

CCCG Tottenham

SUSTAINABLE DESIGN AND CONSTRUCTION STATEMENT

February 2024

This report is dependent on other planning documents.



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1 Executive Summary

CCCG (Capital City Colleges Group) Tottenham aims to make a real and positive contribution to its local surroundings. This document outlines the sustainability strategies adopted and alternatives to be defined.

This Sustainable Design and Construction Statement has been prepared on behalf of CCCG (the "Applicant") as part of an application to the London Borough of Haringey (the "Council") for a detailed planning permission for the Tottenham Campus, High Road, Tottenham, N15 4RU (the "Site"). The proposed description of the development (the "Proposed Development") is:

"Demolition of existing gym/lecture theatre block and erection of a new Construction and Engineering Centre extending to 2,625 sq m over five storeys including plant".

In line with the London Borough of Haringey's sustainability aspirations, the Sustainable Design and Construction Statement provides a summary of the design approaches and environmental performance. This demonstrates the aspiration of the Proposed Development (Figure 1-1) to become a truly sustainable development that will play its part in the evolution of the wider London Borough of Haringey.

Through a series of design strategies, it is aimed to move the development beyond standard Building Regulations, London Plan policies and the requirements of the London Borough of Haringey to reflect the challenge of meeting our climate emergency.



East Elevation



West Elevation

Figure 1-1: Proposed West Elevation (Source: DAS, Atkins Realis).

Energy and Carbon

Energy and carbon reductions are required to tackle our Climate Emergency. The London Plan and the London Environment Strategy outline the Mayor’s ambition for London to be a zero-carbon city by 2050.

- The project is expected to achieve a 36% reduction in regulated carbon emissions over Part L 2021.
- A fabric-first approach is adopted to minimise energy use with enhanced thermal performance.
- The façade has been optimised to maximise daylight and useful solar gain, helping to mitigate overheating risk and minimise heat loss.
- An efficient mechanical ventilation system with heat recovery and a low specific fan power has been specified.
- ASHPs will be used to provide space heating and DHW for the entire building.
- Roof-mounted photovoltaics will produce onsite renewable energy generation.
- The Proposed Development aims to commit to disclosing in-use energy consumption data to the GLA for a minimum of five years, post-construction.

Water

The design aims to treat water as a precious resource with water use being minimised through the implementation of several different strategies. There will be provision and management of measures for the efficient use of mains water.

- The design aims to achieve a minimum of 40% improvement against the baseline performance, achieving three BREEAM credits under ‘Wat 01 Water consumption’.
- Considering the number of toilets and washbasins proposed for the building, the anticipated discharge rate from the building is 3.76 L/sec.

Materials and Waste

Materials play a key role in a sustainable development, having an impact on carbon emissions through embodied carbon. In addition, principles of the circular economy have been applied, supporting London’s transition to circularity.

- The ‘Building in layers’ framework has been used to inform the circular economy strategies of the Proposed Development.
- All waste management measures to be implemented on Site will be in accordance with the Waste Hierarchy.

Land and Ecology

The Proposed Development aims to enhance biodiversity and connect to the natural environment through the incorporation of a suitable landscaping strategy.

- The Proposed Development will deliver a net gain for biodiversity, with an increase in habitats of 80.81% compared to the baseline.
- The projected UGF for the Proposed Development is 0.3, within the planning boundary.
- Ecological enhancements on the Site can enable the habitats to help to establish coherent ecological networks that are more resilient to current and future pressures, widening their value beyond the Site boundary.
- Native plant species should be used wherever possible, and where not possible plants should favour those of a known benefit to wildlife.
- Other features could also be installed on the building or on the green roof to enhance its ecological value. Stone or log piles would provide shelter for a variety of invertebrates and the installation of bird boxes on the building surrounding the green roof can help promote establishment of local bird populations that could use the habitat for foraging.

Planning for Change

The buildings and landscaping are designed to be resilient to meet the challenges of future climate projects.

- Overheating assessments have been undertaken to ensure optimum comfort conditions are met for the patients. Mitigation measures include optimised glazing areas, solar control glazing and manually openable vents.
- The Proposed Development is in Flood Zone 1 meaning there is a low probability of flooding from rivers.
- The surface water flows from the new building are proposed to attenuate in an underground attenuation tank and pumped into an existing inspection chamber at a controlled rate of 2 L/s, located at the northeast corner of the new building. The existing inspection chamber ultimately discharges into the existing Thames Water manhole.
- A Green Roof with a plan area of 159 m² is proposed on the rooftop to provide biodiversity benefits with ecological value as well as reduction in the rate of surface water runoff.
- Attenuation tanks are also proposed which will provide sufficient attenuation storage and manage the surface water discharge into the drainage network.

Environmental Impact

Suitable mitigation measures are implemented to reduce the potential construction phase impacts.

- The use of the identified site-specific control measures would provide suitable mitigation for a development of this size and nature and reduce potential noise impacts to an acceptable level.
- The results of the air quality assessment demonstrated that predicted pollutant levels were below the relevant criteria across the development. Therefore, the Site is considered suitable for the proposed end-use from an air quality perspective.
- The building energy strategy includes the use of Air Source Heat Pumps (ASHPs) and Air Handling Units (AHUs), which do not produce emissions to the atmosphere. As such, the development is air quality neutral from a building emissions perspective.
- The development does not lead to an increase in vehicle movements. As such, it is considered air quality neutral with respect to transport emissions.
- Limiting external noise criteria were determined, applicable to new building services plant associated with the scheme and the design and selection of the plant will be fully developed during detailed design.
- The Daylighting and Sun lighting assessment demonstrates that the Proposed Development has a relatively low impact on light receivable by its neighbouring properties.

Mobility and Connectivity

The Site is located in close proximity to a network of footways that can provide access to key local amenities and public transport nodes.

- The Travel Plan seeks to encourage sustainable travel modes but given the current travel pattern of most students and staff, it is not anticipated that this will change significantly.
- There are suitable active travel provisions for walking and cycling.
- The Site is located within an area of one of the highest Public Transport Accessibility Level (PTAL) rating scores of 6a and on the border of 6b meaning it has excellent accessibility to public transport.

Community and Heritage

The Proposed Development aims to support a strong and inclusive community.

- The College has shared its proposals with the local community. The consultation was via a Public Exhibition which took place over two days in January 2024.
- Attendees to the Public Exhibition were able to provide feedback on the Proposed Development in a number of ways.
- The Archaeological Impact Assessment concluded that in terms of relevant, nationally significant designated heritage assets, no World Heritage Sites, Scheduled Monuments, Protected Wrecks or Registered Battlefields lie within the study sites in its immediate vicinity.

2 Introduction

The purpose of this report is to provide a summary of different sustainability strategies and relevant targets that have been developed to achieve a truly sustainable development through a holistic and systematic approach.

2.1 Overview

This Sustainable Design and Construction Statement has been prepared on behalf of CCCG (the "Applicant") as part of an application to the London Borough of Haringey (the "Council") for a detailed planning permission for the Tottenham Campus, High Road, Tottenham, N15 4RU (the "Site"). The proposed description of the development (the "Proposed Development") is:

"Demolition of existing gym/lecture theatre block and erection of a new Construction and Engineering Centre extending to 2,625 sq m over five storeys including plant".

2.2 Site Description

The Site (Figure 2-1, Figure 2-2) is located at the College of Haringey Enfield and North East London, Tottenham Campus. The proposed building is to be located on the western side of the campus, replacing an existing building to be demolished. Nearby residential properties are located to the north on Isobel Place and to the west and south-west on Portland Road.

The scheme will comprise a new five-storey building for construction and engineering, to provide workshops, classrooms, and other teaching/learning spaces, with a plant area on the top floor.



Figure 2-1: The College of Haringey, Tottenham site Ownership boundary line (Source: DAS, Atkins Realis).



Figure 2-2: Proposed site plan (red outline) concerning the local surroundings (Source: DAS, AtkinsRealis).

2.3 Proposed Development

The project consists of the replacement of the existing Building Block on the College of Haringey, Enfield and Northeast London Tottenham Site.

A Strategic Estates review was carried out by Peter Marsh Consulting (PMc) between 2017-2020, which considered the whole Tottenham campus. This was later followed by a Masterplan collaboration piece carried out by AtkinsRealis, Miltiadou Cook Mitzman Architects (MCMa), alongside PMc in February 2021. A scope and brief were developed to assess options and priorities to improve the condition, functionality and performance of the existing estates, across all 11 sites of the college group.

The existing Building Block was identified as being of poor condition and no longer fit for purpose. The form, existing layout and location on the Site make it poorly suited for a refurbishment. The Strategic Estate review recommended that the Building Block be replaced with a new purpose-built construction training and teaching building at the Tottenham Campus.

The College have been awarded Department of Education (DfE) funding to invest in its Tottenham centre and the grant along with match funding from the College will fund a new 2,600m² Construction and Engineering Centre.

The new Construction and Engineering Centre represents Phase 1 of a Masterplan for the Tottenham Centre which will see the whole campus renewed. The specific curricula to be delivered in the building are Brick Laying, Electrical Installations, Plumbing and Heating Installations, Environmental Technologies, Engineering Labs, Robotics Lab and Supported General and IT Classrooms.

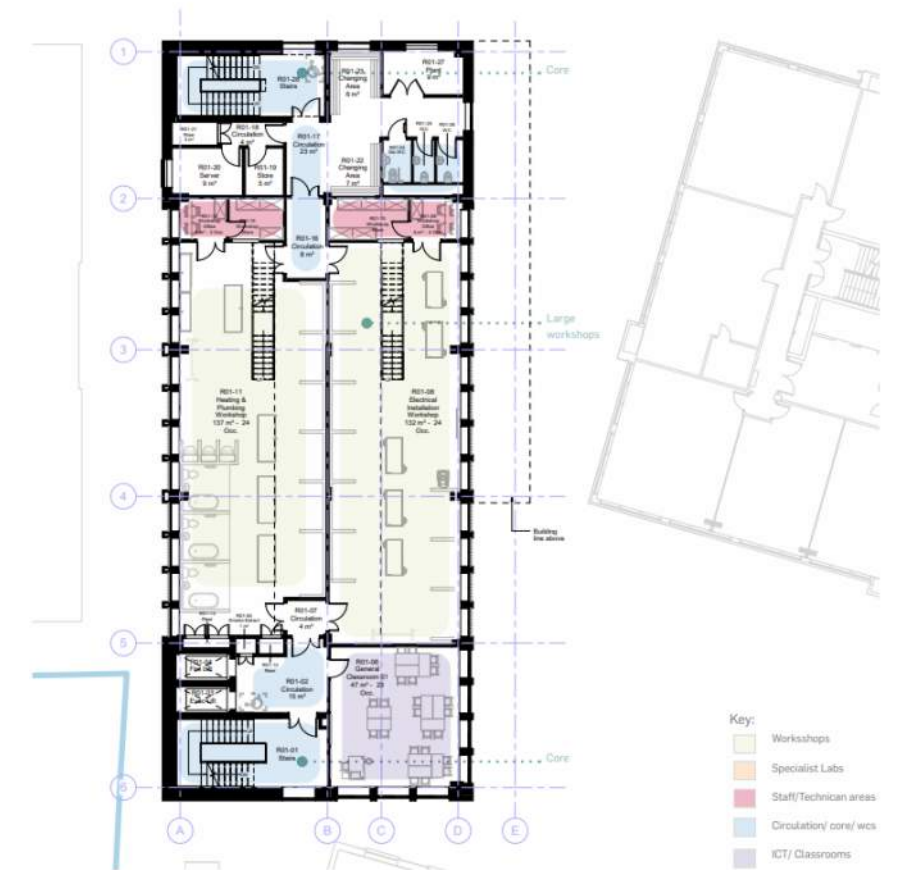


Figure 2-3: Proposed first floor plan (Source: Architectural drawings, AktinsRealis).



Figure 2-4: Proposed south elevation (Source: Architectural drawings, AktinsRealis).

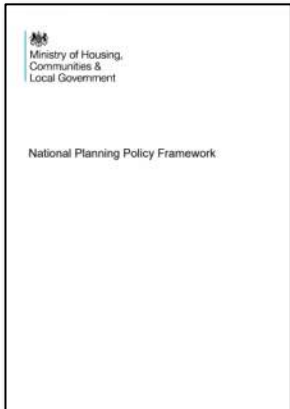
3 Sustainability Context

In preparing this Sustainable Design and Construction Statement, National, Regional and Local Planning Policy documents have been used to guide and inform the sustainability aspirations for the Proposed Development. To demonstrate that the principles of sustainability have been integrated appropriately, a set of sustainability criteria was identified. These not only look at planning requirements but also reflect the project's sustainability aspirations.

3.1 Planning Policy Documents

3.1.1 National Planning Policy

National Planning Policy Framework (Ministry of Housing, Communities & Local Government, 2023)



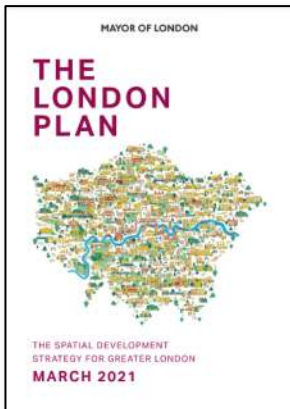
The National Planning Policy Framework (NPPF) was updated in December 2023, and sets out the government's planning policies for England and how these are expected to be applied. It outlines that 'the purpose of the planning system is to contribute to the achievement of sustainable development.' The NPPF provides guidance for local planning authorities and is a material consideration in the determination of planning applications.

The NPPF includes several chapters that are of relevance to sustainable developments, and

these include: Achieving sustainable development; Promoting healthy and safe communities; Promoting sustainable transport; Making effective use of land; Achieving well-designed places; Providing well-designed places; Meeting the challenge of climate change, flooding and coastal change; Conserving and enhancing the natural environment.

3.1.2 Regional Planning Policy

The London Plan (Mayor of London, 2021)



This document outlines London's Spatial Development Strategy. It provides a framework for how London will develop over the next 25 years, providing the Mayor's vision for Good Growth.

The policies and strategies that are provided within the London Plan will inform planning applications across London, with London Borough of Haringey Local Plans being in general alignment with this planning document.

While this document provides policies and strategies across all aspects of development in London, it sets out the Sustainability agenda that new developments should be aligned to. Policy references addressed as part of the sustainability strategy are identified throughout this document.

London Environmental Strategy (Mayor of London, 2018)



This document is London's first integrated environment strategy. It aims to tackle the most urgent environmental challenges London faces, as well as safeguard London's environment over the longer term. This Strategy brings together approaches to all aspects of London's environment, integrating the following areas:

- Air Quality
- Green Infrastructure
- Climate Change Mitigation and Energy
- Waste
- Adapting to Climate Change
- Ambient Noise
- Low Carbon Circular Economy.

Sustainable Design and Construction Supplementary Planning Guidance (Mayor of London, 2014)



This document was developed to support the implementation of the policies set out in the London Plan 2019, guiding the implementation of Policy 5.3 Sustainable Design and Construction.

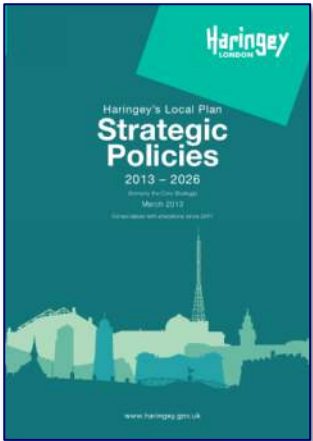
While the London Plan has since been updated, this document continues to provide a good guide to the aspirations of the Mayor of London around the broad theme of sustainability.

This Sustainable Design and Construction Statement has used this Supplementary

Planning Guidance (SPG) as an ongoing guide in identifying sustainability objectives and strategies for the Proposed Development.

3.1.3 Local Planning Policy

Haringey's Local Plan Strategic Policies 2013-2026



The Local Plan: Strategic Policies (referred to as the Local Plan throughout the document), sets out a vision and key policies for the future development of the borough up to 2026. It takes forward the priorities of Haringey's Sustainable Community Strategy and other plans and strategies, to identify a vision for Haringey as a place to live, work and visit, and contains key policies and an implementation framework to deliver the vision.

Haringey's Local Plan gives spatial interpretation to the Council's adopted

Sustainable Community Strategy's key outcomes:

- People at the heart of change;
- An environmentally sustainable future;
- Economic vitality and prosperity shared by all;
- Safer for all;
- Healthier people with a better quality of life; and
- People and customer focused.



Development Management DPD (July 2017)

The Strategic Policies Local Plan sets out Haringey's spatial strategy for managing development and growth in the Borough up to 2026. The strategy provides a positive framework for ensuring that housing, employment, infrastructure, and other needs are met in a way that contributes to the delivery of sustainable development, both in the Borough and Greater London. The Strategic Policies Local Plan is guided by a number of key objectives which are set across five overarching themes, as follows:

- People at the heart of change;
- An environmentally sustainable future;
- Economic vitality and prosperity shared by all;
- Safer for all; and
- Healthier people with a better quality of life.

3.2 Sustainability Visioning

The design of the Proposed Development looks to instil sustainability principles from the outset of the design. In delivering a sustainable development, the sustainability strategy needs to reflect the aspirations and potential of this unique opportunity by implementing an effective, efficient and feasible approach at the heart of the design.

To frame these aspirations, an integrated vision was developed, which captures national, regional, local and contextual sustainability issues that are important to the project, the design team, and the Applicant (Figure 3-1).

The complexity of issues around sustainability can often prevent effective communication of the project’s vision. As such, 8 simple overarching sustainability themes have been used to structure this report as below:

Eight sustainability themes:

- 1. Energy + Carbon
- 2. Water
- 3. Materials + Waste
- 4. Land + Ecology
- 5. Planning for Change
- 6. Environmental Impact
- 7. Mobility + Connectivity
- 8. Community + Heritage

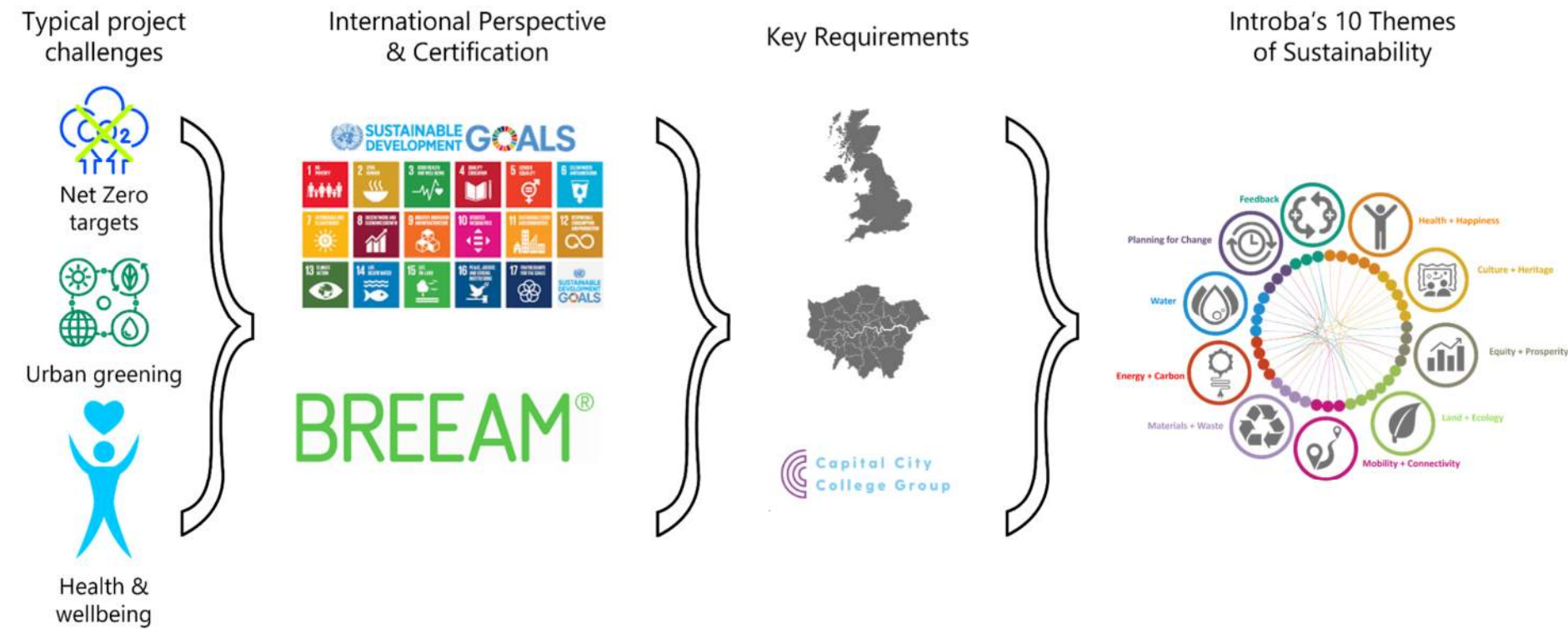


Figure 3-1: Integrated approach to developing the sustainability strategy of the Proposed Development.

3.2.1 BREEAM

BREEAM is used as a third-party environmental sustainability appraisal of the development. A BREEAM pre-assessment has been completed and the Proposed Development is targeting a rating of BREEAM *Very Good*.

In line with Policy SP4, the Proposed Development aims to demonstrate the highest feasible and viable sustainability standards within the design.

The pre-assessment tracker produced by SRE can be found in Appendix A.

4 Energy and Carbon

Energy and carbon reductions are required to tackle our Climate Emergency. The London Plan and the London Environment Strategy outline the Mayor's ambition for London to be a zero-carbon city by 2050. Every development must make a step towards this goal.

POLICY DRIVERS

The London Plan 2021

Policy SI 2 Minimising greenhouse gas emissions

- Major development should be net zero.
- Major development proposals should include a detailed energy strategy to demonstrate how the zero-carbon target will be met.
- Minimum on-site reduction of at least 35% beyond Building Regulations is required. Residential development should achieve 10 % and non-residential development 15 % through energy efficiency measures. Any shortfall should be provided either: through a cash in lieu contribution to the borough's carbon offset fund, or off-site with certain delivery.

Policy SI 3 Energy Infrastructure

- Major development proposals within Heat Network Priority Areas should have a communal low-temperature heating system.

Sustainable Design and Construction SPG 2014

- The design of developments should prioritise passive measures.

Haringey's Local Plan Strategic Policies 2013-2026

SP4: Working Towards a Low Carbon Haringey

Over the lifetime of the Local Plan, reducing energy use in buildings and working towards a low carbon borough will be one of the key challenges facing Haringey. The Council will promote the measures outlined below to reduce carbon emissions from new and existing buildings.

1. In line with London Plan policy, the Council will promote and require all new developments to take measures to reduce energy use and carbon emissions during design, construction, and occupation, by incorporating the following measures:
 - a. From 2011 onwards, all new residential development will achieve a minimum 25% reduction in total (regulated) CO2 emissions in line with Code for Sustainable Homes Level 4 energy standards, and should aim to achieve Level 6. All new residential development shall be zero carbon from 2016 onwards; and
 - b. From 2011 onwards all new non-residential development shall be built to at least BREEAM "very good" standard and should aim to achieve BREEAM "excellent" or the current nationally agreed standard. All new non-residential development shall be zero carbon from 2019.
2. The Council will promote low- and zero-carbon energy generation through the following measures:
 - a. Requiring all developments to assess, identify and implement, where viable, site-wide and area-wide decentralised energy facilities including

- a. the potential to link into a wider network;
- b. Establishing local networks of decentralised heat and energy facilities by requiring developers to prioritise connection to existing or planned networks where feasible;
- c. Working with neighbouring boroughs and other partners to explore ways of implementing sub-regional decentralised energy networks including the potential in the Upper Lee Valley Opportunity Area; and
- d. All new developments are required, where viable, to achieve a reduction in predicted carbon dioxide emissions of 20% from onsite renewable energy regeneration, which can include connections to local sources of decentralised renewable energy.

Development Management DPD (July 2017)

Policy DM21: Sustainable Design, Layout and Construction

A All new development, including building and landscape works, will be expected to consider and implement sustainable design, layout and construction techniques. Proposals should:

- a Apply the energy hierarchy to minimise energy use in order to meet, and if possible exceed, minimum carbon dioxide reduction requirements;
 - b Apply the cooling hierarchy to reduce the potential for overheating and limit reliance on mechanical air conditioning systems;
 - c Maximise opportunities to enhance biodiversity on-site, including through appropriate landscaping, Sustainable Drainage Systems, living roofs and green walls
 - d Wherever possible, use building materials with high environmental performance ratings; and
 - e Seek opportunities for locally sourced labour.
- B The Council will support appropriate measures to sustainably retrofit existing homes and non-residential buildings.
- C Proposals that fail to demonstrate adequate consideration for sustainable design, layout and construction techniques will be resisted. D Consideration will be given to the use of carbon offset payments, to be secured by planning obligations, where it can be demonstrated that proposals are unable to meet carbon dioxide emission reduction targets on-site.

4.1 Energy Hierarchy

A site-wide fossil fuel-free heating and hot water system is proposed, with zero emissions from combustion on-site. This is in line with the London Plan's Energy Hierarchy and is in line with the Mayor's aim for London to be a zero-carbon city by 2050.

The project has looked to implement the Energy Hierarchy, as outlined in Policy SI 2 of the London Plan and Figure 4-1:

- Be Lean: Use less energy.
- Be Clean: Supply energy efficiently.
- Be Green: Use renewable energy.
- Be Seen: Operational energy reporting.

There is a consensus that new developments need to play their part to meet the climate change targets that have been set both nationally and at a local level. The Proposed Development intends to make its contribution to our net zero future.

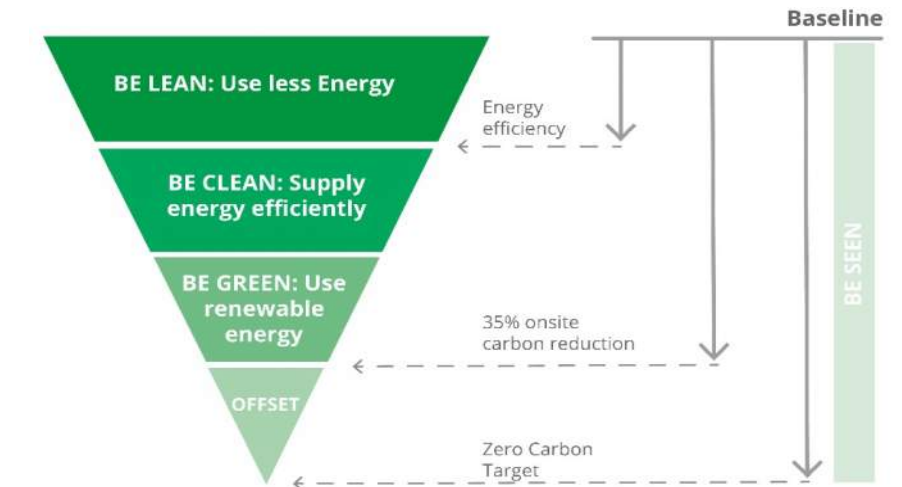


Figure 4-1: Energy hierarchy as per the London Plan.

4.2 Energy Strategy

The strategy takes a fabric-first approach to minimise energy use. The optimised façade maximises daylight and useful solar gain, helping to mitigate overheating risk and minimise heat loss. A fully electrified system is implemented as follows:

1. A fabric performance improvement over Building Regulations.
2. An Air Source Heat Pump (ASHP) for the building to provide heating and cooling.
3. An ASHP serving the Domestic Hot Water (DHW) for the building.
4. Renewable energy generation from roof mounted photovoltaics.

4.2.1 Be Lean

Passive design and energy efficiency measures to limit energy use are prioritised, as not using energy in the first instance is the best way to reduce energy consumption. The design aims to create a building that is as energy efficient as possible without relying on overly complicated systems or technologies to deliver low-carbon performance. This passive approach is pursued in a fabric design that against a notional building delivers significant U-value improvements for both opaque and glazed elements.

The demand reduction measures incorporated into the design of the Proposed Development are as follows:

Architectural and building fabric measures (passive design)

- Efficient fabric to reduce heating demand.
- Enhanced fabric airtightness to reduce infiltration heat losses.
- Appropriate glazing ratios.

Energy efficient services (active design)

- Highly efficient lighting design with intelligent lighting controls.
- Efficient mechanical ventilation system with heat recovery and low specific fan power.

4.2.2 Be Clean

The second stage of the Energy Hierarchy is ‘Be Clean’, i.e., supply energy efficiently. This stage aims to ensure that developments have done all they can to obtain an efficient supply of energy.

Once the demand for energy has been minimised, planning applications must consider the use of local energy resources, supplying energy efficiently and cleanly to reduce CO₂ emissions, by following the heating hierarchy London Plan Policy SI 3.

- a) connect to local existing or planned heat networks.
- b) use zero-emission or local secondary heat sources (in conjunction with a heat pump, if required).
- c) use low-emission combined heat and power (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).
- d) use ultra-low NO_x gas boilers.

The new London Plan moves away from CHP as a preferred option, as decarbonisation of grid electricity makes heat pumps and other electric based technologies more favourable.

Possible connections are being considered for the Site in the context of these policies. The London Heat Map was used to determine the viability of connection to the Tottenham Hale Centre Heat Network.

A connection of 990 meters would be required to link the Site to the heat network, and, although this is would not be a feasible solution, there is a plan to extend the network to improve it around the key clusters by 2030. In fact, the proposed building has been designed allowing for a future connection to the district network whenever the expansion plan will be completed.

At this current stage there are no feasible connections to any existing district heating networks, nor are any installation of on-site CHP systems proposed for the Site.

4.2.3 Be Green

The third stage of the Energy Hierarchy involves the use of renewable and low-carbon energy to further reduce the development’s carbon emissions.

