



RIDGE

**REDEVELOPMENT OF DEACON
BUSINESS PARK, KNOWSLEY
SUSTAINABILITY AND ENERGY
STATEMENT**

January 2023

5020697 REDEVELOPMENT OF DEACON BUSINESS PARK, KNOWSLEY

SUSTAINABILITY AND ENERGY STATEMENT

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Prepared for

EEIP II Arundel Propco 2 Holdings Ltd.

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CONTENTS

1. INTRODUCTION	3
2. LOCAL PLANNING CONTEXT	3
3. SUSTAINABILITY STATEMENT	6
3.1. Promoting Sustainable Transport and Accessibility	6
3.1.1. Current Environment	6
3.1.2. Impacts of Proposals on the Existing Highway Network	7
3.1.3. Sustainable Transport Solutions	7
3.1.4. Inclusive Access	8
3.2. High Quality Design	8
3.2.1. Health and Wellbeing	8
3.2.2. Design Principles and Place Setting	8
3.2.3. Security	9
3.2.4. Environmental Assessments – BREEAM	9
3.3. Flood Risk, Drainage and Water Resource Management	10
3.3.1. Flood Risk	11
3.3.2. Surface Water Management	11
3.3.3. Water Efficiency and Protection	12
3.4. Material Resource Efficiency	12
3.4.1. Reuse of Land and Infrastructure	13
3.4.2. Sustainable Procurement	13
3.4.3. Waste Management	14
3.4.4. Minimising Construction Waste	14
3.4.5. Minimising Operational Waste	15
3.5. Ecology and Biodiversity	15
3.5.1. Protection of Nature and Landscape	15
4. ENERGY STRATEGY	16
4.1. Building Regulations (Part L)	16
4.2. Implementing the Energy Hierarchy	17
4.2.1. Being Lean – Minimising Energy Use	17
4.2.2. Being Mean – Energy Efficient Building Services	18
4.2.3. Being Green - Low and Zero Carbon Technologies	19
4.3. Predicting Operational Energy Use	19
4.4. Climate Change Resilience	20
5. SUMMARY	21
APPENDIX A – OUTLINE BRUKL OUTPUT REPORT	24

1. INTRODUCTION

Ridge & Partners LLP have been appointed to prepare a Sustainability and Energy Statement on behalf of EEIP II Arundel Propco 2 Holdings Ltd. in support of the Planning Application for the demolition of existing industrial accommodation and erection of warehouse (Use Class B8) with ancillary offices (Use Class E(g)), reconfigured points of access, new security gatehouses and associated works.

This statement has been prepared with national policies and local objectives in mind, specifically addressing the intentions of the Knowsley Local Plan Core Strategy 2016 and relevant components of the Design Quality in New Development Supplementary Planning Document (SPD). This report demonstrates how the proposed development's current design aligns with this and their sustainability conscious goals.

2. LOCAL PLANNING CONTEXT

The Knowsley Local Plan Core Strategy 2016 includes policies which will support a sustainable and diverse population, providing a sense of place and community. Strategic objectives within the Local Plan Core Strategy identify development priorities, supported by the implementation of planning policies and SPDs which will guide new development and regeneration. These set out the Council's vision to create:

- Attractive, sustainable neighbourhoods with a wide choice of housing and excellent community facilities;
- Vibrant and welcoming town centres;
- Residents and local communities who are able to make positive lifestyle choices;
- High quality employment areas which help to drive economic growth in the Liverpool City Region;
- Narrowed the gap in deprivation levels both between different parts of the borough and between Knowsley and elsewhere.

Core policy SD1: Sustainable Development, requires that a positive approach to development should be taken which reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework; Planning applications that accord with the policies in this Local Plan (and any relevant policies in Neighbourhood Plans) will be approved without delay, unless material considerations indicate otherwise.

Supporting this are a number of other Policies to support sustainable development, which include:

Policy	Summary of Requirements
Policy CS2: Development Principles	Requires development to: • Reduce carbon emissions and adapt to the effects of climate change (Principle 2) • Reduce the need to travel and increase accessibility (Principle 3) • Recognise environmental limits, protect and enhance environmental assets, enhance local character and promote quality of place (Principle 4) • Make the most efficient use of available resources and infrastructure by prioritising locations consistent with the spatial strategy, promote sustainable construction and efficiency in resource use and support efficient management of natural and man-made resources (Principle 5)
Policy CS7: Transport Networks	New developments should be supported with Transport Assessments and/or Travel Plans where appropriate, comply with adopted cycle, car, disabled and service vehicle parking standards. Developments should be located and designed to prioritise accessibility and sustainable modes of travel through a choice of walking, cycling, public transport, and incorporate access for private vehicles.

Policy	Summary of Requirements
Policy CS11 Principal Regeneration Area – Knowsley Industrial and Business Parks	The regeneration of Knowsley Industrial and Business Parks will be supported, which encourages a mix of new high quality employment development with a particular focus on the development of: • Class B1 ‘business’ uses within ‘gateway’ locations at: A580 West/Moorgate Road; A5208 County Road/South Boundary Road/Moorgate Road/Arbour Lane/Lees Road; and at A580 East/Coopers Lane. • Class B2 ‘General Industrial’ and B8 ‘Storage and Distribution’ uses north of South Boundary Road. • Class B1 and B8 uses south of South Boundary Road. Knowsley Industrial Park is identified as a ‘Priority Zone’ to promote the production of renewable, low carbon and decentralised energy.
Policy CS19 Design Quality and Accessibility in New Development	To enhance the local distinctiveness, identity and accessibility of places, new development within Knowsley should maintain a good standard of amenity for all existing and future occupants of land and buildings, addressing the challenges of climate change and future changes in social, economic and environmental priorities. New developments should integrate sustainable design principles, biodiversity, flood risk mitigation, waste recycling and energy and resource efficiency.
Policy CS21 Greenspaces and Trees.	To support the functions of urban greenspaces, development will not be permitted where there is loss of urban greenspace or where development will harm any existing or potential special qualities of greenspace in the area in terms of visual amenity, biodiversity, historic, cultural or community value or recreational benefits. New developments should seek to: • Retain trees, woodland, vegetation and other habitat features which offer a positive contribution to the local environment, • Provide appropriate planting of trees, other soft landscaping and installation of habitat features for the benefit of biodiversity; and • c) Replace trees lost, where tree loss is unavoidable, comprising two additional trees for every tree lost and taking account of species and size.
Policy CS22 Sustainable and Low Carbon Development	New developments will be required to meet high standards of sustainable design and construction and minimise carbon emissions, by: • Designing new buildings for flexible uses throughout their lifetime. • Using natural systems to avoid internal overheating and excessive heat generation. • Ensuring developments are comfortable and safe for users. • Making the most effective and sustainable use of water, aggregates and other resources. • Limiting energy use by incorporating high standards of insulation, heat retention, natural ventilation and passive solar techniques. • Using landscaping to create shelter and reduce any heat island effect. • Specifying sustainable materials from local suppliers where possible.

