Former Sipson Garden Centre

Energy and Sustainability Statement

Outline Planning Application

VIRTUS Data Centres

October 2026

Delivering a better world

Quality information

Prepared by	Checked by	Verified by	Approved by
CP Sustainability Consultant	BS Associate Director	BS Associate Director	KT Technical Design Lead

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Prepared for:

VIRTUS Data Centres

Prepared by:

AECOM Limited
Aldgate Tower
2 Leman Street
London E1 8FA
United Kingdom

aecom.com

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1. Introduction

AECOM has been commissioned by VIRTUS Data Centres ('the Applicant') to produce this Energy and Sustainability Statement to accompany an outline planning application in respect of a proposed data centre development at the former Sipson Garden Centre site in West Drayton ('the Site').

The Energy Statement (Section 0 of this report) sets out how the proposed development responds to energy and carbon related planning policies for sustainable development. It presents the options reviewed for reducing carbon emissions through the application of an energy hierarchy: energy efficiency measures, low carbon energy supply from decentralised sources and the integration of renewable energy technologies. It also outlines the other key sustainability measures included in the building and site design to respond to planning policy. AECOM has relied on information provided by VIRTUS Data Centres and has not undertaken independent verification of its accuracy or completeness.

The Sustainability Statement (Section 3 of this report) sets out how the proposed development responds to sustainability related planning policy. It is structured to align with the London Borough of Hillingdon's Local Plan policies.

This statement includes contributions from sustainability related information drawn from specialist reports, which have been prepared in support of the planning application. These reports are detailed below:

- Environmental Statement;
- Biodiversity Net Gain Assessment;
- Design and Access Statement;
- Flood Risk Assessment and Drainage Strategy;
- Preliminary Ecological Appraisal;
- Circular Economy Statement;
- Whole Life-Cycle Carbon Assessment;
- External Lighting Report;
- Land Contamination Preliminary Risk Assessment
- Healthy Streets Transport Statement;
- Travel Plan;
- Arboricultural Impact Assessment;
- Utility Statement; and

1.1 Site Description

The site is irregular in shape and comprises the former Sipson Garden Centre and associated land. The northern part of the site contains the former garden centre buildings, areas of hardstanding, a car park, and external areas previously used for the display and storage of goods associated with the garden centre use. The southern part of the site comprises an undeveloped field.

The site is bounded to the east by a section of the M4 motorway in the vicinity of Heathrow Airport. A further section of the M4 motorway runs immediately to the north of the site. The western boundary is formed by the A408, from which the site gains vehicular access. A small number of residential properties are located to the south-west of the site, fronting the A408.

The Holiday Inn Hotel, which is currently being refurbished, is situated immediately north of the site, while The Plough public house occupies the north-western corner of the site boundary. The Plough is designated as a locally listed building. To the south of the site are residential properties forming part of the settlement of Sipson.

The site forms part of the Green Belt as designated in the development plan; however, a significant proportion of the site comprises previously developed land. The site is considered to constitute Grey Belt land.

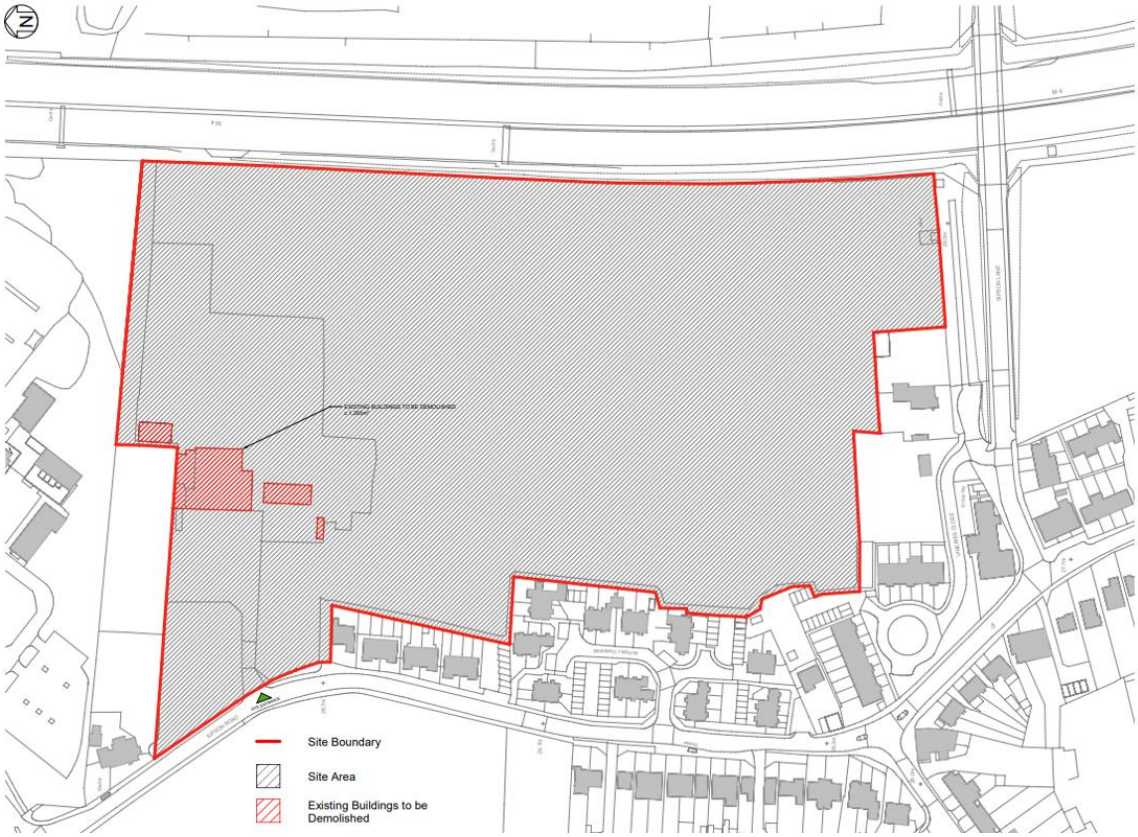


Figure 1 Red line boundary of the Site

1.2 The Proposed Development

The Applicant is seeking to redevelop part of the former Sipson Garden Centre site in West Drayton to deliver a data centre campus. A short description of the development is as follows:

"Outline planning application (with all matters reserved except for access) for the redevelopment of the former Sipson Garden Centre site to provide a data centre facility, including associated energy infrastructure, security measures, landscaping, and access arrangements."

The proposed development comprises the demolition of existing structures and the construction of a new data centre facility with an anticipated operational capacity of approximately 54MW. The development would provide approximately up to 54,000 sqm of gross internal floorspace, including data halls, administration block, plant, and associated ancillary infrastructure.

The proposed development has a maximum height of 20 metres. Although this exceeds the 18-metre threshold under the Building Safety Act 2022, a building is only classified as a Higher-Risk Building if it is at least 18 metres (or seven storeys) in height and contains at least two residential units or is a hospital or care home. As the proposed development does not meet these criteria it will follow the standard Building Control route rather than the Building Safety Regulator's Gateway process.



Figure 2 Proposed development layout

2. Energy Statement

This section summarises planning policy regarding energy and outlines how the proposed development responds to this. The section follows the below structure:

- 2.1 Summarises the relevant national legislation and planning policy;
- 2.2 Outlines the baseline position for compliance purposes;
- 2.3-2.5 Outlines the proposed measures to respond to planning policy;
- 2.6 Quantifies the modelled carbon savings from the proposed measures;
- 2.7 Quantifies the carbon offsetting obligation of the proposed development;
- 2.8 Summarises the proposed development's commitments to performance reporting;
- 2.9 Summarises the proposed development's approach to energy flexibility and demand management; and
- 2.10 Provides all key conclusions.

The energy modelling and associated responses presented in this section are based on information/inputs provided by VIRTUS Data Centres. AECOM has relied on information provided by VIRTUS Data Centres and has not undertaken independent verification of its accuracy.

2.1 Energy Policy Review

2.1.1 National Legislation and Policy Drivers

2.1.1.1 UK Climate Change Act

In 2019, the UK parliament declared a 'Climate Emergency' becoming the first national parliament to do so. A subsequent amendment was made to the UK Climate Change Act (Originally 2008, 2050 Target Amendment Order (2019)), which legally commits the UK Government to net zero greenhouse gas emissions by the year 2050. The Climate Change Committee advises the Government on the setting of binding 5-year carbon budgets on a pathway to achieving the 2050 target. The first seven carbon budgets covering the period up to 2042 have been set in law. The current carbon budget requires a reduction of 51% by 2027.

The Act is the driver behind a framework of national strategy and policy documents such as the UK Low Carbon Transition Plan (2009) and previously anticipated zero carbon homes policy. These in turn have informed the development of local planning policy and updates to the Building Regulations.

2.1.1.2 National Planning Policy Framework (August 2026)

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and is an important consideration in the determination of planning applications. It establishes that planning decisions should normally be made in accordance with the policies contained within the relevant local planning authority's adopted development plan, unless other material planning considerations indicate otherwise. The development plan typically comprises the Local Plan and any other planning policy documents that have been formally adopted by the local authority.

The NPPF identifies the achievement of sustainable development as the overarching purpose of the planning system and promotes a balanced approach through economic, social and environmental objectives. The environmental objective seeks to protect and enhance the natural and built environment, support the transition to a low-carbon economy, and contribute to climate change mitigation and adaptation.

Of particular relevance to this Energy Statement, Chapter 5, *Meeting the challenge of climate change,* requires the planning system to support the transition to a net-zero future, reduce greenhouse gas emissions, promote energy-efficient development, support renewable and low-carbon energy generation, and increase resilience to the impacts of climate change.

Chapter 4*, Achieving Sustainable Development*, seeks to meet development needs through sustainable patterns of development, including maximising growth on suitable land and supporting communities and infrastructure. Policy S3 establishes a presumption in favour of sustainable development, meaning that development proposals that comply with the adopted development plan and relevant national planning policies should generally be

approved without delay. Accordingly, the proposed energy strategy has been developed to support national and local objectives for energy efficiency, carbon reduction and sustainable development.

Policy CC2 seeks to ensure that development contributes to climate change mitigation and supports the transition to net zero. The policy promotes measures such as energy efficiency, the conservation of resources, the use of renewable and low-carbon energy sources, and opportunities to connect to decentralised energy networks.

Policy CC3 requires development proposals to take account of the current and future effects of climate change and to minimise vulnerability to these impacts over the lifetime of the development. This includes measures to address overheating and improve resilience.

Policy W3 supports renewable and low carbon energy development and electricity network infrastructure, recognising their importance in improving energy security, supporting economic growth and facilitating the transition to a net zero future. The policy affords substantial weight to the benefits of such development and does not require applicants to demonstrate need.

2.1.1.3 Building Regulations

Part L of the Building Regulations in England is the key mechanism that prescribes standards for the energy performance of new buildings in the UK, based on metrics such as the estimated level of primary energy demand and CO_2 emissions. Approved Documents set out the measures required to comply with Building Regulations. Approved Document Part L 2021 Volume 1 sets out measures for dwellings, and Volume 2 sets out measures for other buildings. Volume 2 is applicable to the proposed development. The final version of Approved Document Part L 2021 was published in December 2021 and was adopted in June 2022.

The Approved Document sets out the performance of the notional building against which the 2021 targets are set. For new non-domestic buildings this is estimated to deliver a 27% carbon saving on average compared to the previous 2013 Part L standards.

Part L 2021 is the current Approved Document and therefore has been used to assess the energy and carbon performance of the proposed development, ensuring alignment with planning policy requirements.

In March 2026, the Government published the Future Buildings Standard (FBS), which will introduce the next revision to Approved Document Part L. The updated standards are scheduled to come into force on 24 March 2027. Transitional arrangements accompanying the FBS confirm that developments submitting a valid Building Control application before 24 March 2027 and commencing construction before 24 March 2028 may continue to be assessed under Part L 2021. Should either of these requirements not be met, the development will demonstrate compliance with the updated Part L standards.

As approved software for assessing non-domestic developments against the forthcoming Part L 2026 standards is not yet available, an assessment against the new regulations has not been undertaken at this stage.

2.1.2 Regional Planning Policy and Guidance

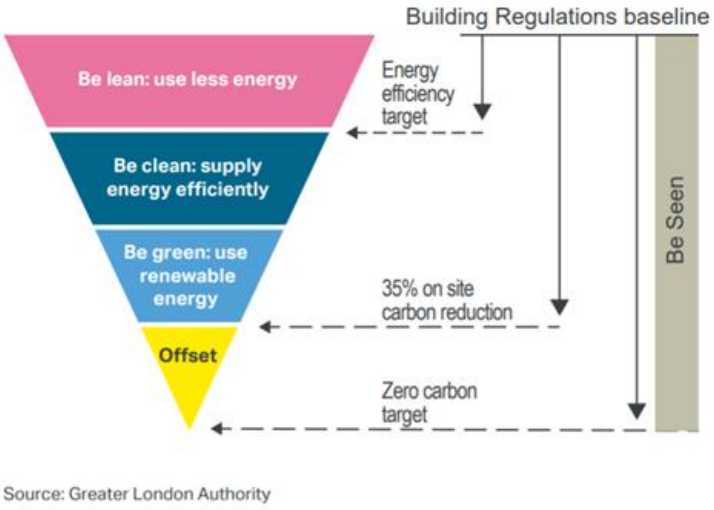
The GLA's London Plan (March 2021) is the strategic planning framework for Greater London, prepared by the Mayor of London. It sets out regional planning policies to guide the future development of London and forms part of the statutory development plan for all London boroughs. Planning applications within London are therefore required to be assessed against both the relevant borough's development plan policies and the strategic policies of the London Plan. The London Plan is supported by GLA's Energy Assessment Guidance (June 2022) and 'Be Seen' Energy Monitoring Guidance (September 2021).

2.1.2.1 The London Plan (March 2021)

The London Plan sets out a range of policies that influence the preferred energy strategy for the Site. Some policies address energy and carbon emissions directly, while others aim to address air quality issues associated with combustion plant; reduce cooling demands; and reduce the risk of overheating in buildings. The main policy requirements are summarised in the paragraphs below.

"Policy SI 1 Improving air quality" requires development proposals to include design solutions to prevent further deterioration of air quality in areas of existing poor air quality and avoid the creation of new areas that create an unacceptable risk of exposure to poor air quality. Developments that are of a large scale should propose methods to achieve an Air Quality Positive approach.

"Policy SI 2 Minimising greenhouse gas emissions" requires developments to be net zero carbon and to achieve a minimum 35% on-site reduction in carbon emissions, as set out by the Energy Hierarchy illustrated in Figure 3.



Source: Greater London Authority

Figure 3 The London Plan energy hierarchy

The requirements of Policy SI 2 should be met through reduction of regulated CO_2 emissions, as calculated using the approved Part L 2021 calculation methods, in line with cumulative targets set out in Table 1. The GLA's Energy Assessment Guidance which supports the implementation of Policy SI 2 was updated in June 2022 to provide information to Applicants about how to apply the targets to the Part L 2021 Building Regulations methodology.

The non-domestic energy modelling methodology for Part L 2021 includes the adoption of low carbon heating in the notional model. The introduction of this makes meeting the energy efficiency ('Be Lean') and overall on-site reduction targets more challenging compared to previous Building Regulations. The cover note, which accompanies the adoption of the Energy Assessment Guidance (June 2022), recognises this challenge to comply with the policy targets and provides clarification that on-site carbon savings should be maximised in line with the energy hierarchy.

Table 1 London Plan energy hierarchy minimum cumulative regulated carbon reduction targets

Targets	Non-Domestic Development
Required improvement from energy efficiency measures 'Be Lean'	15%
Minimum total on-site CO_2 emission savings	35%
Overall requirement (through a combination of on-site measures and offsetting)	100%

The 'Be Clean' element of the energy hierarchy requires developments to prioritise low-carbon heat solutions by connecting to existing or planned heat networks where feasible. Where connection is not currently possible, developments should be designed to facilitate future connection and should demonstrate that the selected heating strategy minimises carbon emissions through efficient, low-carbon technologies.

The 'Be Green' element of the energy hierarchy states that major developments should maximise opportunities for renewable energy by producing, storing and using renewable energy on-site. This may include technologies such as solar photovoltaic (PV) systems, solar thermal systems, battery storage and other renewable energy technologies, alongside the use of innovative building materials and smart technologies where appropriate.

The 'Be Seen' element of the energy hierarchy requires that developments monitor, verify and report on energy performance through the Mayor's post-construction monitoring platform.

London Plan Policy SI 2 further sets out that major development proposals should calculate and minimise carbon emissions from any other part of the development, including plant or equipment, that are not covered by Building Regulations, i.e. unregulated emissions. Developers should include a detailed energy strategy to demonstrate how the zero-carbon target of Policy SI 2 will be met within the framework of the energy hierarchy and how it is expected to monitor and report on energy performance.

In setting out the energy strategy requirements of London Plan Policy SI 2, it is also set out that all major development will be expected to consider proposals for demand-side response, specifically through the installation of smart meters, minimising peak energy demand and promoting short-term energy storage, as well as consideration of smart grids and local micro grids where feasible.

Where it is clearly demonstrated that the zero-carbon target cannot be fully achieved on-site, any shortfall should be offset as set out in the energy hierarchy illustrated in Figure 3. This should be through a cash in lieu contribution to LBH's carbon offset fund and/or off-site measures, provided that an alternative proposal is identified, and delivery is certain. The London Plan states that boroughs should develop a price for offsetting CO_2 emissions using either a nationally recognised carbon pricing mechanism or a price based on the cost of offsetting CO_2 emissions across the borough. LBH has not adopted its own carbon offset price, therefore, the carbon offset contribution has been calculated based on the GLA's carbon offset price of £95/tonne. This payment has to account for 30 years of carbon emissions at this fixed rate of cost and carbon intensity.

Development proposals referable to the Mayor, such as the proposed development, 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 in line with the requirements of Policy SI 2.

"Policy SI 3 Energy infrastructure" sets out the hierarchy selection of heat sources for communal heating systems. This reflects the ongoing change to the emission factors for gas CHP engines and gas boilers relative to other technologies as the grid decarbonises. Policy SI 3 confirms that major development proposals in Heat Network Priority Areas should have a communal low-temperature heating system with the heat source selected in accordance with the following heating hierarchy:

1. Connect to local existing or planned heat networks;
2. Use zero-emission or local secondary heat sources (in conjunction with heat pump if required);
3. Use low-emission combined heat and power (CHP) (only where there is a case for CHP to enable the delivery of an area-wide heat network, meet the development's electricity demand and provide demand response to the local electricity network); and
4. Use ultra-low NOx gas boilers.

CHP and ultra-low NOx gas boiler communal or district heating systems should be designed in line with requirements set out in Policy 'SI 1 'Improving air quality' to ensure there is no significant impact on local air quality.

