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Wrexham Industrial Estate, Bryn Lane

Energy and Sustainability Statement

Issue One - FINAL - May 2026

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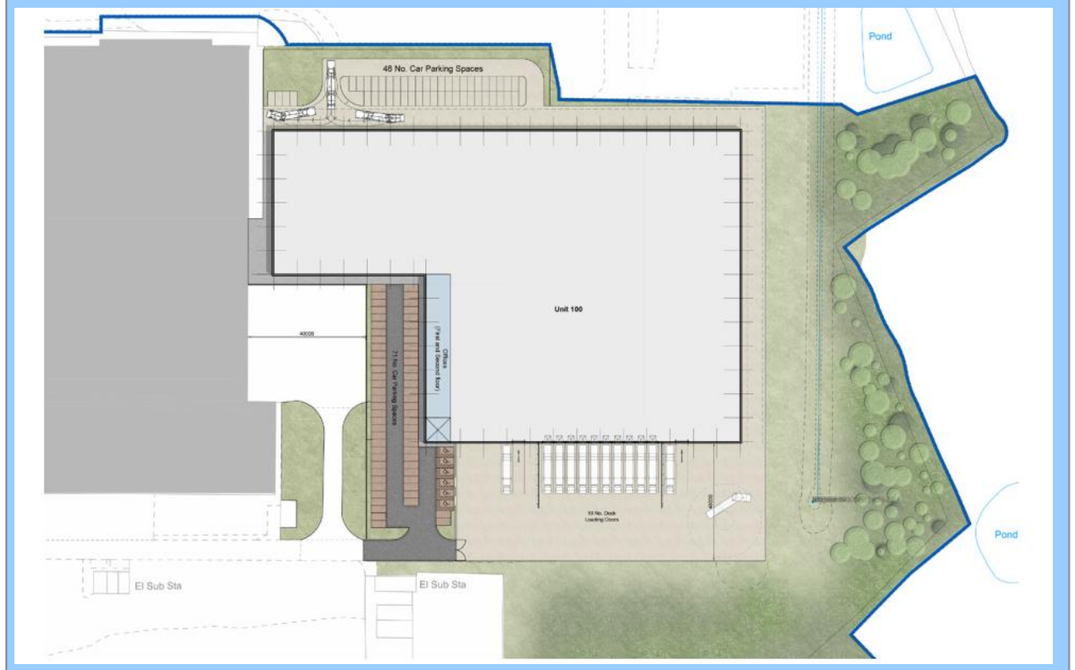
OVERVIEW

This Energy and Sustainability Statement has been prepared by MTT Limited on behalf of Elite Onyx Properties (UK) SRL ('the Applicant'). It supports an application for outline planning permission for the redevelopment of the site known as 'Bryn Lane, Wrexham'.

The description of the development is as follows: 'Outline planning application (all matters reserved excluding access) for the provision of a new standalone building or an extension to the existing building for Use Class B2 and/or Use Class B8 and ancillary offices, along with access, car parking, service yard, landscaping and associated works'.

This Statement outlines the Applicant's commitment to delivering a sustainable and energy-efficient development, with due regard to the relevant national and local planning policy framework applicable to the proposed scheme.

The Statement provides an assessment of the proposed energy and sustainability strategy, which has been developed in response to applicable planning policy requirements to support the delivery of a highly sustainable, low carbon development that minimises environmental impact, supports climate resilience, and contributes positively to the well-being of future communities.



Illustrative Masterplan of the Proposed Development - Option 1 c South Yard, Detached from Existing Unit, Offices Provided

The scope of the planning application is described in the submitted Planning Statement, prepared by Quod. This Statement should be read in conjunction with the wider planning application documents, including the Design and Access Statement and proposed drawings.

APPROACH

This Statement identifies the national and local planning policies relevant to energy and sustainable development and demonstrates how the proposed design responds to these requirements through an integrated package of energy and sustainability measures.

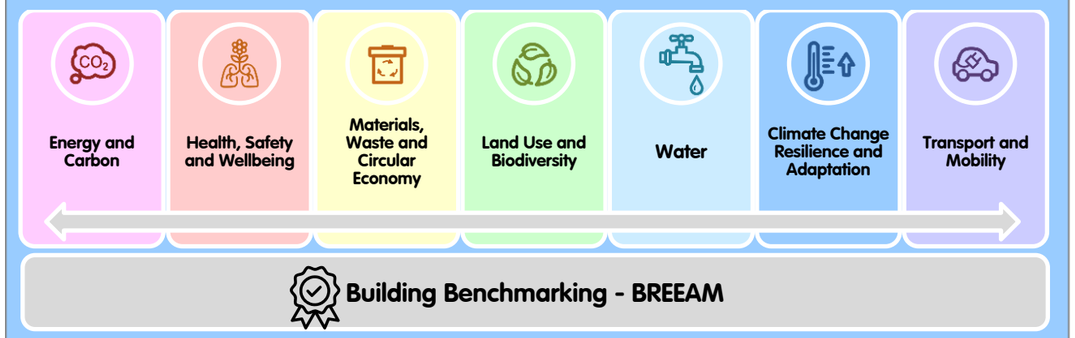
For the proposed development within Wrexham County Borough Council, the statutory Development Plan comprises Future Wales: The National Plan 2040 and the Wrexham Unitary Development Plan 1996-2011, policies within these documents form the basis of the energy and sustainability response of the proposed development, together with guidance given in Planning Policy Wales (Edition 12).

Collectively, these policies promote sustainable development principles and require developments to minimise energy demand, reduce operational carbon emissions, incorporate renewable and low carbon technologies where feasible, and appropriately respond to the potential impacts of climate change.

The energy strategy has been developed (based on an illustrative scheme option) in accordance with the principles of the Energy Hierarchy, prioritising the reduction of energy demand through passive design measures and high-performance building fabric, followed by the use of energy-efficient building services systems, and finally the incorporation of renewable energy technologies where feasible.

This approach is supported by a wider sustainability strategy that considers resource efficiency, sustainable material selection, water efficiency, waste reduction and circular economy principles, biodiversity enhancement, climate resilience, and the integration of appropriate green infrastructure measures.

In response to these policy drivers, the project sustainability strategy has been structured around the following key themes:



Sustainability Brief Framework

A BREEAM pre-assessment based on an illustrative scheme option has also been undertaken to support the development of the sustainability strategy and to help coordinate and integrate the various energy and sustainability considerations within the proposed scheme.

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ENERGY STRATEGY

Overview

Planning Policy Wales (Edition 12) and Future Wales: The National Plan 2040 require developments to minimise greenhouse gas emissions and support the transition to a low carbon economy.

The energy strategy for the proposed development has been developed in accordance with Planning Policy Wales' Energy Hierarchy:



The Energy Hierarchy

Following the establishment of the proposed development's baseline energy consumption, the three key elements of the hierarchy have been applied to identify measures for reducing energy demand and CO_2 emissions.

Process

The building's energy and carbon performance has been assessed using Dynamic Simulation Modelling (DSM) undertaken in accredited EDSL Tas software in accordance with Building Regulations Part L (Wales) 2022 and the National Calculation Methodology (NCM).

The assessment applies SAP 10.2 carbon emission factors to reflect current electricity grid decarbonisation and provide a representative indication of operational carbon performance.

The results presented are indicative only and based on calculations undertaken at an early stage of design development.

Analysis Undertaken - Energy Hierarchy Steps

MODELLED OUTLINE SCHEME OPTION

The energy assessment is based on a representative illustrative scheme ('Outline Scheme Option') developed to provide a proportionate indication of likely energy performance at planning stage.

The model reflects a warehouse development with ancillary office and welfare accommodation, representing a reasonable worst-case scenario in terms of regulated operational energy demand and CO_2 emissions.

As the application is submitted in outline, the final building form, internal layout and extent of office and welfare accommodation remain subject to design development. The assessment should therefore be regarded as a representative planning-stage appraisal rather than a final Building Regulations compliance model.

■ BASELINE ENERGY DEMAND ASSESSMENT

A baseline DSM assessment has been undertaken for a Part L compliant warehouse and ancillary office development prior to incorporation of additional energy efficiency or renewable energy measures.

Due to the predominantly unheated nature of the warehouse accommodation, regulated energy demand is largely associated with lighting and domestic hot water serving office and welfare areas and is inherently lower than many commercial building typologies.

■ REDUCE ENERGY DEMAND

The proposed development adopts a fabric-first and energy-efficient services approach in accordance with the principles of the Energy Hierarchy and the energy strategy focuses on minimising energy demand through efficient building fabric design, improved airtightness, appropriate glazing, efficient lighting and building services systems, effective controls, zoning and metering; and minimisation of unnecessary conditioned areas.

Heating and cooling provision is anticipated to be limited primarily to office and welfare areas, with the warehouse accommodation operating predominantly as an occupied unheated space.

The services strategy incorporates high efficiency electrically driven systems including VRF heat pumps, LED lighting with occupancy/daylight controls, and heat recovery ventilation systems.

■ USE ENERGY EFFICIENTLY

The potential for connection to existing or planned district heat networks and other low carbon energy supply systems has been reviewed. No existing or proposed heat networks were identified within the vicinity of the site. Due to the low heat demand associated with the predominantly unheated warehouse use, connection to a district heat network is not considered technically or economically appropriate.

Alternative approaches including CHP and communal heating systems were also reviewed but were not considered suitable due to the operational characteristics of the development and the transition toward all-electric building services strategies supported by current planning policy and electricity grid decarbonisation.

■ RENEWABLE ENERGY GENERATION

A feasibility assessment of low and zero carbon (LZC) technologies has been undertaken considering technical feasibility, operational suitability and likely carbon reduction benefits.

The assessment concluded that roof-mounted photovoltaic (PV) systems and air source heat pump technologies provide the most appropriate combination of operational suitability, carbon reduction performance and compatibility with the proposed all-electric energy strategy.

The extent and capacity of renewable energy provision will be refined as the detailed design develops and the final operational energy demand of the development becomes fixed.

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Analysis Results

KEY RESULTS

The tables below document the energy and CO_2 emissions performance for regulated energy uses in the building for each stage of the assessment and cumulatively for all applied measures, demonstrating how this sequential approach has delivered optimum savings for the scheme.

Indicative modelling for the modelled Outline Scheme Option demonstrates the cumulative effect of all measures implemented in accordance with the Energy Hierarchy achieve a reduction in regulated carbon emissions from 3.05 $kgCO_2/m^2$/year (Target Emissions Rate) to 2.76 $kgCO_2/m^2$/year (Building Emissions Rate), equivalent to a saving of **7.17 tCO_2/year**, a **15.1%** reduction from the baseline.

The estimated total regulated CO_2 emissions from the proposed development are **40,351 $kgCO_2$/year**.

SUMMARY TABLES

CO_2 Emissions

	CO_2 Emissions ($kgCO_2$/year)		
	Regulated	**Unregulated**	**Total**
Reduce Energy Demand	47,523	88,441	135,964
Use Energy Efficiently	47,523	88,441	135,964
Renewable Energy Generation	**40,351**	**88,441**	**128,792**

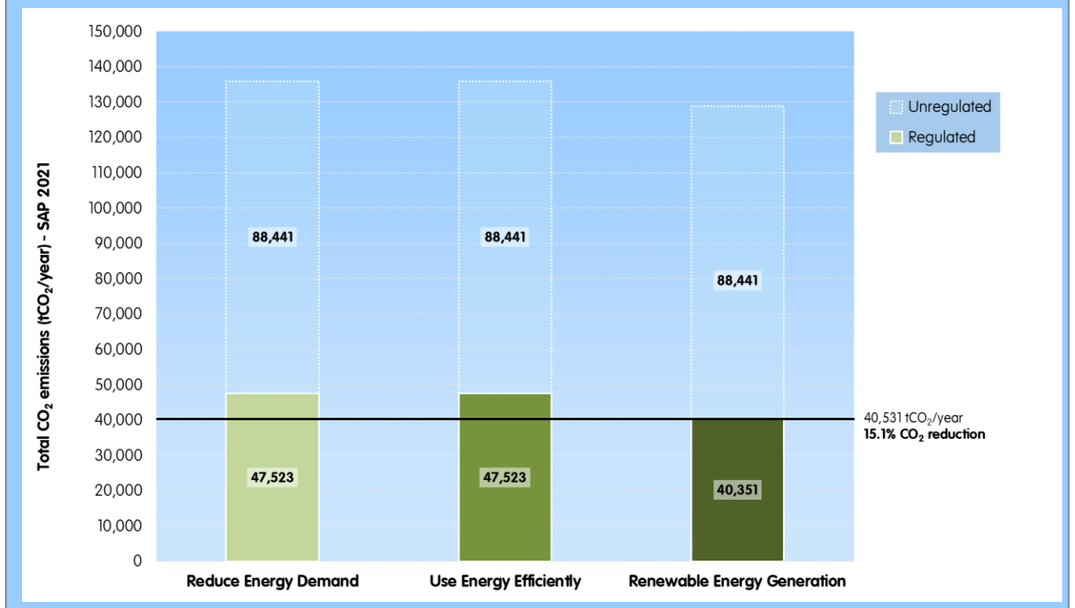
Energy Hierarchy Summary Table, showing CO_2 Emissions Savings at Each Step of the Energy Hierarchy

CO_2 Emissions Savings

		CO_2 Emissions savings			
		$kgCO_2$/year		%	
		Regul.	**Total**	**Regul.**	**Total**
Use Energy Efficiently	Savings from Clean Energy	0.00	0.00	0.00	0.00
Renew. En. Generation	Savings from Renew. Energy	7,172	7,172	15.1%	5.3%
	Total Cumul. Savings	**7,172**	**7,172**	**15.1%**	**5.3%**

Regulated CO_2 emissions savings from each stage of the Energy Hierarchy

SUMMARY CHART



Energy Hierarchy Summary Chart (CO_2 Emissions)

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SUSTAINABILITY STRATEGY

Approach

The proposed development has embedded sustainability principles throughout the design process, aligning with relevant requirements in the policies within Future Wales: The National Plan 2040 and the Wrexham Unitary Development Plan 1996-2011.

Health, Safety and Wellbeing

- Implementation of indoor air quality plan and ventilation strategy. (Hea 04.1/Hea 04.2)
- Review of pedestrian, cyclist and vehicle movement routes to support safe and accessible movement to and through the development, including consideration of lighting, visibility, segregation and wayfinding measures. (Hea 07.1)
- Implementation of construction-stage environmental management and pollution prevention procedures intended to minimise dust, emissions and environmental impacts associated with construction activities. (Pol 02/Man 03.3)
- Incorporation of external amenity space incorporating restorative elements (e.g., vegetation in planters, shelter from the elements) encouraging connection to nature where practical. (General sustainability measure)

Materials, Waste and Circular Economy

- Encouragement of diversion of non-hazardous construction waste from landfill. (Wst 01)
- Implementation of design measures supporting future adaptability and disassembly, including layer independence. (Wst 06)
- Specification of timber and timber-based products that are legally harvested and traded and FSC- or PEFC-certified. (Mat 03)
- Application of responsible sourcing principles throughout the project where feasible, including implementation of a sustainable procurement plan and use of local suppliers. (Mat 03)
- Requirement for the Principal Contractor and key subcontractors to implement certified environmental management and pollution prevention procedures during construction works. (Man 03.3)
- Undertaking of life cycle assessment and embodied carbon studies to identify opportunities to reduce environmental impacts associated with the proposed development. (Mat 01)
- Application of responsible sourcing principles throughout the project, including specification of responsibly sourced timber and products supported by Environmental Product Declarations (EPDs). (Mat 02/Mat 03)
- Engagement with Globechain or similar organisations to maximise reuse of construction waste and surplus materials. (General sustainability measure)
- Application of a project target for recycled and reused material content where practical. (General sustainability measure)

Land Use and Biodiversity

- Engagement of a Suitably Qualified Ecologist to advise on biodiversity enhancement opportunities. (LUE 04/LUE 05)
- Review of opportunities for biodiversity enhancement and habitat creation within the landscape design. (LUE 04)
- Incorporation of bird and bat boxes and/or other appropriate ecologically beneficial measures. (LUE 04)
- Review of opportunities for shading, tree canopy cover and green infrastructure. (LUE 04/climate resilience support measure)
- Encouragement of the use of native and drought-resistant planting species. (LUE 04/LUE 05)
- Review of requirements for long-term habitat and landscape management measures. (LUE 05)
- Consideration of external lighting design measures intended to minimise unnecessary light spill, glare and night-time light pollution impacts on surrounding receptors and ecology. (Pol 04)

Water

- Identification of means of reducing potable water consumption through specification of water-efficient fixtures and fittings (e.g. low-flow taps and dual-flush WCs). (Wat 01)
- Provision of water metering and sub-metering, leak detection systems and flow control devices to support monitoring of operational water consumption. (Wat 02/Wat 03)
- Ensuring external planting species are drought-resistant and capable of being maintained with limited manual watering. (General sustainability/landscape resilience measure)
- Requirement for the Contractor to monitor and set targets for construction water use. (Man 03.6)
- Consideration of implementation of rainwater collection for irrigation purposes. (General sustainability measure)

Climate Change - Resilience and Adaptation

- Review of opportunities to improve resilience of the building fabric, structure and building services systems to future climate conditions. (Wst 05)
- Review of opportunities to reduce vulnerability to extreme weather events and future climate impacts. (Wst 05)
- Review of adaptability of building fabric and services in response to climate change impacts. (Wst 05)
- Incorporation of Sustainable Urban Drainage System (SuDS) measures intended to manage surface water run-off rates, volumes and water quality impacts. (Pol 03/Wst 05)

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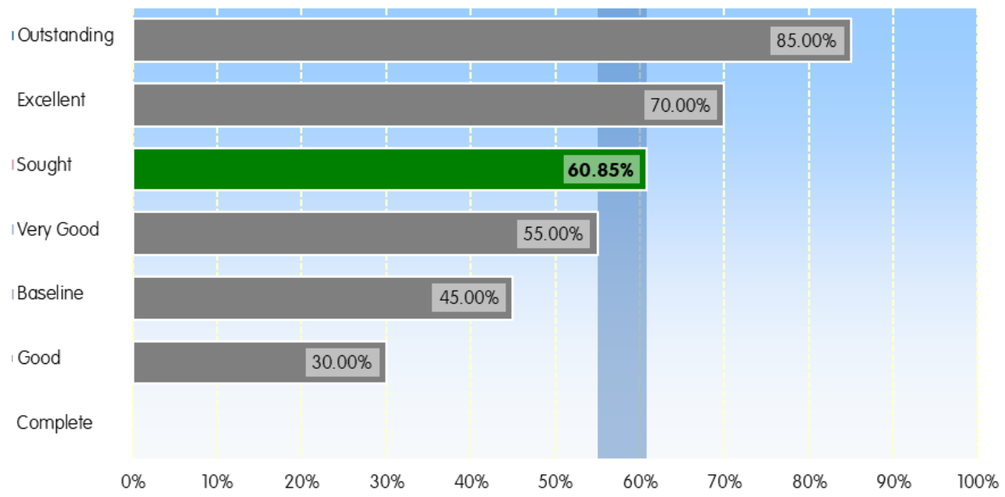
Transport and Mobility

- Provision of secure cyclist parking and associated cyclist facilities. (Tra 02)
- Provision of electric vehicle and electric cycle charging infrastructure and future-proofing measures where practical. (Tra 02/Ene 08 where applicable)
- Encouragement of sustainable transport use through provision of travel information and signage. (Tra 01/Tra 02)
- Implementation of appropriate construction traffic and delivery management procedures. (General construction management measure)

BREEAM Pre-Assessment - Sustainability Benchmarking

MTT/SUSTAIN's licensed BREEAM Assessor and BREEAM AP team have undertaken a BREEAM pre-assessment exercise under the BREEAM New Construction (NC) V7 methodology to establish a feasible BREEAM strategy and identify the Credits and rating level achievable for the proposed development.

The presented BREEAM strategy demonstrates that the feasible BREEAM score for the proposed development is in excess of 55%, which is equivalent to a BREEAM 'Very Good' rating. The projected BREEAM rating is considered suitable for the development based on the proposed design and information available at the time of the planning submission.



BREEAM NC V7 Score and Rating Bands: Required Score/Rating Sought Score

CONCLUSION

This Energy and Sustainability Statement demonstrates the commitment of the Applicant and Project Team to delivering a highly sustainable, low carbon development in accordance with national and local planning policy.

The proposed development has been designed in line with the principles of the Energy Hierarchy, prioritising the reduction of energy demand through a fabric-first approach, supported by energy efficient building services systems and the integration of appropriate low and zero carbon technologies. The modelling undertaken demonstrates these measures can deliver a meaningful reduction in regulated carbon emissions compared to a Building Regulations compliant baseline.

In parallel, a comprehensive sustainability strategy has been developed which addresses a broad range of environmental considerations, including resource efficiency, sustainable materials, water use, waste management, biodiversity enhancement, climate resilience and sustainable transport. These measures align with the placemaking and well-being objectives set out in Planning Policy Wales (Edition 12) and Future Wales: The National Plan 2040.

A BREEAM New Construction V7 pre-assessment has been undertaken to provide an independent benchmark of sustainability performance. This demonstrates that the development is capable of achieving a BREEAM 'Very Good' rating, subject to the final design and assessment scope.

As the application is submitted in outline, the energy modelling and BREEAM pre-assessment have been undertaken using a representative Outline Scheme Option incorporating warehouse and office accommodation. The energy strategy, renewable energy provision and BREEAM assessment scope will be refined as the detailed design develops.

Accordingly, the proposed development represents a robust and policy-compliant response to the requirements of the statutory development plan and national planning policy, delivering a sustainable and adaptable scheme capable of responding to future design evolution while maintaining high standards of environmental performance.

STRUCTURE OF THIS DOCUMENT

Following this Executive Summary, **Section 1.0** outlines the proposed development and site context, while **Section 2.0** summarises the relevant national and local planning policy framework relating to energy, sustainability and low carbon design.

Section 3.0 energy review considers energy and CO_2 emissions, including the assessment methodology, Energy Hierarchy approach, baseline energy profile, and the proposed energy demand reduction, efficient energy use and renewable energy generation measures, together with the overall energy and carbon emissions results. Section **4.0 sustainability review** considers health and wellbeing, materials and circular economy, biodiversity, water efficiency, climate resilience, transport and mobility, and the BREEAM pre-assessment.

A review of national, and local planning policies is presented in **appendix a**, the LZC Feasibility Study in **appendix b** and the BREEAM pre-assessment Credit Tracker in **appendix c**.

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1.0 site background…

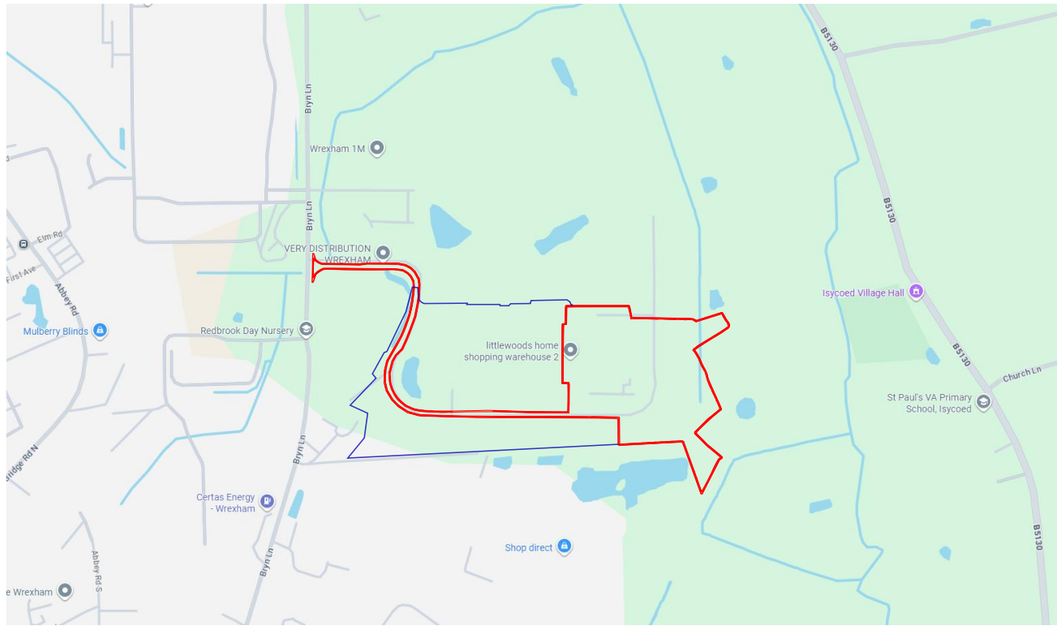
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THE SITE AND THE PROPOSED DEVELOPMENT

Site Background

The proposed development is situated on Bryn Lane, Wrexham. The site is located west of Wrexham town centre, within an established industrial estate mostly to the South and West of the site. The border with England is 1.5 miles as the crow flies, east of the site.