Policy	Summary of Requirements
	• Supplying energy efficiently and incorporating decentralised energy systems, using renewable and low carbon energy where feasible. • Managing flood risk, including through the use of Sustainable Drainage Systems (SuDS) and • Promoting sustainable waste practices in new and existing developments.
Policy CS23 Renewable and Low Carbon Infrastructure	The Council will support proposals that will produce and distribute decentralised, low carbon and renewable energy, provided that they do not cause significant harm (in terms of their number, scale, siting or cumulative impacts) to: • Natural resources, biodiversity, geodiversity, water and air quality and, landscape character. • Aviation and transport safety. • Historical and cultural assets. • Public amenity and living conditions; or • Openness and amenity of the Green Belt, except in very special circumstances.
Policy CS24 Managing Flood Risk	New developments should preferably be located in areas of low probability of flooding, with developments in areas of medium or high flood risk only permitted if alternative locations / sites are not suitable and, if applicable, the 'exception test' has been complied with, in accordance with national guidance. New developments shall include flood mitigation measures, where necessary, to manage flood risk associated with or caused by the development. These should: • Be designed to contribute to the biodiversity of the borough, where feasible • Incorporate a Sustainable Drainage System; • Be fully described in the planning application; and funded by the developer, including long term maintenance. Drainage systems should be designed to reduce surface water run-off rates to those associated with a green-field site by treating it at its source.
Policy CS26: Waste Management	Good design with the design of new developments should be encouraged to minimise waste, promote the use of reclaimed and recycled materials and to facilitate the collection and recycling of waste, supported by the development of site waste management plan and use of sustainable transport of waste solutions.

3. SUSTAINABILITY STATEMENT

This Statement seeks to identify how current design proposals for the site will look to address key issues of sustainable development as outlined in the Knowsley Local Plan Core Strategy 2016. This will include opportunities to mitigate and adapt to climate change, provide high quality design, promote accessibility, optimise energy, water and resource efficiency and minimise pollution.

The following section is structured to address core sustainable development themes within the Local Plan, including:

- Promoting sustainable transport and accessibility
- High Quality Design
- Flood Risk, Drainage and Water Resource Management
- Material Resource Efficiency (including waste management)
- Ecology and Biodiversity.

Section 4 forms the Energy Strategy for the development, reviewing the proposed servicing strategy and opportunities to integrate energy efficiency initiatives and principles, reduce carbon emissions and provide resilience to the impacts of climate change.

3.1. Promoting Sustainable Transport and Accessibility

The promotion and adoption of sustainable transport solutions are a key component of new developments ensuring their connectivity to local amenities, education and healthcare facilities, transport hubs and places of work. By maximising existing infrastructure around the site and providing new infrastructure and facilities within the development, sustainable transport initiatives have the potential to reduce congestion on local roads, improve air quality and promote the adoption of healthier lifestyles.

3.1.1. Current Environment

The applicant site is a developed and occupied site east of Kirkby town centre within Deacon Business Park. It is bound to the north, east and south by existing light industrial units, whilst the A5207 Moorgate Road North bounds the site to the west. The site is currently occupied by a unit with an approximate floor area of 47,596m², with access to the building provided via existing A5207 Moorgate Road North/Deacon Business Park priority controlled junction to the north of the unit. Egress from the site is via a separate exit to the south of the unit onto the A5207 Moorgate Road North. These entry and exit points are also used by vehicles within the wider business park, with access to the unit possible from the east of the site from Hornhouse Lane, via the internal highway network of the business park.

In line with Policy CS7: Transport Networks a Transport Statement has been produced to support the planning application (Croft Transport Planning and Design, November 2022) which evaluates access and the highway network in proximity to the site, how proposals are expected to impact on local traffic and opportunities to incorporate sustainable transport features.

The A5207 is a dual carriageway subject to a 40mph speed limit. Pedestrian footpaths are located on both sides of the road, with dropped kerbs provided at crossing points and a staggered controlled pedestrian crossing point adjacent to the southern exit junction from the site. These footways links with the extensive pedestrian footway located within the vicinity of the site including the footways located on the A5208 Country Road and within the Northwood area of Knowsley.

Bus Stops, with lay-bys and shelters are present on both north and south-bound sides of the A5207, with the closest bus stops provided adjacent to both the entry and exit junctions of the site on the south-bound carriageway. These are services by bus numbers 14A/X, 133, 17/X, 217/A, 898, 899 and 97A.

A shared off-road pedestrian/cycle pathway is present on the north-bound side of the A5207, which continues westward along the A5208.

Surrounding roads, including the A5208 County Road / South Boundary Road which runs along the northern boundary of Deacon Business Park, Hornhouse Lane to the east and Lees Road to the north also have pedestrian footpaths on both sides of the carriageway, dropped kerbs, tactile paving and pedestrian refuges.

3.1.2. Impacts of Proposals on the Existing Highway Network

Proposed site plans seek to reuse existing entry and exit point into/from the site from the A5207, widening the junction to enable two-way vehicle movements. The main vehicular access for the development will be via the northern of the existing access junctions off the A5207 Moorgate Road North, which will provide access to the car park and servicing areas, as well as providing access to areas of the wider Business Park.

It is proposed that the secondary vehicular access for the development proposal will be via the southern of the existing access junction off the A5207 Moorgate Road North, providing access to the car park fronting Moorgate Road North, as well as emergency access and access to the retained car park to the south-east of the site.

A swept-path analysis has been undertaken using a 16.5metre articulated HGV, demonstrating that the site can be serviced in a safe and efficient manner.

A new pedestrian footpath will be provided within the site, connecting to the public highway and facilitating safe access around the building and from car parking areas to the building. Dropped kerbs with tactile paving will be provided at crossing points, with demarcated pedestrian crossing points provided within the internal highway network, where appropriate, to promote inclusive access. Appropriate street lighting designed in accordance with national standards will also be provided to create a safe walking environment.

3.1.3. Sustainable Transport Solutions

The applicant site is located off the A5207 Moorgate Road North, which is serviced by a number of buses with sheltered bus stops adjacent to the site on A5207 Moorgate Road North and is within 400m of bus stops on A5208 South Boundary Road. These public transport nodes provide frequent services into/from the regional centre of Liverpool and local centre of Kirkby, enabling building users to use the well-established local public transport network around the site.

A framework Travel Plan have been developed to support the Planning Application for the development (Croft Transport Planning and Design, November 2022), which identifies opportunities to promote sustainable transport initiatives within the context of the development. The Travel Plan identifies a suite of transport management measures which could be implemented to encourage sustainable travel as well as physical measures, which will be provided under construction contract. This is expected to include the provision of active electric vehicle car charging stations, which are identified in proposed layout plans, as well as new cycle storage facilities. These would be located in convenient locations for use by building users, as well as being covered, well-lit and sited to utilised natural surveillance to promote safety and security.