Where a heat network is planned but not yet in existence, the development should be designed to allow for the cost-effective connection at a later date.

"Policy SI 4 Managing heat risk" requires proposals to minimise internal heat gain and the impacts on the urban heat island through design, layout, orientation, and materials in accordance with the following cooling hierarchy:

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

2.1.2.2 Energy Assessment Guidance (June 2022)

An updated guidance document for the production of Energy Assessments was published by GLA in June 2022 to reflect the national policy and Building Regulation updates and how these relate to the London Plan. The document includes updates to guidance, including:

- how London Plan policies apply to Part L 2021;
- how to demonstrate carbon improvements from the 'Be Lean' stage of the hierarchy; and
- the requirement to report the Energy Use Intensity (EUI) and space heating demand of the development and how to report them.

The most significant element of this update is the confirmation that the GLA expects developments to achieve the overall 35% onsite reduction and the 'Be Lean' reduction of 15% for non-residential uses, against the Part L 2021, which includes more stringent fabric standards, and as such an overall greater saving compared to previous guidance.

This report, where possible, has applied the methodology outlined in the current energy assessment guidance.

2.1.2.3 'Be Seen' Energy Monitoring Guidance (September 2021)

The GLA has published a 'Be Seen' energy monitoring guidance document which sets out the requirements of London Plan Policy SI 2, including the expectations on planning applicants throughout the monitoring period. The final version was published for adoption in September 2021.

The 'Be Seen' policy requires energy monitoring information to be reported to the GLA through the 'Be Seen' spreadsheet and webform. This forms a separate submission to the energy assessment document however a summary of the 'Be Seen' energy hierarchy approach is provided in Section 2.8 of this Energy Statement.

2.1.3 Local Planning Policy

The Site is located within the London Borough of Hillingdon (LBH), and the proposed development will therefore be subject to the requirements of local planning policy as set out in the Hillingdon Local Plan.

2.1.3.1 London Borough of Hillingdon

Policy and guidance documents produced by LBH, which are relevant to the development of the energy strategy for the proposed development comprise:

- The Local Plan: Part 1 – Strategic Policies (November 2012)
- The Local Plan: Part 2 – Development Management Policies (January 2020)

The following policies, which are relevant to the proposed development's energy strategy, are included in The Local Plan Part 1 – Strategic Policies document.

Local Plan Policy EM1 – Climate Change Adaptation and Mitigation

Policy EM1 in The Local Plan: Part 1 is intended to ensure that climate change mitigation is addressed at every stage of the development process and appropriate adaptation measures are adopted, including:

- *Ensuring development meets the highest possible design standards whilst still retaining competitiveness within the market.*
- *Working with developers of major schemes to identify the opportunities to help provide efficiency initiatives that can benefit the existing building stock.*
- *Promoting the use of decentralised energy within large scale development whilst improving local air quality levels.*
- *Targeting areas with high carbon emissions for additional reductions through low carbon strategies. These strategies will also have an objective to minimise other pollutants that impact on local air quality. Targeting areas of poor air quality for additional emissions reductions.*
- *Encouraging the installation of renewable energy for all new development in meeting the carbon reduction targets savings set out in the London Plan. Identify opportunities for new sources of electricity generation including anaerobic digestion, hydroelectricity and a greater use of waste as a resource.*
- *Promoting new development to contribute to the upgrading of existing housing stock where appropriate.*
- *Promoting the inclusion of passive design measures to reduce the impacts of urban heat effects.*

Local Plan Policy BE1 – Built Environment

- *All new developments should maximise the opportunities for all new homes to contribute to tackling and adapting to climate change and reducing emissions of local air quality pollutants. The Council will require all new development to achieve reductions in carbon dioxide emission in line with the London Plan targets through energy efficient design and effective use of low and zero carbon technologies. Where the required reduction from on-site renewable energy is not feasible within major developments, contributions off-site will be sought. The Council will seek to merge a suite of sustainable design goals, such as the use of SUDS, water efficiency, lifetime homes, and energy efficiency into a requirement measured against the Code for*

Sustainable Homes and BREEAM. These will be set out within the Hillingdon Local Plan: Part 2-Development Management Policies Local Development Document (LDD). All developments should be designed to make the most efficient use of natural resources whilst safeguarding historic assets, their settings and local amenity and include sustainable design and construction techniques to increase the re-use and recycling of construction, demolition and excavation waste and reduce the amount disposed to landfill.

The following policies, which are relevant to the proposed development's energy strategy, are included in The Local Plan Part 2 – Development Management Policies document.

Local Plan Policy DMEI 2 – Reducing Carbon Emissions

A) All developments are required to make the fullest contribution to minimising carbon dioxide emissions in accordance with London Plan targets.

B) All major development proposals must be accompanied by an energy assessment showing how these reductions will be achieved.

C) *Proposals that fail to take reasonable steps to achieve the required savings will be resisted. However, where it is clearly demonstrated that the targets for carbon emissions cannot be met onsite, the Council may approve the application and seek an off-site contribution to make up for the shortfall. The contribution will be sought at a flat rate at £/tonne in accordance with the current 'allowable solutions cost'.*

Local Plan Policy DMEI 3 – Decentralised Energy

A) All major developments are required to be designed to be able to connect to a Decentralised Energy Network (DEN).

B) Major developments located within 500 metres of an existing DEN, and minor new-build developments located within 100 metres, will be required to connect to that network, including provision of the means to connect to that network and a reasonable financial contribution to the connection charge, unless a feasibility assessment demonstrates that connection is not reasonably possible.

C) Major developments located within 500 metres of a planned future DEN, which is considered by the Council likely to be operational within 3 years of a grant of planning permission, will be required to provide a means to connect to that network and developers shall provide a reasonable financial contribution for the future cost of connection and a commitment to connect via a legal agreement or contract, unless a feasibility assessment demonstrates that connection is not reasonably possible.

D) The Council will support the development of DENs and energy centres in principle, subject to meeting the wider policy requirements of this plan and in particular on design and air quality.

The London Borough of Hillingdon is preparing a new Local Plan under the Government's new plan-making system. A public Scoping Consultation ran from 9 July to 21 August 2026, and the council's timetable indicates adoption of the new Local Plan from May 2028 following consultation, submission and examination stages.

2.2 Baseline Carbon Emissions and CO_2 Emissions

2.2.1 Introduction

This section of the report outlines the methodology that has been used to establish the baseline energy demands for the proposed development, including the building use types modelled and their associated gross internal floor areas.

Energy is integral to the design of the proposed development, guided by a clear hierarchy of measures: 'Be Lean' (reducing energy demand), 'Be Clean' (efficient energy supply), and 'Be Green' (integration of renewable energy technologies). This approach supports alignment with legislative and planning requirements, including Part L 2021 (Volume 2) targets for energy performance and greenhouse gas emissions.

GLA guidance on preparing energy assessments states that the regulated CO_2 emissions baseline is *"the regulated CO_2 emissions assuming the development complied with Part L 2021 of the Building Regulations using Building Regulations approved compliance software."*

This section sets out the approaches to modelling and calculating the baseline Target Emission Rates and calculated CO_2 emissions. The Target Emission Rate (TER) represents the maximum CO_2 emissions, under the

regulations, allowed to arise from space and water heating, lighting, pumps, fans, and cooling. The GLA guidance goes on to establish that the regulated CO_2 emissions baseline is the aggregate of Target Emission Rates (TERs) of the non-domestic building uses multiplied by their respective Treated Floor Areas (TFA).

The targets set out in Approved Document Part L 2021 relate only to regulated energy use. This comprises the energy consumed by the building's fixed services, including heating, cooling, ventilation, domestic hot water, fixed lighting, and associated auxiliary energy uses such as fans, pumps and controls. The cooling systems serving the data halls are treated as regulated energy under Part L 2021. The Part L 2021 targets do not account for the unregulated energy demand associated with the IT equipment load. As is typical for data centre developments, these loads represent the majority of the site's total energy consumption but fall outside the scope of Part L compliance and the TER/BER calculation methodology.

2.2.2 Energy Modelling Methodology

Compliance with Part L 2021 (Volume 2) for new non-domestic buildings requires that the following requirements are met:

- **The building emissions rate (BER) and building primary energy rate (BPER) must be less than the target emissions rate (TER) and target primary energy rate (TPER), respectively.**
  - This involves using an approved software (such as iSBEM or IES) to determine if the BER and BPER is less than or equal to the TER and TPER (CO_2 and primary energy generated per year per unit floor area respectively). The target is based on a reduction over a 'notional' building with the same geometry and usage as the proposed development, but which has set glazing areas and pre-defined fabric performance and HVAC and lighting efficiencies.
- **Meet limiting standards for design.**
  - The building must meet limits on the thermal performance of the building fabric, air leakage and the efficiency of the HVAC and lighting systems.
- **Limit the effects of solar gains in summer.**
  - The building must have appropriate passive control measures to limit solar gains during the summer period in order to reduce the need for, or installed capacity of, air-conditioning systems. For each zone that is either occupied or mechanically cooled, the solar gains through the glazing are calculated over the period from April to September and must be no greater than for a particular reference glazing system.
- **Quality of construction and commissioning.**
  - It must be verified that the building has been built to perform as it had been designed and must also be adequately commissioned. The information obtained at this stage is used in the 'as built' carbon dioxide emissions assessment.
- **Providing information.**
  - Operating manuals for the building and a building logbook must be supplied to the building users, to ensure the building is used efficiently.

The analysis in this report checks the compliance against the BER and BPER criteria, that proposed inputs meet the limiting standards and indicates any high solar gains in the summer period. Compliance with other Part L 2021 (Volume 2) requirements is not detailed within this report and will be dealt with via Building Control.

The proposed development's energy strategy has been developed by VIRTUS Data Centres[1] for the purposes of demonstrating compliance with applicable policy requirements. It has adopted an energy hierarchy approach to assess opportunities to reduce operational carbon emissions for the proposed development. This approach is aimed at producing a building which prioritises demand reduction, followed by efficient heat supply and renewable energy generation. This energy strategy, therefore, proposes to follow the energy hierarchy by considering three key steps:

- Reducing energy demand through energy efficient design and specification.
- Considering connection to nearby networks to supply low carbon heat where feasible.

[1] AECOM's Energy Statement is based on information supplied by VIRTUS Data Centres, the accuracy and completeness of which has not been independently verified by AECOM.

- Seeking to maximise opportunities for low and zero carbon energy.

The proposed development was modelled to establish baseline regulated emissions. The VE Compliance module of IES Virtual Environment v.2025 was used to establish the regulated Target Emission Rate (TER) of the proposed development, which represents “a development that complies with Part L 2021 of the Building Regulations”. The cooling demands modelled include space cooling within occupied areas, such as the office accommodation, and cooling of the data halls. Although the IT equipment load is classified as an unregulated process load, it is accounted for as an internal heat gain within the Part L model and therefore influences the calculated cooling energy demand.

2.2.3 Baseline Carbon Emissions

The proposed development was modelled to establish baseline regulated emissions. Appendix A includes the BRUKL output documents for the development as modelled and contains the inputs used in the modelling of the buildings.

The treated floor area of the proposed development as modelled, the BER and the resulting CO_2 emissions are set out in Table 2. Note that the definition of treated floor area for the purposes of Part L of the Building Regulations differs from the definitions of gross and net areas widely used for other purposes. For this reason, the areas used for modelling will differ from the areas cited in other documents submitted as part of the planning application.

Table 2 Modelled baseline carbon emissions

	Proposed Development
Modelled TFA (m^2)	27,408.9
CO_2 emission (tCO_2/yr)	2,182.0
Primary energy ($kWh_{PE}/m^2/year$)	868.24

2.3 Energy Efficiency ‘Be Lean’

The first stage of the energy hierarchy is demand reduction. This involves reducing the need for energy so that a set amount of renewable energy generation can meet a higher proportion of the overall demand of a building.

A range of measures can be considered to reduce the energy demand. These include factors such as building location, layout and orientation; building fabric performance and equipment efficiency.

2.3.1.1 Fabric and Energy Efficiency Approach

Consideration has been given to the passive design, fabric and services of the proposed development, including the following key measures:

- High efficiency lighting, cooling and ventilation systems including heat recovery.
- Optimised glazing ratio to reduce heat loss and limit unwanted solar gains in administration spaces;

2.3.1.2 Proposed Specifications

As this is an outline planning application, the detailed building fabric specification has not yet been finalised. Accordingly, conservative assumptions based on the limiting U-values set out in Approved Document L have been adopted to represent a worst-case scenario at this stage. The energy performance specification presented will be reviewed and refined as the design progresses. Table 3 shows a proposed fabric and energy efficiency specification for the areas assessed under Part L 2021, which will undergo further refinements as the design progresses.

Table 3 Fabric and energy efficiency specification for areas assessed under Part L 2021

Element	Unit	Proposed Specification
External wall*	W/m²K	0.26
Ground floor*	W/m²K	0.18
Roof*	W/m²K	0.18
Pedestrian door*	W/m²K	1.60

Loading Bay doors*	W/m²K	1.30
Internal wall between the data halls and admin areas*	W/m²K	0.26
Windows U-value/Curtain Wall*	W/m²K	1.6
Glazing g-value*	-	0.4
Glazing Light Transmittance*	%	71%
Air Permeability*	m³/m²h@50Pa	8.00

*Notes where values used are Part L (2021) Volume 2 limiting values.

2.3.1.3 Heating, Ventilation and Cooling

This section outlines the HVAC system efficiencies applied in the proposed development's Part L 2021 compliance calculations.

The proposed development is served by a range of HVAC systems, including air-cooled chillers that provide chilled water to fan wall units serving the data halls. A dedicated outdoor air system supplies fresh air to the data hall areas, dependant on the ambient conditions. Additionally, there are Variable Refrigerant Flow (VRF) systems with a centralised AHU supplying and extracting areas such as the office and admin areas. There is also dedicated extract only for the WC areas at 6 air changes per hour (ACH) with a SFP of 0.5 W/l/s. The assignment of HVAC system types is outlined in Table 4.

All HVAC systems are to be adequately metered. All Chilled Water and Low Temperature Hot Water systems are to be served by variable speed pumps with multiple pressure sensors. AHUs and ductwork will meet the Comité Européen de Normalisation (CEN) leakage standards of class L2 and class A respectively.

Table 4 HVAC systems assignment by space type in the model

	Heating and Cooling System	Ventilation System
Circulation	None	None
Data Halls	Air Cooled Chillers [Note 1]	Dedicated Outdoor Air System (Separate AHU)
Kitchen	VRF Heating and Cooling	AHU Centralised Supply and Extract
Meeting Rooms	VRF Heating and Cooling	AHU Centralised Supply and Extract
Office	VRF Heating and Cooling	AHU Centralised Supply and Extract
Office Open	VRF Heating and Cooling	AHU Centralised Supply and Extract
Plant Heavy	VRF Heating and Cooling	AHU Centralised Supply and Extract
Plant Light	VRF Heating and Cooling	AHU Centralised Supply and Extract
Big Storage (e.g. Customer storage)	VRF Heating and Cooling	AHU Centralised Supply and Extract
Small Storage (e.g. Cleaners)	None	None
Cleaners	None	Dedicated Extract only
WC	VRF Heating and Cooling [Note 2]	Dedicated Extract only

Note 1: The chiller system was modelled in conjunction with a fan coil unit (FCU) distribution system with a FCU SFP of 0.64 W/l/s.
Note 2: Indirectly heated/cooled via adjacent spaces.

At this stage, the detailed HVAC system design has not yet been finalised. Representative system efficiencies, based on comparable data centre developments, have therefore been adopted to inform this energy assessment, consistent with the level of detail typically expected for an outline planning application. Accordingly, the assessment is based on reasonable assumptions regarding system performance, which will be refined as the design progresses through subsequent stages. The final system performance will be confirmed through detailed design development and subsequently verified through the Building Regulations compliance process, post-construction commissioning, and operational energy reporting under the 'Be Seen' framework.

The key input parameters and efficiencies of the HVAC systems are summarised as follows:

Table 5 Data halls HVAC system specification

HVAC System Efficiencies	Proposed Design
Heating generator	Air Source Heat Pump (ASHP) Note 1
Heating generator fuel	Electricity
UK NCM system	Fan coil system
Heat generator SCoP	2.78 Note 2
AHU ventilation recovery efficiency	80%
Cooling generator	ASHP
Cooling generator fuel	Electricity
Cooling delivery efficiency	90%
Cooling SEER	15.00 Note 3
AHU SFP (W/l/s)	1.50
FCU SFP (W/l/s)	0.64
Pump type	Variable speed pump (multi pressure sensor)

Note 1: The chiller system is modelled as an ASHP system within the Part L modelling software.
Note 2: As no space heating, the notional building specification has been applied.
Note 3: The SEER accounts for air-side free cooling.

Table 6 VRF heating and cooling system specification – Admin areas

HVAC System Efficiencies	Proposed Design
Heating generator	ASHP
Heating generator fuel	Electricity
UK NCM system	Variable refrigerant flow
Delivery efficiency	100%
Heat generator SCoP	4.49
MVHR ventilation recovery efficiency	80%
Cooling generator	Air Source Heat Pump
Cooling generator fuel	Electricity
Cooling delivery efficiency	100%
Cooling SEER	7.91
AHU SFP (W/l/s)	1.50
Pump type	Variable speed pump (multi pressure sensor)

2.3.1.4 Hot Water

Hot water is proposed to be generated in the building by direct electric point of use water heaters. Heat pumps have not been adopted for water heating as the proposed development has a very low and intermittent hot water demand, which limits opportunities for efficient, steady heat pump operation. The annual domestic hot water demand is estimated at approximately 13 MWh, accounting for less than 0.1% of the total site's energy consumption. In this context, a heat pump system would also introduce additional distribution and storage requirements and associated standing losses, which would be disproportionately significant relative to the small hot water energy use.

Table 7 HW system efficiencies

HW system	Values
Heating generator fuel	Electricity (point of use)
Heating generator seasonal efficiency combined	1.00
HW delivery efficiency	100%

HW system	Values
Storage volume (l)	None

2.3.1.5 Lighting

The lighting and occupancy controls for the building are summarised in Table 8. The parasitic power of the lighting control is 0.1 W/m^2 and there is the provision that lights will be metered separately. Please note, the lighting specification is indicative at this stage and may be subject to change at later design stages.