It is understood that the GLA expects all major development proposals to maximise opportunities for renewable energy by producing, storing, and using renewable energy on-site. The assessment of an appropriate energy strategy herein specifies Low Zero Carbon measures to meet the regulatory and planning requirements, and this section provides an overview of the renewable technologies that have been deemed most suitable for this development.

4.2.3.1 ASHPs

ASHPs will be used to provide space heating and DHW for the entire building. ASHPs have the advantage that they do not require the digging of boreholes.

Manufacturers were contacted to obtain estimates of the SCOP and SEER figures for suitable plant for each use. The SEER and SCOP values used in the modelling of the heat pump system are shown in the table below.

Table 4-1: ASHP efficiencies.

ASHP Input values for the Site (Be Green)	CCCG Tottenham
Heating SCOP	3.30
DHW SCOP	3.40
Cooling SEER	4.50

4.2.3.2 Photovoltaics (PV)

PV panels (Figure 4-2) are considered on the roof area of the Proposed Development. Avoiding overshadowing of a PV array is critical to its energy output, carbon savings, and cost-effectiveness. The first step in assessing PV options for a Site is to identify suitable unshaded locations to mount PV panels.

The roof area was selected to allocate and maximise PV panels for the proposed building:

- **54 m²** of panels with 30 degrees of inclination have been allocated on the South-East side of the roof.
- **122.4 m²** are horizontally placed above the green roof area (60% of the whole area).
- **40 m²** are horizontally placed above the MEP systems (22% of the whole area).

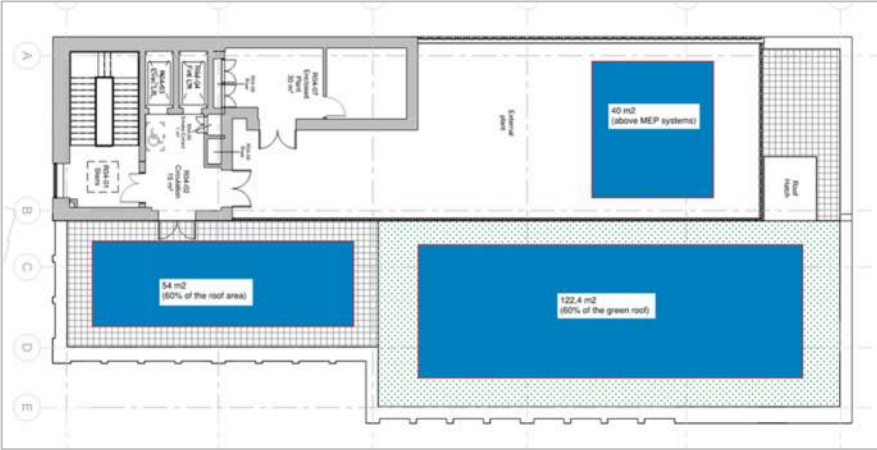


Figure 4-2: Location of PV panel area on the roof of the Proposed Development.

4.2.4 Be Seen

A fourth stage has been added to the Energy Hierarchy; Be Seen: monitor, verify and report on energy performance. Policy SI 2 of the London Plan 2021 requires that the energy performance of the building is monitored and reported for a period of at least five years post-occupancy. This is described as the Be Seen element of the new Energy Hierarchy, and steps to implement this are intended to commence from the Be Lean stage, through to commissioning and monitoring. It is expected that these measures would readily allow the building user to monitor, report and address the findings.

In line with the London Plan, major developments are expected to achieve net zero-carbon by following the Be Seen stage through the Mayor’s post construction monitoring platform.

Although Part L calculations and Energy Performance Certificates (EPCs) give an indication of the theoretical performance of buildings, it is well established that there is a “performance gap” between design theory and measured reality. The Be Seen methodology requires monitoring and reporting of the actual operational energy performance of major developments for at least five years via the Be Seen GLA reporting spreadsheet and the Mayor’s Be Seen monitoring portal Be Seen Planning Stage webform.

4.2.5 Carbon Reductions

Table 4-2 and Figure 4-3 illustrate that the Proposed Development is expected to achieve a total 36% reduction in regulated carbon emissions over Part L 2021.

Table 4-2: Metrics related concerning the Energy Hierarchy.

Energy Hierarchy	Total Regulated Emissions (tonnes CO ₂ /year)	CO ₂ Savings (tonnes CO ₂ /year)	% Savings
Part L 2021 Baseline	12.6	-	-
Be Lean	12.2	0.4	3%
Be Clean	12.2	0.0	0%
Be Green	8.1	4.1	33%
Total Savings	-	4.5	36%

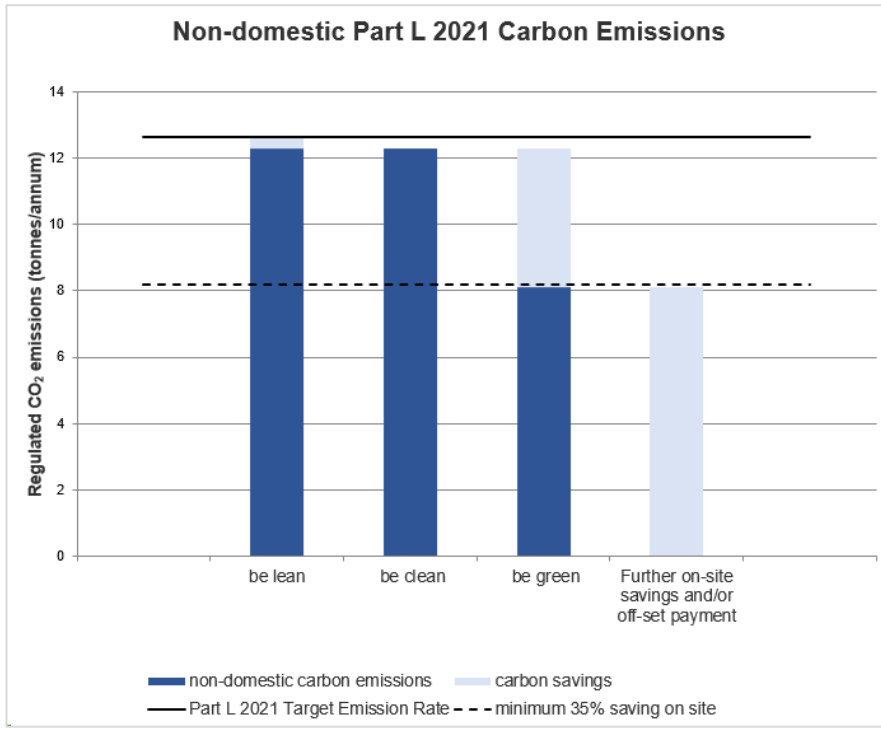


Figure 4-3: Part L carbon emissions for the Proposed Development.

4.2.6 Carbon Offsets

The London Borough of Haringey requires all major developments to be in line with the London Plan requirements. Therefore, all developments need to be net zero carbon, through a combination of on-site measures and cash-in-lieu payments.

To achieve 100% carbon emissions reduction, an overall cash-in-lieu contribution should be paid to the Council based on a cost of £95 per tCO₂ for 30 years.

Table 4-3 presents the cash-in-lieu contributions related to the annual shortfall (tonnesCO₂) of the Site.

Table 4-3: Cash-in-lieu contributions for the site.

The Site	Value
Total Carbon Dioxide Emissions for the Site - Baseline (Tonnes CO ₂ per annum)	12.6
Total Cumulative Savings – Be Lean and Be Green (Tonnes CO ₂ per annum)	4.5
Annual CO ₂ for Off-set payment (Tonnes CO ₂ per annum)	8.1
Total Cumulative Savings for off-set payment (Tonnes CO ₂)	244
Cash in-lieu contribution (£)	23,146

For more details on the Energy Strategy, refer to the Energy Strategy report (Introba).

5 Water

Water consumption in the UK has risen over recent years, which represents a strain on both natural resources and water treatment facilities. Water use will be minimised through the implementation of several different strategies.

POLICY DRIVERS

The London Plan 2021

Policy SI 5 Water Infrastructure

- Development proposals should achieve at least the BREEAM Excellent standard for the 'Wat 01' water category or equivalent (commercial development).
- Development proposals should incorporate measures such as smart metering, water saving and recycling measures including retrofitting, to help to achieve lower water consumption rates and to maximise futureproofing.
- Development proposals should 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.

Sustainable Design and Construction SPG 2014

- Developers should maximise the opportunities for water-saving measures and appliances in all developments, including the reuse and use of alternative sources of water.
- New non-residential developments, including refurbishments, should aim to achieve the maximum number of water credits in a BREEAM assessment or the 'best practice' level of the AECB (Association of Environment Conscious Building) water standards.
- All developments should be designed to incorporate rainwater harvesting.
- The design of developments should prioritise landscape planting that is drought-resistant and has a low water demand for supplementary watering.

Haringey's Local Plan Strategic Policies 2013-2026

Development Management DPD (July 2017)

Policy DM25: Sustainable Drainage Systems

A All proposals for new development must seek to manage surface water as close to its source as possible in line with the London Plan drainage hierarchy.

B The Council will require Sustainable Drainage Systems (SuDS) to be sensitively incorporated into new development by way of site layout and design, having regard to the following requirements:

a All major development proposals will be required to reduce surface water flows to a greenfield run-off rate for a 1 in 100 year critical storm event;

b All minor development proposals should aim to achieve a greenfield run-off rate and, at a minimum, achieve a 50 per cent reduction on existing site run-off rates;

c All other development should seek to achieve a greenfield run-off rate and include at least one 'at source' SuDS measure resulting in a net improvement in water quantity or quality discharging to a sewer; and
d For all development where a greenfield runoff rate cannot be achieved justification must be provided to demonstrate that the run-off rate has been reduced as much as possible.

C Where Sustainable Drainage Systems are implemented they will be expected to:

a Meet the requirements set out in the Council's relevant local standards and guidance, or national standards where agreed;

b Incorporate measures identified in the Surface Water Management Plan;

c Be designed to maximise biodiversity and local amenity benefits, and where appropriate, ensure that SuDS techniques provide for clean and safe water at the surface;

d Improve water quality; and e Function effectively over the lifespan of the development.

D Where SuDS cannot be implemented due to site constraints (such as land contamination or space limitations) robust justification must be provided along with proposed alternative sustainable app

Policy DM29: On-Site Management of Waste Water and Water Supply

A The Council will seek to ensure that there is adequate surface water, foul drainage and sewerage treatment capacity to serve all existing and new development. All proposals for new development will be required to:

a Demonstrate that the local public sewer network has adequate capacity to serve the existing and proposed development, or where such capacity does not exist, provide for suitable alternative arrangements for discharging water;

b Ensure the separation of surface and foul water systems, including by investigating and rectifying any identified misconnections; and

c Implement sustainable drainage systems, in line with Policy DM25.

B The Council will give preference to mains foul drainage and will seek to restrict the use of non-mains drainage for foul water disposal, particularly in Source Protection Zones, in line with Environment Agency guidance. Where non-mains drainage is proposed for the disposal of foul water, a foul drainage assessment will be required to ensure the most sustainable drainage option will be implemented.

C All proposals for new development will be required to:

a Demonstrate that there is adequate water supply infrastructure capacity both on and off site to serve the development without adversely impacting on existing users; and

b Make provision for the installation and management of measures for the efficient use of mains water.

D All proposals for new residential development should be designed to meet the London Plan target for mains water consumption.

5.1 Efficient Fixtures and Fittings

The design aims to achieve a minimum of 40% improvement against the baseline performance, achieving three BREEAM credits under 'Wat 01 Water consumption' through the specification of efficient fittings, sanitaryware and appliances:

- Low flush WCs will be specified to reduce the volume of water consumed during flushing, including dual-flush cisterns, and low-flow urinals.
- Water reduction fittings for taps.
- Water efficient appliances specified within kitchens will have water-saving features as a primary specification requirement.
- Metering and monitoring of water consumption will be included, allowing easy detection of water leakage.

Refer to Table 5-1 for further details on the AECB Best Practice specifications for water fittings and fixtures.

5.2 Foul Water Drainage

As specified in the Drainage Design Report undertaken by AtkinsRealis, an existing 150mm foul sewer line and 100mm combined sewer have been identified as running along the existing building. It is proposed to divert these sewers over the extent of the new building footprint and reconnect them to the existing drainage network outside the footprint of the proposed building.

5.3 Internal Drainage

The foul discharge is generated from the new building and is proposed to drain by gravity in accordance with BS EN 752:2017. Considering the number of toilets and washbasins proposed for the building, the anticipated discharge rate from the building is 3.76 L/s. A new 150mm diameter network is proposed to carry foul water from the new building, which will be connected to the existing re-routed foul water network. It is noted in the CCTV survey that there is limited trace of the foul network, hence, invert levels of the section diverted foul sewer have been computed based on assumed self-cleansing slope values.

5.4 Landscape Considerations

The landscape design aims to propose any additional elements in order to maximise the amenity and biodiversity of the Site.

The Proposed Development will incorporate green roofs to increase the amenity, biodiversity and water interception treatment. Additionally, attenuation storage tanks are proposed which are crucial for stormwater management and help to prevent flooding.

For further details refer to the Drainage Strategy report produced by AtkinsRealis.

Table 5-1: AECB Best Practice specifications for water fittings and fixtures.

Appliance	Best Practice Requirements
Showers	≤ 6 l/min. Mixer to have separate control of flow and temperature although this can be achieved with a single lever with 2 degrees of freedom (lift to increase flow, rotate to alter temperature). All mixers are to have a clear indication of hot and cold and with a hot tap or lever position to the left, where relevant.
Basin taps (washroom)	≤ 1.7 l/min measured at installation with a dead leg <0.25 litre.
Kitchen sink taps	≤ 6 l/min, single lever taps should be fitted with a water brake or some other means of ensuring that default flow is lower.
White Goods	The best energy class available
WCs	≤ 4.5 l full flush when flushed with the water supply connected. All domestic installations are to be dual flush.
Water softeners	Only permitted in areas with water hardness over 200mg/l (CaCO ₃). Only appliances requiring soft water shall be connected to the softener and is demand initiated.
Water metering, pressure regulation and leak detection	A separate water meter is required on the hot water cold feed to indicate hot water use.
Outdoor	Where an outdoor tap is installed, this shall be sub-metered. Appropriate number of water butts about garden size and layout. Planting schemes shall be designed to be drought tolerant.
User Guide	Provision of the user guide, including details of the technical guidance document. A commissioning checklist is required.

6 Materials and Waste

Materials play a key role in a sustainable development, having an impact on carbon emissions through embodied carbon. It is adequately important to reduce waste using the principles of circularity by moving away from a linear economy. The capacity of landfill sites accepting London's waste is expected to run out by 2026, with London's waste bill now more than £2bn a year and rising. Waste should be considered as a valuable resource and diverted from landfill. Reusing the existing material as far as possible is prioritised and the applicability of retaining the existing building in-situ is developed as far as possible.

POLICY DRIVERS

The London Plan 2021

Policy SI 2 Minimising greenhouse gas emissions

- 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.

Policy SI 7 Reducing waste and supporting the circular economy

- 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.
- Ensure that there is zero biodegradable or recyclable waste to landfill by 2026.
- Meet or exceed the municipal waste recycling target of 65 per cent by 2030.
- Meet or exceed the targets for each of the following waste and material streams:
 - construction and demolition – 95% reuse/recycling/recovery.
 - excavation – 95% beneficial use.
- Design developments should consist of 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.

Sustainable Design and Construction SPG 2014

- Developers and designers should specify materials from suppliers who participate in responsible sourcing schemes such as the BRE BES 6001:2008 Responsible Sourcing Standard.
- At least three key elements of the building envelope need to achieve a rating of A+ to D of the BRE's The Green Guide of Specification.
- Where appropriate, developers should choose materials grown or made locally.
- When selecting materials, the preferred approach should be:
 - the use of reclaimed materials,
 - the use of materials with higher levels of recycled content, and
 - the use of new materials.
- Materials are durable to cater for their level of use and exposure.

Haringey's Local Plan Strategic Policies 2013-2026

SP6: Waste and Recycling

The Council supports the objectives of sustainable waste management set out by the Government in PPS10 Planning for Sustainable Waste Management and the Mayor's London Plan. To achieve these, the Council shall:

- Safeguard existing waste sites unless compensatory provision is made; • Maximise self-sufficiency in waste management capacity;
- Seek to minimise waste creation, increase recycling rates in relation to commercial, industrial and municipal waste in order to achieve the Mayor's recycling targets;
- Address waste as a resource and look to disposal as the last option, in line with the Mayor's waste hierarchy;
- Require integrated, well-designed recycling facilities to be incorporated into all new developments;
- Monitor changes in the stock of waste management facilities, waste arisings, and the amount of waste recycled, recovered and going for disposal; and
- Continue working with its partners in the North London Waste Authority to adopt the North London Waste Plan (NLWP) which has identified locations suitable for waste management facilities to meet the London Plan apportionment of 1.9 2.1m tonnes and the Haringey apportionment of 237,000 182,000 tonnes. Haringey will require Site Waste Management Plans for all major applications to identify volume and types of demolition and construction waste and to demonstrate how waste will be minimised and managed during construction and occupation. New waste management facilities will be required to take into account and minimise pollution and nuisance issues. This is addressed in more detail in the Development Management Policies document.

6.1 Whole Life Carbon

The London Plan Policy SI2 states: "Development proposals referable to the Mayor should calculate whole lifecycle carbon emissions through a nationally recognised Whole Life-Cycle Carbon Assessment and demonstrate actions taken to reduce life-cycle carbon emissions." As CCCG Tottenham is not a referable development, a whole life-cycle carbon assessment has not been carried out.

The structural engineers aim to minimise carbon emissions as far as possible using the principles from Figure 6-1 to guide the process.

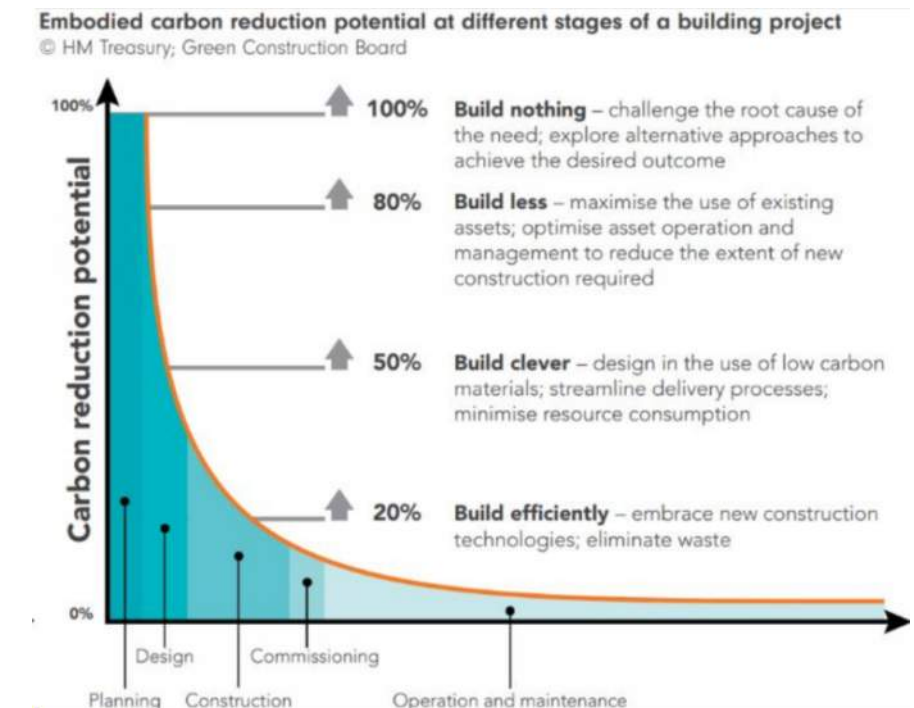


Figure 6-1: Embodied carbon reduction potential at different stages of a building project (Green Construction Board).

During the initial scheme design and RIBA Stages 1 and 2 of this building, low embodied carbon design principles were considered to help guide a low embodied carbon structural solution.

Further coordination and refinement of the design may also assist in reducing the embodied carbon of the reinforced concrete elements – such as reducing the amount/length of shear walls required, as well as identifying opportunities for reduced concrete strengths where applicable, or elements where recycled aggregates could be used in the mix.

6.2 Circular Economy

The Proposed Development aims to instil the principles of circular economy in both building design strategies and waste. Strategies were considered to facilitate the transition towards a circular built environment and recognise opportunities to benefit from greater efficiencies that can help to save resources, materials and money. These will reduce the quantity of new materials imported into London and the amount of waste needing to be managed, which also provides the benefits of reduced vehicle movements, air pollution, noise and greenhouse gas emissions.

6.2.1 Circular Economy Targets

The following targets are aimed to be met within the project:

- 95% of construction, demolition and excavation waste and materials are diverted from landfill.

6.2.2 Existing Building

The existing Site is currently used as a gym/lecture theatre. As there are issues with the condition and quality of the existing building, it will be demolished and replaced with a Construction and Engineering Centre. Due to the design of the Proposed Development (i.e., no basement), it should be noted that no major excavation works will be carried out. However, there will be some waste and material generated during the piling works.

There is an opportunity within the area with Excess Materials Exchange, to donate any demolition materials as seen in Figure 6-2 to recover materials from the construction Site. The Excess Materials Exchange is a digital matching platform which finds high-value reuse options for materials or waste products.



Figure 6-2: Materials that can be recovered.

There is also the possibility of recovery of scrap metal from the M&E installation, especially copper which could be recycled for future use by others. Similar possibilities exist for larger electrical cables and some of the existing plumbing installation.

6.2.3 Building in Layers

The 'Building in layers' framework has been used to inform the circular economy strategies of the Proposed Development so that different parts of the building are accessible, can be maintained and replaced where necessary, such as building services and internal fit-outs, as illustrated in Figure 6-3.

- Designing out waste
- Designing for longevity
- Designing for adaptability or flexibility
- Designing for disassembly
- Using systems, elements or materials that can be reused and recycled

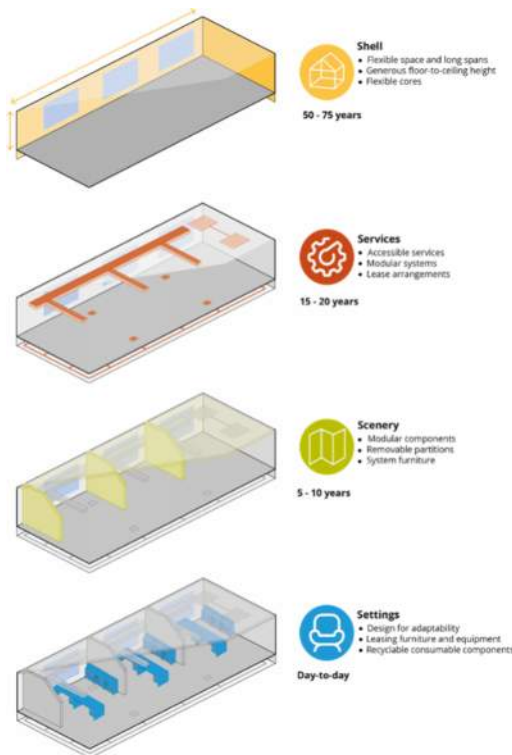


Figure 6-3: General best practice CE principles from a perspective of the building in layers framework.

6.2.4 Waste

All waste management measures to be implemented on Site will be in accordance with the Waste Hierarchy (see Figure 6-3).



Figure 6-4: Waste Hierarchy (Site Waste Management Plan, KaNect).

6.2.4.1 Prevent

The aim is to implement management solutions (such as smart procurement etc.) that will prevent the materials turning to waste in the first instance. For example, consolidated material delivery from the same supplier would lead to less packaging waste.

6.2.4.2 Reduce

The aim is to select materials during the design phase that have the potential to be reused at the end of the project life cycle (i.e., design to longevity).

6.2.4.3 Reuse

The aim is to use site-won materials in their current state and form. This can occur either on-Site or off-Site, however, on-site should be preferred.

6.2.4.4 Recycle

The aim is to recycle the materials that cannot be reused on-Site for construction purpose. By recycling material on-Site as far as practicable, carbon emissions and other adverse environmental effects, are reduced when compared with taking materials off-Site.

6.2.4.5 Recover

The aim is to recover value from waste materials which cannot be otherwise reused or recycled. This can include recovery of energy from a suitable Energy-from-Waste (EfW) facility, or otherwise using waste to replace other non-waste materials to achieve a beneficial outcome in an environmentally sound manner, such as application or deposition to land.

6.2.4.6 Disposal

The hazardous and non-hazardous wastes must be pre-treated prior to disposal to landfill. The methods of pre-treatment will enable the waste to meet the three-point test.

- It must be a physical, thermal, chemical or biological process including sorting;
- It must change the characteristics of the waste; and
- It must do so in order to:
 - Reduce its volume, or
 - Reduce its hazardous nature, or
 - Facilitate its handling, or
 - Enhance its recovery.

Table 6-1 identifies the suggested waste minimisation measures.

Table 6-1: Suggested Waste Minimisation Measure.

Material Type	Suggested Measures
Reclaimed and recycled construction materials	Where reasonably possible, reclaimed goods and materials, and building components with recycled content should be used. This will be facilitated by the following means: - Contractors to be required to achieve certain target recycled content (by value) in construction, verified using the WRAP toolkit. - Contractors to be required to use the WRAP Recycled-content toolkit to establish the value of recycled content materials used in construction - Making use of recycled-content materials (e.g., steels from certain sources; recycled polymers). - Wherever possible, concrete to incorporate a proportion of Pulverised Fuel Ash (PVA) or Ground Granulated Blast Furnace Slag (GGBS) as a cement replacement. - Where appropriate, high recycled-content building materials and products to be used. In particular this is most likely to include various plastic products such as pipes and floor coverings. - Contractors to be encouraged to use reclaimed goods and materials especially by means of a Material Information Exchange (e.g., Salvo).
Proscribed construction materials	Certain construction materials to be proscribed based on environmental considerations: No materials proscribed in the Montreal Protocol to be used in the construction or fit-out of buildings. In particular, refrigerants and insulation materials must have zero Ozone Depletion Potential (ODP); and no peat or natural weathered limestone to be used in buildings or landscaping.
New construction materials	Where possible, construction materials to be selected with regards to the environmental impact associated with their use. This will favour the following approaches: - Sourcing materials from as close to the Site as possible, to reduce the emissions of greenhouse gases from vehicles and reduce long distance transportation. - Majority of the timber and timber products to be sourced from Forest Stewardship Council (FSC) sources and the balance from known temperate sources. - Insulation materials to be selected that have zero potential to reduce the ozone layer (“zero ODP”). - Refrigerants to be selected that have zero potential to reduce the ozone layer (“zero ODP”). - Materials (e.g. paints and floor coverings) used inside the buildings to be selected to ensure they do not emit Volatile Organic Compounds (VOCs). - Insulation materials to have as low a Global Warming Potential (GWP) as possible, subject to their availability and commercial constraints. - Wherever possible, all materials used for the construction and fitting out of buildings to be selected from the A to C rated options given in “The Green Guide to Specification” published by the BRE (2009). The principal exception will be where new methods of construction are proposed that are not covered by this guide.

Further details on Site Waste Management measures can be found in the Site Waste Management plan produced by KaNect Limited.

7 Land and Ecology

London has a limited supply of land and therefore scale and density of a development must be optimised. Additionally, the London Environment Strategy has set out goals to enhance green areas, protect its biodiversity and connect natural environments.

POLICY DRIVERS

The London Plan 2021

Policy GG2 Making best use of land

- Enable the development of brownfield land, particularly in Opportunity Areas.
- Apply a design-led approach to determine the optimum development capacity of sites.

Policy SD1 Opportunity Areas

- Encourage the strategic remediation of contaminated land.
- Take appropriate measures to deal with contamination that may exist.
- Assess to understand urban form and structure (townscape, block pattern, urban grain, extent of frontages, building heights and density), land availability and land uses.

Policy D3 optimising site capacity through the design-led approach

- All development must make the best use of land by following a design-led approach that optimises the capacity of sites by ensuring the development is of the most appropriate form and land use for the site.
- Enhance local context by delivering buildings and spaces that positively respond to local distinctiveness through their layout, orientation, scale, appearance and shape, with due regard to existing and emerging street hierarchy, building types, forms and proportions.

Policy D9 Tall Buildings

- Tall development proposals should address visual impacts.
- Buildings near the River Thames, particularly in the Thames Policy Area, should protect and enhance the open quality of the river and the riverside public realm, including views, and not contribute to a canyon effect along the river.

Policy G5 Urban Greening

- The Mayor recommends an Urban Greening factor target score of 0.4 for predominately residential developments, and a target score of 0.3 for predominately commercial development (excluding B2 and B8 uses).

Policy 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.

Sustainable Design and Construction SPG 2014

- Developers should optimise the scale and density of their development, considering the local context, to make efficient use of London's limited land.
- Developers should set out how existing land contamination will be addressed before the commencement of their development.
- The design of the site and building layout, footprint, scale and height of buildings as well as the location of land uses should consider existing features and new design of development.
- There is no net loss in the quality and quantity of biodiversity.
- Developers should contribute to biodiversity on their development site.
- Developers should integrate green infrastructure into development schemes, including by creating links with wider green infrastructure networks.
- Developments should contribute to the Mayor's target to increase tree cover across London by 5% by 2025.

Haringey's Local Plan Strategic Policies 2013-2026

SP13: Open Space and Biodiversity

New development shall protect and improve Haringey's parks and open spaces.

