gravity discharge.

BREEAM Strategy

- 5.10.1.4. The H1 Development is currently targeting 3 credits under Pol 3 Flood and Surface Water Management. A Site-specific flood risk assessment confirms the H1 Development is situated in a flood zone that is defined as having a low annual probability of flooding considering all current and future sources of flooding.

5.10.2. Flood resilience and resistance of buildings in flood risk areas

London Plan

SI 12 Flood risk management

- Development Plans should use the Mayor's Regional Flood Risk Appraisal and their Strategic Flood Risk Assessment as well as Local Flood Risk Management Strategies, where necessary, to identify areas where particular and cumulative flood risk issues exist and develop actions and policy approaches aimed at reducing these risks.
- Development proposals should ensure that flood risk is minimised and mitigated, and that residual risk is addressed. This should include, where possible, making space for water and aiming for development to be set back from the banks of watercourses.
- Developments Plans and development proposals should contribute to the delivery of the measures set out in Thames Estuary 2100 Plan.
- Development proposals for utility services should be designed to remain operational under flood conditions and buildings should be designed for quick recovery following a flood.
- Natural flood management methods should be employed in development proposals due to their multiple benefits including increasing flood storage and creating recreational areas and habitat.

H1 Development Response

- 5.10.2.1. A Flood Risk Assessment has been undertaken by RMA Environmental for the Site and accompanies the Application.
- 5.10.2.2. The Flood Risk Assessment confirms that the site is in flood risk zone 3a, however benefits from flood defences. Consequently, is at low risk of flooding from fluvial, tidal, pluvial, groundwater, and artificial source sources.
- 5.10.2.3. Flood resistance and resilience measures in line with industry best practice will be incorporated where feasible.

BREEAM Strategy

- 5.10.2.4. The H1 Development is currently targeting 3 credits under Pol 3 Flood and Surface Water Management. Drainage design measures are specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed Site's development. This must be for the 100-year 6-hour event, including an allowance for climate change. Any additional predicted volume of run-off for this event is prevented from leaving the Site by using infiltration or other SuDS techniques.

5.10.3. Flood risk management & flood defences

London Plan

SI 12 Flood risk management

- Development Plans should use the Mayor's Regional Flood Risk Appraisal and their Strategic Flood Risk Assessment as well as Local Flood Risk Management Strategies, where necessary, to identify areas where particular and cumulative flood risk issues exist and develop actions and policy approaches aimed at reducing these risks.
- Development proposals should ensure that flood risk is minimised and mitigated, and that residual risk is addressed. This should include, where possible, making space for water and aiming for development to be set back from the banks of watercourses.
- Developments Plans and development proposals should contribute to the delivery of the measures set out in Thames Estuary 2100 Plan.
- Development proposals for utility services should be designed to remain operational under flood conditions and buildings should be designed for quick recovery following a flood.

- Natural flood management methods should be employed in development proposals due to their multiple benefits including increasing flood storage and creating recreational areas and habitat.

H1 Development Response

- 5.10.3.1. A Flood Risk Assessment has been undertaken by RMA Environmental for the site and accompanies the Application.
- 5.10.3.2. The Flood Risk Assessment confirms that the site is in flood risk zone 3a, however benefits from flood defences. Consequently, is at low risk of flooding from fluvial, tidal, pluvial, groundwater, and artificial sources.

BREEAM Strategy

- 5.10.3.3. The H1 Development is currently targeting 3 credits under Pol 3 Flood and Surface Water Management. Drainage design measures are specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed Site's development. This must be for the 100-year 6-hour event, including an allowance for climate change.
- 5.10.3.4. Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other SUDS techniques.

5.11. Air Pollution

5.11.1. Air pollution

London Plan

GG 3 Creating a healthy city

Seek to improve London's air quality, reduce public exposure to poor air quality and minimise inequalities in levels of exposure to air pollution.

H1 Development Response

5.11.1.1. The H1 Development has taken into account the principles of the 'air quality positive' approach as follows:

- Setback of the H1 Development from Walworth Road;
- Retention of the existing trees along with further landscape planting along the edge of Walworth Road, to act as a screen from vehicle emissions;
- Car parking spaces only for disabled users;
 - Framework Travel Plan setting out measures to be adopted, to encourage use of sustainable modes of transport to and from the H1 Development;
 - Provision of pedestrian and cycle routes;
 - 96 cycle parking spaces provided within the public realm and a further 855 spaces within the basement of the H1 Development;
 - Connection to the Energy Centre located in the Elephant Park Masterplan.

5.11.1.2. The design of the H1 Development has thus minimised both pollutant emissions and exposure of future occupants.

5.11.1.3. The construction phase of the H1 Development will involve several activities that will produce polluting emissions to air. Predominantly, these will be emissions of dust.

5.11.1.4. The risk to local receptors from emissions of dust and pollution from the construction phase has been assessed, and the unmitigated risk to local receptors is deemed to be low. The risk will be mitigated further to negligible through the measures set out in the Air Quality & Dust Management Plan (AQDMP), which are incorporated in the Construction Management Plan and will be implemented by the appointed principal contractor.

5.11.1.5. Predicted air quality conditions for future retail occupants of the H1 Development, taking account of emissions from the adjacent road network and the Elephant Park Masterplan Energy Centre, are set out in the table below.

Predicted Impacts on Annual Mean NO₂ Concentrations in 2026 (µg/m³)

Receptor	NO ₂
P1	26.9
P2	27.2
P3	27.2
Objective	60

5.11.1.6. Consequently, concentrations of NO₂ at all locations are all well below 60 µg/m³, meaning there will be no exceedances of the 1-hour mean NO₂ objective, to which the ground floor retail and public realm receptors are sensitive. Air quality for future retail occupants of the H1 Development will thus be acceptable.

5.12. Noise

5.12.1. Noise

London Plan

D 14 Noise

In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:

- Avoiding significant adverse noise impacts on health and quality of life.
- Reflecting the Agent of Change principle as set out in Policy D13 Agent of Change.
- Mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity).
- Separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation.
- Where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles.
- Promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.

H1 Development Response

5.12.1.1. All occupied spaces will be designed to achieve an ambient indoor noise level of between 35-40dB LAeq,T. All new plant will be designed to not exceed the background noise levels.

5.12.1.2. The following factors have been prioritised within the design in order to reduce the impact of noise produced within the H1 Development, and minimise the negative effect of noise sources arising outside the building:

- Optimise deliveries and timings;
- Attenuation of noise to and from the site;
- Location in relation to noise sensitive environments; and
- Reduction of traffic to site by providing cycling facilities.

5.12.1.3. An acoustic assessment has been completed for the Site to conclude that suitable noise levels can be achieved using appropriate construction methods such as temporary screening, and the plant specification has been designed to meet the London Borough of Southwark's requirements. Therefore, there should be no significant effects from fixed plant noise on noise sensitive locations surrounding the proposed Site.

BREEAM Strategy

5.12.1.4. The H1 Development is currently targeting Hea 05 Acoustic Performance which entails the building to meet the BREEAM acoustic standards for indoor ambient noise levels. The H1 Development is also targeting Pol 05 which entails a noise impact assessment, in accordance with BS 4142:1997, to be carried out.

5.13. Light Pollution

5.13.1. Light pollution

London Plan

Policy D9 Tall buildings

Development proposals should address the following impacts:

- Buildings should be designed to minimise light pollution from internal and external lighting

Policy D8 Public realm

- Lighting, including for advertisements, should be carefully considered and well-designed in order to minimise intrusive lighting infrastructure and reduce light pollution

H1 Development Response

- 5.13.1.1. Light pollution will be minimised by considerate selection of external light fittings to avoid light spillage as well as time clock and dusk-to-dawn controls.

BREEAM Strategy

- 5.13.1.2. All external lighting within the construction zone, whether retained without alterations, retained with alterations or newly specified, must meet the requirements of Ene 03 and Pol 04. All external lighting is designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00. If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes.
- 5.13.1.3. If applicable illuminated advertisements must be designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements.

5.14. Water Pollution

5.14.1. Water treatment

London Plan

SI 5 Water infrastructure

- Promote the protection and improvement of the water environment in line with the Thames River Basin Management Plan, and should take account of Catchment Plans.
- Support wastewater treatment infrastructure investment to accommodate London's growth and climate change impacts. Such infrastructure should be constructed in a timely and sustainable manner taking account of new, smart technologies, intensification opportunities on existing sites, and energy implications. Boroughs should work with Thames Water in relation to local wastewater infrastructure requirements.

H1 Development Response

5.14.1.1. The H1 Development will be connected to the public foul sewer.

6. CONCLUSION

- 6.1.1. The H1 Development has been developed with sustainable design principles at its core. An integrated and holistic approach has been adopted and this document contextualises the process by which sustainability has been addressed as part of the project's evolution, incorporating policy and legislation requirements as a part of a wider sustainability agenda.
- 6.1.2. The Sustainability Strategy has demonstrated the project's ability to:
- Match or exceed today's requirements;
 - Anticipate tomorrow's needs; and
 - Adapt and remain relevant into the future.
- 6.1.3. This Sustainability Strategy has demonstrated how each legislative policy has been used to influence and inform the design decisions of the H1 Development. As identified in the above sections the sustainability policies and measures have been fulfilled in the H1 Development in order to demonstrate compliance with:
- The London Plan; and
 - London Borough of Southwark: Core Strategy (2011)

APPENDIX 1
Office BREEAM Pre-Assessment

1.0 Introduction

This report is intended as a summary of the BREEAM pre-assessment review for the following project:

Project Name	H1 Elephant Park
BREEAM Version	BREEAM 2018 NC
Assessment Stage	Pre-Assessment Stage
Lead Assessor	Luisa Dolce
Target Rating	Excellent (70%)

2.0 Scoring scenarios

It should be noted that the pre-assessment scores have been based on the following scoring scenarios;

- Targeted – Likely credit to be achieved.
- Potential – Additional credits to create a buffer.

On this basis, the following scores are considered achievable under each scenario;

Scenario	Score	BREEAM Rating
Targeted	70.84	Excellent
Potential	84.71	Excellent

2.1 Minimum Standards

In addition performance against the minimum standards (required for the specified target rating) under each scenario is summarised below;

Issue	Targeted	Potential
Man 03 - Responsible construction practices	Yes	Yes
Man 04 - Commissioning and handover	Yes	Yes
Man 04 - Commissioning and handover	Yes	Yes
Ene 01 - Reduction of energy use and carbon emissions	Yes	Yes
Ene 02 - Energy monitoring	Yes	Yes
Wat 01 - Water consumption	Yes	Yes
Wat 02 - Water monitoring	Yes	Yes
Mat 03 - Responsible sourcing of construction products	Yes	Yes
Wst 01 - Construction waste management	Yes	Yes
Wst 03 - Operational waste	Yes	Yes

If the required minimum standards are not met then the target rating will not be achieved regardless of overall score.