Table 8 Lighting efficiencies and controls

Room type	Design lux levels (lux)	Luminaire efficacy (lm/W)	Occupancy control	Daylight control
Circulation	100	120	Auto-On-Off	None
Data Halls	500	120	None	None
Kitchen	500	120	Auto-On-Off	None
Meeting Rooms	300	120	Auto-On-Off	Yes - Dimmable Control with standalone sensor type
Office	300	120	Auto-On-Off	Yes - Dimmable Control with standalone sensor type
Office Open	300	120	Auto-On-Off	Yes - Dimmable Control with standalone sensor type
Plant Heavy	100	120	None	None
Plant Light	100	120	None	None
Big Storage (e.g. Customer storage)	100	120	Auto-On-Off	None
Small Storage (e.g. Cleaners)	100	120	Auto-On-Off	None
WC	200	100	Auto-On-Off	None

2.3.1.6 Energy Use Intensity and Space Heating Demand

Energy use intensity is defined within the GLA energy assessment guidance as:

> *"a measure of the total energy consumed in a building annually. It includes both regulated (fixed systems for lighting, heating, hot water, air conditioning and mechanical ventilation) and unregulated (cooking and all electrical appliances, and other small power) energy. It does not include energy use from electric vehicle charging or any reduction in EUI due to renewable energy generation on-site. EUI should be expressed using gross internal area (GIA)."*

In the above definition, IT equipment is included under the other small power definition. The GLA energy assessment guidance includes benchmark values for EUI and space heating demand. The benchmarks are presented in Table 9.

Table 9 GLA target EUI and space heating demand values

Element	Energy Use Intensity (kWh/m^2/year)	Space Heating (kWh/m^2/year)
Non-residential GLA	55	15

Table 10 presents the EUI performance of the Site, which can be compared to the GLA targets in Table 9. These results have been derived from TM54 modelling carried out for the proposed development.

Table 10 Site EUI and space heating demand values

Element	Modelled Area (GIA m^2)	Energy Use Intensity (kWh/m^2/year)	Space Heating (kWh/m^2/year)
All other non-residential	27,408.9	19,710.1	3.36*

*Note: Space heating demand reflects the administrative floor area only and excludes data halls and plant areas which are unheated or have frost protection only.

The proposed development meets the GLA's space heating demand target for the administrative floor area. This is achieved through a fabric first approach and efficient heating strategy.

The proposed development significantly exceeds the GLA's EUI benchmark of 55 kWh/m²/year. This is primarily attributable to the specialist operational characteristics of the proposed development, which is an inherently energy-intensive use with significant electrical demand associated with IT equipment. In addition, substantial energy consumption is associated with the building's cooling systems, which are required to maintain the environmental conditions necessary for the continuous operation of the data halls. These equipment and process-related energy demands form a significant proportion of the building's total operational energy use and are reflected within the EUI. The GLA guidance recognises that unregulated energy can have a significant influence on EUI, particularly for buildings with high equipment loads.

2.4 Decentralised Energy 'Be Clean'

This section assesses opportunities for reducing CO_2 emissions using decentralised energy generation such as connection to district heating networks. London Plan "Policy SI 3 Energy Infrastructure" states that major development proposals within Heat Network Priority Areas should have communal heating, with the heat source selected in line with the following hierarchy:

- Connect to existing or planned heat networks;
- Use net-zero emission or local secondary heat sources;
- Use low-emission combined heat and power (CHP); or
- Use ultra-low NOx gas boilers.

2.4.1 Connection to Existing or Planned Heat Network

Based on London Heat Map data, the proposed development Site sits within a Heat Network Priority Area (HNPA), however, is not situated in close vicinity to any existing or planned District Heating Network (DHN). This is shown in Figure 4 below. The existing DGV District Heating Network is located approximately 1.7 km to the north of the Site, while the proposed heat network, situated to the south-west of the Site, is located approximately 2.3 km away.



Figure 4 Extract from London Heat Map indicating proposed heat network (purple) and existing heat network (orange), red dot showing Site location

Due to the nature of the proposed use, the development will have a comparatively small heat demand, with space heating limited to the administration space and its ancillary areas, which comprise approximately 22% of the total gross internal area.

Whilst the development will generate a significant quantity of waste heat, its use in serving the administration areas was discounted due to the relatively low heating demand of these spaces. The limited demand does not justify the substantial infrastructure required to recover and distribute waste heat from the data centre. Consequently, VRF systems have been selected as an efficient and proportionate solution for meeting the heating requirements of the administration areas. On this basis, it was considered that prioritising waste heat for off-site export rather than on-site use represents the more effective application of the energy hierarchy and delivers the greater carbon benefit.

While heat demand is limited, the development will generate significant continuous waste heat as a result of the IT equipment energy use. Given the scale of this resource, the potential to export this waste heat off-site is being considered, for use by third-party heat consumers or connection to a future decentralised energy network, in line with the London Plan's support for maximising the recovery and reuse of waste heat from data centres.

At present, no nearby significant heat loads or decentralised energy network have been identified in proximity to the Site to accommodate an immediate waste heat export connection. Notwithstanding this, the development will be future-proofed to enable a waste heat export connection, should a suitable off-take opportunity become available. This will comprise:

- Dedicated space within the data centre buildings for the future installation of plate heat exchangers, to interface between the data centre's cooling system and an external heat export connection.
- A safeguarded pipework route from the plate heat exchanger location to the Site boundary, to be reserved as an unobstructed corridor for future installation, to enable connection without requiring retrospective disruption to the proposed development.

The detailed design regarding the above provision will be developed post-planning, during next design stage.

On-site CHP was dismissed as an option due to the Site's low heat demand, concerns over the impact on local air quality and the less-favourable carbon emissions calculated when using SAP 10.2 carbon factors. As no connection to a district heating network or on-site CHP system is proposed, no carbon savings are reported from the 'Be Clean' stage of the energy hierarchy.

2.5 Renewable Energy 'Be Green'

After demand reduction and efficient supply of heat, the remaining energy demand for the development should be met in a way which minimises carbon emissions. Low and zero carbon (LZC) technologies on or near-site should be incorporated where possible to reduce emissions. The below section outlines the LZC technologies considered for the proposed development.

2.5.1 Proposed LZC Technologies

The following LZC technologies have been identified as suitable for the proposed development:

- Air source variable refrigerant flow (VRF) heat pumps will meet the heating demands of the development's administration space and its ancillary areas.
- Photovoltaic (PV) arrays on the roofs of the administration space.

Air source VRF heat pumps units are proposed to meet the space heating and cooling demands of the data hall and administration spaces within the proposed development. It is expected that the outdoor units for the heat pumps will be located on the roofs of the proposed development.

At this stage, the detailed HVAC system design has not yet been finalised. Representative system efficiencies, based on comparable data centre developments, have therefore been adopted to inform this energy assessment, consistent with the level of detail typically expected for an outline planning application. Accordingly, the assessment is based on reasonable assumptions regarding system performance, which will be refined as the design progresses through subsequent stages. The final system performance will be confirmed through detailed design development

and subsequently verified through the Building Regulations compliance process, post-construction commissioning, and operational energy reporting under the 'Be Seen' framework.

The key input parameters and efficiencies of the air source VRF heat pump systems are summarised in Table 6.

PV panels are proposed to generate low carbon electricity to meet a proportion of the proposed development's energy demand. It is proposed that the PV panels are located on the roofs of the administration building. A total panel array area of approximately 1,448 m^2 on the administration building's roofs has been allowed for whilst accommodating for safe access and the avoidance of panel self-shading. Modelling at this stage suggests that a PV array of this size would have a capacity of 346 kWp and could generate approximately 262,303 kWh of electricity per year. Indicative PV areas applied to the model can be found in Appendix B.

2.6 Proposed Strategy Results

Following the energy hierarchy outlined in section 2.1.2.1, Table 11 details the Part L Volume 2 2021 GLA results for the proposed development. It should be noted that there is no heat network proposed and therefore the 'Be Clean' scenario is the same as the 'Be Lean' scenario.

Table 11 GLA results for the whole building

Scenario	CO_2 emissions (tCO_2/yr)	Pass margin (Improvement BER over TER)	Primary energy (kWh_{PE}/m^2/year)	Pass margin (Improvement BPER over TPER)	EPC band - rating
Baseline (notional building)	2,1782.0 (TER)	-	868.24 (TPER)	-	-
Be Lean	1,297.3	40%	516.50	40%	-
Be Clean	1,297.3	40%	516.50	40%	-
Be Green	**1,262.5 (BER)**	**42%**	**501.78 (BPER)**	**42%**	**A (20)**

Table 11 shows that the Building Emissions Rate (BER) and Building Primary Energy Rate (BPER) are both lower than the Target Emissions Rate (TER) and Target Primary Energy Rate (TPER), thereby meeting the key requirements of Part L Volume 2 2021.

The results show that both the 'Be Lean' and 'Be Green' scenarios perform similarly, achieving pass margins of 40% and 42%, respectively. These margins meet and significantly exceed the GLA planning requirements for a 15% CO_2 reduction for the 'Be Lean' scenario and 35% reduction for the 'Be Green' scenario.

The 'Be Lean' and 'Be Green' scenarios have similar results, which is driven by the energy balance of the building, with much of its energy consumption being associated with the high efficiency data hall cooling. In comparison, introduction of an air source VRF heat pump serving the administration building heating as a 'green' technology in the 'Be Green' scenario has only a minimal impact on overall carbon reduction.

2.7 Carbon Shortfall and Offset Contribution

The London Plan 2021 Policy SI 2 requires that new non-domestic developments meet a minimum 35% on-site carbon emission reduction against Part L 2021 and that any residual emissions should be offset to zero. The policy states that where these targets cannot be met on-site, the short fall should be met off-site, or a payment should be made into the Council's carbon offset fund.

This section addresses the residual CO_2 emissions from the Site and explains the offset contribution required to achieve zero carbon.

Table 12 outlines the carbon emissions to be offset to meet the zero-carbon buildings target for the proposed development, based on the Part L modelling undertaken.

Table 12 Carbon emissions to be offset

	Proposed Development
On-site reduction target (%)	100%

Overall predicted on-site reduction (%)	42%
Annual residual emissions to meet target (t/CO_2/year)	1,262.5
Residual emissions over 30 years(t/CO_2)	37,874
Estimated Carbon Offsetting Price at £95 per tonne (£)	£3,597,994

Over a 30-year period it is estimated that the cumulative shortfall for the proposed development would be 37,874 tCO_2. At the LBH carbon offset price of £95/tonne, this would result in an estimated payment of approximately £3,597,994. The final carbon offset payment will be arranged with LBH through the S106 agreement.

In addition to this, the Applicant is committed to sourcing 100% renewable electricity, to power all regulated and unregulated electricity consumption within the entire proposed development, reflecting industry best practice for large-scale data centre developments. This electricity will be procured via Renewable Energy Guarantees of Origin (REGOs) and Corporate Power Purchase Agreements (CPPAs), which will significantly reduce operational carbon emissions.

2.8 Energy Reporting 'Be Seen'

This section sets out how the Applicant plans to monitor, report on and share energy performance so that energy use can be better understood and managed on an on-going basis, in line with the 'Be Seen' element of the London Plan energy hierarchy.

Smart meters and sub metering will ensure data is being monitored and can be used to address the performance gap and gather data. The metering strategy will be developed during detailed design.

2.8.1 Commitments

The 'Be Seen' energy monitoring guidance published by the GLA sets out the expectations of the Applicant regarding response to the 'Be Seen' requirements. The guidance sets out the process and responsibilities regarding the policy requirements, including the requirement to report, to GLA, estimates for energy use using the 'Be Seen' webform.

The 'Be Seen' webform will be completed in line with GLA requirements and includes:

- The required contextual information on the scheme;
- Predicted building energy use; and
- Expected carbon emissions.

It is important to recognise that GLA Guidance on the preparation of Energy Statements requires baseline energy demands and calculated savings to be based on the calculation methods set out in Part L of the Building Regulations. These calculation methods are designed for Building Regulations compliance purposes; they are not intended to provide an accurate assessment of the building's expected performance in use. It would not be expected that the metered energy use for the Site would align with the energy demand calculations set out in this Energy Statement. This is because Building Regulations' calculations assume standard occupancy patterns for generic building uses. The actual occupancy patterns and equipment loads in buildings would be expected to differ from these generic profiles depending on the occupant and the equipment they install.

2.8.2 'Be Seen' Summary

The proposed development has an estimated annual energy consumption of 566,515 MWh/yr.

A cooling demand of 518,571 MWh/yr and an annual space heating demand of 20.69 MWh/yr have been estimated. The cooling load far exceeds the heating demand, reflecting the heat rejection requirements of the facility. The annual load profile for the proposed development is presented in Figure 5.

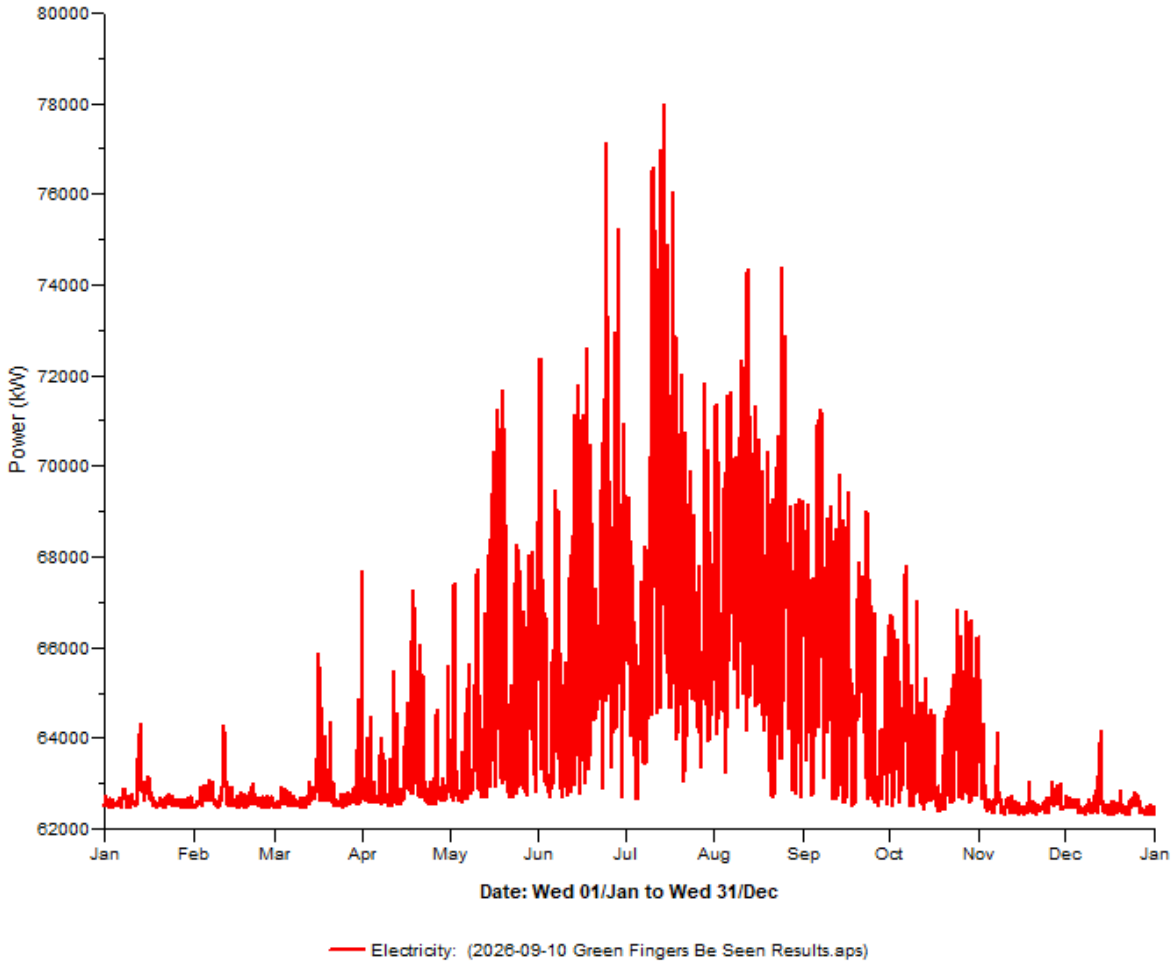


Figure 5 Annual hourly load profile of the proposed development

Once the carbon emission calculations are agreed with LBH and GLA, the Applicant will submit the 'Be Seen' submission to the GLA via the planning-stage webform.

A metering strategy to support the 'Be Seen' policy will be developed during detailed design stage of the proposed development.

2.9 Flexibility, Peak Energy Demand and Available Capacity

2.9.1 Introduction

The London Plan sets out a requirement for all major development to minimise both annual and peak energy demand in accordance with the energy hierarchy. This seeks to reduce demands on London's energy networks as the electricity grid decarbonises and a transition is made away from the use of fossil fuels.

2.9.2 Estimated Peak Demand

This reflects periods of IT utilisation, coinciding with peak ambient summer temperatures when cooling demand is highest. Under these conditions, infrastructure energy consumption represents a greater proportion of total facility energy use, resulting in a temporary increase in Power Usage Effectiveness (PUE) above the expected annualised operating value. Based on initial calculations, an annualised PUE of 1.3 is estimated.

Peak demand has been estimated to be 81 MW. This figure is based on a peak IT load of 54 MW and a peak PUE of 1.5. This reflects the total facility demand inclusive of mechanical cooling, electrical losses, and other overhead associated with supporting the critical IT load.

Unlike residential or mixed-use developments, data centres do not typically apply diversity. Instead, electrical systems are sized to accommodate the anticipated maximum IT and associated critical loads, with redundancy achieved through resilient electrical distribution and standby generation rather than through load diversification. As such, the design electrical load adopted is based on the maximum anticipated operating load, rather than a reduced figure derived from a conventional diversity factor.

The use of renewable energy generating technology on the Site to meet 'Be Green' policy targets is expected to reduce the peak electrical load from the grid.

2.9.3 Available Capacity

The Proposed Development will be served by an on-site 132kV Gas Insulated Switchgear (GIS) fully redundant (N+N) substation, owned and operated by the client. It will comprise two step-down power transformers (Tx1 and Tx2), each rated 80/100 MVA for Oil Natural Air Natural (ONAN)/Oil Natural Air Forced (ONAF) classifications respectively, stepping 132kV down to 33kV. The client substation is understood to be fed from the existing National Grid Electricity Transmission (NGET) substation at Laleham 275/132kV, located south of Heathrow Airport.

Maximum site electrical demand across the two data centre buildings, which is divided into four separate ring mains, is estimated at 88.2 MVA. The N+N configuration provides full on-site resilience, with either transformer individually capable of supplying 100% of site demand in the event of a single transformer outage.

The Proposed Development will connect directly to the National Grid Electricity Transmission (NGET) network, via the existing Laleham 275/132kV substation. The Applicant has been engaging with NGET and the National Energy System Operator (NESO) through the connections process, with evidence of this correspondence available in Appendix C. The connection offers are expected soon after the time of writing, and the Applicant is monitoring the connection offer progress.