The development site is well-serviced by existing surrounding public transport services and incorporates defined pedestrian footpaths and routes, connecting to the surrounding highway network. In addition, the proposals will seek to provide new sustainable transport initiatives, such as active and passive EV charging points and cycle storage provision. Through these measures, the unit is able to demonstrate compliance with Policy CS2: Development Principles and Policy CS7: Transport Networks.

3.1.4. Inclusive Access

Access into the site from the public highway would be from the entry point located on the A5207 Moorgate Road North. Pedestrian footways with widths of at least 3.7 metres are provided along this road, with safe pedestrian routes across the A5207 Moorgate Road North provided for in a range of locations, including a staggered signal-controlled pedestrian crossing with associated pedestrian refuge north of the existing southern access point into the site. All crossing points feature dropped kerbs and tactile paving and along with the signalled crossing and wide pedestrian footpaths, the existing walking environment around the site facilitates inclusive access into the site.

To promote inclusive access within the application site a new pedestrian footpath will be provided along the proposed northern access point, connecting the new building to the existing highway network. Dropped kerbs and tactile paving will be provided at crossing points, to improve the ease and safety of pedestrian movement, which is further enhanced by the separation of service areas and external areas used by building users (i.e. building user car park to the west of the building, service yard to the east).

The provision of mobility impaired car parking spaces will be in accordance with local and national guidelines, currently standing at 21no. spaces.

The site will be well lit in line with national standards and has visibility splays to promote safe movements for vehicles and pedestrians.

3.2. High Quality Design

Master planning of new developments should ensure high quality, good design in both the natural and built environment to create safe, pleasant and secure places to live and work. Through high-quality design new developments can maintain and enhance local character whilst creating places that promote healthy lifestyles, provide community cohesion and reduce the risk of crime.

3.2.1. Health and Wellbeing

The health and wellbeing of the population has come to the forefront in recent years with levels of happiness and mental health issues being more openly discussed. With increasing research, we are learning what we need to be happy and healthy, and the relationship between our built and natural environments and mental and physical wellbeing has become clearer. Essential to this relationship are the design of internal spaces which optimise the use of daylighting and provide building users with control of internal environment (heating, lighting, ventilation) as well as the creation of well structural, multi-functional external spaces which provide the opportunity for reflection and socialising.

In light of this, the outline landscape design identifies the presence of a garden break-out space, with tables and seating for use by building users. Health and well-being will also be accounted for by seeking to provide internal conditions which optimise user well-being, such as optimising the use of natural daylighting in both office and warehouse / storage areas and providing local occupant control of internal conditions (heating, lighting, ventilation) within office areas.

3.2.2. Design Principles and Place Setting

The proposals will seek to demolish the existing industrial unit present on site and replace this with a smaller, modern unit. The building will remain forward facing towards the public highway, with office accommodation and the main building entrance facing the A5207 and the service yard placed to the rear of the building. Soft

landscaped areas along the front, the public elevation of the site will remain largely unchanged, presenting a pleasing and attractive view into the site, softening the impact and visual amenity of the new development.

In keeping with the built form and materials palette of other newer developments across the Deacon Business Park development, the appearance, massing and colour palette of the new unit will reflect the existing built environment, with the external envelope of the unit making use of varying textured and coloured cladding systems to create areas of interest and enhance visual quality.

Through the proposed siting, form and orientation of the building, retained soft landscaping and choice of external materials, including textured and coloured cladding systems creating focal points and areas of interest within the development, the scheme aims to achieve the requirements of Policy CS19: Design Quality and Accessibility in New Development and the associated SPD.

3.2.3. Security

Conveying a feeling of security and safety is an essential element of the development. The evolving design seeks to increase the feeling of security and to create an accessible and safe environment for employees and visitors.

Opportunities to optimise natural surveillance within the scheme have been considered, with office accommodation facing towards the A5207 Moorgate Road North overlooking car parking, cycle storage and amenity areas. Existing perimeter fencing along Moorgate Road North will be retained and new perimeter / security fencing provided where required around the service yard. A gatehouse is included within the proposals to control the movement of HGV's into and out of the service area of the site.

Care has been taken to ensure that pedestrian routes across the site are open and visible in order to provide a sense of security, while supporting street scene lighting will be in accordance with national guidance to reduce the potential for crime and antisocial behaviour.

3.2.4. Environmental Assessments – BREEAM

BREEAM (Building Research Establishment's Environmental Assessment Method) 2018 New Construction is a holistic methodology which considers a range of themes over which buildings can have a direct and indirect impact, not only on their environment but also their occupants. These categories include:

- **Management** – Not only of the design process, but also construction, commissioning and handover of the building
- **Health and Wellbeing** – considers how building design can enhance the comfort and wellbeing of building users
- **Energy** - Energy efficiency and optimisation
- **Transport** – Encouragement of sustainable transport planning and integration of sustainable transport initiatives
- **Water** - water efficiency, optimisation, leak prevention and detection.
- **Materials** – Optimising material efficiency and the use of materials with a low environmental impact, responsibly sourced.
- **Waste** – Waste minimisation and management in construction and operation
- **Landuse and Ecology** – Protecting and enhancing site ecology and optimising ecological outcomes.
- **Pollution** - Preventing pollution to air (combustion emissions, light and noise pollution) and water.

Buildings are assessed using a system of credits, which are grouped within the categories. Within each of the BREEAM categories there are a number of credit requirements that reflect the options available to designers and managers of buildings. An environmental weighting is applied to the scores achieved under each category, as shown in the table below in order to calculate the final BREEAM score.

BREEAM Category	Weighting
Management	11.0%
Health & Wellbeing	14.0%
Energy	16.0%
Transport	10.0%
Water	7.0%
Materials	15.0%
Waste	6.0%
Land Use & Ecology	13.0%
Pollution	8.0%

The weighting factors have been derived from consensus-based research with various groups such as government, material suppliers and lobbyists. This research was carried out by BRE to establish the relative importance of each environmental issue.

Through the achievement of credits within the different categories, buildings are scored and a BREEAM rating achieved based on the achievement of the following minimum scores:

PASS	30
GOOD	45
VERY GOOD	55
EXCELLENT	70
OUTSTANDING	85

Buildings which score <30% achieve an Unclassified rating.

In addition to the requirement of achieving these minimum scores, a number of mandatory credits also need to be achieved for the different BREEAM ratings. Without achieving these mandatory requirements, regardless of the assessment score, the relevant BREEAM rating will not be achieved.

While not a requirement of local planning policy, EQT Exeter aspires to demonstrate the sustainable credentials of the unit through the completion of a BREEAM assessment and targeting a rating of BREEAM Very Good. Identifying a route map towards the achievement of this rating will be explored further as the detailed design emerges.

Buildings which achieve a BREEAM Very Good rating represent the top 25% of non-domestic buildings constructed annually in the UK, demonstrating advanced good practice.

3.3. Flood Risk, Drainage and Water Resource Management

Increases in population, economic expansion and climate change are all factors which are placing greater demands on fresh water. Climate change and its potential to cause severe water resourcing events (drought or flooding) should be a major consideration of all developments.