All new development shall:

- Protect and enhance, and when and where possible, extend the existing boundaries of the borough's Green Belt, designated Metropolitan Open Land, designated Open Spaces, Green Chains, allotments, river corridors and other open spaces from inappropriate development;
- Provide amenity space in accordance with the Council's Open Space and Recreational Standards Supplementary Planning Document (SPD);
- Manage the impact of such new developments in areas adjacent to designated open space;
- Secure improvements, enhancement and management in both quality and access to existing green spaces;
- Seek on-site or financial contributions towards open space from new developments as set out in the Open Space and Recreational Standards SPD;
- Seek to secure opportunities for additional publicly accessible open space especially in those identified areas of Open Space deficiency e.g. in the east of the borough where the quality and amount of provision is poorer as set out in the Council's Open Space and Recreational Standards SPD; and

- Conserve the historic significance of the borough's designated historic parks and gardens.

All development shall protect and improve sites of biodiversity and nature conservation, including private gardens through its:

- Contribution to wildlife and ecological habitats and, where possible, include green and brown roofs, rainwater harvesting, green walls, bird and bat nesting/roosting opportunities;
- Protection, management and maintenance of existing trees and the planting of new trees where appropriate; and
- Protection, enhancement and creation of Sites of Importance for Nature Conservation (SINCs) and Local Nature Reserves (LNRs).

Development Management DPD (July 2017)

Policy DM19: Nature Conservation

A Development proposals on sites which are, or are adjacent to, internationally designated sites, Sites of Special Scientific Interest, Local Nature Reserves, Sites of Importance for Nature Conservation or Ecological Corridors, should protect and enhance the nature conservation value of the site.

B Development that has a direct or indirect adverse impact upon important ecological assets, either individually or in combination with other development, will only be permitted where:

- a The harm cannot be reasonably avoided; and
- b It has been suitably demonstrated that appropriate mitigation can address the harm caused.

7.1 Biodiversity

A Preliminary Ecological Appraisal (PEA) was prepared by Assystem, including a Biodiversity Net Gain (BNG) calculation.

7.1.1 Existing Building

The campus is tightly constrained with little opportunity for increasing biodiversity or greening. The proposed new Construction and Engineering Centre will replace the existing building within the heart of the campus between two existing education buildings and the tightness of the plot means that the scheme is not able to introduce significant biodiversity enhancement or greening measures.

7.1.2 Biodiversity Enhancements

Bird boxes and insect houses are proposed around the new building and swift boxes are recommended on the green roof, which is reflective of the flight characteristics of the species.

7.1.3 Biodiversity Net Gain

The Proposed Development will deliver a net gain for biodiversity, with an increase in habitats of **80.81%** compared to the baseline.

The Proposed Development, therefore, meets national and local planning policy requirements to deliver a net gain in biodiversity and exceeds the mandatory 10% biodiversity net gain requirement as a condition of planning.

7.2 Urban Greening

The scheme seeks to maximise the urban greening potential within the parameters of the scheme and meeting spatial and Local Planning policy demands. The current proposals include a wide range of contributors, including intensive green roofs, ground cover, climbing plants, permeable paving, where possible and new tree planting.

Consideration has been given to the enhancement proposals for the Proposed Development and how these can contribute to urban greening in line with planning policy requirements.



Figure 7-1: Bio solar roof.

A BioSolar roof (Figure 7-3), incorporates a biodiverse green roof with wildflowers, supported by a 150mm substrate depth. It is proposed across the eastern side of the building, with the remainder of the building comprising artificial surfaces.

7.2.1 Projected Urban Greening Factor (UGF)

The projected UGF for the Proposed Development is **0.3**, within the planning boundary.

The calculation of the UGF using the current proposed landscape masterplan achieved a score of 0.3, therefore meeting the target value as a 'predominantly commercial development'. The calculation was limited to the development boundary, as the extent of the redevelopment within the red line boundary was significantly smaller.

For further details refer to Urban Greening Factor Assessment by Assystem.

7.2.2 Ecological Enhancements

Ecological enhancements on the Site can enable the habitats to establish coherent ecological networks that are more resilient to current and future pressures, widening their value beyond the Site boundary.

The following recommendations are proposed to enhance the biodiversity value of the habitats present:

- Other features could also be installed on the building or the green roof (Figure 7-4) to enhance its ecological value. Stone or log piles would provide shelter for a variety of invertebrates and the installation of bird boxes on the building surrounding the green roof can help promote establishment of local bird populations that could use the habitat for foraging.

For further details on biological enhancements refer to the Biodiversity Net Gain Assessment by Assystem.

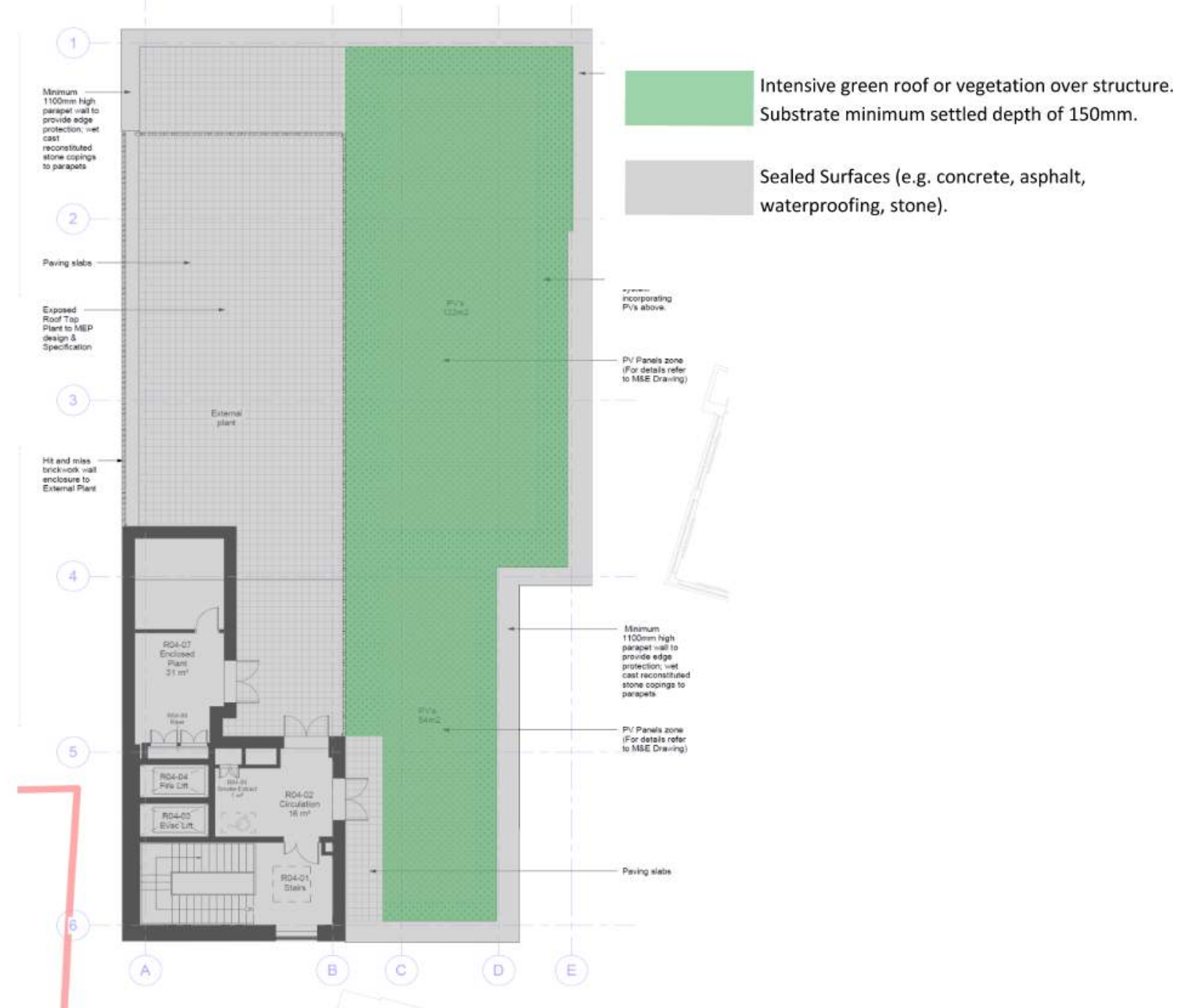


Figure 7-2: Extent of green roof habitat in the Proposed Development (Source: Biodiversity Net Gain Assessment, Assystem).

8 Planning for Climate Change

Buildings and landscaping should be designed to meet the challenges of future climate projections. Therefore, resiliency must be tackled at an early design stage to come up with suitable strategies.

POLICY DRIVERS

The London Plan 2021

Policy 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 by the following cooling hierarchy.

Policy SI 12 Flood risk management

- 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.
- Development proposals adjacent to flood defences will be required to protect the integrity of flood defences and allow access for future maintenance and upgrading.
- 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.

Policy 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.
- 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, enhanced biodiversity, urban greening, amenity and recreation.

Sustainable Design and Construction SPG 2014

- Developers should include measures, in the design of their schemes, in line with the cooling hierarchy to prevent overheating over the scheme's lifetime.
- Developers should maximise all opportunities to achieve greenfield runoff rates in their developments.

Haringey's Local Plan Strategic Policies 2013-2026

SP5: Water Management and Flooding

The Council will require all development in Haringey to be water efficient during construction and operation and to reduce all forms of flood risk. All development shall:

- Improve the water environment, water quality and drainage systems;
- Minimise water use and illustrate how development would contribute to general and flash flooding;
- Take account of flood risk vulnerability classification as set out in paragraph 100 of the NPPF and will apply the NPPF Sequential Test and Exception Test;
- Implement measures to prevent (or mitigate as last resort) local surface water and downstream flooding;
- Implement Sustainable Drainage Systems from strategic to individual site level to improve water attenuation, quality and amenity;
- Restore and enhance the Blue Ribbon Network including Pymmes Brook, Moselle Brook, the River Lee and its tributaries, deculverting wherever feasible, to improve water quality and amenity of these waterways and to help reduce flood risk (in line with London River Action Plan); and
- Require higher resilience and levels of flood protection for critical infrastructure to ensure the protection of essential services such as water and power. In order to facilitate this, the Council:
 - Has carried out a joint SFRA (Strategic Flood Risk Assessment) Stage 1 for the whole borough;
 - Has carried out a Sequential Test for the Areas of Development (Growth Areas and Areas of Change);
 - Is carrying out, in association with other north London boroughs in the Drain London sub-region, a Surface Water Management Plan to identify issues with drainage networks and the effects of new development.

Development Management DPD (July 2017)

Policy DM23: Environmental Protection Air Quality

A All development proposals should consider air quality and be designed to: a Improve or mitigate the impact on air quality in the Borough; and b Improve or mitigate the impact on air quality for the occupiers of the building or users of the development.

B Air quality assessments will be required for all major development and other development proposals, where appropriate.

C Where necessary, adequate mitigation must be provided. Noise and Vibration

D The Council will seek to ensure that new noise sensitive development is located away from existing or planned sources of noise pollution. Proposals for potentially noisy development must suitably demonstrate that measures will be implemented to mitigate its impact.

E A noise assessment will be required to be submitted if the proposed development is a noise sensitive development, or an activity with the potential to generate noise. Light Pollution

F Development proposals that include external lighting must mitigate

potential adverse impacts from such lighting. Where appropriate, proposals will be required to submit details demonstrating that external lighting is:

- a Appropriate for its purpose in its setting;
 - b Designed to minimise and provide protection from glare and light spillage, particularly to sensitive receptors such as residential properties and natural habitats, including watercourses; and
 - c Energy efficient. Contaminated Land G Proposals for new development will only be permitted where it is demonstrated that any risks associated with land contamination, including to human health and the environment, can be adequately addressed in order to make the development safe.
- H All proposals for new development on land which is known to be contaminated, or potentially contaminated, will be required to submit a preliminary assessment to identify the level and risk of contamination and, where appropriate, a risk management and remediation strategy. Hazardous Substances

I Proposals for development of new hazardous installations, or development of sites located within the vicinity of existing installations, will only be permitted where it is demonstrated that necessary safeguards are incorporated to ensure the development is safe.

8.1 Overheating

8.1.1 Risk of Overheating

As the development is comfort cooled, an overheating analysis was not carried out. However, the GLA's cooling hierarchy has been followed as detailed in Table 8-1.

8.1.2 Cooling Demand for Non-domestic Spaces

The cooling hierarchy (Table 8-1) has been followed for the Proposed Development by reducing the amount of heat entering the occupied spaces by optimising the glazing ratio, fabric, and glazing performance.

Once cooling loads have been minimised through the cooling hierarchy, an active cooling strategy provided by ASHPs has been added to the building to satisfy the internal comfort requirements.

Table 8-1: The mitigation measures against overheating align with the cooling hierarchy.

Cooling Hierarchy	Proposed Approach
Minimise internal heat generation through energy-efficient design	Efficient lighting and dimming, where possible, to reduce internal gains.
Reduce the amount of heat entering a building in summer through orientation, shading, albedo, fenestration, insulation and green roofs and walls.	High solar control glazing with a solar transmittance of 0.40 to reduce solar gains. Low glazing ratio.
Mechanical ventilation	Mechanical ventilation to reduce the cooling demand
Active cooling systems	Cooling will be provided through ASHPs.

8.2 Microclimate Study

A microclimate study was undertaken by Atkins Realis to understand and mitigate the adverse effects of local weather. The microclimate analysis helps to identify levels of comfort, help maximise the use of public spaces and help in creating urban fabrics that are more resilient to climate change induced events and protects from heat waves.

8.2.1 Wind

The pedestrian comfort map (Figure 8-1), indicates the kinds of activities that can be carried out depending on the wind speeds. Most of the Site is suitable for frequent sitting, as the wind does not pass 2.5 m/s.

However, surrounding the proposed building, a downwash and tunnelling effects are seen and most of the area is suitable for occasional sitting. The north-east side of the building and south-east Site are only suitable for standing due to corner acceleration.

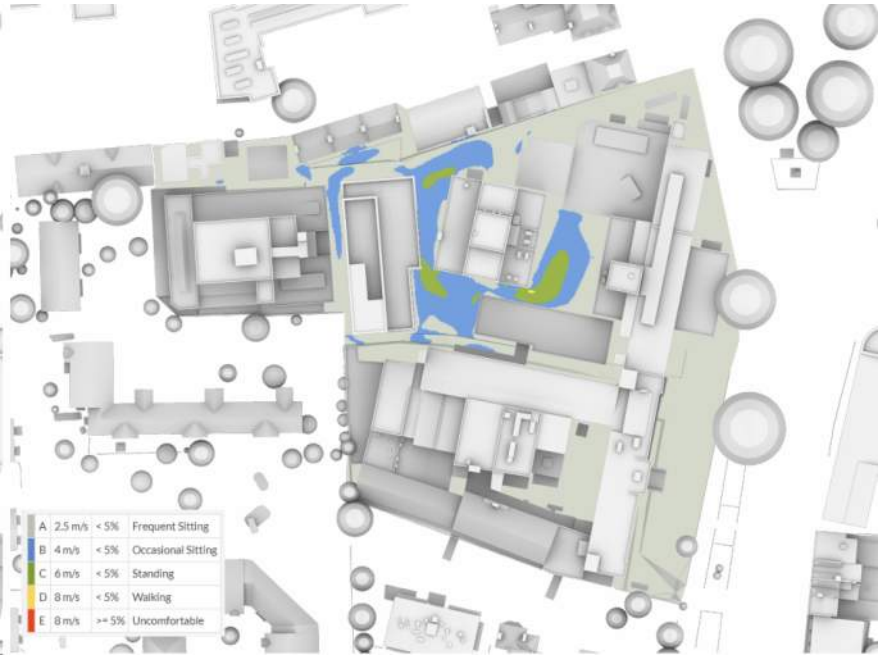


Figure 8-1: Pedestrian comfort map categorisation (Source: Microclimate Assessment, Atkins Realis).

8.2.2 Thermal Comfort

For thermal comfort, the spring period shows mostly no thermal stress, but a limited area has a slight cold stress. In the summer, there is no thermal stress throughout the Site as seen in Figure 8-2. Finally, in winter, the wider Site shows no thermal stress, however, slight cold stress is seen surrounding the building in addition to moderate cold street.

There is moderate cold stress experienced in the winter on the southeast side of the building and is most likely due the higher wind speeds observed in this area. In order to mitigate this, it is recommended to implement obstructions such as trees to decrease wind speed without compromising solar access.

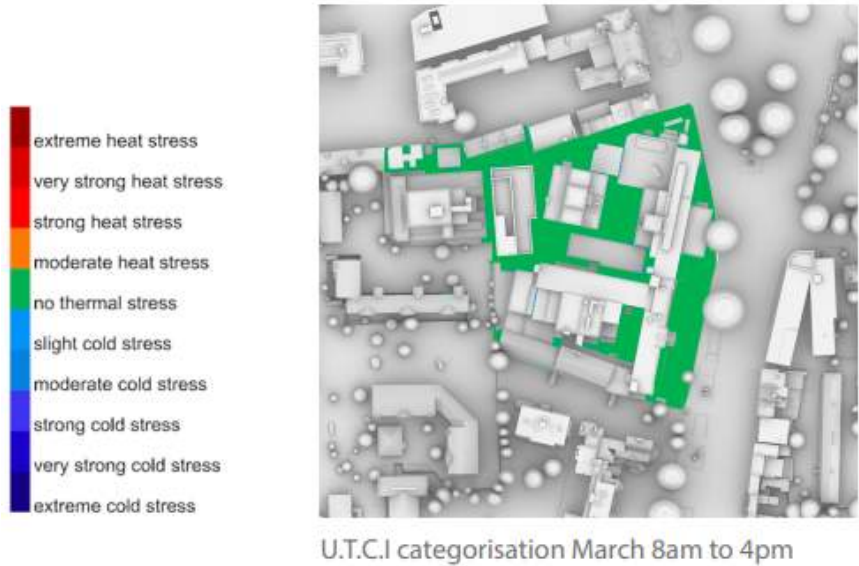


Figure 8-2: U.T.C.I categorisation March 8am to 4pm (Microclimate Analysis, AtkinsRealis).

8.3 Flood Risk

The Proposed Development is in Flood Zone 1 (Figure 8-3), meaning there is a low probability of flooding from rivers and the sea. Therefore, a Flood Risk Assessment was not required.



Figure 8-3: Flood Zone Map (Source: Flood map for planning).

8.4 Sustainable Drainage Systems (SuDS)

8.4.1 Proposed Drainage

8.4.1.1 Proposed Discharge Rate

The surface water flows from the new building are proposed to attenuate in an underground attenuation tank and pumped into an existing inspection chamber at a controlled rate of 2 L/s, located at the northeast corner of the new building. The existing inspection chamber ultimately discharges into the existing Thames Water manhole.

8.4.1.2 Delivering a SuDS Scheme

The surface water drainage systems have been designed following the requirement of the Planning Practice Guidance (PPG) and Policy SP5 of Haringey's Local Plan Strategic Policy. The following drainage hierarchy has, therefore, been considered.

- 1) Rainwater is used as a resource (for example rainwater harvesting), and blue roofs for irrigation.
- 2) Rainwater infiltration to the ground at or close to the source.
- 3) Rainwater attenuation in green infrastructure features for gradual release (for example blue/green roofs, rain gardens).
- 4) Rainwater discharge directly to a watercourse (unless not appropriate).
- 5) Controlled rainwater discharge to a surface water sewer drain.
- 6) Controlled rainwater discharge to a combined sewer.

8.4.1.3 Green Roofs

The current strategy in the Proposed Development includes a Green Roof with a plan area of 159m² proposed on the rooftop (fourth floor) to provide biodiversity benefits with ecological value as well as reduction in the rate of surface water runoff.

The key advantages of a green roof system include:

- The green roof does not only create a biodiverse habitat but also will absorb the first 5mm of rainfall.
- The green roof systems are recommended to have zero fall along the subgrade which is appropriate for structural roof finish.
- Improvement of water quality by retaining the first 5mm of rainfall onsite. Contaminants and silts are often mobilised by the first flush rainfall event (5mm). Thus, by retaining this 5mm of rainfall, contaminants are managed upstream whereby reducing the likelihood of polluting downstream watercourses. Some contaminants can also be filtered out or broken down by bacteria living in the green roof substrate.

The SuDS which are proposed for the drainage strategy will enhance the water quality through the green roofs. Treatment is provided as the rainwater percolates through the Green Roofs substrate (including physical, biological and chemical treatment through the soil and root up-take zone). The interception of the surface water run-off from the Green Roof will be the first 5mm of rainfall event, whereby improving water quality from the Site.

8.4.1.4 Attenuation Storage Tank

Attenuation tanks are also proposed which will provide sufficient attenuation storage and manage the surface water discharge into the drainage network.

The attenuation tanks are proposed to be geo-cellular units construction such as Polystorm modular cell system (or similar approved). The attenuation strategy and the upstream green roof catchments will contribute to the reduction of silt build-up in the network.

The Proposed attenuation tank will have a storage volume of 36.5m³, a plan area of 32m² and depth of 1.20m (with 95% voids).

For further details on the evaluation of the SuDS system refer to the Drainage Design Report produced by Atkins Realis.

9 Environmental Impacts

London aims to have the best air quality of any major world city by 2050 as stated in the London Environment Strategy Plan. It is noted that noise and light pollution have a detrimental effect on people's physical and mental well-being.

Designing a truly sustainable development means putting humans at the centre of the design, and delivering a healthy response for the short and long term.

POLICY DRIVERS

The London Plan 2021

Policy SI 1 Improving air quality

- Development proposals should not lead to further deterioration of existing poor air quality.
- Development proposals must be at least Air Quality Neutral.
- Development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality in preference to post-design or retrofitted mitigation measures.
- To reduce the impact on air quality during the construction and demolition phase, development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery (NRMM) Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance.

Policy D13 Agent of Change

- The Agent of Change principle places the responsibility for mitigating impacts from existing noise and other nuisance-generating activities or uses on the proposed new noise-sensitive development.
- Development proposals should manage noise and other potential nuisances through appropriate mitigation measures.

Policy D14 Noise

- Development proposals should avoid significant adverse noise impacts on health and quality of life.
- Mitigate and minimise 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.
- Improve and enhance the acoustic environment and promote appropriate soundscapes.
- Separate new noise-sensitive development from major noise sources using distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation.
- considerations, including temperature and wind, are taken into account to encourage people to spend time in a place.

Policy D8 Public Realm

- Lighting should be carefully considered and well-designed to minimise intrusive lighting infrastructure and reduce light pollution.
- Ensure that appropriate shade, shelter, seating and, where possible, areas of direct sunlight are provided, with other microclimatic considerations, including temperature and wind, taken into account to encourage people to spend time in a place.

Policy D9 Tall Buildings (continued)

- Buildings should be designed to minimise light pollution from internal and external lighting.
- Wind, daylight, sunlight penetration and temperature conditions around the building(s) and neighbourhood must be carefully considered and not compromise comfort and the enjoyment of open spaces, including water spaces, around the building.

Policy D6 Housing quality and standards

- The design of development should provide sufficient daylight and sunlight to new and surrounding housing that is appropriate for its context, whilst avoiding overheating, minimising overshadowing and maximising the usability of outside amenity space.

Policy D3 Optimising site capacity through the design-led approach

- Achieve indoor and outdoor environments that are comfortable and inviting for people to use.
- Provide conveniently located green and open spaces for social interaction, play, relaxation and physical activity.

Sustainable Design and Construction SPG 2014

- Developers are to design their schemes so that they are at least 'air quality neutral'.
- Developments should be designed to minimise and mitigate against increased exposure to poor air quality.
- Developers and contractors should follow the guidance set out in the emerging 'Minimising dust and emissions from construction and demolition SPG' when constructing their development.
- Noise should be reduced at source and then designed out of a scheme to reduce the need for mitigation measures.
- Developments and lighting schemes should be designed to minimise light pollution.

Development Management DPD (July 2017)

Policy DM24: Managing and Reducing Flood Risk

A. The Council will ensure that all proposals for new development avoid and reduce the risk of flooding to future occupants and do not increase the risk of flooding.

B. All proposals for new development within Flood Zone 2 and 3a will be required to provide sufficient evidence for the Council to assess whether the requirements of the Sequential Test and Exception Test, where required, have been satisfied. Proposals must be informed by a site specific Flood Risk Assessment (FRA) taking account of all potential sources of flooding and should:

- a Demonstrate the application of a sequential approach for the development of individual sites to ensure that the most vulnerable land uses are located in areas of the site that are at lowest risk of flooding;
 - b Preserve overland flood and flow routes and ensure there is no net loss of flood storage. Adequate flood storage and compensation should be provided on site, or if this is not possible, provided off site where circumstances allow;
 - c Where appropriate, set out the mitigation measures that will be incorporated on site to manage residual flood risk including:
 - i Finished floor levels set no lower than 300mm above the 1 in 100 chance in any given year, including an allowance for climate change, flood level; and
 - ii Ensure safe access and egress for future users of the development or an appropriate emergency evacuation plan.
 - d Contribute to naturalising watercourses where opportunities arise.
- C All proposals for new development will be required to: a Manage and reduce surface water run-off; and b Manage water and waste water discharges.
- D With the exception of water compatible uses and essential infrastructure, development in areas designated in Haringey's Strategic Flood Risk Assessment as being within Flood Zone 3b will not be permitted.

9.1 Air Quality

The air quality assessment undertaken by Redmore Environmental has considered the impact of the Proposed Development on local air quality in terms of dust and particulate matter during construction.

9.1.1 Construction Phases Impacts

Potential construction phase air quality impacts from fugitive dust emissions were assessed as a result of demolition, earthworks, construction and track out activities. It is considered that the use of the identified site-specific control measures would provide suitable mitigation for a development of this size and nature and reduce potential impacts to an acceptable level.

9.1.2 Operational Impacts

During the operational phase of the development there is the potential for the exposure of future staff and students to elevated pollution levels. Dispersion modelling was, therefore, undertaken in order to predict concentrations across the Site as a result of emissions from the highway network. Results were subsequently verified using local monitoring data.

Overall, the results of the assessment demonstrated that predicted pollutant levels were below the relevant criteria across the development. Therefore, the Site is considered suitable for the proposed end-use from an air quality perspective.

9.1.3 Air Quality Neutral

The London Plan requires that all developments are 'air quality neutral' to ensure proposals do not lead to further deterioration of existing poor air

quality. In order to support the policy, guidance has been produced by the GLA.

The building energy strategy includes the use of ASHPs and AHUs, which do not produce emissions to the atmosphere. As such, the development is air quality neutral from a building's emissions perspective. The development does not lead to an increase in vehicle movements. As such, it is considered air quality neutral with respect to transport emissions.

For further details relating to air quality, refer to the Air Quality Assessment produced by Redmore Environmental.

9.2 Noise

24 Acoustics has been instructed by CCCG to undertake a noise impact assessment for the Proposed Development.

An environmental noise survey has been undertaken to determine prevailing ambient and background noise levels at the Proposed Site.

In order to control noise breakout from the proposed workshops, all windows and external doors to the workshops shall be kept closed whilst in-use, with a mechanical ventilation strategy in place, and cooling as required.

Limiting external noise criteria have been determined, applicable to new building services plan associated with the scheme. The design and selection of the plant shall include noise attenuation measures, to be fully developed during detailed design.

For further details please refer to the Noise Report produced by 24 Acoustics.

9.3 Daylight and Sunlight

The Right of Lighting Consulting produced the Daylight and Sunlight Report for neighbouring properties.

The assessment demonstrates that the Proposed Development has a relatively low impact on light receivable by its neighbouring properties. Non-compliance with the BRE recommendations is limited to the daylight tests in respect of isolated windows in the Main Building, 157 to 211 Portland Road, the Building Block and the Tower Block.

The Daylight and Sunlight Report states that taking into account the overall high level of compliance with BRE recommendations, and the mitigating factors set out in the daylight and sunlight report, the Proposed Development is acceptable in terms of daylight and sunlight.

Therefore, the layout of the Proposed Development will broadly follow the BRE guidelines.

10 Mobility and Connectivity

Healthy streets indicators provided in the report Healthy Street for London issued by the Mayor of London have been considered, delivering streets which are safe, healthy and support active lifestyle.

POLICY DRIVERS

The London Plan 2021

Policy T1 Strategic approach to transport

- All development should make the most effective use of land, reflecting its connectivity and accessibility by existing and future public transport, walking and cycling routes.

Policy T2 Healthy Streets

- Development proposals should deliver patterns of land use that facilitate residents making shorter, regular trips by walking or cycling.
- Development proposals should demonstrate how they will deliver improvements that support the ten Healthy Streets Indicators in line with Transport for London guidance.
- Development proposals should be permeable by foot and cycle and connect to local walking and cycling networks as well as public transport.

Policy T5 Cycling

- Securing the provision of appropriate levels of cycle parking which should be fit for purpose, secure and well-located. Developments should provide cycle parking at least in accordance with the minimum standards.
- Cycle parking should be designed and laid out in accordance with the guidance contained in the London Cycling Design Standards.

Policy T6 Car parking

- Car-free development should be the starting point for all development but should still provide disabled persons parking.
- Where car parking is provided in new developments, provision should be made for infrastructure for electric or other Ultra-Low Emission vehicles.

Policy D3 Optimising site capacity through the design-led approach

- Achieve safe, secure and inclusive environments.
- Encourage and facilitate active travel with convenient and inclusive pedestrian and cycling routes, crossing points, cycle parking, and legible entrances to buildings, that are aligned with peoples' movement patterns and desire lines in the area.

Policy D5 Inclusive design

- Development proposal should achieve the highest standards of accessible and inclusive design.