2.9.4 Flexibility Potential

The proposed development is expected to exhibit a relatively flat and consistent energy demand profile, characteristic of a data centre's 24-hour operation. Whilst some seasonal variation is anticipated, demand remains broadly consistent with limited short-term fluctuation and no pronounced peak loads. As the principal benefit of electrical energy storage lies in shifting peak demand, the flexibility benefits available to a development of this operational profile are inherently limited compared with those achievable in developments with more variable demand.

Notwithstanding this, the development will incorporate substantial uninterruptible power supply (UPS) and standby generation capacity, with generator sets capable of operating on FAME-free diesel, 100% hydrotreated vegetable oil (HVO), or any blend of the two, as an inherent requirement of the facility's critical function and resilience standards. This provision exists solely to maintain continuity of the critical IT and cooling loads during a grid supply interruption. It is not intended for use as a demand-side response mechanism outside of a critical scenario.

Similarly, the limited and consistent heating demand associated with the administration areas offers limited scope for thermal storage to deliver meaningful peak demand reduction. One of the dominant drivers of electrical demand is the data centre's cooling load, which peaks during summer conditions. Grid constraint events have historically been more associated with winter peak demand periods, meaning the development's own heating-related thermal storage potential offers limited value in relation to periods of typical grid stress. However, the increasing frequency of summer heatwave events presents an emerging risk of coincident peak electrical demand across the network, driven by widespread cooling load. In a critical scenario where insufficient grid capacity is available, the generators could be used to maintain the development's own critical load without additional draw from the grid, thereby avoiding any contribution to network strain that could affect the supply availability to other users.

On-site renewable generation is proposed in the form of photovoltaics. Given that PV generation will be consumed directly against the development's continuous base load, rather than exported, and is expected to meet a small proportion of the building's electricity demand at any time, the case for co-located electrical storage to capture surplus generation is not justified. Additionally, the PV output is insufficient to significantly reduce the peak demand by load matching.

The development incorporates an integrated Building Management System (BMS) and Electrical Power Monitoring System (EPMS), built on industry-standard protocols. This avoids reliance on proprietary technologies and enables seamless connectivity and data integration across the development's building services and with third-party stakeholders where required.

2.10 Conclusion

The proposed new data centre development was modelled to establish baseline regulated emissions. The regulated baseline carbon emissions from the proposed development were calculated to be 2,179.8 tCO2/year.

A range of demand reduction measures have been incorporated into the development. In the administration areas, these include high-efficiency cooling systems, LED lighting and mechanical ventilation with heat recovery. Within the data halls, energy demand is minimised through the use of highly efficient cooling systems, the utilisation of free cooling, and energy-efficient lighting. These measures reduce the overall energy demand of the development before the application of low and zero carbon technologies.

At present, no nearby heat loads or decentralised energy network have been identified in proximity to the Site to accommodate an immediate waste heat export connection. Notwithstanding this, the development will be future-proofed to enable a waste heat export connection should a suitable off-take opportunity become available. This will comprise:

- Dedicated space within the data centre buildings for the future installation of plate heat exchangers, to interface between the data centre's cooling system and an external heat export connection.
- A safeguarded pipework route from the plate heat exchanger location to the Site boundary, to be reserved as an unobstructed corridor for future installation, to enable connection without requiring retrospective disruption to the proposed development.

A review of low and zero carbon technologies found the most suitable technologies to be air source VRF heat pumps to provide heating to the administration space and solar PV panels on the roofs of the administration space. It is proposed that these technologies are included in the proposed development to provide low-carbon heating and electricity.

The energy strategy for the proposed development is:

1. Energy efficient fabric and building services design to reduce energy demand, including the incorporation of free cooling where possible;
2. Efficient air cooled chillers used in combination with free cooling to provide cooling to the data halls;
3. Air source VRF heat pumps to meet the administration heating and cooling demands;
4. Point of use electric heaters to provide hot water;
5. Safeguarded space within the data centre buildings for future plate heat exchangers, together with a safeguarded pipework route to the Site boundary, to enable future waste heat export to a third-party receptor or energy network should a suitable opportunity arise; and
6. PV arrays on the roofs of the administration spaces.

This energy strategy has been designed to meet the London Plan targets of zero-carbon buildings, with a minimum on-site 35% reduction in regulated CO_2 emissions. The proposed development's on-site carbon emissions improvement has been estimated to achieve a reduction of 917.4 tonnes per annum (42%) in regulated CO_2 emissions compared to a 2021 Building Regulations compliant development. The shortfall is estimated to be 1,262.5 tonnes/CO_2/year. At a rate of £95/tonne CO_2 over 30 years this results in an offset payment of £3,597,994, subject to the final S106 agreement with LBH.

The Applicant is committed to sourcing 100% renewable electricity, to power all regulated and unregulated electricity consumption within the entire proposed development, reflecting industry best practice for large-scale data centre developments. This electricity will be procured via Renewable Energy Guarantees of Origin (REGOs) and Corporate Power Purchase Agreements (CPPAs), which will significantly reduce operational carbon emissions.

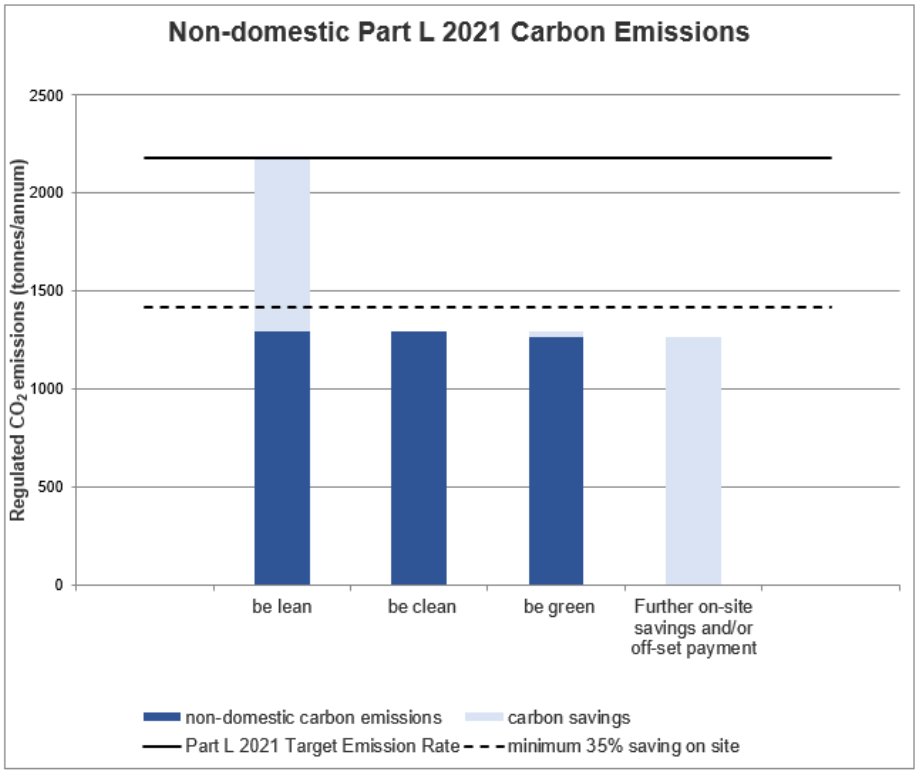


Figure 6 Proposed Development Regulated Part L 2021 Cabon Emissions

3. Sustainability Statement

3.1 Planning Policy Review

3.1.1 National Planning Policy Requirements

3.1.1.1 National Planning Policy Framework (August 2026)

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and is an important consideration in the determination of planning applications. It establishes that planning decisions should normally be made in accordance with the policies contained within the relevant local planning authority's adopted development plan, unless other material planning considerations indicate otherwise. The development plan typically comprises the Local Plan and any other planning policy documents that have been formally adopted by the local authority.

The NPPF identifies the achievement of sustainable development as the overarching purpose of the planning system and promotes a balanced approach through economic, social and environmental objectives. The environmental objective seeks to protect and enhance the natural and built environment, support the transition to a low-carbon economy, and contribute to climate change mitigation and adaptation.

Of particular relevance to this Energy Statement, Chapter 5, *Meeting the challenge of climate change*, requires the planning system to support the transition to a net-zero future, reduce greenhouse gas emissions, promote energy-efficient development, support renewable and low-carbon energy generation, and increase resilience to the impacts of climate change.

Chapter 4*, Achieving Sustainable Development*, seeks to meet development needs through sustainable patterns of development, including maximising growth on suitable land and supporting communities and infrastructure. Policy S3 establishes a presumption in favour of sustainable development, meaning that development proposals that comply with the adopted development plan and relevant national planning policies should generally be approved without delay. Accordingly, the proposed energy strategy has been developed to support national and local objectives for energy efficiency, carbon reduction and sustainable development.

Other NPPF policies of relevance to this Sustainability Statement include:

- CC3: Adaptation to climate change;
- W4: Water infrastructure;
- TR3: Locating development in sustainable locations;
- TR4: Street design, access and parking;
- TR6: Assessing transport impacts;
- P2: Ground conditions;
- P3: Living conditions and pollution;
- F4: Assessing flood risk for decision-making;
- F5: The sequential test;
- F6: Development in areas at risk of flooding from rivers or the sea;
- F7: Ensuring development is safe from flooding;
- F8: Sustainable drainage systems and watercourses;
- N2: Improving the natural environment; and
- N3: Trees in new development.

3.1.2 Regional Policy (Greater London Authority)

The regional policy consists of the GLA's London Plan as well as London Plan Guidance (LPG) and Supplementary Planning Guidance (SPG) documents which are relevant to sustainability and provide further information on how the London Plan should be implemented. These include the following:

- Air Quality Positive LPG (February 2023);
- Air Quality Neutral LPG (February 2023);
- 'Be Seen' Energy Monitoring LPG (September 2021);
- Circular Economy Statements LPG (March 2022);
- Digital Connectivity Infrastructure LPG (Nov 2024);
- Energy Assessment Guidance (June 2022);
- Whole Life-Cycle Carbon Assessments LPG (March 2022);
- Sustainable Transport, Walking and Cycling LPG (November 2022); and
- Urban Greening Factor LPG (February 2023).

3.1.2.1 GLA London Plan (March 2021)

The GLA's London Plan (March 2021) is the Spatial Development Strategy for Greater London. It sets out a framework for how London will develop over the next 20-25 years and the Mayor's vision for 'Good Growth'. The London Plan is part of the statutory development plan for London, meaning that the policies in the London Plan should inform decisions on planning applications across the capital. Boroughs' Local Plans must be in 'general conformity' with the London Plan, ensuring that the planning system for London operates in a joined-up way and reflects the overall strategy for how London can develop sustainably, which the London Plan sets out.

The key objectives of the London Plan include the concept of 'Good Growth' – growth that is socially and economically inclusive and environmentally sustainable – this underpins the London Plan and ensures that it is focused on sustainable development.

The key policies within the London Plan which are relevant to the development of the sustainable design approaches for the proposed development include the following:

- Policy D13 Agent of change;
- Policy G1 Green infrastructure;
- Policy G5 Urban greening;
- Policy G6 Biodiversity and access to nature;
- Policy SI 1 Improving air quality;
- Policy SI 2 Minimising greenhouse gas emissions;
- Policy SI 3 Energy infrastructure;
- Policy SI 4 Managing heat risk;
- Policy SI 5 Water infrastructure;
- Policy SI 7 Reducing waste and supporting the circular economy;
- Policy SI 12 Flood risk management;
- Policy SI 13 Sustainable drainage;
- Policy T2 Healthy Streets;
- Policy T5 Cycling; and
- Policy T6 Car parking.

3.1.3 Local Planning Policy

The Site is located within the London Borough of Hillingdon (LBH), and the proposed development will therefore be subject to the requirements of local planning policy as set out in the Hillingdon Local Plan.

3.1.3.1 London Borough of Hillingdon

Policy and guidance documents produced by LBH which are relevant to the development of the sustainability strategy for the proposed development comprise:

- The Local Plan: Part 1 – Strategic Policies (November 2012)
- The Local Plan: Part 2 – Development Management Policies (January 2020)
- SPD 'Planning Obligations' (July 2014)
- Hillingdon Local Flood Risk Management Strategy (June 2024)

The following policies, which are relevant to the proposed development's sustainability strategy, are included in The Local Plan Part 1 – Strategic Policies document and Part 2 – Development Management Policies.

- Policy EM1 – Climate Change Adaptation and Mitigation
- Policy EM6 – Flood Risk Management
- Policy EM7 – Biodiversity and Geological Conservation
- Policy EM8 – Land, Water, Air, Noise
- Policy EM11 – Sustainable Waste Management
- Policy BE1 – Built Environment
- Policy DMHB 11 – Design of New Development
- Policy DMHB 14 – Trees and Landscaping
- Policy DMEI 1 – Living Walls and Roofs and Onsite Vegetation
- Policy DMEI 2 – Reducing Carbon Emissions
- Policy DMEI 3 – Decentralised Energy
- Policy DMEI 7 – Biodiversity Protection and Enhancement
- Policy DMEI 9 – Management of Flood Risk
- Policy DMEI 10 – Water Management, Efficiency and Quality
- Policy DMEI 12 – Development of Land Affected by Contamination
- Policy DMEI 14 – Air Quality
- Policy DMEI 4 – Reuse and Recycling of Aggregates
- Policy DMT 1 – Managing Transport Impacts
- Policy DMT 2 – Highways Impacts
- Policy DMT 4 – Public Transport
- Policy DMT 5 – Pedestrians and Cyclists
- Policy DMT 6 – Vehicle Parking

As previously noted, the London Borough of Hillingdon is preparing a new Local Plan under the Government's new plan-making system. A public Scoping Consultation ran from 9 July to 21 August 2026, and the council's timetable indicates adoption of the new Local Plan from May 2028 following consultation, submission and examination stages.

3.2 Design Response

The following sustainability statement sets out how the proposed development has incorporated sustainability measures. This statement responds to the regional and local planning policies outlined in the policy review above.

3.2.1 Environmental Assessment Methods

This section outlines the environmental assessment methods proposed for the Site.

3.2.1.1 BREEAM

The proposed development is designed to meet targets based on BREEAM. In accordance with guidance by the Building Research Establishment (BRE), the most appropriate BREEAM scheme to assess a new data centre in the UK, is the BREEAM Data Centres (DC) 2010 v1.2. The aim of this pre-assessment is to establish the BREEAM score and rating that is achievable by the proposed development, based on its current design. The information provided by the project team was used to confirm the BREEAM credits that can be considered achievable and to inform the BREEAM targeted rating.

BREEAM seeks to minimise the adverse effects of new buildings on the environment at global and local scales, whilst promoting healthy indoor conditions for the occupants. Building projects are assessed at the design and post-construction stages using a system of environmental issues grouped within the following ten categories:

- Management (Man)
- Health and Wellbeing (Hea)
- Energy (Ene)
- Transport (Tra)
- Water (Wat)
- Materials (Mat)
- Waste (Wst)
- Land Use & Ecology (LE)
- Pollution (Pol)
- Innovation (Inn)

Those categories represent sustainability themes and involve a number of underlying credits. A percentage weighting is assigned to each category, which is then distributed across the credits within this category. Each credit has criteria which must be met in order to award the credit. Certain credits have time critical requirements linked to the RIBA stages of work and relevant actions need to be taken and studies completed early to meet these credit requirements.

The assessment of a building results in a final online report being produced by the BREEAM Assessor and a BREEAM certificate is produced by the BRE to validate the rating and score. The building's performance is expressed as a BREEAM rating based on the scale and percentages of awarded credits presented in Figure 7.

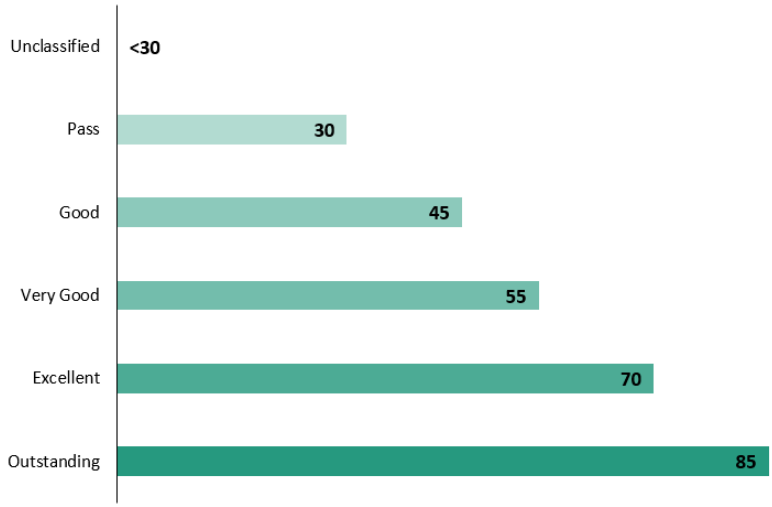


Figure 7 BREEAM rating benchmark score percentages

A BREEAM 'Pass' rating requires a total percentage score of at least 30% and a few minimum standard credits to be awarded. Similarly, BREEAM 'Good', 'Very Good', 'Excellent' and 'Outstanding' ratings require percentage scores of 45, 55, 70 and 85 respectively and further minimum standards to be achieved. AECOM recommends that a buffer of 4-5% above the target rating should be incorporated as part of the pre-assessment to mitigate against any loss of credits as the development progresses.

In addition to a certain score, each BREEAM rating must also meet certain minimum standards by complying with specific credit requirements. These must be considered as part of the assessment as they set minimum standards of performance in focus areas that BRE see as fundamental environmental aspects that need to be met before any rating can be achieved.

A BREEAM pre-assessment has been undertaken at RIBA Stage 2, based on the BREEAM Data Centres 2010 1.2 scheme. The Applicant's target is to achieve a BREEAM 'Excellent' rating (minimum 70%). The pre-assessment, which is summarised in Table 13, indicates that the project can target 73.09% points, which is above the 'Excellent' rating threshold.

Several early-stage studies requiring specialist appointments have been identified and should be considered prior to the commencement of RIBA Stage 3. This includes the Low or Zero Carbon Feasibility Study, which is a minimum standard requirement for achieving a BREEAM 'Excellent' rating.

Table 13 Summary of VIRTUS Data Centres Green Fingers BREEAM DC 2010 pre-assessment score

Credit Category	Available Points	Targeted at Stage 2
Management	12	9
Health& Wellbeing	13	7
Energy	25	22
Transport	10	4
Water	8	8
Materials	15	8
Waste	7	4
Land Use& Ecology	10	3
Pollution	11	5
Innovation	10	3
Total score %		73.09%
BREEAM Rating	-	Excellent

3.2.2 Pollution Management

This section of the Statement outlines how pollution will be minimised, and how policies relating to land contamination and remediation will be addressed.

3.2.2.1 Planning Policy and Guidance

The aims and proposals set out in this section are intended to address the following planning policies and standards:

- National Planning Policy Framework policies P2 and P3;
- London Plan policies D13, D14 and SI 1;
- Hillingdon Local Plan: Part 1 – Strategic Policies EM1 and EM8; and
- Hillingdon Local Plan: Part 2 – Development Management Policies (2020) DMEI 12 and DMEI 14.