3.0 - Credits and Comments Table

		Available	Targeted	Potential	Comments
Management					
Man 01	Project brief and design	4	4	4	<p><u>Credit One- Project delivery planning</u> Lendlease</p> <p><i>Targeted, 1 credit, project delivery stakeholders meet prior to RIBA stage 2 to identify and define roles, responsibilities and contributions at RIBA Stages 2-7. Demonstrate how the outcomes of the consultation process have influenced or changed the Initial Project Brief.</i></p> <p><i>Evidence at Design Stage - template proforma to be completed and supporting documentation provided.</i></p> <p><u>Credit Two- Stakeholder consultation (interested parties)</u> Lendlease</p> <p><i>Targeted, 1 credit, interested party stakeholder consultation from RIBA stage 2 to cover the BREEAM minimum consultation content. Demonstrate how the stakeholder contributions and outcomes of the consultation exercise have influenced or changed the Initial Project Brief and Concept Design. Demonstrate that, prior to the completion of RIBA Stage 4, consultation feedback has been given to and received by, all parties.</i></p> <p><i>Evidence required at Design Stage - template proforma to be completed and supporting documentation provided.</i></p> <p><u>Pre-requisite to achieving credits three and four</u> Lendlease</p> <p><i>Targeted, 1 credit, project team including the Client, formally agree strategic performance targets early in the design process (with the support of the BREEAM AP where appointed)</i></p> <p><u>Credit Three- BREEAM AP Concept Design</u> HDR Hurley Palmer Flatt</p> <p><i>Targeted, 1 credit, a BREEAM AP is appointed to facilitate the achievement of BREEAM performance during RIBA Stage 1; monitoring, identifying risks and opportunities and providing feedback.</i></p> <p><i>Evidence at Design Stage – BREEAM AP appointment letter template to be completed. AP to provide reporting, documentation etc. on actions.</i></p> <p><u>Credit Four – BREEAM AP Developed Design</u> HDR Hurley Palmer Flatt</p> <p><i>Targeted, 1 credit, a BREEAM AP is appointed to monitor progress against the BREEAM performance target(s) throughout the design process and formally report progress to the client and design team attending and reporting on key project/design team meetings during the Concept Design, Developed Design and Technical Design stages.</i></p> <p><i>Evidence at Design Stage – BREEAM AP appointment letter template to be completed. AP to provide reporting, documentation etc. on actions.</i></p>
Man 02	Life cycle cost and service planning	4	4	4	<p><u>Credit One – Elemental LCC</u> Gardiner & Theobald</p> <p><i>Targeted, 2 credits, Elemental level LCC Plan, to be developed by the end of RIBA Stage 2, in accordance with BREEAM requirements and PD 156865:2008.</i></p> <p><u>Credit Two – Component level LCC</u> Gardiner & Theobald</p> <p><i>Targeted, 1 credit, Component level LCC Plan, to be developed by the end of RIBA Stage 4, in accordance with BREEAM requirements and PD 156865:2008.</i></p> <p><u>Credit Three- Capital cost reporting</u> Gardiner & Theobald</p> <p><i>Targeted, 1 credit, Capital cost of the development in pounds per square</i></p>

					meter (£/m ²) (calculated in line with BREEAM methodology) to be reported. This will be provided to the BRE for anonymous use and benchmarking. <i>Evidence at Design Stage: template letter to be completed</i>
Man 03	Responsible construction practices	6 (+1)	6	6	<p><i>Evidence for all Man 03 credits at Design Stage - template commitment proforma to be completed. Requirements also to be included in Contractor prelims/tender documentation as committed to by the Developer at Design Stage.</i></p> <p><u>Pre-requisite- legally harvested and traded timber Lendlease (Developer commitment)</u></p> <p><u>Targeted</u>, all timber/timber-based products used during the construction process to have appropriate certifications showing they have been legally sourced and traded.</p> <p><u>Credit One – Environmental management Lendlease (Developer commitment)</u></p> <p><u>Targeted</u>, 1 credit, requirement for all parties who manage the construction site to hold a third-party verified environmental management system certification (ISO 4001/EMAS) and implement Pollution Prevention Guidelines in accordance with PPG6.</p> <p><u>Credit Two – BREEAM AP (site) Lendlease (Developer commitment)</u></p> <p><u>Targeted</u>, 1 credit, BREEAM AP to monitor progress against formally agreed BREEAM targets, identify risks and provide feedback (RIBA stages 5-6).</p> <p><u>Credit Three – Responsible Construction Management Lendlease (Developer commitment)</u></p> <p><u>Targeted</u>, 2 credits, Principal Contractor to comply with the outlined responsible practice actions in line with the BREEAM requirements. Innovation credit attained with compliance with all items listed in Responsible Construction Management table is not currently targeted.</p> <p><u>Credit Four – Monitoring of construction site impacts Lendlease (Developer commitment)</u></p> <p><u>Targeted</u>, 1 credit, site related energy consumption (kWh, litres of fuel, kgCO₂/project value) and potable water consumption are to be monitored and reported by an assigned individual.</p> <p><u>Targeted</u>, 1 credit, site transport impacts are to be monitored and reported separately for materials and waste by an assigned individual (kgCO₂eq, litres of fuel, km).</p>
Man 04	Commissioning and handover	4	3	4	<p><i>Evidence for all Man 04 credits at Design Stage - template commitment letter to be completed. Requirements also to be included in Contractor prelims/tender documentation as committed to by the Developer at Design Stage.</i></p> <p><u>Credit One – Commissioning – testing schedule and responsibilities Lendlease (Developer commitment)</u></p> <p><u>Targeted</u>, 1 credit, project team member appointed to monitor and programme pre-commissioning, commissioning, testing and, where necessary, re-commissioning activities. The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of works. A schedule of commissioning and testing to identify appropriate commissioning required is produced. The schedule must identify appropriate standards such as current Building Regulations, BSRIA and CIBSE guidelines. Where a BMS is specified this must be commissioned in line with BREEAM requirements.</p> <p><u>Credit Two – Commissioning- design and preparation Lendlease (Developer commitment)</u></p> <p><u>Targeted</u>, 1 credit, a specialist commissioning manager is appointed during the design stage with responsibility for: - Undertaking design reviews and giving advice on suitability for ease of</p>

					<p>commissioning - Providing commissioning management input to construction programming and during installation stages - Management of commissioning, performance testing and handover/post-handover stages</p> <p><u>Credit Three – Testing and inspecting building fabric</u> Lendlease (Developer commitment)</p> <p>Potentially Targeted 1 credit, a thermographic survey and airtightness testing and visual inspection will take place at appropriate times during the construction. Any defects identified must be rectified prior to building handover and close out.</p> <p><u>Credit Four – Handover</u> Lendlease (Developer commitment)</p> <p>Targeted, 1 credit, two compliant Building User Guides (technical and non-technical) are developed prior to handover, for distribution to the building occupiers and premises facilities managers. Two training schedules are prepared for building occupiers/premises facilities managers, timed appropriately around handover and proposed occupation plans in line with BREEAM content requirements.</p>
	Management Totals: (+exemplary)	18 (+1)	17	18	
	Management score totals:	11	10.39	11	
Health & Wellbeing					
Hea 01	Visual comfort	4 (+1)	2	2	<p><u>Credit 2 – Daylighting</u></p> <p>Additional Appointment. Daylight Modeller</p> <p>Not Targeted, 2 credits, modelling to demonstrate relevant building areas meet good practice daylight criteria as defined by BREEAM.</p> <p><u>Credit 3 – View out</u></p> <p>ACME</p> <p>Targeted, 1 credit, HPF have issued requirements to Architect for review. 95% of the floor area in 95% of spaces is within 8m of an external wall with a window or permanent opening that provides an adequate view out. The window/opening must be ≥ 20% of the surrounding wall area. Where the room depth is greater than 8m, compliance is only possible where the percentage of window/opening is compliant with table 1.0 of BS 82061: part 2.</p> <p><i>Evidence at Design Stage – plans marked up with calculations to demonstrate the above.</i></p> <p><u>Credit 4 – Internal and external lighting levels, zoning and control</u></p> <p>HDR Hurley Palmer Flatt MEP</p> <p>Targeted, 1 credit,</p> <p><i>External lighting</i> - specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places.</p> <p><i>Evidence at Design Stage - MEP specification, lighting schedule, lighting layouts</i></p>
Hea 02	Indoor air quality	1	1	1	<p><u>Pre-requisite – Indoor Air Quality Plan</u> HDR Hurley Palmer Flatt</p> <p>Targeted, indoor air quality plan to be developed by the end of RIBA stage 2, considering all contaminant sources, flush-out, protection, testing and cleaning procedures in line with GN06 BREEAM content requirements.</p> <p><u>Credit One - Ventilation</u> HDR Hurley Palmer Flatt MEP</p> <p>Targeted 1 credit, fresh air provided at 12 litres per second per person. Air</p>

					<p>intakes and exhausts over 10m apart and intakes over 10m from sources of external pollution. HVAC incorporates filtration as per BS EN 13779:2007 Annex A3. CO2 sensors required for high variable occupancy areas only. Ventilation designed in accordance with CIBSE AM10.</p> <p><i>Evidence at Design Stage - plant layouts marked up to show distances, MEP spec, CO2 sensor spec and layout drawings.</i></p>
Hea 04	Thermal comfort	2	1	2	<p><u>Credit One – Thermal modelling</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, full dynamic thermal analysis carried out using software in accordance with CIBSE AM11. Modelling to demonstrate that operative temperatures are in accordance with CIBSE Guide A Table 1.5.</p> <p><u>Credit Two – Design for future thermal comfort</u> HDR Hurley Palmer Flatt</p> <p><u>Potentially Targeted, 1 credit</u>, thermal modelling undertaken above demonstrates requirements can be achieved for a projected climate change scenario.</p>
Hea 05	Acoustic performance	1	1	1	<p><u>Credit One – Acoustic performance</u> Acoustician (appointment required)</p> <p><u>Targeted, 1 credit</u>, the building is required to meet BREEAM acoustic standards for indoor ambient noise level.</p> <p>Achieve indoor ambient noise levels that comply with the design ranges given in Section 7 of BS 8233:2014.</p> <p>Lendlease Pre-completion acoustic testing undertaken to demonstrate the acoustic standards above have been achieved.</p> <p><i>Evidence at Design Stage - template commitment letter to be completed.</i></p>
Hea 06	Security	1 (+1)	1 (+1)	1 (+1)	<p><u>Credit One – Security of site and building</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, SQSS to conduct an evidence-based Security Needs Assessment (SNA) during or prior to RIBA Stage 2 (or confirm their late involvement has not impacted their ability to make recommendations that are implemented). The recommendations or solutions proposed by the SQSS must all be implemented.</p> <p><i>Evidence at Design Stage – SQSS reporting, plans and specifications confirming implementation of recommendations.</i></p> <p>Exemplary credit HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u> A compliant risk based security rating scheme has been used (e.g. SABRE). The performance against the scheme has been confirmed by independent assessment and verification.</p>
Hea 07	Safe and healthy surroundings	2	2	2	<p><u>Credit One – Safe access</u> ACME</p> <p><u>Targeted 1 credit</u>, external site areas meet BREEAM compliance for safe access e.g. in relation to dedicated cycle paths, pedestrian paths and separation of vehicular/ delivery/ manoeuvring spaces.</p> <p>Where external site areas form part of the assessed development the following apply:</p> <ul style="list-style-type: none"> • Dedicated and safe cycle paths are provided from the site entrance to any cycle storage, and connect to off-site cycle paths where applicable. • Dedicated and safe footpaths are provided on and around the site providing suitable links for the following: The site entrance to the building entrance

					<p>Car parks (where present) to the building entrance The building to outdoor space Connecting to off-site paths where applicable.</p> <ul style="list-style-type: none"> • Pedestrian drop-off areas are designed off, or adjoining to, the access road and should provide direct access to other footpaths. <p>Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply:</p> <ul style="list-style-type: none"> • Delivery areas are not accessed through general parking areas and do not cross or share the following: pedestrian and cyclist paths outside amenity areas accessible to building users and general public. • There is a dedicated parking or waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking. • Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting. <p><i>Evidence at Design Stage – marked up site plans, written confirmation.</i></p> <p><u>Credit Two – Outside space</u> ACME</p> <p><u>Targeted, 1 credit</u>, there is an outside space providing building users with an external amenity area.</p> <p><i>Evidence at Design Stage – marked up site plans.</i></p>
Health & Wellbeing Totals: (+exemplary)		11 (+2)	8 (+1)	9 (+1)	
Health & Wellbeing score totals:		8	6.82	7.55	
Energy					
Ene 01	Reduction of energy use and carbon emissions	13 (+5)	8	10 (+2)	<p><u>Credit One – Energy Performance</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 4, potentially 6 credits, up to 9 credits available</u> . calculate an Energy Performance Ratio for New Constructions. <i>Evidence at Design Stage - Building Regulations Output Document (BRUKL).</i></p> <p><u>Credit Two – Prediction of operational energy consumption</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 4 credits</u>, additional energy modelling to generate predicted operational energy consumption figures. Report targeted by end use, risk assessment to highlight design, technical and process risks.</p> <p><u>Exemplary credits - Post-occupancy stage</u> <u>Potentially Targeted 2 credits</u></p> <ul style="list-style-type: none"> • Achieve maximum available credits in Ene 02 Energy monitoring . In addition, preschools, primary schools, law courts, prisons and multi-residential buildings must meet the requirements of the second credit for sub-metering of high energy load and tenancy areas. • The client or building occupier commits funds to pay for the post occupancy stage. This requires an assessor to be appointed and to report on the actual energy consumption compared with the targets set as part of the prediction of operational energy consumption credit above. • The energy model is submitted to BRE and retained by the building owner.
Ene 02	Energy monitoring	2	2	2	<p><u>Credit One – Submetering of end-use categories</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, an appropriate energy monitoring and management system enables min. 90% of building energy consumption to be assigned to end uses listed below where relevant (i.e. in accordance with building regulations Part L and CIBSE TM39).</p> <p>- Space Heating - Domestic Hot Water</p>