Flooding can have major personal, social, financial and environmental impacts on a local, regional and national level. Water quality has the potential to impact on sensitive environments and increase carbon emissions through increased treatment processes, whilst excessive water consumption and leakage reduces resource availability.

Given this, the consideration of flood risk, sustainable drainage and water resource conservation are important aspects of ensuring the long-term sustainability of developments and require consideration in detail throughout the early design stages.

3.3.1. Flood Risk

Flooding can have major personal, social, financial and environmental impacts on a local, regional and national level and minimising the risk of severe water resourcing events (drought or flooding) through new development design is becoming increasingly important. In addition, increases in population, economic expansion and climate change are all factors which are placing greater demands on fresh water, which has serious implications for the long-term sustainability of this resource. Given this, the consideration of flood risk, sustainable drainage and water resource conservation are important aspects of ensuring the long-term sustainability of developments.

A Flood Risk Assessment (FRA) has been produced to support the Planning Application for the scheme (Tier, November 2022). This identifies that the site is entirely in Flood Zone 1 with regards to fluvial flooding (river); the site does not provide floodplain storage and floodwater will not be displaced by the proposed development. As such, there will be no detriment to the flood storage capacity of the site and no increase in the floodwater levels due to the proposed development.

The FRA also confirms that the site is at low risk of flooding from other relevant sources, including groundwater and reservoirs.

There are existing public sewers within roads adjacent to the site. These will inevitably have a limited capacity so in extreme conditions there would be surcharges, which may in turn cause flooding. As such, there is a low risk of flooding from sewer flooding.

Small pockets of the site to the north, east, south-east and north-west boundary are identified to have a low to high risk of surface water flooding; however, these areas are associated with low spots along the boundary which result in a small amount of ponding rather than overland flow onto or from the site. This will result in very low water depths, water velocities and therefore low flood risk to the site.

The use of a site which is at low risk of flooding from all sources, supported by a Flood Risk Assessment meets the requirement of Policy CS24 Managing Flood Risk.

3.3.2. Surface Water Management

To reduce the risk of surface water and sewer flooding on and off site associated with the development works, a drainage strategy has been developed, in line with the surface water management hierarchy. As the development site is an occupied brownfield site, the outline drainage strategy seeks to manage surface water run-off through discharge to the existing sewer systems on Moorgate Road North.

Outline proposals will seek to reduce surface water run-off from the new development by 30% compared to existing pre-development levels through a series of on-site management solutions. This includes permeable paving covering car parking areas, draining through below ground cellular attenuation tanks, and surface storage in the form of an attenuation pond, proposed along the southern boundary of the site. A hydrobrake, restricting the flow of surface water off site is also proposed in outline drainage proposals, which will be designed in accordance with advice and approval of the local water authority.

Surface water run-off modelling, which has informed the surface water management strategy, is based on a 1-in-100-year storm event and includes a +40% allowance for climate change, building climate resilience into the drainage design for the site.

To reduce the risk of watercourse pollution resultant from surface water run-off from car parks and vehicle servicing / manoeuvring areas, it is expected that appropriate water treatment solutions will be provided, such as Class 1 bypass separators, trapped gullies and catchpits to remove suspended solids and hydrocarbons. The nature and location of these will be explored as the detailed drainage design emerges.

The incorporation of climate resilient surface water management solutions, including SuDS (Sustainable Urban Drainage Systems) demonstrates compliance with Policies CS2: Development Principles, CS19 Design Quality and Accessibility in New Development, CS22 Sustainable and Low Carbon Development and CS24 Managing Flood Risk.

3.3.3. Water Efficiency and Protection

Small changes in water use made every day add up to make a big difference in water consumption over a year. While the specification of sanitaryware should seek to reduce potable water use, it must not compromise water quality or safety.

Knowsley sits in the region which is supplied by United Utilities and is classified by the Environment Agency as operating in an area of 'Not Serious' current and future water stress. Despite this, seasonal fluctuations in water availability resultant from hotter, drier summers may impact on seasonal water resource availability. The new development will seek to develop opportunities to reduce water consumption through the specification of water efficient fittings, such as low flow taps, low flow showers, automated controls on urinals and dual flush, low flow WCs. The development will aim to include the following flow rates / water consumption requirements for sanitaryware and white goods to minimise potable water use:

- WC – 4/2.6 litres dual flush
- Wash hand basin taps – 6 litres/min
- Showers – 8 litres/min
- Kitchen taps – 6 litres/min

Through these specifications it is envisaged that a 12.5% reduction in potable water use could be achieved, based on the Building Research Establishments (BRE) water consumption benchmarks for buildings of a similar size and nature.

To facilitate the long-term management and monitoring of water consumption, a pulsed water meter is expected to be included within the servicing design, to facilitate remote monitoring and responsible water management. In addition, the development will minimise unregulated water consumption by specifying soft landscaping which does not rely on a permanent, mains fed irrigation system.

Through the considered specification of water fittings and equipment, it is envisaged that the development will be able to comply with Policy CS22 Sustainable and Low Carbon Development.

3.4. Material Resource Efficiency

New buildings require the use of resources; the extraction, processing, manufacture and transport of materials and components to be used in the fabric, servicing and fit-out of the asset, either at the time of construction or during its lifetime through subsequent refurbishments. Many of these resources are finite and therefore new buildings are increasingly seeking ways to make the most efficient use of materials over their life cycle.

Key concepts in optimising material efficiency include:

- Using fewer materials (i.e. polished concrete floors in place of floor finishes, exposed ceilings negating the need for ceiling tiles, for example).
- Reusing existing demolition/strip-out materials.

- Procuring materials with higher levels of recycled content.
- Alternative design/construction solutions result in lower materials usage and lower wastage levels including offsite manufacture, prefabricated cladding panels, pre-assembled bathroom pods etc.
- Designing for durability, identifying activities within the development which may result in accidental damage to the building fabric and specifying appropriate measures to mitigate this, such as heavy duty, easy to clean flooring in public areas, trolley rails / corner protection where customer trolleys will be used, bollards, raised kerbs and Armco barrier in vehicles manoeuvring, carparking and servicing areas.

The potential to explore opportunities to optimise material efficiency will evolve as the detailed design of the scheme emerges. However, based on the function of the unit and outline design proposals, this may include:

- Off-site construction. Assembly and fabrication in a factory-controlled environment produces less waste compared with site-based building methods, thereby contributing towards the objective of waste prevention and reduction, i.e. composite cladding panels, rooflights.
- Opportunities to integrate prefabricated components into the scheme, such as roof structures, windows and door frames, rainwater disposal systems and facias.
- Structural repetition and standardisation of dimensions, reducing cutting to size on site and/or creation of bespoke components and the generation of off-cuts.

As the units are speculative for tenant's unknown, minimal finishing elements are expected to be provided, enabling future building users to finish and partition as required to meet their operational needs, reducing the potential for newly installed components to be stripped out as they do not meet branding / operational requirements.