The West site boundary runs along the East elevation of an existing industrial building, currently occupied by The Very Group.

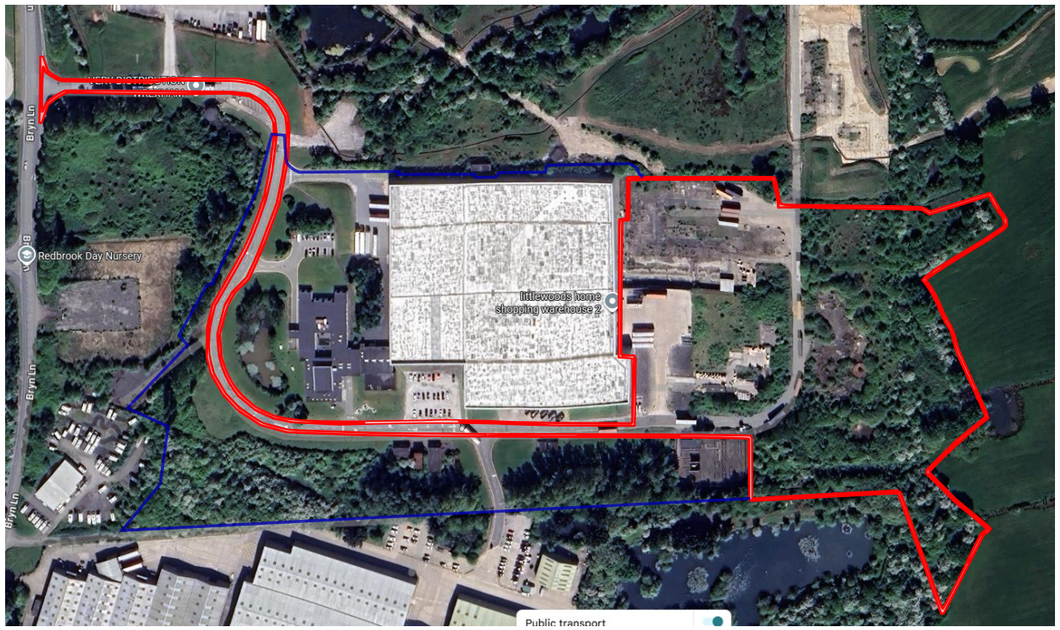


Site Location Map - Site Boundary Indicative

Existing Site

The site is currently a yard and storage area for the neighbouring existing warehouse.

The site is predominantly surrounded by industrial buildings and is located within the established employment zones of Wrexham Industrial Estate and Redwither Business Park. This zone comprises a mix of warehouses, distribution centres, light industrial units, and associated service yards.



Site Location Aerial Photograph - Site Boundary Indicative

1.0 site background…

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Existing Site, Buildings and Landscaping

There is a large retaining wall dividing the higher and lower sections of the yard space. The higher existing yard is a constraint for the new development but the design has been arranged to retain it.

A large proportion of the eastern half of the site is covered in vegetation which will need to be cleared for the new development. In addition, there are a number of ponds beyond the boundary of the site.

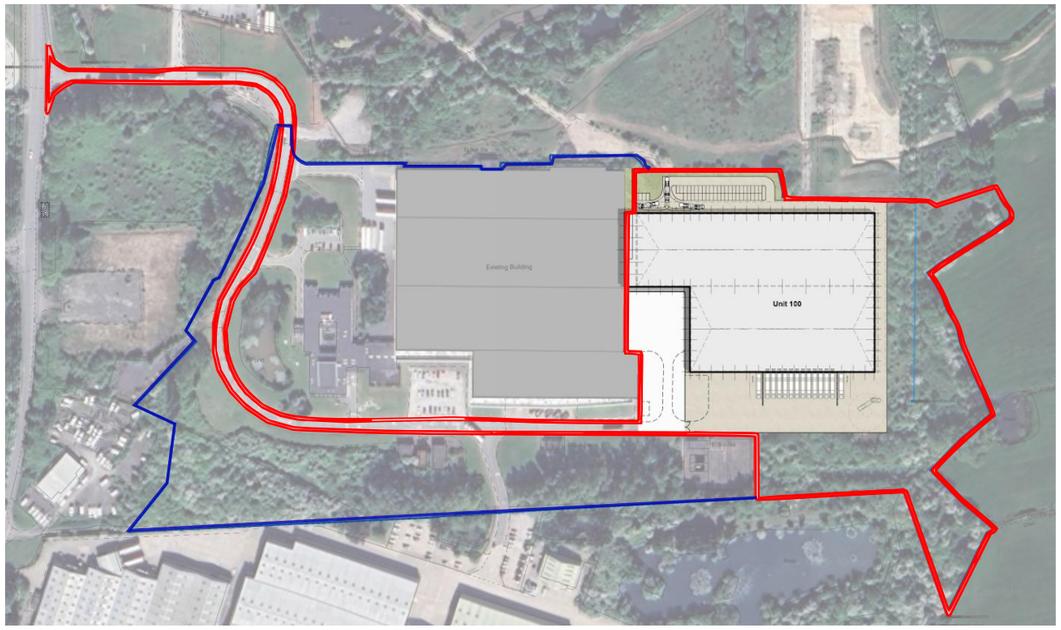


Photograph of Existing Site

Proposed Site, Buildings and Landscaping

The description of the development is as follows: 'Outline planning application (all matters reserved excluding access) for the provision of a new standalone building or an extension to the existing building for Use Class B2 and/or Use Class B8 and ancillary offices, along with access, car parking, service yard, landscaping and associated works'.

The proposed Bryn Lane scheme comprises a B2/B8 development up to 160,000 ft^2 of employment floorspace. The Architect has prepared an Illustrative Masterplan based on a Parameters Plan demonstrating how employment floorspace could come forward via a single unit scheme. Further details, including layout, appearance, parking and servicing will be agreed at a later stage through separate 'Reserved Matters' applications. Detailed Planning Permission is sought for access.



Site Location Aerial Photograph Image - Site Boundary Indicative

2.0 policy background…

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OBJECTIVE

The purpose of this section of the Energy and Sustainability Statement is to outline the relevant planning policy, statutory requirements and best practice guidance relating to energy and sustainability performance for the proposed development, and to demonstrate how these have informed the design approach.

REVIEW OF POLICY AND GOOD PRACTICE GUIDANCE

Statutory Development Plan

Section 38(6) of the Planning and Compulsory Purchase Act 2004 requires that planning applications are determined in accordance with the Development Plan unless material considerations indicate otherwise.

For Wrexham County Borough Council, the statutory Development Plan comprises:

- Future Wales: The National Plan 2040 (adopted February 2021), which sets out the national spatial strategy for Wales
- The Wrexham Unitary Development Plan 1996-2011, adopted 2005

The Wrexham Local Development Plan (LDP) 2013-2028 (adopted 2023) was withdrawn on 18th March 2026

Planning decisions must also be made in accordance with Section 70(2) of the Town and Country Planning Act 1990, having regard to the provisions of the Development Plan and any other material considerations.

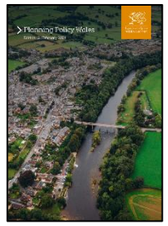
Planning Policy Wales (Edition 12) provides overarching national planning policy guidance and is a material consideration, but not part of the Development Plan.

Other Guidance

A detailed review of relevant national and local policies relating to sustainability, energy efficiency and low carbon design, together with wider good practice guidance, is provided in **appendix a**.

These documents, alongside the applicant's sustainability objectives, have informed and shaped the approach to the proposed development's key design principles. The assessment has also had regard to relevant regional guidance, including Ambition North Wales Growth Deal objectives relating to carbon reduction and biodiversity enhancement, where applicable to the proposed development.

NATIONAL POLICY AND GUIDANCE



Planning Policy Wales (Edition 12)

Planning Policy Wales (Edition 12) (PPW) sets out the Welsh Government's land use planning policies for Wales. It promotes sustainable development in the public interest, with a focus on improving the economic, social, environmental and cultural well-being of Wales.

PPW is underpinned by legislation including the Planning (Wales) Act 2015 and the Well-being of Future Generations (Wales) Act 2015, which establish the statutory framework for sustainable development.

The document defines five key planning principles:

- Growing the economy in a sustainable manner
- Making best use of resources
- Facilitating accessible and healthy environments
- Creating and sustaining communities
- Maximising environmental protection and limiting environmental impact

PPW places strong emphasis on sustainable placemaking and requires development plans and decisions to contribute towards national placemaking outcomes.

With respect to energy (PPW Section 5.7), the document sets out policies for planning for low carbon and renewable energy. While it does not impose performance standards beyond Building Regulations, it encourages local planning authorities to maximise opportunities for renewable and low carbon energy generation, minimise carbon emissions, and optimise the use of local energy resources.

PPW is supported by a suite of Technical Advice Notes (TANs), including Technical Advice Note 12: Design, which provides guidance on achieving high quality, sustainable design, identifying five objectives of good design:

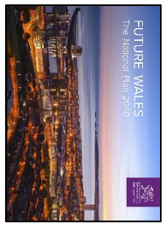
- Access
- Character
- Community Safety
- Environmental Sustainability
- Movement

Environmental sustainability is defined as the efficient use and protection of natural resources, enhancement of biodiversity, and designing for adaptability. The guidance promotes minimising energy demand and carbon emissions through appropriate design strategies, including application of the Energy Hierarchy.

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Future Wales: The National Plan 2040



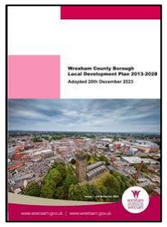
Future Wales: The National Plan 2040 is the national development framework for Wales and forms part of the Development Plan. It establishes a long-term spatial strategy to 2040, addressing key national priorities including:

- Decarbonisation and climate resilience
- Economic growth and regional development
- Strengthening ecosystems
- Enhancing health and well-being

The plan includes policies supporting renewable energy generation, including a national target for 70% of electricity consumption in Wales to be met from renewable sources by 2030 (Policy 17).

COUNTY AND LOCAL POLICIES

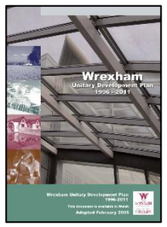
Wrexham Local Development Plan (LDP) 2013-2028 (adopted 2023)



The proposed development falls within the administrative area of Wrexham County Borough Council and is therefore required to be assessed against the current statutory development plan and relevant national planning policy.

The Wrexham Local Development Plan 2013-2028, which was adopted in 2023, was formally withdrawn on 18th March 2026 and no longer forms part of the statutory development plan. Accordingly, it carries no policy weight in the determination of planning applications.

Wrexham Unitary Development Plan 1996-2011 (adopted 2005)



In the absence of an adopted Local Development Plan, the statutory development plan for Wrexham now comprises Future Wales: The National Plan 2040 and the Wrexham Unitary Development Plan 1996 - 2011, in accordance with the established planning hierarchy.

While the Unitary Development Plan provides the local policy framework, it is recognised that it predates current climate and sustainability policy priorities. As such, greater weight is afforded to national planning policy set out in Planning Policy Wales (Edition 12), which promotes the delivery of sustainable, low carbon development, climate resilience, and the well-being of communities.

The Council has also declared a climate emergency and supports the delivery of low carbon development through its planning policies and wider strategies. These objectives are aligned with national policy set out in Planning Policy Wales (Edition 12) and Future Wales: The National Plan 2040.

OTHER CONSIDERATIONS

Building Regulations - Part L (Wales) 2022



Approved Document Part L of the Building Regulations sets out the minimum standards that new developments are required to meet in relation to energy efficiency, carbon emissions and building performance.

In Wales, the 2022 uplift to Part L is set out in two volumes:

- Approved Document Part L Volume 1: Dwellings
- Approved Document Part L Volume 2: Buildings other than dwellings

As a new-build, non-domestic development, the proposed scheme is required to comply with Approved Document Part L Volume 2 (Wales) 2022.

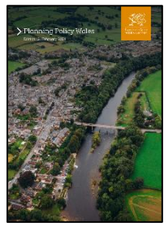
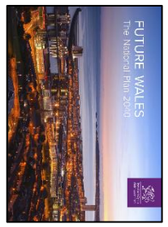
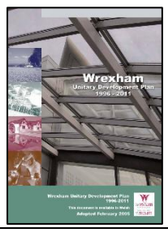
A review of the relevant planning policy framework including Planning Policy Wales (Edition 12) and the statutory development plan (Future Wales and the Wrexham UDP), confirms that there are no specific quantitative energy or carbon reduction targets prescribed at the local level which exceed the requirements of Part L.

At this stage of design, the proposed energy strategy has been developed to achieve compliance with Part L Volume 2 (Wales) 2022 and is considered to be in alignment with the overarching objectives of national and local planning policy in relation to energy efficiency and carbon reduction.

2.0 policy background…

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SUMMARY TABLE

Images	Policy Source	Policy/Theme	Key Requirement	Development Response	E&S Statement Section Reference
	**Planning Policy Wales (Edition 12)**	Section 5.7 - Energy Hierarchy	Reduce demand, improve efficiency, use renewables	Fabric-first design, efficient systems, and renewable energy integration implemented	**Section 3 Energy Review (esp. Sections 3.2 - 3.5 Reduce Energy Demand/Use Energy Efficiently/Renewable Energy Generation)**
		Section 5.8 - Sustainable Buildings	Minimise carbon emissions and enhance climate resilience	Energy-efficient design and climate resilience measures incorporated	**Section 3 Energy Review (all)** **Section 4.6 Climate Change Resilience and Adaptation**
		Placemaking & Well-being	Deliver sustainable, healthy environments	Strategy includes sustainable materials, water efficiency, biodiversity, and healthy environment design	**Section 4 Sustainability Review (all)**
	**Future Wales: The National Plan 2040**	Policy 17 - Renewable Energy	Increase renewable energy generation and support decarbonisation	On-site renewable energy (PV) integrated; low carbon systems specified; energy demand minimised through design	**Section 3 Energy Review (esp. Section 3.5 Renewable Energy Generation)**
		Policy 9 - Green Infrastructure & Biodiversity	Enhance ecological networks and green infrastructure	Biodiversity enhancements and green infrastructure integrated into site design	**Section 4.4 Land Use and Biodiversity**
		Policy 8 - Flood Risk	Avoid and manage flood risk	Site design incorporates SuDS and flood risk mitigation measures	**Section 4.5 Water & Drainage** **Section 4.6 Climate Resilience**
	**Wrexham Unitary Development Plan 1996-2011**	Sustainable Development (General Policies)	Promote efficient and environmentally responsible development	Energy and sustainability strategy aligned with national policy and best practice	**Section 3 Energy Review (all)** **Section 4 Sustainability Review (all)**
		Environmental Protection	Protect environmental quality and assets	Biodiversity, drainage, and environmental mitigation measures included	**Section 4.4 Land Use and Biodiversity** **Section 4.5 Water**
		Transport	Encourage sustainable transport	Development includes sustainable transport measures and EV infrastructure	**Section 4.7 Transport and Mobility**

3.1 energy review - overview…

…sustainable building services solutions

OBJECTIVE

The purpose of this section of the Energy and Sustainability Statement is to set out the principles and methodology used to develop the energy strategy for the proposed development and inform the design process.

As the application is submitted in outline, the final building form, internal layout, extent of office and welfare accommodation, and servicing strategy remain subject to design development. The energy assessment has therefore been undertaken using a representative Outline Scheme Option incorporating warehouse and ancillary office/welfare accommodation. The results should be read as a representative planning-stage assessment, rather than a final Building Regulations compliance model or definitive prediction of operational energy use.

POLICY CONTEXT

This Energy Strategy has been prepared in accordance with the requirements of Planning Policy Wales (PPW) Edition 12 and Future Wales: The National Plan 2040, which seek to minimise energy demand, maximise energy efficiency and reduce carbon emissions in support of national decarbonisation objectives.

In particular, PPW requires developments to apply the Energy Hierarchy by prioritising reductions in energy demand, followed by efficient energy use and then the maximisation of renewable and low carbon energy generation. Accordingly, the structure of this section of the Energy and Sustainability Statement follows that hierarchy.

APPROACH

Project Drivers

The energy demand reduction strategy has been developed in response to the following drivers for the project:

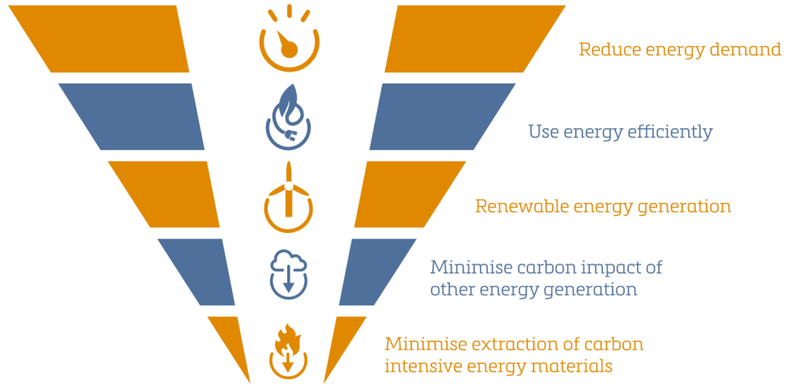
- providing a commercially appropriate specification which balances future occupier flexibility, buildability, value and energy performance
- achieving appropriate sustainability targets
- achieving environmental comfort conditions and occupant wellbeing, and avoiding unnecessary construction cost
- reducing, where possible, the extent and installed capacity of cooling plant.

The energy analysis has therefore been undertaken using a representative scheme option incorporating warehouse and office elements of comparable scale and operational profile to the current design options.

The Energy Hierarchy

OVERVIEW

The Energy Hierarchy set out within Planning Policy Wales provides a robust framework for appraising appropriate measures to reduce CO_2 emissions and other climate impacts, ensuring that passive design measures are prioritised in order to reduce overall energy demand, followed by consideration of efficient energy use and supply, and then the use of low/zero carbon energy sources.



The Energy Hierarchy, Planning Policy Wales Edition 12 Figure 10

TYPICAL MEASURES AT EACH ENERGY HIERARCHY STAGE

Stage	Typical Measures Investigated	Analysis Undertaken in Thermal Model
Baseline	Not Applicable	Evaluate Baseline **Target Emission Rate** (TER) - modelled as a building 'just compliant' with Building Regulations Part L
Reduce Energy Demand	- Reduction in energy demand via 'fabric first' approach - improving envelope thermal performance - Incorporation of passive design measures to reduce heating and cooling demand. - Installation of energy efficient lighting and appliances.	Evaluate **Building Emission Rate** (BER), modelled as 'Baseline' above, but with (where specified): - Enhanced building fabric (U-values, airtightness) - Optimised glazing ratios and shading - Energy-efficient lighting (e.g., LED + daylight/occupancy controls) - Efficient building services - Mechanical ventilation with heat recovery (MVHR) if applicable
Use Energy Efficiently	- Facilitation of connection to existing or planned heating and cooling networks. - Implementation of site-wide heating networks.	Evaluate **Building Emission Rate** (BER), modelled as 'Reduce Energy Demand' above, but with (where specified): - Centralised communal heating system - Heat source via CHP or connection to District Heat Network (DHN) if available and viable - Domestic hot water provided from central system
Renewable Energy Generation	- Installation of renewable energy technologies on site. - Facilitation of the import renewable energy from off-site.	Evaluate **Building Emission Rate** (BER), modelled as 'Reduce Energy Demand'/'Use Energy Efficiently' above, but with (where viable): - Inclusion of renewable technologies (e.g., rooftop PV, solar thermal etc)

Measures Typically Investigated at each Energy Hierarchy Stage

At each stage of the hierarchy appropriate site-specific measures are identified for implementation within the building design to deliver optimum CO_2 emissions savings.

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METHODOLOGY

Overall Approach

The energy strategy for the proposed development has been developed in accordance with the Energy Hierarchy embedded within Planning Policy Wales (PPW) which prioritises energy demand reduction measures, followed by efficient energy supply measures and then the integration of low and zero carbon technologies.

Following the establishment of the baseline energy consumption, at each stage of the Energy Hierarchy, consideration is given to measures which improve the building's energy/CO_2 emissions performance, with energy demand and CO_2 emissions evaluated at each stage using accredited calculation approaches. In the case of the proposed development, dynamic simulation modelling (DSM) has been undertaken.

The assessment methodology is aligned with Building Regulations Part L (Wales) 2022 and associated National Calculation Methodology (NCM) guidance. Energy consumption related to regulated energy use of the scheme has been established from the Building Emission Rate, via the Building Regulations Part L methodology. The proposed development was assessed using EDSL Tas, an accredited building simulation (thermal modelling) tool.

Baseline CO_2 emissions related to regulated energy use in the building have been established based on the Building Regulations Part L Target Emissions Rates (TER), specifically from the EDSL Tas DSM model using the National Calculation Methodology (NCM).

Energy Uses Assessed

BACKGROUND

All energy uses, including both regulated and unregulated loads, have been considered in establishing the overall energy profile of the development. This ensures that the energy strategy reflects total operational energy demand, rather than solely Building Regulations compliance metrics.

REGULATED ENERGY USE

The following regulated energy uses have been assessed in accordance with Building Regulations Part L methodologies:

- Space heating
- Water heating
- Cooling
- Ventilation
- Fans, pumps and controls
- Internal lighting

These energy uses have been quantified using DSM undertaken in accordance with the National Calculation Methodology (NCM) for non-domestic buildings.

UNREGULATED ENERGY USE

The regulated energy uses can be established using the robust and well-established methodology of Part L of the Building Regulations. However, energy and carbon emissions calculated for Part L do not consider all energy demands and omit assessment of:

- Small power (plug-in loads, such as computers, photocopiers etc.)
- Cooking and 'process' loads (where present)
- External lighting
- Lifts

Unregulated energy uses, including small power (plug-in loads such as appliances, computers and equipment) and process loads, are not explicitly addressed within Building Regulations compliance calculations

These loads have been estimated using the 'equipment' energy outputs within the NCM modelling framework, ensuring a more comprehensive understanding of the building's overall energy demand.

Baseline

An initial baseline assessment has been undertaken to establish the energy performance of the proposed development in accordance with Building Regulations Part L (Wales) 2022.

The baseline represents a compliant 'notional building' and serves as the reference point against which subsequent energy efficiency measures and carbon reductions are assessed. The building fabric and services parameters applied to the baseline model, and used consistently across subsequent energy hierarchy stages, are set out below.

The notional building specification reflects the minimum standards prescribed within the Approved Document, including:

- Fabric performance (U-values and air permeability)
- System efficiencies and controls
- Low carbon heating systems consistent with Building Regulations Part L (Wales) 2022 notional specifications

This provides a robust and policy-aligned baseline against which the performance of the proposed development can be evaluated.

3.1 energy review - overview…

…sustainable building services solutions

Reduce Energy Demand

At this stage, the energy model is updated to reflect an evolved building design in which energy demand is minimised through passive design strategies and efficient building fabric.
The approach prioritises a 'fabric-first' methodology, reducing reliance on mechanical systems and supporting long-term reductions in operational carbon emissions.

Passive design measures have been considered and incorporated where feasible, including:

- Optimisation of building form and orientation
- Appropriate glazing ratios and solar control
- Enhanced thermal performance of the building fabric
- Reduction of uncontrolled air infiltration

These measures provide robust and enduring carbon savings which are not dependent on building operation or occupant behaviour.