					<ul style="list-style-type: none"> - Humidification - Cooling - Fans (ventilation) - Pumps - Lighting - Small Power - Renewable or Low Carbon systems - Controls - Other major energy consuming systems/ plant (lifts) <p><i>Evidence at Design Stage - metering schematics, MEP spec, BMS specification.</i></p> <p><u>Credit Two – Sub-metering of high energy load and tenancy areas</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, sub-meters provided covering the significant majority of energy supply to tenanted or relevant function areas/ departments (office areas by floor plate, catering if applicable, separately).</p>
Ene 03	External Lighting	1	1	1	<p><u>Credit One – External lighting</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, average initial luminous efficacy to be >70 luminaire lumens per circuit watt for all external fittings within the construction zone (new and existing). All external fittings automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.</p> <p><i>Evidence at Design Stage - lighting schedule & datasheets for external fittings, lumens/watt calculations (if not all fittings >70), lighting layouts, MEP spec.</i></p>
Ene 04	Low carbon design	3	0	2	<p><u>Credit One – Passive design</u> HDR Hurley Palmer Flatt</p> <p><u>Potentially Targeted, 1 credit</u>, (Hea 04 credit 1 must be achieved) an analysis of the building design/development to influence decisions during RIBA Stage 2 and identify opportunities for the implementation of passive design solutions to reduce demands for energy consuming building services.</p> <p><i>Evidence at Design Stage – modelling/ reporting from the Energy Modeller, MEP specifications/ schematics etc.</i></p> <p><u>Credit Two – Low and zero carbon technologies</u> HDR Hurley Palmer Flatt</p> <p><u>Potentially Targeted, 1 credit</u>, a feasibility study is carried out by RIBA Stage 2 to establish the most appropriate low or zero carbon energy source(s) for the building/development. An LZC technology must be specified.</p> <p><i>Evidence at Design Stage – modelling/ reporting from the Energy Modeller, MEP specifications/ schematics etc.</i></p>
Ene 06	Energy efficient transportation systems	2	2	2	<p><u>Credit One – Energy consumption</u> Vertical Transportation Consultant</p> <p><u>Targeted, 1 credit</u>, - An analysis of the transportation demand and usage patterns for the building to determine the optimum number and size of lifts</p> <ul style="list-style-type: none"> - The energy consumption is estimated in accordance with BS EN ISO 25745 Part 2 and 3 for at least two types of system. - The use of regenerative drives should be considered, where it produces an energy saving greater than the additional standby energy used to support the drives. - The lift with the lowest energy consumption is specified. <p><u>Credit Two – Energy efficient features</u> Vertical Transportation Consultant</p> <p><u>Targeted, 1 credit</u>,</p> <ul style="list-style-type: none"> - Lifts operate in a standby during off-peak periods - Lift car lighting and display lighting has an average efficacy of > 55 lamp lumens/circuit Watt - The lift uses a VVVF control of the drive motor - Where the use of regenerative drives is demonstrated to save energy, they are specified

					-Escalators have a load-sensing variable speed drive. Or -A passenger sensing device for automated operation. <i>Evidence at Design Stage - compliant transportation demand analysis, compliant energy analysis, compliant lift specification.</i>
	Energy Totals: (+exemplary)	21 (+5)	13	17 (+2)	
	Energy score totals:	14	8.67	13.33	
Transport					
Tra 01	Transport assessment and travel plan	2	2	2	<p><u>Credit One – Travel plan</u> HDR Hurley Palmer Flatt</p> <p>Targeted, 2 credits, travel plan to be developed, at design stage and confirmed implemented at PC. The travel plan must cover all required BREEAM content requirements. If the occupier is known, they must be involved in the development of the travel plan and they must confirm that the travel plan will be implemented post construction and be supported by the building's management in operation.</p> <p><i>Evidence at Design Stage - compliant Travel Plan, template commitment letter.</i></p>
Tra 02	Sustainable transport measures	10	8	9	<p><u>Credit One - Sustainable Transport measures</u> Lendlease/ACME</p> <p>Targeted, 8, potentially 9 of 10 credits, sustainable transport measures such as a dedicated bus route, cyclist facilities and electric vehicle charging are specified.</p> <p>For 9 credits the following to be installed/in place:</p> <ul style="list-style-type: none"> • Accessibility Index >8. (TFL PTAL report confirms AI for the site of 59.25). • Provide a public transport information system in a publicly accessible area, to allow building users access to up-to-date information on the available public transport and transport infrastructure. This may include signposting to public transport, cycling, walking infrastructure or local amenities. • Install compliant cycle storage spaces to meet the minimum levels of 1 space per 20 staff. • Provide at least two compliant cyclists' facilities for the building users, see Definitions for the scope of each compliant facility: <ul style="list-style-type: none"> ○ Showers ○ Changing facilities ○ Lockers ○ Drying spaces. • At least three existing accessible amenities are present e.g. food outlet, access to cash, outdoor open space, recreation or leisure facility, post office etc. <p>1 credit (not targeted). <i>Additional options to attain full (10) credits (one of the following required).</i></p> <ul style="list-style-type: none"> • one new accessible amenity e.g. food outlet, access to cash, outdoor open space, recreation or leisure facility, post office etc. is provided. • During preparation of the brief, the design team consults with the local authority (LA) on the state of the local cycling network and public accessible pedestrian routes, to focus on whichever the LA deems most relevant to the project, and how to improve it. Agree and implement one proposition chosen with the local authority. The proposition supported by the development is additional to existing local plans and has a significant impact on the local cycling network or on pedestrian routes open to the public. • Demonstrate an increase over the existing Accessibility Index through negotiation with local bus, train or tram companies to increase the frequency of the local service provision for the development <p><i>Relevant definitions:</i></p>

				<p><i>Compliant cycle storage spaces are defined as those meeting the following:</i></p> <ul style="list-style-type: none"> • Cycles can be secured within spaces in racks with overhead covering. The cycle racks are set in or fixed to a permanent structure (building or hardstanding) or alternatively, may be located in a locked structure fixed to, or part of, a permanent structure with appropriate surveillance • The distance between each cycle rack, and the cycle racks and other obstructions, e.g. a wall, allows appropriate access to the cycle storage space for easy storage and access to bikes • The storage facility or entrance to the facility is in a prominent site location visible to potential users from either an occupied building or a main access to a building • The cycle storage facility has adequate lighting; demonstrated by meeting the lighting criteria in BREEAM issue Hea 01 Visual comfort • The lighting must be controlled to avoid out-of-hours use and operation during daylight hours, where there is sufficient daylight in or around the facility. <p><i>Compliant changing facilities are defined as those that meet the following:</i></p> <ul style="list-style-type: none"> • Appropriately sized for the likely or required number of users. The assessor should use their judgement to determine whether the changing area is appropriately sized given the number of cycle storage spaces or showers provided • Account for privacy to allow cyclists of either gender to change in private • Changing areas must include adequate space and facilities to hang or store clothing and equipment while changing or showering, e.g. bench seat or hooks • Toilet or shower cubicles cannot be counted as compliant changing facilities. <p><i>A compliant drying space is defined as a space that is specifically designed and designated for this purpose. It should be provided with suitable finishes, adequate heating and ventilation and the facility to hang wet clothes with sufficient air movement around them to dry effectively.</i></p> <p><i>Examples of non-compliant spaces:</i></p> <ul style="list-style-type: none"> • Plant rooms: these are not specifically designed for the purpose and their use as a drying space may create a health and safety hazard; • Coat hooks in cloakrooms or staff changing areas: these are not specifically designed and are unlikely to provide adequate ventilation or allow sufficient air movement to dry clothing effectively. <p><i>Compliant lockers are defined as those meeting the following:</i></p> <ul style="list-style-type: none"> • The number of lockers is at least equal to the number of cycle spaces required • Lockers are in or adjacent to compliant changing rooms, where provided • The lockers are sized appropriately for the storage of a cyclists' equipment. <p><i>Compliant showers are defined as those meeting the following:</i></p> <ul style="list-style-type: none"> • Provision of one shower for every 10 cycle storage spaces, subject to a minimum provision of one shower • Any building providing eight showers or more complies regardless of the number of cycle storage spaces provided • Both male and female users must be catered for, either separate showers within shared gender-specific facilities (required provision split 50-50) or single shower cubicles and changing space for mixed use • The showers do not need to be dedicated to cyclists and can be those shared with other users or uses. <p><i>Evidence at Design Stage - marked-up plans showing facilities, specifications, route maps etc.</i></p>
Transport Totals: (+exemplary)	12	10	11	
Transport score totals:	11.5	9.58	10.54	
Water				

Wat 01	Water consumption	5 (+1)	3	3	<p><u>Credit One – Water consumption</u> ACME</p> <p><u>Targeted, 3 credits</u>, sanitary ware fittings to regulate/minimise water consumption.</p> <p>A greywater and/or rainwater system is specified to off-set non-potable water. Any greywater systems are specified and installed in compliance with BS 8525-1:2010 Greywater Systems - Part 1 Code of Practice. Any rainwater systems are specified and installed in compliance with BS 8515:2009+A1:2013 Rainwater Harvesting Systems - Code of practice.</p> <p><i>Evidence at Design Stage - completed Wat 01 proforma (template available from HPF), sanitary ware specification, drawings showing location of all fittings.</i></p>
Wat 02	Water monitoring	1	1	1	<p><u>Credit One - Water monitoring</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, a water meter on the mains supply to each building. Any plant or building areas consuming 10% or more of the building's total water demand are also either fitted with easily accessible sub-meters or have water monitoring equipment integral to the plant or area. All meters connected to the BMS.</p> <p><i>Evidence at Design Stage - MEP spec, water metering schematics, BMS specification.</i></p>
Wat 03	Water leak detection	2	2	2	<p><u>Credit One – Leak detection system</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, specification of a leak detection system capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter. The system must be:</p> <ul style="list-style-type: none"> - A permanent automated water leak detection system or an inbuilt automated diagnostic procedure - Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time - Able to identify different flow and therefore leakage rates - Programmable to suit the owner/occupiers' water consumption criteria - Designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers (if applicable) <p><i>Evidence at Design Stage - PH schematics, leak detection specification, MEP specification</i></p> <p><u>Credit Two – Flow control devices</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, flow control devices regulating the supply of water to each WC area/facility according to demand to be specified. E.g. a time controller, volume controller, PIR.</p> <p><i>Evidence at Design Stage - PH schematics, MEP specification</i></p>
Wat 04	Water efficient equipment	1	1	1	<p><u>Credit One – Water efficient equipment</u> Spacehub</p> <p><u>Targeted, 1 credit</u>, unregulated water demands identified and reduced.</p> <p>For landscaping areas either:</p> <ul style="list-style-type: none"> - External landscaping and planting relies solely on precipitation, during all seasons of the year and in those conditions likely as a result of climate change <p>OR</p> <ul style="list-style-type: none"> - Drip-fed subsurface irrigation incorporating soil moisture sensors is provided. Irrigation control zoned to permit variable irrigation to different planting assemblages <p>Where there is no water demand from uses other than domestic-scale, sanitary use components in the building, this credit is not applicable.</p> <p><i>Evidence at Design Stage – written confirmation no unregulated water demands or details of water reduction measures (e.g. irrigation specification)</i></p>

	Water Totals: (+exemplary)	9 (+1)	7	7	
	Water score totals:	7	5.44	5.44	
Materials					
Mat 01	Environmental impacts from construction products - Building life cycle assessment (LCA)	7 (+3)	1	5 (+1)	<p><u>Superstructure LCA</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted 1, potentially 4 credits.</u> During the Concept Design and Technical Design, carry out a building LCA benchmark comparison and options appraisal for the superstructure.</p> <p>Concept Design results must be submitted to BRE pre-planning, and Technical Design results must be submitted to BRE pre completion of Technical Design.</p> <p><i>Evidence at Design Stage – LCA output. Sections/ elevations showing location of materials.</i></p> <p><u>Substructure and hard landscaping LCA</u> HDR Hurley Palmer Flatt</p> <p><u>Potentially Targeted, 1 credit.</u> **Pre-requisite: superstructure LCA must be achieved first** During the Concept Design, carry out a building LCA options appraisal for substructure and hard landscaping. Results must be submitted to BRE pre-planning. <i>Evidence at Design Stage – LCA output. Sections/ elevations showing location of materials.</i></p> <p><u>1 Exemplary Level Credit – Core Building Services Options Appraisal</u></p> <p><u>Potentially Targeted, 1 credit.</u> LCA options appraisal of at least three building services design options.</p>
Mat 02	Mat 02 Environmental impacts from construction products - Environmental Product Declarations (EPD)	1	0	0	<p><u>Credit One – Specification of products with a recognised environmental product declaration (EPD)</u> ACME</p> <p><u>Not targeted 1 credit,</u> specify construction products with EPD in accordance with the BREEAM requirements.</p> <p>Based on EPD specificity, 15-40 products with EPD certificates would be required to be specified.</p> <p><i>Evidence at Design Stage – materials specification, EPD certifications, supporting evidence.</i></p>
Mat 03	Responsible sourcing of construction products	4 (+1)	2	2	<p><u>Pre-requisite – Legally harvested and traded timber</u> Lendlease (Developer commitment)</p> <p><u>Targeted,</u> all timber to be legally harvested and traded.</p> <p><u>Credit One – Enabling sustainable procurement</u> Lendlease (Developer commitment)</p> <p><u>Targeted, 1 credit,</u> the design team is to produce and work to a Sustainable Procurement Plan (in accordance with BREEAM definitions and content requirements). The plan must be in place <u>before RIBA 2.</u></p> <p><i>Evidence at Design Stage – copy of Sustainable Procurement Plan. Plan to be included in Contractor prelims/tender documentation and committed to by the Developer at Design Stage.</i></p> <p><u>Credit Two – Measuring responsible sourcing</u> ACME</p> <p><u>Targeted, 1 credit,</u> materials to have responsible sourcing certification (such as BES 6001 or ISO 1400) wherever feasible.</p> <p><i>Evidence at Design Stage - Mat 03 template provided by HPF to be completed and certifications provided where applicable.</i></p>