The development will be designed to be durable and resilient to environmental degradation, high pedestrian traffic and vehicle impact. This will help to reduce the need to repair and replace materials resulting from damage to exposed elements of the building and landscape. Additional protection in the form of Armco barriers, bollards and raised kerbing will be added to areas of the building envelope that could be subject to vehicle collision in service yard areas. Internal protection measures may include kickplates to doors, steel external personnel doors in operational areas, heavy duty floor coverings and robust internal wall partitions.

3.4.1. Reuse of Land and Infrastructure

The applicant site is a developed and occupied site on the edge of Deacon Business Park, with access provided from the A5207 Moorgate Road North and associated transport, energy, water and drainage connections.

While the existing building, which has an approximate floor area of 47,596m², will be demolished to facilitate the construction of the new unit, the proposals would enable a brownfield site to be re-developed and existing infrastructure and services, both on and off site to be reused, reducing the need for new materials and resources.

3.4.2. Sustainable Procurement

The encourage the legal, responsible, sustainable and local use of materials within the development, the considered specification of materials and procurement strategies will be explored through the emerging design and followed through into the construction.

As the detailed design emerges, opportunities will be explored to specify and procure materials and products sourced from reputable suppliers with certified environmental credentials and supply chains which demonstrate compliance with recognised national and international standards. This includes:

- Opportunities to reuse waste generated from the demolition of the existing building and/or hard standing on-site within the design proposals for the new building.

- Ensuring that all timber and timber products are legally harvested and traded, accompanied by relevant certification demonstrating the full Chain of Custody (CoC) certification and procured in accordance with the UK Government's Timber Procurement Policy.
- Products and materials which have Environmental Product Declarations associated (compliant to EN 15804:2012+A1: 2013) detailing their environmental performance or impact over its lifetime.
- Using products with the best accreditation (Re-used material, BES6001, FSC, CARES) to consider the sustainability of the supply chain and reduce the environmental impacts of the product.
- Evaluating the potential for materials, products and labour to be sourced locally, to not only support the local economy, but also reduce the embodied carbon of these products through lower associated transport emissions.

Opportunities to specify and procure materials, products and labour in accordance with the above, would demonstrate compliance with Policy CS22: Sustainable and Low Carbon Development.

3.4.3. Waste Management

The built environment sector accounts for around 40% of the world's extracted materials consumption, with construction waste accounting for the largest contribution to annual waste generation in many countries. This can be resultant from inefficiencies in the design and construction process, damage or residues from construction processes, and has the potential to result in significant financial and environmental costs. As such, finding opportunities to, not only appropriately manage waste, but minimise its production in the first instance can result in real cost benefits.

3.4.4. Minimising Construction Waste

In order to reduce the amount of waste going to landfill, opportunities to implement the principles of the waste hierarchy (prevent, reduce, reuse, recycle, recover) will be explored, including how waste generation can be reduced throughout the continuing design process. The potential will be explored to reduce the need for finishing components (i.e. polished concrete floor, rather than floor tiling, or avoiding the need for suspended ceilings), as well as optimising the use of pre-fabricated / modular building components, such as composite cladding systems and standardising product dimensions to reduce the need for on-site cutting.

Further opportunities to reduce waste through the procurement process will also be encouraged and the appointed constructor will be required to develop and implement a Resource Management Plan (RMP) (or Site Waste Management Plan (SWMP)) to minimise waste on-site through the implementation of smart procurement processes. This is expected to include measures such as:

- Selecting products and materials with reduced levels of packaging, reusable rather than single-use products and specifying durable and long-life construction materials
- Implementation of 'just in time' deliveries which minimises the potential for damage to stockpiled materials from adverse weather or physical damage from mobile plant etc.
- Monitoring 'over-supply' of materials particularly where this results in wastage. Reviews of 'over-supply' should inform future procurement decisions; and
- Use of supplier take-back schemes, particularly with respect to packaging waste (e.g. crates, pallets). Where possible, outer and inner packaging and timber pallets will be returned to a supplier by prior arrangement. This may require stockpiling and bulking the pallets until sufficient numbers are available to make collection economical.

It is expected that the appointed contractor will implement the waste minimisation and reporting procedures outlined within their RMP/SWMP to promote the prevention, reuse, recycling and recovery of waste in favour of disposal to landfill and ensure that the collection and reporting of construction waste data is undertaken.

The setting of non-hazardous waste generation benchmarks and key performance indicators (KPIs) may also assist in driving efficiencies in material use and waste minimisation, and the setting of these by the appointed contractor will be encouraged. In addition, a benchmark to divert at least 70% of non-hazardous construction waste (by volume) from landfill will also be encouraged.

3.4.5. Minimising Operational Waste

It is expected that waste generated during the operation of the unit will be separated by the operator into recyclable waste streams for collection by a local licensed company. To facilitate the segregation and storage of recyclable waste streams, opportunities to provide a dedicated waste storage area for recyclable materials will be explored in the emerging design. Any area would be sited to be accessible to both building occupants and waste collection vehicles to optimise its use and encourage waste segregation.

There is the potential that the unit will generate large volumes of cardboard or plastic wrap by the end user; as such the development will seek to include appropriate infrastructure to facilitate the installation of a compactor / baler, should this be required by the end-user.

The generation of green waste from landscape maintenance activities is expected to be removed from site by the contracted landscape maintenance contractor and as such, allowance for the provision of green wastes storage is not considered appropriate or relevant to the operation of the site.

It is expected that the end user will provide internal waste storage facilities within office and kitchenette areas, as appropriate to their operations on fit-out of these spaces to encourage the separation and recycling of operational waste and the disposal of food waste.

The provision of space and/or facilities to encourage waste segregation and recycling would assist to demonstrate compliance with Policy CS26: Waste Management.

3.5. Ecology and Biodiversity

The built environment and the construction of new buildings and infrastructure puts pressure on the earth's natural resources, whether it be through changes in land use, loss of habitats and biodiversity or the potential to generate pollution to air, water or land. Sustainable development practices seek to minimise habitat loss, utilise land previously developed or reduce pollution to air, land and water to protect these natural resources.

3.5.1. Protection of Nature and Landscape

The site is currently a developed and operational site on the edge of the Deacon Business Park adjacent to the A5207 Moorgate Road North. It primarily comprises existing building and hard surfaces, with small areas of scattered trees and amenity grass are present along the western boundary. A small area of broadleaved woodland is present in the northwest corner of the site, while dense scrub populates the northern and southern boundary.

A Preliminary Ecological Appraisal (Tyler Grange, January 2023) and Arboricultural Impact Assessment (Tyler Grange, November 2022) have been undertaken to support the planning application and identify ecological constraints and opportunities within the proposals.

The Ecological Appraisal confirms that the proposals will not impact on statutory or non-statutory ecologically designated sites; there are no European designated sites within 10km of the site or nationally designated sites within 2km of the site. Two Local Nature Reserves (LNRs) are within 2km of the site, however there is no

connectivity of the site to these areas and the intervening urban landscape provides sufficient buffer so as to avoid any adverse impacts to these from the proposed works.