Use Energy Efficiently

This stage considers the feasibility of supplying energy via efficient, decentralised or communal energy systems.

A review has been undertaken to assess the potential for connection to existing or planned district heating networks. Where such connections are not currently available or viable, the development adopts efficient on-site energy generation and distribution strategies.

The building services design is developed to ensure high system efficiencies and appropriate controls, supporting reduced energy consumption and operational carbon emissions.

Renewable Energy Generation

This stage involves the integration of Low and Zero Carbon (LZC) technologies to reduce residual regulated carbon emissions.

A feasibility assessment has been undertaken to consider the technical and commercial viability of renewable energy technologies for the development. This includes consideration of:

- Roof-mounted photovoltaic (PV) systems
- Air source heat pump technologies
- Other site-appropriate renewable or low carbon systems

Technologies identified as viable are incorporated into the proposed energy strategy, and their impact is reflected within the DSM outputs. It is acknowledged that not all technologies will be suitable due to site-specific constraints, including building form, operational requirements, and cost-effectiveness.

This assessment also aligns with the requirements of BREEAM Credit Ene 04.3: Low Carbon Design - Low and Zero Carbon Energy Generation Technologies, where applicable.

Operational Energy and Monitoring

Provision is made to facilitate the monitoring of operational energy performance through an appropriate metering strategy and Building Management System (BMS).

The metering strategy is designed to enable the collection of energy consumption data across key end uses, supporting ongoing performance evaluation and optimisation post-occupation.

This approach aligns with good practice guidance and supports the verification of energy performance in use.

3.1 energy review - overview…

…sustainable building services solutions

THERMAL MODEL

Introduction

Regulated energy demand, consumption and the associated CO_2 emissions have been modelled using Dynamic Simulation Modelling (DSM) software, based on a representative building model, to indicate likely performance at this stage.

The modelling has been undertaken in accordance with the principles of the National Calculation Methodology (NCM), as applicable to non-residential building types at the planning stage.

Dynamic Simulation Modelling

DSM combines mathematical routines to simulate key heat and mass transfer mechanisms governing building performance. This type of analysis tracks the thermal state of a building on an hourly basis using real weather data, resulting in a detailed understanding of operational energy performance, and offering a more detailed and dynamic assessment than the Simplified Building Energy Model (SBEM)

DSM applies zone-specific operational profiles (occupancy, lighting, ventilation and domestic hot water demand), together with building services performance data, 3D geometry and appropriate weather data, to provide a robust indication of the likely energy performance of a building.

The heat and mass transfer mechanisms include conduction, convection, long wave radiation, short wave radiation - absorbed, reflected and transmitted, internal conditions - gains from lights, equipment, processes and occupants and ventilation and internal air movement driven by natural convection

This level of detail allows realistic variations in fabric thermal storage (thermal mass effects), weather conditions, occupancy patterns, and internal and solar gains to be taken into account, and their influence on internal environmental conditions and plant operation to be assessed.

3D Model

For this outline planning application, a detailed building-specific energy model has not been undertaken, as the nature of the application means that the building layout and the extent of office accommodation are not yet fixed.

A representative thermal model has been developed for the Outline Scheme Option described above, incorporating warehouse and ancillary office/welfare accommodation of comparable scale and operational profile to the current design options. This provides a proportionate planning-stage indication of likely energy performance. Images from the DSM thermal model are shown on the following page.

Software Used

For the purposes of this Energy and Sustainability Statement, the Tas dynamic simulation modelling software package, from Environmental Design Solutions Limited (EDSL) has been used. The version of the software used was EDSL Tas v9.5.6 (Build 16390). EDSL Tas is a software package validated by the Department for Levelling Up, Housing and Communities (DLUHC) for compliance modelling and Energy Performance Certificates.

Activity Profiles

Appropriate National Calculation Methodology (NCM) activity profiles representative of warehouse and office uses were applied.

Weather Data

To accurately model the dynamic nature of the building's thermal response, hourly weather data is used in the DSM process. Typically, such data will reflect records of radiation, temperature, humidity, sunshine duration and wind speed and direction throughout the period of a year. In accordance with CIBSE TM 32:2003 and the NCM Modelling Guide (2021 Edition), the year's weather data applied to the analysis is a CIBSE Test Reference Year (TRY) and based on an average of approximately 20 years.

The TRY consists of hourly data for twelve typical months (selected from approximately 20-year data sets and synthesised to provide a composite one-year sequence of data) allowing the representative energy performance of buildings to be assessed by software simulation under standard weather conditions.

The specific TRY file is based on proximity to the proposed site location; in this case, the Manchester TRY was applied as it is the most appropriate for the site's location.

Carbon Emissions Factors

Carbon emission factors were used to calculate the equivalent CO_2 emissions associated with different fuels. For example, 1 kWh of power from grid-supplied electricity will be associated with lower CO_2 emissions than 1 kWh of power from natural gas.

The carbon emission factors applied are aligned with SAP 10.2 (reflecting SAP 10.2 carbon emission factors, applicable to both domestic and non-domestic analysis) and the Building Regulations Part L (Wales) 2022.

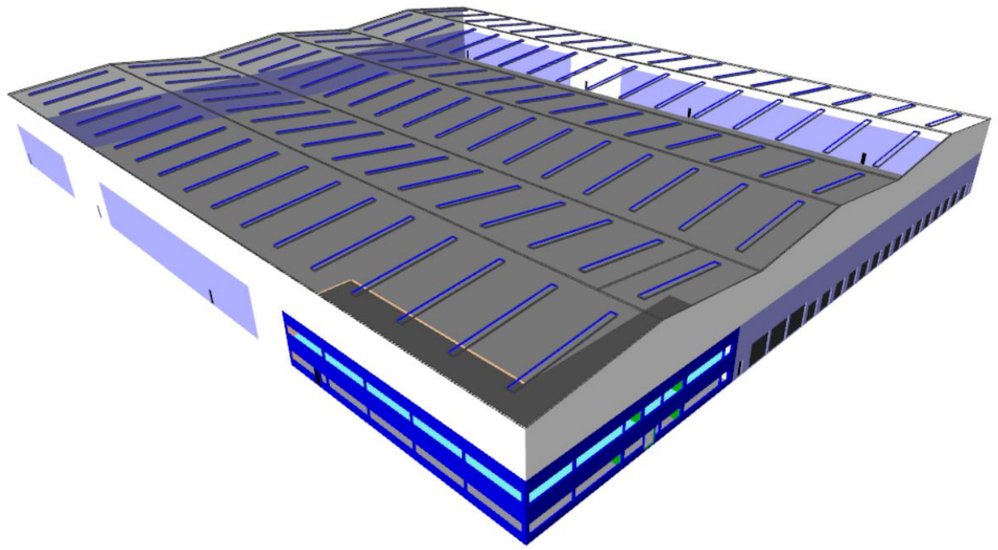
3.1 energy review - overview…

…sustainable building services solutions

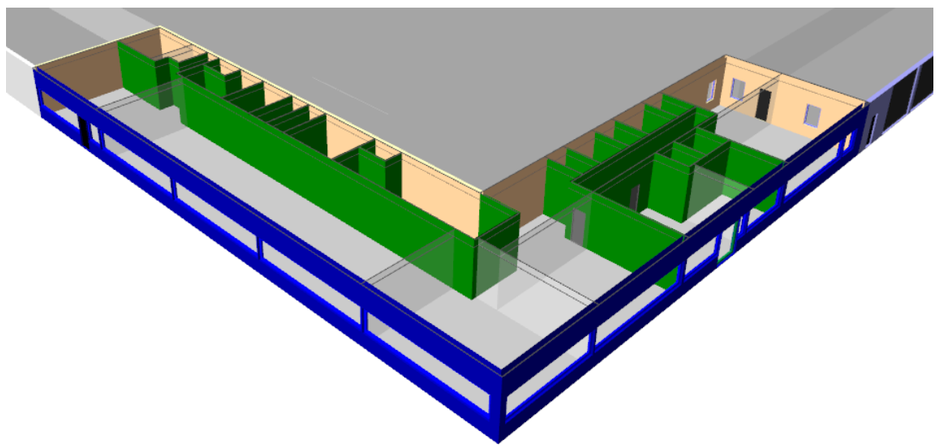
DSM Thermal Model Images

The images below are extracted from the EDSL Tas model, demonstrating the 3D building model's indicative geometry and zones for a 13,532 m² warehouse with a 1,079 m² office element.

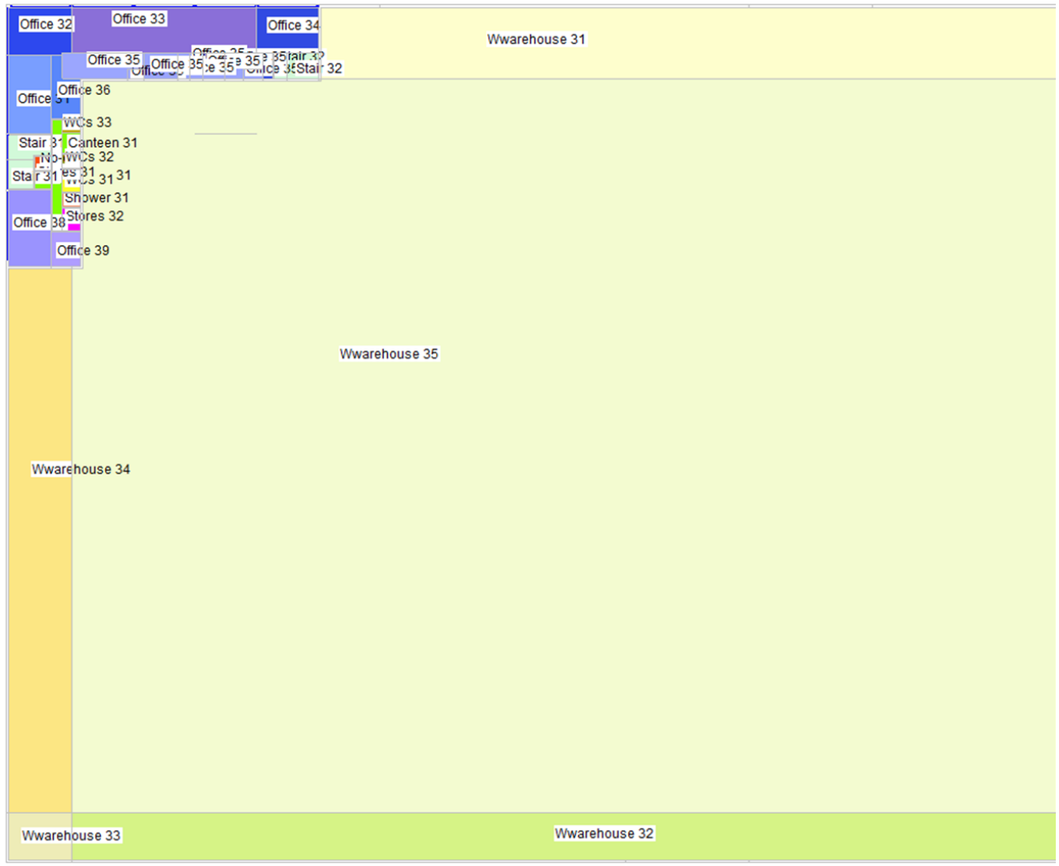
The model includes a representative office element distributed across two elevations, to represent solar gains for plausible design configurations (as per Scheme Options 1c or 2c)., acknowledging that the final layout and extent of office space (if any) remain subject to design development.



EDSL Tas Building Energy Model



EDSL Tas Building Energy Model - Detail



EDSL Tas Building Energy Model - Model Thermal Zones

3.2 energy review - baseline…

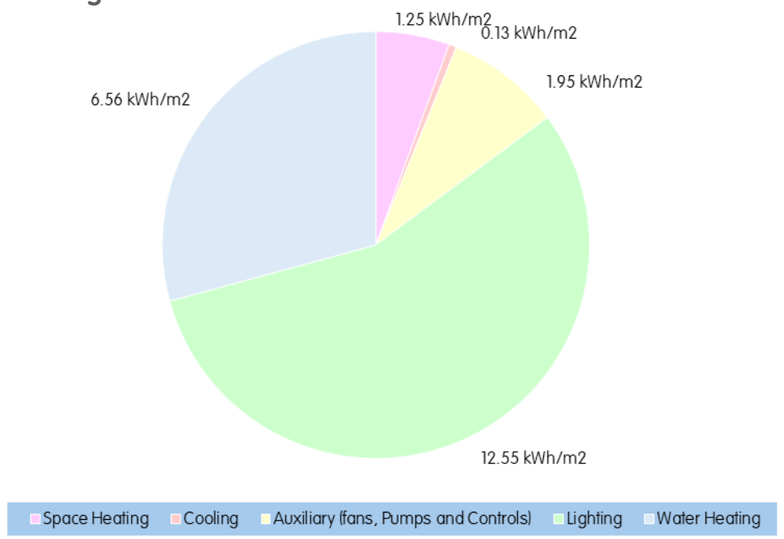
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OBJECTIVE

Before energy efficiency measures are investigated, it is important to establish the baseline energy consumption of the scheme for comparison and evaluation of energy proposals. The baseline energy assessment must establish the regulated CO_2 emissions that the building would emit, were it to be constructed using standardised fabric thermal performance parameters and a standardised building services strategy and plant efficiencies.

BASELINE RESULTS

Whole Building

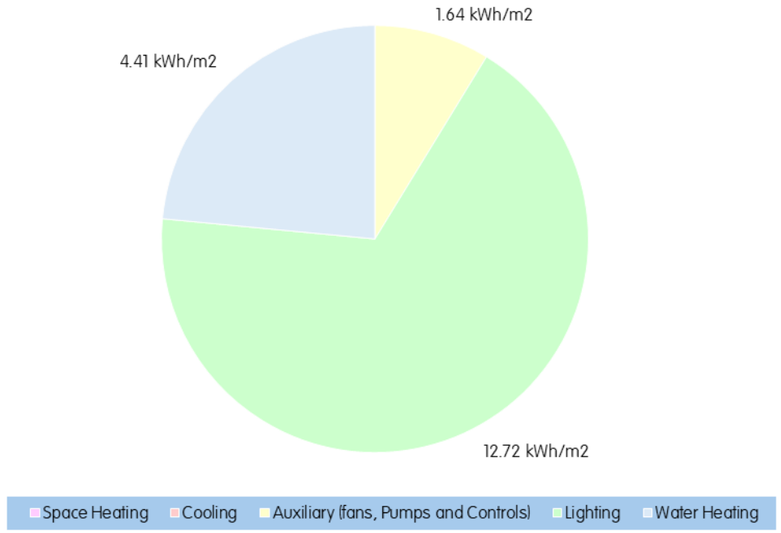


Energy Consumption by End Use in Baseline Model for Entire (Warehouse + Office) Building

As anticipated for warehouse developments, the regulated energy use profile is heavily weighted towards lighting and to a lesser extent domestic hot water (DHW) generation. This is primarily driven by the NCM activity data and occupancy schedules, which model DHW demand associated with welfare and sanitary facilities serving the workforce, largely independent of seasonal variation.

When accounting for the larger warehouse floor area, the combined energy demand is dominated by lighting and domestic hot water, with heating and cooling comparatively limited across the whole building.

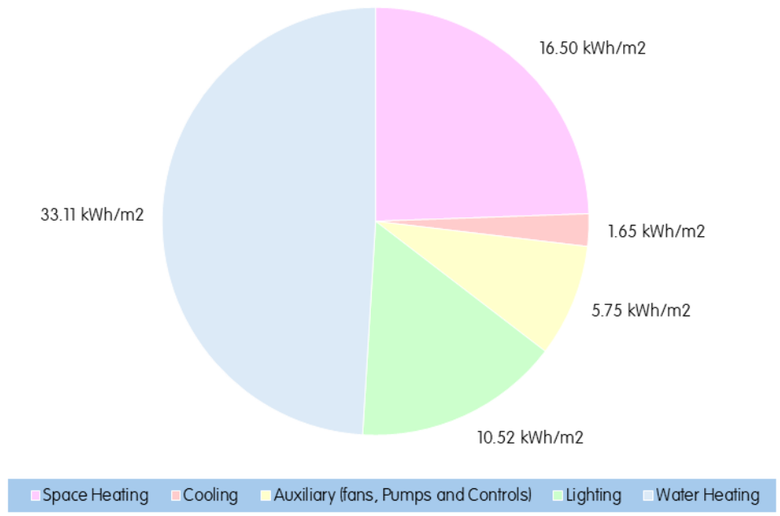
Warehouse Element



Energy Consumption by End Use in Baseline Model for Warehouse Element

The warehouse element's energy demand is almost entirely driven by lighting, with modest contributions from DHW and auxiliary systems.

Office Element



Energy Consumption by End Use in Baseline Model for Office Element

In the office element, domestic hot water heating is the dominant energy demand, with lighting and cooling also significant. Space heating and cooling, and auxiliary systems contribute the least.

3.3 energy review - reduce energy demand…

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OBJECTIVE

This section of the energy review encompasses the first stage of the Energy Hierarchy, identifying measures to reduce the baseline energy demand of the development through passive and active means.

Based on the initial baseline energy calculations from the DSM thermal model, the project's characteristics, operational requirements and available passive and active design measures have been considered. In establishing the proposed energy strategy for the development, opportunities to minimise energy consumption through building fabric and building services measures have been prioritised, as these provide the greatest opportunity to reduce the building's potential CO_2 emissions.

Measures implemented at this stage reduce the extent of measures, or the size of plant, needed to address the subsequent 'Use Energy Efficiently' and 'Renewable Energy Generation' stages. The measures described below reflect the representative Outline Scheme Option and will be refined as the detailed design develops.

SCOPE

Passive measures considered within this section include measures generally related to the building's architectural form and specification, including:

- Building orientation and shading
- Building fabric performance
- Building airtightness

Active measures considered relate primarily to the building services strategy and include:

- Efficient heating, cooling and ventilation systems
- High efficiency lighting and lighting controls
- Thermal zoning and controls
- Metering and sub-metering, and
- Commissioning, handover and user guidance

As the majority of unregulated loads arise from the future use and operation of the building by occupants, the Applicant has limited direct control over the associated energy consumption and CO_2 emissions. However, the proposed approach includes consideration of:

- Commissioning and handover procedures
- User guidance
- Building services controls
- The energy metering strategy

Collectively, these measures are intended to assist future building operators and occupants in understanding and operating the building efficiently, while also supporting the ongoing optimisation of the building's operational energy performance.

APPROACH

Energy Demand Reduction Strategy

The proposed development adopts a fabric-first and energy-efficient services approach in accordance with the principles of the Energy Hierarchy.

Given the predominantly unheated nature of the warehouse accommodation and the relatively small ancillary office provision, the development's regulated energy demand is inherently low compared with many commercial building typologies. Accordingly, the energy strategy focuses on reducing energy demand through:

- efficient building fabric design
- improved airtightness
- appropriate glazing and solar control measures
- high efficiency lighting and building services systems
- effective controls, zoning and metering, and
- minimisation of unnecessary conditioned areas

The warehouse accommodation will generally operate as an occupied unheated shell space, with fixed comfort conditioning limited primarily to office, welfare and ancillary areas classified as 'treated' spaces under the National Calculation Methodology (NCM).

As a result, the proportion of heated and cooled accommodation within the overall building footprint is relatively small, thereby inherently limiting regulated operational energy demand and associated CO_2 emissions.

The following sections review the passive and active design measures incorporated within the proposed development to minimise operational energy consumption prior to consideration of low and zero carbon energy technologies.

Treated Areas

Within warehouse developments of this type, areas classified as 'treated' under the National Calculation Methodology (NCM) - i.e. spaces that are actively heated or cooled for the purposes of occupant comfort - typically represent only a small proportion of the overall building floor area, generally limited to ancillary office and welfare facilities, such as toilets, changing rooms and showers.

For the proposed development, the primary warehouse accommodation will operate as an occupied unheated shell space, with heating and cooling provision limited principally to welfare areas and offices, where provided. Consequently, despite the overall scale of the building, the regulated operational energy demand associated with space heating and cooling is comparatively low.

Heating and cooling to treated office areas is anticipated to be provided via high efficiency electrically driven heat pump systems.

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PASSIVE MEASURES

Overview

The passive design strategy focuses on reducing energy demand through the building form, fabric specification, glazing strategy, airtightness and limitation of unnecessary conditioned areas.

Passive design can be described as designing a building to take maximum advantage of daylight, solar control and efficient building fabric design in order to reduce the energy demand of the building. The following passive design measures have been explored during design:

- Building location and orientation and layout
- Building Fabric Performance
- Solar Control and Shading
- Other Considerations - thermal bridging, building airtightness and thermal mass

Building Location and Orientation and Layout

The location of neighbouring buildings, site access and landscape features effectively constrain the building's location and orientation on the site to those shown in the Outline Scheme Options drawings.

Whereas the untreated nature of the warehouse element means its energy performance is not affected by the overall building's layout, the orientation and distribution of glazing in the office element (where provided in the Outline Scheme Options) limit the extent of direct south-facing solar exposure, while maintaining appropriate daylight provision to office areas.

Building Fabric Performance

OVERVIEW

Improving the performance of the building thermal envelope (reducing fabric U-values and glazing g-values) is key to low carbon performance and to achieving a healthy, comfortable internal environment.

In particular, careful consideration must be given to the glazing specification, which must balance daylight provision, solar control and thermal performance, particularly for the office element where comfort conditions are actively maintained.

The following performance targets are indicative design aspirations. The thermal modelling presented within this assessment is based on Building Regulations Part L (Wales) 2022 compliant assumptions as summarised in the model input parameters.

OPAQUE ELEMENTS

Façade

The building envelope will target a high standard of performance as indicated in the tables below, which detail enhanced U-values for both opaque and glazed elements.

Element	**U-value** W/m²K
External Walls	0.22
Pedestrian Door	1.60
Vehicle Doors/Loading Doors	3.30

Building Fabric Assumptions - Opaque Elements (Façade)

Roof

The roof construction will target a U-value of 0.16 W/m²K.

Floor

The new ground floor slab, in contact with soil, will target a U-value of 0.16 W/m²K.

GLAZED ELEMENTS

Element	**Location**	**Glazing Type**	**Centre pane/Whole Unit U-value** W/m²K	**g-value**	**Light Transmittance**
Glazing	Throughout	Double glazing with solar coating	1.0/1.4	0.29	60%
High Usage Entrance Doors	Entrance	Double glazing	2.4	-	-
Rooflights	Throughout	Rooflight glazing	2.1	0.4	60%

Building Fabric Assumptions - Glazed Elements (Façade)

Low U-values and solar control glazing are proposed to reduce heat losses while managing unwanted solar gains to office areas. This supports reduced heating and cooling demand while maintaining appropriate daylight provision.

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Solar Control and Shading

Options for the shape, orientation and massing of the building have been developed through an interactive and collaborative process between the Client, Architect and wider Design Team.

The layout and location of the office element in the Outline Scheme Options shall be optimised to provide appropriate daylight levels while reducing cooling requirements and the risk of overheating.

The proposed development adopts a relatively simple and efficient building form with moderate glazing areas being provided to the office element only. Solar control glazing is proposed to office glazing areas in order to balance daylight provision with thermal performance and reduction of unwanted solar gains. The glazing percentage seeks to achieve a balance between overheating/thermal comfort, ingress of daylight and heat gains from the façade.

The warehouse accommodation is predominantly treated as an occupied unheated shell space, thereby inherently reducing regulated energy demand associated with comfort conditioning.

No dedicated external solar shading devices are assumed within the DSM thermal modelling.

Other Considerations

THERMAL BRIDGING

Thermal bridging effects are accounted for within the DSM thermal modelling in accordance with the National Calculation Methodology (NCM) and Building Regulations Part L (Wales) 2022 requirements, reflecting either default assumptions or calculated junction performance, as appropriate (based on DCLG Approved Construction Details and use of Ψ (psi) values calculated using the guidance set out in BR 497).