3.2.2.2 Aims and Proposals

3.2.2.2.1 Noise

A Noise Impact Assessment has been undertaken as part of the Environmental Statement to assess the noise and vibration impacts associated with the proposed development during both construction and operational stages. A summary of this study is provided below.

3.2.2.2.1.1 Construction

Suitable mitigation measures including application of best practicable means and the use of acoustic screening will be applied to avoid exceedances of the Significant Observed Adverse Effect Level (SOAEL). However, potential temporary exceedances of the Lowest Observable Adverse Effect Level (LOAEL) are noted at receptors throughout the construction programme. As an exceedance of the LOAEL represents noise that is considered to be noticeable and intrusive, mitigation measures detailed in the Noise Impact Assessment and noise management plans will be put into place to ensure that construction noise is always minimised throughout the construction programme.

Noise effects due to construction traffic have been assessed as not significant.

Potential vibration effects have been calculated at each existing sensitive receptor. Based on a worst-case piling method being used, it has been identified that there would be temporary exceedances of the LOAEL but that these would not exceed the SOAEL. Construction vibration is therefore not considered significant.

3.2.2.2.1.2 Operational

Noise from chillers during normal operations requires mitigation to avoid exceedances of the SOAEL. As such, attenuators will be fitted on chiller fans to reduce noise emissions to an acceptable level. Additionally, emergency generators are a significant source of noise and will operate during power cuts and periodically tested. Generator exhausts will be fitted with silencers and generators will be set in enclosures in order to avoid exceedances of the SOAEL.

Noise effects as a result of the operation of the proposed development due to changes in road traffic flows have been identified as not significant. Consequently, no additional mitigation measures are required.

3.2.2.2.2 Light Pollution

An External Lighting Report has been developed to minimise obtrusive light, including light spill, glare and sky glow, whilst maintaining the operational, safety and security requirements of the facility.

The proposed lighting design has been informed by the GN01/26 The Avoidance of Obtrusive Light published by the Institution of Lighting Professionals (ILP), together with the SLL Code for Lighting (2022) published by the Society of Light and Lighting (SLL). These documents represent current industry best practice for the design of external lighting and the management of obtrusive light. The lighting strategy has therefore been developed to accord with the recommendations and obtrusive light limits applicable to the relevant environmental zone, whilst responding to the site context and planning policy requirements.

The assessment demonstrates that the lighting scheme can satisfy operational and security requirements whilst maintaining compliance with recognised obtrusive lighting criteria and limiting impacts on neighbouring residential receptors, ecological corridors and the surrounding highway network. A minor and localised glare effect identified at the site access can be addressed through detailed design measures, including luminaire shielding and optical controls. Further details can be found in the External Lighting Strategy Report submitted in support of the proposed development.

3.2.2.2.3 Air Pollution

An Air Quality Assessment has been undertaken as part of the Environmental Statement to assess the impacts of the proposed development on air quality. The findings of this assessment are presented below.

3.2.2.2.3.1 Construction

The proposed development has the potential to affect air quality during the construction phase as well as to introduce new exposure into nearby areas. The Air Quality Assessment has considered the potential for dust and particulate emissions during the construction phase of the proposed development, including demolition, earthworks, construction activities and vehicle movements. The assessment identifies predominantly medium risks for amenity impacts and low to negligible risks for human health impacts.

Appropriate mitigation measures including a Dust Management Plan, dust suppression through water spraying, wheel washing facilities, covered material storage and transport, will be implemented in accordance with IAQM guidance and secured through the construction management process. The assessment concludes that, with these measures in place, construction-related air quality effects would not be significant. Further details of the construction stage air quality assessment are provided within Chapter 6 of the Environmental Statement submitted in support of the proposed development.

3.2.2.2.3.2 Operational

An assessment of operational phase air quality effects has been undertaken for the proposed development, considering emissions associated with operational traffic and the operation of the proposed standby generators. The assessment concluded that operational road traffic associated with the proposed development would not give rise to significant air quality effects. This reflects the limited number of vehicle movements anticipated during the operational phase and the existing baseline air quality conditions within the vicinity of the Site.

A detailed atmospheric dispersion modelling assessment was undertaken to evaluate emissions from the standby generators during routine testing, maintenance and emergency operation. The assessment predicted negligible impacts for all assessed pollutants at the majority of sensitive receptors during testing and maintenance activities. A slight adverse effect was identified in relation to hourly mean nitrogen dioxide (NO_2) concentrations, however, the Air Quality Assessment states that this effect is not significant. The assessment further demonstrated that emissions associated with emergency operation of the standby generators would result in negligible impacts for all relevant pollutants at all assessed receptors. In accordance with established guidance, a risk-based approach was applied to the assessment of hourly mean NO_2 concentrations. The findings indicate that, provided emergency operation of the generators does not exceed an aggregated total of 64 hours per annum, the probability of exceeding the relevant Air Quality Objective for hourly mean NO_2 would remain below 5%, which is considered acceptable.

At the detailed planning stage, updated air quality assessments may be required where design changes could materially affect the findings. Air Quality Neutral and Air Quality Positive Assessments will also be prepared in accordance with GLA policy requirements. Further details of the operational air quality assessment are provided within Chapter 6 of the Environmental Statement submitted in support of the proposed development.

3.2.2.2.4 Contamination

A Land Contamination Preliminary Risk Assessment (PRA) has been undertaken for the Site based on available desk-based study information. The assessment identifies a number of potential contamination sources both on and off the Site. On-site sources relate to made ground and the current and historical uses of the Site, including a vehicle storage yard and agricultural land. Off-site sources include areas of made ground, the surrounding road network, and historical landfill sites. Based on the available desk study information and the proposed redevelopment, the Site has been classified as presenting an overall Very Low to Moderate risk in relation to land contamination.

The assessment concludes that a further geo-environmental ground investigation should be undertaken to support the proposed development. The Applicant should undertake this investigation at the detailed design stage, in accordance with the requirements of BS 10175:2026 and BS 5930:2015+A1:2020, which will inform the development design, including earthworks and foundation strategies, while confirming any contamination risks and associated mitigation measures that may be required.

3.2.3 Materials and Waste

This section outlines how the sustainable choice and use of materials will be integrated into the design and construction of the Site.

3.2.3.1 Planning Policy and Guidance

The aims and proposals set out in this section are intended to address the following planning policies and standards:

- London Plan policies SI 2 and SI 7;
- Hillingdon Local Plan: Part 1 – Strategic Policies EM11 and BE1; and
- Hillingdon Local Plan: Part 2 – Development Management Policies DMEI 2 and 13.

3.2.3.2 Aims and Proposals

A Whole Life-cycle Carbon Assessment (WLCA) and Circular Economy Statement (CES) have been undertaken early in the design process, to identify opportunities for reducing the embodied carbon associated with the proposed construction and to ensure opportunities to align the design with circular economy principles have been incorporated. The assessments have considered measures including the use of cement replacements within concrete elements, specification of high recycled-content electric arc furnace steel, reuse of existing site-won materials and adoption of material-efficient structural solutions. The WLCA and CES will be updated at Reserved Matters stage as the design develops and material specifications are confirmed.

The following will form the basis of the circular economy strategic approach for the Proposed Development:

- Maximising the reuse and recovery of existing site materials, including the reuse of crushed hardstanding as piling mat, sub-base or haul road material where contamination testing permits;
- Prioritising the careful deconstruction of remaining timber structures and reuse of relocatable portable cabins where practicable;
- Minimising material consumption through an efficient structural grid, rationalised building form and lean design principles;
- Maximising the use of recycled and low-carbon materials, including cement replacement and high recycled-content steel;
- Exploring the use of modular and off-site manufactured components to reduce construction waste and improve material efficiency;
- Designing the building for longevity, adaptability and flexibility through the provision of large clear-span spaces, durable materials and modular building systems;
- Designing for future disassembly through the use of reversible connections, standardised components and investigation of material passports; and
- Providing adequate waste storage and segregation facilities to maximise operational recycling and resource recovery.

The development is committed to achieving a minimum of 20% recycled or reused content within the selected building elements and to maximising opportunities for local sourcing where feasible. A Sustainable Procurement Plan will be prepared at Reserved Matters stage to support the selection of responsibly sourced materials with high recycled content, Environmental Product Declarations (EPDs) and robust supply chain certification.

The Proposed Development will also target diversion of at least 95% of demolition, excavation and construction waste from landfill through reuse, recycling or recovery, supported by a Site Waste Management Plan and detailed pre-demolition and pre-redevelopment audits secured at subsequent design stages. Operationally, waste management arrangements will be designed to support the achievement of London Plan recycling targets, including a minimum municipal recycling rate of 65% and business waste recycling rate of 75%.

To ensure materials are specified with lower environmental impacts over their life-cycle, at least three of the key building elements (roof, external walls, internal walls, upper ground floor and windows) of the domestic building envelope will be specified to achieve a rating of A+ to D in the BRE's Green Guide to Specification. This is in line with BREEAM's Mat 1 requirements.

The responsible sourcing of construction products for the non-domestic units will be assessed against BREEAM's Mat 5 criteria, helping to facilitate the selection of products that are associated with lower levels of negative

environmental, economic and social impacts across their supply chain including extraction, processing and manufacture.

3.2.4 Water Management

This section outlines how the Site will address the risk of flooding (including climate change projections), manage surface water run-off and minimise domestic water consumption.

3.2.4.1 Planning Policy and Guidance

The aims and proposals set out in this section are intended to address the following planning policies and standards:

- National Planning Policy Framework policies CC3, W4, F4, F5, F6, F7 and F8;
- London Plan policies SI 5, SI 12 and SI 13;
- Hillingdon Local Plan: Part 1 – Strategic Policies EM6; and
- Hillingdon Local Plan: Part 2 – Development Management Policies DMEI 9 and DMEI 10.

3.2.4.2 Aims and Proposals

Climate hazards are forecast to be more frequent and intense in the future. The risk of flooding is predicted to increase due to an increased likelihood of prolonged wet spells and a rise in the intensity of individual rainfall events. Therefore, new developments should include resilience to these climate change effects as part of a sustainable design. Sustainable urban drainage systems (SuDS) reduce the risks associated with wetter winters and heavy rainfall events by reducing flood risks and enhancing the development's resilience to surface water flooding. Beyond flood mitigation, SuDS contribute to improved water quality, enhanced landscape aesthetics, and the support of local biodiversity.

A Flood Risk Assessment and Drainage Strategy has been completed to support this application to assess pre-development and post-development flood risk from the following sources:

- Watercourses;
- Overland flows;
- Groundwater;
- Sewers; and
- Artificial sources.

The Flood Risk Assessment and the Surface and Foul Water Drainage Strategy details the mitigation measures that are specified for managing the residual potential for flooding from the sources detailed above.

A summary of the flood risk and mitigation measures for the Site is provided within Table 14.

Table 14 Flood risk and flood mitigation measures

Flood Risk Source	Flood Mitigation Measures
Watercourses	The Environment Agency (EA) Flood Risk Map shows the site located within Flood Zone 1, and in an area benefiting from flood defences. The residual risk of a breach is low. Therefore, the site is at low risk from watercourse flooding.
Groundwater Flooding	Based on the Ground Investigation Report, the site is at low risk of groundwater flooding and no mitigation measures have been proposed.
Surface Water and Overland Flows	The Environment Agency's (EA's) indicative Surface Water Flooding Map shows the site is generally at a low to medium risk of surface water flooding with an annual chance of flooding of no more than 3.3**%.** An isolated higher risk area is limited to a low point of the existing carpark. Development site levels will be adjusted in this area with proposed buildings to have falls

	away from building thresholds. The flood risk from surface water is therefore considered to be low.
Reservoir Flooding	The EA's information states that the development is within breach extents of reservoir flooding. The residual risk of a breach flood event is low due to these being maintained and regularly inspected.
Sewers	Given the location of the Thames Water sewers in relation to the finished floor levels of proposed buildings, it is very unlikely that the site would be at risk of sewer flooding. There are also no known recorded incidents of sewer flooding within the vicinity of the site.

The Surface and Foul Water Drainage Strategy outlines the proposed drainage strategy for the site, including a detailed Sustainable Drainage Systems (SuDS) assessment, and has been developed in line with The London Plan (2021) requirements.

The SuDS techniques suitable for this development have been identified in order to achieve source control, attenuation, and pollution control. SuDS proposed for the development include green roofs, permeable paving, rain gardens and tree pits.

Surface water run-off will be managed in line with the West London Strategic Flood Risk Assessment and The London Plan drainage discharge hierarchy. The SuDS measures will be supported by below ground attenuation systems. In accordance with Lead Local Flood Authority guidance, the system has been designed to accommodate all storms up to and including the 100-year plus 40 per cent climate change storm event.

Surface water runoff from the site is to be managed to greenfield runoff rates for all rainfall events up to and including the 100-year plus 40 per cent climate change event. Subject to intrusive ground investigation, it is expected that infiltration systems will be used to release runoff to the gravel ground strata that has been identified using historic borehole records. If infiltration is not feasible, then a pumped route to the local watercourse could be considered, as there are no nearby surface water sewers that have been identified. The site is surrounded by green belt land therefore planting will also improve water absorption from surrounding soils.

There is an increased likelihood of prolonged dry spells as a result of climate change, which severely stresses local water resources. Therefore, developments should seek to reduce demand through efficiency measures and prioritise sustainable sources where possible.

Affinity Water will be supplying the site with a mains water supply. The Applicant will continue to engage with Affinity Water to confirm any network upgrades required to support the proposed development, with final connection arrangements to be determined at the detailed design stage. Air-cooled chillers will be utilised to serve the data centre cooling load, thereby avoiding the significant water consumption typically associated with water-based cooling systems. The closed-circuit cooling system will not require routine water consumption for heat rejection, with any water use primarily associated with incidental losses. On this basis, the development is expected to achieve a very low Water Usage Effectiveness (WUE), potentially below 0.05 l/kWh when incidental water losses are accounted for. Water consumption will be monitored through a comprehensive metering strategy, with meters provided for the main water supplies and connected to the Building Management System (BMS) to support ongoing monitoring and leak detection. In addition, the proposed development has been designed to minimise potable water consumption through the specification of water-efficient sanitary fittings, including dual-flush WCs and low-flow taps. Rainwater harvesting will be incorporated to provide water for WC flushing and landscape irrigation, further reducing demand for potable water.

The landscape strategy has been designed to support sustainable water management through the integration of wet and dry attenuation basins, wetland planting and tree species suited to local hydrological conditions. Planting will comprise predominantly native and locally appropriate species selected to enhance biodiversity, tolerate the Site's high-water table and acidic soils, and promote ecological resilience.

3.2.5 Sustainable Transport

This section outlines how the design of the Site will enhance local travel infrastructure and encourage the use of sustainable transport methods.

3.2.5.1 Planning Policy and Guidance

The aims and proposals set out in this section are intended to address the following planning policies and standards:

- National Planning Policy Framework policies TR3, TR4 and TR6;
- London Plan policies T2, T4, T5, T6 and T7;
- Hillingdon Local Plan: Part 1 – Strategic Policies T1; and
- Hillingdon Local Plan: Part 2 – Development Management Policies DMT 1, DMT 2, DMT 4, DMT 5 and DMT 6.

3.2.5.2 Aims and Proposals

3.2.5.2.1 Local Walking and Cycling Routes

Pedestrians will access the Proposed Development via a proposed pedestrian access on Sipson Road, a short distance to the south of the existing vehicle access. Cyclists will access the site via the existing site access. As previously mentioned, local cycle route 89 runs along Sipson Road and a footway runs along the eastern side of Sipson Road which provides direct access to/ from the Site.

Pedestrian and cycle routes will be provided within the site, with crossings on internal access roads to allow pedestrians to travel between the internal footways, car parking areas and the proposed data centre facility. Sheltered external cycle parking will also be provided within the pedestrian/ cycle area to the north of the data centre building, within a short distance of the site access and the building entrance. Secure covered cycle parking is provided adjacent to the data centre building entrance, with shower facilities available within the proposed development to support sustainable travel.

3.2.5.2.2 Cycle Parking and Facilities

The London Plan standards would equate to the following minimum level of cycle parking provision, as shown below in Table 15. It is understood that the cycle parking standards are minimum standards as identified by the London Plan, despite being labelled as a maximum requirement within the LBH Local Plan.

Table 15 London Plan minimum policy requirement for cycle parking

Use Class	Proposed Development	London Plan (2021)	
		Long-Stay	Short-Stay
B2 – B8 (General industrial, storage or distribution)	28,000 sqm	56 spaces	28 spaces

The above requirements are considered to be a significant overprovision within the context of the proposed development, which is expected to accommodate up to 102 people within the data centre facility at any given time. Therefore, 56 long-stay spaces for staff would cater for more than 50% staff travelling by bicycle. Based on the forecast travel patterns of staff/ visitors associated with the proposed development, only four people are expected to cycle to/ from the proposed development per day based on a 2% cycle mode share as presented in the Healthy Steets Transport Statement accompanying this planning application.

Nonetheless, the following level of cycle parking provision is proposed in accordance with both the London Plan and LBH Local Plan standards:

- 28 short-stay spaces (14 no. Sheffield stands) within an external cycle shelter for visitors;
- 56 long-stay spaces within the data centre facility for staff, equating to circa 10 long-stay spaces within the internal store for each of the six data halls.

Whilst the London Plan standards have been applied as a proxy, they have been derived for more traditional industrial, and storage/ distribution uses and are not fully reflective of the operational characteristics of a modern data centre. Given the low employment density associated with the proposed development and the forecast cycling demand identified within the Healthy Steets Transport Statement, the proposed provision is considered

proportionate whilst still allowing significant scope for future growth in cycling. The Transport Plan includes monitoring arrangements and additional cycle parking can be provided if demand exceeds current forecasts.

3.2.5.2.3 Public Transport Accessibility

The PTAL index adopted by TfL reflects walking times to public transport facilities as well as the service range and reliability of services for the London area. The index is split into several bands between 1a (Very Poor) to 6b (Excellent). The Site has a PTAL of 1b, reflecting the relatively limited range and frequency of public transport services when compared with more urban locations within London.

Nevertheless, bus services are available within approximately 80m of the Site and provide connections to wider public transport interchanges, including West Drayton station. The bus stops are served by bus route 222 which runs between Hounslow and Uxbridge and operates with an approximate frequency of one service every 10 minutes during the week (Monday-Friday).

The nearest railway station to the Site is West Drayton station which is located approximately 2.2km to the northwest. This provides access to Elizabeth line services between Reading and Abbey Wood, as well as National Rail services between Reading and Paddington. Whilst West Drayton station is generally considered to be too far away from the Site to walk, it can be accessed via bus route 222 using the bus stops near the Site, as well as by bicycle using local cycle route 89.