Haringey's Local Plan Strategic Policies 2013-2026

SP7: Transport

Delivering Regeneration and Access

In line with London Plan policies, the Local Implementation Plan (LIP) and the Mayor's Transport Strategy, the Council will work with its partners to promote the following key infrastructure proposals to support Haringey's regeneration and local/strategic access to London, employment areas and local services;

- The Council, in cooperation with neighbouring boroughs, will seek to reduce the impact of larger lorries in local residential areas and town centres and investigate the feasibility of a freight distribution hub;
- Improvements to the Piccadilly, Victoria and Northern Lines including new trains, new signalling and new control centres;
- Improvements to overground routes along West Anglia, East Coast (Great Northern) and Barking - Gospel Oak line that service the centre and east of the borough;
- Access and interchange improvements to overground stations at Alexandra Palace, Finsbury Park, Haringay, Hornsey White Hart Lane, Northumberland Park, South Tottenham, and Bruce Grove;
- Improvements to interchanges at Tottenham Hale and Seven Sisters;
- Improvements to the Tottenham Gyratory; and
- Improvements to east - west bus routes as well as promoting new east - west routes.

Delivering Action on Climate Change and Quality and Healthy Places

In line with the London Plan, the Council will work with its partners to promote the following travel demand management schemes to tackle climate change, improve local place shaping and public realm, and environmental and transport quality and safety by:

- Minimising congestion and addressing the environmental impacts of travel;
- Promoting public transport, walking and cycling (including minimum cycle parking standards);
- Promoting road safety and pedestrian movement particularly in town centres and close to local services;
- Promoting car sharing and establishing car clubs;
- Seeking to locate major trip generating developments in locations with good access to public transport and so better integrate transport and land use planning;
- Adopting maximum car parking standards and car free housing wherever feasible;
- Seeking to mitigate the impact of road based freight and promote alternatives;
- Supporting measures to influence behavioural change such as promoting low carbon vehicles; and
- Requiring the submission of transport assessments and travel plans for large scale proposals in line with TfL guidance.

Development Management DPD (July 2017)

Policy DM31: Sustainable Transport

A The Council will require that developments with high trip generating characteristics locate where public transport accessibility is high and car parking is minimised to mitigate generated car travel.

B The Council will support the protection, improvement and creation of pedestrian and cycle routes in the Borough to encourage walking and cycling both as a means of transport and as a recreational activity. The Council will also encourage improved links between pedestrian and cycle routes and public transport facilities, particularly at transport hubs.

C The Council will require the submission of a Travel Plan and a Transport Assessment/ Statement in support of development proposals in accordance with the Transport for London thresholds.

10.1 Delivery and Servicing

The external area around the proposed building will be reorganised in respect of refuse and recycling facilities and existing car parking spaces will be removed, thereby creating improved circulation for servicing and access.

Tracking plans are submitted to demonstrate service routes to / from Town Hall Approach Road for a number of different sized vehicles. The Delivery and Servicing Management Plan demonstrates that the Proposed Development can be appropriately serviced without detriment to existing users on the public highway. It should be noted that Town Hall Approach Road is a bus and cycle only route.

For further details refer to the Delivery and Servicing Plan produced by Ardent Consulting Engineers.

10.1.1 Active Travel

The Travel Plan seeks to encourage sustainable travel modes, but given the current travel pattern of most students and staff, it is not anticipated that this will change significantly.

10.1.1.1 Walking

All local roads in the vicinity of the Proposed Development have two good quality footways with street lighting, providing a suitable environment for pedestrians. Formal pedestrian crossing points are provided over High Road (A10) within the vicinity of the College and at junctions along the route. They have dropped kerbs and tactile paving, allowing pedestrians a direct, step-free crossing point to assist pedestrian movements along key desire lines. These facilities provide a safe environment for pedestrians and connect the Site well to surrounding public transport infrastructure and local facilities.

10.1.1.2 Cycling

Route CS1 runs adjacent to the college along the carriageway of Town Hall Approach Road, and along High Road (A10) in the form of off-road facilities. The route runs north/south between Dalston and Waltham Cross. It connects with other routes to the north and south enabling cyclists to travel to the College from the surrounding area.

10.1.2 Cycle Parking

Cycle parking cannot be accommodated within the interior of the campus as bikes cannot be taken through the security turnstiles at the entrance to the campus within the Centenary Building. All cycle parking, therefore, needs to be located outside of this secure line. CCTV is in place for security monitoring the existing cycle parking.

10.1.3 Public Transport

The Site is located within an area of one of the highest Public Transport Accessibility Level (PTAL) rating scores of 6a and on the border of 6b meaning it has excellent accessibility to public transport. As seen Figure 10-1 the Site is, therefore, very well connected to local and wider residential destinations.

WebCAT

Address or co-ordinates

eg. NW1 6XE or 530273, 179613

Go

Access level (PTAL)

Time mapping (TIM)

TIM: a new measure, looking at how far you can travel in a given journey time.

Map key - Travel Time

< 10 mins	10 - 20 mins
20 - 30 mins	30 - 40 mins
40 - 50 mins	50 - 60 mins
60 - 70 mins	70 - 80 mins
80 - 90 mins	90 - 100 mins

Change travel time bands



Map layers

Travel Times



You can click anywhere on the map to change the selected location.

11 Community and Heritage

The proposal supports the development of a strong and inclusive community. Employment opportunities will arise as a result of the development, benefiting the local community and economic development. In addition, the Proposed Development aims to preserve the existing built heritage.

POLICY DRIVERS

The London Plan 2021

Policy E11 Skills and opportunities for all

- Development proposals should support employment, skills development, apprenticeships, and other education and training opportunities in both the construction and end-use phases.

Policy HC5 Supporting London's culture and creative industries

- Development proposals should identify and promote new, or enhance existing, locally distinct clusters of cultural facilities, venues and related uses.

Policy HC6 Supporting the night-time economy

- Development plans should promote the night-time economy, where appropriate.

Policy HC1 heritage conservation and growth

- Development strategies should demonstrate a clear understanding of the historic environment and the heritage values of sites or areas and their relationship with their surroundings.
- Development proposals, affecting heritage assets and their settings, should conserve their significance, by being sympathetic to the assets' significance and appreciation within their surroundings.
- Development proposals should avoid harm and identify enhancement opportunities by integrating heritage considerations early on in the design process.
- Development proposals should identify assets of archaeological significance and use this information to avoid harm or minimise it through design and appropriate mitigation.

Policy HC2 World Heritage Sites

- Development proposals in World Heritage Sites and their settings, including any buffer zones, should conserve, promote and enhance their Outstanding Universal Value, including the authenticity, integrity and significance of their attributes, and support their management and protection.

Policy HC3 Strategic and Local Views

- Development proposals must be assessed for their impact on a designated view if they fall within the foreground, middle ground or background of that view.

Haringey's Local Plan Strategic Policies 2013-2026

SP12: Conservation

- The Council shall ensure the conservation of the historic significance of Haringey's heritage assets, their setting, and the wider historic environment. The borough's heritage assets include Statutory Listed Buildings, Conservation Areas, Registered Parks and Gardens, Archaeological Priority Areas, and other locally important heritage assets such as Locally Listed Buildings, Local Historic Green Spaces and Sites of Industrial Heritage Interest. Where archaeological excavation is required, findings should be published, disseminated, and used as the basis for archaeological interpretation on site.
- The Historic Environment should be used as the basis for heritage-led regeneration and as the basis for good design and positive change. Where possible, development should help increase accessibility to the historic environment. All development shall protect the Strategic view from Alexandra Palace to St Paul's Cathedral as protected in the London Mayoral "London View Management Framework" Revised SPG, July 2010, and key local views.

11.1.1 Consultation

In accordance with the Town and Country Planning, the College has shared its proposals with the local community.

The format of consultation was via a Public Exhibition which took place over two days in January 2024.

Invitations were sent to both local stakeholders, residents, and community organisations in the area through emails to stakeholders and hand delivered letters.

A series of information boards (Figure 11-1) were on display setting out the background to the College and the Proposed Development, including Site Context, Heritage Constraints, Proposed Site Plans, Illustrative Elevations, Sustainability and Campus-Wide Masterplan Proposals.

Attendees at the Public Exhibition were able to provide feedback on the Proposed Development in several ways:

- To a member of the College's team at the exhibition.
- Via a Feedback Form at the exhibition.
- Via a QR Code on the boards.
- Via email to the College: pcfeedback@conel.ac.uk.

A total of 12 local residents, 10 members of staff and one Councillor attended the exhibition providing a variety of comments. Feedback provided by all the stakeholders were fed into the planning application.

For further details, refer to the Statement of Community Involvement.

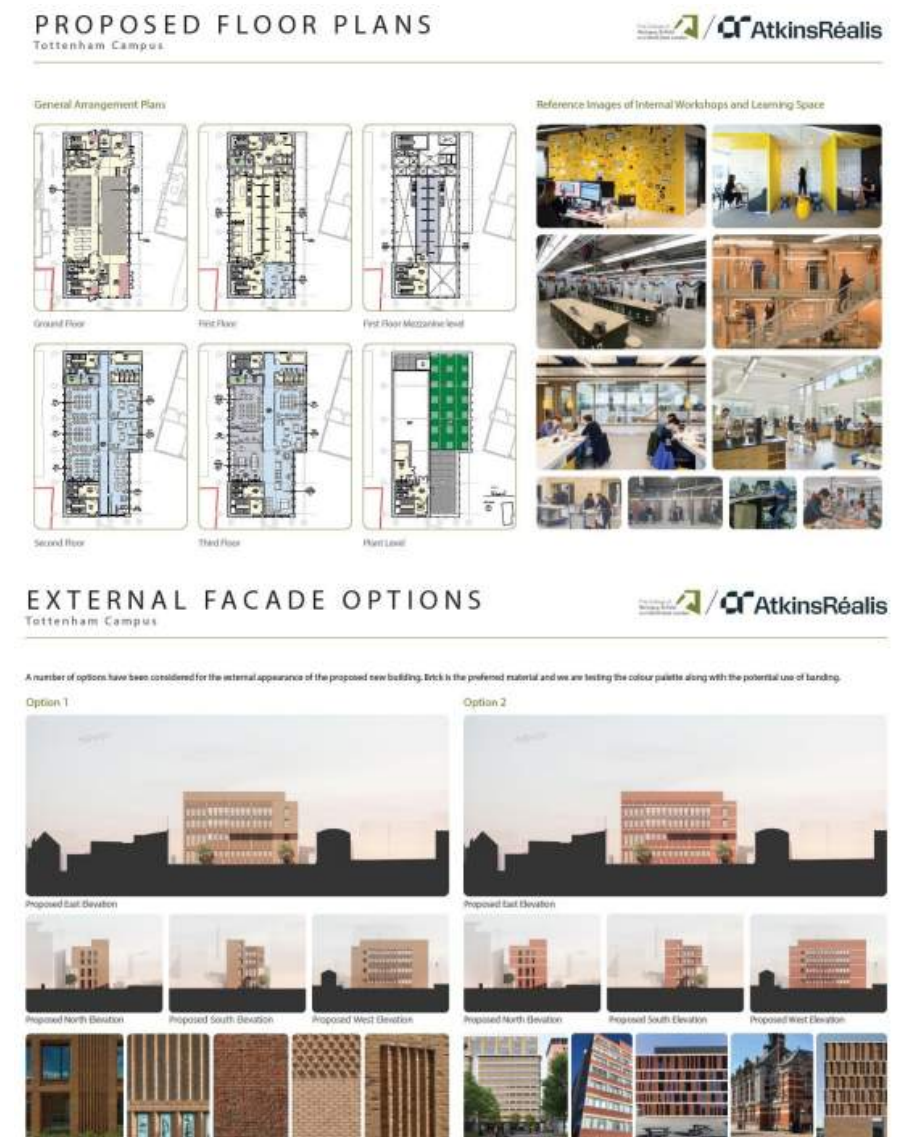


Figure 11-1: Boards displayed at the Public Exhibition (Source: Atkins Realis, Information Boards to the College).

11.2 Heritage

An Archaeological Impact Assessment was undertaken by RPS Group. It concluded that in terms of relevant, nationally significant designated heritage assets, no World Heritage Sites, Scheduled Monuments, Protected Wrecks or Registered Battlefields lie within the study sites in its immediate vicinity.

In terms of relevant local designations, the study Site lies within Tier 2, Archaeological Priority Area of Tottenham Hale Medieval Settlement and is situated on the projected route of the Roman Road Ermine Street, another Tier 2, Archaeological Priority Area, which appears to follow the route of the modern High Road and Tottenham High Road.

Based on existing information, and prior to an assessment of post-depositional impacts, a theoretical high archaeological potential is expected at the Site for the Post Medieval period, in particular for remains associated with the late 18th-19th century buildings of Eagle House, Grove House and St. Ann's Chapel and associated structures, along with plough soil and landscape garden activity.

As a results of this, the Site is considered to have a limited archaeological potential. If archaeological remains pre-dating the modern period do survive at the Site, they are likely to be extremely localised and at most of local significance.

The proposed new Construction and Engineering Centre will replace the existing gym and lecture hall, following from its demolition. Despite a slightly larger footprint, it is concluded that such works is unlikely to have either a widespread or significant impact on any underlying archaeological assets.

The proposed building lies at the western end of the Site, away from the location of the known Post Medieval buildings, including St Ann's Chapel, which were located at the eastern/south-eastern end of the Site. Therefore, this report recommends that no further archaeological work is to be required at the Site in respect of this planning application.

12 Conclusions

Energy and Carbon

Energy and carbon reductions are required to tackle our Climate Emergency. The London Plan and the London Environment Strategy outline the Mayor's ambition for London to be a zero-carbon city by 2050.

- The project is expected to achieve a 36% reduction in regulated carbon emissions over Part L 2021.
- A fabric-first approach is adopted to minimise energy use with enhanced thermal performance.
- The façade has been optimised to maximise daylight and useful solar gain, helping to mitigate overheating risk and minimise heat loss.
- An efficient mechanical ventilation system with heat recovery and a low specific fan power has been specified.
- ASHPs will be used to provide space heating and DHW for the entire building.
- Roof-mounted photovoltaics will produce onsite renewable energy generation.
- The Proposed Development aims to commit to disclosing in-use energy consumption data to the GLA for a minimum of five years, post-construction.

Water

The design aims to treat water as a precious resource with water use being minimised through the implementation of several different strategies. There will be provision and management of measures for the efficient use of mains water.

- The design aims to achieve a minimum of 40% improvement against the baseline performance, achieving three BREEAM credits under 'Wat 01 Water consumption'.
- Considering the number of toilets and washbasins proposed for the building, the anticipated discharge rate from the building is 3.76 L/sec.

Materials and Waste

Materials play a key role in a sustainable development, having an impact on carbon emissions through embodied carbon. In addition, principles of the circular economy have been applied, supporting London's transition to circularity.

- The 'Building in layers' framework has been used to inform the circular economy strategies of the Proposed Development.
- All waste management measures to be implemented on Site will be in accordance with the Waste Hierarchy.

Land and Ecology

The Proposed Development aims to enhance biodiversity and connect to the natural environment through the incorporation of a suitable landscaping strategy.

- The Proposed Development will deliver a net gain for biodiversity, with an increase in habitats of 80.81% compared to the baseline.
- The projected UGF for the Proposed Development is 0.3, within the planning boundary.
- Ecological enhancements on the Site can enable the habitats to help to establish coherent ecological networks that are more resilient to current and future pressures, widening their value beyond the Site boundary.
- Native plant species should be used wherever possible, and where not possible plants should favour those of a known benefit to wildlife.
- Other features could also be installed on the building or on the green roof to enhance its ecological value. Stone or log piles would provide shelter for a variety of invertebrates and the installation of bird boxes on the building surrounding the green roof can help promote establishment of local bird populations that could use the habitat for foraging.

Planning for Change

The buildings and landscaping are designed to be resilient to meet the challenges of future climate projects.

- Overheating assessments have been undertaken to ensure optimum comfort conditions are met for the patients. Mitigation measures include optimised glazing areas, solar control glazing and manually openable vents.
- The Proposed Development is in Flood Zone 1 meaning there is a low probability of flooding from rivers.
- The surface water flows from the new building are proposed to attenuate in an underground attenuation tank and pumped into an existing inspection chamber at a controlled rate of 2 L/s, located at the northeast corner of the new building. The existing inspection chamber ultimately discharges into the existing Thames Water manhole.
- A Green Roof with a plan area of 159 m² is proposed on the rooftop to provide biodiversity benefits with ecological value as well as reduction in the rate of surface water runoff.
- Attenuation tanks are also proposed which will provide sufficient attenuation storage and manage the surface water discharge into the drainage network.

Environmental Impact

Suitable mitigation measures are implemented to reduce the potential construction phase impacts.

- The use of the identified site-specific control measures would provide suitable mitigation for a development of this size and nature and reduce potential noise impacts to an acceptable level.
- The results of the air quality assessment demonstrated that predicted pollutant levels were below the relevant criteria across the development. Therefore, the Site is considered suitable for the proposed end-use from an air quality perspective.
- The building energy strategy includes the use of Air Source Heat Pumps (ASHPs) and Air Handling Units (AHUs), which do not produce emissions to the atmosphere. As such, the development is air quality neutral from a building emissions perspective.
- The development does not lead to an increase in vehicle movements. As such, it is considered air quality neutral with respect to transport emissions.
- Limiting external noise criteria were determined, applicable to new building services plant associated with the scheme and the design and selection of the plant will be fully developed during detailed design.
- The Daylighting and Sun lighting assessment demonstrates that the Proposed Development has a relatively low impact on light receivable by its neighbouring properties.

Mobility and Connectivity

The Site is located in close proximity to a network of footways that can provide access to key local amenities and public transport nodes.

- The Travel Plan seeks to encourage sustainable travel modes but given the current travel pattern of most students and staff, it is not anticipated that this will change significantly.
- There are suitable active travel provisions for walking and cycling.
- The Site is located within an area of one of the highest Public Transport Accessibility Level (PTAL) rating scores of 6a and on the border of 6b meaning it has excellent accessibility to public transport.

Community and Heritage

The Proposed Development aims to support a strong and inclusive community.

- The College has shared its proposals with the local community. The consultation was via a Public Exhibition which took place over two days in January 2024.
- Attendees to the Public Exhibition were able to provide feedback on the Proposed Development in a number of ways.
- The Archaeological Impact Assessment concluded that in terms of relevant, nationally significant designated heritage assets, no World Heritage Sites, Scheduled Monuments, Protected Wrecks or Registered Battlefields lie within the study sites in its immediate vicinity.

13 Appendix

BREEAM Pre-Assessment New Construction Version 6.1

Capital City College Group (CCCG)

FOR THE SITE AT:

College of Haringey Enfield and North East
Tottenham Centre
High Road
London
N15 4RU
London Borough of Haringey



Version	Revision	Date	Author	Reviewer	Project Manager
1	A	16.06.2023	GB	-	GB
1	B	19.06.2023	GB	-	GB
1	C	01.08.2023	GB	-	GB
1	D	19.01.2024	GB	-	GB
1	E	13.02.2024	GB	-	GB

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Executive Summary

This BREEAM¹ Pre-Assessment has been written by SRE on behalf of the Capital City College Group (CCCG - the Client) to demonstrate the likely BREEAM score of the Education development at the College of Haringey, Tottenham (the Proposed Development).

This pre-assessment has been based on details supplied by the client and wider design team to date, in addition to further desk-based study, best practise and historical data. SRE has been a licensed BREEAM organisation for over 13 years and has extensive knowledge of the methodology, which is used to produce an accurate assessment score.

Project Name	CCCG College of Haringey, Tottenham
Lead Assessor	Grace Boatfield
Target Rating	'Excellent' (>70%)
BREEAM Version	New Construction Version 6.1
Assessment Type	Education – Further Education
BREEAM Type	Fully Fitted

Scenario	Min Standards met	%	BREEAM Rating
Targeted score	Yes	68.15	'Very Good'
Potential credits	-	9.43	-



Figure 1 - BREEAM score chart

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1.0 Assessment Overview

1.1 Development Overview

The Proposed Development will see the demolition and mothballing of two unfit for use buildings and the construction of a STEM building at Tottenham Campus, situated across from Tottenham Green in the London Borough of Haringey. The building will be comprised of teaching spaces, workshops (bricklaying, engineering, electrical installation and heating and plumbing), engineering and technology labs, ICT classrooms, flexible learning spaces, staff areas and storage spaces. Outside space will not be included within the development.

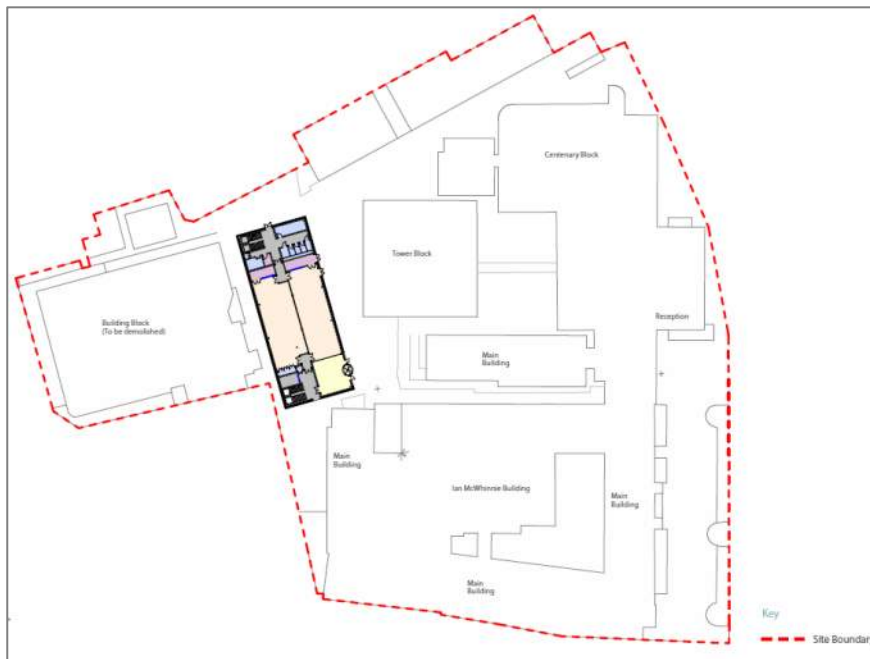


Figure 2 - Site Plan for the Proposed Development.

1.2 Assessment Criteria

The BREEAM Pre-Assessment has shown that the Proposed Development can currently achieve a 'Very Good' rating under BREEAM New Construction V6.1 (SRE Proposed) based on the assumptions and information agreed to-date. The BREEAM Pre-Assessment has been undertaken as a 'Fully Fitted' assessment to reflect the scope of the works to be undertaken by the Client. The credits contained within the assessment are therefore those relevant to the scope of a 'Fully Fitted' assessment.

1.3 BREEAM Score

The overall target score for the project is currently **68.15%**, which will deliver a high 'Very Good' rating. The credits targeted are considered by SRE and the project team to be realistic and deliverable on-site based on the initial assessment & survey work instructed and undertaken to-date and the information presently available.

Potential credits to uplift the score to the 'Excellent' (>70%) rating desired for planning have also been considered by the Project Team. These credits are detailed within Section 3.0. There are currently 9.43% worth of 'Potential' credits being considered. It is likely that a number of these credits will be targeted in future once further information is available surrounding the scheme. The credits and their requirements will be continually reviewed by the Design Team as the project progresses to ensure opportunities to increase the score are sought where possible.

BREEAM standards can be challenging to achieve, and the pre-assessment report should be carefully reviewed by the design team to ensure all targeted credits are delivered as the project is progressed.

2.0 BREEAM Minimum Standards

Performance against the minimum standards is summarised below. If the required minimum standards are not met, then the target rating will not be achieved regardless of the overall score.

Issue	Targeted
Man 03 - Responsible construction practices	✓
Man 04 - Commissioning and handover	✓
Man 04 - Commissioning and handover	✓
Man 05 - Aftercare	✓
Ene 01 - Reduction of energy use and carbon emissions	✓
Ene 02 - Energy monitoring	✓
Wat 01 - Water consumption	✓
Wat 02 - Water monitoring	✓
Mat 03 - Responsible sourcing of construction products	✓
Wst 01 - Construction waste management	✓
Wst 03 - Operational waste	✓

Table 1 - BREEAM New Construction V6.1 Minimum Standards (Education, Fully Fitted)

3.0 Potential credits

The following table lists potential credits that could be targeted to improve the project's targeted score from a 'Very Good' (55%) rating to an 'Excellent' (70%). Please see the full pre-assessment credit tracker in Section 5.0 for further details regarding all credits.

Issue	Credit	Number of potential credits	% Weighting
Man 02	Component Level LCC Options Appraisal	1	0.52
Man 03	BREEAM AP (Site)	1	0.52
Man 03	Responsible Construction Management (Exemplary credit)	1e	1.00
Hea 02	Emissions from Construction Products	1	0.82
Hea 02	Post-construction Indoor Air Quality Measurement	1	0.82
Mat 03	Measuring Responsible Sourcing	1	1.07
LE 01	Contaminated Land	1	1.00
LE 03	Managing Negative Impacts	1	1.00
LE 04	Change and Enhancement of Ecology	1	1.00
Pol 03	Minimising Watercourse Pollution	1	0.67%

Table 2 - Potential credits to improve 'Very Good' (>55%) rating to the desired 'Excellent' (>70%)

4.0 Summary score sheet

		Available	Targeted	Potential
Management				
Man 01	Project brief and design	4	4	0
Man 02	Life cycle cost and service planning	4	1	1
Man 03	Responsible construction practices	6	5	1
Man 03 – Exemplary (1)	Responsible construction practices	1	0	1
Man 04	Commissioning and handover	4	4	0
Man 05	Aftercare	3	2	0
Standard Management Credit Total:		21	16	2
Exemplary Management Credit Total:		1	0	1
% Management Total (Standard + Exemplary):		11.92	8.32	2.04
Health & Wellbeing				
Hea 01	Visual comfort	5	3	0
Hea 01 – Exemplary (1)	Visual comfort	1	0	0
Hea 01 – Exemplary (2)	Visual comfort	1	0	0
Hea 02	Indoor air quality	4	0	2
Hea 02 – Exemplary (1)	Indoor air quality	1	0	0
Hea 04	Thermal comfort	3	3	0
Hea 05	Acoustic performance	3	3	0
Hea 06	Security	1	0	0
Hea 06 – Exemplary (1)	Security	1	0	0
Hea 07	Safe and healthy surroundings	1	1	0
Standard Health & Wellbeing Credit Total:		17	10	2
Exemplary Health & Wellbeing Credit Total:		4	0	0
% Health & Wellbeing Total (Standard + Exemplary):		17.94	8.20	1.64
Energy				
Ene 01	Reduction of energy use and carbon emissions	13	8	0
Ene 01 – Exemplary (1)	Reduction of energy use and carbon emissions	2	0	0
Ene 01 – Exemplary (2)	Reduction of energy use and carbon emissions	3	0	0

		Available	Targeted	Potential
Ene 01 – Exemplary (3)	Reduction of energy use and carbon emissions	2	0	0
Ene 02	Energy monitoring	2	2	0
Ene 03	External Lighting	1	1	0
Ene 04	Low carbon design	3	2	0
Ene 06	Energy efficient transportation systems	2	2	0
Ene 08	Energy efficient equipment	2	2	0
Standard Energy Credit Total:		23	17	0
Exemplary Energy Credit Total:		7	0	0
% Energy Total (Standard + Exemplary):		23.10	11.90	0
Transport				
Tra 01	Transport assessment and travel plan	2	2	0
Tra 02	Sustainable transport measures	10	7	0
Standard Transport Credit Total:		12	9	0
Exemplary Transport Credit Total:		0	0	0
% Transport Total (Standard + Exemplary):		9.96	7.47	0
Water				
Wat 01	Water consumption	5	3	0
Wat 01 – Exemplary (1)	Water consumption	1	0	0
Wat 02	Water monitoring	1	1	0
Wat 03	Water leak detection	2	2	0
Wat 04	Water efficient equipment	1	1	0
Standard Water Credit Total:		9	7	0
Exemplary Water Credit Total:		1	0	0
% Water Total (Standard + Exemplary):		8.02	5.46	0
Materials				
Mat 01	Environmental impacts from construction products - Building life cycle assessment (LCA)	7	3	0
Mat 01 – Exemplary (1)	Environmental impacts from construction products - Building life cycle assessment (LCA)	1	0	0
Mat 01 – Exemplary (2)	Environmental impacts from construction products - Building life cycle assessment (LCA)	1	0	0
Mat 01 – Exemplary (3)	Environmental impacts from construction products - Building life cycle assessment (LCA)	1	0	0
Mat 02	Mat 02 Environmental impacts from construction products - Environmental Product Declarations (EPD)	1	0	0

		Available	Targeted	Potential
Mat 03	Responsible sourcing of construction products	4	2	1
Mat 03 – Exemplary (1)	Responsible sourcing of construction products	1	0	0
Mat 05	Designing for durability and resilience	1	1	0
Mat 06	Material efficiency	1	1	0
Standard Materials Credit Total:		14	7	1
Exemplary Materials Credit Total:		4	0	0
% Materials Total (Standard + Exemplary):		18.98	7.49	1.07
Waste				
Wst 01	Construction waste management	5	2	0
Wst 01 – Exemplary (1)	Construction waste management	1	0	0
Wst 02	Use of recycled and sustainably sourced aggregates	1	0	0
Wst 02 – Exemplary (1)	Use of recycled and sustainably sourced aggregates	1	0	0
Wst 03	Operational waste	1	1	0
Wst 05	Adaptation to climate change	1	1	0
Wst 05 – Exemplary (1)	Adaptation to climate change	1	0	0
Wst 06	Design for disassembly and adaptability	2	2	0
Standard Waste Credit Total:		10	6	0
Exemplary Waste Credit Total:		3	0	0
% Waste Total (Standard + Exemplary):		9	3.60	0
Land Use & Ecology				
LE 01	Site selection	2	1	1
LE 02	Ecological risks and opportunities	2	2	0
LE 02 – Exemplary (1)	Ecological risks and opportunities	1	0	1
LE 03	Managing impacts on ecology	3	2	1
LE 04	Ecological change and enhancement	4	2	1
LE 04 – Exemplary (1)	Ecological change and enhancement	1	0	0
LE 05	Long term ecological management and maintenance	2	2	0
Standard Land Use & Ecology Credit Total:		13	9	3
Exemplary Land Use & Ecology Credit Total:		2	0	1
% Land Use & Ecology Total (Standard + Exemplary):		15	9	4

		Available	Targeted	Potential
Pollution				
Pol 01	Impact of refrigerants	3	2	0
Pol 02	Local air quality	2	2	0
Pol 03	Flood and surface water management	5	4	1
Pol 04	Reduction of night time light pollution	1	1	0
Pol 05	Reduction of noise pollution	1	1	0
Standard Pollution Credit Total:		12	10	1
Exemplary Pollution Credit Total:		0	0	0
% Pollution Total (Standard + Exemplary):		8.04	6.70	0.67
Innovation				
AI	Approved Innovation	1	0	0
AI - Innovation Credit Total:		0	0	0
% Innovation Total (Standard + Exemplary):		1	0	0
OVERALL TOTALS			93	11
% OVERALL SCORE TOTALS			68.15	9.43

5.0 Detailed Assessment

Management					
Man 01 - Project brief and design					
	Credit	Available	Targeted	Potential	Comments
1	Project delivery planning	1	1	0	Project Delivery Planning Completed BEFORE end of RIBA Stage 2 (1 credit) Targeted - Yes Notes from stakeholders meeting which identify and define each key phase of the project delivery (including, roles, responsibilities and contributions). The following should be considered when defining the above: • End-user requirements • Aims of the design and design strategy • Installation and construction requirements or limitations, budget and technical expertise • Maintainability and adaptability of the proposal • Operational energy • Requirements for the production of project and end-user documentation, and for commissioning, training and aftercare support. The project team should also demonstrate how stakeholders contributions have influenced Initial Project Brief, Project Execution Plan, Communication Strategy and Concept Design. Actions: • <i>Project Team to provide a completed copy of the SRE Man 01 meeting plan.</i> <i>SRE (31.07.2023): Cumulated minutes/actions list from the project's design meetings received from PM. PM confirmed there are design team meetings every two weeks and stakeholder engagement meetings fortnightly. Notes from these meetings will continue to be recorded as evidence of project delivery planning and stakeholder consultation.</i>
2	Stakeholder consultation (interested parties)	1	1	0	Stakeholder Consultation (interested parties) (1 credit) Targeted - Yes Complete by end of RIBA Stage 2 Prior to completion of the Concept Design, the design team should consult with all interested parties on matters that cover the minimum consultation content. They should demonstrate how the stakeholder contributions and consultation exercise outcomes influence the Initial Project Brief and Concept Design. Prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), all interested parties should give and receive consultation feedback. Additionally, for Education developments: An independent party must carry out the consultation exercise. The Design Quality Indicator (DQI) and the Achieving Excellence Design Evaluation Toolkit (AEDET) could be used as methods to assess the design quality of buildings.