Mat 05	Designing for durability and resilience	1	1	1	<p><u>Credit One- Designing for durability and resilience</u> ACME</p> <p><u>Targeted, 1 credit.</u> <u>Requirement 1:</u> suitable durability and protection measures or designed features/solutions specified to prevent damage to vulnerable parts of the internal and external building and landscaping elements, which must include: a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc.) b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and maneuvering occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas</p> <p><i>Evidence at Design Stage - drawings marked up to highlight any areas a-c and protection measures in place. Supplementary evidence also to be provided e.g. specifications/ schedules.</i></p> <p>ACME, Robert Bird, HDR Hurley Palmer Flatt</p> <p><u>Requirement 2:</u> identification and protection of building elements against environmental factors and degradation effects in line with the BREEAM Mat 05 methodology.</p> <p><i>Evidence at Design Stage - template report to be completed and supporting documentation provided.</i></p>
Mat 06	Material efficiency	1	1	1	<p><u>Credit One – Material efficiency</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit,</u> undertaking and reporting on the investigation and implementation of measures to optimise the use of materials from RIBA Stage 1 onward, through the buildings design, procurement, construction, maintenance and end of life.</p>
Materials Totals: (+exemplary)		14 (+4)	5	9 (+1)	
Materials score totals:		17.5	6.25	12.25	
Waste					
Wst 01	Construction waste management	4 (+1)	3	3	<p><u>Credit Two – Construction resource efficiency</u> Lendlease (Developer commitment)</p> <p><u>Targeted, 2 credits,</u> a compliant resource management plan is produced containing all BREEAM content requirements. Non-hazardous waste relating to on-site construction, and dedicated off-site manufacture or fabrication processes, is to be maximum of 7.5m3 per 100m2 GIA or 6.5 tonnes per 100m2 GIA</p> <p><i>Evidence at Design Stage - HPF template commitment proforma to be completed. Requirements also to be included in Contractor prelims/tender documentation as committed to by the Developer at Design Stage.</i></p> <p><u>Credit Three – Diversion of resources from landfill</u> Lendlease (Developer commitment)</p> <p><u>Targeted, 1 credit,</u> at least 70% (volume) or 80% (tonnage) of non-demolition waste is to be diverted from landfill. At least 80% (volume) or 90% (tonnage) of demolition waste is to be diverted from landfill.</p>
Wst 02	Use of recycled and sustainably sourced aggregates	1 (+1)	0	0	<p><u>Credit One – Project sustainable aggregate</u> Robert Bird</p> <p><u>Not targeted, 1 credit,</u> specify locally sourced aggregates in accordance with the BREEAM criteria.</p> <p><i>Evidence at design stage – Wst 02 calculator tool, supporting evidence.</i></p>
Wst 03	Operational waste	1	1	1	<p><u>Credit One- Operational waste</u> ACME</p> <p><u>Targeted, 1 credit,</u> dedicated space is assigned for the segregation and storage of recyclable waste in line with BREEAM requirements.</p>

					<p>- At least 2m² per 1000m² NIA (development <5000m²) or minimum 10m² (development >5000m²)</p> <p>- An additional 2m² per 1000m² NIA where catering is provided (with an additional minimum of 10m² for buildings ≥5000m²).</p> <p>- An area (of any size) designated for general waste</p> <p>- Confirmation of how recycling vs. general space will be labelled (either paint demarcation or fixed permanent signage)</p> <p>Where the consistent generation of operational waste streams is likely to exist, e.g. large amounts of packaging or compostable waste, the following facilities are provided:</p> <p>a. Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space.</p> <p>b. Vessel(s) for composting suitable organic waste resulting from the building's daily operation and use; OR adequate space(s) for storing segregated food waste and compostable organic material prior to collection and delivery to an alternative composting facility.</p> <p>c. Where organic waste is to be stored/composted on-site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes.</p> <p><i>Evidence at Design Stage - marked-up drawings to clearly demonstrate the areas allocated, labelling, signage etc. as outlined above.</i></p>
Wst 04	Speculative finishes (Offices only)	1	1	1	<p><u>Credit One – Speculative finishes</u> ACME, Lendlease</p> <p><u>Targeted, 1 credit.</u> A. Where the future tenant is not known and carpets or other floor or ceiling finishes are installed, these must be limited to a show area only.</p> <p>OR</p> <p>Where only ceiling finishes and no carpets are installed, the building owner confirms that the first tenants will not be permitted to make substantial alterations to the ceiling finishes</p> <p>B. If the future tenant is known:</p> <p>Only install floor and ceiling finishes selected by the known occupant of a development.</p> <p><i>Evidence at Design Stage – HPF template commitment letter to be completed on behalf of the Client/Developer.</i></p>
Wst 05	Adaptation to climate change	1 (+1)	1	1	<p><u>Credit One – Resilience of structure, fabric, building services and renewables installation</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit.</u> a climate change adaptation strategy appraisal for structural and fabric resilience is conducted by the end of RIBA stage 2 in accordance with the BREEAM risk assessment methodology.</p>
Wst 06	Design for disassembly and adaptability	2	2	2	<p><u>Credit One- Design for disassembly and functional adaptability- recommendations</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit.</u> undertaking and reporting of a building-specific functional adaptability strategy study and provision of functional adaptation measures in the design by RIBA stage 2.</p> <p><u>Credit Two - Design for disassembly and functional adaptability – implementation</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit.</u> provide an update at RIBA stage 4, on how the recommendations or solutions have been implemented where practical and cost effective.</p>
Waste Totals: (+exemplary)		10 (+3)	8	8	
Waste score totals:		7	5.6	5.6	
Land Use & Ecology					

LE 01	Site selection	2	1	1	<p><u>Credit 1 - Previously Occupied Land</u></p> <p>ACME</p> <p><u>Targeted, 1 credit</u>, 75% of the proposed development's footprint is on an area of land which has previously been occupied. <i>Evidence at Design Stage – site plans before and proposed confirming area of occupied land.</i></p> <p><u>Credit 2– Contaminated Land</u></p> <p><u>Not Targeted, 1 credit</u>, would require land to be identified as contaminated by a specialist.</p>
LE 02	Ecological risks and opportunities	2 (+1)	2	2	<p><u>Pre-Requisite - Statutory Obligations</u></p> <p>Lendlease</p> <p><u>Targeted, pre-requisite</u>, compliance is monitored against all relevant UK/ EU / International legislation relating to the ecology of the site.</p> <p><u>Credit 1 – Survey and Evaluation</u></p> <p>Ecologist Ecologist not appointed yet but sent BREEAM requirements for them to put together a proposal.</p> <p><u>Targeted, 1 credit</u>, Suitably Qualified Ecologist (SQE) carries out a survey and evaluation for the site early enough to influence site preparation works, layout and, where necessary, strategic planning decisions (typically RIBA Stage 1). The SQE determines the ecological baseline for the site in line with BREEAM Route 2 methodology. Recommendations and data collected from the survey and evaluation are shared with appropriate project team members.</p> <p><u>Credit 2 – Determining Ecological Outcomes for the Site</u></p> <p>ACME, Ecologist, Lendlease, Spacehub</p> <p><u>Targeted, 1 credit</u>, during RIBA Stage 2, the project team liaise and collaborate with representative stakeholders to influence key planning decisions (typically RIBA Stage 2), to identify the optimal ecological outcomes for the site and identify, appraise and select measures to meet the optimal ecological outcomes for the site in line with the mitigation hierarchy and BREEAM methodology.</p> <p><i>Evidence at Design Stage – Ecologist's report, evidence of stakeholder consultation and design impact.</i></p> <p><u>Credit e1 Wider site sustainability - Exemplary level criteria</u></p> <p><u>Not targeted, 1 credit</u>, Achieve the credits of the assessment issues outlined below: Hea 07 Safe and healthy surroundings - Both credits a. Pol 03 Flood and surface water management - Achieve credits for 'Surface water run-off' and 'Minimising watercourse pollution' b. Pol 05 Reduction of noise pollution</p>
LE 03	Managing impacts on ecology	3	3	3	<p><u>Credits 1-2 – Planning and Measures On-Site</u> Ecologist not appointed yet but sent BREEAM requirements for them to put together a proposal.</p> <p>Ecologist, ACME, Spacehub, Lendlease commitment</p> <p><u>Targeted, 1 credit</u>, further planning to avoid and manage negative ecological impacts on-site is carried out early enough to influence the concept design and design brief as well as site preparation planning. On-site measures for managing negative ecological impacts during site preparation and construction are implemented in-practice. This is based on input from the project team in collaboration with representative stakeholders and data collated as part of the 'Determining Ecological Outcomes' in LE 02.</p> <p><u>Credit Two – Managing Negative Impacts</u></p> <p>Ecologist, ACME, Spacehub, Lendlease commitment</p> <p><u>Targeted, 2 credits</u>, negative impacts from site preparation and construction</p>

					<p>works are managed according to the mitigation hierarchy and no overall loss of ecological value has occurred.</p> <p><i>Evidence at Design Stage – Ecologist’s report, landscaping plans/ proposals, developer commitment on behalf of the Contractor, evidence of consultation/ collaboration with ecologist.</i></p>
LE 04	Ecological change and enhancement	4 (+1)	3	3	<p><u>Pre-Requisite - Managing Negative Impacts on Ecology</u></p> <p>Lendlease</p> <p><u>Targeted, pre-requisite</u>, compliance is monitored against all relevant UK/ EU / International legislation relating to the ecology of the site.</p> <p><u>Credit 1 – Ecological Enhancement</u> Ecologist not appointed yet but sent BREEAM requirements for them to put together a proposal.</p> <p>Ecologist, ACME, Spacehub</p> <p><u>Targeted, 1 credit</u>, measures have been implemented that enhance ecological value, which are based on input from the project team and SQE in collaboration with representative stakeholders and data collated as part of the ‘Determining ecological outcomes’ in LE 02, on-site where feasible and off-site within the zone of influence. Data collated are analysed and where potentially valuable, provided to the local environmental records centres nearest to, or relevant for, the site.</p> <p><u>Credits 2-4 – Change and Enhancement of Ecology</u></p> <p><u>Targeted, 2 credits</u>, change in ecological value is calculated by the SQE in compliance with BREEAM methodology.</p> <p><i>Evidence at Design Stage – Ecologist’s report, landscaping plans/ proposals, developer commitment on behalf of the Contractor, evidence of consultation/ collaboration with ecologist.</i></p>
LE 05	Long term ecological management and maintenance	2	2	2	<p><u>Pre-Requisite - Statutory Obligations, Planning, Site Implementation</u></p> <p>Lendlease commitment</p> <p><u>Targeted, pre-requisite</u>, compliance is monitored against all relevant UK/ EU / International legislation relating to the ecology of the site.</p> <p><u>Credit 1 - Management and Maintenance Throughout the Project</u> Ecologist not appointed yet but sent BREEAM requirements for them to put together a proposal.</p> <p>Ecologist, ACME, Spacehub, Lendlease commitment</p> <p><u>Targeted, 1 credit</u>, measures implemented to manage and maintain ecology throughout the project. These measures are based on input from the project team in collaboration with representative stakeholders and data collated as part of the ‘Determining ecological outcomes’ in LE 02. These measures must monitor and review the effectiveness of the mitigation and enhancement measures in place for LE 03 & LE 04. A section on Ecology and Biodiversity has been included as part of the tenant or building owner information supplied, in compliance with BREEAM format and content requirements.</p> <p><i>Evidence at Design Stage – Ecologist’s report, landscaping plans/ proposals, developer commitment on behalf of the Contractor, evidence of consultation/ collaboration with ecologist.</i></p> <p><u>Credit 2 - Landscape and Ecology Management Plan</u></p> <p>Additional Appointment, SQE appointment extension</p> <p><u>Targeted, 1 credit</u>, a Landscape and Ecology Management Plan has been developed in accordance with BS42020:2013 Section 11.1 covering at least the first five years after project completion and in compliance with BREEAM content requirements. including:</p> <p><i>Evidence at Design Stage – Landscape and Ecology Management Plan.</i></p>