BUILDING AIRTIGHTNESS

Airtightness testing will be required for the building to exceed the requirements of Building Regulations Part L (Wales) 2022, and a target air permeability of 5.0 $m^3/(h \cdot m^2)$ @50 Pa has been set. Opportunities to further improve airtightness should be considered during detailed design.

THERMAL MASS

A lightweight structure is proposed due to the nature of the building as a warehouse.

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ACTIVE MEASURES

Overview

Following the implementation of appropriate passive design measures, the development incorporates energy efficient building services systems and controls intended to minimise operational energy consumption associated with the treated areas of the building.

Given the limited proportion of treated accommodation within the development, the active measures strategy focuses primarily on efficient lighting, ventilation, localised heating provision, heat recovery, controls, and efficient electrically driven systems serving the office and welfare areas.

The warehouse accommodation itself will generally operate as an unheated shell space, thereby limiting the extent of fixed building services infrastructure and associated regulated energy demand.

The following active measures have been incorporated within the proposed design strategy:

- High efficiency heat recovery on the proposed mechanical ventilation equipment
- High efficiency VRF (Variable Refrigerant Flow) systems to provide heating and cooling to selected spaces
- LED lighting throughout
- Use of appropriate lighting controls to reduce unnecessary 'left on' energy consumption

Future tenant fit-out systems and operational equipment are outside the scope of this assessment unless specifically identified otherwise.

The majority of the measures described below relate to regulated energy uses associated with the building fabric and fixed building services systems. However, consideration has also been given to reducing operational energy demand associated with significant unregulated energy uses, including external lighting, lifts and electric vehicle/cycle charging infrastructure.

Anticipated Services Strategy (Where Warehouse and Office Elements are Provided)

SCOPE

The following servicing strategy represents the anticipated shell and core building services provision for the purposes of this energy assessment. Final tenant systems and fit-out arrangements may vary subject to future occupier requirements.

The servicing strategy described below is based on the modelled Outline Scheme Option and is intended to represent a reasonable and policy-compliant approach for a development incorporating both warehouse and office elements. The final building services provision will be dependent on the detailed design and tenancy requirements and may vary accordingly, particularly where the final scheme comprises reduced or no office space or is delivered as a shell-only development.

WAREHOUSE ELEMENT

It is anticipated for the purpose of this energy review, that the warehouse element shall initially have the following building services installation :

- Lighting
- Space Heating to warehouse toilets and showers/changing areas
- Domestic Hot Water to warehouse toilets and showers/changing areas
- Ventilation to warehouse toilets and showers/changing areas
- Associated heating, cooling, hot water and ventilation controls
- Shell electrical services

OFFICE ELEMENT

It is also anticipated that, where provided, any office element will initially be provided with the following:

- Lighting
- Space Heating/Cooling to occupied office areas
- Ventilation to occupied office areas
- Space heating to office toilets
- Domestic Hot Water to office toilets
- Ventilation to office toilets
- Associated heating, cooling, hot water and ventilation controls
- Shell electrical services

OTHER/SHARED SERVICES PROVISION

- Incoming utilities (electric, water, and telecoms)
- External lighting
- Photovoltaic panels (if necessary)
- Electric vehicle/cycle chargers

…sustainable building services solutions

Warehouse Element

SPACE HEATING AND COOLING

Generally, the warehouse element will be unheated.

Wall mounted electric panel heaters complete with integral time and temperature control shall be installed in the toilets and showers/changing rooms to provide background heating and fabric protection where required.

No cooling is to be provided to the warehouse element.

WATER HEATING

Domestic hot water will be provided to the warehouse toilet and shower/changing facilities via local electric water heaters or point-of-use water heating systems selected to minimise distribution losses and standing energy consumption.

Hot water systems will incorporate appropriate time and temperature controls and will be designed in accordance with Building Regulations requirements.

VENTILATION

A mechanical extract ventilation system will be provided to the warehouse toilets and shower/changing areas using local low specific fan power extract fans only, aligned with the thermal modelling assumption of local extract ventilation with no heat recovery. Air will be removed via external wall-mounted grilles/louvres complete with volume control dampers and plenum boxes.

No other ventilation systems are anticipated for the warehouse element.

LIGHTING

Warehouse lighting will incorporate high efficiency LED luminaires - a minimum assumed efficacy of 95 lamp lumens per circuit Watt (ll/cW) is assumed - with local switching, occupancy sensing and/or daylight-linked controls, as appropriate to the operational requirements and final layout. Lighting to welfare areas shall also incorporate high efficiency LED fittings selected to minimise maintenance requirements and operational energy consumption.

Where the warehouse is provided as shell space, the Employer's Requirements/tenant fit-out requirements should require automated daylight dimming and occupancy-based switching to be incorporated by the incoming tenant, consistent with the thermal modelling assumptions.

Office Element (Where Provided)

SPACE HEATING AND COOLING

The offices shall be heated and cooled using a high efficiency variable refrigerant flow (VRF) heat pump system with a high coefficient of performance (COP) capable of simultaneous operation in heating and cooling modes. Heat from the VRF systems shall be rejected via air cooled condensers located externally with a number of indoor units to suit the areas served.

A system controller, one per office unit, shall be located within the respective office demise, and shall be capable of controlling the indoor units individually or as a group. Provision shall be made for integration with any future tenant Building Management System (BMS), subject to the final tenancy arrangement.

Wall mounted electric panel heaters, complete with integral time and temperature control shall be installed in the toilets to provide background heating/fabric protection where required.

WATER HEATING

Domestic hot water will be provided to office toilet and welfare facilities via local electric water heaters, as appropriate to the final tenancy configuration and operational requirements. Systems will be selected to minimise standing losses and unnecessary distribution pipework.

VENTILATION

A mechanical ventilation system will be provided to the office areas using a centralised air handling unit (AHU) with heat recovery or mechanical ventilation with heat recovery (MVHR) unit(s), depending on the extent of the offices in the final scheme. Their heat recovery systems (whereby waste heat is transferred from the exhaust air stream to the supply air stream) will be specified with high heat exchange efficiencies, resulting in energy savings.

The AHU or MVHR unit(s) will contain supply and extract fan sections, with a thermal wheel for heat recovery. Building Regulations Part L sets stringent efficiencies for the fans used in all ventilation systems and, where present, comfort cooling and air conditioning systems. Advances in fan motor technology have resulted in substantial reductions in energy consumption, which can otherwise be a significant proportion of building energy use.

The ventilation units will incorporate heat recovery systems, which transfer waste heat from the exhaust air stream to the supply air stream, warming the supply air (outside of summer months) with a minimum efficiency of 76%.

The tempered air from the AHU/MVHR unit(s) will be distributed down the sides of the office area via insulated sheet metal ductwork. The risers will drop to the office area with branch connections. Each branch connection will be equipped with a fire damper, a volume control damper and an access panel. Supply air will be introduced into the occupied office areas via the ventilation ductwork system and terminate with volume control dampers.

3.3 energy review - reduce energy demand…

…sustainable building services solutions

Extract air will be ducted and routed via risers back to the AHU where the heat will be recovered from the exhaust air, and passed to the incoming fresh air, via the heat recovery thermal wheel.

LIGHTING

LED lighting shall be provided throughout with products specified considering the whole life cost/impact of the system (i.e. low energy, low maintenance, and long-life fittings). The lighting shall be designed to achieve average lighting efficacies in line with the thermal modelling assumptions, including approximately 110 lamp lumens per circuit watt (lm/CW) to office areas and a minimum of 95 lm/CW to WCs, stairs, corridors, stores and entrance areas.

Lighting levels will be specified in line with the recommendations of CIBSE and BREEAM, which generally allow for lower lighting levels than previous standards while maintaining appropriate visual comfort and functionality.

Lighting zones and controls will be provided as appropriate to cater for different operational needs throughout the buildings, to allow an appropriate level of lighting to be selected at different periods in order to minimise energy consumption. Lighting in occupied areas will be controlled via a programmable lighting control system with daylight control. Lighting in back of house areas will be controlled via local manual light switches and/or presence detectors (Passive Infra-Red, 'PIR' sensors). Manual switching will be provided to the plant and storage areas.

Building Services System Parameters

ELECTRICAL

Assumptions for internal lighting have been made as follows as part of the DSM analysis:

Room Type	Lamp Efficacy	Photoelectric Options	Controls
Warehouse - General Areas	95 lm/W	Daylight dimming control*	PIR Auto-On/Off*
Warehouse - WCs/Showers/Changing	95 lm/W	None	PIR Auto-On/Off
Offices - General Areas incl. Meeting Rooms etc.	110 lm/W	Daylight dimming control	PIR Auto-On/Off
Office - WCs	95 lm/W	None	PIR Auto-On/Off
Office - Circulation	95 lm/W	Manual daylight switching	PIR Auto-On/Off
Office - Stairs	95 lm/W	None	PIR Auto-On/Off
Plant Rooms	95 lm/W	None	Manual On/Off

Lighting Design Inputs for the Proposed Development

*Warehouse lighting controls are assumed to be incorporated as part of the future tenant fitout in accordance with the thermal modelling assumptions.

MECHANICAL

For the thermal modelling analysis, the following input assumptions were made based on the proposed building services design:

Room Type	Space Heating/Cooling Strategy	Ventilation Strategy	Domestic Hot Water
Warehouse - General Areas	None - Occupied Unheated Shell Space	None - Naturally Ventilated	Not Applicable
Warehouse - WCs/Showers/Changing Facilities	Electric Panel Heater Delivery Efficiency: 1.0	Mechanical Extract Specific Fan Power 0.5 W/l/s	Instantaneous - Electric Point of Use/Electric Showers Delivery Efficiency 0.95
Offices - General Areas incl. Meeting Rooms etc.	VRF Indoor Terminal Units Cop 4.0/Scop 4.5 EER 4.0/SEER 5.0	Local or Centralised AHU/MVHR System Specific Fan Power 1.8 W/l/s 76% Heat Recovery	Not Applicable
Office - WCs	Electric Panel Heater - Delivery Efficiency: 1.0	Mechanical Extract Specific Fan Power 0.5 W/l/s	Instantaneous - Electric Point of Use Delivery Efficiency 0.95
Office - Circulation	Tempered Via Office Ventilation System	Local Or Centralised AHU/MVHR System Specific Fan Power 1.8 W/l/s 76% Heat Recovery	Not Applicable
Office - Stairs	Electric Panel Heater - Delivery Efficiency: 1.0	Naturally Ventilated	Not Applicable
Plant Rooms	Electric Panel Heater - Frost Protection Heating Only Where Required	Naturally Ventilated	Not Applicable

Mechanical Services Strategy and Efficiencies Input for the Proposed Development

Abbreviations:

- AHU: Air Handling Unit
- MVHR: Mechanical Ventilation with Heat Recovery
- VRF: Variable Refrigerant Flow
- CoP: Coefficient of Performance
- SCoP: Seasonal Coefficient of Performance
- EER: Energy Efficiency Ratio
- SEER: Seasonal Energy Efficiency Ratio
- SFP: Specific Fan Power

All inputs are intended to represent current design stage performance targets, for the modelled Outline Scheme Option, with finalised specifications to be aligned with the final Outline Scheme Option chosen to be developed and to be confirmed during the subsequent design stages.

Other Areas - Unregulated Energy Uses

In addition to the regulated energy uses associated with the building fabric and fixed building services systems, the development will also incorporate a number of unregulated energy consuming systems and operational loads. Whilst these are not included within the National Calculation Methodology (NCM) compliance assessment, the specification and control of such systems can still have a significant influence on the operational energy performance of the development.

Accordingly, where provided, unregulated energy uses will be specified with consideration given to operational efficiency, durability, maintenance requirements and opportunities for effective control and monitoring.

EXTERNAL LIGHTING

External lighting will be designed using high efficiency LED luminaires with controls selected to minimise unnecessary energy consumption whilst maintaining appropriate safety, security and operational functionality.

Lighting controls may include photocells, time scheduling and/or presence detection, as appropriate to the operational requirements of the development.

ELECTRIC VEHICLE/CYCLE CHARGING

Electric vehicle (EV) and electric cycle charging infrastructure will be provided in accordance with client and Building Regulations requirements.

Where provided, such equipment will utilise energy efficient charging technology with appropriate controls and load management functionality to minimise unnecessary peak electrical demand on the development.

PHOTOVOLTAIC PANELS

Photovoltaic panels are anticipated to be incorporated within the final scheme in accordance with the energy demand of the selected development option.

The PV installation will provide on-site renewable electricity generation to offset part of the development's regulated and unregulated electrical energy demand and associated carbon emissions.

LIFTS

Lift energy use is treated as an unregulated load under the National Calculation Methodology (NCM), but has nevertheless been considered as part of the wider operational energy strategy. Where a (two storey) office is to be provided (as shown in Scheme Options 1c or 2c) and lifts are necessary, these will be specified with consideration given to energy-efficient operation, including efficient drive systems, standby controls and LED car lighting where appropriate.

MANAGEMENT, METERING AND CONTROL MEASURES

Overview

The long-term operational performance of a building is influenced not only by the efficiency of the installed building fabric and services systems, but also by how effectively these systems are commissioned, controlled, monitored and maintained throughout the building's operational life.

Accordingly, consideration has been given to appropriate management, metering and control measures intended to support the efficient operation and optimisation of building performance.

Project Completion and Handover Management

OVERVIEW

Beyond the specification of each system, to ensure long-term energy efficient operation of the building, there is a need to ensure that the building services systems are delivered to the incoming occupant(s) in fully commissioned order and the incoming occupant has a good understanding of the systems and their maintenance needs.

COMMISSIONING

A full commissioning process, appropriate to the extent of the services provision, will be undertaken and incorporated into the project programme, with time allowed for adjusting and monitoring equipment as necessary, to ensure that the building services systems and their controls are configured and tuned to operate at their maximum efficiency.

OCCUPANT TRAINING AND AWARENESS

This Energy and Sustainability Statement proposes a number of technologies, which (if supplied in the final scheme) may be unfamiliar to staff responsible for daily operation of the building. To realise the potential of the design fully, a good and complete initial asset handover to occupants and/or their facilities managers is essential.

To achieve an efficient handover, the Contractor will be required to identify a schedule of training for the relevant operational staff covering:

- The design strategy
- Installed systems and key features (maintenance, operation, replacement, and repair)
- Training responsibilities.

BUILDING USER GUIDE

A Building User Guide should be provided at handover, summarising the building's key environmental and energy-related features, including the operation of building services systems, metering and controls, maintenance considerations and energy efficiency principles, to support the efficient operation and management of the development throughout its operational life.

Controls and Metering

THERMAL ZONING AND CONTROLS

The building services strategy will incorporate appropriate thermal zoning and controls allowing independent control of occupied areas in order to minimise unnecessary energy consumption and improve occupant comfort.

Heating, cooling and ventilation systems will incorporate time scheduling, temperature control and setback functionality as appropriate to the final occupancy arrangement.

BUILDING MANAGEMENT SYSTEM

Provision for a Building Management System (BMS) shall be made to allow control and monitoring of all main building services plant. The BMS will allow energy monitoring and efficient control of the mechanical and electrical services systems.

The BMS will facilitate monitoring of energy consumption and operational performance, assisting building operators in identifying abnormal consumption patterns and potential operational issues. The central energy generation and distribution systems will include continuous monitoring and reporting of the operating parameters to ensure that the systems are running to their intended operational efficiencies.

All relevant building management staff will be appropriately trained on how to efficiently monitor and operate the BMS.

METERING OF END ENERGY USES

In accordance with the requirements of Building Regulations Part L, the services strategy for the proposed development will include metering of end energy uses for the whole development.

SUB-METERING OF HIGH ENERGY CONSUMING USES AND ZONES

Energy metering of high consuming loads - heat pumps, fans and pumps, lighting and small power etc. is anticipated to be provided to allow for efficient management. Where provided, sub-meters shall be capable of integration with the BMS. The services strategy will include sub-metering of energy usage on all floors (or per future tenancy/functional area).

This will allow the operator to view and interrogate where potential energy savings can be made throughout the building. Other unregulated but high consuming loads such as lifts and external lighting shall also be metered and monitored by the BMS.

3.3 energy review - use energy efficiently…

…sustainable building services solutions

OBJECTIVE

This section of the energy review assesses low carbon energy supply opportunities to provide further reductions in the building's CO_2 emissions, following the reduction in energy demand achieved through the implementation of energy efficiency measures during the preceding 'Reduce Energy Demand' stage.

Applicable strategies and technologies are reviewed within this section, considering both their technical characteristics and their suitability for integration within the proposed development, alongside the potential CO_2 emissions savings achievable. In each case, a recommendation is made regarding the inclusion or exclusion of the technology within the proposed development.

APPROACH

The following low carbon energy supply opportunities have been considered for the proposed development:

- Connection to existing or planned local heat networks
- Use of zero-emission or local secondary heat sources (in conjunction with heat pumps, where required)
- Use of low-emission Combined Heat and Power (CHP) systems (only where appropriate to support area-wide heat networks, meet the development's electricity demand, or provide demand response to the local electricity network)
- Use of ultra-low nitrogen oxides (NO_x) gas boilers

SCOPE

Given the predominantly unheated nature of the warehouse accommodation and the relatively small ancillary office provision, the development's regulated heat demand is inherently low. As a result, many conventional low carbon heating opportunities have limited applicability to the proposed development.

CONNECTION TO LOCAL EXISTING OR PLANNED HEAT NETWORKS

Overview

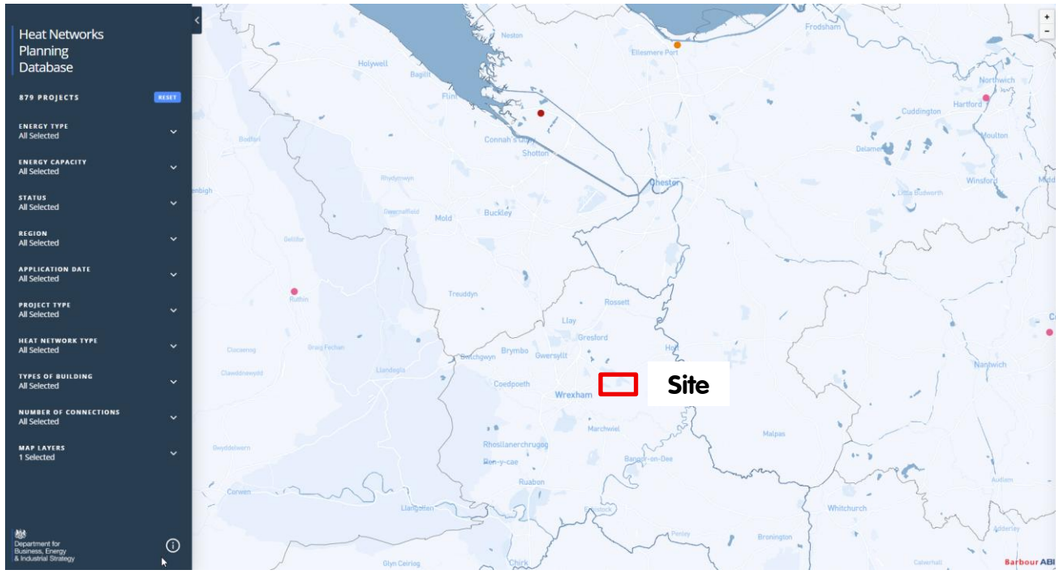
Potential approaches include connecting the development to existing district heating networks or, where no existing schemes are available, investigating whether networks are planned within the area and designing building systems with sufficient flexibility to facilitate future connection. It is noted, however, that the relative carbon benefit of heat network technologies has reduced in recent years due to the rapid decarbonisation of the UK electricity grid.

A preliminary study has therefore been undertaken to assess the feasibility of connecting the development to a local district heat network. The proposed development's energy demand profile is characterised by very low space heating demand, with domestic hot water representing the most significant proportion of the remaining heat demand.

Existing and Future Heat Network Connection Opportunities

An assessment of the site and surrounding area has been undertaken using data from the Department for Energy Security and Net Zero's Heat Networks Planning Database (HNPD), which records district and communal heat network deployment across the UK from inception to operation.

This, and the online Heat Networks Planning Database map (hosted at https://data.barbour-abi.com/smart-map/repd/beis/?type=heat_network) shown in the image below, identify that there are no existing or proposed heat networks in the vicinity of the site.



Heat Networks Planning Database Map Showing Absence of Existing Heat Networks or Potential Future Networks

The nearest existing communal or district heating schemes are located in Shotton (approximately 21 miles from the site) and Ruthin (approximately 23 miles from the site).

In addition, DataMapWales - the Welsh Government spatial data resource - hosts mapping for 'District Heat Network Priority Areas' associated with Future Wales: The National Plan 2040 Policy 16, identifying areas considered to have the greatest potential for district heat network development across Wales. Whilst Wrexham town centre is identified as such an area, it is located a considerable distance from the site (approximately 4 miles away).

In accordance with PPW, connection to an existing or planned heat network has been considered and discounted on viability grounds for the proposed development.

…sustainable building services solutions

ALTERNATIVE LOW CARBON ENERGY SUPPLY OPPORTUNITIES

Zero-Emission or Local Secondary Heat Sources

Heat recovered from nearby processes or buildings, and heat recovered from infrastructure such as sewers, data centres, or transport systems, can provide a low carbon and efficient source of heating, reducing or removing the need for on-site plant. However, no suitable local sources of secondary or waste heat have been identified in proximity to the site and, therefore, this option is not considered feasible.

Other potential zero-emission heat sources and local secondary heat options - including renewable electricity-powered heat pumps and the potential for future connection to district heating or ambient loop networks - have also been reviewed. However, no viable local heat sources have been identified beyond the use of on-site air source heat pumps in conjunction with roof-mounted photovoltaic (PV) systems. Accordingly, the use of alternative zero-emission or local secondary heat sources has not been pursued for the proposed development.

Low-Emission Combined Heat and Power

The option of a stand-alone district heat network supplied by a dedicated energy centre incorporating gas-fired Combined Heat and Power (CHP) has been reviewed as part of the project's energy strategy. CHP systems have historically been promoted for their efficiency, generating heat and electricity simultaneously from a single fuel source. However, as these systems rely on natural gas combustion, their viability is increasingly constrained by UK policy, which prioritises decarbonisation and the transition to low- and zero-carbon technologies.

As noted above, the carbon intensity of grid electricity has reduced significantly due to the increased deployment of renewable energy generation and the closure of coal-fired power stations. According to SAP 10 carbon emission factors, grid electricity now results in lower CO_2 emissions per kWh than natural gas, substantially reducing the environmental benefit historically associated with CHP systems. Concerns relating to local air quality and combustion emissions further weaken the case for introducing new gas-fired plant.

In addition, due to the limited and intermittent heating demand of the proposed development, there is insufficient year-round coincident heat demand to support the efficient operation of CHP plant. Accordingly, gas-fired CHP is not proposed for the development.

A Combined Cooling, Heating and Power (CCHP) system would also require the inclusion of absorption chillers to provide cooling. Such systems would result in significant additional plant space and mass requirements and would not respond efficiently to the anticipated variation in building loads.

Ultra-Low Nitrogen Oxides (NOx) Gas Boilers

Ultra-low NO_x gas boilers can help reduce local air quality impacts compared with conventional gas-fired systems. However, they remain reliant on fossil fuel combustion and do not achieve the same level of carbon reduction as heat pump-based systems.

For this reason, air source heat pumps are considered the more appropriate lower-carbon solution for the proposed development.

The development is not proposed to connect to the local gas distribution network. However, the existing gas connection serving the current building may remain in place. Any future gas provision would be limited to specialist process or operational requirements, such as commercial catering, and would be reviewed further at detailed design stage.

3.5 energy review - renewable energy generation…

…sustainable building services solutions

OBJECTIVE

This section addresses the third stage of the Energy Hierarchy through consideration of low or zero carbon (LZC) renewable energy technologies capable of reducing the proposed development's residual operational CO_2 emissions. A proportionate planning-stage feasibility assessment has been undertaken to identify technologies suitable for integration on site, taking into account technical feasibility, operational suitability, planning constraints and CO_2 emission reductions.