					Independent Party: A third party or a person or body internal to a party involved (parties involved are typically a supplier (1st party) or purchaser (2nd party)), who shall not be involved in the issue in question, and shall not have conflicts of interests resulting from their position. To comply with the criterion relating to the use of an independent party, the client or design team needs to demonstrate either: 1. They have used a party independent of the design process to conduct the necessary consultation exercise; OR 2. If the consultation is to be carried out by an organisation involved with the design of the building, e.g. the project architect, then they must present the assessor with evidence that robustly demonstrates the independence of the consultation process. BREEAM has not attempted to define what form this evidence must take; the onus is on the design team or relevant individual to clearly demonstrate to the BREEAM Assessor a credible level of independence. Actions: • Project Team to provide a completed copy of the SRE Man 01 meeting plan. <i>SRE (31.07.2023): Cumulated minutes/actions list from the project's design meetings received from PM. PM confirmed there are design team meetings every two weeks and stakeholder engagement meetings fortnightly. Notes from these meetings will continue to be recorded as evidence of project delivery planning and stakeholder consultation.</i>
3	BREEAM AP (concept design)	1	1	0	BREEAM AP (Concept Design) (1 credit) Targeted - Yes The project team, including the client, should formally agree strategic performance targets early in the design process (before the end of the Concept Design stage). For the credit to be achieved, a BREEAM AP must be involved in the project at an appropriate time and level to: • Work with the project team, including the client, to consider the links between BREEAM issues and assist them in maximising the overall performance of the project against BREEAM, from their appointment and throughout Concept Design. • Monitor progress against the performance targets agreed between the client and project team throughout all stages after their appointment where decisions critically impact BREEAM performance. • Proactively identify risks and opportunities related to the achievement of the targets agreed under the criterion between the client and project team. • Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. • Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team. Actions:

					SRE has been assigned as the Stage 1-3 BREEAM AP and will provide the AP report. SRE (01.08.2023): The latest draft of the Stage 1-3 AP report has been issued to the project team. SRE (13.02.2024): Updated AP report issued to the project team. "Project programme" section incomplete as timescales are unknown.
4	BREEAM AP (developed design)	1	1	0	BREEAM AP (Developed Design) (1 credit) Targeted - Yes For this credit to be achieved, the BREEAM AP (Concept Design) credit must be achieved. In addition, the BREEAM AP must be involved in the project at an appropriate time and level to: - Work with the project team, including the client, to consider the links between BREEAM issues and to assist them in maximising the overall performance of the project against BREEAM throughout Developed Design. - Monitor progress against the performance targets agreed between the client and project team throughout all stages where decisions critically impact the specification and tendering process and the BREEAM performance. - Proactively identify risks and opportunities related to the achievement of the targets agreed between the client and project team. - Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. - Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team. Actions: - SRE has been assigned as the Stage 1-3 BREEAM AP and will provide the AP report. SRE (01.08.2023): The latest draft of the Stage 1-3 AP report has been issued to the project team. SRE (13.02.2024): Updated AP report issued to the project team. "Project programme" section incomplete as timescales are unknown.
Man 02 - Life cycle cost and service planning					
	Credit	Available	Targeted	Potential	Comments
1	Elemental LCC	2	0	0	Elemental LCC Completed by end of RIBA Stage 2 (2 credits) Targeted - No - No longer achievable due to the project surpassing the RIBA Stage 2 deadline. A competent person is to be appointed to carry out an outline, entire asset LCC plan before the end of Concept Design (RIBA Stage 2) together with any design options appraisals in line with Standardised method of life cycle costing for construction procurement PD 156865:2008.

					The competent person must be an individual who has acquired substantial expertise or a recognised qualification for undertaking life cycle costing studies and is not professionally connected to a single manufacturer. The ELCC plan is to provide an indication of future replacement costs over a period of analysis as required by the client (e.g. 20, 30, 50 or 60 years). This will include service life, maintenance and operation cost estimates. The period of analysis should ideally be agreed by the client, in line with the design life expectancy of the building. However, where the life expectancy of the building is not yet formally agreed (due to being at very early design stages), the default design life of 60 years should be used for modelling purposes (in line with the UK default). The design team will provide examples to demonstrate how the elemental LCC plan has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value. Actions: • This credit has not been assumed due to high benchmarks and additional costs. Client to confirm. <i>SRE (18.01.2023): SRE has issued a fee estimate to perform this service. Awaiting confirmation from PMc.</i> <i>SRE (13.02.2024): An ELCC analysis was not undertaken before the end of RIBA Stage 2, and therefore these credits cannot be targeted. Credits removed from 'Potential'.</i>
2	Component level LCC options appraisal	1	0	1	Component level LCC options appraisal Completed by the end of RIBA Stage 4 (1 credit) Targeted - No - Potential A competent person (see definition provided within ELCC above) is to develop a component level LCC options appraisal by the end of Technical Design (RIBA Stage 4). The component level LCC, in line with PD156865: 2008, should include (where present): • Envelope, e.g. cladding, windows, or roofing • Services, e.g. heat source, cooling source, or controls • Finishes, e.g. walls, floors or ceilings • External spaces, e.g. alternative hard landscaping, boundary protection. The Component level LCC option appraisal should review all of the above component types (where present). However, it is not necessary to consider every single example cited under each component; only a selection of those most likely to draw valued comparisons. This is to ensure that a wide range of options are considered and help focus the analysis on components which would benefit the most from appraisal. The design team will provide examples to demonstrate how the component level LCC options appraisal has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value. Actions:

					<i>This credit has not been assumed due to high benchmarks and additional costs. Client to confirm.</i> <i>SRE (18.01.2023): SRE has issued a fee estimate to perform this service.</i>
3	Capital cost reporting	1	1	0	Capital cost reporting (1 credit) Targeted - Yes The capital cost of the project will be formally stated in the BREEAM assessment, measured in £k/m². Written confirmation is to be provided during the Design Stage. The capital cost for the building should include the expenses related to the initial construction of the building: - Construction, including preparatory works, materials, equipment and labour - Site management - Construction financing - Insurance and taxes during construction - Inspection and testing Actions: <i>Quantity Surveyor to confirm that written confirmation of the final capital cost of the project in £k/m² will be provided.</i>
Man 03 - Responsible construction practices					
	Credit	Available	Targeted	Potential	Comments
Pre-req 1	Prerequisite - Legally harvested and traded timber		✓	✓	Prerequisite - All timber and timber-based products used on the project to be 'Legally harvested and traded timber'. The requirements outlined by the UK Government Timber Procurement Policy (TPP) need to be followed, in that they must be covered by third-party independent forest certification schemes Category A (e.g. FSC or PEFC). Actions: <i>Main Contractor to confirm all Timber products used on site will be 'Legally harvested and traded timber', chosen based on the above certification.</i>
1	Environmental management	1	1	0	Environmental Management (1 credit) Targeted - Yes The principal contractor and demolition contractor must have a certified Environmental Management System (ISO 14001/EMAS). The EMAS must be third party certified or, in compliance with BS 8555, have appropriate structure, have reached implementation stage phase four implementation and operation of the environmental management system and have completed defined phase audits one to four. In

					addition, they are required to implement best practice pollution prevention policies and procedures on site in accordance with PPG6. Actions: Client to ensure that the Main Contractor and Demolition Contractors appointed have ISO 14001/EMAS certification.
2	BREEAM AP (site)	1	0	1	BREEAM AP (site) (1 credit) Targeted - No (Potential) Client and contractor to formally agree performance targets. A BREEAM AP should be involved in the project at an appropriate time and level to: - Work with the project team, including the client, to consider the links between BREEAM issues and assist them in achieving and if possible going beyond the design intent, to maximise the projects performance against the agreed performance targets throughout the Construction, Handover and Close Out stages. - Monitor construction progress against the performance targets agreed under criterion 5 above throughout all stages where decisions critically impact BREEAM performance. - Proactively identify risks and opportunities related to the procurement and construction process and the achievement of the targets agreed under criterion 5 above. - Provide feedback to the constructors and the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. - Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team and the provision to the assessor. Actions: - Project team to confirm whether a BREEAM AP will be appointed to monitor and assist progress on the project throughout the Construction, Handover and Close Out stages.
3	Responsible construction management	2	2	0	Responsible construction management Targeted - Yes (2 credits) Team members are to be assigned responsibility for reporting and monitoring the items listed within Table 4.1 of the BREEAM NC V6 manual. These span the following categories: - Risk evaluation and implementation, including: - Vehicle movement - Pollution management - Tidiness - Health and wellbeing - Security processes - Training, awareness and feedback

					- Monitoring and reporting Credits are achieved as follows: - One credit: As a minimum, achieve 9 of the items listed in table 4.1 of the manual, namely: a, d, f, g, h, j, n, o & r. Two credits: Achieve six additional credits from table 4.1 as well as the criterion above required for one credit. As per Guidance Note 33, the Considerate Constructors Scheme (CCS), or equivalent, can be used in support of the delivery of the above measures. The proportion of measures covered by CCS is dependent on the CCS score achieved by the development: - A score of ≥ 27 covers RCM items c, d, e, l & m. - A score of ≥ 39 with a score of at least 13 in each of the 3 CCS categories achieves all RCM items other than g, p & q. Actions: <i>Project Team to ensure the appointed Main Contractor commits to achieving the above. If CCS is used, this needs to be registered to support these 2 credits.</i>
4	Monitoring of construction site impacts	2	2	0	Monitoring of construction site impacts (2 credits) Targeted - Yes (2 credits) Responsibility is to be assigned to an individual for monitoring, recording and reporting energy use, water consumption and transportation data (where measured) resulting from all on-site construction processes (and dedicated off-site manufacturing) throughout the build programme. To ensure the robust collection of information, this individual must have the appropriate authority and responsibility to request and access the data required. Where appointed, the BREEAM AP could perform this role. First monitoring credit utility consumption (energy and water) The assigned individual is to: - Set targets for the site energy consumption in kWh as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation. - Set targets for the potable water consumption (m³) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation. - Monitor and record data as described above. Second monitoring credit transportation of materials and waste The assigned individual is to:

					- Set targets for transportation movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum this will cover transport from the point of supply to the building site, including any transport, intermediate storage and point of supply. Materials used in major building elements will be monitored as a minimum. Transport from the construction gate to the waste disposal processing should also be monitored, covering construction waste groups outlined in the project's resource management plan. - Monitor and record data as described above. Actions: <i>Project Team to ensure the appointed Main Contractor commits to monitoring energy and water (one credit) and transport of materials on site and transport of waste (one credit).</i>
e1	Responsible construction management	1	0	1	Responsible construction management Targeted - No (Potential) The Main Contractor must achieve all items listed in Table 4.1. If the Considerate Constructors Scheme (CCS) is used, this will require the achievement of a minimum of 13 points per section and 39 overall. Actions: <i>Project Team to ensure the appointed Main Contractor commits to achieving the above. If CCS is to be used, confirmation of registration is required.</i>
Man 04 - Commissioning and handover					
	Credit	Available	Targeted	Potential	Comments
Pre-req	Prerequisite (Very Good to Outstanding)		✓	✓	Prerequisite - Mandatory to achieve a Very Good to Outstanding level Targeted - Yes - The commissioning test schedule and responsibilities credit must be achieved. - A Building User Guide (BUG) is to be provided as a minimum requirement to achieve a 'Very Good' rating.
1	Commissioning - testing schedule and responsibilities	1	1	0	Commissioning - testing schedule and responsibilities (1 credit) Mandatory - This credit is required for 'Very Good' rating to be achieved Targeted - Yes A schedule of commissioning and testing must be produced which identifies and includes a suitable time scale for commissioning and re-commissioning of all complex and non-complex building services and control systems and for testing and inspecting building fabric.

					The schedule should identify the appropriate standards for all commissioning activities to be conducted, where applicable, in accordance with Current Building Regulations, BSRIA guidelines, CIBSE guidelines, and other appropriate standards. Any processes or manufacture-related equipment specified as part of the project should be excluded from the assessment. However, include such equipment in cases where they form an integral part of the building HVAC services, such as some heat recovery systems. An appropriate project team member should be appointed to monitor and programme pre-commissioning, commissioning and testing. Where necessary include re-commissioning activities on behalf of the client. The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and the main programme of works. Allow the required time to complete all commissioning and testing activities prior to handover. Actions: • <i>Project Team to ensure the appointed Main Contractor will account for a commissioning and testing schedule within the project's budget and ensure that these are provided at the post-construction stage.</i>
2	Commissioning - design and preparation	1	1	0	Commissioning - design and preparation (one credit) Targeted - Yes For this credit to be achieved, the criteria within Commissioning - testing schedule and responsibilities above must be met. During the design stage, the client or the principal contractor must appoint an appropriate project team member, provided they are not involved in the general installation works for the building services systems, with responsibility for: • 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 or post-handover stages. For buildings with <u>complex building services and systems</u>, this role needs to be carried out by a <u>specialist commissioning manager</u>. Specialist commissioning managers • A specialist contractor rather than a general sub- contractor, able to independently verify the work carried out by the project team members installing the systems. • Can be appointed by the client or the contractor to perform the tasks described above for buildings with complex building services and systems and defined in their contract. • Must be a professional who has experience/qualifications that enable them to undertake the responsibilities described above. As an example, membership to the Commissioning Specialists Association (CSA) is a relevant qualification. Actions:

					Project team to ensure the appointed Main Contractor commits to the above.
3	Testing and inspecting building fabric	1	1	0	Testing and inspecting building fabric (one credit) Targeted - Yes For this credit to be achieved, the criteria within Commissioning - testing schedule and responsibilities above must be met. In addition: - Post-construction testing and inspection must be completed to quality-assure the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths (this is through airtightness testing and a thermographic survey). A suitably qualified professional (see definition below) must undertake the survey and testing in accordance with the appropriate standard. - Any defects identified during post-construction testing and inspection must be rectified prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building or element as defined at the design stage. Suitably Qualified Professional: <u>Airtightness testing</u>: Membership of Air Tightness Testing and Measurement Association (ATTMA) or Independent Air Tightness Testing Scheme (IATS) attained at organisational level. - Thermographic survey: Professionals holding a valid Category 2 or RQF (Regulated Qualifications Framework) Level 4. Alternatively, the survey can be undertaken by a Category 1 thermographer and then the images interpreted by a Category 2 or Level 4 thermographer. Actions: - Project Team to ensure the appointed Main Contractor confirms the above and ensures that airtightness testing and a thermographic survey are included in the project's budget.
4	Handover	1	1	0	Handover (1 Credit) Mandatory - This credit is required for 'Very Good' rating Targeted - Yes <u>Building User Guides (BUGs):</u> Prior to handover, two building user guides (BUGs) must be developed for the following users: - A non-technical user guide for distribution to the building occupiers. - A technical user guide for the premises facilities managers. The BUGs should provide building-specific or site-specific guidance, and include information on the following:

					• Overview of the building and its environmental strategy, e.g. energy, water or waste efficiency policy or strategy, and how users should engage with and deliver the policy or strategy. • Provision of, and access to, shared facilities. • Safety and emergency information or instructions. • Building-related operational procedures specific to building type or operation, e.g. laboratories. • Building-related incident reporting and feedback arrangements. • Provision of and access to transportation facilities, e.g. public transport, cyclist facilities, pedestrian routes etc. • Provision of and access to local amenities. • Links, references and relevant contact details. Additionally, for the non-technical building user guide for building occupiers: • Building services overview and access to building occupant controls, e.g. where to find them, what they control, how to operate effectively and efficiently etc. • Pre-arrival information for visitors, e.g. access and security procedures or provisions. Additionally, for the technical building user guide for facilities managers: • Building services overview and access to facilities management controls, e.g. where to find them, what they control, how to operate effectively and efficiently etc. • Refit, refurbishment and maintenance arrangements or considerations • Building related training information or links. A draft copy should be developed and discussed with users first (where the building occupants are known) to ensure the guide is most appropriate and useful to potential users. <u>Training Schedules:</u> Additionally, two training schedules should be prepared, timed appropriately around handover and proposed occupation plans for the following users: 1. A non-technical training schedule for the building occupiers. 2. A technical training schedule for the premises facilities managers. The training schedules should include the following as a minimum: • The building's design intent.
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					Additionally, for the building occupiers" training schedule: • Introduction to the non-technical building user guide for building occupiers and other relevant building documentation. Additionally, for the facilities managers" training schedule: • The available aftercare provision and aftercare team main contacts, including any scheduled commissioning and post occupancy evaluation. • Introduction to, and demonstration of, installed systems and key features, particularly building management systems, controls and their interfaces. • Introduction to the technical building user guide for facilities managers" and other relevant building documentation, e.g. design data, technical guides, maintenance strategy, operations and maintenance (O&M) manual, commissioning records, log book etc. • Maintenance requirements, including any maintenance contracts and regimes in place. The guides and training schedules should include, as far as possible, all relevant sections regarding the services and fabric installed. On completion of works the building owner, agent or user hands it over to the fit-out contractor, who can then complete the relevant sections based on the fit-out strategy. Actions: • <i>Two BUGs and training schedules will be required from the Main Contractor at the Post-construction stage, before handover takes place.</i>
Man 05 - Aftercare					
	Credit	Available	Targeted	Potential	Comments
1	Aftercare support	1	1	0	Aftercare Support (1 credit) Targeted - Yes Provide aftercare support to the building occupiers through having in place operational infrastructure and resources. This includes as a minimum: • A meeting between the aftercare support team or individual, and the building occupier or management team (prior to initial occupation, or as soon as possible thereafter) to: introduce the aftercare support available (including the content of the building user guide and training schedule) and present key information about features of the building including the design intent and how to use the building to ensure it operates as efficiently and effectively as possible. • On-site facilities management training including: a walkabout of the building AND introduction to and familiarisation with the building systems, their controls and how to operate them in accordance with the design intent and operational demands. • Provide initial aftercare support for at least the first month of building occupation, e.g. weekly attendance on-site, to support building users and management (the level of frequency will depend on the complexity of the building and building operations).

					- Provide longer term aftercare support for occupiers for at least the first 12 months from occupation, e.g. a helpline, nominated individual or other appropriate system to support building users and management. Establish operational infrastructure and resources to coordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months once the building is substantially occupied. This facilitates analysis of discrepancies between actual and predicted performance, with a view to adjusting systems and user behaviours accordingly. Actions: <i>Project Team to ensure the appointed Main Contractor commits to the above.</i>
2	Commissioning - implementation	1	1	0	Commissioning Implementation (1 credit) Targeted - Yes Complete the following commissioning activities over a minimum 12-month period once the building becomes substantially occupied: <u>Complex systems: The specialist commissioning manager needs to:</u> - Identify changes made by the owner or operator that might have caused impaired or improved performance. - Test all building services under full load conditions. - Where applicable, carry out testing during periods of extreme high or low occupancy. - Interview building occupants to identify problems or concerns regarding the effectiveness of the systems. - Produce monthly reports comparing sub-metered energy performance to the predicted one. - Identify inefficiencies and areas in need of improvement. - Re-commission systems (following any work needed to serve revised loads), and incorporate any revisions in operating procedures into the operations and maintenance (O&M) manuals. <u>Simple systems (naturally ventilated): The external consultant, aftercare team or facilities manager needs to:</u> - Review thermal comfort, ventilation, and lighting, at three, six and nine month intervals after initial occupation, either by measurement or occupant feedback. - Identify deficiencies and areas in need of improvement. - Re-commission systems and incorporate any relevant revisions in operating procedures into the O&M manuals. Actions:

					Project Team to ensure the appointed Main Contractor commits to the above and accounts for post-occupancy commissioning activities within the projects budget.
3	Post occupancy evaluation (POE)	1	0	0	Post-occupancy evaluation (POE) (1 credit) Targeted - No - The client or building occupier must commit to carry out a POE exercise one year after the building is substantially occupied. This gains comprehensive in-use performance feedback and identifies gaps between design intent and in-use performance. The aim is to highlight any improvements or interventions that need to be made and to inform operational processes. - An independent party must perform the POE. The POE should cover a review of the design intent and construction process (review of design, procurement, construction and handover processes). It should also include feedback from a wide range of building users including facilities management on the design and environmental conditions of the building covering internal environmental conditions (light, noise, temperature, air quality), control, operation and maintenance, facilities and amenities, access and layout, energy and water consumption and other relevant issues, where appropriate. - The independent party should provide a report with lessons learned to the client and building occupiers. - The client or building occupier must commit funds to pay for the POE in advance. This requires an independent party to be appointed to carry out the POE as described above. Evidence of the appointment of the independent party and schedule of responsibilities which fulfils the BREEAM criteria are acceptable to demonstrate compliance. Actions: - Client to confirm whether the above will be implemented and account for the appointment of an independent party to perform the POE within the project budget.
		21	16	2	Standard Management Credit Total
		1	0	1	Exemplary Management Credit Total
		11.92	8.32	2.04	% Management Total (Standard + Exemplary)
Health & Wellbeing					
Hea 01 - Visual comfort					
	Credit	Available	Targeted	Potential	Comments
1	Control of glare from sunlight	1	1	0	Glare Control (1 credit) Targeted - Yes Areas at risk of glare must be identified using a glare control assessment. The glare control assessment should also justify any areas deemed not at risk of glare. Where risk has been identified within a relevant building area (areas where lighting and resultant glare could be problematic for users, e.g. those areas that have been designed to contain or use workstations, projector screens etc. and sports halls), a glare control strategy must

					be used to design out the potential for glare. Control of glare from the sun is required in spaces with computer workstations such as offices, laboratories, control rooms and reception desks. It is also required in spaces where people have to spend time in fixed locations such as hospital wards. The glare control strategy must not increase energy consumption used for lighting. This should be achieved by maximising daylight levels in all weather, cloudy or sunny AND ensuring the use or location of shading does not conflict with the operation of lighting control systems. Compliant shading measures for meeting glare control criteria can include: • building-integrated measures (e.g. overhangs or fins) • occupant-controlled devices such as opaque Venetian or close weave fabric blinds, (where the openness factor of blinds is 1% or less, and where the fabric light transmittance value is < 0.1 (10%)) • external shading or brise soleil or a combination of the above. KBCN1088: • Where a relevant area as defined in the manual does not include any windows, the glare control criteria can be considered as met for this area. • Note that the view out and daylight criteria would not be achieved in rooms with no windows: <i>'Where there are no windows in a room there would be no potential for disabling glare, so the aim of the credit would be achieved.'</i> Actions: • <i>Project Team to confirm that the Architect will perform a glare control assessment, and that suitable glare control measures will be implemented in areas at risk of glare.</i> <i>SRE (04.01.2024): Project Team's planning application tracker confirms that Right of Light are to perform the BREEAM Daylight and Sunlight assessment.</i>
2	Daylighting (building type dependent)	2	0	0	Daylighting (2 credits) Targeted - No The daylighting criteria are met through either - <u>Option A:</u> All relevant building areas (higher education occupied spaces) must achieve the minimum daylight requirements of 2% daylight factor over 60% of floor area for 1 credit (Targeted) / 80% of floor area for 2 credits (Potential) AND EITHER: • A uniformity ratio of at least 0.3 or a minimum point daylight factor of at least 0.3 times the average daylight factor value.

					OR - At least 80% of the room has a view of the sky from a desk or tabletop height (0.7m) and - The room depth criterion $d/w + d/HW < 2/(1-RB)$ is satisfied, where: - d = room depth - w = room width - HW = window head height from floor level - RB = average reflectance of surfaces in the rear half of the room. Option B: The relevant building areas meet the good practice average and minimum point daylight illuminance criteria below: 60% (1 credit - Targeted) / 80% (2 credits - Potential) of higher education occupied spaces achieve an average daylight illuminance (averaged over the entire space) of at least 300 lux for 2000 hours per year or more and minimum daylight illuminance at the worst lit point of at least 90 lux for 2000 hours per year or more. Alternatively, if the Education and Skills Funding Agency (ESFA) framework is adopted and adhered to, where <u>at least 80% of all relevant room types meet the criteria the credits can be awarded.</u> Relevant building areas: Those areas that are occupied continuously for 30 minutes or more. For education buildings, relevant areas include: - Sports hall exercise spaces - Laboratory areas unless the type of research that will be carried out requires strictly controlled environmental conditions, such as the exclusion of natural light at all times. - Kitchen and catering areas - General communal areas - Small offices - Meeting rooms - Any area that may involve close-up work. However, this excludes the following (where present): - Media, arts production, SEN sensory spaces, x-ray rooms and other areas requiring strictly controlled acoustic or lighting conditions Actions:
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					Project team to confirm whether these credits should be targeted. If this credit is to be targeted, daylight modelling is required, ideally before planning (SRE can provide this service for an additional fee, if required). SRE (13.02.2024): Energy assessment (including internal daylight analysis using appropriate modelling software) received from Introba. The report confirms that the 2no. Daylighting credits cannot be achieved for the development - only 16.7% of the occupied rooms in the Baseline scenario and 22% in Option 1 meet the Daylighting requirements. Credits therefore removed.
3	View out	1	1	0	View Out (1 credit) Targeted - Yes 95% of the floor area in 95% of spaces for each relevant building area (those spaces occupied continuously for 30 minutes or more) achieves adequate view out. Adequate view out: Building areas within 8m of an external wall which has a window/opening of 20% of the surrounding wall area and at a seated eye level. This view out should be of a landscape or buildings (rather than just the sky). Relevant building areas: Areas where there are or will be workstations or benches or desks for building users, and where close work will be undertaken or visual aids will be used. Actions: - Architect to confirm whether the above criteria are achievable for the Proposed Development. - View out calculations and drawings required - SRE can provide examples.
4	Internal and external lighting levels, zoning and control	1	1	0	Internal/External lighting and zoning controls (1 credit) Targeted - Yes <u>Internal lighting</u> All internal lighting to be designed to provide illuminance levels in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard. For areas where computer screens are regularly used, the lighting design must comply with CIBSE Lighting Guide 7 sections 2.4, 2.13 to 2.15, 2.20, and 6.10 to 6.20. This gives recommendations highlighting: - Limits to the luminance of the luminaires to avoid screen reflections. (Manufacturers' data for the luminaires should be sought to confirm this.) - Any area where a surface is used to reflect light in to a space, such as uplighting, the recommendations refer to the luminance of the lit ceiling rather than the luminaire; a design team calculation is usually required to demonstrate this. - Recommendations for direct lighting, ceiling illuminance, and average wall illuminance. <u>External lighting</u> External lighting to be provided in accordance with BS 5489-1:2013 and BS EN 12464-2:2014.