	Land Use & Ecology Totals: (+exemplary)	13 (+2)	11	11	
	Land Use & Ecology score totals:	15	12.69	12.69	
Pollution					
Pol 01	Impact of refrigerants	3	1	2	<p><u>Credit One – Impact of refrigerants</u> HDR Hurley Palmer Flatt</p> <p><u>Not Targeted, 3 credits.</u> No refrigerant use within the installed plant or systems.</p> <p><u>OR</u></p> <p><u>Pre-requisite.</u> all systems with electric compressors comply with the requirements of BS EN 378:2016 (parts 2 and 3). Refrigeration systems containing ammonia comply with the Institute of Refrigeration Ammonia Refrigeration Systems code of practice.</p> <p><u>Then</u></p> <p><u>Not Targeted, 2 credits.</u> systems using refrigerants have Direct Effect Life Cycle CO₂ equivalent emissions (DELCO_{2e}) of ≤ 100 kgCO_{2e}/kW cooling/heating capacity.</p> <p><u>Or</u></p> <p><u>Not Targeted, 2 credits.</u> all refrigerants used have a global warming potential (GWP) ≤ 10.</p> <p><u>Or</u></p> <p><u>Targeted, 1 credit.</u> systems using refrigerants have Direct Effect Life Cycle CO₂ equivalent emissions (DELCO_{2e}) of ≤ 1000 kgCO_{2e}/kW cooling/heating capacity.</p> <p><i>Evidence at Design Stage - Pol 01 calculator to be completed detailing the applicable systems and manufacturer information sufficient to calculate DELCO_{2e}. Schedules, manufacturer datasheets etc. also to be provided.</i></p> <p><u>Credit Two Leak Detection</u> HDR Hurley Palmer Flatt</p> <p><u>Potentially Targeted 1 credit</u></p> <p>A. All systems are hermetically sealed or only use environmentally benign refrigerants</p> <p><u>OR</u></p> <p>B. Where the systems are not hermetically sealed: Systems have:</p> <ul style="list-style-type: none"> • A permanent automated refrigerant leak detection system, that is robust and tested, and capable of continuously monitoring for leaks. <p><u>OR</u></p> <ul style="list-style-type: none"> • An inbuilt automated diagnostic procedure for detecting leakage is enabled. <p><u>AND</u></p> <p>In the event of a leak, the system must be capable of automatically responding and managing the remaining refrigerant charge to limit loss of refrigerant</p>
Pol 03	Flood and surface water management	5	3	3	<p><u>Credit One – Flood resilience</u> Flood Consultant / Civil Engineer [appointment tbc]</p> <p><u>Not Targeted, 2 credits.</u> a site-specific flood risk assessment confirms the development is situated in a flood zone that is defined as having a low annual probability of flooding considering all current and future sources of flooding.</p> <p><i>Current flood maps indicate that site is not in low flood risk zone.</i></p> <p><u>OR</u></p> <p><u>Targeted, 1 credit.</u> a site-specific flood risk assessment confirms the development is situated in a flood zone that is defined as having a medium or</p>

					<p>high annual probability of flooding considering all current and future sources of flooding. To increase the resilience and resistance of the development to flooding, one of the following must be achieved:</p> <p>The ground level of the building and access to both building and the site, are designed (or zoned) so they are at least 600mm above the design flood level of the site's flood zone.</p> <p>OR</p> <p>The final design of the building and the wider site reflects the recommendations made by an appropriate consultant in accordance with the hierarchy approach outlined in section 5 of BS 8533:2017.</p> <p><u>Credit Two – Surface water run-off</u> Flood Consultant/Civil Engineer</p> <p><u>Pre-requisite</u>, surface water run-off design solutions must be bespoke. Priority levels as outlined by BREEAM guidelines must be followed and justification given by the appropriate consultant where water is allowed to leave the site.</p> <p><u>Targeted, 1 credit</u>, drainage measures are specified so that the peak rate of run-off from the site to the watercourses shows a 30% improvement for the developed site compared with the pre-developed site. This should comply at the 1-year and 100-year return period events.</p> <p>Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place.</p> <p>Calculations include an allowance for climate change. This should be made in accordance with current best practice planning guidance.</p> <p><u>Targeted, 1 credit</u>, flooding of property will not occur in the event of local drainage system failure (extreme rainfall of lack of maintenance).</p> <p>AND</p> <p>Drainage design measures are specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. This must be for the 100-year 6-hour event, including an allowance for climate change.</p> <p>Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other SuDS techniques.</p> <p><i>Evidence at design stage - BREEAM Pol 03 template report demonstrating calculations and information above plus supporting evidence.</i></p>
Pol 04	Reduction of night time light pollution	1	1	1	<p><i>All external lighting within the construction zone, whether retained without alterations, retained with alterations or newly specified, must meet the requirements of Ene 03 and Pol 04.</i></p> <p><u>Credit One – Reduction of night time light pollution</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, external lighting designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00. If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes.</p> <p>If applicable illuminated advertisements must be designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements</p> <p><i>Evidence at Design Stage - MEP specification, lighting layouts.</i></p>
Pol 05	Reduction of noise pollution	1	1	1	<p><u>Credit One - Reduction of Noise Pollution</u> Acoustician/ HDR Hurley Palmer Flatt</p> <p><u>Targeted 1 Credit</u>.</p> <p>A. There are no noise-sensitive areas within the assessed building or within 800 m radius of the assessed site.</p>

					<p>OR</p> <p>B. Where there are noise-sensitive areas within the assessed building or noise-sensitive areas within 800 m radius of the assessed site, a noise impact assessment compliant with BS 4142:20141 is commissioned. Noise levels must be measured or determined for:</p> <ul style="list-style-type: none"> • Existing background noise levels: <ul style="list-style-type: none"> ○ at the nearest or most exposed noise-sensitive development to the proposed assessed site ○ including existing plant on a building, where the assessed development is an extension to the building • Noise rating level from the assessed building. <p>The noise impact assessment must be carried out by a suitably qualified acoustic consultant.</p> <p>The noise level from the assessed building, as measured in the locality of the nearest or most exposed noise-sensitive development, must be at least 5dB lower than the background noise throughout the day and night.</p> <p>If the noise sources from the assessed building are greater than the levels described, measures must be installed to attenuate the noise at its source to a level where it will comply with the criterion.</p>
	Pollution Totals: (+exemplary)	10	6	7	
	Pollution score totals:	9	5.4	6.3	
Innovation					
AI	Approved Innovation	1	0	0	
	Innovation Totals: (+exemplary)	1	0	0	
	Innovation score totals:	1	0	0	
	OVERALL SCORE TOTALS:	101	70.84	84.71	

APPENDIX 2

Retail BREEAM Pre-Assessment

1.0 Introduction

This report is intended as a summary of the BREEAM pre-assessment review for the following project:

Project Name	H1 Elephant Park Retail
BREEAM Version	BREEAM 2018 NC
Assessment Stage	Pre-Assessment Stage
Lead Assessor	Luisa Dolce
Target Rating	Excellent (70%)

2.0 Scoring scenarios

It should be noted that the pre-assessment scores have been based on the following scoring scenarios;

- Targeted – Likely credits currently included in the design.
- Potential – Potential credits that could be included to create a recommended buffer.

On this basis, the following scores are considered achievable under each scenario;

Scenario	Score	BREEAM Rating
Targeted	70.67	Excellent
Potential	83.95	Excellent

2.1 Minimum Standards

In addition performance against the minimum standards (required for the specified target rating) under each scenario is summarised below;

Issue	Targeted	Potential
Man 03 - Responsible construction practices	Yes	Yes
Man 04 - Commissioning and handover	Yes	Yes
Man 04 - Commissioning and handover	Yes	Yes
Ene 01 - Reduction of energy use and carbon emissions	Yes	Yes
Ene 02 - Energy monitoring	Yes	Yes
Wat 01 - Water consumption	Yes	Yes
Wat 02 - Water monitoring	Yes	Yes
Mat 03 - Responsible sourcing of construction products	Yes	Yes
Wst 01 - Construction waste management	Yes	Yes
Wst 03 - Operational waste	Yes	Yes

If the required minimum standards are not met then the target rating will not be achieved regardless of overall score.

3.0 - Credits and Comments Table

		Available	Targeted	Potential	Comments
Management					
Man 01	Project brief and design	4	4	4	<p><u>Credit One- Project delivery planning</u> Lendlease</p> <p><u>Targeted, 1 credit</u>, project delivery stakeholders meet prior to RIBA stage 2 to identify and define roles, responsibilities and contributions at RIBA Stages 2-7. Demonstrate how the outcomes of the consultation process have influenced or changed the Initial Project Brief.</p> <p><i>Evidence at Design Stage - template proforma to be completed and supporting documentation provided.</i></p> <p><u>Credit Two- Stakeholder consultation (interested parties)</u> Lendlease</p> <p><u>Targeted, 1 credit</u>, interested party stakeholder consultation from RIBA stage 2 to cover the BREEAM minimum consultation content. Demonstrate how the stakeholder contributions and outcomes of the consultation exercise have influenced or changed the Initial Project Brief and Concept Design. Demonstrate that, prior to the completion of RIBA Stage 4, consultation feedback has been given to and received by, all parties.</p> <p><i>Evidence required at Design Stage - template proforma to be completed and supporting documentation provided.</i></p> <p><u>Pre-requisite to achieving credits three and four</u> Lendlease</p> <p><u>Targeted, 1 credit</u>, project team including the Client, formally agree strategic performance targets early in the design process (with the support of the BREEAM AP where appointed)</p> <p><u>Credit Three- BREEAM AP Concept Design</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, a BREEAM AP is appointed to facilitate the achievement of BREEAM performance during RIBA Stage 1; monitoring, identifying risks and opportunities and providing feedback.</p> <p><i>Evidence at Design Stage – BREEAM AP appointment letter template to be completed. AP to provide reporting, documentation etc. on actions.</i></p> <p><u>Credit Four – BREEAM AP Developed Design</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, a BREEAM AP is appointed to monitor progress against the BREEAM performance target(s) throughout the design process and formally report progress to the client and design team attending and reporting on key project/design team meetings during the Concept Design, Developed Design and Technical Design stages.</p> <p><i>Evidence at Design Stage – BREEAM AP appointment letter template to be completed. AP to provide reporting, documentation etc. on actions.</i></p>
Man 02	Life cycle cost and service planning	4	4	4	<p><u>Credit One – Elemental LCC</u> Gardiner & Theobald</p> <p><u>Targeted, 2 credits</u>, Elemental level LCC Plan, to be developed by the end of RIBA Stage 2, in accordance with BREEAM requirements and PD 156865:2008.</p> <p><u>Credit Two – Component level LCC</u> Gardiner & Theobald</p> <p><u>Targeted, 1 credit</u>, Component level LCC Plan, to be developed by the end of RIBA Stage 4, in accordance with BREEAM requirements and PD 156865:2008.</p>