APPROACH

The LZC technology feasibility assessment addresses the requirements of planning policy and BREEAM NC V7, seeking to identify the most appropriate and technically feasible LZC technologies to reduce the proposed development's CO_2 emissions impact considering:

- the outline nature of the application,
- the indicative building form and operational profile,
- site constraints and servicing requirements,
- technical feasibility,
- operational suitability,
- planning and environmental considerations, and
- likely carbon reduction benefits.

Detailed technology screening and comparison information is provided in **appendix b**, with the findings summarised in this section of the Energy and Sustainability Statement.

SCOPE

Definition

Renewable energy technologies may be defined as those which can provide a source of energy on-site, not primarily based on the consumption of fossil fuels or grid electricity and/or those which use a heat or power source that is renewable such as ground source heat and solar energy.

Building, Site and Planning Context

Within **Section 2.0 assessment background**, the site's location in the Wrexham Industrial Estate is identified, which lends itself less to major energy infrastructure such as wind turbines and more to local-scale technologies that can be integrated within the building.

The planning context is principally influenced by the requirements of Future Wales and Planning Policy Wales, increasingly favouring electricity as a main fuel, due to its decreasing carbon intensity and the propensity for electrical-leaning LZCs to have low noise and low air quality impacts.

As the application is submitted in outline, the renewable energy strategy and associated technology capacities presented within this section should be regarded as indicative at this stage and will be subject to further optimisation as the detailed building design, servicing strategy and operational requirements are developed.

LZC FEASIBILITY STUDY

Technology Longlist

A 'longlist' of all recognised local LZC technologies applicable to the proposed development (and meeting the BREEAM criteria for a 'recognised local LZC technology') was initially reviewed against the opportunities and requirements of the development, taking into account:

- Building use type, size, and energy profile
- Building location and climate
- Economic feasibility
- Applicable government policies and incentives

It is noted that some longlisted technologies employ innovative approaches to energy generation, with varying degrees of technological maturity, investment requirements, and site-specific suitability.

By evaluating the above factors - alongside each technology's technical background, potential for integration within the development, and possible CO_2 emissions savings - a shortlist of the most viable technologies or combinations of technologies was identified. For each longlisted technology, a recommendation is made on whether it should be shortlisted for further review, with justifications for excluding others.

Technology	Key Constraints / Opportunities	Commentary	Shortlisted?
Solar Photovoltaic (PV)	Large roof area; strong electrical synergy	Large unobstructed warehouse roof areas and daytime operational electrical demand make photovoltaic systems highly compatible with the proposed development and wider all-electric strategy.	**YES**
Solar Thermal Hot Water (STHW)	Low domestic hot water demand; roof space competition with PV	Although technically feasible, the relatively low domestic hot water demand associated with warehouse use may reduce overall effectiveness compared with PV systems.	**YES**
Wind Turbines	Urban/suburban context; turbulence from warehouse form	Potential planning, visual and operational constraints associated with turbine installation within the industrial estate context reduce suitability for the proposed development.	**NO**
Ground Source Heat Pumps (GSHP)	Potential operational efficiency; borehole constraints	Ground source heat pumps may offer good operational efficiency, although site constraints, borehole spacing requirements and capital cost require detailed review.	**YES**
Air Source Heat Pumps (ASHP)	Suitable operational profile; all-electric strategy	Air source heat pumps are well suited to the proposed warehouse and office operational profile and support the wider fossil fuel free operational energy strategy.	**YES**
Biomass Systems	Fuel storage and air quality constraints	Fuel delivery, storage and particulate emission considerations make biomass systems less suitable for the proposed warehouse-led development.	**NO**
Micro Hydro Systems	No viable on-site watercourse	No suitable on-site watercourse or hydrological opportunity has been identified to support micro hydro generation.	**NO**
Waste Heat Recovery Systems	Limited recoverable process heat	The proposed warehouse development does not include significant industrial process loads capable of generating sufficient recoverable waste heat.	**NO**
Fuel Cells and Hydrogen Technologies	Emerging technology; infrastructure constraints	Hydrogen and fuel cell technologies are not considered sufficiently mature or practical for implementation within the proposed development at this stage.	**NO**

LZC Technology Longlist Table

3.5 energy review - renewable energy generation…

Technology Shortlist

The resulting 'shortlist' of recognised local LZC technologies was then subject to more detailed analysis, considering:

- Life Cycle Cost of the Potential Specification, Accounting for Payback
- Local Planning Criteria - General
- Local Planning Criteria - Land Use
- Noise
- Feasibility of Exporting Heat / Electricity from the System
- Life Cycle Cost / Impact
- Applicable Grants and Incentives

Following review of all renewable and low and zero carbon technologies identified as potentially applicable to the proposed development and its energy demand, the following technologies have been identified as the most suited to application at the site and appropriate for further review:

Technology	Key Constraints/ Opportunities	Commentary	Adopted?
PV	Large roof area; strong electrical synergy	Large roof areas, daytime electrical demand profile and compatibility with the proposed all-electric strategy make PV systems highly suitable for the development.	**YES**
ASHP	Suitable operational profile; all-electric strategy	Air source heat pumps are considered highly appropriate due to strong compatibility with the operational profile, all-electric strategy and relatively low maintenance requirements.	**YES**
GSHP	Borehole constraints and cost premium	Ground source heat pumps may offer good operational efficiency, however borehole constraints, capital costs and the relatively limited heated floor area reduce suitability.	**NO**
Solar thermal	Inferior roof-space utilisation vs PV	Solar thermal systems are not considered appropriate due to the relatively low domestic hot water demand and greater operational benefit of maximising roof-mounted PV provision.	**NO**
Biomass	Air quality and fuel logistics	Biomass systems are considered unsuitable due to fuel logistics, operational management requirements and air quality considerations associated with the warehouse use.	**NO**

LZC Technology Shortlist Table

Final Technology Selection

The assessment indicates that roof-mounted photovoltaic systems and air source heat pump technologies provide the most appropriate combination of carbon reduction performance, operational suitability and compatibility with the proposed all-electric building services strategy. The final extent and capacity of renewable energy systems will be refined as the detailed design and operational requirements of the development are confirmed.

The remaining technologies were discounted due to operational, spatial, planning or economic constraints.

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SOLAR PHOTOVOLTAICS (PV PANELS)

Overview

An indicative roof-mounted PV array has been modelled based on the Outline Scheme Option. The proposed array will consist of 200 typical panels, each panel approximately 2m² in area inclined 15°, oriented South to South East with 21% conversion efficiency. Combined, this is equivalent to a 400 m² gross panel area.

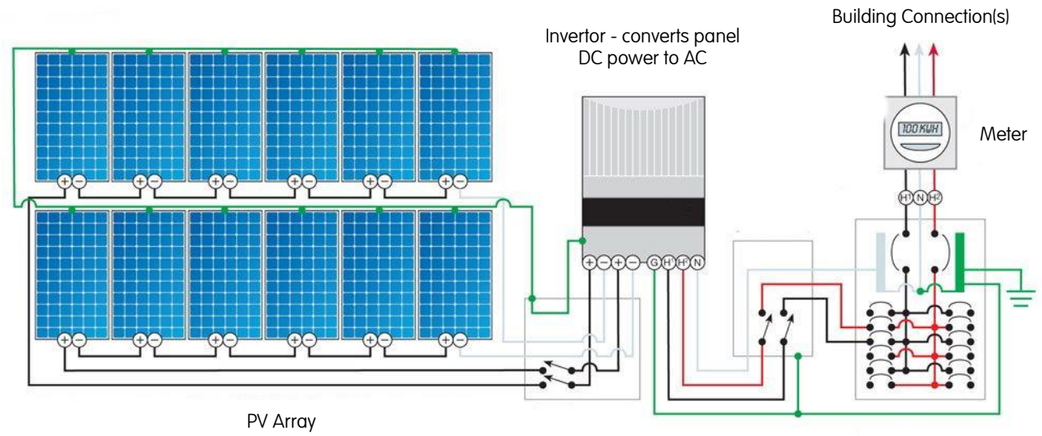
The total estimated installed generating capacity of such an array shall be in the region of **102.5 kWp** and the total annual yield around **52,700 kWh/year** of electricity.

Technology Description

Photovoltaic (PV) panels offer a cost-effective and reliable solution for generating renewable electricity to serve buildings, even in moderate sunlight conditions.

System Integration

A simplified PV System Schematic Diagram is shown below:



PV System Schematic Diagram, showing panels and their Connection to the Building and Metering

SYSTEM PARAMETERS

PV Arrays

Array	**Location/Serving**	**Output** kWp	**Area of Panels or Modules** m²	**Inclination to Horizontal** angle	**Azimuth (orientation)**
All	Roof	102.5	400	15°	South to South East

Indicative Installation Parameters for PV Arrays

PV Panels

Parameter	**Indicative Specification**
Panel Type	High-efficiency monocrystalline silicon (PERC/TOPCon type)
Panel conversion efficiency	21%
Inverter efficiency	95%
PV Panel capacity	0.41 kWp
Area per panel	2.0 m² - typical dimensions 1.72 m × 1.13 m
CO_2 factor of electricity	0.136 $kgCO_2/kWh$

Indicative Specification for PV Panels

SYSTEM PERFORMANCE

Based on the carbon intensity figures given in SAP 10.2, the energy generated by this system is expected to result in annual CO_2 emissions savings of **7,172 $kgCO_2$/year**, or **7.17 tCO_2/year**.

PV generation is based on preliminary calculations using assumed solar irradiance data for the site and actual generation will vary from this. The estimated annual yield is conservative at this stage and reflects preliminary assumptions relating to orientation, spacing, inverter losses, potential shading and roof utilisation constraints.

The above assumptions will be developed into a working PV design as the project develops through the subsequent appointment of a PV specialist.

The extent and capacity of photovoltaic (PV) installation will be reviewed and optimised at detailed design stage to align with the final building layout, roof configuration and operational energy demand. Where the final development has a lower energy intensity than the modelled scenario, the required quantum of PV provision may be reduced accordingly while remaining aligned with planning policy objectives.

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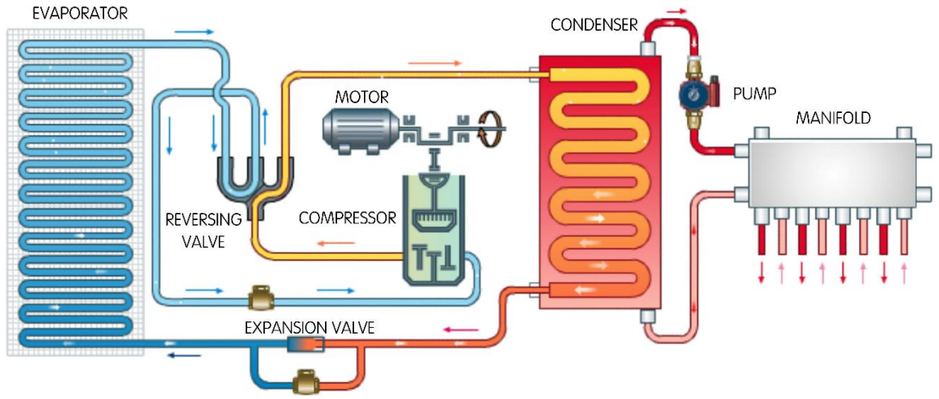
Heat Pumps

OVERVIEW

Heat pump technology is proposed principally in the form of high efficiency VRF heat pump systems serving the office accommodation.

TECHNOLOGY DESCRIPTION

Air source heat pumps provide efficient, low carbon heating by extracting ambient heat from the air (even in cooler climates) using a refrigerant system and compressing it to a higher temperature. This heat is then transferred indoors to provide efficient space heating and cooling.



Heat Pump Schematic Diagram

Hot Vapour Refrigerant | Cold Vapour Refrigerant | Cold Liquid Refrig | Hot Liquid Refrig

Low Temperature Hot Water Flow | Low Temperature Hot Water Return | Ground Loop Flow | Ground Loop Return

With grid decarbonisation (reflecting SAP 10.2 carbon emission factors, applicable to both domestic and non-domestic analysis) and high efficiency (expressed as Coefficient of Performance, or CoP), ASHP technology offers substantial CO_2 emissions reductions compared with conventional gas boiler systems. Implementing heat pump technology allows a shift to fossil fuel free development, with associated local air quality benefits.

Heat pump systems can achieve relatively high operational efficiencies, with seasonal coefficients of performance (SCoP) typically in the order of 3.5 to 4.5 depending on operating conditions and ambient temperatures. As external temperatures reduce, heat pump efficiency also reduces; accordingly, seasonally adjusted efficiencies are assumed within the DSM thermal modelling.

Due to the relatively small domestic hot water demand associated with the illustrative scheme, direct electric point-of-use water heaters with limited storage are preferable to a centralised domestic hot water generation system.

SYSTEM INTEGRATION

The options for integrating heat pumps as the primary space heating and cooling technology for the proposed development have been reviewed, and the most appropriate solutions identified. The VRF heat pump systems will serve the occupied office element via indoor terminal units selected to provide efficient heating and cooling operation.

This strategy ensures efficient year-round heat pump performance, with system design tailored to meet the varying thermal demands of the building. The proposed system is anticipated to deliver superior operational carbon performance and be better suited to the building's operational and maintenance requirements than a conventional boiler (or heat pump) based wet heating distribution system.

SYSTEM PARAMETERS

Details of the Seasonal Coefficient of Performance (SCOP) and Seasonal Energy Efficiency Ratio (SEER), used in the energy modelling, are set out below:

Application	Location	Coefficient of Perform. (CoP)	Seasonal Coefficient of Perform. (SCoP)	Energy Efficiency Ratio (EER)	Seasonal Energy Efficiency Ratio (SEER)
Space Heating	External Enclosure	4.0	4.5	4.0	5.0

Indicative Heat Pump Operating Parameters

3.6 energy review - results and conclusion…

…sustainable building services solutions

SUMMARY OF RESULTS

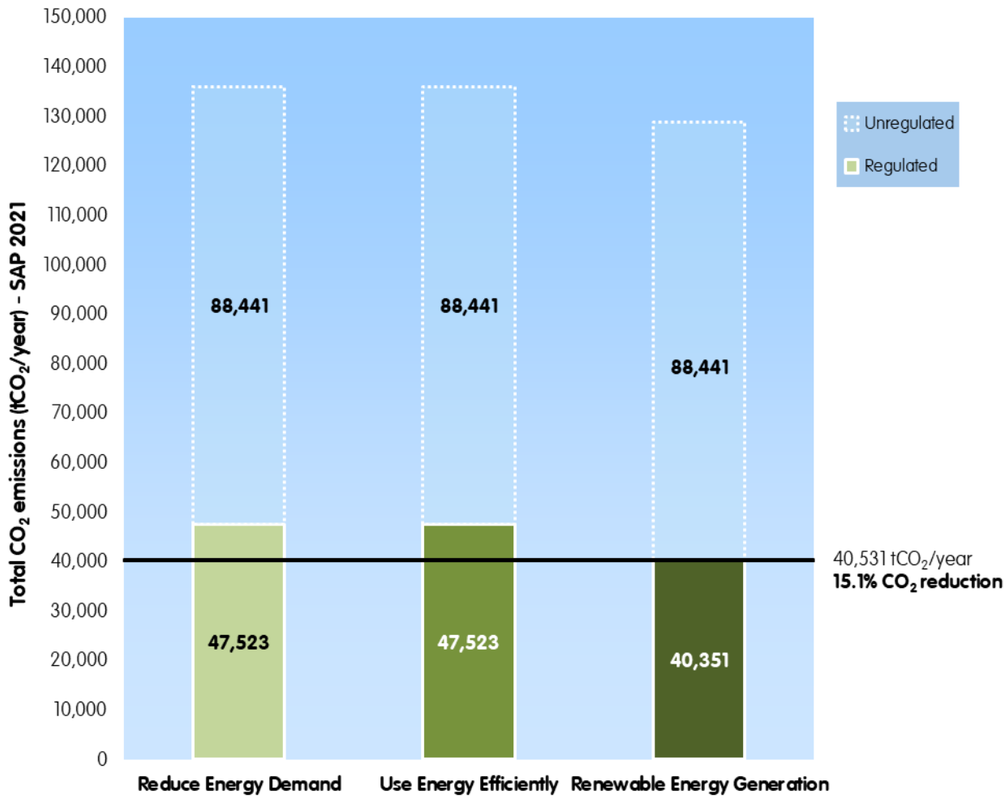
Overall Results

The results against the Energy Hierarchy are presented in kg of CO_2 emissions per stage. As shown in the tables below, the estimated total regulated CO_2 emissions from the proposed development are **40,351 kgCO_2/year**.

The cumulative effect of the final measures implemented in accordance with the Energy Hierarchy achieve a saving of **7.17 tCO_2/year**, a **15.1%** reduction from the baseline.

The selected technologies align with the project's wider fossil fuel free operational energy strategy.

Summary Chart



Regulated and Unregulated Carbon Performance

Summary Tables

PURPOSE

The tables below document the energy and CO_2 emissions performance for regulated energy uses in the building for each stage of the assessment and cumulatively for all applied measures, demonstrating how the sequential approach has delivered optimum savings for the scheme.

CO_2 EMISSIONS

	CO_2 Emissions (kgCO_2/year)		
	Regulated	Unregulated	Total
Reduce Energy Demand	47,523	88,441	135,964
Use Energy Efficiently	47,523	88,441	135,964
Renewable Energy Generation	**40,351**	**88,441**	**128,792**

Energy Hierarchy Summary Table, showing CO_2 Emissions at Each Step of the Energy Hierarchy

CO_2 EMISSIONS SAVINGS

		CO_2 Emissions Savings			
		tCO_2/year		%	
		Reg.	Total	Reg.	Total
Use Energy Efficiently	Savings from Clean Energy	0.00	0.00	0.00	0.00
Ren. Energy Generation	Savings from Ren. Energy	7,172	7,172	15.1%	5.3%
	Total Cumulative Savings	**7,172**	**7,172**	**15.1%**	**5.3%**

Energy Hierarchy Summary Table, showing CO_2 Emissions Savings at Each Step of the Energy Hierarchy

CONCLUSION

It is considered that the Energy Hierarchy has been fully implemented and that all opportunities to reduce CO_2 emissions have been implemented and emissions reductions maximised; therefore the scheme is compliant with Planning Policy relevant to Wrexham.

As the application is submitted in outline, the energy strategy and associated modelling results should be regarded as indicative at this stage and will be refined as the detailed design, building layout and tenant requirements develop. The measures proposed are indicative only based on the illustrative scheme, which is only one way of how the scheme could come forward. The final approach shall be confirmed at reserved matters stage once the design is known.

4.1 sustainability review - overview…

…sustainable building services solutions

OBJECTIVE

This section of the Energy and Sustainability Statement reviews sustainability measures for the proposed development in a structured form.

THEMES

The following themes have been identified as relevant to the proposed development and form the structure for this element of the Energy and Sustainability Statement:

Theme	Aim
Health, Safety and Wellbeing	To ensure that best practice wellbeing measures - across visual and thermal comfort and air and water quality - are promoted for all building users.
Materials, Waste and Circular Economy	To optimise materials use, reduce waste and lower embodied carbon emissions for the building over its life cycle.
Land Use and Biodiversity	To maintain the ecological value of the site and enhance local biodiversity.
Water	To reduce water demand and support more sustainable water consumption.
Climate Change - Resilience and Adaptation	To enable successful occupation and operation of the building in the context of climate change impacts, minimising the need for future adaptation.
Transport and Mobility	To support transition to more sustainable forms of transport, future-proofing the development for increased uptake in cycling and electric vehicle use.
Benchmarks & Certification	To meet sustainability aims beyond those captured within other sections, allowing the ESG performance of the building to be understood and recognised externally.

4.2 sustainability review - health, safety and wellbeing…

…sustainable building services solutions

OBJECTIVE

Health, safety and wellbeing issues have been reviewed as part of the sustainability strategy to support the building users through implementation of appropriate measures relating to indoor environmental quality, accessibility and external amenity.

BACKGROUND

Buildings are social spaces that should contribute positively to the health, comfort and wellbeing of occupants. In recent years there has been a growing understanding of (and demand for) measures which enhance the quality of occupants' working life in buildings.

A building's indoor environmental quality can have a significant influence on occupant health, comfort and productivity. Accordingly, increasing emphasis is being placed on implementation of measures intended to support healthy, safe and comfortable internal and external environments for occupants and visitors.

The proposed development presents the opportunity to implement measures to improve the wellbeing (including comfort, health and safety) of building occupants, visitors and others within the vicinity.

OPPORTUNITIES AT THE PROPOSED DEVELOPMENT

Implementing Indoor Air Quality and Ventilation Measures

The proposed development presents opportunities to implement measures intended to support good indoor environmental quality for future building users. Measures to be considered could include implementation of an indoor air quality plan, specification of low-emission materials where practical and incorporation of an appropriate ventilation strategy in accordance with the requirements of BREEAM Credits Hea 04.1 and Hea 04.2.

Consideration could also be given to construction-stage environmental management and pollution prevention procedures intended to minimise dust, emissions and wider environmental impacts associated with construction activities.

Supporting Safe Access and Movement

The proposed development presents opportunities to support safe and accessible movement to and through the site for pedestrians, cyclists, vehicles and visitors. Measures to be considered could include appropriate segregation of pedestrian and vehicle routes, external lighting, visibility measures, wayfinding signage and provision of safe access routes throughout the development.

Providing Connection to Nature through External Amenity and Restorative Landscaping

Opportunities exist for the incorporation of external amenity space, restorative landscaping and green infrastructure measures intended to encourage connection to nature and improve the quality of the external environment for building users and visitors.

This could include incorporation of planting, seating areas, shaded spaces, sheltered outdoor areas and other landscaped amenity features within the external works, where practical. Such measures could contribute positively to occupant wellbeing while also complementing the wider biodiversity and landscape proposals discussed within **Section 4.4 Land Use and Biodiversity.**

HEALTH, SAFETY AND WELLBEING ISSUES ASSESSED WITHIN BREEAM

Within the BREEAM pre-assessment, Credits relating to health, safety and wellbeing are within the Health and Wellbeing category and represent a significant proportion of the overall assessment score.

The relevant Credits include:

- Hea 01 Visual Comfort
- Hea 02 Indoor Air Quality
- Hea 03 Thermal Comfort
- Hea 05 Safety and Security
- Hea 06 Accessibility and Inclusive Design
- Hea 07 Safe and Healthy Surroundings
- Man 04 Commissioning and Handover
- Man 05 Aftercare

Most of these Credits are sought within the BREEAM pre-assessment presented in **Section 4.8/appendix b**.

4.3 sustainability review - materials, waste and circular economy…

…sustainable building services solutions

OBJECTIVE

Materials, waste and circular economy issues have been reviewed as part of the sustainability strategy to promote efficient use of materials and resources, reduce waste generation and support reduction of embodied carbon impacts associated with the development over its life cycle.

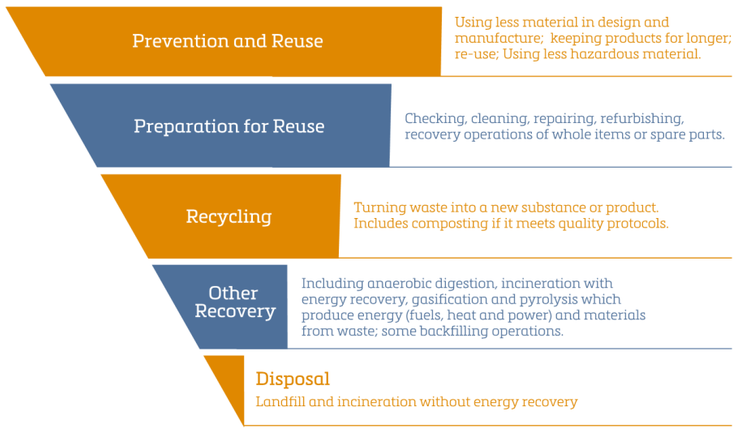
BACKGROUND

Materials and waste are major issues in the UK built environment, with opportunities present in the works to reduce impacts of material use through design, construction, maintenance and repair across the building lifecycle. Opportunities also exist to reduce environmental impacts through procurement of materials that are responsibly sourced and have lower embodied impacts associated with extraction, manufacture, transport, maintenance and end-of-life processing.