					<u>Zoning and occupant control</u> Internal lighting is to be zoned to allow for occupant control. Zoning must be in accordance with the criteria below for relevant areas present within the building: • In office areas, zones of no more than four workplaces • Workstations adjacent to windows or atria and other building areas separately zoned and controlled • Seminar and lecture rooms: zoned for presentation and audience areas • Library spaces: separate zoning of stacks, reading and counter areas • Teaching space or demonstration area • Whiteboard or display screen • Auditoria: zoning of seating areas, circulation space and lectern area • Dining, restaurant, café areas: separate zoning of servery and seating or dining areas Areas used for teaching, seminar or lecture purposes have lighting controls provided in accordance with CIBSE Lighting Guide 5. For Education developments, manual lighting controls must be easily accessible for the teacher while teaching and on entering or leaving the teaching space. Manual lighting controls need only be provided for staff, not the children. Actions: • M&E Consultant to confirm the internal and external lighting and zoning will be specified in line with the above.
e1	Daylighting (building type dependent)	1	0	0	Credit not sought.
e2	Internal and external lighting levels, zoning and control	1	0	0	Credit not sought.
Hea 02 - Indoor air quality					
	Credit	Available	Targeted	Potential	Comments
Pre-req	Prerequisite - Indoor air quality (IAQ) plan		✗	✓	Prerequisite - An IAQP is to be provided by the Design Team Targeted - No (Potential) A site-specific IAQP should be produced and implemented in accordance with Guidance Note 6 (GN06). The purpose of the plan is to minimise internal air pollution during the building's occupation and must cover the following: • Removal of contaminant sources • Dilution and control of contaminant sources • Procedures for pre-occupancy flush out and purge ventilation • Third party testing and analysis • Maintaining good indoor air quality in-use

					- Any relevant local authority plans or policies Actions: - Project team to confirm whether an IAQP covering the above criteria is to be provided (SRE can provide this service if required).
1	Ventilation	1	0	0	Ventilation (1 credit) Targeted - No In a naturally ventilated building, openable windows/ventilators are to be located >10m from sources of external pollution. In an air-conditioned building, air intakes are to be >10m from sources of external pollution and >10m from the building's exhaust and where present, HVAC systems must incorporate filtration systems in accordance with BS EN 13779:2007 Annex A3. If the Proposed Development is a naturally ventilated or mixed-mode building, cross ventilation should be provided to allow thermal comfort compliance in line with CIBSE AM10. Areas of large or variable occupancy are to be fitted with air quality sensors that are linked to the appropriate controls. Actions: Project team/MEP to confirm the ventilation system specified for the Proposed Development and that the above criteria will be met. <i>SRE (05.07.2023): Noted during the pre-assessment workshop that as the development is in central London, it may be challenging for the Ventilation criteria to be met (intakes away from sources of external pollution). The credit has therefore not been targeted.</i>
2	Emissions from construction products	2	0	1	Emissions from construction products Targeted - No (Potential - IAQP pre-requisite needs to be fulfilled for any of the Hea 02 credits to be targeted) For 1 credit, <u>three of the following categories</u> must achieve the standards set out in the BREEAM NC V6 Technical Manual (Table 5.11) in addition to <u>all wood-based products being classified as formaldehyde E1</u>: - Interior paints and coatings - Wood-based products - Flooring materials - Ceiling, wall, acoustic and thermal insulation materials - Interior adhesives. For all 2 credits, <u>all of the product types</u> listed in BREEAM table 5.11 (interior paints and coatings; wood-based products; flooring materials; ceiling, wall and acoustic and thermal insulation materials, and interior adhesives and sealants) must meet the emission limits, testing requirements and additional requirements listed in the table.

					Actions: Architect to confirm that the relevant products specified will meet the standards outline above/set out within the Table 5.11 of the BREEAM NC V6 Technical Manual.
3	Post-construction indoor air quality measurement	1	0	1	Post-construction indoor air quality measurement (1 credit) Targeted - No (Potential - IAQP pre-requisite needs to be fulfilled for any of the Hea 02 credits to be targeted) - The formaldehyde concentration in indoor air must be measured post-construction (but pre-occupancy) and should not exceed 100g/m averaged over 30 minutes (World Health Organization guidelines for indoor air quality: Selected pollutants, 2010). - The formaldehyde sampling and analysis must be performed in accordance with ISO 16000-2 and ISO 16000-3. <u>Total volatile organic compound (TVOC) concentration:</u> - The total volatile organic compound (TVOC) concentration in indoor air should be measured post-construction (but pre-occupancy) and not exceed 500g/m over 8 hours. - The TVOC sampling and analysis must be performed in accordance with ISO 16000-5 and ISO 16000-6 or ISO 16017-1. Where levels are found to exceed these limits, the project team must confirm the measures that have, or will be, undertaken in accordance with the IAQ plan, to reduce the TVOC and formaldehyde levels to within the above limits. Actions: - Project team to confirm that post-construction (but pre-occupancy) testing of indoor formaldehyde and TVOC levels will be undertaken in accordance with the relevant standards above.
e1	Minimising sources of air pollution - Emissions from construction products	1	0	0	Credit not sought.
Hea 04 - Thermal comfort					
	Credit	Available	Targeted	Potential	Comments
1	Thermal modelling	1	1	0	Thermal modelling (1 credit) Targeted - Yes Thermal modelling must be undertaken using software in accordance with CIBSE AM11 Building Energy and Performance Modelling. The simulation must provide full dynamic thermal analysis, whilst also meeting the criteria set out in CIBSE Guide A Environmental design if the building is to be mechanically/naturally ventilated in addition to CIBSE TM52 & TM59 if naturally ventilated (note: this is also linked to Ene04).

					Modelling must demonstrate that: - For <u>air-conditioned</u> buildings, summer and winter operative temperature ranges are in accordance with CIBSE Guide A Environmental Design for both current and projected climate change scenarios. - For <u>naturally ventilated</u> buildings, winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design. The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in either CIBSE TM52 or CIBSE TM59. Thermal modelling assumptions must be reasonable and represent typical use patterns and loads given the parameters and function of the building. Thermal modelling may need to be completed on the basis of a typical notional layout. Actions: - Thermal modelling is to be completed before the end of RIBA Stage 3/planning to confirm the Hea 04 credits. <i>SRE (13.02.2024): Energy assessment (including Hea 04 overheating analysis) received from Introba. The report confirms the first 2no. Hea 04 credits can be awarded.</i>
2	Design for future thermal comfort	1	1	0	Design for future comfort (1 credit) Targeted - Yes The above modelling criteria must be achieved, including for a projected climate change environment. Where this is not possible, it should be demonstrated how the building has been adapted or designed to be easily adapted in future using passive design solutions to achieve compliance. Actions: Thermal modelling is to be completed before the end of RIBA Stage 3/planning to confirm the Hea 04 credits. <i>SRE (13.02.2024): Energy assessment (including Hea 04 overheating analysis) received from Introba. The report confirms the first 2no. Hea 04 credits can be awarded.</i>
3	Thermal zoning and controls	1	1	0	Thermal zoning and controls (1 credit) Targeted - Yes The above thermal modelling is to inform the temperature zoning and control strategy for the building and its users. The control strategy is to be based on appropriate zoning and occupant control based on discussion with the end-user and system interaction. The strategy for proposed heating or cooling systems is to demonstrate that it has addressed the following: - Zones within the building and how the building services could efficiently and appropriately heat and cool these areas. - The degree of occupant control, based on discussions with the end-user.

					- How the proposed systems interact with each other. - The need for an accessible building user-actuated manual override for any automatic systems. Actions: - Project team (M&E consultant) to confirm thermal control strategy will comply with the thermal comfort report produced for the Proposed Development. <i>SRE (13.02.2024): Credit has been targeted following receipt of the Hea 04 Overheating report from Introba, which confirms the first two thermal modelling credits have been achieved. The thermal control strategy for the development must implement the recommendations from the report to allow the thermal zoning and controls credit to be awarded.</i>
Hea 05 - Acoustic performance					
	Credit	Available	Targeted	Potential	Comments
1	Acoustic performance	3	3	0	Acoustic performance for education buildings (3 credits) Targeted - Yes (3 credits) Up to three credits can be achieved where the building meets the appropriate acoustic performance standards and testing requirements relevant to the building type (Education) for sound insulation, indoor ambient noise levels and room acoustics defined below: Sound insulation - Achieve the performance standards set out in Section 1 of Building Bulletin 93: Acoustic design of schools: performance standards, February 2015 (BB93) relating to airborne sound insulation between spaces and impact sound insulation of floors. Indoor ambient noise levels - Achieve the indoor ambient noise level standards set out within Section 1 of BB93 for all room types. Room acoustics (Control of reverberation, sound absorption and speech transmission index (STI)): - Teaching and study spaces achieve the requirements relating to reverberation time for teaching and study spaces set out within Section 1 of BB93. - Open plan teaching spaces achieve the performance requirements relating to reverberation time and STI set out within Section 1 of BB93. - Corridor and stairwells, for those that give direct access to teaching and study spaces, achieve the performance requirements relating to sound absorption. Actions: - Project team to confirm whether a Suitably Qualified Acoustician (SQA) will be appointed to perform testing and produce an acoustic report covering the above sound insulation, indoor ambient noise levels and room acoustics requirements.

					<i>SRE (10.07.2023): Initial noise assessment received from the project team. The report confirms that the assessment was produced by 24 Acoustics (Suitably Qualified Acoustician) on 29.06.23, following the survey undertaken between 11th and 16th May 2023 (prior to construction or demolition works beginning on the site). The assessment includes both internal noise monitoring (Hea 05) and external (i.e., the new building services plant - Pol 05). The report concludes that the 3 credits for Hea 05 should be achievable and in line with the BB93 standards for education buildings, and the Pol 05 credit is attainable following inclusion of the recommended noise attenuation measures in the design of the plant.</i>
Hea 06 - Security					
	Credit	Available	Targeted	Potential	Comments
1	Security of site and building	1	0	0	Security; Input by RIBA Stage 2 (1 credit) Targeted - No A Suitably Qualified Security Specialist (SQSS/ALO) must conduct an evidence-based Security Needs Assessment (SNA) prior to RIBA Stage 2, which is to include: • A visual audit of the site and surroundings, identifying environmental cues and features pertinent to the security of the proposed development. • Formal consultation with relevant stakeholders, including the local ALO, CPDA and CTSA (as applicable), in order to obtain a summary of crime and disorder issues in the immediate vicinity of the proposed development. • Identification of risks specific to the proposed, likely or potential use of the buildings. • Identification of risks specific to the proposed, likely or potential user groups of the buildings. • Identification any detrimental effects the development may have on the existing community. The SQSS is to develop a set of security controls and recommendations for incorporation into the proposals. Those controls and recommendations shall directly relate to the threats and assets identified in the preceding SNA. The controls and recommendations should be incorporated into proposals and implemented in the as-built development. Any deviation from those controls and recommendations must be justified and agreed with the SQSS. Actions: <i>SRE (01.08.2023): PM confirmed that an SQSS assessor has not been appointed as the college has an officer overseeing security aspects, however an SQSS will be appointed to target the credit. PM to confirm whether the campus' current security consultant meets the definition of an SQSS (guidance has been sent via email) and whether they are willing to perform an SNA for the site.</i> <i>SRE (17.01.2024): PMc confirmed that this credit should not be targeted.</i>
e1	Security of site and building	1	0	0	Security; Input by RIBA Stage 2 (1 credit) Targeted - No An Exemplary Credit can be achieved where a compliant risk-based security rating scheme is used. The performance against the scheme must have been confirmed by independent assessment and verification. Actions:

					Evidence of the above must be provided prior to RIBA stage 2 to ensure credit is achievable. Use of a compliant risk-based security rating scheme has not been assumed, and therefore this credit is not targeted, at present.
Hea 07 - Safe and healthy surroundings					
	Credit	Available	Targeted	Potential	Comments
1	Safe access	1	1	0	Safe and healthy surroundings (1 credit) Targeted - Yes Where external site areas form part of the assessed development the following apply: - 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. Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply: - 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. <u>Dedicated and safe cycle lanes</u> Marked-out and clearly signed routes to accommodate building users arriving on and travelling through the assessed site on a bicycle. They must also have the following features: - Adequate external lighting in accordance with BS 5489-1:20131 Lighting of roads and public amenity areas. - Appropriate sized, designed and constructed. The following publications offer guidance on how to demonstrate this: - Local transport Note 2/08 Cycle infrastructure design, Department of Transport, 2008.

					- Sustrans design guidance (www.sustrans.org.uk), specifically the Sustrans design manual handbook for cycle-friendly design. <u>Dedicated and safe footpaths</u> Marked-out and clearly signed routes to accommodate building users arriving on and travelling through the assessed site on foot. They must also have the following features: - Dedicated pedestrian crossing points are provided where needed to allow pedestrians to cross vehicle access routes - Appropriate traffic calming measures are in place to slow traffic at any crossing points - Developments with high numbers of visitors provide signposting to other local amenities and public transport nodes off site (where existing) - Adequate external lighting in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas. Actions: - Architect to confirm that access routes within the site will comply with the above.
		17	10	2	Standard Health & Wellbeing Credit Total
		4	0	0	Exemplary Health & Wellbeing Credit Total
		17.94	8.20	1.64	% Health & Wellbeing Total (Standard + Exemplary)
Energy					
Ene 01 - Reduction of energy use and carbon emissions					
	Credit	Available	Targeted	Potential	Comments
1	Energy performance	9	8	0	Prerequisite - at least four credits required for Excellent - an EPR_{NC} of at least 0.4 must therefore be achieved. Energy Performance modelling (9 credits) Targeted - Yes (8 credits based on the 'As-Designed' BRUKL) Energy modelling must be undertaken to calculate an Energy Performance Ratio for New Construction (EPR NC). The EPR NC achieved is compared with the benchmarks in Table 6.1 of the BREEAM NC V6 manual and awarded the corresponding number of BREEAM credits. Actions: Energy modelling is to be undertaken and an SBEM or BRUKL provided to confirm credits. <i>SRE (05.07.2023): Laura (MEP) confirmed during the BREEAM pre-assessment workshop that energy performance modelling is included within Introba's scope of works, and they will produce the BRUKL report.</i> <i>SRE (13.02.2024): Energy Assessment report received from Introba. The report confirms that currently 8 Ene 01 Energy Performance credits can be targeted for an EPRNC of 0.853.</i>

2	Prediction of operational energy consumption	4	0	0	Prediction of operational energy consumption (4 credits) Targeted - No The occupancy and energy use for unregulated energy loads and management practices are to be estimated. Detailed energy modelling is to be undertaken to predict the building energy consumption, as well as sensitivity analysis to determine the factors that can significantly impact building energy consumption. This will involve scenario modelling to inform improvements to the design of the building and to the operational, maintenance and handover strategies. An energy target is to be set for the building based on the results of this modelling. At the post-construction stage, this scenario modelling will be repeated to reflect the post-construction building specification and, if necessary, adjust the target. A workshop is to be held with the project team, client and prospective occupier during Concept Design to discuss the results of the modelling and analysis and the proposed building design and development, to devise scenarios to explore how high-impact factors might influence the building energy consumption and to identify opportunities for the implementation of passive design measures. Actions: • Energy modelling is to be undertaken and an SBEM or BRUKL provided to confirm credits. • Energy workshop to be held during Concept Design between the Project Team, Client and prospective occupier.
e1	Beyond zero net regulated carbon - - Exemplary level criteria	2	0	0	<i>Credit not sought.</i>
e2	Carbon negative - Exemplary level criteria	3	0	0	<i>Credit not sought.</i>
e3	Post-occupancy evaluation of operational energy consumption - Exemplary level criteria	2	0	0	<i>Credit not sought.</i>
Ene 02 - Energy monitoring					
	Credit	Available	Targeted	Potential	Comments
1	Sub-metering of end use categories	1	1	0	Prerequisite - Sub-metering of types is installed (1 credit) Mandatory - This credit is required for a 'Very Good' rating to be achieved Targeted - Yes Energy metering systems must be installed so that at least 90% of the estimated annual energy consumption of each fuel is assigned to the end-use categories. The energy consumption in buildings must be metered according to the total useful floor area. If the area is <u>greater than 1,000m²</u>, by end-use category with an appropriate energy monitoring and management system. Additionally, as per the Building Regulations requirements, buildings with a total floor area <u>greater than 1,000m²</u> are also required to have automatic meter reading and data collection facilities. Building users must be able to identify the energy consuming end uses, for example through labelling or data outputs. Detailed guidance on how to develop an appropriate metering strategy for the energy criteria of a new building is available in CIBSE TM39

					Building energy metering. Major energy-consuming systems include (where present): • Space Heating • Domestic Hot Water • Humidification • Cooling • Fans (major) • Lighting • Small Power (lighting and small power can be on the same sub-meter where supplies are taken on each floor) • Other major energy-consuming items (e.g. lifts). Energy consumption should be metered by end-use category with an appropriate energy monitoring and management system and end-uses made identifiable with labelling. Actions: • <i>MEP to confirm that energy metering systems will be specified and installed in line with the above requirements.</i>
2	Sub-metering of high energy load and tenancy areas	1	1	0	Sub-metering of high Energy load and tenancy areas (1 credit) Targeted - Yes Monitor a significant majority of the energy supply with: • An accessible energy monitoring and management system (EMS/BMS) for tenanted areas or relevant functional areas or departments in single occupancy buildings. OR • Separate accessible energy sub-meters with pulsed or other open protocol communication outputs for future connection to an energy monitoring and management system for tenanted areas or relevant functional areas or departments in single occupancy buildings. Sub-meter per floor plate in large single-occupancy or single-tenancy buildings with one homogeneous function, for example, hotel bedrooms, offices. Detailed guidance on how to develop an appropriate metering strategy for the energy criteria of a new building is available in CIBSE TM39 Building energy metering Actions:

					MEP to confirm that high energy load and tenancy areas will be metered in accordance with the above criteria.
Ene 03 - External Lighting					
	Credit	Available	Targeted	Potential	Comments
1	External lighting	1	1	0	External Lighting (1 credit) Targeted - Yes To achieve 1 credit, the Proposed Development must meet either of the following: There is no external lighting on site (including lighting on the building, at entrances and signs). OR External light fittings within the construction zone have: - An average initial luminous efficacy of not less than 70 luminaire lumens per circuit Watt. - Automatic control to prevent operation during daylight hours. - Presence detection in areas of intermittent pedestrian traffic. Actions: - MEP to confirm that external lighting will be specified in line with the above requirements.
Ene 04 - Low carbon design					
	Credit	Available	Targeted	Potential	Comments
1	Passive design	2	1	0	Passive Design (2 credits) Complete by end of RIBA stage 2 1 credit - Passive Design Analysis (Targeted) <u>The first credit within Hea 04 must be achieved.</u> The project team must undertake an analysis of the proposed building design and development during Concept Design to identify opportunities for the implementation of passive design measures. These will reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption in line with the passive design analysis findings. Reductions in total energy demand and CO₂e emissions resulting from the passive design measures must also be quantified. Free Cooling (1 credit) Targeted - No The Passive Design credit must be achieved. A free cooling analysis must be undertaken, identifying opportunities for the implementation of free cooling solutions. The building must ultimately be naturally ventilated or use any combination of the free cooling solutions listed in

					the BREEAM technical guidance. Actions: - The project team must ensure thermal modelling is completed so that the first credit within Hea 04 is achieved. - Passive design analysis needs to be provided by the end of RIBA Stage 2 if this credit is to be targeted - SRE can provide this service for a fee, if required. <i>SRE (05.07.2023): Introba (MEP) to confirm whether Passive Design Analysis is included in their scope of works, and provide the report before the end of RIBA Stage 2, if so.</i> <i>SRE (13.02.2024): Energy Statement (inc. LZC Feasibility Study & Passive Design Analysis) received from Introba, confirming the 2no. Ene 04 credits.</i>
2	Low and zero carbon technologies	1	1	0	LZC Feasibility Study (1 credit) Targeted - Yes Complete by the end of RIBA Stage 2 An energy specialist must complete a feasibility study by the end of Concept Design. The most appropriate recognised local (on-site or near-site) low and zero carbon (LZC) energy sources and local LZC technologies for the building or development must be established and specified based on the feasibility study and its recommendations. The reduced regulated carbon dioxide (CO₂e) emissions resulting from the feasibility study must be quantified. Actions: LZC Feasibility Study to be performed and report produced by an Energy Specialist before the end of Concept Design - SRE can perform this service for a fee, if required. <i>SRE (05.07.2023): Introba (MEP) confirmed during the BREEAM pre-assessment workshop that the energy statement (including LZC feasibility study) is included in their scope of works. The LZC credit has therefore been moved to targeted.</i> <i>SRE (13.02.2024): Energy Statement (inc. LZC Feasibility Study & Passive Design Analysis) received from Introba, confirming the 2no. Ene 04 credits.</i>
Ene 06 - Energy efficient transportation systems					
	Credit	Available	Targeted	Potential	Comments
1	Energy consumption	1	1	0	Energy consumption (1 credit) Targeted - Yes The anticipated transportation demand and usage patterns for the building must be analysed to determine the optimum number and size of lifts. The transport analysis can be in the form of a written statement justifying the lift selection for the following conditions:

					• where a single lift is provided in a low rise building for the purpose of providing disabled access only • or where a goods lift is selected based on the size of the goods it is intended to carry. The energy consumption must be calculated in accordance with BS EN ISO 25745 Part 2 or 3 for one of the following: • At least two options for each lift, OR • At least two options considering different system arrangements and control strategies. The use of regenerative drives is to be considered. A regenerative drive should only be considered where it produces an energy saving greater than the additional standby energy used to support the drives. Regenerative drives will typically be appropriate for lifts with high travel and high intensity use. Applicability of this issue: The criteria relating to lifts do not apply to lifting platforms, wheelchair platform stairlifts or other similar facilities to aid persons with impaired mobility. However, any lifting device with a rated speed greater than 0.15m/s must be assessed, inclusive of goods, vehicle and passenger lifts. Actions: • <i>Project team to confirm whether lifts are to be installed within the Proposed Development.</i> • <i>Lift consultant to be appointed and provide lift report to confirm that the above criteria are met.</i> • <i>If lifts are not to be installed, this credit is not applicable and will be removed from the assessment.</i>
2	Energy efficient features	1	1	0	Energy efficient features (1 credit) Targeted - Yes <u>Lifts</u> The following three energy efficient features must be specified for each lift: • A standby condition for off-peak periods. • The lift car lighting and display lighting must provide an average luminous efficacy across all fittings in the car of > 70 luminaire lumens per circuit Watt. • Use of a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor. Regenerative drives should be specified where their use is demonstrated to save energy. <u>Escalators and moving walkways</u> Where both lifts and escalators or moving walks are present, then two credits are available - this has not been assumed for the Proposed

					Development (Project Team to confirm). Actions: - Project team to confirm whether lifts are to be installed within the Proposed Development, as well as any escalators or moving walkways. - Lift consultant to be appointed and provide lift report to confirm that the above criteria are met. - If lifts are not to be installed, this credit is not applicable and will be removed from the assessment.
Ene 08 - Energy efficient equipment					
	Credit	Available	Targeted	Potential	Comments
1	Energy efficient equipment	2	2	0	Energy efficient equipment (2 credits) Targeted - Yes The building's unregulated energy-consuming loads are to be identified, and their contribution to the total annual unregulated energy consumption of the building should be estimated, assuming a typical or standard specification. The systems or processes that use a significant proportion of the total annual unregulated energy consumption of the building must be identified. A meaningful reduction in the total annual unregulated energy consumption of the building must be demonstrated. Table 6.7 of the BREEAM NC V6 manual lists some examples of significant contributors to unregulated energy consumption, and the associated criteria - the items from this table that have been assumed relevant to the development are listed below. If other significant contributors not listed below are to be specified, the Project Team should justify how a meaningful reduction will be achieved for these contributors, as well. Relevant items from Table 6.7: <u>IT-intensive operating areas:</u> - A natural ventilation and cooling strategy must be specified as standard. Forced ventilation should be used only when the internal temperature exceeds 20C and active cooling only when the internal temperature exceeds 22C. - A mechanism to achieve automatic power-down of equipment when not in use, including overnight, should be specified. <u>Domestic-scale appliances (individual and communal facilities):</u> - Any white goods, available to purchase from the developer, must achieve the following ratings (or better) under the EU Energy Efficiency Labelling Scheme: <i>(Old EU Energy labels)</i>

					- Fridges, fridge-freezers: A+ rating - Washing machines: A++ rating - Dishwashers: A+ rating - Washer-dryers: A rating - Tumble dryers: A rating <i>(New EU Energy labels - as per KBCN1445)</i> - Fridges, fridge-freezers, freezers: E - Washing machines: B - Dishwashers: D - Washer-dryers: D-D Actions: - Client or developer to confirm that any unregulated energy-consuming systems will be specified in line with the above. <i>SRE (05.07.2023): Introba (MEP) confirmed during BREEAM pre-assessment workshop that the above is included in their scope of works, with 2 credits anticipated to be achievable. Both credits have therefore been targeted.</i>
		23	17	0	Standard Energy Credit Total
		7	0	0	Exemplary Energy Credit Total
		23.10	11.90	0	% Energy Total (Standard + Exemplary)
Transport					
Tra 01 - Transport assessment and travel plan					
	Credit	Available	Targeted	Potential	Comments
1	Travel plan	2	2	0	Pre-requisite - Travel plan must be undertaken to achieve any credits within this section (2 credits) By the end of RIBA stage 2 Targeted - Yes At no later than <u>Concept Design stage</u>, a <u>site-specific transport assessment</u> (or a travel statement) and <u>draft travel plan</u> must be undertaken and produced, which can demonstrably be used to influence the site layout and built form. The <u>Transport Assessment/Statement</u> must assess the following as a minimum: - If relevant, travel patterns and attitudes of existing building or site users towards cycling, walking and public transport, to identify relevant constraints and opportunities. - Predicted travel patterns and transport impact of future building or site users.

					• Current local environment for pedestrians and cyclists, accounting for any age-related requirements of occupants and visitors. • Reporting of the number and type of existing accessible amenities within 500m of the site. • Disabled access accounting for varying levels and types of disability, including visual impairment. • Calculation of the existing public transport Accessibility Index (AI) • Current facilities for cyclists. Following a transport assessment, a <u>site-specific travel plan</u> must be developed that provides a long term management strategy which encourages more sustainable travel. The travel plan must include measures to increase or improve more sustainable modes of transport and movement of people and goods during the building's operation. As a minimum, the following measures should be considered when developing the travel plan: • Negotiation with local bus, train or tram companies an increase in the local service provision for the development • Provision of a public transport information system in a publicly accessible area • Provision of electric recharging stations • Provision of parking priority spaces for car sharers • Consultation with the local authority on the state of the local cycling network and on improvements • Provision of dedicated and convenient cycle storage • Provision of cyclists' facilities • Lighting, landscaping and shelter to create pleasant pedestrian and public transport waiting areas • Restrictions or charging for car parking • Pedestrian and cyclist friendly (for all types of user regardless of the level of mobility or visual impairment) with the provision of cycle lanes, safe crossing points, direct routes, appropriate tactile surfaces, good lighting and signposting to other amenities, public transport nodes and adjoining off-site pedestrian and cycle routes • Provision of suitable taxi drop-off or waiting areas If the occupier is known, they should be involved in the development of the travel plan. It must be demonstrated that the travel plan will be implemented and supported by the building's management in operation. Actions: • <i>Project Team to confirm whether a Transport Consultant has been appointed.</i> • <i>Project Team to ensure that a site-specific transport assessment and draft travel plan covering the above requirements are provided by the Transport Consultant before the end of RIBA Stage 2.</i> <i>SRE (31.07.2023): PM confirmed that Faye Murray from Ardent is the appointed Transport consultant working on the transport assessment and travel plan. Technical notes have been received and the details are to be developed. The TFL PTAL report confirms that the site achieves an AI of 36.75 points, but this still needs to be noted within the transport assessment to fulfil the BREEAM Tra 01 criteria.</i>
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					<i>SRE (13.07.2024): BREEAM-compliant transport statement received which addresses all the transport assessment criteria. Travel Plan also received. This does not address some of the required travel plan measures – a list of required amendments has been sent to the project team.</i>
Tra 02 - Sustainable transport measures					
	Credit	Available	Targeted	Potential	Comments
Pre-req	Pre-requisite		✓	✓	Pre-requisite: To achieve any of the Tra 02 credits, a Travel Plan must be developed in accordance with the Tra 01 criteria.
1	Transport options implementation	10	7	0	Transport options implementation (10 credits) Targeted - Yes - 7 credits at present Credits are awarded based upon the site's Accessibility Index (AI) and the implementation of any of the following: - Existing A>8. - Demonstrate an increase over the existing AI (calculated in <i>Hea01</i>) through either negotiating with transit companies for an increase in frequency OR provision of a diverted bus route/enhanced bus stop OR provide a dedicated bus service. - 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. - Provide electric recharging stations for a minimum of 3kWfor at least 10% of the total car parking capacity for the development. - Set up a car-sharing group or facility to facilitate and encourage building users to car share, raise awareness of the sharing scheme with marketing and communication materials, provide priority spaces for car sharers for at least 5% of the total car parking capacity for the development and locate priority parking spaces nearest the development entrance used by the sharing scheme participants. - 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 and 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. - Install compliant cycle storage spaces to meet the minimum levels set out in the BREEAM NC 2018 technical manual (Table 7.5). - Provide at least two compliant cyclists' facilities for the building users for the scope of each compliant facility: - Showers - Changing facilities - Lockers - Drying spaces. - At least three existing accessible amenities are present. - Ensure a minimum of one new accessible amenity is provided OR ensure more than one new accessible amenity is provided. <i>It has therefore been proposed that the following 5 points are targeted to achieve 7 credits (due to AI >= 25 & < 40 points) in this section:</i> - Existing AI of >8 (Option 1) - Confirmed in site-specific Transport Assessment, prior to the end of RIBA Stage 2 - see Tra 01. The TFL PTAL report confirms that the development has an AI of 36.75, and therefore this credit can be targeted.