					<p><u>Credit Three- Capital cost reporting</u> <u>Gardiner & Theobald, Lendlease</u></p> <p><u>Targeted, 1 credit.</u> Capital cost of the development in pounds per square meter (£k/m²) (calculated in line with BREEAM methodology) to be reported. This will be provided to the BRE for anonymous use and benchmarking.</p> <p><i>Evidence at Design Stage: template letter to be completed</i></p>
Man 03	Responsible construction practices	6 (+1)	6	6	<p><i>Evidence for all Man 03 credits at Design Stage - template commitment proforma to be completed. Requirements also to be included in Contractor prelims/tender documentation as committed to by the Developer at Design Stage.</i></p> <p><u>Pre-requisite- legally harvested and traded timber</u> <u>Lendlease (Developer commitment)</u></p> <p><u>Targeted,</u> all timber/timber-based products used during the construction process to have appropriate certifications showing they have been legally sourced and traded.</p> <p><u>Credit One – Environmental management</u> <u>Lendlease (Developer commitment)</u></p> <p><u>Targeted, 1 credit,</u> requirement for all parties who manage the construction site to hold a third-party verified environmental management system certification (ISO 4001/EMAS) and implement Pollution Prevention Guidelines in accordance with PPG6.</p> <p><u>Credit Two – BREEAM AP (site)</u> <u>Lendlease (Developer commitment)</u></p> <p><u>Targeted, 1 credit,</u> BREEAM AP to monitor progress against formally agreed BREEAM targets, identify risks and provide feedback (RIBA stages 5-6).</p> <p><u>Credit Three – Responsible Construction Management</u> <u>Lendlease (Developer commitment)</u></p> <p><u>Targeted, 2 credits,</u> Principal Contractor to comply with the outlined responsible practice actions in line with the BREEAM requirements.</p> <p>Innovation credit attained with compliance with all items listed in Responsible Construction Management table.</p> <p><u>Credit Four – Monitoring of construction site impacts</u> <u>Lendlease (Developer commitment)</u></p> <p><u>Targeted, 1 credit,</u> site related energy consumption (kWh, litres of fuel, kgCO₂/project value) and potable water consumption are to be monitored and reported by an assigned individual.</p> <p><u>Targeted, 1 credit,</u> site transport impacts are to be monitored and reported separately for materials and waste by an assigned individual (kgCO₂eq, litres of fuel, km).</p>
Man 04	Commissioning and handover	4	3	4	<p><i>Evidence for all Man 04 credits at Design Stage - template commitment letter to be completed. Requirements also to be included in Contractor prelims/tender documentation as committed to by the Developer at Design Stage.</i></p> <p><u>Credit One – Commissioning – testing schedule and responsibilities</u> <u>Lendlease (Developer commitment)</u></p> <p><u>Targeted, 1 credit,</u> project team member appointed to monitor and programme pre-commissioning, commissioning, testing and, where necessary, re-commissioning activities. The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of works. A schedule of commissioning and testing to identify appropriate commissioning required is produced. The schedule must identify appropriate standards such as current Building Regulations,</p>

					<p>BSRIA and CIBSE guidelines. Where a BMS is specified this must be commissioned in line with BREEAM requirements.</p> <p><u>Credit Two – Commissioning- design and preparation</u> Lendlease (Developer commitment)</p> <p><u>Targeted, 1 credit</u>, a specialist commissioning manager is appointed during the design stage with responsibility for:</p> <ul style="list-style-type: none"> - Undertaking design reviews and giving advice on suitability for ease of commissioning - Providing commissioning management input to construction programming and during installation stages - Management of commissioning, performance testing and handover/post-handover stages <p><u>Credit Three – Testing and inspecting building fabric</u> Lendlease (Developer commitment)</p> <p><u>Potentially 1 credit</u>, a thermographic survey and airtightness testing and visual inspection will take place at appropriate times during the construction. Any defects identified must be rectified prior to building handover and close out.</p> <p><u>Credit Four – Handover</u> Lendlease (Developer commitment)</p> <p><u>Targeted, 1 credit</u>, two compliant Building User Guides (technical and non-technical) are developed prior to handover, for distribution to the building occupiers and premises facilities managers. Two training schedules are prepared for building occupiers/premises facilities managers, timed appropriately around handover and proposed occupation plans in line with BREEAM content requirements.</p>
Management Totals: (+exemplary)		18 (+1)	17	18	
Management score totals:		11	10.39	11	
Health & Wellbeing					
Hea 01	Visual comfort	4 (+1)	2	2	<p><u>Credit 2 – Daylighting</u></p> <p>Additional Appointment. Daylight Modeller</p> <p><u>Not Targeted, 2 credits</u>, modelling to demonstrate relevant building areas meet good practice daylight criteria as defined by BREEAM.</p> <p><u>Credit 3 – View out</u></p> <p>ACME</p> <p><u>Targeted, 1 credit</u>, HPF have issued requirements to Architect for review. 95% of the floor area in 95% of spaces is within 8m of an external wall with a window or permanent opening that provides an adequate view out. The window/opening must be ≥ 20% of the surrounding wall area. Where the room depth is greater than 8m, compliance is only possible where the percentage of window/opening is compliant with table 1.0 of BS 82061: part 2.</p> <p><i>Evidence at Design Stage – plans marked up with calculations to demonstrate the above.</i></p> <p><u>Credit 4 – Internal and external lighting levels, zoning and control</u></p> <p>HDR Hurley Palmer Flatt MEP</p> <p><u>Targeted, 1 credit</u>,</p> <p><i>External lighting</i> - specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places.</p> <p><i>Evidence at Design Stage - MEP specification, lighting schedule, lighting layouts</i></p>

Hea 02	Indoor air quality	1	1	1	<p><u>Pre-requisite – Indoor Air Quality Plan</u> HDR Hurley Palmer Flatt MEP</p> <p><u>Targeted</u>, indoor air quality plan to be developed by the end of RIBA stage 2, considering all contaminant sources, flush-out, protection, testing and cleaning procedures in line with GN06 BREEAM content requirements.</p> <p><u>Credit One - Ventilation</u> HDR Hurley Palmer Flatt MEP</p> <p><u>Targeted 1 credit</u>, fresh air provided at 12 litres per second per person. Air intakes and exhausts over 10m apart and intakes over 20m from sources of external pollution. HVAC incorporates filtration as per BS EN 13779:2007 Annex A3. CO2 sensors required for high variable occupancy areas only. Ventilation designed in accordance with CIBSE AM10.</p> <p><i>Evidence at Design Stage - plant layouts marked up to show distances, MEP spec, CO2 sensor spec and layout drawings.</i></p>
Hea 04	Thermal comfort	2	1	2	<p><u>Credit One – Thermal modelling</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, full dynamic thermal analysis carried out using software in accordance with CIBSE AM11. Modelling to demonstrate that operative temperatures are in accordance with CIBSE Guide A Table 1.5.</p> <p><u>Credit Two – Design for future thermal comfort</u> HDR Hurley Palmer Flatt</p> <p><u>Potentially Targeted, 1 credit</u>, thermal modelling undertaken above demonstrates requirements can be achieved for a projected climate change scenario.</p>
Hea 05	Acoustic performance	1	1	1	<p><u>Credit One – Acoustic performance</u> Acoustician (appointment required)</p> <p><u>Targeted, 1 credit</u>, the building is required to meet BREEAM acoustic standards for indoor ambient noise level.</p> <p>Achieve indoor ambient noise levels that comply with the design ranges given in Section 7 of BS 8233:2014.</p> <p>Lendlease Pre-completion acoustic testing undertaken to demonstrate the acoustic standards above have been achieved.</p> <p><i>Evidence at Design Stage - template commitment letter to be completed.</i></p>
Hea 06	Security	1 (+1)	1 (+1)	1 (+1)	<p><u>Credit One – Security of site and building</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, SQSS to conduct an evidence-based Security Needs Assessment (SNA) during or prior to RIBA Stage 2 (or confirm their late involvement has not impacted their ability to make recommendations that are implemented). The recommendations or solutions proposed by the SQSS must all be implemented.</p> <p><i>Evidence at Design Stage – SQSS reporting, plans and specifications confirming implementation of recommendations.</i></p> <p>Exemplary credit (included in Outstanding Strategy) HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u> A compliant risk based security rating scheme has been used (e.g. SABRE). The performance against the scheme has been confirmed by independent assessment and verification.</p>
Hea 07	Safe and healthy surroundings	2	2	2	<p><u>Credit One – Safe access</u> ACME</p>

					<p><u>Targeted 1 credit</u>, external site areas meet BREEAM compliance for safe access e.g. in relation to dedicated cycle paths, pedestrian paths and separation of vehicular/ delivery/ manoeuvring spaces.</p> <p>Where external site areas form part of the assessed development the following apply:</p> <ul style="list-style-type: none"> • Dedicated and safe cycle paths are provided from the site entrance to any cycle storage, and connect to off-site cycle paths where applicable. • Dedicated and safe footpaths are provided on and around the site providing suitable links for the following: The site entrance to the building entrance Car parks (where present) to the building entrance The building to outdoor space Connecting to off-site paths where applicable. • Pedestrian drop-off areas are designed off, or adjoining to, the access road and should provide direct access to other footpaths. <p>Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply:</p> <ul style="list-style-type: none"> • Delivery areas are not accessed through general parking areas and do not cross or share the following: pedestrian and cyclist paths outside amenity areas accessible to building users and general public. • There is a dedicated parking or waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking. • Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting. <p><i>Evidence at Design Stage – marked up site plans, written confirmation.</i></p> <p><u>Credit Two – Outside space</u> ACME</p> <p><u>Targeted, 1 credit</u>, there is an outside space providing building users with an external amenity area.</p> <p><i>Evidence at Design Stage – marked up site plans.</i></p>
Health & Wellbeing Totals: (+exemplary)		11 (+2)	8 (+1)	9 (+1)	
Health & Wellbeing score totals:		8	6.82	7.55	
Energy					
Ene 01	Reduction of energy use and carbon emissions	13 (+5)	8	10 (+2)	<p><u>Credit One – Energy Performance</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 4, potentially 6 credits, up to 9 credits available</u>, calculate an Energy Performance Ratio for New Constructions. <i>Evidence at Design Stage - Building Regulations Output Document (BRUKL).</i></p> <p>A minimum of 4 credits are required to be achieved to attain an 'Excellent' rating. A minimum of 6 credits are required to be achieved to attain an 'Outstanding' rating.</p> <p><u>Credit Two – Prediction of operational energy consumption</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 4 credits</u>, additional energy modelling to generate predicted operational energy consumption figures. Report targeted by end use, risk assessment to highlight design, technical and process risks.</p> <p><u>Exemplary credits - Post-occupancy stage</u> <u>Targeted 2 credits</u></p>

					<ul style="list-style-type: none"> • Achieve maximum available credits in Ene 02 Energy monitoring . In addition, preschools, primary schools, law courts, prisons and multi-residential buildings must meet the requirements of the second credit for sub-metering of high energy load and tenancy areas. • The client or building occupier commits funds to pay for the post occupancy stage. This requires an assessor to be appointed and to report on the actual energy consumption compared with the targets set as part of the prediction of operational energy consumption credit above. • The energy model is submitted to BRE and retained by the building owner.
Ene 02	Energy monitoring	2	2	2	<p><u>Credit One – Submetering of end-use categories</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted. 1 credit</u>, an appropriate energy monitoring and management system enables min. 90% of building energy consumption to be assigned to end uses listed below where relevant (i.e. in accordance with building regulations Part L and CIBSE TM39).</p> <ul style="list-style-type: none"> - Space Heating - Domestic Hot Water - Humidification - Cooling - Fans (ventilation) - Pumps - Lighting - Small Power - Renewable or Low Carbon systems - Controls - Other major energy consuming systems/ plant (lifts) <p><i>Evidence at Design Stage - metering schematics, MEP spec, BMS specification.</i></p> <p><u>Credit Two – Sub-metering of high energy load and tenancy areas</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted. 1 credit</u>, sub-meters provided covering the significant majority of energy supply to tenanted or relevant function areas/ departments (office areas by floor plate, catering if applicable, separately).</p>
Ene 03	External Lighting	1	1	1	<p><u>Credit One – External lighting</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted. 1 credit</u>, average initial luminous efficacy to be >70 luminaire lumens per circuit watt for all external fittings within the construction zone (new and existing). All external fittings automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.</p> <p><i>Evidence at Design Stage - lighting schedule & datasheets for external fittings, lumens/watt calculations (if not all fittings >70), lighting layouts, MEP spec.</i></p>
Ene 04	Low carbon design	3	0	2	<p><u>Credit One – Passive design</u> HDR Hurley Palmer Flatt</p> <p><u>Potentially Targeted. 1 credit</u>, (Hea 04 credit 1 must be achieved) an analysis of the building design/development to influence decisions during RIBA Stage 2 and identify opportunities for the implementation of passive design solutions to reduce demands for energy consuming building services.</p> <p><i>Evidence at Design Stage – modelling/ reporting from the Energy Modeller, MEP specifications/ schematics etc.</i></p> <p><u>Credit Two – Low and zero carbon technologies</u> HDR Hurley Palmer Flatt</p>