Overall, the existing site is considered to be of low ecological value with the majority of the site comprising of habitats of negligible ecological importance. However, the broadleaved woodland forming part of the northern site boundary and the scattered trees within the amenity grassland area are considered to be of local value. These will largely be retained within the proposals, although the removal of a portion of the woodland belt along with 4no. scattered trees would be required to facilitate the construction of a new sub-station and extension of the car park. To compensate for this loss, new tree planting will be provided across the site, including at least 12no. new trees of native provenance within the new car parking area, along with additional trees within newly created amenity grassland areas. As a result, the proposals will result in a negligible reduction in canopy cover and will not impact on the visual amenity or character of the site.

With the exception of bats, habitats present across the site are unlikely to support other protected species, such as amphibians, badgers, reptiles, water voles and otters and these are considered to be absent across the site. A number of buildings and trees have been identified as having a low to moderate potential to support bat roosts and to comply with protected species legislation, additional bat surveys are expected to be completed in due course, between May and August, as recommended by the project ecologist. In addition, in line with recommendations from the project ecologist, new bat boxes will be installed on retained trees, whilst the evolving external lighting design will seek to minimise upward and outward light spill towards potential foraging habitats.

In addition to the retention of existing trees and compensatory planting for tree removal, the development will seek to create new soft landscaped areas along the southern boundary of the site. Outline proposals include meadow grassland and additional native tree planting, along with a planted attenuation basin. Initial Biodiversity Impact Assessment calculations, using the DEFRA 3.0 metric, indicate that the resulting conservation, mitigation and enhancement measures could result in a net increase in biodiversity of 24.66%. The resulting enhancement of biodiversity along the protection and retention of tree, would demonstrate compliance with Policy CS21: Greenspaces and Trees.

4. ENERGY STRATEGY

Taking action on climate change by reducing energy consumption and its associated carbon emissions is the subject of numerous national, regional and local policies. As the UK Government aspires to achieve net zero carbon buildings, a step change in the approach to energy management is required of all new developments with opportunities to implement energy efficiency initiatives realised, where technically and financially viable.

4.1. Building Regulations (Part L)

All new buildings constructed in England and Wales must meet the minimum requirements of the UK Building Regulations. Specifically, with regards to energy and carbon compliance, all buildings must meet the Building Regulations Part L 'Target Emission Rate' (TER) requirements, which establishes minimum levels of energy performance.

Updated in 2022, current Part L Building Regulations place a requirement on developments to achieve at least 27% less carbon emissions over the superseded Building Regulations Part L 2013.

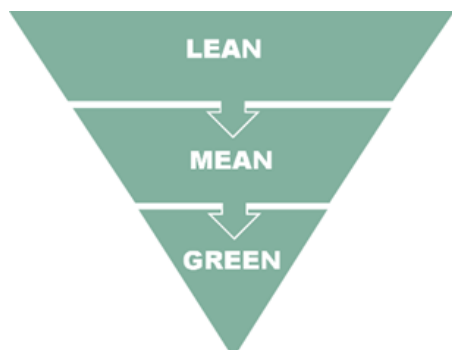
Additional changes which came into effect in 2022, against which the new development will be required to comply, include:

- The introduction of a new metric, 'Primary Energy', will measure the efficiency of the buildings heating system as well as the energy required to deliver fuel to a building.
- New minimum thermal performance requirements for building envelope components and reduced limits for air permeability

- The introduction of new carbon factors. In particular in relation to electric, the carbon factor has been reduced from 0.519 kgCO₂/kwh to 0.136 kgCO₂/kwh, reflecting the continuing decarbonisation of the National Grid.

4.2. Implementing the Energy Hierarchy

The energy strategy for the development has been developed in accordance with energy hierarchy below.



Lean - Use advanced building modelling and passive construction techniques as far as is cost effective.

Mean - Incorporate high efficiency systems and effective controls throughout the design.

Green - Incorporate renewable energy sources where necessary and economically viable to achieve targets or provide desirable benefits.

4.2.1. Being Lean – Minimising Energy Use

Reducing the energy demand of the individual buildings is the first stage of the energy hierarchy and requires consideration of architectural and building fabric measures (passive design). Passive measures included within the design of the development to reduce energy use and the associated CO₂ emissions comprise:

- Energy efficient building fabric
- Low air permeability
- Optimising solar gain and natural daylighting

4.2.1.1. Energy Efficient Building Fabric

Limiting heat losses across the entire building envelope will maximise energy efficiency of the development over its whole life. The table below details the thermal performance requirements of key building envelope components under Part L 2013 and the new Part L 2021. To achieve this, the fabric thermal U-Value (which is a measure of how thermally efficient the element is) will be in line with the new and enhanced Part L 2021 requirements.

Element	Part L 2013 Building Regulations	Part L 2021 Building Regulations
Roof 'U' Value	0.2W/m ² K	0.16 W/m ² K
External Wall 'U' Value	0.3W/m ² K	0.26 W/m ² K
Ground Floor 'U' Value	0.25W/m ² K	0.18 W/m ² K
External Glazing 'U' Value	2.0W/m ² K	1.60 W/m ² K

4.2.1.2. Low Air Permeability

A significant percentage of heat loss from buildings is due to air infiltration associated with poor air tightness. By improving on the air tightness of the building it is possible to reduce infiltration rates and thus reduce the heat losses, energy use and the associated CO₂ emissions. Under the new 2021 Part L Building Regulations a maximum air permeability of 8m³/hr/m² @ 50Pa is set. The development will be constructed to provide

building air tightness criteria in line with the notional building to comply with the Building Regulations, with an air permeability of 5m³/hr/m² @ 50Pa targeted.

In order for this to be realised, considered detailing and specification of the building envelope components will be required along with controlled construction practices.

4.2.1.3. Optimising Solar Gain and Natural Daylighting

The glazed proportion of the building façades and the location of glazing is designed to maximise the use of natural daylight to offset demand for artificial lighting. The main 2-storey office accommodation block is west facing, with minimal south-facing glazing. This will ensure that there is a balance between providing high levels of daylighting negating the need for artificial lighting, whilst controlling the amount of heat ingress from direct sunshine which would require more cooling.

At the same time as being designed to optimise passive solar gains, the façade will be designed to minimise thermal losses through the use of high-performance glazing, optimising the glazed-to-opaque proportion of the façade.

Across the warehouse / storage area of the development, rooflights will be provided, to maximise the use of natural daylighting and minimise artificial lighting loads. The initial designs seek to provide rooflights over 15% of the usable roof area.

4.2.2. Being Mean – Energy Efficient Building Services

The below table lists the expected specification for the heating system, lighting, and ventilation strategy for the proposed development.

System	Description
Primary Heating	VRF providing heating to office areas with direct electric radiant panels in ancillary spaces. Warehouse / storage areas to remain untreated.
Cooling	Mechanical cooling via VRF units.
Ventilation	Zonal air handling units (MVHR units) providing mechanical ventilation serving office areas with heated fresh air. Warehouse / storage areas will remain untreated.
Heating control	Room by room with weather compensation control where applicable.
Hot water	Point of use.
Lighting	In line with Part L 2021, general lighting shall have an average luminaire efficacy of 110 luminaire lumens per circuit-watt, using LED lamps with daylight dimming.