					• A public transport information system (Option 3) - This requires the provision of a "system", installed in a suitable location, which displays up-to-date information on local public transport systems. This could include a "real time" display or other innovative system which allows building users to plan their travel on a daily basis, based on current transport information. • Planned BREEAM compliant cycle storage provision (Option 7) - <u>1 per 10 staff and students</u> in total required as a minimum (Architect to confirm). This number can be reduced by 50% where the AI of the site is >8. In any case, <u>a minimum of 4 cycle spaces must be provided</u>. Any existing cycle storage on the existing site can be considered, as long as it meets the BREEAM requirements. • Provide at least two compliant cyclists' facilities for the building users for the scope of each compliant facility (again, existing facilities on the existing site can be considered, as long they meet the BREEAM requirements): a. Showers - 1 shower per 10 cycle spaces required (the showers do not need to be dedicated to cyclists). Any building providing <u>8 showers or more</u> complies regardless of the number of cycle storage spaces provided. Different gender users must be catered for, either separate showers within shared gender-specific facilities or single shower cubicles and changing space for mixed use. b. Changing facilities - These must account for privacy to allow cyclists of different genders to change in private. Please note that toilet or shower cubicles cannot be counted as compliant changing facilities. c. Lockers - The number of lockers should be at least equal to the number of cycle spaces required, and located in or adjacent to compliant changing rooms, where provided. d. Drying spaces. (Option 8) - These 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. • At least three accessible amenities are present. (Option 9) - An amenities study by SRE has found the following accessible amenities (<u>for BG3 - Further Education</u>) to be present: 1. ATM & Food outlet: Neyza Mini Market London 2. ATM & Food outlet: Tesco Superstore 3. Community facility: Holy Trinity Lutheran Church 4. Community facility: Marcus Garvey Library 5. Food outlet: Flavours International 6. Outdoor space: Tottenham Green 7. Outdoor space: Page Green Common 8. Postal facility: Page Green Post Office 9. Recreation & fitness: Tottenham Green Pools & Fitness Actions: • Project Team to confirm the measures that are to be implemented: ○ Architect to confirm the installation of BREEAM-compliant cycle storage of <u>1 per 10 staff and students in total required as a minimum</u>. ○ Architect to confirm the BREEAM-compliant cycle facilities that will be installed for both staff and occupants/visitors (showers, changing facilities, lockers, drying space), <u>or the presence of existing facilities on the site</u>. ○ Client to confirm the provision of a public transport information system. • BREEAM-compliant Transport assessment/statement confirming the site's AI and the local amenities within 500m of the site is required.
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					<i>SRE (01.08.2023): The TFL PTAL report confirms that the site achieves an AI of 36.75 points, and therefore credits can be awarded based on the point scoring for an AI between ≥ 25 & < 40 points - 2 further credits have therefore been targeted. The AI number still needs to be noted within the transport assessment to fulfil the BREEAM Tra 01 criteria.</i>
		12	9	0	Standard Transport Credit Total
		0	0	0	Exemplary Transport Credit Total
		9.96	7.47	0	% Transport Total (Standard + Exemplary)
Water					
Wat 01 - Water consumption					
	Credit	Available	Targeted	Potential	Comments
1	Water consumption	5	3	0	Water consumption (5 credits) This credit is required for 'Very Good' rating to be achieved Targeted - Yes - 3 credits This issue assesses the efficiency of the domestic water-consuming components specified for the development. The Wat 01 calculator is used to provide an estimate of the overall domestic water consumption of the development. The number of BREEAM credits awarded is based on the percentage improvement in consumption above baseline (Building Regulations Part G) building water consumption. Level 3 performance has been targeted (3 credits) for an improvement of 40% above baseline building water consumption. A typical specification should be as follows (as per Table 8.3 of the BREEAM NC V6 manual): • WC - 3.75 litres effective flush volume; • Urinal - 1.5 litres/hour (2 or more urinals) or 2 litres/hour (1 urinal only) • Showers - 6 litres/min • Wash hand basin taps 5 litres per min • Kitchenette Taps - 6 litres per min • Kitchen taps: restaurant (pre-rinse nozzles only) - 7.30 litres per min • Waste disposal unit - 0 litres per min • <u>Commercial</u> sized dishwashers - 5 litres per rack • <u>Commercial or industrial</u> sized washing machines - 7.50 litres per kg • <u>Domestic</u> sized dishwashers - 12 litres per cycle • <u>Domestic</u> sized washing machines - 40 litres per use Actions: • <i>Project team (MEP) to confirm whether the water-consuming elements will be specified in line with the above requirements.</i>

					<i>SRE (05.07.2023): MEP (Introba) confirmed during BREEAM pre-assessment workshop that the above targets are achievable for the Proposed Development.</i>
e1	Water consumption	1	0	0	<i>Credit not sought.</i>
Wat 02 - Water monitoring					
	Credit	Available	Targeted	Potential	Comments
Pre-req	Prerequisite (Good to Outstanding)		✓	✓	Prerequisite (Good to Outstanding) Minimum requirement for 'Very Good' rating Specify a water meter on the mains water supply to each building. This includes instances where water is supplied via a borehole or other private source.
1	Water monitoring	1	1	0	Targeted - Yes Mandatory - A water meter is fitted to the mains supply on each building. For water-consuming plant or building areas consuming 10% or more of the buildings total water demand it is required that easily accessible sub-metres are fitted or water monitoring equipment is installed. For each meter (main and sub), a pulsed or other open protocol communication output needs to be installed and connected to an appropriate utility monitoring and management system, e.g. a building management system (BMS), for the monitoring of water consumption. If there is no BMS system in operation at Post-Construction stage, credits will be awarded provided that the system used enables connection when the BMS becomes operational. Actions: MEP to confirm that water meters will be specified in line with the above requirements. <i>SRE (05.07.2023): MEP (Introba) confirmed during BREEAM pre-assessment workshop that the above targets are achievable for the Proposed Development.</i>
Wat 03 - Water leak detection					
	Credit	Available	Targeted	Potential	Comments
1	Leak detection system	1	1	0	Leak detection system (1 credit) Targeted - Yes A BREEAM Compliant leak detection system is to be installed on the mains water supply to each building to detect major leaks on the water supply within the buildings and between the buildings and water supply. The system must be: - A permanent automated water leak detection system that alerts the building occupants to the leak OR an inbuilt automated diagnostic procedure for detecting leaks; - Activated when the flow of water passing through the water meter or data logger is at a flow rate above a pre-set maximum for a pre-set period of time. This usually involves installing a system which detects higher than normal flow rates at meters or sub-

					meters. It does not necessarily require a system that directly detects water leakage along part or the whole length of the water supply system; • Able to identify different flow and therefore leakage rates, e.g., continuous, high or low level, over set time periods. Although high and low-level leakage rates are not specified, the leak detection equipment installed must have the flexibility to distinguish between different flow rates to enable it to be programmed to suit the building type and owner's or occupier's usage patterns; • Programmable to suit the owner's or occupier's water consumption criteria; and • Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers. Actions: • MEP to confirm that a leak detection system will be installed in line with the above requirements. <i>SRE (05.07.2023): MEP (Introba) confirmed during BREEAM pre-assessment workshop that the above targets are achievable for the Proposed Development.</i>
2	Flow control devices	1	1	0	Flow control devices (1 credit) Targeted - Yes Flow control devices must be installed that regulate the water supply to each WC area or sanitary facility according to demand, in order to minimise undetected wastage and leaks from sanitary fittings and supply pipework. Actions: • MEP to confirm whether flow control devices will be specified for each WC area, in line with the above. <i>SRE (05.07.2023): MEP (Introba) confirmed during BREEAM pre-assessment workshop that the above targets are achievable for the Proposed Development.</i>
Wat 04 - Water efficient equipment					
	Credit	Available	Targeted	Potential	Comments
1	Water efficient equipment	1	1	0	Water efficient equipment Targeted - Yes • Any unregulated water demands that could be realistically mitigated or reduced should be identified. • Systems/processes should be identified to reduce the unregulated water demand and demonstrate a meaningful reduction in the total water demand of the building. Actions:

					From initial drawings this appears to apply in relation to irrigation systems (used for the green roof) which will require a manual shut-off. M&E to confirm this and any other potential areas. SRE (05.07.2023): MEP (Introba) confirmed during BREEAM pre-assessment workshop that the above targets are achievable for the Proposed Development.
		9	7	0	Standard Water Credit Total
		1	0	0	Exemplary Water Credit Total
		8.02	5.46	0	% Water Total (Standard + Exemplary)
Materials					
Mat 01 - Environmental impacts from construction products - Building life cycle assessment (LCA)					
	Credit	Available	Targeted	Potential	Comments
1	Superstructure	6	3	0	Superstructure Life Cycle Assessment (LCA) (Up to 6 credits) Targeted - Yes (Only Stage 4 modelling - RIBA Stage 2 deadline now surpassed) Complete by RIBA Stage 2 and again at Stage 4 Carry out an LCA of 2-4 significantly different superstructure options, of which the options selected must not hinder the functional requirements previously specified by the client. This must be undertaken within an <u>IMPACT Compliant LCA tool</u>. The following must also be recorded in an 'Option Appraisal Summary Document': - Differences between the design options; - Reasons for selecting the chosen options; and - Reasons for not selecting the discarded options. Reasons must be given for selecting the chosen design option, with <u>the results submitted to BRE prior to the end of the RIBA Stage 2 AND prior to planning submission</u>. This MUST be achieved in order to gain any credits within Mat01. During RIBA Stage 4, carry out an LCA of 2-3 significantly different superstructure options, based on that selected during Stage 2. Results must explore the same issues as those presented at RIBA Stage 2 with the 'Option Appraisal Summary Document' updated and <u>submitted to BRE prior to the end of Stage 4</u>. Actions: - LCA for the superstructure is to be completed by the end of RIBA Stage 2 (Concept Design) and prior to planning submission. - The LCA assessment is to be repeated and the option appraisal summary document updated during and prior to the end of RIBA Stage 4 (Technical Design). - SRE can perform this service for an additional fee, if required.

					<i>SRE (05.07.2023): Laura (MEP) noted that Introba perform Mat 01 LCA modelling, and would check whether their sustainability team can provide the service for the project. 6 credits are currently listed as 'Potential'.</i> <i>SRE (31.07.2023): PM confirmed that inclusion of the Mat 01 assessment will be discussed with the Client following the requested uplift to an "Excellent" rating.</i> <i>SRE (09.01.2024): PM accepted SRE's FE and confirmed that SRE are appointed to undertake the RIBA Stage 4 Mat 01 modelling. 3 credits have therefore been moved to targeted.</i> <i>SRE (13.02.2024): The Mat 01 Stage 2 credits are no longer available due to the project surpassing the Concept Design Stage.</i>
2	Substructure and hard landscaping options appraisal during Concept Design (all building types)	1	0	0	Substructure and hard landscaping Life Cycle Assessment (LCA) (1 credit) Complete by RIBA Stage 2; Targeted - No - <u>No longer achievable due to the project surpassing the RIBA Stage 2 deadline.</u> Carry out an LCA of 6 significantly different substructure and hard landscaping options (minimum 2 substructure & 2 hard landscaping). Results must explore the same issues as those presented for the Superstructure, with the 'Option Appraisal Summary Document' updated and submitted to BRE at the end of RIBA Stage 2. Actions: - LCA assessment for the substructure and hard landscaping required and to be reported within an 'Option Appraisal Summary Document prior to the end of RIBA Stage 2. - SRE can provide this service for a fee, if required. <i>SRE (05.07.2023): Laura (MEP) noted that Introba perform Mat 01 LCA modelling, and would check whether their sustainability team can provide the service for the project. 6 credits are currently listed as 'Potential'.</i> <i>SRE (31.07.2023): PM confirmed that inclusion of the Mat 01 assessment will be discussed with the Client following the requested uplift to an "Excellent" rating.</i> <i>SRE (13.02.2024): Mat 01 credit removed from 'Potential' for substructure and hard landscaping options appraisal due to the project surpassing the RIBA Stage 2 deadline.</i>
e1	Core building services options appraisal during Concept Design (all building types)	1	0	0	Core building services options appraisal (1 exemplary credit) Complete by RIBA Stage 2; Targeted - No - <u>No longer achievable due to the project surpassing the RIBA Stage 2 deadline.</u> Undertake LCA options appraisal of at least 3 significantly different core building services using an IMPACT Compliant LCA tool and submit to BRE prior to the end of Stage 2. Actions: LCA assessment for core building services required and to be reported within an 'Option Appraisal Summary Document prior to the end of RIBA Stage 2.

					SRE (05.07.2023): Laura (MEP) noted that Introba perform Mat 01 LCA modelling, and would check whether their sustainability team can provide the service for the project. 6 credits are currently listed as 'Potential'. SRE (31.07.2023): PM confirmed that inclusion of the Mat 01 assessment will be discussed with the Client following the requested uplift to an "Excellent" rating. SRE (13.02.2024): Mat 01 exemplary credit removed from 'Potential' for core building services option appraisal due to the project surpassing the RIBA Stage 2 deadline.
e2	LCA and LCC alignment (all building types)	1	0	0	Credit not sought.
e3	Third party verification (all building types) - Exemplary level criteria	1	0	0	Credit not sought.
Mat 02 - Mat 02 Environmental impacts from construction products - Environmental Product Declarations (EPD)					
	Credit	Available	Targeted	Potential	Comments
1	Specification of products with a recognised environmental product declaration (EPD)	1	0	0	Environmental impacts from construction products (1 credit) Targeted - No To achieve the credit available, the materials listed in <i>Mat01</i> are assessed depending upon their EPDs (Environmental Product Declarations). Based upon the type of EPD, a score is given with a single credit awarded if 20 points are scored. Actions: This credit is not targeted due to high benchmarks and difficulties in obtaining EPDs.
Mat 03 - Responsible sourcing of construction products					
	Credit	Available	Targeted	Potential	Comments
Pre-req	Prerequisite		✓	✓	Mandatory - This is a minimum requirement for any BREEAM rating 100% of timber and timber-based products used on the project are 'Legal' and 'Sustainable' as per the UK Government's Timber Procurement Policy (TPP). Actions: Project Team to ensure that the appointed Main Contractor commits to sourcing all Timber products on site in accordance with the BREEAM definition of 'Legally harvested and traded timber'.
1	Enabling sustainable procurement	1	1	0	Sustainable Procurement Plan (1 credit) Targeted - Yes To be completed by the end of RIBA Stage 1 A Sustainable Procurement Plan (SPP) must be used by the design team to guide specification towards sustainable construction products. The plan must:

					- Be in place before Concept Design. - Include sustainability aims, objectives and strategic targets to guide procurement activities. Note: targets do not need to be achieved for the credit to be awarded but justification must be provided for targets that are not achieved. - Include a requirement for assessing the potential to procure construction products locally where possible. There must be a policy to procure construction products locally where possible. Include details of procedures in place to check and verify the effective implementation of the sustainable procurement plan. Actions: - Client to confirm whether a Sustainable Procurement Plan has been produced and provided before the end of RIBA Stage 1. SRE can provide this service for a fee, if required. <i>SRE (09.01.2024): PMc accepted SRE's SPP fee estimate. SRE to produce the SPP report.</i>
2	Measuring responsible sourcing	3	1	1	Measuring Responsible sourcing (3 credits) Targeted - Yes Credits for this issue are awarded based on the proportion of responsible sourcing of materials (RSM) points achieved: <u>1 credit (Targeted):</u> A target score of 10% of the available RSM points is achieved for the superstructure. <u>2 credits (Potential):</u> The above is achieved for the superstructure, AND 20% of available RSM points are achieved for internal finishes and substructure and hard landscaping. <u>3 credits:</u> The above is achieved for the superstructure, AND 30% of available RSM points are achieved for internal finishes and substructure and hard landscaping. Calculation of the above requires completion of the Mat 03 Calculator tool by the BREEAM assessor, based on materials information (including materials schedule, drawings and responsible sourcing certificates) provided by the Project Team (specifically the Main Contractor or Architect). Actions: Project Team to ensure the appointed Main Contractor commits to sourcing all superstructure, internal finishes, substructure and hard landscaping materials to be used on site from suppliers with responsible sourcing certificates, where possible.
e1	Measuring responsible sourcing	1	0	0	Measuring responsible sourcing - exemplary criteria (1 exemplary credit) Targeted - No The criteria for 3 RSM credits are achieved, as well as:

					- Core building services achieve $\geq$ 50% of available RSM points. Actions: <i>Credit not sought at present. If targeted, the Project Team are to ensure that the appointed Main Contractor/MEP sources materials for core building services from suppliers with responsible sourcing certificates, where possible.</i>
Mat 05 - Designing for durability and resilience					
	Credit	Available	Targeted	Potential	Comments
1	Protecting vulnerable parts of the building from damage/material degradation	1	1	0	Designing for durability and resilience (1 credit) Targeted - Yes <u>Protecting vulnerable parts of the building from damage</u> Protection measures are to be incorporated into the building's design and construction to reduce damage to the buildings fabric or materials in case of accidental or malicious damage occurring. These measures must provide protection against: - Negative impacts of high user numbers in relevant areas of the building (e.g. corridors, lifts, stairs, doors etc.). - Damage from any vehicle or trolley movements within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas. - External building fabric damage by a vehicle. Protection where parking or manoeuvring areas are within 1 metre of the building facade and where delivery areas or routes are within 2 metres of the facade, i.e. specifying bollards or protection rails. - Potential malicious damage to building materials and finishes, in public and common areas where appropriate. Examples of suitable durability measures include: - Bollards, barriers or raised kerbs to delivery and vehicle drop-off areas. - Robust external wall construction, up to 2m high. - Corridor walls specified to Severe Duty (SD) as per BS 5234-2. - Protection rails to walls of corridors. - Kick plates or impact protection (e.g. trolleys) on doors. - Hard-wearing and easily washable floor finishes in heavily used circulation areas (i.e., main entrance, corridors, public areas, etc.) - Door stoppers to prevent door handles damaging walls. - Designing out the risk without the need for additional materials specification to protect vulnerable areas. <u>Protecting exposed parts of the building from material degradation</u>

					- Key exposed building elements that may be subject to environmental degradation to be identified, with either a detailed assessment of the element's resilience or an appropriate durability standard (in line with BS 7543:2015) being installed. - Convenient roof access should also be included within the plans in addition to a fabric design that prevents water damage, ingress and detrimental ponding. - Table 9.14 within the BREEAM New Construction V6 manual contains a list of relevant industry durability and quality standards that can be used to achieve compliance. This list addresses standards to be followed for the following building elements: - Timber - Curtain walling - Brickwork, blockwork - Roof elements - Metal cladding - Glazing - Masonry Actions: - Architect to confirm that protection measures and durability or quality standards to be specified and followed for vulnerable and exposed parts of the building, in line with the above criteria.
Mat 06 - Material efficiency					
	Credit	Available	Targeted	Potential	Comments
1	Material efficiency	1	1	0	Material efficiency: Input from RIBA Stage 1 (1 credit) Targeted - Yes At the Preparation and Brief and Concept Design stages, set targets and report on opportunities and methods to optimise the use of materials through the compilation of a Material Efficiency report. This should be carried out at each of the RIBA Stages, 1 (Preparation & Brief), 2 (Concept Design), 3 (Developed Design), 4 (Technical Design) & 5 (Construction). Additionally, at RIBA Stages 3 (Developed Design), 4 (Technical Design) and 5 (Construction), the implementation of measures for maximising material efficiency should be developed and implemented, and noted within the Material Efficiency report. The targets and actual material efficiencies achieved should be reported. Table 9.15 within the BREEAM New Construction V6 manual contains the material efficiency strategy that should be followed to produce the Material Efficiency report. Actions: Architect to provide the Material Efficiency report for RIBA stages 1, 2 and 3 and 4. SRE can provide templates and guidance for this report.

					Main Contractor to supply the report for RIBA Stage 5 (Construction).
		14	7	1	Standard Materials Credit Total
		4	0	0	Exemplary Materials Credit Total
		18.98	7.49	1.07	% Materials Total (Standard + Exemplary)
Waste					
Wst 01 - Construction waste management					
	Credit	Available	Targeted	Potential	Comments
1	Pre-demolition audit	1	1	0	Pre-demolition audit (1 credit) Targeted - Yes A pre-demolition/strip-out audit of any existing buildings, structures or hard surfaces should also be completed by RIBA Stage 2 in order to identify opportunities to reuse and recycle existing materials. This should be made reference to within the RMP. One credit has been assumed. Actions: Main Contractor to provide a pre-demolition audit prior to the end of RIBA stage 2 / before any demolition occurs on site. <i>SRE (12.06.2023): Assumed from project master programme 090323 that demolition works will be occurring on site. Confirmed in project meeting that demolition of the existing buildings will be occurring and pre-demolition audit will be sent to SRE.</i> <i>SRE (31.07.2023): PM confirmed that a demolition contractor has not yet been appointed and an audit hasn't been performed - this will be discussed with the Client.</i>
2	Construction resource efficiency	3	0	0	Construction resource efficiency Targeted – No – Draft SWMP confirms Construction Resource Efficiency target of 23.3 tonnes per 100m² – exceeds BREEAM benchmarks. A compliant Resource Management Plan (RMP) must be produced for the project, covering: - Non-hazardous waste materials (from on-site construction and dedicated off-site manufacture or fabrication, including demolition and excavation waste. - Accurate data records on waste arisings and waste management routes. A nominated person should be identified to take responsibility for the plan and collection of data, confirming that the following benchmarks have been met for non-hazardous construction waste, excluding demolition and excavation waste: - One credit awarded where the amount of waste generated per 100m² is < or equal to 13.3 (m³) or 11.1 (tonnes) - Two credits awarded where the amount of waste generated per 100m² is < or equal to 7.5 (m³) or 6.5 (tonnes) - Three credits awarded where the amount of waste generated per 100m² is < or equal to 3.4 (m³) or 3.2 (tonnes)

					- Exemplary level awarded where the amount of waste generated per 100m² is < or equal to 1.6 (m³) or 1.9 (tonnes) Potential tool for compiling an RMP and monitoring waste: SMARTWaste® is a web-based membership tool allowing users to measure and monitor construction site impacts. The tool can be used for: - Preparing, implementing and reviewing RMPs - Online measuring and reporting on - Waste (aligned to defined waste groups) - Site energy, fuel and water use - CO₂ production from energy usage - Procurement of certified or sustainable timber - transportation impacts from materials deliveries, waste removal and staff travel to and from the site - Pre-demolition versus post-demolition waste data - Industry waste benchmarks. Actions: - Project Team to ensure the appointed Main Contractor is aware of their responsibility to appoint an individual responsible for monitoring and recording demolition and excavation waste, and for the production of an RMP in line with the requirements above. <i>SRE (13.02.2024): Draft SWMP received. Confirms in Table 2 on page 15 that the anticipated amount of construction waste from the development is 23.3 tonnes per 100m². This exceeds the benchmarks within BREEAM Wst 01 to achieve any credits under 'Construction Waste Management'. As a result, 2 credits have had to be removed from 'Targeted'.</i>
3	Diversion of resources from landfill	1	1	0	Diversion of resources from landfill Targeted - Yes - Where applicable, the following diversion from landfill benchmarks should be met for non-hazardous construction waste and demolition and excavation waste generated. - Waste materials should be separated into key waste groups either on-site or through a licensed contractor for recovery. <i>Criteria for 1 credit:</i> Type of Waste Volume Tonnage Non-demolition 70% 80% Demolition 80% 90% Excavation N/A N/A Actions:

					Project Team to ensure that the appointed Main Contractor commits to monitoring and meeting the benchmarks for non-hazardous construction waste and demolition and excavation waste noted above. SRE (13.02.2024): Draft SWMP received. This confirms a target diversion from landfill rate of 95% for construction and demolition waste.
e1	Construction resource efficiency/Diversion of resources from landfill	1	0	0	Construction resource efficiency & Diversion of resources from landfill (1 exemplary credit) Targeted - No To achieve an exemplary performance credit: Non-hazardous construction waste generated, excluding demolition and excavation waste, must be less than or equal to the exemplary level resource efficiency benchmarks: - Exemplary level awarded where the amount of waste generated per 100m² is < or equal to 1.6 (m³) or 1.9 (tonnes). - The percentage of non-hazardous construction, demolition and excavation waste (if relevant) diverted from landfill meets or exceeds the exemplary level percentage benchmarks: Type of Waste Volume Tonnage Non-demolition 85% 90% Demolition 85% 90% Excavation 95% 95% All key waste groups in Table 10.3 of the BREEAM NC V6 manual for diversion from landfill must be covered in the RMP. Waste data obtained from licensed external waste contractors must be reliable and verifiable, by using data from EA/SEPA/EA Wales/NIEA Waste Return Forms or from a PAS 402:2013 compliant company. Actions: - Credit not sought, at present, due to high benchmarks. The appointed Main Contractor must commit to achieving the above criteria for this credit to be achieved.
Wst 02 - Use of recycled and sustainably sourced aggregates					
	Credit	Available	Targeted	Potential	Comments
Pre-req	Prerequisite		✗	✗	Pre-requisite; Targeted - No The reuse of site-won material on site should be encouraged and a pre-demolition audit should be carried out in accordance with Wst 01.
1	Project Sustainable Aggregate points	1	0	0	Project Sustainable Aggregate Points (1 credit) Targeted - No All aggregate uses, types of quantities and sources should be identified. The distance (km) travelled by all aggregates by transport type should be calculated and all this information should be entered into the Wst 02 calculator. 3.5-6 points will equate to one credit. More than 6 points will achieve an exemplary credit.

					It has been assumed that this credit will not be achieved due to the limited amount of existing hard standing on site that could potentially be recycled into recycled aggregate and the cost implications of sourcing it from external sources.
e1	Project Sustainable Aggregate points	1	0	0	<i>Credit not sought.</i>
Wst 03 - Operational waste					
	Credit	Available	Targeted	Potential	Comments
1	Operational waste	1	1	0	Operational Waste (1 credit) Targeted - Yes Provide a dedicated space for the segregation and storage of operational recyclable waste generated. The space should be: - Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams - Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors - Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily or weekly operational activities and occupancy rates. As a NIFA of ~3500m² [PROJECT TEAM TO CONFIRM] is currently assumed for the Proposed Development, the following guide should be followed to determine the minimum storage space provision for recyclable waste: - At least 2m² per 1000m² of net floor area for buildings < 5000m² - The net floor area should be rounded up to the nearest 1000m². Therefore, operational waste storage space for 3500m² of space should be provided, equating to 8m². <u>This should be in addition to the space provided for general waste.</u> For consistent and large amounts of operational waste generated, the following should be provided: - Static waste compactors or balers; situated in a service area or dedicated waste management space - Vessels for composting suitable organic waste OR adequate spaces for storing segregated food waste and compostable organic material for collection and delivery to an alternative composting facility - A water outlet provided adjacent to or within the facility for cleaning and hygiene purposes where organic waste is to be stored or composted on site. Actions: <i>Architect to confirm appropriate waste storage area for the building will be provided, in line with the above requirements.</i>

					SRE (05.07.2023): PM noted during BREEAM pre-assessment workshop that large amounts of waste will be produced by the workshops, which will consist of materials such as wood, metals, etc. and this will be collected as and when required and sorted off-site. As per guidance note KBCN0696 below, this waste can be excluded from the assessment. Only general and recyclable waste storage for general building waste sorted on site needs to be provided in line with the BREEAM criteria.
Wst 05 - Adaptation to climate change					
	Credit	Available	Targeted	Potential	Comments
1	Resilience of structure, fabric, building services and renewables installation	1	1	0	Resilience of Structure (1 credit) Targeted - Yes Input required from RIBA stage 2 - A <u>climate change adaptation strategy appraisal</u> must be conducted using a systematic risk assessment to identify the impact of <u>expected extreme weather conditions</u> arising from climate change on the building over its projected life cycle. - The adaptation plan should consider the impacts of climate change and extreme weather events and describe how the design mitigates against them. - The assessment must cover the installation of building services and renewable systems, as well as structural and fabric resilience aspects and include hazard identification, hazard assessment, risk estimation, risk evaluation, risk management. - The risk presented by these hazards to the building and the likely impact of the hazards should be identified, taking into account the following aspects as a minimum: - Structural stability - Structural robustness - Weather proofing and detailing - Material durability - Health and safety of building occupants and others - Impacts on building contents and business continuity. <u>Recommendations or solutions</u> must be developed based on the climate change adaptation strategy appraisal, before or during <u>Concept Design</u>, that aim to mitigate the identified impact. - An <u>update must be provided during Technical Design</u> demonstrating how the recommendations or solutions proposed at Concept Design have been <u>implemented</u> where practical and cost-effective. Omissions must be justified in writing by the assessor. Actions: - Architect to provide the adaption to climate change strategy report by the end of RIBA Stage 2, and provide an update during RIBA Stage 4.

e1	Responding to climate change	1	0	0	Responding to climate change (1 exemplary credit) Targeted - No If this exemplary credit is sought, the Wst 05 credit must be achieved, as well as the following: • Hea 04 Thermal comfort - Criterion 6 • Ene 01 Reduction of energy use and carbon emissions - A minimum of 6 credits • Ene 04 Low carbon design - The Passive Design Analysis credit • Wat 01 Water consumption - A minimum of 3 credits • Mat 05 Designing for durability and resilience - Criteria 2-4 • Pol 03 Flood and surface water management - 1 credit for Flood Resilience, 2 credits for Surface Water Run-off Actions: • <i>As not all of the above credits are currently being targeted, it is assumed that this exemplary credit is not achievable for the Proposed Development.</i>
Wst 06 - Design for disassembly and adaptability					
	Credit	Available	Targeted	Potential	Comments
1	Design for disassembly and functional adaptability -recommendations	1	1	0	Design for disassembly and functional adaptability (recommendations) (1 credit) Targeted - Yes Input required before the end of RIBA stage 2 • The Design Team must undertake a study to explore the ease of disassembly and the functional adaption potential of different design scenarios by the end of <u>Concept Design</u>. • The study must consider the following as a minimum: ○ Feasibility: The likelihood to contain multiple or alternative building uses, area functions and different tenancies over the expected life cycle, e.g. related to the structural design of the building. ○ Accessibility: Design aspects that facilitate the replacement of all major plant within the life of the building, e.g. panels in floors and walls that can be removed without affecting the structure, providing lifting beams and hoists. Accessibility also involves access to local services, such as local power, data infrastructure etc. ○ Versatility: The degree of adaptability of the internal environment to accommodate changes in working practices. ○ Adaptability: The potential of the building ventilation strategy to adapt to future building occupant needs and climatic scenarios. ○ Convertibility: The degree of adaptability of the internal physical space and external shell to accommodate changes of in-use. ○ Expandability: The potential for the building to be extended, horizontally or vertically. ○ 'Refurbishment potential': The potential for major refurbishment, including replacing the façade.