					<p><u>Potentially Targeted, 1 credit</u>, a feasibility study is carried out by RIBA Stage 2 to establish the most appropriate low or zero carbon energy source(s) for the building/development. An LZC technology must be specified.</p> <p><i>Evidence at Design Stage – modelling/ reporting from the Energy Modeller, MEP specifications/ schematics etc.</i></p>
Energy Totals: (+exemplary)		19 (+5)	11	15 (+2)	
Energy score totals:		14	8.11	13.05	
Transport					
Tra 01	Transport assessment and travel plan	2	2	2	<p>Credit One – Travel plan HDR Hurley Palmer Flatt</p> <p><u>Targeted, 2 credits</u>, travel plan to be developed, at design stage and confirmed implemented at PC. The travel plan must cover all required BREEAM content requirements. If the occupier is known, they must be involved in the development of the travel plan and they must confirm that the travel plan will be implemented post construction and be supported by the building's management in operation.</p> <p><i>Evidence at Design Stage - compliant Travel Plan, template commitment letter.</i></p>
Tra 02	Sustainable transport measures	10	6	6	<p>Credit One - Sustainable Transport measures ACME/Lendlease</p> <p><u>Targeted, 6 of 10 credits</u>, sustainable transport measures such as a dedicated bus route, cyclist facilities and electric vehicle charging are specified.</p> <p>For 6 credits the following to be installed/in place:</p> <ul style="list-style-type: none"> • Accessibility Index >8. (TFL PTAL report confirms AI for the site of 59.25). • Provide a public transport information system in a publicly accessible area, to allow building users access to up-to-date information on the available public transport and transport infrastructure. This may include signposting to public transport, cycling, walking infrastructure or local amenities. • At least three existing accessible amenities are present e.g. food outlet, access to cash, outdoor open space, recreation or leisure facility, post office etc. <p><i>Evidence at Design Stage - marked-up plans showing facilities, specifications, route maps etc.</i></p>
Transport Totals: (+exemplary)		12	8	8	
Transport score totals:		11.5	7.67	7.67	
Water					
Wat 01	Water consumption	5 (+1)	5	5	<p>Credit One – Water consumption ACME</p> <p><u>Targeted, 5 credits</u>, sanitary ware fittings to regulate/minimise water consumption.</p> <p>To reach 5 credits grey or rainwater will be needed. At least three credits must be achieved first on the basis of the fitting selection alone.</p> <p>A greywater and/or rainwater system is specified to off-set non-potable water. Any greywater systems are specified and installed in compliance with BS 8525-1:2010 Greywater Systems - Part 1 Code of Practice. Any rainwater systems are specified and installed in compliance with BS 8515:2009+A1:2013 Rainwater Harvesting Systems - Code of practice.</p> <p>H1 Retail will claim this credit through the public bathroom in lobby.</p> <p><i>Evidence at Design Stage - completed Wat 01 proforma (template available from HPF), sanitary ware specification, drawings showing location of all fittings.</i></p>

Wat 02	Water monitoring	1	1	1	<p><u>Credit One - Water monitoring</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, a water meter on the mains supply to each building. Any plant or building areas consuming 10% or more of the building's total water demand are also either fitted with easily accessible sub-meters or have water monitoring equipment integral to the plant or area. All meters connected to the BMS.</p> <p><i>Evidence at Design Stage - MEP spec, water metering schematics, BMS specification.</i></p>
Wat 03	Water leak detection	2	2	2	<p><u>Credit One – Leak detection system</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, specification of a leak detection system capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter. The system must be:</p> <ul style="list-style-type: none"> - A permanent automated water leak detection system or an inbuilt automated diagnostic procedure - Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time - Able to identify different flow and therefore leakage rates - Programmable to suit the owner/occupiers' water consumption criteria - Designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers (if applicable) <p><i>Evidence at Design Stage - PH schematics, leak detection specification, MEP specification</i></p> <p><u>Credit Two – Flow control devices</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, flow control devices regulating the supply of water to each WC area/facility according to demand to be specified. E.g. a time controller, volume controller, PIR.</p> <p><i>Evidence at Design Stage - PH schematics, MEP specification</i></p>
Wat 04	Water efficient equipment	1	1	1	<p><u>Credit One – Water efficient equipment</u> Spacehub</p> <p><u>Targeted, 1 credit</u>, unregulated water demands identified and reduced.</p> <p>For landscaping areas either:</p> <ul style="list-style-type: none"> - External landscaping and planting relies solely on precipitation, during all seasons of the year and in those conditions likely as a result of climate change <p>OR</p> <ul style="list-style-type: none"> - Drip-fed subsurface irrigation incorporating soil moisture sensors is provided. Irrigation control zoned to permit variable irrigation to different planting assemblages <p>Where there is no water demand from uses other than domestic-scale, sanitary use components in the building, this credit is not applicable.</p> <p><i>Evidence at Design Stage – written confirmation no unregulated water demands or details of water reduction measures (e.g. irrigation specification)</i></p>
Water Totals: (+exemplary)		9 (+1)	9	9	
Water score totals:		7	7	7	
Materials					
Mat 01	Environmental impacts from construction products - Building life	7 (+3)	1	5 (+1)	<p><u>Superstructure LCA</u> HDR Hurley Palmer Flatt</p>

	cycle assessment (LCA)				<p><u>Targeted, 1 credit. (Potentially 4 credits).</u> During the Concept Design and Technical Design, carry out a building LCA benchmark comparison and options appraisal for the superstructure.</p> <p>Concept Design results must be submitted to BRE pre-planning, and Technical Design results must be submitted to BRE pre completion of Technical Design.</p> <p><i>Evidence at Design Stage – LCA output. Sections/ elevations showing location of materials.</i></p> <p><u>Substructure and hard landscaping LCA</u> HDR Hurley Palmer Flatt</p> <p><u>Potentially Targeted, 1 credit. **Pre-requisite: superstructure LCA must be achieved first**</u> During the Concept Design, carry out a building LCA options appraisal for substructure and hard landscaping. Results must be submitted to BRE pre-planning. <i>Evidence at Design Stage – LCA output. Sections/ elevations showing location of materials.</i></p> <p><u>1 Exemplary Level Credit – Core Building Services Options Appraisal</u></p> <p><u>Potentially Targeted, 1 credit,</u> LCA options appraisal of at least three building services design options.</p>
Mat 02	Mat 02 Environmental impacts from construction products - Environmental Product Declarations (EPD)	1	0	0	<p><u>Credit One – Specification of products with a recognised environmental product declaration (EPD)</u> ACME</p> <p><u>Not targeted 1 credit,</u> specify construction products with EPD in accordance with the BREEAM requirements.</p> <p>Based on EPD specificity, 15-40 products with EPD certificates would be required to be specified.</p> <p><i>Evidence at Design Stage – materials specification, EPD certifications, supporting evidence.</i></p>
Mat 03	Responsible sourcing of construction products	4 (+1)	2	2	<p><u>Pre-requisite – Legally harvested and traded timber Lendlease (Developer commitment)</u></p> <p><u>Targeted,</u> all timber to be legally harvested and traded.</p> <p><u>Credit One – Enabling sustainable procurement Lendlease (Developer commitment)</u></p> <p><u>Targeted, 1 credit,</u> the design team is to produce and work to a Sustainable Procurement Plan (in accordance with BREEAM definitions and content requirements). The plan must be in place before RIBA 2.</p> <p><i>Evidence at Design Stage – copy of Sustainable Procurement Plan. Plan to be included in Contractor prelims/tender documentation and committed to by the Developer at Design Stage.</i></p> <p><u>Credit Two – Measuring responsible sourcing</u> ACME</p> <p><u>Targeted, 1 credit (potential +1 credit: included in Outstanding strategy),</u> materials to have responsible sourcing certification (such as BES 6001 or ISO 1400) wherever feasible.</p> <p><i>Evidence at Design Stage - Mat 03 template provided by HPF to be completed and certifications provided where applicable.</i></p>
Mat 05	Designing for durability and resilience	1	1	1	<p><u>Credit One- Designing for durability and resilience</u> ACME</p> <p><u>Targeted, 1 credit.</u> <u>Requirement 1:</u> suitable durability and protection measures or</p>

					<p>designed features/solutions specified to prevent damage to vulnerable parts of the internal and external building and landscaping elements, which must include:</p> <p>a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc.)</p> <p>b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas</p> <p>c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and maneuvering occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas</p> <p><i>Evidence at Design Stage - drawings marked up to highlight any areas a-c and protection measures in place. Supplementary evidence also to be provided e.g. specifications/ schedules.</i></p> <p>ACME, Robert Bird, HDR Hurley Palmer Flatt</p> <p><u>Requirement 2:</u> identification and protection of building elements against environmental factors and degradation effects in line with the BREEAM Mat 05 methodology.</p> <p><i>Evidence at Design Stage - template report to be completed and supporting documentation provided.</i></p>
Mat 06	Material efficiency	1	1	1	<p><u>Credit One – Material efficiency</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, undertaking and reporting on the investigation and implementation of measures to optimise the use of materials from RIBA Stage 1 onward, through the buildings design, procurement, construction, maintenance and end of life.</p>
Materials Totals: (+exemplary)		14 (+4)	5	9 (+1)	
Materials score totals:		17.5	6.25	12.25	
Waste					
Wst 01	Construction waste management	4 (+1)	3	3	<p><u>Credit Two – Construction resource efficiency</u> Lendlease (Developer commitment)</p> <p><u>Targeted, 2 credits</u>, a compliant resource management plan is produced containing all BREEAM content requirements. Non-hazardous waste relating to on-site construction, and dedicated off-site manufacture or fabrication processes, is to be maximum of 7.5m3 per 100m2 GIA or 6.5 tonnes per 100m2 GIA</p> <p><i>Evidence at Design Stage - HPF template commitment proforma to be completed. Requirements also to be included in Contractor prelims/tender documentation as committed to by the Developer at Design Stage.</i></p> <p><u>Credit Three – Diversion of resources from landfill</u> Lendlease (Developer commitment)</p> <p><u>Targeted, 1 credit</u>, at least 70% (volume) or 80% (tonnage) of non-demolition waste is to be diverted from landfill. At least 80% (volume) or 90% (tonnage) of demolition waste is to be diverted from landfill.</p>
Wst 02	Use of recycled and sustainably sourced aggregates	1 (+1)	0	0	<p><u>Credit One – Project sustainable aggregate</u> Robert Bird</p> <p><u>Not targeted 1 credit</u>, specify locally sourced aggregates in accordance with the BREEAM criteria.</p> <p><i>Evidence at design stage – Wst 02 calculator tool, supporting evidence.</i></p>
Wst 03	Operational waste	1	1	1	<p><u>Credit One- Operational waste</u> ACME</p> <p><u>Targeted, 1 credit</u>, dedicated space is assigned for the segregation and storage of recyclable waste in line with BREEAM requirements.</p>

					<p>- At least 2m² per 1000m² NIA (development <5000m²) or minimum 10m² (development >5000m²)</p> <p>- An additional 2m² per 1000m² NIA where catering is provided (with an additional minimum of 10m² for buildings ≥5000m²).</p> <p>- An area (of any size) designated for general waste</p> <p>- Confirmation of how recycling vs. general space will be labelled (either paint demarcation or fixed permanent signage)</p> <p>Where the consistent generation of operational waste streams is likely to exist, e.g. large amounts of packaging or compostable waste, the following facilities are provided:</p> <p>a. Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space.</p> <p>b. Vessel(s) for composting suitable organic waste resulting from the building's daily operation and use; OR adequate space(s) for storing segregated food waste and compostable organic material prior to collection and delivery to an alternative composting facility.</p> <p>c. Where organic waste is to be stored/composted on-site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes.</p> <p><i>Evidence at Design Stage - marked-up drawings to clearly demonstrate the areas allocated, labelling, signage etc. as outlined above.</i></p>
Wst 05	Adaptation to climate change	1 (+1)	1	1 (+1)	<p><u>Credit One – Resilience of structure, fabric, building services and renewables installation</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, a climate change adaptation strategy appraisal for structural and fabric resilience is conducted by the end of RIBA stage 2 in accordance with the BREEAM risk assessment methodology.</p> <p><u>Exemplary level</u> <u>Potentially Targeted, 1 credit</u> In addition to the above, achieve the following credits: Hea 04 Thermal comfort Ene 01 Reduction of energy use and carbon emissions - min 6 credits Ene 04 Passive Design Wat 01 Water consumption - min 3 credits Mat 05 Designing for durability and resilience Pol 03 Flood and surface water management - min 1 credit for Flood resilience and two credits for surface water run off.</p> <p>The above are currently included in the 'Excellent' and 'Outstanding' strategies.</p>
Wst 06	Design for disassembly and adaptability	2	2	2	<p><u>Credit One- Design for disassembly and functional adaptability-recommendations</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, undertaking and reporting of a building-specific functional adaptability strategy study and provision of functional adaptation measures in the design by RIBA stage 2.</p> <p><u>Credit Two - Design for disassembly and functional adaptability – implementation</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, provide an update at RIBA stage 4, on how the recommendations or solutions have been implemented where practical and cost effective.</p>
Waste Totals: (+exemplary)		9 (+3)	7	7 (+1)	
Waste score totals:		7	5.44	6.44	
Land Use & Ecology					
LE 01	Site selection	2	1	1	<p><u>Credit 1 - Previously Occupied Land</u> ACME</p>