Design and construction processes can also reduce waste arising from future refurbishment and operation of the building, encourage diversion of waste from landfill and minimise waste associated with future maintenance, refurbishment and adaptation works. In accordance with PPW's Waste Hierarchy priority should be given to prevention and reuse of materials before recycling, recovery and disposal options are considered.

Circular Economy principles encourage review of building materials and techniques to optimise reused/recycled content, reducing reliance on virgin materials and minimising waste generation. Whole Life Carbon analysis is also increasingly important in the transition towards net zero carbon development, as many construction projects continue to focus primarily on regulated operational emissions rather than embodied, construction and unregulated operational emissions.

The proposed development works therefore present opportunities for implementation of sustainable management practices relating to construction and operational waste, together with reuse of materials where feasible and reduction of waste arising from future maintenance and repair works associated with the building structure.



The Waste Hierarchy - Planning Policy Wales Edition 12 Figure 11

OPPORTUNITIES AT THE PROPOSED DEVELOPMENT

Specifying Responsibly Sourced and Lower Impact Materials

The proposed development presents opportunities for the specification of responsibly sourced and lower environmental impact materials and construction products.

Measures to be considered could include specification of timber and timber-based products that are legally harvested and traded and certified to FSC or PEFC standards, together with wider application of responsible sourcing principles throughout the supply chain.

The specification of products supported by Environmental Product Declarations (EPDs) and implementation of sustainable procurement principles could further assist in reducing environmental impacts associated with material extraction, manufacture and transport.

Life cycle assessment and embodied carbon studies could also be undertaken to identify opportunities to reduce environmental impacts associated with the proposed development.

Incorporating Circular Economy and Material Efficiency Principles

The proposed development presents opportunities to incorporate circular economy and material efficiency principles into the design and construction process.

Measures to be considered could include implementation of design approaches supporting future adaptability and disassembly, including consideration of layer independence and material recoverability at end of life.

Further opportunities could include application of targets relating to recycled and reused material content, specification of durable and maintainable materials and consideration of locally sourced products where practical.

Engagement with organisations such as Globechain, or similar material reuse initiatives, could also support reuse of surplus construction materials and reduction of waste arising from the works.

Managing Construction Waste and Resource Efficiency

Opportunities exist to minimise construction waste generation and encourage diversion of non-hazardous construction waste from landfill during the construction process.

Construction-stage environmental management measures could include implementation of certified environmental management procedures by the Principal Contractor and key subcontractors, together with monitoring and management of waste streams throughout the works.

4.3 sustainability review - materials, waste and circular economy…

…sustainable building services solutions

MATERIALS, WASTE AND CIRCULAR ECONOMY ISSUES ASSESSED WITHIN BREEAM

Within the BREEAM pre-assessment, Credits relating to materials, waste and circular economy are included within the Materials and Waste categories.

The relevant Materials Credits include:

- Mat 01 Life Cycle Impacts
- Mat 02 Environmental Product Declarations
- Mat 03 Responsible Sourcing of Construction Products
- Mat 05 Designing for Durability and Resilience
- Mat 06 Material Efficiency

The relevant Waste Credits include:

- Wst 01 Construction Waste Management
- Wst 03 Operational Waste
- Wst 05 Adaptation to Climate Change
- Wst 06 Functional Adaptability

Most of these Credits are sought within the BREEAM pre-assessment presented in **Section 4.8/appendix b**.

4.4 land use and biodiversity…

…sustainable building services solutions

OBJECTIVE



Land use and biodiversity issues have been reviewed as part of the sustainability strategy to protect and enhance the ecological value of the site through appropriate habitat protection, biodiversity enhancement and long-term ecological management measures.

BACKGROUND

Development activity on a local and global scale has the potential to diminish or improve biodiversity (the range of organisms in our environment), through its impact on habitats and ecosystems. Building and landscaping works have the potential to either diminish or enhance biodiversity through their effects on habitats, species and ecological connectivity. Appropriate consideration of ecological protection, habitat enhancement and long-term management can contribute positively to local biodiversity value and ecological resilience.

Specific consideration could be given to sustainable land use, habitat protection and creation, and improvement of long term biodiversity for the building's site and surrounding land.

OPPORTUNITIES AT THE PROPOSED DEVELOPMENT

Enhancing Biodiversity and Habitat Value

The proposed development presents opportunities to enhance biodiversity and ecological value through the landscape and external works design.

Measures to be considered could include engagement of a Suitably Qualified Ecologist to advise on biodiversity enhancement opportunities, habitat creation measures and long-term ecological management requirements.

Opportunities could include incorporation of bird and bat boxes, habitat features for Great Crested Newts (GCN) such as hibernacula, native planting and other ecologically beneficial measures appropriate to the site and surrounding habitat context.

Green infrastructure, planting and shading measures may also be incorporated within appropriate areas of the wider landscape design to support biodiversity enhancement and contribute positively to climate resilience.

Supporting Long-Term Habitat Management and Ecological Resilience

The proposed development presents opportunities to support long-term ecological management through the use of native and ecologically appropriate planting species together with implementation of appropriate habitat management procedures.

Where ecological enhancement measures are implemented, consideration should also be given to preparation of long-term habitat and landscape management measures to support the ongoing establishment, maintenance and monitoring of proposed habitats.

External lighting design measures intended to minimise unnecessary light spill, glare and night-time light pollution impacts on surrounding receptors and ecology could also be incorporated into the scheme.

LAND USE AND BIODIVERSITY ISSUES ASSESSED WITHIN BREEAM

Within the BREEAM pre-assessment, Credits relating to land use and biodiversity are within the Land Use and Ecology category and seek to encourage protection and enhancement of ecological value together with implementation of appropriate long-term habitat management measures.

The relevant Credits include:

- LUE 02 Ecological Risks and Opportunities
- LUE 03 Managing Impacts on Ecology
- LUE 04 Ecological Change and Enhancement
- LUE 05 Long-Term Ecological Management and Maintenance

These Credits encourage consideration of ecological enhancement opportunities, habitat creation, biodiversity improvement and implementation of long-term management procedures intended to support the ongoing ecological value of the site.

Most of these Credits are sought within the BREEAM pre-assessment presented in **Section 4.8/appendix b**.

4.5 sustainability review - water…

…sustainable building services solutions

OBJECTIVE

Water issues have been reviewed as part of the sustainability strategy to reduce water demand and support efficient and sustainable water use.

BACKGROUND

Valuing water (especially potable water) and avoiding its waste preserves a valuable resource. The proposed works can promote sustainable water use in the operation of the building and its site through identifying means of reducing potable water consumption (internal and external) over the lifetime of the building and minimising losses through leakage.

OPPORTUNITIES AT THE PROPOSED DEVELOPMENT

Reducing Potable Water Consumption

The proposed development presents opportunities to reduce potable water consumption through the specification of water-efficient fixtures and fittings, including low-flow taps, dual-flush WCs and water-efficient sanitaryware.

The proposed specification of water-consuming components could be developed to align with the requirements of BREEAM Credit Wat 01 Water Consumption, as shown in the table below:

Fitting/Appliance	Unit	Specified Flow/Consumption	Standard/Benchmark	Notes
WC (toilets)	L	4.0 L full flush 2.6 L part flush	BREEAM Wat 01 benchmark	Dual flush, ≤ 4/2.6 L effective flush volume
Wash hand basin taps	L/min (at 3 bar)	≤ 4.0	BREEAM Wat 01 benchmark	Flow restrictor or aerated tap
Showers	L/min (at 3 bar)	≤ 9.0	BREEAM Wat 01 benchmark	Water-efficient shower head

Indicative Specification for Sanitary Fittings (BREEAM NC V7 Credit Wat 01 Water Consumption)

Implementing Water Monitoring and Leak Prevention Measures

Further opportunities exist to support sustainable water management through incorporation of water metering and sub-metering systems together with leak detection and flow control devices intended to support monitoring and management of operational water consumption.

Providing Drinking Water

The opportunity could be taken as part of the works to provide at least one drinking water dispenser/drinking water fountain and/or water bottle filling station in a common area.

Reducing External Water Demand

Opportunities also exist to reduce external potable water demand associated with landscape irrigation through the specification of drought-resistant planting species capable of being maintained with limited manual watering.

Further reductions in potable water demand could potentially be achieved through implementation of rainwater collection measures for irrigation purposes, where practical and feasible.

Managing Construction Water Use

Water consumption during the construction process could be reduced through implementation of construction-stage water management measures and monitoring procedures.

The Contractor's appointment could include requirements to monitor construction water use and establish targets intended to encourage reduction of water consumption during the works.

Implementing Water Monitoring and Leak Detection Measures

Water leak detection systems, sub-metering arrangements and flow control devices could be incorporated within the proposed building services design to minimise the risk of leaks, unnecessary water consumption and operational water losses.

WATER ISSUES ASSESSED WITHIN BREEAM

Within the BREEAM pre-assessment, Credits relating to water are within the Water category, which represents a proportion of the overall assessment score. These Credits seek to encourage reductions in potable water consumption together with implementation of measures intended to support monitoring, leak prevention and sustainable water management.

The relevant Credits include:

- Wat 01 Water Consumption
- Wat 02 Water Monitoring
- Wat 03 Leak Detection and Prevention
- Wst 05 Adaptation to Climate Change (water resilience and flood management aspects)

Most of these Credits are sought within the BREEAM pre-assessment presented in **Section 4.8/appendix b**.

4.6 sustainability review - climate change resilience and adaptation…

…sustainable building services solutions

OBJECTIVE

Climate change resilience and adaptation issues have been reviewed as part of the sustainability strategy to enable successful occupation and operation of the building in the context of climate change impacts, supporting long-term resilience to future conditions.

BACKGROUND

The debate over climate change has in recent years moved away from whether or not change is happening, to what needs to be done to reduce the magnitude of further changes and minimise their impacts. It is widely recognised that action needs to be taken now to adapt the natural and built environment to these changes to ensure economic, social and environmental resilience.

Climate change adaptation and resilience measures can have a number of wider benefits, including:

- Reducing the risks to business continuity and delivery of services, and economic or reputational risk
- Reducing (but not eliminating) exposure to extreme weather damage
- Increasing the long-term sustainability of investment decisions
- Reducing environmental pollution and enhancing environmental protection
- Ensuring a safer and more comfortable working environment for occupants and visitors

Accordingly, opportunities exist to identify and implement climate change resilience and adaptation measures across the proposed building's lifespan.

Risks arising from climate change include:

- Physical risks - risks arising as a result of weather-related incidents (including heatwaves, droughts, floods and storms). These climate-related events could result in the lowering in the medium to long term of the building's value
- Transition risks - risks arising as a result of the transition to a low carbon economy. These could include stranded assets, business model disruption, policy changes or reputational impact.

It is likely that physical risks will be the most relevant to the current works proposed to the building.

OPPORTUNITIES AT THE PROPOSED DEVELOPMENT

Improving Climate Change Resilience

The proposed development presents opportunities to improve the resilience of the building fabric, structure and building services systems to future climate conditions and extreme weather events.

Measures to be considered could include review of resilience to heatwaves, intense rainfall events and other projected climate-related impacts together with consideration of the long-term performance and maintainability of building systems.

Consideration could additionally be given to implementation of Sustainable Urban Drainage System (SuDS) measures intended to manage surface water run-off rates, volumes and water quality impacts.

Supporting Climate Change Adaptation

The proposed development also presents opportunities to review the resilience and adaptability of building fabric and services systems in response to future climate change impacts.

This could include consideration of measures intended to reduce vulnerability to future climate conditions and support long-term operational resilience of the development.

CLIMATE CHANGE RESILIENCE AND ADAPTATION ISSUES ASSESSED WITHIN BREEAM

Within the BREEAM pre-assessment, climate change resilience and adaptation measures are principally addressed through Credit Wst 05 Adaptation to Climate Change, which seeks to encourage identification and implementation of measures intended to reduce vulnerability to future climate conditions and extreme weather events over the lifespan of the development.

The Credit considers risks associated with projected climate change impacts including overheating, flooding, water scarcity, severe weather events and impacts on building performance and operational resilience.

The Credit is sought within the BREEAM pre-assessment presented in Section 4.8/Appendix B.

4.7 sustainability review - transport and mobility…

…sustainable building services solutions

OBJECTIVE



Transport and mobility issues have been reviewed as part of the sustainability strategy to encourage sustainable and active travel, reduce reliance on private fossil fuel vehicle use and support future uptake of low-emission transport infrastructure.

BACKGROUND

Transport policy in Wales promotes sustainable and active travel, encouraging developments to reduce reliance on private fossil fuel-based transport and support lower carbon modes of movement. Planning Policy Wales Edition 12 and Future Wales: The National Plan 2040 support development patterns which prioritise walking, cycling, public transport, low emission vehicles and wider modal shift towards more sustainable transport behaviours.

Whereas the site already benefits from strong connections to local transport routes, being located in a highly accessible location with good permeability, the proposed development presents opportunities to further improve access to sustainable means of transport for building users beyond single-occupancy private fossil fuel vehicle use.

These could include enhanced accessibility to public transport, improved cyclist facilities, electric vehicle/cycle charging infrastructure and other sustainable transport measures intended to reduce car journeys, lower congestion and reduce operational carbon emissions over the life of the development.

OPPORTUNITIES AT THE PROPOSED DEVELOPMENT

Encouraging Sustainable Transport Use

The proposed development presents opportunities to encourage sustainable transport use through provision of travel information, signage and other measures intended to support walking, cycling and use of public transport.

Measures intended to encourage reduced reliance on single-occupancy private vehicle use and support lower emission travel modes could also be considered.

Providing Cyclist Facilities and Safe Access Measures

Opportunities exist to provide secure cyclist parking and associated cyclist facilities intended to support active travel and improve accessibility for cyclists.

Appropriate lighting, visibility and wayfinding measures associated with cyclist and pedestrian routes could also contribute positively to user safety and accessibility.

Providing Electric Vehicle and Cycle Charging Infrastructure

The proposed development presents opportunities to incorporate electric vehicle charging infrastructure together with future-proofing measures intended to support increased uptake of electric vehicles over time.

Managing Construction Traffic and Deliveries

Implementation of appropriate construction traffic and delivery management procedures could assist in minimising disruption, congestion and environmental impacts associated with construction activities and deliveries during the works.

TRANSPORT AND MOBILITY ISSUES ASSESSED WITHIN BREEAM

Within the BREEAM pre-assessment, Credits relating to transport and mobility are within the Transport category and seek to encourage sustainable travel patterns and reduced reliance on single-occupancy private vehicle use.

The relevant Credits include:

- Tra 01 Sustainable Transport Assessment and Travel Plan
- Tra 02 Sustainable Transport Measures

These Credits encourage implementation of measures intended to improve accessibility to sustainable transport options, support active travel and facilitate transition towards lower emission modes of transport.

The Credits are shown as being sought within the BREEAM pre-assessment presented in **Section 4.8/appendix b**.

4.8 sustainability review - BREEAM pre-assessment…

…sustainable building services solutions

OBJECTIVE

This section outlines the proposed development's response to BREEAM sustainability benchmarking and presents the BREEAM pre-assessment prepared for the scheme.

BREEAM ASSESSMENT METHODOLOGY



Overview

BREEAM (the Building Research Establishment Environmental Assessment Method) is a leading sustainability assessment methodology intended to improve the environmental performance of buildings while promoting healthy internal environments for occupants. The environmental performance of a development is assessed against established best practice criteria by independent BREEAM Assessors trained and licensed by the BRE.

The BRE also undertakes quality assurance reviews and issues final certification at the Post-Construction Stage, verifying that the sustainability measures targeted during the design process have been appropriately implemented within the completed development.

Ratings, Issues, Categories and Scoring

BREEAM 'Credits' are awarded by the Assessor for achieving specified levels of performance set by BRE across a wide range of sustainable design and construction issues, grouped into the following categories:

- Management - Project organization, site operation, and commissioning.
- Health & Wellbeing - Internal and external factors affecting occupant health and comfort.
- Energy - Energy consumption and CO_2 emissions.
- Transport - Accessibility and transport-related environmental impact.
- Water - Efficiency and water-related sustainability considerations.
- Materials - Environmental impact of material selection and recyclability.
- Waste - Management of construction and operational waste.
- Land Use & Ecology - Ecological value, biodiversity, and site landscaping.
- Pollution - Impact on air and water quality, including surface water runoff.

Credit scores are weighted according to their relative environmental impact and category weighting, before being aggregated into an overall BREEAM score expressed as a percentage. A building's overall performance is then expressed as a BREEAM rating, determined from this percentage score and awarded on a scale of 'Pass', 'Good', 'Very Good', 'Excellent' or 'Outstanding'.

In addition to achieving the relevant percentage score, minimum performance standards apply to certain issues at each rating level.

BREEAM encourages performance beyond standard practice through:

- Minimum standards associated with higher rating levels for issues such as operational energy performance and responsible sourcing.
- Mandatory minimum standards at BREEAM entry level, including issues relating to energy efficiency, ventilation, safety and responsible sourcing of timber.
- Tradable Credits across a range of sustainability categories where no mandatory minimum standards apply.

Assessment Process and Evidence

To demonstrate compliance and secure certification, BREEAM requires formal evidence for each Credit pursued. Evidence may include calculations, specification extracts, annotated drawings, meeting minutes, manufacturer product data, reports, schedules or formal correspondence.

Certain BREEAM Credits also require specific actions, activities or documentation to be undertaken at defined RIBA Stages and cannot typically be achieved retrospectively if these stages are missed.

Introducing BREEAM requirements early within the design process is generally the most effective and cost-efficient approach to achieving high sustainability performance, ensuring that key environmental considerations inform project decisions from the outset.

Successful certification requires coordinated input from the wider Project Team. While Architects and Building Services Engineers typically play key roles, Project Managers, Structural Engineers, Contractors and other specialist consultants may also contribute significantly. Quantity Surveyors may also be involved where cost-related reviews or adjustments are required.

The BREEAM Assessor coordinates the assessment process, monitors progress against the targeted Credits and formally submits evidence documentation to BRE for quality assurance review and certification.

Versions of BREEAM

Different versions of BREEAM apply depending on the project type and scope of works proposed. BREEAM New Construction (NC) V7 is the current version of BREEAM applicable to new-build developments and is considered appropriate for the proposed scheme.

4.8 sustainability review - BREEAM pre-assessment…

…sustainable building services solutions

BREEAM NC V7 PRE-ASSESSMENT

Background

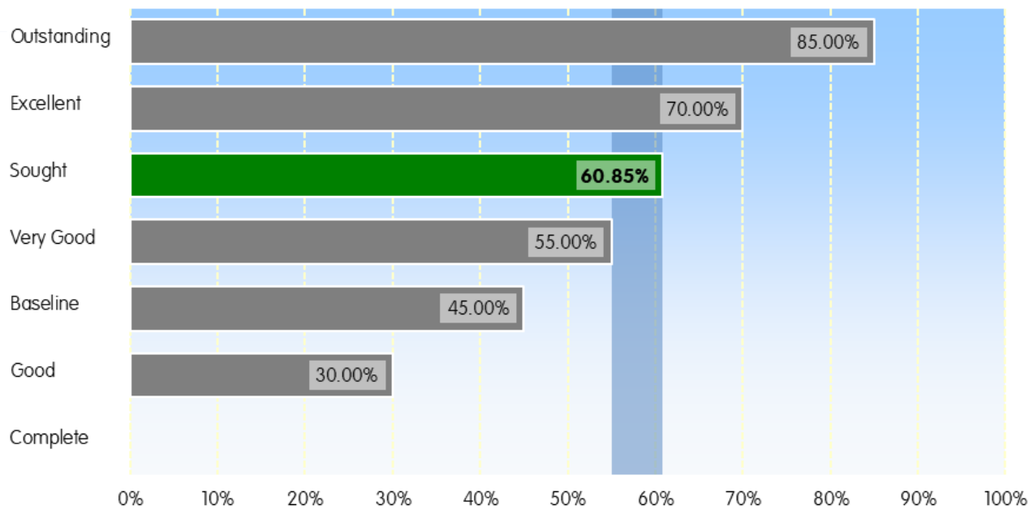
A BREEAM pre-assessment has been undertaken for the proposed development by a BREEAM Assessor and Accredited Professional (AP), based on workshops and discussions with the Project Team. BREEAM New Construction (NC) V7 is considered best suited to the scope of the proposed works, and the pre-assessment has been developed using a NC V7 'Shell and Core' scoring schema.

For each available Credit, a score has been identified based on measures considered technically feasible for the proposed development. The Project Team are aware of, and have pursued, all mandatory Credits required to achieve a BREEAM rating of 'Very Good', including Credits requiring early-stage action and Credits potentially requiring the appointment of additional specialist consultants. The pre-assessment demonstrates that a target rating of 'Very Good' is achievable and therefore capable of meeting the relevant policy target.

The pre-assessment Credit selection has been translated into a Credit Tracker which will be used to manage the assessment process through the design stages. Please refer to **appendix c** for a full copy of the Design Stage Credit Tracker.

Target Score and Rating

The current Design Stage Credit Tracker indicates a target score of **60.85%**, equivalent to a BREEAM rating of 'Very Good'. As a 'Very Good' rating requires a minimum score of 55%, the project currently maintains a margin of 5.85%.



BREEAM NC V7 Score and Rating Bands: Required Score/Rating | Sought Score

Assessment Progress

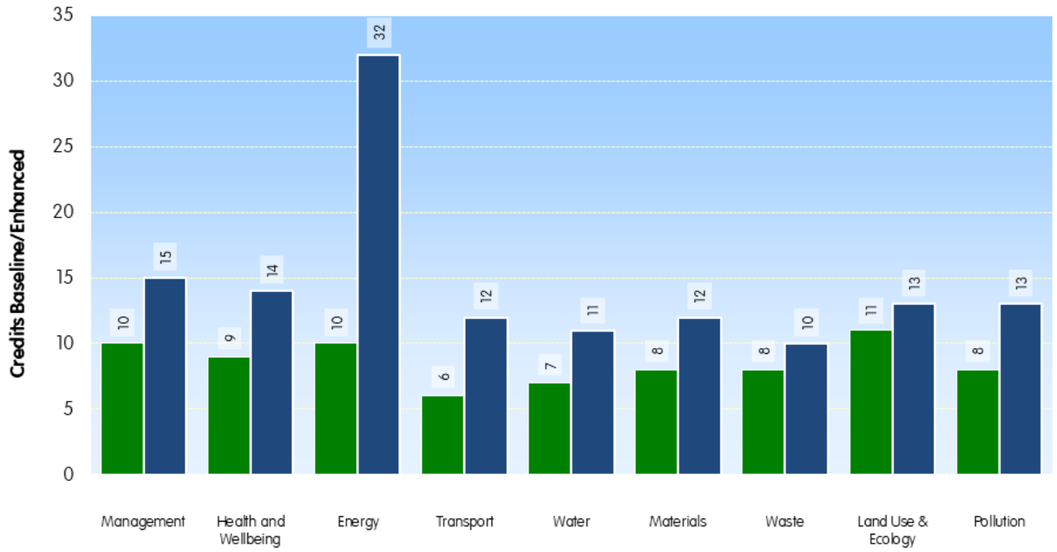
The Credit Tracker has been issued to the Project Team, setting out the BREEAM performance and evidence criteria against which the project will be assessed. The current predicted scores under each issue are identified, together with the parties responsible for ensuring compliance and providing the appropriate supporting evidence.

The BREEAM pre-assessment workshops enabled the Project Team to review and agree individual design responsibilities and to ensure that, where appropriate, the concept design incorporates the relevant measures, with commitments made to ensure that the full BREEAM criteria will be integrated within subsequent detailed and technical design stages.