In addition to this, the outline building servicing strategy will also include the following energy efficiency measures:

- Internal lighting within the office areas will incorporate energy efficient LED lighting where practicable. Automatic presence detection will be included in appropriate areas of the building, ensuring that lights are automatically switched off during periods of non-occupancy.
- External lighting will be designed to incorporate energy efficient luminaires and an automatic lighting control system utilising daylight sensors and time clock control to ensure energy-efficient operation of the lighting.

- The control of heating plant will be optimised and weather compensated to ensure plant operates as close to demand as possible and not at full capacity.
- Variable speed drives will be installed on circulation pumps and ventilation fans to allow the speed of the respective motors to be amended by the automatic controls to suit changing load of the building. This will ensure energy usage matches demand requirements thus reducing the carbon emissions to a minimum based on end user occupation.
- The ventilation systems installed within the development will incorporate heat recovery within the air handling plant to recover heat from the exhaust air to heat the incoming fresh air and therefore reduce energy usage. The air handling plant will have a low specific fan power to minimise the energy used by the fans.

Real energy savings can be generated by ensuring that building services efficiently use energy and can be intelligently controlled, adjusting to changes in internal conditions, use or occupancy. To understand how the building performs, a comprehensive metering strategy, in line with current Building Regulations, will be developed for the building, identifying where major opportunities to reduce energy consumption can be realised. These meters will have pulsed or other open protocol communication outputs to enable connection to an appropriate energy monitoring system.

4.2.3. Being Green - Low and Zero Carbon Technologies

In a commitment to reduce operational carbon emissions and to ensure compliance with the new stringent Part L 2021 requirements, the proposed design allows for all electric systems and heat pumps to contribute towards the office heating. Roof lights and lighting with daylight dimming controls are proposed to reduce the energy demand of the building further.

The use of direct electrical heating and hot water generation systems within the building would avoid the release of on-site combustion emissions into the local environment, enabling energy demand to be met 'cleanly' within a local context. This enables the development to optimise carbon minimisation through the continuing decarbonisation of the National Grid and provides a major step change towards ensuring the building is able to mitigate the impacts of climate change.

4.3. Predicting Operational Energy Use

Initial energy modelling of the development has been undertaken to evaluate the potential of the building design and servicing strategy to achieve Building Regulations 2021 Part L requirements. Using accredited IES Virtual Environment (7.0.17) an initial operational energy assessment has been completed, based on the preferred servicing strategy for the building, which includes the integration of VRF & MVHR, direct electric heating and hot water systems.

Through this modelling exercise, it can be demonstrated that the outline design and servicing strategy is able to achieve an 8.7% carbon reduction above the requirements of Building Regulations 2021, as summarised below.

	Part L 2021
	Regulated Emissions (tCO ₂)
Targeted Emissions	60.151
Modelled building Emissions	54.758
Carbon reduction	5.393
Carbon reduction (%)	8.7%

A copy of the resultant 2021 BRUKL report can be found in Appendix A.

4.4. Climate Change Resilience

The development will also be designed to adapt to the climate changes expected in the future. This will minimise the need to retrospectively adapt the building in the future, as well as optimising resource use (and minimising waste) resultant from these activities or the replacement of building components damaged by changing climatic conditions.

Relevant climate change adaptation measures include:

- Designing the building servicing strategy to limit thermal overheating by sizing the air source heat pumps to cope with predicted increases in temperature based on future climate change scenarios.
- Designing the building fabric to be resilient against severe weather events (rainfall, heat waves and wind) and flooding through material choice and cladding fixing selections.
- The implementation of measures recommended by the drainage consultant to ensure that the site is not at significant risk of flooding, with the drainage design including an allowance for climate change.
- The integration of measures to reduce water consumption by 12.5% to account for seasonal water scarcity and improving water consumption efficiency.

In addition, the current servicing strategy for the development seeks to use direct electrical heating systems to meet heating and hot water demands.

The use of direct electrical heating and hot water generation systems within the building would avoid the release of on-site combustion emissions into the local environment, enabling energy demand to be met 'cleanly' within a local context. This enables the development to optimise carbon minimisation through the continuing decarbonisation of the National Grid and provides a major step change towards ensuring the building is able to mitigate the impacts of climate change.

5. SUMMARY

This Sustainability and Energy Statement outlines how the proposed new B8 at Deacon Business Park responds to key policies outlined in the Knowsley Local Plan Core Strategy 2016.

The redevelopment of an existing site within Deacon Business Park optimises the potential to utilise existing on-site and neighbouring infrastructure and services, and the connectivity this affords to local highways routes and public transport services. It will provide measures to promote the use of sustainable transport solutions, including new pedestrian footpaths which will connect to the public highway, active (and passive) Electric Vehicle (EV) charging stations, as well as cycle storage facilities.

The outline design reflects and reinforces the visual cohesiveness of the business park from the public highway. This is achieved through retaining existing green infrastructure along the A5207 elevation and realising opportunities for the introduction of further green infrastructure and habitats available through the creation of a dual-functioning (habitat creation / surface water management feature) attenuation pond to the south of the site.

Climate change mitigation and adaptation measures have been embedded within the design from the outset, considering the risk of flooding, resilience to severe weather events and reductions in potable water use. Through the adoption of a direct electric heating strategy, the unit will realise carbon benefits through the continuing decarbonisation of the National Grid, mitigating the impacts of climate change. In addition, the specification of a building envelope in line with current Building Regulations and incorporation of an energy efficient servicing strategy will provide a carbon reduction betterment over Building Regulations 2021 requirements.

With specific regards to key policies outlined in the Knowsley Local Plan Core Strategy 2016, the following table demonstrates how the development responds to the policies key objectives.

Policy Ref.	Policy Objectives	Development Response
Policy Development Principles CS2:	Requires development to: • Reduce carbon emissions and adapt to the effects of climate change • Reduce the need to travel and increase accessibility • Protect and enhance environmental assets, enhance local character and promote quality of place • Make the most efficient use of available resources and infrastructure.	• The adoption of a direct electric heating strategy, the unit will realise carbon benefits through the continuing decarbonisation of the National Grid. • The proposed building envelope and servicing strategy will result in a carbon reduction betterment over Building Regulations 2021. • The outline design seeks to mitigate the risk of flooding, provide resilience to severe weather events and reductions in potable water use. • The reuse of an existing plot on the Deacon Business Park site optimises the use of the existing on-site infrastructure and services. • The development is close to existing well-developed public transport (bus) services, which will enhance accessibility and reduce reliance on private cars. • New sustainable transport initiatives will be provided including active EV charging points and cycle storage.