					- Recommendations or solutions must be developed based on the study, during or prior to <u>Concept Design</u>, that aim to enable and facilitate disassembly and functional adaptation. Actions: - Architect to provide a disassembly and functional adaptability study prior to the end of RIBA Stage 2.
2	Disassembly and functional adaptability - implementation	1	1	0	Design for disassembly and functional adaptability (implementation) (1 credit) Targeted - Yes Input required from RIBA stage 2. Credits need to be provided by the end of RIBA stage 4. The first Wst 06 credit must be achieved. The Design Team must also (during <u>Technical Design</u>) provide an update on: - How the recommendations or solutions proposed by Concept Design have been implemented where practical and cost-effective. Omissions have been justified in writing to the assessor. - Changes to the recommendations and solutions during the development of Technical Design. - A building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants should also be produced. Functional adaptation implementation: - The implementation must be specific to the building and scope of the project, but information should be made available to the assessor covering: - Options for multiple building uses and area functions based on design details, e.g. modularity. - Routes and methods for major plant replacement, e.g. networks and connections have flexibility and capacity for expansion. - Accessibility for local plant and service distribution routes, e.g. detailed information on building conduits and connections infrastructure. - The potential for the building to be extended, horizontally or vertically. Ease of disassembly: See the credit above for the contents that should be included within the Functional Adaptability study. Actions: - Architect to update the disassembly and functional adaptability study prior to the end of RIBA Stage 4.
		10	6	0	Standard Waste Credit Total
		3	0	0	Exemplary Waste Credit Total

	9	3.60	0	% Waste Total (Standard + Exemplary)	
Land Use & Ecology					
LE 01 - Site selection					
	Credit	Available	Targeted	Potential	Comments
1	Previously occupied land	1	1	0	Previously Occupied Land (1 credit) Targeted - Yes In order to achieve the credit, 75% of the Proposed Development's footprint must be on previously occupied land/hard standing. Actions: - As existing buildings are to be demolished and the proposed development to be built on an existing footprint, it is assumed that this credit can be achieved. - Architect to provide an annotated drawing showing the % of the developments footprint that is on previously occupied land.
2	Contaminated land	1	0	1	Contaminated Land (1 credit) Targeted - No (Potential) A contaminated land professional must undertake a site investigation, risk assessment and appraisal, which deems that land within the development footprint to be affected by contamination. This report must identify: - The degree of contamination - The contaminant sources or types - The options for remediating sources of contamination which present an unacceptable risk. The client or principal contractor must confirm that a remediation strategy will be implemented, in line with the report. Actions: - Project team to confirm whether the site is significantly contaminated, i.e., whether any remediation will be taking place on site. A remediation strategy will need to be provided if the site is significantly contaminated. This credit has not been assumed, at present.
LE 02 - Ecological risks and opportunities					
	Credit	Available	Targeted	Potential	Comments
Pre-req	Prerequisite - Statutory obligations		✔	✔	Prerequisite - The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site.
1	Survey and evaluation/Determining ecological outcomes	2	2	0	Survey and Evaluation (1 credit) Targeted - Yes Typically complete during RIBA Stage 1 A Suitably Qualified Ecologist (SQE) must perform 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's survey and evaluation must determine the site's ecological baseline including: • Current and potential ecological value and condition of the site and related areas within the Zone of Influence • Direct and indirect risks to current ecological value from the project • Capacity and feasibility for enhancement of the site's ecological value and, where relevant, areas within the Zone of Influence. The survey and evaluation approach used should be appropriate to the scope and scale of the project. The SQE should use robust professional judgement following established best practice including professional body guidelines (e.g. CIEEM) to consider any aspects listed below that they deem to be relevant: <u>Survey:</u> 1. Determining the Zone of Influence for the site including neighbouring land and habitats 2. Current flora, fauna (including permanent and transient species) and habitat characteristics (including but not limited to ecological features in or on built structures) 3. Current habitat extent, quality, connectivity and fragmentation 4. Recent and historic site conditions 5. Existing management and maintenance levels and arrangements 6. Existing ecological initiatives within the Zone of Influence 7. Identification of, and consultation with, relevant stakeholders impacted or affected by the site. 8. Local knowledge or sources of information. <u>Evaluation:</u> • Current value and condition of the site and the Zone of Influence in terms of: ○ Features including habitats, species, food sources and connectivity ○ Broader biodiversity and ecosystem services benefits or opportunities • Direct and indirect risks to current ecological value: ○ Sensitive areas and features on or near the site ○ Direct risks including those from human activity (e.g. construction work), habitat fragmentation, and potentially harmful species ○ Indirect risks including water, noise and light pollution • Capacity and feasibility to enhance the ecological value • Habitat restoration and creation potential • Impact of the proposed design, construction works and operations on site in so far as these have been determined at this stage. <u>Sharing of recommendations:</u> Recommendations and data collected from the survey and evaluation should be shared with the appropriate project team members to
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					influence decisions made for activities during site preparation, design and construction works. At an early stage, it is easier to meaningfully influence design and site activities, whilst minimising or avoiding impacts on cost. For example, this could include recommendations from the ecologist relating to aspects such as: • Site layout that the design team should consider. • Features that landscape architects can incorporate in their design or timing considerations for activities on-site to avoid disruption and maximise opportunities. Determining the Ecological Outcomes (1 credit) Targeted - Yes Typically complete during RIBA Stage 2 The survey and evaluation criteria above must be met. The project team must liaise and collaborate with representative stakeholders early enough to influence key planning decisions to: • Identify the optimal ecological outcomes for the site. • Identify, appraise, and select measures to meet the optimal ecological outcomes for the site, in line with the mitigation hierarchy of action: 1. Avoidance 2. Protection 3. Reduction or limitation of negative impacts 4. On site compensation 5. Enhancement, considering the capacity and feasibility within the site, or where viable, off-site. To meet this criterion, the project team need to liaise with each other to agree what the optimal ecological outcomes are and how they will be achieved. The project team need to consider the following aspects where they are appropriate for the nature and scale of the project, in line with the SQE's recommendations: • Ecological value and benefit offered (before, during and after project completion) • Biodiversity and ecosystem services benefits offered (before, during and after project completion) • Local microclimatic conditions • Habitat extent, quality, connectivity and fragmentation • Opportunities to enhance the value of existing habitats and biodiversity, or to restore or create new, more valuable ones • Opportunities to align and integrate with existing ecological features and initiatives in the Zone of Influence • The viability of meeting the mitigation hierarchy and capacity and feasibility for enhancement. Project team members include, but are not limited to:
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					• The client, owner, occupier • Design, construction, facilities team • Specialist consultants. For example, drainage engineer, acoustic consultant or landscape architect, as appropriate for the site. The project team should also consult with other stakeholders to determine appropriate options for the site in question. This may include: • Local government and other statutory relevant organisations • Local community groups or organisations or charities such as the Wildlife Trusts • Local, regional and or national fauna focused groups such as Buglife, RSPB, Bat Conservation Trust etc. The nature of this consultation will vary depending on the project's type and scale and the sensitivity of the site. The SQE can advise on what is appropriate and what justifications are needed as part of evidence. Actions: • <i>Project team to appoint an Ecologist by end of RIBA Stage 2.</i> • <i>Project team to confirm early-stage discussions will take place between the project team and with representative stakeholders to discuss ways to identify and meet the optimal ecological outcomes for the site.</i> • <i>Ecologist to provide initial ecology report and confirm the targeted credits.</i> <i>SRE (31.07.2023): PM confirmed that an Ecologist is expected to be appointed shortly (awaiting quotes at present). PM advised by the planners that the entire college campus is to be surveyed and to target 10% net gain in biodiversity.</i>
e1	Wider site sustainability - Exemplary level criteria	1	0	1	Exemplary level criteria - Wider site sustainability Targeted - No Wider sustainability-related activities and potential ecosystem service benefits are considered as part of determining the optimal ecological outcomes for the site including the areas outlined in the Methodology. Achieve the credits of the assessment issues outlined below: 1. Hea 07 Safe and healthy surroundings - Both credits 2. Pol 03 Flood and surface water management - Achieve credits for 'Surface water run-off' and 'Minimising watercourse pollution' 3. Pol 05 Reduction of noise pollution
LE 03 - Managing impacts on ecology					
	Credit	Available	Targeted	Potential	Comments

Pre-req	Prerequisite - Ecological risks and opportunities		✓	✓	Prerequisite - LE 02 is achieved
1	Planning and measures on-site	1	1	0	Planning and measures on-site (1 credit, Route 2) Targeted - Yes Complete by RIBA Stage 3 Further planning to avoid and manage negative ecological impacts on-site must be carried out early enough to influence the Concept Design and design brief as well as site preparation planning (typically Concept Design stage). This should build on the measures agreed for delivering optimal ecological outcomes in LE 02 Ecological risks and opportunities, and is likely to include plans for the following: 1. Determine responsibilities, relationships and management required for implementing measures, including clear ownership of each task 2. Allocate roles and responsibilities and identify when these apply 3. Allocate resources to deliver these measures (including financial, time, technical and skills) 4. Implement procedures for monitoring progress against these plans and collect feedback for continual improvement 5. Align with related activities and processes 6. Implement effective handover and collaboration where responsibility is transferred and shared, including transition to long term management and maintenance arrangements. On-site measures for managing negative ecological impacts during site preparation and construction must be implemented in-practice (e.g. mitigation measures to protect existing ecological features). Fulfilment of the above criteria must be 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 Ecological risks and opportunities. Actions: • Project team to appoint an Ecologist by end of RIBA Stage 2. • Ecologist to provide initial ecology report and confirm the targeted credits. • Project team to confirm early-stage discussions will take place between the project team and with representative stakeholders to discuss measures for managing negative ecological impacts on-site. <i>SRE (31.07.2023): PM confirmed that an Ecologist is expected to be appointed shortly (awaiting quotes at present). PM advised by the planners that the entire college campus is to be surveyed and to target 10% net gain in biodiversity.</i>
2	Managing negative impacts	2	1	1	Managing negative impacts of the project (2 credits, Route 2) Targeted - Yes (1 credit, 1 potential) For Route 2, LE 03 credit 1 must be achieved. Negative impacts from site preparation and construction works must be managed according to the mitigation hierarchy, in line with the SQE's recommendations and, either:

					- No overall loss of ecological value occurs (two credits). OR, where this is not possible: - The loss of ecological value is minimised (one credit). The following hierarchy must be followed when managing negative impacts of the site preparation and construction works: - Avoidance of negative impacts of habitats and features of ecological value on the site. - If it is not possible to avoid negative impacts; protect habitats and features of ecological value from damage in accordance with best practice guidelines during development works. - If it is not possible to achieve 1 or 2 above, fully reduce, limit or control negative impacts as far as possible. - Where it is not possible for avoidance, protection, limitation or control of the negative impacts on features of ecological value on site; compensation has taken place to ensure the existing ecological value is maintained during and after the project. The criteria are only met if an SQE confirms the mitigation hierarchy has been followed. Actions: - Project team to appoint an Ecologist by end of RIBA Stage 2. - Ecologist to provide initial ecology report and confirm the targeted credits. <i>SRE (31.07.2023): PM confirmed that an Ecologist is expected to be appointed shortly (awaiting quotes at present). PM advised by the planners that the entire college campus is to be surveyed and to target 10% net gain in biodiversity.</i>
LE 04 - Ecological change and enhancement					
	Credit	Available	Targeted	Potential	Comments
Pre-req	Prerequisite - Managing negative impacts on ecology		✓	✓	Prerequisite - LE 03 must be achieved whereby the roles and responsibilities have been clearly defined and site preparation and construction works have been planned for and implemented at an early stage to optimise benefits and outputs. The client or contractor must confirm compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site.
1	Change and enhancement of ecology / Ecological enhancement	1	1	0	Ecological enhancement (1 credit) Targeted - Yes Measures must be implemented to enhance ecological value, based on input from both the project team and the SQE in collaboration with stakeholders and data collected in LE 02. Measures should be implemented in the following order:

					- On site, or where it is not feasible - Off site within the zone of influence The ecologist's report must clearly identify the enhancement measures that have been implemented, and justify how they meaningfully enhance the site's ecological value. <u>Collaboration</u> can include, for example, considering guidance from the landscape architect regarding long term maintenance requirements as part of decisions made for habitat creation and enhancement. Data collated should be analysed and where potentially valuable, provided to the local environmental records centres nearest to, or relevant for, the site. Guidance Note 40: Ecology Assessment Reporting Template can be referred to and used to collate information and evidence for the assessment. Actions: - Project team to appoint an Ecologist by end of RIBA Stage 2. - Ecologist to provide initial ecology report and confirm the targeted credits. <i>SRE (31.07.2023): PM confirmed that an Ecologist is expected to be appointed shortly (awaiting quotes at present). PM advised by the planners that the entire college campus is to be surveyed and to target 10% net gain in biodiversity.</i>
2	Change and enhancement of ecology	3	1	1	Enhancement of Ecology (3 credits) Targeted - Yes (1 targeted, 1 potential) Up to three credits can be awarded based on the change in ecological value occurring as a result of the project. This must be calculated in accordance with the process set out in GN36. Credits are awarded in line with the Reward Scale table in GN36 where there are no residual impacts on protected sites or irreplaceable habitats. How credits are awarded for change in ecological value, as per Guidance Note KBCN1376: Guidance Note 36 outlines a rewards scale (table 9) for the credits awarded in LE04, Ecological Change and Enhancement. Table 9 breaks down the credits into 4 sections: - Minimising loss - No net loss - Net Gain - Significant net gain Sections 1-3 correspond to the 3 credits awarded when a project follows the comprehensive route. Exemplary level credits are given if section 4 is achieved. There are two approaches that can be used for this calculation methodology, depending on the scale and size of the project and distinctiveness of the habitats on the site:

					1. Full methodology - This must be used where the pre-development habitats are above the set size threshold of 0.05 hectares in total or include habitats that are of high distinctiveness. 2. Simplified methodology - This can be used where the pre-development habitats are below the set size threshold and no habitats present that are of high distinctiveness. 1 credit is currently assumed for minimising loss and 2 credits listed as potential for no net loss, as an estimate. Ecologist to confirm. Actions: • Project team to appoint an Ecologist by end of RIBA Stage 2. • Ecologist to provide initial ecology report and confirm the targeted credits. • Ecologist to complete the GN36 checklist to confirm the anticipated change in ecological value of the project. <i>SRE (31.07.2023): PM confirmed that an Ecologist is expected to be appointed shortly (awaiting quotes at present). PM advised by the planners that the entire college campus is to be surveyed and to target 10% net gain in biodiversity.</i>
e1	Change and enhancement of ecology - Exemplary level criteria	1	0	0	Credit not sought.
LE 05 - Long term ecological management and maintenance					
	Credit	Available	Targeted	Potential	Comments
Pre-req	Prerequisite - Statutory obligations, planning and site implementation		✓	✓	Prerequisite: The client or contractor must confirm that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site. For Route 2 (targeted), the Managing Negative Impacts criteria in LE 03 must be achieved, and at least one credit under LE 04 for 'Change and Enhancement of Ecology' must be awarded.
1	Management and maintenance throughout the project / Landscape and ecology management plan	2	2	0	Management and maintenance throughout the project (1 credit) Targeted - Yes • Measures must be implemented to manage and maintain ecology throughout the project. • These measures should be 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. • To ensure the optimal ecological outcomes agreed in LE 02 are met in-practice, these measures must monitor and review the effectiveness of the mitigation and enhancement measures in place for LE 03 & LE 04 to ensure they are implemented. • A section on Ecology and Biodiversity should be included as part of the tenant or building owner information supplied, to inform the owner or occupant of local ecological features, value and biodiversity on or near the site. This should include detailed

					management and maintenance plans as required by landscape and asset managers as well as relevant parts of the handover information for occupiers written in a format that encourages understanding and supportive behaviours. <u>Examples of management and maintenance throughout the project:</u> • Monitoring and reporting of outcomes and successes from the project • Arrangements for the ongoing management of landscape and habitat connected to the project (on and, where relevant, off site) • Maintaining the ecological value of the site and its relationship or connection to its Zone of Influence • Maintaining the site in line with any sustainability linked activities, e.g. wider sustainability benefits (LE 02 Ecological risks and opportunities). <u>Handover information contents:</u> The handover information should include the following content, as appropriate: 1. Details of the ecological value within the property boundary (e.g. public and private gardens, green roofs), common areas (e.g. communal garden), and the surrounding area (e.g. public recreational space). 2. The benefits of the ecological value to the occupants and the broader community. 3. Guidance on how the occupants can make the most of the local ecology and contribute to its management, (e.g. planting ecologically appropriate species in their property), as well as things that should be avoided doing (e.g. disrupting wildlife corridors, planting invasive species or allowing them to colonise and spread) 4. Relevant actions that can be taken to enhance value within the property to help ensure its ongoing management and maintenance. 5. Contact details for those responsible for the management and maintenance of the local ecology and sources of local information on biodiversity and ecological management including management companies and local wildlife trusts. Landscape and ecology management plan (or similar) development (1 credit) Targeted - Yes A Landscape and Ecology Management Plan, or equivalent, must be developed in accordance with BS 42020:2013 Section 11.1 covering at least the first five years after project completion as a minimum and including: • Actions and responsibilities of relevant individuals prior to handover • The ecological value and condition of the site at handover and how this is expected to develop and change over time • Identification of opportunities for ongoing alignment with activities beyond the development project, which support the aims of BREEAM's Strategic Ecology Framework • Identification and guidance to trigger appropriate remedial actions to address previously unforeseen impacts • Clearly defined and allocated roles and responsibilities for delivering the plan The landscape and management plan or similar must be updated to support maintenance of the ecological value of the site (see sections relating to Maintenance and Monitoring in CIEEM, CIRIA, IEMA, for helpful guidance).
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					Actions: - Project team to appoint an Ecologist by end of RIBA Stage 2. - Ecologist to provide initial ecology report and draft LEMP and confirm the targeted credits. <i>SRE (31.07.2023): PM confirmed that an Ecologist is expected to be appointed shortly (awaiting quotes at present). PM advised by the planners that the entire college campus is to be surveyed and to target 10% net gain in biodiversity.</i>
		13	9	3	Standard Land Use & Ecology Credit Total
		2	0	1	Exemplary Land Use & Ecology Credit Total
		15	9	4	% Land Use & Ecology Total (Standard + Exemplary)
Pollution					
Pol 01 - Impact of refrigerants					
	Credit	Available	Targeted	Potential	Comments
1	Impact of refrigerants	3	2	0	Impact of refrigerants (3 credits) Targeted - Yes (2 credits) Prerequisite: All systems with electric compressors should comply with the requirements of BS EN 378:20161. Refrigeration systems containing ammonia should comply with the Institute of Refrigeration Ammonia Refrigeration Systems code of practice. Impact of refrigerant (2 credits) Targeted - Yes (1 credit) - For three credits: There is no refrigerant use within the installed plant or systems. - For two credits: The direct effect life cycle CO2 equivalent emissions (DELCO) of 100 CO₂-eq/kW OR all refrigerants used have a global warming potential (GWP) 10. - For one credit (<u>Targeted</u>): Systems using refrigerants have a DELCO of 1000kgCO₂-eq/kW cooling and heating capacity. The above are calculated through completion of the Pol 01 calculator, using the information (AC datasheets, refrigerant datasheets, etc.) provided by the Project Team relating to the refrigerant systems specified. Leak detection (1 credit) Targeted - Yes - All systems are hermetically sealed or only use environmentally benign refrigerants. OR

					- An inbuilt automated diagnostic procedure for detecting leakage is enabled. In the event of a leak, the system must be capable of automatically responding and managing the remaining refrigerant charge to limit the loss of refrigerant. Actions: - MEP to confirm whether refrigerants and refrigerant leak detection will be used on site. If no refrigerants are to be specified, these 3 credits can be awarded by default. <i>SRE (05.07.2023): Introba (MEP) confirmed during BREEAM pre-assessment workshop that 1 credit can remain targeted for impact of refrigerant, and 1 credit can be targeted for refrigerant leak detection (this is normally specified for the refrigerant systems that Introba establish).</i>
Pol 02 - Local air quality					
	Credit	Available	Targeted	Potential	Comments
	Local air quality	2	2	0	Local Air Quality (2 credits) Targeted - Yes - All heating and hot water is supplied by non-combustion systems. For example, only powered by electricity. OR, alternatively; - Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels set in Tables 12.4 & 12.5 of the BREEAM NC V6 manual. Credits are awarded based on the appliance type and unit, fuel and the pollution location of the assessed site. Actions: - Design Team/M&E to confirm the heating strategy and whether the emissions will or will not exceed the levels set out in the BREEAM criteria. - If an all-electric scheme is opted for, these 2 credits will be automatically awarded. <i>SRE (05.07.2023): MEP (Introba) confirmed during pre-assessment workshop that an Air Source Heat Pump (ASHP) will be specified for heating and hot water - this allows 2 credits to be awarded by default for Pol 02. 2 credits have therefore been targeted.</i>
Pol 03 - Flood and surface water management					

	Credit	Available	Targeted	Potential	Comments
1	Flood resilience	2	2	0	Flood resilience (2 credits) Targeted - Yes Low Flood Risk (2 credits) A desk study undertaken by SRE (Preliminary Drainage and Flood Risk analysis based on the Environmental Agency mapping) suggests that the development is in Flood Zone 1, and therefore has a very low risk of flooding. A detailed, site-specific flood risk assessment (FRA) is required to confirm the development is in a flood zone that is defined as having a low annual probability of flooding. The FRA must take all current and future sources of flooding into consideration. Actions: Project Team to confirm that a flood risk assessment will be undertaken which confirms that the site has a low flood risk before planning. This is to be sent to SRE for review.
2	Surface water run-off	2	2	0	Surface water run-off (2 credits) Targeted - Yes Surface water run-off design solutions must be bespoke, i.e. they must take account of the specific site requirements and natural or man-made environment of and surrounding the site. The priority levels detailed in the Methodology must be followed, with justification given by the appropriate consultant where water is allowed to leave the site. <u>Surface Water Run-Off - Rate (1 credit)</u> For Brownfield sites: - Drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) 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. For both Brownfield and Greenfield sites: - Relevant maintenance agreements for the ownership, long-term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place. - Calculations include an allowance for climate change. This should be made in accordance with current best practice planning guidance. <u>Surface Water Run-Off - Volume (1 credit)</u> Flooding of the property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance); AND EITHER

					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. OR Justification from the appropriate consultant indicating why the above criteria cannot be achieved, i.e. where infiltration or other SuDS techniques are not technically viable options. Drainage design measures are specified so that the post-development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flow rate from the following options: a: The pre-development one-year peak flow rate b: The mean annual flow rate (Qbar) c: 2L/s/ha. For the one-year peak flow rate, the one-year return period event criterion applies. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place. For either option, above calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance Actions: • Drainage consultant to be appointed to confirm the above. • Drainage Engineer to supply FRA and Drainage Strategy Report & calculations (compliant with the BREEAM criteria) clearly confirming the BREEAM credits that can be awarded. Completed GN 38 checklist can also be provided to confirm credits. • Drawings to be provided confirming the drainage design / SUDs solution.
3	Minimising watercourse pollution	1	0	1	Minimising watercourse pollution Targeted - No (Potential) There is no discharge from the developed site for rainfall up to 5mm (confirmed by the appropriate consultant). In areas with a low-risk source of watercourse pollution, an appropriate level of pollution prevention treatment is to be provided, using appropriate SuDS techniques. Areas with a high risk of contamination or spillage of substances, such as petrol and oil, must have separators (or an equivalent system) installed in surface water drainage systems. Chemical or liquid gas storage areas must have a means of containment fitted to the site drainage system (i.e. shut-off valves). This is to prevent the escape of chemicals to natural watercourses in the event of a spillage or bunding failure.

					All water pollution prevention systems are to be designed and installed in accordance with the recommendations of documents such as the SuDS manual and other relevant industry best practice. They must be bespoke solutions taking account of the specific site requirements and natural or man-made environment of and surrounding the site. • A comprehensive and up-to-date drainage plan of the site is to be made available for the building or site occupiers. • Relevant maintenance agreements for the ownership, long-term operation and maintenance of all specified SuDS must be in place. • All external storage and delivery areas are to be designed and detailed in accordance with the current best practice planning guidance. Actions: • <i>Drainage consultant to be appointed to confirm the above.</i> • <i>Drainage Engineer to supply FRA and Drainage Strategy Report & calculations (compliant with the BREEAM criteria) clearly confirming the BREEAM credits that can be awarded. Completed GN 38 checklist can also be provided to confirm credits.</i> • <i>Drawings to be provided confirming the drainage design / SUDs solution.</i>
Pol 04 - Reduction of night time light pollution					
	Credit	Available	Targeted	Potential	Comments
1	Reduction of night time light pollution	1	1	0	Reduction of night-time light pollution (1 credit) Targeted - Yes EITHER: External lighting pollution is eliminated through effective design that removes the need for external lighting. This must not adversely affect the safety and security of the site and its users. OR: • The external lighting strategy is designed in compliance with Table 2 (and its accompanying notes) of the Institution of Lighting Professionals (ILP) Guidance notes for the reduction of obtrusive light, 2011. • All external lighting (except for safety and security lighting) must be able to 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 must comply with the lower levels of • lighting recommended during these hours in Table 2 of the ILP guidance notes. • Illuminated advertisements must be designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements. Actions:

					Project Team/ MEP to confirm that external lighting will be specified in line with the above requirements.
Pol 05 - Reduction of noise pollution					
	Credit	Available	Targeted	Potential	Comments
1	Reduction of noise pollution	1	1	0	Reduction of noise pollution (1 credit) Targeted - Yes EITHER: There are no noise-sensitive areas within the assessed building or within 800 m radius of the assessed site. OR: 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 must be carried out by a suitably qualified acoustic consultant. Noise levels must be measured or determined for: - Existing background noise levels: - 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. 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. If the noise sources from the assessed building are greater than the levels described in above, measures must be installed to attenuate the noise at its source to a level where it will comply with the criterion. <u>Noise-sensitive areas</u> Landscapes or buildings where the occupiers are likely to be sensitive to noise created by the new plant installed in the assessed building, including: - Residential areas - Hospitals, health centres, care homes, doctor's surgeries etc. - Schools, colleges and other teaching establishments - Libraries - Places of worship - Wildlife areas, historic landscapes, parks and gardens - Located in an Area of Outstanding Natural Beauty or near a Site of Special Scientific Interest - Any other development that can be considered noise-sensitive.

					Not all of these locations will necessarily be sensitive at all times. The assessments should be carried out at times which are relevant to the location use. Actions: Acoustician to be appointed to perform an external acoustic survey before any enabling works, demolition or construction begins on site. <i>SRE (10.07.2023): Initial noise assessment received from the project team. The report confirms that the assessment was produced by 24 Acoustics (Suitably Qualified Acoustician) on 29.06.23, following the survey undertaken between 11th and 16th May 2023 (prior to construction or demolition works beginning on the site). The assessment includes both internal noise monitoring (Hea 05) and external (i.e., the new building services plant - Pol 05). The report concludes that the 3 credits for Hea 05 should be achievable and in line with the BB93 standards for education buildings, and the Pol 05 credit is attainable following inclusion of the recommended noise attenuation measures in the design of the plant.</i> <i>SRE (04.01.2024): PM confirmed that the scheme has been revised following pre-app comments. The Pol 05 Noise Impact Assessment report needs to be updated following receipt of revised Architectural and M&E Drawings.</i> <i>SRE (13.02.2024): Noise Impact Assessment produced by 24 Acoustics received. Limiting external noise criteria have been determined, applicable to new building services plant associated with the scheme. The design and selection of the plant shall include noise attenuation measures, to be fully developed during detailed design. Early-stage requirement fulfilled. A post-construction, pre-occupancy Noise Impact Assessment will be required to confirm the attenuation measures implemented and fulfilment of the criteria for the as-built development.</i>
		12	10	1	Standard Pollution Credit Total
		0	0	0	Exemplary Pollution Credit Total
		8.04	6.70	0.67	% Pollution Total (Standard + Exemplary)
Innovation					
AI - Approved Innovation					
	Credit	Available	Targeted	Potential	Comments
e1	Approved innovations	1	0	0	
		0	0	0	Standard Innovation Credit Total
		1	0	0	Exemplary Innovation Credit Total
		1	0	0	% Innovation Total (Standard + Exemplary)



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