The mandatory requirements associated with achieving a BREEAM NC V7 rating of 'Very Good' - including the minimum standards relating to Credits Man 03 Responsible Construction Practices, Man 04 Commissioning and Handover, Ene 01 Reduction of Energy Use and Carbon Emissions, Wat 01 Water Consumption and Wst 03 Operational Waste - are all currently considered achievable and are included within the sought Credits.

The scoring presented represents the potential performance of the scheme rather than the final achieved rating. A formal BREEAM rating can only be achieved following completion of construction works and submission of all required evidence demonstrating compliance with the relevant BREEAM criteria, after which the assessment is reviewed and formally certified by BRE.

The chart below presents the number of Credits currently targeted within each category, alongside the maximum available Credits.



BREEAM NC V7 Credit Scores by Category: Sought Credits and | Maximum Credits available

4.8 sustainability review - BREEAM pre-assessment…

…sustainable building services solutions

Note on Assessment Scope

The BREEAM pre-assessment has been undertaken based on the same representative Outline Scheme Option used for the energy assessment, incorporating both warehouse and ancillary office elements and assuming a Shell and Core assessment scope.

It is recognised that, at outline stage, the final building configuration and tenancy arrangements are not yet defined.

Should the final scheme be delivered without office accommodation or as a shell-only development, the appropriate BREEAM assessment scope may change (for example to a Shell only assessment). In such circumstances, the achievable credits and overall rating may vary from those presented within this pre-assessment and would be reviewed and updated at the appropriate stage.

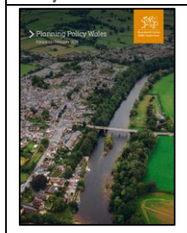
appendix a - review of planning policy and good practice…

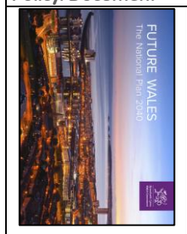
…sustainable building services solutions

OVERVIEW

The key policy frameworks at national and local level relevant to the sustainability strategy of the proposed development are outlined in this section. The sustainability strategy presented in this report has been developed in response to these policy requirements and supporting good practice guidance.

NATIONAL POLICY AND GUIDANCE

Policy/Document		Purpose	Key Policy and Targets Summary	Response to Policy Requirement
	**Planning Policy Wales (Edition 12)** Welsh Government February 2021	Planning Policy Wales (Edition 12) is the national land-use planning policy document issued by the Welsh Government. It sets out the principles and guidance that shape the development and use of land across Wales. The twelfth edition, published in 2021, integrates sustainable development as the core purpose of the planning system in Wales. It provides the framework for the preparation of development plans and the determination of planning applications in Wales. The document ensures that decisions contribute to social, economic, environmental, and cultural well-being through sustainable placemaking. The policy emphasizes climate change mitigation and adaptation, biodiversity enhancement, decarbonization, and resource efficiency. It introduces a stronger focus on active travel, renewable energy, green infrastructure, and resilience of communities. Housing, transport, and rural development policies are integrated to promote compact, low carbon growth patterns. Planning Policy Wales operates alongside TANs (Technical Advice Notes), which provide detailed guidance on specific topics such as housing, minerals, and design. Together, they form the basis for local development plans prepared by each Welsh local planning authority.	**Policy 5.7.13 - Energy Hierarchy for Planning** The Welsh Government expects all new development to mitigate the causes of climate change in accordance with the energy hierarchy for planning, which prioritises reducing energy demand, using energy efficiently and supplying energy from renewable sources. **Policy 5.8.3 - Sustainable Buildings** Sustainable building design principles should be integral to the design of new development. Development proposals should mitigate the causes of climate change by minimising carbon and other greenhouse gas emissions associated with the development's location, design, construction, use and eventual demolition, and include features that provide effective adaptation to, and resilience against, the current and predicted future effects of climate change. **Policy 5.9.11 - Local Energy Generation** The Welsh Government encourages the use of local renewable and low carbon energy as part of the imperative to reduce carbon emissions, recognising the potential for communities and businesses to develop their own projects for local benefit.	Addressed through application of the energy hierarchy, including demand reduction, efficient building systems and integration of on-site renewable energy technologies, as detailed in Section 4.
			Policy 4.1.8 - Sustainable Transport Development proposals must seek to maximise accessibility by walking, cycling and public transport, prioritising sustainable transport infrastructure and ensuring it is provided from the outset. **Policy 4.1.42 - Ultra-Low Emission Vehicles** The provision of electric vehicle charging points should be planned as part of development design, ensuring accessibility, safety and integration with renewable energy generation where possible.	Addressed through the development's sustainable transport strategy and provision of electric vehicle charging infrastructure, as set out in Section 3.
			Policy 5.11.7 - Circular Economy Development should promote resource efficiency by designing out waste, using materials that can be reused or recycled, and encouraging adaptable and durable building design. **Policy 5.13 - Sustainable Waste Management** The planning system should facilitate sustainable waste management by minimising environmental impacts, protecting amenity and ensuring waste is treated as a resource.	Addressed through adoption of material efficiency principles and waste minimisation strategies, as described in Section 3.
			Policy 6.2.11 - Green Infrastructure Green infrastructure should be integrated into development through appropriate design to enhance biodiversity, ecosystem services and well-being outcomes. **Policy 6.4 - Biodiversity and Ecological Networks** Development must maintain and enhance biodiversity, protect designated sites and species, and support resilient ecological networks.	Addressed through integration of green infrastructure and biodiversity enhancement measures within the development design, as described in Section 3.
			Policy 6.6.17 - Sustainable Drainage Systems (SuDS) New developments must incorporate sustainable drainage systems and obtain approval from the SuDS Approval Body where required. **Policy 6.6.22 - Development and Flood Risk** Development should reduce and must not increase flood risk on or off site, and should be directed to areas of lowest risk.	Addressed through incorporation of sustainable drainage measures and flood risk mitigation strategies, as outlined in Section 3.

Policy/Document		Purpose	Key Policy and Targets Summary	Response to Policy Requirement
	**Future Wales: The National Plan 2040** Welsh Government February 2021	Future Wales: The National Plan 2040 is the Welsh national development framework - a statutory, national-level spatial plan that sets the direction for development and land use across Wales up to 2040. It has full development plan status, meaning planning decisions and lower-tier plans must generally conform to it. Future Wales replaces the earlier Wales Spatial Plan and is now the top tier of the statutory development plan in Wales. Planning decisions "must be made in accordance" with it, and new Strategic Development Plans (regional) and Local Development Plans (local authorities and national parks) are required to be consistent with its policies. It sits alongside Planning Policy Wales, which sets detailed national policy; Future Wales provides the spatial and strategic direction those policies are intended to deliver. The framework sets a national spatial strategy to address long-term challenges such as economic performance, climate change, housing need, and environmental resilience. Key themes include generating and sustaining economic development; supporting housing and affordable housing growth; achieving carbon neutrality and climate resilience; improving placemaking and quality of life; and strengthening ecosystems and green infrastructure.	**Policy 9 - Resilient Ecological Networks and Green Infrastructure** Supports the enhancement of biodiversity, ecosystem resilience and green infrastructure, including the use of nature-based solutions to secure sustainable growth and well-being outcomes.	Addressed through enhancement of green infrastructure and biodiversity within the development, as described in Section 3.
			Policy 8 - Flooding Supports sustainable flood risk management, promoting nature-based solutions and ensuring developments do not adversely impact designated sites.	Addressed through site-specific flood risk considerations and mitigation measures, as outlined in Section 3.
			Policy 16 - Heat Networks Planning authorities should identify opportunities for district heat networks and ensure large-scale development considers their feasibility through energy masterplanning.	The applicability of heat networks has been considered; however, a standalone low carbon energy strategy is considered appropriate for the proposed development, as detailed in Section 4.

LOCAL POLICY AND GUIDANCE

Policy/Document		Purpose	Key Policy and Targets Summary	Response to Policy Requirement
	**Wrexham Unitary Development Plan 1996-2011** Wrexham County Borough Council 1996-2011 (adopted 2005)	The Wrexham Local Development Plan (LDP) 2013-2028 is a statutory land-use planning framework for Wrexham County Borough, adopted in 2023. It outlines the council's vision and policies for housing, employment, transport, and environmental protection, guiding development decisions until 2028. Sustainability is central to the plan, with policies for renewable energy, flood risk management, and biodiversity enhancement. The LDP supports active travel networks, public transport access, and conservation of cultural heritage sites within the county borough.	**Policy SP18 - Climate Change** Development proposals must mitigate and adapt to climate change by reducing carbon emissions, promoting energy efficiency, increasing renewable energy generation and avoiding areas at risk of flooding.	Addressed through the proposed energy strategy, including energy efficiency measures, renewable energy integration and climate resilience considerations, as set out in Sections 3 and 4.
			Policy SP14 - Natural Environment Development must protect, conserve and enhance the natural environment, including designated sites, habitats and species, and ensure environmental quality is maintained.	Addressed through environmental protection measures and biodiversity enhancements, as described in Section 3.
			Policy MW5 - Sustainable Waste Management Development proposals must minimise waste generation and ensure waste is managed sustainably in accordance with the waste hierarchy.	Addressed through waste reduction and sustainable waste management strategies, as outlined in Section 3.

SUPPLEMENTARY REGIONAL GUIDANCE (NON-STATUTORY)

The following guidance is non-statutory but has been considered where relevant to inform best practice outcomes.

Policy/Document		Purpose	Key Policy and Targets Summary	Response to Policy Requirement
	Ambition North Wales Growth Deal (2022)	Regional guidance supporting low carbon development and biodiversity enhancement across North Wales growth projects.	**A2.1 - Net Zero Operational Carbon** Projects are expected to demonstrate reduction of operational greenhouse gas emissions through energy efficiency and low carbon design before offsetting is considered. **A2.2 - Embodied Carbon Reduction** Projects should target reductions in embodied carbon using recognised methodologies and material efficiency strategies.	Addressed through prioritisation of energy efficiency, carbon reduction and consideration of embodied carbon within the sustainability strategy, as outlined in Sections 3 and 4.
			B3 - Biodiversity Net Gain Projects are encouraged to deliver measurable biodiversity enhancement, with a minimum target of net gain where feasible.	Addressed through incorporation of biodiversity enhancement measures within the development design, as described in Section 3.

OTHER REFERENCES

Policy/Document		Objective	Key Issues Summary
	**Building Regulations Approved Document Part L Conservation of Fuel and Power - Buildings Other Than Dwellings** Welsh Government 2021 edition incorporating 2023 amendments - for use in Wales	Building Regulations Part L (Wales) sets out minimum energy performance and carbon emissions standards for new and existing buildings in Wales, alongside the methodologies required to demonstrate compliance. The regulations focus on improving energy efficiency and reducing operational carbon emissions through requirements relating to the building fabric, building services, and overall system performance. Compliance is demonstrated using approved calculation methodologies, including SBEM for non-domestic buildings.	The 2022 uplift to Part L in Wales introduces a significant tightening of energy performance requirements compared to previous standards, including: • A substantial reduction in regulated CO_2 emissions relative to previous Welsh standards (Part L 2014). • Adoption of a **Primary Energy metric** alongside CO_2 emissions and fabric energy efficiency, aligning with wider UK regulatory approaches. • Strengthened emphasis on a **'fabric first' approach**, including improved minimum standards for building envelope performance and airtightness. • Increased focus on the specification of **low carbon heating systems**, discouraging reliance on fossil fuel-based systems. • Improved standards for building services efficiency, including lighting and controls. Part L (Wales) operates alongside **Approved Document Part F (Ventilation)**, which was also updated to ensure appropriate indoor air quality and ventilation performance in increasingly airtight buildings. Compliance with Part L is fundamental to achieving energy-efficient, low carbon buildings and forms a baseline against which higher sustainability standards, such as BREEAM, build.
	**BREEAM NC V7** Building Research Establishment July 2025	BREEAM is a leading environmental assessment methodology for non-domestic buildings, providing a comprehensive framework to assess, measure and certify the sustainability performance of buildings across their lifecycle. BREEAM UK New Construction Version 7 (V7) represents the latest evolution of the scheme, covering key sustainability categories including Management, Health and Wellbeing, Energy, Transport, Water, Materials, Waste, Land Use & Ecology and Pollution. The methodology incentivises design and construction practices that reduce environmental impact, enhance building performance, and support long-term operational efficiency.	BREEAM UK NC V7 introduces a more rigorous and forward-looking approach compared to previous versions, including: • Alignment with net zero carbon trajectories, including stronger requirements for operational energy performance and reduced reliance on carbon offsetting. • Updated Ene 01 framework, with greater emphasis on absolute energy performance, energy demand reduction and alignment with industry benchmarks (e.g. NABERS UK principles where applicable). • Increased focus on performance outcomes rather than purely design intent, including verification and in-use performance considerations. • Enhanced requirements relating to whole life carbon (WLC) and material impacts, strengthening links with lifecycle assessment methodologies. • Greater emphasis on resilience, climate adaptation and future-proofing, including links to credits such as Wst 05. • Improved integration of health, wellbeing and user-centric design, alongside indoor environmental quality measures. Undertaking a BREEAM assessment under Version 7 supports the delivery of best practice sustainability standards and provides a recognised certification ranging from 'Pass' to 'Outstanding'. For higher ratings (e.g. Excellent and Outstanding), minimum standards apply across key categories including energy, water, materials, waste, commissioning, and management processes, with early-stage integration and coordinated design essential to achieving compliance.

…sustainable building services solutions

SUMMARY TABLE

Technology	Life Cycle Cost of the Potential Specification, Accounting for Payback	Local Planning Criteria - General	Local Planning Criteria - Land Use	Noise	Feasibility of Exporting Heat / Electricity from the System	Life Cycle Cost / Impact	Applicable Grants and Incentives	Summary
Solar Photovoltaics (PV)	**Medium to Poor** Moderate initial capital cost with improving economic viability due to reducing panel costs. Typical payback periods in the order of 8–15 years depending on final installed capacity and electricity offset achieved.	**Low** No significant planning constraints anticipated for roof-mounted systems integrated within the warehouse roof design.	**Low** Highly suited to warehouse developments due to the large unobstructed roof area available for installation with minimal impact on operational yard or circulation space.	**Low** Negligible operational noise. Inverter noise is minimal and typically comparable to standard plantroom equipment.	**High** Generated electricity can be consumed directly within the building and exported to the grid where generation exceeds operational demand.	**Good** PV systems typically have operational lifespans of 25–30 years with low maintenance requirements and strong long-term operational value.	**None at present** No significant grants identified at present.	Highly suitable technology for the proposed development. Large roof area, daytime electrical demand profile and compatibility with an all-electric operational strategy make PV the preferred renewable electricity technology.
Solar Thermal (STHW)	**Medium** Moderate capital cost with payback periods dependent upon hot water demand profile.	**Low** No significant planning constraints identified.	**Low** Limited benefit for warehouse developments with relatively low domestic hot water demand. Available roof area is more effectively utilised for PV generation.	**Low** Very limited operational noise impacts associated with circulation pumps.	**Low** Exporting heat from solar thermal systems is generally impractical and systems are typically designed for direct on-site use.	**Good** Operational savings are limited where domestic hot water demand is relatively low.	**None at present.** No significant grants identified at present.	Not considered appropriate for the proposed development due to the relatively limited domestic hot water demand associated with warehouse use and the greater operational benefit of maximising roof-mounted PV provision.
Ground Source Heat Pumps (GSHP)	**Good** High initial capital cost associated with borehole drilling and ground infrastructure. Long-term operational efficiencies can be favourable where suitable conditions exist.	**Medium** No significant planning policy constraints identified, however detailed ground investigations and coordination would be required.	**High**. Potential conflict with yard layouts, below-ground services and operational circulation areas. Large borehole spacing requirements may be difficult to accommodate on a constrained commercial site.	**Low** Minimal operational noise once installed, although construction and drilling activities may create temporary impacts.	**Low** Heat export is generally impractical for developments of this type and scale.	**Moderate to High** Potentially good long-term operational efficiency, however disproportionate capital cost for a warehouse-led operational profile.	**None at present.** No significant grants identified at present.	Potentially technically feasible but not considered appropriate at this stage due to borehole constraints, capital cost implications and the relatively limited heated floor area associated with the development.
Air Source Heat Pumps (ASHP)	**Good** Moderate capital cost with improving cost-effectiveness as grid electricity carbon intensity continues to reduce. Typical operational lifespan 15–20 years.	**Low** Generally acceptable in planning terms subject to appropriate consideration of external plant positioning and acoustic performance.	**Low** Well suited to warehouse developments with relatively small conditioned office accommodation. Minimal land take required and systems can generally be accommodated within rooftop or plant areas.	**Low** External units can generate operational noise, however impacts are generally manageable through suitable equipment specification and acoustic treatment.	**Low** Heat export is generally impractical and systems are designed primarily for on-site heating and cooling demand.	**Medium** Strong operational carbon reduction performance when combined with efficient building fabric and all-electric services strategy.	**None at present.** No significant grants identified at present.	Considered highly appropriate for the proposed development due to strong compatibility with the operational profile, all-electric strategy and relatively low maintenance requirements.
Biomass Systems	**Good** Moderate to high capital and operational cost associated with fuel storage, delivery and ongoing maintenance.	**Medium** Potential local air quality concerns associated with particulate emissions may require additional assessment and mitigation.	**Medium to High** Fuel storage requirements and delivery access arrangements may conflict with warehouse servicing operations and external circulation areas.	**Low** Limited operational noise impacts from plant itself, although fuel delivery operations may create additional disturbance.	**Low** Heat export is generally impractical for developments of this nature.	**Moderate to High** Lifecycle costs influenced by fuel supply and maintenance requirements.	**None at present.** No significant grants identified at present.	Not considered suitable for the proposed development due to fuel logistics, operational management requirements, air quality considerations and conflict with the wider all-electric operational energy strategy.
Wind Turbines	**Good** Moderate to high capital cost with viability highly dependent on site-specific wind resource.	**Medium** Potential visual and planning impacts associated with turbine installation within an urban/suburban employment context.	**Medium to High** Large warehouse buildings and surrounding development may create turbulence and reduce operational efficiency.	**Low** Potential operational noise and vibration impacts requiring detailed assessment.	**Low** Electricity export may be technically feasible, however generation characteristics are uncertain.	**Moderate to High** Operational and maintenance requirements greater than roof-mounted PV systems.	**None at present.** No significant grants identified at present.	Not considered appropriate due to likely planning constraints, uncertain wind resource and limited compatibility with the proposed commercial site context.

appendix b - LZC feasibility study…

…sustainable building services solutions

Author/Energy Specialist Declaration (Ene 04.3 Criterion 9)

Martin Lawless of MTT Limited is identified as the author of this LZC Feasibility Study report and as an Energy Specialist, i.e. 'an individual who has acquired substantial expertise or a recognised qualification for undertaking assessments, designs and installations of low and zero carbon solutions in the commercial buildings sector, and is not professionally connected to a single low and zero carbon technology or manufacturer'.

appendix b…

appendix c - BREEAM pre-assessment credit tracker…

…sustainable building services solutions

appendix c…

BREEAM NC V7 - Credit Tracker

Project:	Bryn Lane, Wrexham	**Job Number:**	2119
Subject:	BREEAM NC V7 - PreAssessment	**Date:**	20th May 2026
Assessor:	Martin Lawless	**Issue:**	02
Checked:	Alexandra Ball		

DESIGN STAGE - SUMMARY AND MAIN TABLE

NC V7 SC	DESIGN STAGE
	REVIEW

Req. %: >55% | Req. Rating: Very Good | Sought %: 60.85% | Sought Rating: Very Good | Complete %: 0.00% | Complete Rating: Fail | Risk %: 0.00%

Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Man 01.1	Project Brief and Design - Project Planning	**1**	**1**	**0**		One Credit - Project Planning 1. A clear brief is developed prior to completion of the concept design, to include input from all design team members and this information is shared with all relevant parties. This clear briefing document sets out the particular ambitions for the project: a. Client requirements, e.g. internal environmental conditions required. b. Sustainability objectives and targets, including BREEAM performance targets and any wider business or project sustainability objectives. c. Timescales and budget. d. List of consultees and professional appointments that may be required, e.g. suitably qualified acoustician (SQA) etc. e. Constraints for the project, e.g. technical, legal, physical, environmental. 2. Prior to completion of the concept design, the project team (Client, Design Team and Principal Contractor (see M1 where not yet appointed)) meet specifically to discuss, identify and define the roles, responsibilities and contributions for each key phase of the project. When defining responsibilities, the following must be considered: a. Building user requirements. b. Aims of the design and design strategy. c. Particular installation and construction requirements and limitations. d. Design and construction risk assessments, e.g. national health and safety regulations or best practice, legionella risk assessment. e. Legislative requirements, e.g. local building regulations, heritage requirements. f. Sustainability objectives for the project. g. Ecological protection measures (where required). h. Procurement and supply chain - responsible and ethical sourcing. i. Identifying and measuring project success in line with project brief objectives. j. Building manager's or occupiers' budget and technical expertise in maintaining any proposed systems. k. Maintainability and adaptability of the proposals. l. Requirements for the production of project and end user documentation. m. Requirements for commissioning, training and aftercare support. 3. The project team demonstrate how the project delivery stakeholders' contributions and their input in the design process have influenced the following: a. Initial Project Brief b. Project Execution Plan c. Communication Strategy d. Concept Design e. Final Design.	1. A clear brief. 2. List in a responsibility matrix (or equivalent) who will be responsible for each role and specific responsibilities at each assessment stage. 2. Provide minutes of the key initial meetings to demonstrate that responsibilities were allocated and discussed at the appropriate project stage. 3. Concise report or summary document, with supporting evidence where required, to demonstrate how the project delivery stakeholders influenced the initial project brief, the project execution plan, communication strategy, and the concept design.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as the necessary project planning procedures and allocation of responsibilities can be captured through the Project Brief/project management documentation without significant additional cost. ___ Time Critical Action - RIBA Stage 2 - The Project Team should develop the project brief, sustainability requirements and roles/responsibilities before Concept Design sign-off ___	**PM**	

BREEAM NC V7 - Credit Tracker

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	REVIEW

Req. %:	Req. Rating:	Sought %:	Sought Rating:	Complete %:	Complete Rating:	Risk %:
>55%	Very Good	60.85%	Very Good	0.00%	Fail	0.00%

Sought Margin %:	Complete Margin %:
5.85%	15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Man 01.2	Project Brief and Design - Stakeholder Consultation	**1**	**0**	**0**		One Credit - Stakeholder Consultation 4. Prior to completion of the Concept Design, the design team consult with all interested parties on matters that covers the minimum consultation content (see M2). 5. The project must demonstrate concisely how the interested party contributions and outcomes of the consultation exercise have influenced or changed the initial project brief and concept design; and these changes were implemented within the final design at post-construction. 6. Prior to completion of the detailed design (Technical Design or equivalent), consultation feedback has been given to, and received by, all relevant parties. Additionally, for Education, Healthcare, Courts, and Major transportation hub building types only:	4. List all interested parties consulted. 4. Records of consultation, as per M2. 5, 6. Documentary evidence or summary report on how the interested party stakeholder contributions and consultation outcomes influenced or changed the initial project brief and concept design. 5, 6. Documentation demonstrating the dissemination of feedback to all relevant parties. 7. In addition to the items listed against criterion 4 to 6, evidence to confirm the consultation exercise was completed by an independent party and results from DQI or AEDET where used	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the full BREEAM stakeholder consultation exercise is unlikely to be required beyond the normal planning/statutory process and the additional consultation and evidence burden would be disproportionate for this scheme. ___ Time Critical Action - RIBA Stage 2, 4 - The Project Team should complete stakeholder consultation before Concept Design sign-off and should issue consultation feedback to relevant parties before Technical Design completion ___		
Man 01.3	Project Brief and Design - BREEAM AP - Concept Design	**1**	**1**	**0**		One Credit - BREEAM AP - Concept Design 8. A BREEAM Advisory Professional (AP) has been appointed to facilitate the setting and achievement of BREEAM performance targets for the project. Their involvement must be early in the design process (see M3.2) to: a. Work with the project team, including the client, to consider the links between BREEAM issues and assist them in maximising the project's overall performance against BREEAM, from their appointment and throughout Concept Design. b. Monitor progress against the agreed performance targets throughout all stages after their appointment where decisions critically impact BREEAM performance. c. Proactively identify risks and opportunities related to the achievement of the agreed targets. d. Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. e. Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team. 9. The defined BREEAM performance targets have been formally agreed between the client and design or project team no later than the concept design work stage 10. To achieve this Credit at the interim design stage assessment, the agreed BREEAM performance targets must be demonstrably achieved by the project design. This must be demonstrated via the BREEAM Assessor's design stage assessment report.	8-10. The BREEAM AP appointment letter and verification of the AP status. 8-10. Relevant section or clauses of the building specification or contract or other formal documentation to confirm BREEAM performance target. 8-10. Project programme or evidence indicating the dates for the key project design stages. 8-10. Meeting minutes, communication records, formal notes of conversations or other statements reporting on discussions related to performance targets and maximising performance, to demonstrate ongoing involvement and AP attendance at key project meetings. 8-10. BREEAM AP progress reports (for each work stage: Concept Design, Developed Design and Technical Design).	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as early BREEAM AP input is a proportionate measure to help coordinate the assessment requirements during concept design. ___ Time Critical Action - RIBA Stage 2 - The Project Team should appoint a BREEAM AP early enough to influence Concept Design and formally agree BREEAM performance targets no later than Concept Design sign-off ___ Additional Team Appointment - Sustainability Champion (Design Stage) ___	**SUST**	