The proposed development seeks to maximise public transport use for journeys which cannot be made by foot or bicycle. Enhancing the pedestrian permeability of the Site will improve opportunities to access public transport facilities through the provision of enhanced walking and cycling networks throughout the Site.

3.2.5.2.4 Car Parking and Electric Vehicle Charging

The maximum car parking standards for the proposed development as set out within the London Plan would equate to the following maximum level of car parking provision, as shown in Table 16.

Table 16 London Plan Maximum Policy Requirement for Car Parking

Use Class	Proposed Development	London Plan (2021)
B2 – B8 (General industrial, storage or distribution)	28,000 sqm	280 spaces

A total of 84 parking spaces will be provided, including the following:

- 72 standard spaces (2.5m x 5m) for staff and visitors;
- 8 enlarged and designated spaces (3.6m x 6m) for blue badge users (10% of total car parking provision); and
- 4 active electric vehicle parking spaces (5% of total car parking provision).

Passive provision will be made available for 5% of spaces so that these can be converted to active spaces if required based on demand.

The data centre facility is designed to accommodate up to 102 people at any given time, and the majority of staff and visitors are expected to travel by vehicle. The proposed car parking provision of 84 spaces is designed to accommodate the maximum forecast parking demand, without representing a significant overprovision that may otherwise encourage additional vehicles to travel to/ from the Site. In view of this, the proposed car parking provision is significantly below the maximum standards and is considered to be appropriate.

3.2.5.2.5 Delivery and Servicing

Delivery and servicing vehicles will access the proposed development via the existing site access on Sipson Road.

As is the standard arrangement for data centre facilities, an initial turning head will be provided within the Site near the site access for use by vehicles (up to a maximum legal articulated HGV) if they are rejected by site security. These vehicles would reverse in and forward out of this area as necessary, to/ from the internal site access road.

A short section of service road will be provided within the north-eastern corner of the Site for use by maintenance vehicles accessing the water pumps and tanks. These vehicles would reverse in and forward out of this area to/ from the internal site access road.

The main service yard and loading dock will be located within the centre of the Site, for use by servicing and delivery vehicles, as well as cranes for plant replacement. Larger vehicles such as maximum legal articulated HGVs and cranes would need to reverse back to access the loading dock, under the supervision of a banksmen, to ensure these manoeuvres are carried out safely.

3.2.5.2.6 Travel Plan

A Travel Plan (TP) has been developed to be submitted alongside this application; the TP identifies an overarching framework for minimising the impacts of travel, ensuring access for all and allowing site users to make informed travel choices. It also sets out a range of key objectives, potential measures relevant to users and processes for the management and review of travel behaviour. At this stage, the TP includes initial site wide targets (based on baseline travel patterns), which will be used to assess progress over the five-year period following occupation.

3.2.6 Urban Greening and Biodiversity

This section outlines how the Site will protect and enhance local ecology and biodiversity.

3.2.6.1 Planning Policy and Guidance

The aims and proposals set out in this section are intended to address the following planning policies and standards:

- National Planning Policy Framework policies N2 and N3;
- London Plan policies G5; G6 and G7;
- Hillingdon Local Plan: Part 1 – Strategic Policies EM7; and
- Hillingdon Local Plan: Part 2 – Development Management Policies DMEI 1 and DMEI 7.

3.2.6.2 Aims and Proposals

A Biodiversity Net Gain (BNG) Assessment has been undertaken for the Site. A BNG assessment involves making a comparison between the biodiversity value of habitats present within the Site prior to development (i.e. the ‘baseline’) and the predicted biodiversity value of habitats following the completion of the development (i.e. ‘post-development’). A habitat survey was undertaken to establish the Site’s baseline and landscape plans were used to determine the extent and type of habitats proposed for the Site.

The proposed development is predicted to result in a net gain of 1.91% for area habitat units and a net gain of 821.67% for hedgerow units. The proposed development, therefore, does not meet the minimum BNG target of 10% BNG for each habitat type and thus does not satisfy the requirements of the Environment Act 2021.

A total of 2.77 additional area habitat units is required to achieve 10% BNG. No further hedgerow units are required. If further on-site habitat enhancements are deemed unfeasible, the 10% BNG requirement will be met through an appropriate off-site solution, ensuring compliance with the relevant BNG Trading Rules. Details of how the 10% BNG requirement will be achieved will be provided in the Biodiversity Gain Plan, which will be submitted alongside a Habitat Management and Monitoring Plan (HMMP) for Significant Enhancements prior to commencement of the works.

Policy G5 of the London Plan recommends a target Urban Greening Factor (UGF) score of 0.3 for developments that are predominantly non-residential. The Proposed Development seeks to maximise greening as far as possible within the constraints of the site whilst balancing other land uses and arrives at a minimum score of 0.397. See the Urban Greening Factor calculations, within the Design and Access Statement for full details.

An Arboricultural Assessment has been undertaken for the Site. The area within which the Site is situated was visited on the 1st of July 2026, and the trees and other vegetation were surveyed in line with the recommendations of BS5837:2012. The surveyed trees and other forms of vegetation, within and in close proximity to the Site, comprise:

- Category A (high quality): 1 tree
- Category B (moderate quality): 13 trees and 7 tree groups
- Category C (low quality): 6 trees and 23 tree groups

- Category U (unsuitable): 9 trees and 1 tree group

To facilitate the proposed development, including enabling, construction, and landscaping works, one individual tree of moderate quality (Category B); and three tree groups of low quality (Category C) are likely to be removed. In addition, six individual trees, identified as unsuitable for retention for more than ten years as living trees in the context of the current land use (Category U) are recommended to be removed to facilitate the proposed development.

The landscape design incorporates significant new tree planting, ensuring that despite the removal of existing trees, the overall number of trees on the Site will increase. Further details are provided in the Arboricultural Assessment and within the landscaping proposals set out in the Design and Access Statement.

A Preliminary Ecological Appraisal (PEA) has been carried out for the proposed development, based on a desk study and ecological surveys undertaken in April–May 2026, to identify the ecological constraints affecting the Site. The PEA identifies the following recommendations to support the proposed development and ensure compliance with relevant wildlife legislation:

- A Construction and Environmental Management Plan (CEMP), incorporating a Precautionary Method of Working (PMoW) and contractor toolbox talks, to be prepared prior to works and implemented throughout construction to prevent adverse impacts on habitats and protected species.
- Further bat emergence and activity surveys (April–October) to determine Site usage and inform any resulting mitigation or licensing needs, with lighting designed to BCT/ILP (2023) guidance and bat boxes installed on Site.
- Vegetation clearance timed outside the bird breeding season (March–August) where possible, with a pre-clearance nesting check by an ecologist where it is not possible.
- Standard precautionary working methods, phased, supervised clearance, pre-works checks, and a stop-work/seek-advice protocol to safeguard reptiles, great crested newts, badgers, and other notable species that may be present.
- Removal of buddleia and ongoing vigilance for invasive non-native species throughout works.

For further details please refer to the PEA which is submitted as part of this planning application.

3.3 Conclusion

The Sustainability Statement demonstrates how the proposed development responds to national, regional and local planning policy requirements, including those set out within the London Plan and Hillingdon Local Plan.

The key sustainability features of the Proposed Development include:

- Targeting a BREEAM ‘Excellent’ rating, with the Stage 2 pre-assessment demonstrating an achievable score of 73.09%;
- An energy-efficient building design incorporating low-carbon technologies and measures to reduce operational energy demand;
- A Whole Life-cycle Carbon and Circular Economy strategy focused on material efficiency, circular economy principles and the specification of low-carbon construction materials;
- Flood-resilient design measures and a site-wide Sustainable Drainage System (SuDS) strategy, including green roofs, permeable paving, rain gardens and attenuation features;
- Air-cooled cooling systems, water-efficient sanitary fittings and rainwater harvesting to minimise potable water consumption;
- Measures to minimise noise, air quality and lighting impacts during both construction and operation;
- Sustainable transport infrastructure including pedestrian and cycle connectivity, secure cycle parking, electric vehicle charging and a site-wide Travel Plan;
- An Urban Greening Factor score of 0.397, exceeding the London Plan target of 0.3 for predominantly non-residential developments;
- Significant landscape enhancements and extensive new tree planting to support the site's ecological value and landscape character;

- Ecological protection and enhancement measures informed by the Preliminary Ecological Appraisal and Arboricultural Assessment.

Overall, the Proposed Development incorporates a comprehensive range of sustainability measures and is considered to align with the objectives of national, regional and local planning policy.

Appendix A BRUKL Output Documents

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

2026-10-13 Green Fingers Part L Be Lean As designed

Date: Tue Oct 13 11:37:00 2026

Administrative information

Building Details

Address: Address 1, City, Postcode

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.30

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.30

BRUKL compliance module version: v6.1.e.1

Foundation area [m^2]: 8965.18

The CO_2 emission and primary energy rates of the building must not exceed the targets

Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	79.61	
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	47.33	
Target primary energy rate (TPER), $kWh_{PE}/m^2.annum$	869.24	
Building primary energy rate (BPER), $kWh_{PE}/m^2.annum$	516.5	
Do the building's emission and primary energy rates exceed the targets?	BER =< TER	BPER =< TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls*	0.26	0.26	0.26	L000002A:Surf[7]
Floors	0.18	0.18	0.18	L0000015:Surf[0]
Pitched roofs	0.16	-	-	No pitched roofs in building
Flat roofs	0.18	0.18	0.18	L00000A2:Surf[0]
Windows** and roof windows	1.6	1.6	1.6	L000002A:Surf[4]
Rooflights***	2.2	-	-	No roof lights in building
Personnel doors^	1.6	1.6	1.6	L000004C:Surf[1]
Vehicle access & similar large doors	1.3	1.3	1.3	L0000008:Surf[5]
High usage entrance doors	3	1.6	1.6	L0000044:Surf[10]

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [$W/(m^2K)$] $U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [$W/(m^2K)$]

$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [$W/(m^2K)$]

* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

** Display windows and similar glazing are excluded from the U-value check. *** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m^2K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
$m^3/(h.m^2)$ at 50 Pa	8	8

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	>0.95

1- _VRF with AHU

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	3.09	7.91	0	1.5	0.8
Standard value	2.5*	N/A	N/A	2^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.

^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

2- _Data Halls Chilled Water Fan Wall Units (VAV)

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	3.09	15	0	1.5	0.8
Standard value	2.5*	N/A	N/A	2^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.

^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

"No HWS in project, or hot water is provided by HVAC system"

Zone-level mechanical ventilation, exhaust, and terminal units

ID	**System type in the Approved Documents**
A	Local supply or extract ventilation units
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal balanced supply and extract ventilation system
E	Local balanced supply and extract ventilation units
F	Other local ventilation units
G	Fan assisted terminal variable air volume units
H	Fan coil units
I	Kitchen extract with the fan remote from the zone and a grease filter

NB: Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

Zone name	**SFP [W/(l/s)]**									**HR efficiency**	
ID of system type	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**		
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	**Zone**	**Standard**
L00 Acc. WC 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 Acc. WC 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 Cleaner's	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 Data Hall 01	-	-	-	-	-	-	-	0.6	-	-	N/A
L00 Data Hall 02	-	-	-	-	-	-	-	0.6	-	-	N/A
L00 Data Hall 03	-	-	-	-	-	-	-	0.6	-	-	N/A
L00 Data Hall 04	-	-	-	-	-	-	-	0.6	-	-	N/A
L00 Data Hall 05	-	-	-	-	-	-	-	0.6	-	-	N/A

Zone name	SFP [W/(l/s)]									HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard
L00 Data Hall 06	-	-	-	-	-	-	-	0.6	-	-	N/A
L00 DC Acc 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 DC Acc 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 DC WC's 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 DC WC's 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 WC	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 ACC WC 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 ACC WC 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 Cleaners 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 Cleaners 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 DC Acc. WC	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 DC Cleaner's	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 DC Data Hall 01	-	-	-	-	-	-	-	0.6	-	-	N/A
L01 DC Data Hall 02	-	-	-	-	-	-	-	0.6	-	-	N/A
L01 DC Data Hall 03	-	-	-	-	-	-	-	0.6	-	-	N/A
L01 DC Data Hall 04	-	-	-	-	-	-	-	0.6	-	-	N/A
L01 DC Data Hall 05	-	-	-	-	-	-	-	0.6	-	-	N/A
L01 DC Data Hall 06	-	-	-	-	-	-	-	0.6	-	-	N/A
L01 DC WC's 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 DC WC's 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 Female WC 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 Female WC 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 Male WC 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 Male WC 02	-	-	0.5	-	-	-	-	-	-	-	N/A

General lighting and display lighting	General luminaire	Display light source	
Zone name	Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m²]
Standard value	95	80	0.3
L00 Acc. WC 01	100	-	-
L00 Acc. WC 02	100	-	-
L00 Boardroom	120	-	-
L00 Ch.	120	-	-
L00 Circulation 01	120	-	-
L00 Circulation 02	120	-	-
L00 Circulation 03	120	-	-
L00 Circulation 04	120	-	-
L00 Cleaner's	120	-	-
L00 Cooling Corridor 01	120	-	-
L00 Cooling Corridor 02	120	-	-
L00 Cooling Corridor 03	120	-	-
L00 Cooling Corridor 04	120	-	-
L00 Cooling Corridor 05	120	-	-
L00 Cooling Corridor 06	120	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
L00 Corridor 01	120	-	-
L00 Corridor 02	120	-	-
L00 Corridor 03	120	-	-
L00 Corridor 04	120	-	-
L00 Corridor 05	120	-	-
L00 Corridor 06	120	-	-
L00 Corridor 07	120	-	-
L00 Corridor 08	120	-	-
L00 Corridor 09	120	-	-
L00 Corridor 10	120	-	-
L00 Corridor 11	120	-	-
L00 Corridor 12	120	-	-
L00 Corridor 13	120	-	-
L00 Corridor 14	120	-	-
L00 Corridor 15	120	-	-
L00 Corridor 16	120	-	-
L00 Corridor 17	120	-	-
L00 Corridor 18	120	-	-
L00 Corridor 19	120	-	-
L00 Corridor 20	120	-	-
L00 Corridor 21	120	-	-
L00 Corridor 22	120	-	-
L00 Corridor 23	120	-	-
L00 Corridor 24	120	-	-
L00 Customer Storage 01	120	-	-
L00 Customer Storage 02	120	-	-
L00 Customer Storage 03	120	-	-
L00 Customer Storage 04	120	-	-
L00 Customer Storage 05	120	-	-
L00 Customer Storage 06	120	-	-
L00 Customer Storage 07	120	-	-
L00 Customer Storage 08	120	-	-
L00 Data Hall 01	120	-	-
L00 Data Hall 02	120	-	-
L00 Data Hall 03	120	-	-
L00 Data Hall 04	120	-	-
L00 Data Hall 05	120	-	-
L00 Data Hall 06	120	-	-
L00 DC Acc 01	100	-	-
L00 DC Acc 02	100	-	-
L00 DC WC's 01	100	-	-
L00 DC WC's 02	100	-	-
L00 Debox	120	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
L00 Fibre 01	120	-	-
L00 Fibre 02	120	-	-
L00 Fibre 03	120	-	-
L00 Fibre 04	120	-	-
L00 Fibre Lobby 01	120	-	-
L00 Fibre Lobby 02	120	-	-
L00 Incoming Water	120	-	-
L00 Induct. Office	120	-	-
L00 Interlock	120	-	-
L00 Kitchen	120	-	-
L00 Lift Lobby 01	120	-	-
L00 Lift Lobby 02	120	-	-
L00 Lift Lobby 03	120	-	-
L00 Lift Lobby 04	120	-	-
L00 Loading Bay/Storage	120	-	-
L00 Main Lobby	120	-	-
L00 Permit Office	120	-	-
L00 Secure St.	120	-	-
L00 Security Office	120	-	-
L00 Shredder	120	-	-
L00 Stair 1	120	-	-
L00 Stair 2	120	-	-
L00 Stair 3	120	-	-
L00 Stair 4	120	-	-
L00 Stair 5	120	-	-
L00 Stair 5	120	-	-
L00 Stair 6	120	-	-
L00 Stair 7	120	-	-
L00 Store 01	120	-	-
L00 Store 02	120	-	-
L00 Tea	120	-	-
L00 Tube Lock 01	120	-	-
L00 Tube Lock 01	120	-	-
L00 Tube Lock 02	120	-	-
L00 Tube Lock 02	120	-	-
L00 Waste	120	-	-
L00 Watermist	120	-	-
L00 WC	100	-	-
L01 ACC WC 01	100	-	-
L01 ACC WC 02	100	-	-
L01 Breakroom 01	120	-	-
L01 Breakroom 02	120	-	-
L01 Cleaners 01	120	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
L01 Cleaners 02	120	-	-
L01 Control Office	120	-	-
L01 Corridor 01	120	-	-
L01 Corridor 02	120	-	-
L01 Corridor 03	120	-	-
L01 Corridor 04	120	-	-
L01 Corridor 05	120	-	-
L01 Customer Office 01	120	-	-
L01 Customer Office 02	120	-	-
L01 Customer Office 03	120	-	-
L01 Customer Office 04	120	-	-
L01 Customer Office 05	120	-	-
L01 Customer Office 06	120	-	-
L01 Customer Office 07	120	-	-
L01 DC Acc. WC	100	-	-
L01 DC Circulation 01	120	-	-
L01 DC Circulation 02	120	-	-
L01 DC Circulation 03	120	-	-
L01 DC Circulation 04	120	-	-
L01 DC Cleaner's	120	-	-
L01 DC Cooling Corridor 01	120	-	-
L01 DC Cooling Corridor 02	120	-	-
L01 DC Cooling Corridor 03	120	-	-
L01 DC Cooling Corridor 04	120	-	-
L01 DC Cooling Corridor 05	120	-	-
L01 DC Cooling Corridor 06	120	-	-
L01 DC Corridor 01	120	-	-
L01 DC Corridor 02	120	-	-
L01 DC Corridor 03	120	-	-
L01 DC Corridor 04	120	-	-
L01 DC Corridor 05	120	-	-
L01 DC Corridor 06	120	-	-
L01 DC Corridor 07	120	-	-
L01 DC Corridor 08	120	-	-
L01 DC Corridor 09	120	-	-
L01 DC Corridor 10	120	-	-
L01 DC Corridor 11	120	-	-
L01 DC Corridor 12	120	-	-
L01 DC Corridor 13	120	-	-
L01 DC Corridor 14	120	-	-
L01 DC Corridor 15	120	-	-
L01 DC Corridor 16	120	-	-
L01 DC Corridor 17	120	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
L01 DC Corridor 18	120	-	-
L01 DC Corridor 19	120	-	-
L01 DC Corridor 20	120	-	-
L01 DC Corridor 21	120	-	-
L01 DC Corridor 22	120	-	-
L01 DC Corridor 23	120	-	-
L01 DC Data Hall 01	120	-	-
L01 DC Data Hall 02	120	-	-
L01 DC Data Hall 03	120	-	-
L01 DC Data Hall 04	120	-	-
L01 DC Data Hall 05	120	-	-
L01 DC Data Hall 06	120	-	-
L01 DC Lift Lobby 02	120	-	-
L01 DC Lift Lobby 03	120	-	-
L01 DC Mechanical Plant 01	120	-	-
L01 DC Mechanical Plant 02	120	-	-
L01 DC Stair 2	120	-	-
L01 DC Stair 3	120	-	-
L01 DC Stair 5	120	-	-
L01 DC Stair 6	120	-	-
L01 DC Stair 7	120	-	-
L01 DC Stair 8	120	-	-
L01 DC Store 01	120	-	-
L01 DC Store 02	120	-	-
L01 DC Store Lobby 01	120	-	-
L01 DC Store Lobby 02	120	-	-
L01 DC WC's 01	100	-	-
L01 DC WC's 02	100	-	-
L01 Female WC 01	100	-	-
L01 Female WC 02	100	-	-
L01 FM Office	120	-	-
L01 Lift Lobby 01	120	-	-
L01 Lift Lobby 02	120	-	-
L01 Lift Lobby 03	120	-	-
L01 Lift Lobby 04	120	-	-
L01 Male WC 01	100	-	-
L01 Male WC 02	100	-	-
L01 Meeting Room	120	-	-
L01 PvT Office	120	-	-
L01 Stair 1	120	-	-
L01 Stair 2	120	-	-
L01 Stair 3	120	-	-
L01 Stair 4	120	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
L01 Storage 01	120	-	-
L01 Storage 02	120	-	-
L01 Open Office 01 Int	120	-	-
L01 Open Office 01 Per	120	-	-
L01 Open Office 02 Int	120	-	-
L01 Open Office 02 Per	120	-	-