					<p><u>Targeted, 1 credit</u>, 75% of the proposed development's footprint is on an area of land which has previously been occupied. <i>Evidence at Design Stage – site plans before and proposed confirming area of occupied land.</i></p> <p><u>Credit 2– Contaminated Land</u></p> <p><u>Not Targeted, 1 credit</u>, would require land to be identified as contaminated by a specialist.</p>
LE 02	Ecological risks and opportunities	2 (+1)	2	2	<p><u>Pre-Requisite - Statutory Obligations</u></p> <p>Lendlease commitment</p> <p><u>Targeted, pre-requisite</u>, compliance is monitored against all relevant UK/ EU / International legislation relating to the ecology of the site.</p> <p><u>Credit 1 – Survey and Evaluation</u> Ecologist not appointed yet but sent BREEAM requirements for them to put together a proposal.</p> <p>Ecologist</p> <p><u>Targeted, 1 credit</u>, Suitably Qualified Ecologist (SQE) carries out a survey and evaluation for the site early enough to influence site preparation works, layout and, where necessary, strategic planning decisions (typically RIBA Stage 1). The SQE determines the ecological baseline for the site in line with BREEAM Route 2 methodology. Recommendations and data collected from the survey and evaluation are shared with appropriate project team members.</p> <p><u>Credit 2 – Determining Ecological Outcomes for the Site</u></p> <p>Architect, Ecologist, Client, Landscape Architect</p> <p><u>Targeted, 1 credit</u>, during RIBA Stage 2, the project team liaise and collaborate with representative stakeholders to influence key planning decisions (typically RIBA Stage 2), to identify the optimal ecological outcomes for the site and identify, appraise and select measures to meet the optimal ecological outcomes for the site in line with the mitigation hierarchy and BREEAM methodology.</p> <p><i>Evidence at Design Stage – Ecologist's report, evidence of stakeholder consultation and design impact.</i></p> <p><u>Credit e1 Wider site sustainability - Exemplary level criteria</u></p> <p><u>Not Targeted, 1 credit</u>, achieve the credits of the assessment issues outlined below:</p> <ul style="list-style-type: none"> a. Hea 07 Safe and healthy surroundings - Both credits b. Pol 03 Flood and surface water management - Achieve credits for 'Surface water run-off' and 'Minimising watercourse pollution' c. Pol 05 Reduction of noise pollution
LE 03	Managing impacts on ecology	3	3	3	<p><u>Credits 1-2 – Planning and Measures On-Site</u> Ecologist not appointed yet but sent BREEAM requirements for them to put together a proposal.</p> <p>Ecologist, ACME, Spacehub, Lendlease commitment</p> <p><u>Targeted, 1 credit</u>, further planning to avoid and manage negative ecological impacts on-site is carried out early enough to influence the concept design and design brief as well as site preparation planning. On-site measures for managing negative ecological impacts during site preparation and construction are implemented in-practice. This is based on input from the project team in collaboration with representative stakeholders and data collated as part of the 'Determining Ecological Outcomes' in LE 02.</p> <p><u>Credit Two – Managing Negative Impacts</u></p> <p>Ecologist, ACME, Spacehub, Lendlease commitment</p>

					<p><u>Targeted, 2 credits</u>, negative impacts from site preparation and construction works are managed according to the mitigation hierarchy and no overall loss of ecological value has occurred.</p> <p><i>Evidence at Design Stage – Ecologist’s report, landscaping plans/proposals, developer commitment on behalf of the Contractor, evidence of consultation/ collaboration with ecologist.</i></p>
LE 04	Ecological change and enhancement	4 (+1)	3	3	<p><u>Pre-Requisite - Managing Negative Impacts on Ecology</u></p> <p>Lendlease commitment</p> <p><u>Targeted, pre-requisite</u>, compliance is monitored against all relevant UK/ EU / International legislation relating to the ecology of the site.</p> <p><u>Credit 1 – Ecological Enhancement</u> Ecologist not appointed yet but sent BREEAM requirements for them to put together a proposal.</p> <p>Ecologist, ACME, Spacehub</p> <p><u>Targeted, 1 credit</u>, measures have been implemented that enhance ecological value, which are based on input from the project team and SQE in collaboration with representative stakeholders and data collated as part of the ‘Determining ecological outcomes’ in LE 02, on-site where feasible and off-site within the zone of influence. Data collated are analysed and where potentially valuable, provided to the local environmental records centres nearest to, or relevant for, the site.</p> <p><u>Credits 2-4 – Change and Enhancement of Ecology</u></p> <p><u>Targeted, 2 credits</u>, change in ecological value is calculated by the SQE in compliance with BREEAM methodology.</p> <p><i>Evidence at Design Stage – Ecologist’s report, landscaping plans/proposals, developer commitment on behalf of the Contractor, evidence of consultation/ collaboration with ecologist.</i></p>
LE 05	Long term ecological management and maintenance	2	2	2	<p><u>Pre-Requisite - Statutory Obligations, Planning, Site Implementation</u></p> <p>Lendlease commitment</p> <p><u>Targeted, pre-requisite</u>, compliance is monitored against all relevant UK/ EU / International legislation relating to the ecology of the site.</p> <p><u>Credit 1 - Management and Maintenance Throughout the Project</u> Ecologist not appointed yet but sent BREEAM requirements for them to put together a proposal.</p> <p>Ecologist, ACME, Spacehub, Lendlease commitment</p> <p><u>Targeted, 1 credit</u>, measures implemented to manage and maintain ecology throughout the project. These measures are based on input from the project team in collaboration with representative stakeholders and data collated as part of the ‘Determining ecological outcomes’ in LE 02. These measures must monitor and review the effectiveness of the mitigation and enhancement measures in place for LE 03 & LE 04. A section on Ecology and Biodiversity has been included as part of the tenant or building owner information supplied, in compliance with BREEAM format and content requirements.</p> <p><i>Evidence at Design Stage – Ecologist’s report, landscaping plans/proposals, developer commitment on behalf of the Contractor, evidence of consultation/ collaboration with ecologist.</i></p> <p><u>Credit 2 - Landscape and Ecology Management Plan</u></p> <p>Additional Appointment, SQE appointment extension</p> <p><u>Targeted, 1 credit</u>, a Landscape and Ecology Management Plan has been developed in accordance with BS42020:2013 Section 11.1 covering at least the first five years after project completion and in compliance with BREEAM content requirements.</p>

					including: <i>Evidence at Design Stage – Landscape and Ecology Management Plan.</i>
	Land Use & Ecology Totals: (+exemplary)	13 (+2)	11	11	
	Land Use & Ecology score totals:	15	12.69	12.69	
Pollution					
Pol 01	Impact of refrigerants	3	2	2	<p><u>Credit One – Impact of refrigerants</u> HDR Hurley Palmer Flatt <u>Not Targeted, 3 credits.</u> No refrigerant use within the installed plant or systems.</p> <p><u>OR</u></p> <p><u>Pre-requisite.</u> all systems with electric compressors comply with the requirements of BS EN 378:2016 (parts 2 and 3). Refrigeration systems containing ammonia comply with the Institute of Refrigeration Ammonia Refrigeration Systems code of practice.</p> <p><u>Then</u></p> <p><u>Not Targeted, 2 credits.</u> systems using refrigerants have Direct Effect Life Cycle CO₂ equivalent emissions (DELCO_{2e}) of ≤ 100 kgCO_{2e}/kW cooling/heating capacity.</p> <p>Or</p> <p><u>Not Targeted, 2 credits.</u> all refrigerants used have a global warming potential (GWP) ≤ 10.</p> <p>Or</p> <p><u>Targeted, 1 credit.</u> systems using refrigerants have Direct Effect Life Cycle CO₂ equivalent emissions (DELCO_{2e}) of ≤ 1000 kgCO_{2e}/kW cooling/heating capacity.</p> <p><i>Evidence at Design Stage - Pol 01 calculator to be completed detailing the applicable systems and manufacturer information sufficient to calculate DELCO_{2e}. Schedules, manufacturer datasheets etc. also to be provided.</i></p> <p><u>Credit Two Leak Detection</u> HDR Hurley Palmer Flatt <u>Targeted 1 credit</u></p> <p>A. All systems are hermetically sealed or only use environmentally benign refrigerants</p> <p><u>OR</u></p> <p>B. Where the systems are not hermetically sealed: Systems have:</p> <ul style="list-style-type: none"> • A permanent automated refrigerant leak detection system, that is robust and tested, and capable of continuously monitoring for leaks. <p><u>OR</u></p> <ul style="list-style-type: none"> • An inbuilt automated diagnostic procedure for detecting leakage is enabled. <p>AND</p> <p>In the event of a leak, the system must be capable of automatically responding and managing the remaining refrigerant charge to limit loss of refrigerant</p>
Pol 03	Flood and surface water management	5	3	3	<p><u>Credit One – Flood resilience</u> Flood Consultant / Civil Engineer [appointment tbc] <u>Not Targeted, 2 credits,</u> a site-specific flood risk assessment confirms the development is situated in a flood zone that is defined as having a low annual probability of flooding considering all current and future sources of flooding.</p> <p><i>Current flood maps indicate that site is not in low flood risk zone.</i></p>

				<p>OR</p> <p><u>Targeted, 1 credit</u>, a site-specific flood risk assessment confirms the development is situated in a flood zone that is defined as having a medium or high annual probability of flooding considering all current and future sources of flooding. To increase the resilience and resistance of the development to flooding, one of the following must be achieved:</p> <p>The ground level of the building and access to both building and the site, are designed (or zoned) so they are at least 600mm above the design flood level of the site's flood zone.</p> <p>OR</p> <p>The final design of the building and the wider site reflects the recommendations made by an appropriate consultant in accordance with the hierarchy approach outlined in section 5 of BS 8533:2017.</p> <p><u>Credit Two – Surface water run-off</u> Flood Consultant/Civil Engineer</p> <p><u>Pre-requisite</u>, surface water run-off design solutions must be bespoke. Priority levels as outlined by BREEAM guidelines must be followed and justification given by the appropriate consultant where water is allowed to leave the site.</p> <p><u>Targeted, 1 credit</u>, drainage measures are specified so that the peak rate of run-off from the site to the watercourses shows a 30% improvement for the developed site compared with the pre-developed site. This should comply at the 1-year and 100-year return period events.</p> <p>Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place.</p> <p>Calculations include an allowance for climate change. This should be made in accordance with current best practice planning guidance.</p> <p><u>Targeted, 1 credit</u>, flooding of property will not occur in the event of local drainage system failure (extreme rainfall or lack of maintenance).</p> <p>AND</p> <p>Drainage design measures are specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. This must be for the 100-year 6-hour event, including an allowance for climate change.</p> <p>Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other SuDS techniques.</p> <p><i>Evidence at design stage - BREEAM Pol 03 template report demonstrating calculations and information above plus supporting evidence.</i></p>	
Pol 04	Reduction of night time light pollution	1	1	1	<p><i>All external lighting within the construction zone, whether retained without alterations, retained with alterations or newly specified, must meet the requirements of Ene 03 and Pol 04.</i></p> <p><u>Credit One – Reduction of night time light pollution</u> HDR Hurley Palmer Flatt</p> <p><u>Targeted, 1 credit</u>, external lighting designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00. If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes.</p>

					<p>If applicable illuminated advertisements must be designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements</p> <p><i>Evidence at Design Stage - MEP specification, lighting layouts.</i></p>
Pol 05	Reduction of noise pollution	1	1	1	<p>Credit One - Reduction of Noise Pollution Acoustician/ HDR Hurley Palmer Flatt</p> <p>A. There are no noise-sensitive areas within the assessed building or within 800 m radius of the assessed site.</p> <p>OR</p> <p>B. Where there are noise-sensitive areas within the assessed building or noise-sensitive areas within 800 m radius of the assessed site, a noise impact assessment compliant with BS 4142:20141 is commissioned. Noise levels must be measured or determined for:</p> <ul style="list-style-type: none"> • Existing background noise levels: <ul style="list-style-type: none"> ○ at the nearest or most exposed noise-sensitive development to the proposed assessed site ○ including existing plant on a building, where the assessed development is an extension to the building • Noise rating level from the assessed building. <p>The noise impact assessment must be carried out by a suitably qualified acoustic consultant.</p> <p>The noise level from the assessed building, as measured in the locality of the nearest or most exposed noise-sensitive development, must be at least 5dB lower than the background noise throughout the day and night.</p> <p>If the noise sources from the assessed building are greater than the levels described, measures must be installed to attenuate the noise at its source to a level where it will comply with the criterion.</p>
Pollution Totals: (+exemplary)		10	7	7	
Pollution score totals:		9	6.3	6.3	
Innovation					
AI	Approved Innovation	1	0	0	
Innovation Totals: (+exemplary)		1	0	0	
Innovation score totals:		1	0	0	
OVERALL SCORE TOTALS:		101	70.67	83.95	