Policy Ref.	Policy Objectives	Development Response
		The build form and materials pallets will reflect and reinforce the visual cohesiveness of the business park from the public highway.
Policy CS7: Transport Networks	Developments should be located and designed to prioritise accessibility and sustainable modes of travel through a choice of walking, cycling, public transport, and incorporate access for private vehicles.	- The reuse of an existing plot on the Deacon Business Park site optimises the use of the existing well-developed local public transport network. - New sustainable transport initiatives will be provided including active EV charging points and cycle storage will be provided.
Policy CS21 Greenspaces and Trees.	Avoid the loss of or harm the qualities of qualifying urban greenspace. Retain trees, woodland, vegetation and other habitat features, explore opportunities to enhance biodiversity and provide compensatory tree planting.	- The proposals will retain and protect the majority of trees on site. - Compensatory tree planting will be provided. - New soft landscaping and habitats will be created resulting in a net biodiversity gain of 24.66%
Policy CS11 Principal Regeneration Area – Knowsley Industrial and Business Parks	The regeneration of Knowsley Industrial and Business Parks focusing on the development of Class B1 and 8 uses. Promote the production of renewable, low carbon and decentralised energy.	- The reuse of an existing plot on the Deacon Business Park site seeks to regenerate and enhance the visual amenity and cohesiveness of the site. - The adoption of a direct electric heating strategy, the unit will realise carbon benefits through the continuing decarbonisation of the National Grid.
Policy CS19 Design Quality and Accessibility in New Development	To enhance the local distinctiveness, identity and accessibility of places, addressing the challenges of climate change and future changes in social, economic and environmental priorities. Integrate sustainable design principles, biodiversity, flood risk mitigation, waste recycling and energy and resource efficiency.	The build form and materials pallets will reflect and reinforce the visual cohesiveness of the business park from the public highway.
Policy CS22 Sustainable and Low Carbon Development	Meet high standards of sustainable design and construction and minimise carbon emissions, through the: - Design of adaptable and flexible buildings. - Use of natural systems to avoid internal overheating and excessive heat generation. - Design of developments which are comfortable and safe for users. - Sustainable use of water, aggregates and other resources. - Reduction of energy use via passive design solutions. - Use landscape to create shelter and reduce any heat island effect. - Specification of sustainable materials from local suppliers where possible.	- The unit will be developed as a Shell and Core unit, with un-serviced warehouse / storage area, to maximise the adaptability and flexibility of the building to meet the needs of future tenants. - The development will seek to provide users with local control of internal conditions (i.e. lighting, heating, glare), where feasible. - The development will seek to specify water efficient sanitaryware and implement a water metering strategy manage water usage. - SuDS and on-site attenuation in the form of below ground storage, permeable paving and an attenuation pond have been incorporated to mitigate current and future flood risk.

Policy Ref.	Policy Objectives	Development Response
	- Utilisation of energy efficient and decentralised energy systems, using renewable and low carbon energy where feasible. - Management of flood risk, including through the use of Sustainable Drainage Systems (SuDS) and - Promoting sustainable waste practices in new and existing developments.	- The project team will seek to specify and procure locally and responsibly manufactured, sustainably sourced products and materials as the scheme progresses. - Carbon reduction benefits will be realised through the implementation of the 'Lean' and 'Mean' principles of the energy hierarchy and a direct electric heating strategy, which will realise carbon benefits through the continuing decarbonisation of the National Grid. - Space will be afforded within the development to facilitate the segregation and storage of recyclable waste, from office and industrial operations. Infrastructure will be provided to enable future tenants to install compactors / balers, should these be required.
Policy CS23 Renewable and Low Carbon Infrastructure	The Council will support proposals that will produce and distribute decentralised, low carbon and renewable energy, provided that they do not cause significant harm (in terms of their number, scale, siting or cumulative impacts) to: - Natural resources, biodiversity, geodiversity, water and air quality and, landscape character. - Aviation and transport safety. - Historical and cultural assets. - Public amenity and living conditions; or - Openness and amenity of the Green Belt, except in very special circumstances.	The development will not seek to include new decentralised energy networks. Carbon reduction benefits will be realised through the implementation of the 'Lean' and 'Mean' principles of the energy hierarchy and a direct electric heating strategy, which will realise carbon benefits through the continuing decarbonisation of the National Grid.
Policy CS24 Managing Flood Risk	Locate new developments in areas of low risk of flooding, including flood mitigation measures, including SuDS where necessary, to manage flood risk associated with or caused by the development. Drainage systems should be designed to reduce surface water run-off rates to those associated with a green-field site by treating it at its source.	- A supporting Flood Risk Assessment identifies that the site is located in an area at low risk of flooding from all sources. - SuDS and on-site attenuation in the form of below ground storage, permeable paving and an attenuation pond have been incorporated to mitigate current and future flood risk.
Policy CS26: Waste Management	Design of new developments to encouraged waste minimisation, promote the use of reclaimed and recycled materials and to facilitate the collection and recycling of waste.	Space will be afforded within the development to facilitate the segregation and storage of recyclable waste, from office and industrial operations. Infrastructure will be provided to enable future tenants to install compactors / balers, should these be required.

APPENDIX A – OUTLINE BRUKL OUTPUT REPORT

Building Regulations Part L 2021

BRUKL Output Document



Compliance with England Building Regulations Part L 2021

Project name

Shell and Core

Deacon Park 230117 2021 Part L

As designed

Date: Tue Jan 17 13:25:18 2023

Administrative information

Building Details

Address: Address 1, City, Postcode

Certification tool

Calculation engine: Apache

Calculation engine version: 7.0.17

Interface to calculation engine: IES Virtual Environment

Interface to calculation engine version: 7.0.17

BRUKL compliance module version: v6.1.c.0

Certifier details

Name: Adam Imrie

Telephone number: Phone

Address: Street Address, City, Postcode

Foundation area [m²]: 1134.26

The CO₂ emission and primary energy rates of the building must not exceed the targets

Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	1.45
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	1.32
Target primary energy rate (TPER), kWh/m ² .annum	15.61
Building primary energy rate (BPER), kWh/m ² .annum	14.32
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 -Limit	U _a -Calc	U _i -Calc	First surface with maximum value
Walls*	0.26	0.26	0.26	FF000007:Surf[1]
Floors	0.18	0.18	0.18	FF000002:Surf[0]
Pitched roofs	0.16	-	-	No Pitched roofs in building
Flat roofs	0.18	0.18	0.18	ST000002:Surf[0]
Windows** and roof windows	1.6	1.6	1.6	L0000001:Surf[1]
Rooflights***	2.2	2.2	2.2	ST000006:Surf[57]
Personnel doors [^]	1.6	-	-	No Personnel doors in building
Vehicle access & similar large doors	1.3	1.3	1.3	ST000006:Surf[0]
High usage entrance doors	3	-	-	No High usage entrance doors in building
U _a -Limit = Limiting area-weighted average U-values [W/(m ² K)] U _a -Calc = Calculated area-weighted average U-values [W/(m ² K)] U _i -Calc = Calculated maximum individual element U-values [W/(m ² K)] * 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 ² K 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	5



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