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L00 Acc. WC 01	N/A	N/A
L00 Acc. WC 02	N/A	N/A
L00 Boardroom	YES (+21.5%)	NO
L00 Customer Storage 01	YES (+76.1%)	NO
L00 Customer Storage 02	YES (+22%)	NO
L00 Customer Storage 03	YES (+22.3%)	NO
L00 Customer Storage 04	YES (+22.3%)	NO
L00 Customer Storage 05	YES (+21.8%)	NO
L00 Customer Storage 06	YES (+22.3%)	NO
L00 Customer Storage 07	YES (+22.1%)	NO
L00 Customer Storage 08	YES (+78.8%)	NO
L00 Data Hall 01	N/A	N/A
L00 Data Hall 02	N/A	N/A
L00 Data Hall 03	N/A	N/A
L00 Data Hall 04	N/A	N/A
L00 Data Hall 05	N/A	N/A
L00 Data Hall 06	N/A	N/A
L00 DC Acc 01	N/A	N/A
L00 DC Acc 02	N/A	N/A
L00 DC WC's 01	N/A	N/A
L00 DC WC's 02	N/A	N/A
L00 Debox	N/A	N/A
L00 Fibre 01	N/A	N/A
L00 Fibre 02	N/A	N/A
L00 Fibre 03	N/A	N/A
L00 Fibre 04	N/A	N/A
L00 Incoming Water	N/A	N/A
L00 Induct. Office	N/A	N/A
L00 Kitchen	N/A	N/A
L00 Loading Bay/Storage	N/A	N/A
L00 Permit Office	N/A	N/A
L00 Secure St.	N/A	N/A
L00 Security Office	N/A	N/A
L00 Shredder	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L00 Waste	N/A	N/A
L00 Watermist	N/A	N/A
L00 WC	N/A	N/A
L01 ACC WC 01	N/A	N/A
L01 ACC WC 02	N/A	N/A
L01 Control Office	YES (+101.6%)	NO
L01 Customer Office 01	YES (+19.8%)	NO
L01 Customer Office 02	YES (+49.1%)	NO
L01 Customer Office 03	YES (+7.2%)	NO
L01 Customer Office 04	N/A	N/A
L01 Customer Office 05	YES (+36.8%)	NO
L01 Customer Office 06	YES (+49.8%)	NO
L01 Customer Office 07	YES (+24.7%)	NO
L01 DC Acc. WC	N/A	N/A
L01 DC Data Hall 01	N/A	N/A
L01 DC Data Hall 02	N/A	N/A
L01 DC Data Hall 03	N/A	N/A
L01 DC Data Hall 04	N/A	N/A
L01 DC Data Hall 05	N/A	N/A
L01 DC Data Hall 06	N/A	N/A
L01 DC Mechanical Plant 01	N/A	N/A
L01 DC Mechanical Plant 02	N/A	N/A
L01 DC WC's 01	N/A	N/A
L01 DC WC's 02	N/A	N/A
L01 Female WC 01	N/A	N/A
L01 Female WC 02	N/A	N/A
L01 FM Office	YES (+54.3%)	NO
L01 Male WC 01	N/A	N/A
L01 Male WC 02	N/A	N/A
L01 Meeting Room	YES (+101.3%)	NO
L01 PvT Office	N/A	N/A
L01 Open Office 01 Int	N/A	N/A
L01 Open Office 01 Per	NO (-16.6%)	NO
L01 Open Office 02 Int	N/A	N/A
L01 Open Office 02 Per	NO (-16.6%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m^2]	27408.9	27408.9
External area [m^2]	39019	39019
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	8	3
Average conductance [W/K]	9387.29	9410.69
Average U-value [W/m^2K]	0.24	0.24
Alpha value* [%]	25.05	10

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
7	**Offices and Workshop Businesses**
	General Industrial and Special Industrial Groups
	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
93	**Others: Miscellaneous 24hr Activities**
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m^2]

	Actual	Notional
Heating	1.29	0.2
Cooling	158.26	471.87
Auxiliary	156.56	75.16
Lighting	33.7	42
Hot water	0.49	0.47
Equipment*	2235.59	2235.59
TOTAL**	**350.29**	**589.69**

* Energy used by equipment does not count towards the total for consumption or calculating emissions.
** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m^2]

	Actual	Notional
Photovoltaic systems	0	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*0*	*0*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	7746.62	7869.85
Primary energy [kWh_{PE}/m^2]	516.5	869.24
Total emissions [kg/m^2]	47.33	79.61

HVAC Systems Performance

System Type		Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Fan coil systems, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	0	15225.4	0	311	306.5	2.78	13.6	3.09	15
	Notional	0	15473.8	0	928	144.4	2.78	4.63	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	87.1	139.7	8.7	4.9	8.5	2.78	7.91	3.09	7.91
	Notional	13.3	196.5	1.3	11.8	13.4	2.78	4.63	----	----
[ST] No Heating or Cooling										
	Actual	0	0	0	0	0	0	0	0	0
	Notional	0	0	0	0	0	0	0	----	----

Key to terms

Heat dem [MJ/m2] = Heating energy demand
Cool dem [MJ/m2] = Cooling energy demand
Heat con [kWh/m2] = Heating energy consumption
Cool con [kWh/m2] = Cooling energy consumption
Aux con [kWh/m2] = Auxiliary energy consumption
Heat SSEFF = Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER = Cooling system seasonal energy efficiency ratio
Heat gen SSEFF = Heating generator seasonal efficiency
Cool gen SSEER = Cooling generator seasonal energy efficiency ratio
ST = System type
HS = Heat source
HFT = Heating fuel type
CFT = Cooling fuel type

BRUKL Output Document

HM Government

Compliance with England Building Regulations Part L 2021

Project name

2026_09_28 Green Fingers Part L_Be green_Ver2

As designed

Date: Mon Sep 28 14:33:45 2026

Administrative information

Building Details

Address: Address 1, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.30

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.30

BRUKL compliance module version: v6.1.e.1

Certifier details

Name: Name

Telephone number: Phone

Address: Street Address, City, Postcode

Foundation area [m^2]: 8965.18

The CO_2 emission and primary energy rates of the building must not exceed the targets

Target CO_2 emission rate (TER), $kgCO_2/m^2.annum$	79.61	
Building CO_2 emission rate (BER), $kgCO_2/m^2.annum$	46.06	
Target primary energy rate (TPER), $kWh_{PE}/m^2.annum$	869.24	
Building primary energy rate (BPER), $kWh_{PE}/m^2.annum$	501.78	
Do the building's emission and primary energy rates exceed the targets?	BER =< TER	BPER =< TPER

The performance of the building fabric and fixed building services should achieve reasonable overall standards of energy efficiency

Fabric element	$U_{a\text{-}Limit}$	$U_{a\text{-}Calc}$	$U_{i\text{-}Calc}$	First surface with maximum value
Walls*	0.26	0.26	0.26	L000002A:Surf[7]
Floors	0.18	0.18	0.18	L0000015:Surf[0]
Pitched roofs	0.16	-	-	No pitched roofs in building
Flat roofs	0.18	0.18	0.18	L00000A2:Surf[0]
Windows** and roof windows	1.6	1.6	1.6	L000002A:Surf[4]
Rooflights***	2.2	-	-	No roof lights in building
Personnel doors^	1.6	1.6	1.6	L000004C:Surf[1]
Vehicle access & similar large doors	1.3	1.3	1.3	L0000008:Surf[5]
High usage entrance doors	3	1.6	1.6	L0000044:Surf[10]

$U_{a\text{-}Limit}$ = Limiting area-weighted average U-values [$W/(m^2K)$] $U_{i\text{-}Calc}$ = Calculated maximum individual element U-values [$W/(m^2K)$]

$U_{a\text{-}Calc}$ = Calculated area-weighted average U-values [$W/(m^2K)$]

* Automatic U-value check by the tool does not apply to curtain walls whose limiting standard is similar to that for windows.

** Display windows and similar glazing are excluded from the U-value check. *** Values for rooflights refer to the horizontal position.

^ For fire doors, limiting U-value is 1.8 W/m^2K

NB: Neither roof ventilators (inc. smoke vents) nor swimming pool basins are modelled or checked against the limiting standards by the tool.

Air permeability	Limiting standard	This building
$m^3/(h.m^2)$ at 50 Pa	8	8

Building services

For details on the standard values listed below, system-specific guidance, and additional regulatory requirements, refer to the Approved Documents.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	YES
Whole building electric power factor achieved by power factor correction	>0.95

1- _VRF with AHU

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	4.49	7.91	0	1.5	0.8
Standard value	2.5*	N/A	N/A	2^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.

^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

2- _Data Halls Chilled Water Fan Wall Units (VAV)

	Heating efficiency	**Cooling efficiency**	**Radiant efficiency**	**SFP [W/(l/s)]**	**HR efficiency**
This system	2.78	15	0	1.5	0.8
Standard value	2.5*	N/A	N/A	2^	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					YES

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps.

^ Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

"No HWS in project, or hot water is provided by HVAC system"

Zone-level mechanical ventilation, exhaust, and terminal units

ID	**System type in the Approved Documents**
A	Local supply or extract ventilation units
B	Zonal supply system where the fan is remote from the zone
C	Zonal extract system where the fan is remote from the zone
D	Zonal balanced supply and extract ventilation system
E	Local balanced supply and extract ventilation units
F	Other local ventilation units
G	Fan assisted terminal variable air volume units
H	Fan coil units
I	Kitchen extract with the fan remote from the zone and a grease filter

NB: Limiting SFP may be increased by the amounts specified in the Approved Documents if the installation includes particular components.

Zone name	**SFP [W/(l/s)]**									**HR efficiency**	
ID of system type	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**		
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	**Zone**	**Standard**
L00 Acc. WC 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 Acc. WC 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 Cleaner's	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 Data Hall 01	-	-	-	-	-	-	-	0.6	-	-	N/A
L00 Data Hall 02	-	-	-	-	-	-	-	0.6	-	-	N/A
L00 Data Hall 03	-	-	-	-	-	-	-	0.6	-	-	N/A
L00 Data Hall 04	-	-	-	-	-	-	-	0.6	-	-	N/A
L00 Data Hall 05	-	-	-	-	-	-	-	0.6	-	-	N/A

Zone name	SFP [W/(l/s)]									HR efficiency	
ID of system type	A	B	C	D	E	F	G	H	I		
Standard value	0.3	1.1	0.5	2.3	2	0.5	0.5	0.4	1	Zone	Standard
L00 Data Hall 06	-	-	-	-	-	-	-	0.6	-	-	N/A
L00 DC Acc 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 DC Acc 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 DC WC's 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 DC WC's 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L00 WC	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 ACC WC 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 ACC WC 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 Cleaners 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 Cleaners 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 DC Acc. WC	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 DC Cleaner's	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 DC Data Hall 01	-	-	-	-	-	-	-	0.6	-	-	N/A
L01 DC Data Hall 02	-	-	-	-	-	-	-	0.6	-	-	N/A
L01 DC Data Hall 03	-	-	-	-	-	-	-	0.6	-	-	N/A
L01 DC Data Hall 04	-	-	-	-	-	-	-	0.6	-	-	N/A
L01 DC Data Hall 05	-	-	-	-	-	-	-	0.6	-	-	N/A
L01 DC Data Hall 06	-	-	-	-	-	-	-	0.6	-	-	N/A
L01 DC WC's 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 DC WC's 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 Female WC 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 Female WC 02	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 Male WC 01	-	-	0.5	-	-	-	-	-	-	-	N/A
L01 Male WC 02	-	-	0.5	-	-	-	-	-	-	-	N/A

General lighting and display lighting	General luminaire	Display light source	
Zone name	Efficacy [lm/W]	Efficacy [lm/W]	Power density [W/m²]
Standard value	95	80	0.3
L00 Acc. WC 01	100	-	-
L00 Acc. WC 02	100	-	-
L00 Boardroom	120	-	-
L00 Ch.	120	-	-
L00 Circulation 01	120	-	-
L00 Circulation 02	120	-	-
L00 Circulation 03	120	-	-
L00 Circulation 04	120	-	-
L00 Cleaner's	120	-	-
L00 Cooling Corridor 01	120	-	-
L00 Cooling Corridor 02	120	-	-
L00 Cooling Corridor 03	120	-	-
L00 Cooling Corridor 04	120	-	-
L00 Cooling Corridor 05	120	-	-
L00 Cooling Corridor 06	120	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
L00 Corridor 01	120	-	-
L00 Corridor 02	120	-	-
L00 Corridor 03	120	-	-
L00 Corridor 04	120	-	-
L00 Corridor 05	120	-	-
L00 Corridor 06	120	-	-
L00 Corridor 07	120	-	-
L00 Corridor 08	120	-	-
L00 Corridor 09	120	-	-
L00 Corridor 10	120	-	-
L00 Corridor 11	120	-	-
L00 Corridor 12	120	-	-
L00 Corridor 13	120	-	-
L00 Corridor 14	120	-	-
L00 Corridor 15	120	-	-
L00 Corridor 16	120	-	-
L00 Corridor 17	120	-	-
L00 Corridor 18	120	-	-
L00 Corridor 19	120	-	-
L00 Corridor 20	120	-	-
L00 Corridor 21	120	-	-
L00 Corridor 22	120	-	-
L00 Corridor 23	120	-	-
L00 Corridor 24	120	-	-
L00 Customer Storage 01	120	-	-
L00 Customer Storage 02	120	-	-
L00 Customer Storage 03	120	-	-
L00 Customer Storage 04	120	-	-
L00 Customer Storage 05	120	-	-
L00 Customer Storage 06	120	-	-
L00 Customer Storage 07	120	-	-
L00 Customer Storage 08	120	-	-
L00 Data Hall 01	120	-	-
L00 Data Hall 02	120	-	-
L00 Data Hall 03	120	-	-
L00 Data Hall 04	120	-	-
L00 Data Hall 05	120	-	-
L00 Data Hall 06	120	-	-
L00 DC Acc 01	100	-	-
L00 DC Acc 02	100	-	-
L00 DC WC's 01	100	-	-
L00 DC WC's 02	100	-	-
L00 Debox	120	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
L00 Fibre 01	120	-	-
L00 Fibre 02	120	-	-
L00 Fibre 03	120	-	-
L00 Fibre 04	120	-	-
L00 Fibre Lobby 01	120	-	-
L00 Fibre Lobby 02	120	-	-
L00 Incoming Water	120	-	-
L00 Induct. Office	120	-	-
L00 Interlock	120	-	-
L00 Kitchen	120	-	-
L00 Lift Lobby 01	120	-	-
L00 Lift Lobby 02	120	-	-
L00 Lift Lobby 03	120	-	-
L00 Lift Lobby 04	120	-	-
L00 Loading Bay/Storage	120	-	-
L00 Main Lobby	120	-	-
L00 Permit Office	120	-	-
L00 Secure St.	120	-	-
L00 Security Office	120	-	-
L00 Shredder	120	-	-
L00 Stair 1	120	-	-
L00 Stair 2	120	-	-
L00 Stair 3	120	-	-
L00 Stair 4	120	-	-
L00 Stair 5	120	-	-
L00 Stair 5	120	-	-
L00 Stair 6	120	-	-
L00 Stair 7	120	-	-
L00 Store 01	120	-	-
L00 Store 02	120	-	-
L00 Tea	120	-	-
L00 Tube Lock 01	120	-	-
L00 Tube Lock 01	120	-	-
L00 Tube Lock 02	120	-	-
L00 Tube Lock 02	120	-	-
L00 Waste	120	-	-
L00 Watermist	120	-	-
L00 WC	100	-	-
L01 ACC WC 01	100	-	-
L01 ACC WC 02	100	-	-
L01 Breakroom 01	120	-	-
L01 Breakroom 02	120	-	-
L01 Cleaners 01	120	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
L01 Cleaners 02	120	-	-
L01 Control Office	120	-	-
L01 Corridor 01	120	-	-
L01 Corridor 02	120	-	-
L01 Corridor 03	120	-	-
L01 Corridor 04	120	-	-
L01 Corridor 05	120	-	-
L01 Customer Office 01	120	-	-
L01 Customer Office 02	120	-	-
L01 Customer Office 03	120	-	-
L01 Customer Office 04	120	-	-
L01 Customer Office 05	120	-	-
L01 Customer Office 06	120	-	-
L01 Customer Office 07	120	-	-
L01 DC Acc. WC	100	-	-
L01 DC Circulation 01	120	-	-
L01 DC Circulation 02	120	-	-
L01 DC Circulation 03	120	-	-
L01 DC Circulation 04	120	-	-
L01 DC Cleaner's	120	-	-
L01 DC Cooling Corridor 01	120	-	-
L01 DC Cooling Corridor 02	120	-	-
L01 DC Cooling Corridor 03	120	-	-
L01 DC Cooling Corridor 04	120	-	-
L01 DC Cooling Corridor 05	120	-	-
L01 DC Cooling Corridor 06	120	-	-
L01 DC Corridor 01	120	-	-
L01 DC Corridor 02	120	-	-
L01 DC Corridor 03	120	-	-
L01 DC Corridor 04	120	-	-
L01 DC Corridor 05	120	-	-
L01 DC Corridor 06	120	-	-
L01 DC Corridor 07	120	-	-
L01 DC Corridor 08	120	-	-
L01 DC Corridor 09	120	-	-
L01 DC Corridor 10	120	-	-
L01 DC Corridor 11	120	-	-
L01 DC Corridor 12	120	-	-
L01 DC Corridor 13	120	-	-
L01 DC Corridor 14	120	-	-
L01 DC Corridor 15	120	-	-
L01 DC Corridor 16	120	-	-
L01 DC Corridor 17	120	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
L01 DC Corridor 18	120	-	-
L01 DC Corridor 19	120	-	-
L01 DC Corridor 20	120	-	-
L01 DC Corridor 21	120	-	-
L01 DC Corridor 22	120	-	-
L01 DC Corridor 23	120	-	-
L01 DC Data Hall 01	120	-	-
L01 DC Data Hall 02	120	-	-
L01 DC Data Hall 03	120	-	-
L01 DC Data Hall 04	120	-	-
L01 DC Data Hall 05	120	-	-
L01 DC Data Hall 06	120	-	-
L01 DC Lift Lobby 02	120	-	-
L01 DC Lift Lobby 03	120	-	-
L01 DC Mechanical Plant 01	120	-	-
L01 DC Mechanical Plant 02	120	-	-
L01 DC Stair 2	120	-	-
L01 DC Stair 3	120	-	-
L01 DC Stair 5	120	-	-
L01 DC Stair 6	120	-	-
L01 DC Stair 7	120	-	-
L01 DC Stair 8	120	-	-
L01 DC Store 01	120	-	-
L01 DC Store 02	120	-	-
L01 DC Store Lobby 01	120	-	-
L01 DC Store Lobby 02	120	-	-
L01 DC WC's 01	100	-	-
L01 DC WC's 02	100	-	-
L01 Female WC 01	100	-	-
L01 Female WC 02	100	-	-
L01 FM Office	120	-	-
L01 Lift Lobby 01	120	-	-
L01 Lift Lobby 02	120	-	-
L01 Lift Lobby 03	120	-	-
L01 Lift Lobby 04	120	-	-
L01 Male WC 01	100	-	-
L01 Male WC 02	100	-	-
L01 Meeting Room	120	-	-
L01 PvT Office	120	-	-
L01 Stair 1	120	-	-
L01 Stair 2	120	-	-
L01 Stair 3	120	-	-
L01 Stair 4	120	-	-

General lighting and display lighting	General luminaire	Display light source	
Zone name	**Efficacy [lm/W]**	**Efficacy [lm/W]**	**Power density [W/m²]**
Standard value	95	80	0.3
L01 Storage 01	120	-	-
L01 Storage 02	120	-	-
L01 Open Office 01 Int	120	-	-
L01 Open Office 01 Per	120	-	-
L01 Open Office 02 Int	120	-	-
L01 Open Office 02 Per	120	-	-

The spaces in the building should have appropriate passive control measures to limit solar gains in summer

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L00 Acc. WC 01	N/A	N/A
L00 Acc. WC 02	N/A	N/A
L00 Boardroom	YES (+21.5%)	NO
L00 Customer Storage 01	YES (+76.1%)	NO
L00 Customer Storage 02	YES (+22%)	NO
L00 Customer Storage 03	YES (+22.3%)	NO
L00 Customer Storage 04	YES (+22.3%)	NO
L00 Customer Storage 05	YES (+21.8%)	NO
L00 Customer Storage 06	YES (+22.3%)	NO
L00 Customer Storage 07	YES (+22.1%)	NO
L00 Customer Storage 08	YES (+78.8%)	NO
L00 Data Hall 01	N/A	N/A
L00 Data Hall 02	N/A	N/A
L00 Data Hall 03	N/A	N/A
L00 Data Hall 04	N/A	N/A
L00 Data Hall 05	N/A	N/A
L00 Data Hall 06	N/A	N/A
L00 DC Acc 01	N/A	N/A
L00 DC Acc 02	N/A	N/A
L00 DC WC's 01	N/A	N/A
L00 DC WC's 02	N/A	N/A
L00 Debox	N/A	N/A
L00 Fibre 01	N/A	N/A
L00 Fibre 02	N/A	N/A
L00 Fibre 03	N/A	N/A
L00 Fibre 04	N/A	N/A
L00 Incoming Water	N/A	N/A
L00 Induct. Office	N/A	N/A
L00 Kitchen	N/A	N/A
L00 Loading Bay/Storage	N/A	N/A
L00 Permit Office	N/A	N/A
L00 Secure St.	N/A	N/A
L00 Security Office	N/A	N/A
L00 Shredder	N/A	N/A

Zone	Solar gain limit exceeded? (%)	Internal blinds used?
L00 Waste	N/A	N/A
L00 Watermist	N/A	N/A
L00 WC	N/A	N/A
L01 ACC WC 01	N/A	N/A
L01 ACC WC 02	N/A	N/A
L01 Control Office	YES (+101.6%)	NO
L01 Customer Office 01	YES (+19.8%)	NO
L01 Customer Office 02	YES (+49.1%)	NO
L01 Customer Office 03	YES (+7.2%)	NO
L01 Customer Office 04	N/A	N/A
L01 Customer Office 05	YES (+36.8%)	NO
L01 Customer Office 06	YES (+49.8%)	NO
L01 Customer Office 07	YES (+24.7%)	NO
L01 DC Acc. WC	N/A	N/A
L01 DC Data Hall 01	N/A	N/A
L01 DC Data Hall 02	N/A	N/A
L01 DC Data Hall 03	N/A	N/A
L01 DC Data Hall 04	N/A	N/A
L01 DC Data Hall 05	N/A	N/A
L01 DC Data Hall 06	N/A	N/A
L01 DC Mechanical Plant 01	N/A	N/A
L01 DC Mechanical Plant 02	N/A	N/A
L01 DC WC's 01	N/A	N/A
L01 DC WC's 02	N/A	N/A
L01 Female WC 01	N/A	N/A
L01 Female WC 02	N/A	N/A
L01 FM Office	YES (+54.3%)	NO
L01 Male WC 01	N/A	N/A
L01 Male WC 02	N/A	N/A
L01 Meeting Room	YES (+101.3%)	NO
L01 PvT Office	N/A	N/A
L01 Open Office 01 Int	N/A	N/A
L01 Open Office 01 Per	NO (-16.6%)	NO
L01 Open Office 02 Int	N/A	N/A
L01 Open Office 02 Per	NO (-16.6%)	NO

Regulation 25A: Consideration of high efficiency alternative energy systems

Were alternative energy systems considered and analysed as part of the design process?	YES
Is evidence of such assessment available as a separate submission?	YES
Are any such measures included in the proposed design?	YES

Technical Data Sheet (Actual vs. Notional Building)

Building Global Parameters

	Actual	Notional
Floor area [m^2]	27408.9	27408.9
External area [m^2]	39019	39019
Weather	LON	LON
Infiltration [m^3/hm^2@ 50Pa]	8	3
Average conductance [W/K]	9387.29	9410.69
Average U-value [W/m^2K]	0.24	0.24
Alpha value* [%]	25.05	10

* Percentage of the building's average heat transfer coefficient which is due to thermal bridging

Building Use

% Area	Building Type
	Retail/Financial and Professional Services
	Restaurants and Cafes/Drinking Establishments/Takeaways
7	**Offices and Workshop Businesses**
	General Industrial and Special Industrial Groups
	Storage or Distribution
	Hotels
	Residential Institutions: Hospitals and Care Homes
	Residential Institutions: Residential Schools
	Residential Institutions: Universities and Colleges
	Secure Residential Institutions
	Residential Spaces
	Non-residential Institutions: Community/Day Centre
	Non-residential Institutions: Libraries, Museums, and Galleries
	Non-residential Institutions: Education
	Non-residential Institutions: Primary Health Care Building
	Non-residential Institutions: Crown and County Courts
	General Assembly and Leisure, Night Clubs, and Theatres
	Others: Passenger Terminals
	Others: Emergency Services
93	**Others: Miscellaneous 24hr Activities**
	Others: Car Parks 24 hrs
	Others: Stand Alone Utility Block

Energy Consumption by End Use [kWh/m^2]

	Actual	Notional
Heating	0.8	0.2
Cooling	158.26	471.87
Auxiliary	156.56	75.16
Lighting	33.7	42
Hot water	0.49	0.47
Equipment*	2235.59	2235.59
TOTAL**	**349.8**	**589.69**

* Energy used by equipment does not count towards the total for consumption or calculating emissions.
** Total is net of any electrical energy displaced by CHP generators, if applicable.

Energy Production by Technology [kWh/m^2]

	Actual	Notional
Photovoltaic systems	9.57	0
Wind turbines	0	0
CHP generators	0	0
Solar thermal systems	0	0
Displaced electricity	*9.57*	*0*

Energy & CO_2 Emissions Summary

	Actual	Notional
Heating + cooling demand [MJ/m^2]	7746.44	7869.85
Primary energy [kWh_{PE}/m^2]	501.79	869.24
Total emissions [kg/m^2]	46.06	79.61

HVAC Systems Performance

System Type		Heat dem MJ/m2	Cool dem MJ/m2	Heat con kWh/m2	Cool con kWh/m2	Aux con kWh/m2	Heat SSEEF	Cool SSEER	Heat gen SEFF	Cool gen SEER
[ST] Fan coil systems, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	0	15225.4	0	311	306.5	2.78	13.6	2.78	15
	Notional	0	15473.8	0	928	144.4	2.78	4.63	----	----
[ST] Variable refrigerant flow, [HS] ASHP, [HFT] Electricity, [CFT] Electricity										
	Actual	87.2	138.4	5.4	4.9	8.5	4.49	7.91	4.49	7.91
	Notional	13.3	196.5	1.3	11.8	13.4	2.78	4.63	----	----
[ST] No Heating or Cooling										
	Actual	0	0	0	0	0	0	0	0	0
	Notional	0	0	0	0	0	0	0	----	----

Key to terms

Heat dem [MJ/m2] = Heating energy demand
Cool dem [MJ/m2] = Cooling energy demand
Heat con [kWh/m2] = Heating energy consumption
Cool con [kWh/m2] = Cooling energy consumption
Aux con [kWh/m2] = Auxiliary energy consumption
Heat SSEFF = Heating system seasonal efficiency (for notional building, value depends on activity glazing class)
Cool SSEER = Cooling system seasonal energy efficiency ratio
Heat gen SSEFF = Heating generator seasonal efficiency
Cool gen SSEER = Cooling generator seasonal energy efficiency ratio
ST = System type
HS = Heat source
HFT = Heating fuel type
CFT = Cooling fuel type

Appendix B PV Roof Layouts

Main Roof

Main Roof

Green Wall below

Green Wall below

Gantry above

Gantry above

Gantry above

Gantry above

Stair 7

Stair 8

Stair 3

Stair 4

Lobby

Lobby

UPS-EPOD

UPS-EPOD

UPS-EPOD

UPS-EPOD

LV-EPOD

Lvl 8.74

Lvl 8.74

BIO-SOLAR GREEN ROOF

BIO-SOLAR GREEN ROOF BELOW

12500.00

13850.00

13850.00

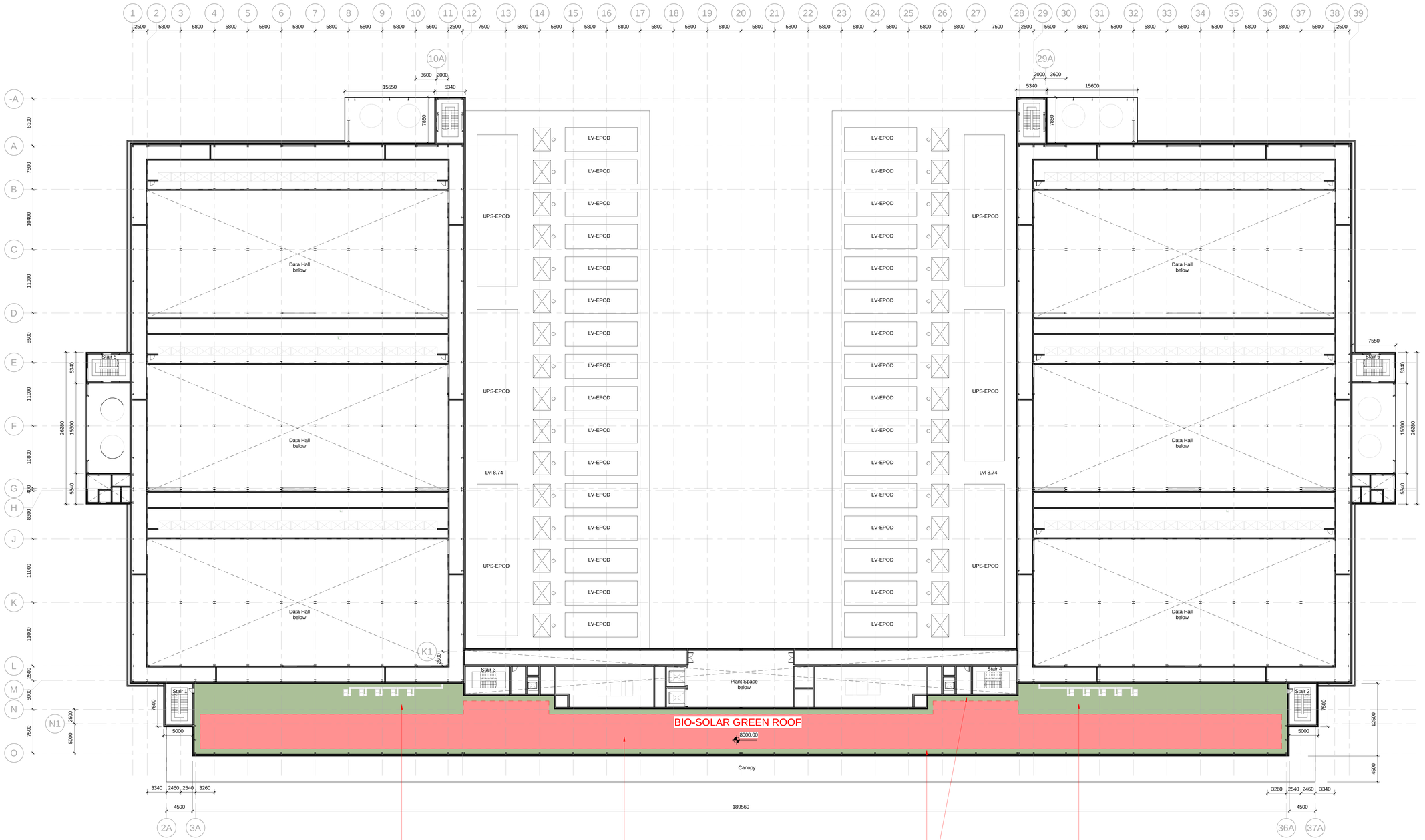
1.50°

FE

Clear corridor between Stair 3 and Stair 4.
Clear width to match lobby.

PV area shown in red

1m min. clear width around PV area



2m min. clear width between PV area and Heat Pumps

PV area shown in red

1m min. clear width around PV area

2m min. clear width between PV area and Heat Pumps

Appendix C NESO Engagement

The Company Secretary
Virtus Holdco Limited
4th Floor 20 Balderton Street
London
England
W1K 6TL

National Energy System Operator
Faraday House
Gallows Hill
Warwick
CV34 6DA
Neso.energy

8th October 2026

[redacted]

For the attention of Helen Kinsman

Dear Sir/Madam,

AGREEMENT TO VARY IN RESPECT OF VIRTUS BATH ROAD AT LALEHAM 132KV SUBSTATION WITH REFERENCE A/VDCL/21/3008-EX(3).

I am pleased to enclose a Modification Offer (the "**Gate 2 Modification Offer**") in respect of the Bilateral Connection Agreement and Construction Agreement for Virtus Bath Road at Laleham 132kV Substation (the "**Existing Agreements**").

The **Gate 2 Modification Offer** comprises the following:

- An Agreement to Vary the Bilateral Connection Agreement and Construction Agreement for Virtus Bath Road with reference A/VDCL/21/3008-EX(3)
- For the Bilateral Connection Agreement updated Appendices A, B, and F-F5
- For the Construction Agreement Appendices B1, G, H, I, J, K, L, N, O, and Q
- Final Sums

Summary

The outcome of the **Gated Process for Projects with Existing Agreements** is that the above **Existing Agreements** have been given the status of **Gate 2 Existing Agreements**. This **Gate 2 Modification**

Offer updates the Bilateral Connection Agreement and Construction Agreement as provided for at CUSC Section 18 Paragraph 18.14.2 and to recognise (and where things have changed, including as a consequence of your **EA Request**) to reflect the outcome of **Existing Application Gated Design Process** in accordance with the **Connection Network Design Methodology.**

Acceptance

I hope that the terms of this **Gate 2 Modification Offer** are acceptable. This **Gate 2 Modification Offer** will be open for acceptance until **6th January 2027**

To confirm acceptance of the Offer, please follow the steps using the e-signing functionality, CongaSign to sign the agreement(s). For information on any issues with CongaSign, please refer to the e-signing user guidance on the NESO Website. We shall then arrange to have the documents signed for and on behalf of The Company and dated, at which time the agreements will become effective. A PDF copy of the agreements will then be returned to you for your records.

We kindly ask you to read the guidance on the NESO website to support you with your offer: Understanding your offer and the support available to you | National Energy System Operator.

In the event that this **Gate 2 Modification Offer** is not accepted by you in the timescales above, the status of the **Existing Agreements** as they relate to stage 1 will be changed to **Gate 1 Existing Agreements** and a **Gate 1 ATV issued** for this.

Queries

All queries in relation to this **Gate 2 Modification Offer** should be submitted in the Connections portal using the Connections Offer Feedback Proforma template that can be found on the website in the 'raising a query' box here: Understanding your offer and the support available to you | National Energy System Operator. Ensure you use the template that aligns to your project.

To do this, please attach the completed template to a portal query with the subject: "Project Name - Offer Number - Post Offer Queries".

All post-offer queries need to be submitted within **4 weeks** of offer receipt to ensure sufficient time for NESO and Transmission Owners to resolve any matters raised prior to offer expiry. We cannot guarantee that queries submitted beyond 4 weeks will be resolved in the required acceptance period.

Yours faithfully



RACHEL THOMAS

E&W DNO AND DEMAND CONNECTIONS OPERATIONS MANAGER

FOR AND ON BEHALF OF

NATIONAL ENERGY SYSTEM OPERATOR LIMITED