BREEAM NC V7 - Credit Tracker

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NC V7 SC | DESIGN STAGE

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Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Man 01.4	Project Brief and Design - BREEAM AP - Monitoring Progress	**1**	**1**	**0**		One Credit - BREEAM AP - Monitoring Progress 11. Achieve the Credit for BREEAM AP - Concept design (criteria 8 to 10). 12. A BREEAM Advisory Professional (AP) has been appointed to monitor progress against the agreed BREEAM performance targets throughout the design process and formally report progress to the client and design team. They must: a. Work with the project team, including the client, to consider the links between BREEAM issues and to assist them in maximising the project's overall performance against BREEAM throughout Developed Design. b. Monitor progress against the performance targets agreed under criterion 9 throughout all stages where decisions critically impact the specification and tendering process and the BREEAM performance. c. Proactively identify risks and opportunities related to the achievement of the targets agreed under criterion 9. d. Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. e. Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team. 13. The BREEAM AP - Design must attend key project and design team meetings during the concept design, developed design and technical design work stages. Reporting must be carried out during and prior to completion of each stage, as a minimum.	12 & 13. Meeting minutes, communication records, formal notes of conversations or other statements reporting on discussions related to performance targets and maximising performance, to demonstrate ongoing involvement and AP attendance at key project meetings 12 & 13. BREEAM AP progress reports (for each work stage: Concept Design, Developed Design and Technical Design). 12 & 13. The BREEAM AP appointment letter and verification of the AP status. 12 & 13. Relevant section or clauses of the building specification or contract or other formal documentation to confirm BREEAM performance target. 12 & 13. Project programme or evidence indicating the dates for the key project design stages.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as once a BREEAM AP is engaged, ongoing monitoring of progress through the design stages is a proportionate extension of that role. Time Critical Action - RIBA Stage 2, 3, 4 - The BREEAM AP should attend key design meetings and report progress before completion of Concept Design, Developed Design and Technical Design Additional Team Appointment - Sustainability Champion (Monitoring Progress)	**SUST**	
Man 02.1	Life Cycle Cost and Service Life Planning - Elemental LCC Options Appraisal	**2**	**0**	**0**		Two Credits - Elemental LCC Options Appraisal 1. A competent person carries out an outline, entire asset elemental life cycle cost (LCC) options appraisal (at least two) at the Concept Design stage in line with ISO 15686-5:2017(2). 2. The elemental LCC plan: a. Provides an indication of future replacement costs over a period of analysis as required by the client (e.g. 20, 30, 50 or 60 years); b. Includes service life, maintenance and operation cost estimates. 3. Demonstrate, using appropriate examples provided by the design team, how the elemental LCC plan has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value.	1, 2. Elemental LCC plan. 3. Confirmation from the design team as to how the LCC has influenced design/specification and drawings/specifications to support this.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as a formal elemental life cycle cost appraisal would have needed to influence the project at an earlier stage and would add consultant cost with limited benefit for a straightforward warehouse building. Time Critical Action - RIBA Stage 2 - The Project Team should appoint a competent person and complete the elemental LCC options appraisal at Concept Design stage so that it can influence design decisions		
Man 02.2	Life Cycle Cost and Service Life Planning - Component Level LCC Options Appraisal	**1**	**0**	**0**		One Credit - Component Level LCC Options Appraisal 4. A competent person develops a component level LCC options appraisal (at least two) by the end of Technical Design stage in line with ISO 15686-5:2017, and includes the following component types (where present): a. Envelope, e.g. cladding, windows, or roofing b. Services, e.g. heat source, cooling source, or controls, also intelligent lighting controls against standard controls. c. Finishes, e.g. walls, floors or ceilings d. External spaces, e.g. alternative hard landscaping, boundary protection. 5. Demonstrate, using appropriate examples provided by the design team, how the component level LCC options appraisal has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value.	4. Component level LCC options appraisal. 5. Confirmation from the design team as to how the LCC has influenced design/specification and drawings/specifications to support this.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as a component-level life cycle cost exercise would add further detail, cost and programme input beyond what is considered proportionate for the project. Time Critical Action - RIBA Stage 4 - The Project Team should appoint a competent person and complete the component-level LCC options appraisal by the end of Technical Design		

BREEAM NC V7 - Credit Tracker

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Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Man 02.3	Life Cycle Cost and Service Life Planning - Capital Cost Reporting	**1**	**1**	**0**		One Credit - Capital Cost Reporting 6. Report the capital cost for the building in pounds per square metre (£/m²) of gross internal area (GIA).	6. Predicted capital cost.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as capital cost reporting should be readily available through the normal cost management process. ___	**QS**	
Man 03.1	Responsible Construction - Prerequisite - Legal and Sustainable Site Timber	**0**	**0**	**0**		Prerequisite - Legal and Sustainable Site Timber 1. All temporary site timber and timber-based products (excluding reused timber) used during the construction process of the project must be legal and sustainable timber.	1. Relevant section or clauses of the building specification or contract. OR A signed and dated letter of commitment to meet the relevant criteria.	140526 PA Workshop - The prerequisite Credit was discussed and it was agreed that it must be sought. ___ 170426 Initial Review - MTTS note that this item is an assessment prerequisite and shall be complied with, as legally and sustainably sourced timber is a mandatory requirement for the assessment where timber products are specified. The Credit is assigned to the QS because it can be conveyed onto the Contractor by way of contract preliminaries/employers requirements. ___	**QS**	
Man 03.3	Responsible Construction - Environmental Management	**1**	**1**	**0**		One Credit - Environmental Management 3. All parties who manage the construction site at any stage must operate an EMS covering their main operations. The EMS must be third-party certified to ISO 14001, EMAS (EU Eco-Management and Audit Scheme), or an equivalent standard. 4. All parties who manage the construction site at any stage must implement best practice pollution prevention policies and procedures on site. To demonstrate compliance, the project team should complete the checklist given in Table 4.2, showing how the intent of every section (e.g. air quality) has been met, even if by different means than the actions suggested. For EU Taxonomy alignment, please refer to M5.	3. Relevant section or clauses of the building specification or contract OR A signed and dated letter of commitment to meet the relevant criteria. 4. Relevant section or clauses of the building specification or contract. OR A signed and dated letter of commitment to meet the relevant criteria. 3. OR A copy of the principal contractors EMS/EMAS certificate, where contractor is appointed. 4. OR A copy of the checklist (Table 4.2) and supporting evidence confirming the proposed measures and procedures against each section.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as the Contractor should be able to satisfy the environmental management requirements through standard EMS and pollution prevention procedures. The Credit is assigned to the QS because it can be conveyed onto the Contractor by way of contract preliminaries/employers requirements calling on the Contractor to implement site management, monitoring and reporting procedures during construction ___	**QS**	

BREEAM NC V7 - Credit Tracker

Project:	Bryn Lane, Wrexham	**Job Number:**	2119
Subject:	BREEAM NC V7 - PreAssessment	**Date:**	20th May 2026
Assessor:	Martin Lawless	**Issue:**	02
Checked:	Alexandra Ball		

DESIGN STAGE - SUMMARY AND MAIN TABLE

NC V7 SC | DESIGN STAGE

Req. %: >55% | Req. Rating: Very Good | Sought %: 60.85% | Sought Rating: Very Good | Complete %: 0.00% | Complete Rating: Fail | Risk %: 0.00% | REVIEW

Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Man 03.4	Responsible Construction - BREEAM AP - Site	**1**	**0**	**0**		One Credit - BREEAM Advisory Professional - Site 5. The client must formally agree with the contractor the performance targets relating to the BREEAM certification that have been set for the project. 6. A BREEAM AP must be involved in the project at an appropriate time and level to ensure that the agreed performance targets are met. Specifically, the AP must: a. Work with the project team, including the client, to help them maximize performance against the agreed targets throughout construction, handover and closeout. This support will include considering links between the criteria that need to be met across all project areas to be assessed by BREEAM (e.g., Management, Energy, Ecology etc), going beyond the design intent wherever possible. b. Monitor progress against the agreed performance targets throughout all stages of the construction, paying particular attention wherever decisions are made that could critically impact the BREEAM performance, and keeping all records needed as evidence for the assessment. c. Proactively identify risks and opportunities related to the procurement and construction processes and the achievement of the targets agreed under criterion 5 above. d. Feedback promptly and regularly to the contractor and project team helping the project stay on track to meet its targets and supporting any necessary corrective actions. e. Where appropriate, coordinate and help the project team to provide the assessor with the necessary evidence to achieve the Credits. 7. To achieve this Credit at the final post-construction stage of assessment, the submitted assessor's report must show that a BREEAM AP was appointed and that the agreed performance targets have been demonstrably achieved by the project.	5. Relevant section or clauses of the building specification, contract documents or formal agreement stating the required BREEAM performance rating. 6. Relevant section or clauses of the building specification or contract. OR A signed and dated letter of commitment to meet the relevant criteria.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as appointing a separate site-based BREEAM AP would add cost and is not considered necessary provided robust contractor management procedures are secured. ___ Additional Team Appointment - Sustainability Champion (Construction Stage) ___		
Man 03.5	Responsible Construction - Responsible Construction Management	**2**	**2**	**0**		Up to Two Credits - Responsible Construction Management 8. For small-scale projects: a. The contractor must achieve items listed f, h, i, j and m (as listed within Table 4.1 below) to achieve one Credit. b. Where the contractor achieves those items checked as 'required for one Credit (for standard projects)' in Table 4.1, the small-scale project may achieve two Credits. 9. All buildings not defined as small-scale projects are considered to be standard projects and Credits are awarded as follows: a. All items checked as 'required for one Credit (for standard projects)' in Table 4.1 below must be achieved for one Credit to be awarded. b. Projects achieving criterion 9.a plus six additional items in Table 4.1 below may be awarded a second Credit.	8, 9, 19. Relevant section or clauses of the building specification or contract. OR A signed and dated letter of commitment to meet the relevant criteria. Note: It must be clear which responsible construction management items within Table 4.1 on page 51 are being targeted.	140526 PA Workshop - The Credit was discussed and it was agreed that a score of 2 Credits should be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' score, as achievement is heavily dependent on contractor commitment and performance. However, they could be pursued as part of the 'Enhanced' score if the responsible construction requirements are secured through tender/contract preliminaries and the appointed Contractor commits to full compliance. The Credit is assigned to the QS because it can be conveyed onto the Contractor by way of contract preliminaries/employers requirements calling on the Contractor to implement site management, monitoring and reporting procedures during construction. ___	**QS**	
Man 03.6	Responsible Construction - Site Monitoring : Prerequisite	**0**	**0**	**0**		Prerequisite - Site Monitoring 10. Assign responsibility for site monitoring to a named individual. This is a prerequisite for the award of any of the site monitoring Credits as set out below. The responsible individual must have the appropriate authority and experience to access the data required. They may be the BREEAM AP, where one has been appointed. They will be required to monitor, record and report energy use, water consumption and transportation data (where measured) resulting from all on-site construction processes (and dedicated off-site manufacturing) throughout the build programme. Report the project value.	10. Relevant section or clauses of the building specification or contract. OR A signed and dated letter of commitment to meet the relevant criteria. 10. Details of the predicted project value.	140526 PA Workshop - The prerequisite Credit was discussed and it was agreed that it must be sought. ___ 170426 Initial Review - MTTS note that this item is an assessment prerequisite to the associated site monitoring credits and shall be complied with, as the project is targeting site monitoring measures within the assessment. The Credit is assigned to the QS because it can be conveyed onto the Contractor by way of contract preliminaries/employers requirements. ___	**QS**	

BREEAM NC V7 - Credit Tracker

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Checked:	Alexandra Ball		

DESIGN STAGE - SUMMARY AND MAIN TABLE

NC V7 SC | DESIGN STAGE

Req. %: >55% | Req. Rating: Very Good | Sought %: 60.85% | Sought Rating: Very Good | Complete %: 0.00% | Complete Rating: Fail | Risk %: 0.00% | REVIEW

Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Man 03.6	Responsible Construction - Site Monitoring : Monitoring Utility Consumption	**1**	**1**	**0**		One Credit - Monitoring Utility Consumption Energy consumption 11. Set targets at design stage for the site energy consumption in kWh (and where relevant, litres of fuel used) resulting from the use of construction plant, equipment (mobile and fixed) and site accommodation. 12. Monitor and record data for the energy consumption described in criterion 11 and show that the consumption targets have been achieved. 13. Report the total carbon dioxide emissions (total kgCO2e) and energy consumption (electricity in kWh or litres of fuel) resulting from the construction process. Water consumption 14. Set targets at design stage for the potable water consumption (m3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation. 15. Monitor and record data for the potable water consumption described in criterion 14 and show that the consumption targets have been achieved. 16. Use the collated data to report the total net water consumption resulting from the construction process (m3), i.e. consumption minus any recycled water use.	11-16. Relevant section or clauses of the building specification or contract. OR A signed and dated letter of commitment to meet the relevant criteria. 11, 14. Confirmation of the targets that have been set for the project.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as monitoring site utility consumption can be secured through normal contractor management and reporting procedures. The Credit is assigned to the QS because it can be conveyed onto the Contractor by way of contract preliminaries/employers requirements calling on the Contractor to implement site management, monitoring and reporting procedures during construction. ___	**QS**	
Man 03.6	Responsible Construction - Site Monitoring : Monitoring Transport of Construction Materials and Waste	**1**	**1**	**0**		One Credit - Monitoring Transport of Construction Materials and Waste 17. Set targets at design stage and monitor and record data relating to transport movements and other impacts resulting from delivery of the majority of construction materials to the site and removal of construction waste from the site (see M4). As a minimum this must cover: a. Transport of materials from the point of supply to the building site, including any transport, intermediate storage and point of supply. b. The scope of this monitoring must cover the materials used within the following as a minimum: i. Superstructure, as listed in Table 9.6 in Mat 03. ii. Internal finishes, as listed in Table 9.7 in Mat 03. iii. Substructure and hard landscaping, as listed in Table 9.8 in Mat 03. iv. Core building services, as listed in Table 9.9 in Mat 03. c. Transport of construction waste from the construction gate to waste disposal processing or recovery centre gate. Monitoring must cover the construction waste groups outlined in the project's resource management plan. 18. Using the collated data, report separately for materials and waste, the total transport-related carbon dioxide emissions (kgCO2e), plus total distance travelled (km) and amount of fuel used (litres).	17-18. Relevant section or clauses of the building specification or contract. OR A signed and dated letter of commitment to meet the relevant criteria. 17. Confirmation of the targets that have been set for the project.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of the 'Baseline' score. However, it could be pursued as part of the 'Enhanced' score if the Contractor is required to fully monitor and report the transport of construction materials and waste, noting the additional administration and supply-chain data collection involved. The Credit is assigned to the QS because it can be conveyed onto the Contractor by way of contract preliminaries/employers requirements calling on the Contractor to implement site management, monitoring and reporting procedures during construction. ___	**QS**	

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Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Man 04.1	Commissioning and Handover - Schedule and Responsibilities	0	0	0		One Credit - Schedule and Responsibilities 1. Prepare a schedule of commissioning and testing. The schedule identifies and includes a suitable timescale for commissioning and re-commissioning of all complex and non-complex building services and control systems and for testing and inspecting building fabric. 2. The schedule identifies the appropriate standards for all commissioning activities to be conducted, where applicable, in accordance with: a. Current Building Regulations b. BSRIA guidelines(5) c. CIBSE guidelines(6) d. Other appropriate standards (see CN1). Any process or manufacturing-related equipment specified as part of the project can be excluded from the assessment, except where it forms an integral part of building HVAC services, such as some heat recovery systems. 3. Where a building management system (BMS) is specified: a. Carry out commissioning of air and water systems when all control devices are installed, wired and functional. b. Include physical measurements of room temperatures, off-coil temperatures and other key parameters, as appropriate, in commissioning results. c. The BMS or controls installation should be running in auto with satisfactory internal conditions prior to handover. d. All BMS schematics and graphics (if BMS is present) are fully installed and functional to user interface prior to handover. e. Fully train the occupier or facilities team in the operation of the system. 4. Appoint an appropriate project team member to monitor and programme pre-commissioning, commissioning and testing. Where necessary include re-commissioning activities on behalf of the client. 5. The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and the main programme of works. Allow the required time to complete all commissioning and testing activities prior to handover.	1-4. Relevant section or clauses of the building specification or contract. OR A letter of commitment from the client or developer. 1-4. Commissioning schedule (where available). 5. Copy of the principal contractor's programme and project budget showing commissioning allowances. 5. OR Where contractor not yet appointed: Relevant section or clauses of the building specification or contract. OR A letter of commitment from the client or developer.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment. ___ Time Critical Action - RIBA Stage 6 - The Contractor should programme and complete commissioning/testing activities, including BMS/controls readiness where applicable, before handover ___		
Man 04.2	Commissioning and Handover - Commissioning Role	0	0	0		One Credit - Commissioning Role 6. Achieve the schedule and responsibilities Credit (criteria 1 to 5). 7. During the design stage, the client or the principal contractor appoints an appropriate project team member (see criterion 4), provided they are not involved in the general installation works for the building services systems, with responsibility for: a. Undertaking design reviews and giving advice on suitability for ease of commissioning. b. Providing commissioning management input to construction programming and during installation stages. c. Management of commissioning, performance testing and handover or post-handover stages. For buildings with complex building services and systems, this role needs to be carried out by a specialist commissioning manager.	7. Letter of appointment for commissioning manager(s). 7. Evidence of design reviews (where available). 7. Where applicable, evidence that the specialist commissioning manager meets the definition for this role.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment. ___		

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	REVIEW

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>55%	Very Good	60.85%	Very Good	0.00%	Fail	0.00%

Sought Margin %:	Complete Margin %:
5.85%	15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Man 04.3	Commissioning and Handover - Envelope Testing	1	1	0		One Credit - Envelope Testing 8. Achieve the schedule and responsibilities Credit (criteria 1 to 5). 9. Complete post-construction testing and inspection to quality-assure the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths (this is through airtightness testing and a thermographic survey) (see Methodology M1). A suitably qualified professional undertakes the survey and testing in accordance with the appropriate standard (see M1.5). For EU taxonomy alignment, please see M1.6. 10. Rectify any defects identified during post-construction testing and inspection prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building or element as defined at the design stage (see M1.4).	9-10. Relevant section or clauses of the building specification or contract. OR A letter of commitment from the client or developer.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought as the design team believe the measures are reasonable and achievable for this building type. Following discussion, Responsible Party updated to Quantity Surveyor. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as specialist airtightness/thermographic testing and the rectification of any defects would add cost and programme burden and are not considered essential for the current shell-only proposal. ___ Time Critical Action - RIBA Stage 6 - The Contractor should complete envelope testing/inspection and rectify identified defects before handover ___ Additional Team Appointment - Thermographic Surveyor and Air Tightness Tester ___	QS	
Man 04.4	Commissioning and Handover - Handover	0	0	0		One Credit - Handover 11. Prior to handover, develop two building user guides (see M2) for the following users: a. A non-technical user guide for distribution to the building occupiers. b. A technical user guide for the premises facilities managers. A draft copy is developed and discussed with users first (where the building occupants are known) to ensure the guide is most appropriate and useful to potential users. 12. Prepare two training schedules (see Methodology M3) timed appropriately around handover and proposed occupation plans for the following users: a. A non-technical training schedule for the building occupiers. b. A technical training schedule for the premises facilities managers.	11-12. Relevant section or clauses of the building specification or contract. OR A letter of commitment from the client or developer which is specific for the project being assessed. 11-12. OR Draft building user guides and training schedule, where available.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment. ___ Time Critical Action - RIBA Stage 6 - The Contractor should prepare the required building user guides before handover ___		

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Man 05.1	Aftercare - Aftercare Support	0	0	0		One Credit - Aftercare Support 1. Provide aftercare support to the building occupiers through having in place operational infrastructure and resources. This includes as a minimum: a. A meeting between the aftercare support team or individual, and the building occupier or management team (prior to initial occupation, or as soon as possible thereafter) to: i. Introduce the aftercare support available, including the content of the building user guide (where it exists) and training schedule. ii. Present key information about features of the building including the design intent and how to use the building to ensure it operates as efficiently and effectively as possible. b. On-site facilities management training including: i. a walkabout of the building AND ii. introduction to and familiarisation with the building systems, their controls and how to operate them in accordance with the design intent and operational demands. c. Provide initial aftercare support for at least the first month of building occupation, e.g. weekly attendance on-site, to support building users and management (the level of frequency will depend on the complexity of the building and building operations). d. Provide longer term aftercare support for occupiers for at least the first 12 months from occupation, e.g. a helpline, nominated individual or other appropriate system to support building users and management. 2. Establish operational infrastructure and resources to coordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months, once the building is substantially occupied. This facilitates analysis of discrepancies between actual and predicted performance, with a view to adjusting systems and user behaviours accordingly (see M1).	1-2. Evidence of a commitment or contract to provide compliant aftercare support and training.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment. Time Critical Action - RIBA Stage 6/7 - The Contractor should confirm aftercare support arrangements and hold the initial aftercare meeting before initial occupation or as soon as possible thereafter		
Man 05.2	Aftercare - In-Use Commissioning	0	0	0		One Credit - In-use Commissioning 3. Complete the following commissioning activities over a minimum 12-month period, once the building becomes substantially occupied: a. Complex systems: The specialist commissioning manager will: i. Identify changes made by the owner or operator that might have caused impaired or improved performance. ii. Test all building services under full and part-load load conditions. iii. Where applicable, carry out testing during periods of extreme (high or low) occupancy. iv. Interview building occupants (where they are affected by the complex services) to identify problems or concerns regarding the effectiveness of the systems. v. Compare sub-metered energy performance to the predicted energy performance. vi. Identify inefficiencies and areas in need of improvement. vii. Re-commission systems (following any work needed to serve revised loads) and incorporate any revisions in operating procedures into the operations and maintenance (O&M) manuals. b. Simple systems: The external consultant, aftercare team, or facilities manager will: i. Review thermal comfort, ventilation, and lighting, at three, six and nine month intervals after initial occupation, either by measurement or occupant feedback. ii. Identify deficiencies and areas in need of improvement. iii. Re-commission systems and incorporate any relevant revisions in operating procedures into the O&M manuals	3. Relevant section or clauses of the building specification or contract. OR A letter of commitment from the client or developer. 3. OR Appointment letters or commissioning responsibilities schedule where available	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment.		

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Man 05.3	Aftercare - Post-Occupancy Evaluation	0	0	0		One Credit - Post-occupancy Evaluation 4. The client or building occupier commits to carry out a post-occupancy evaluation (POE) exercise one year after the building is substantially occupied. This gains comprehensive in-use performance feedback (see criterion 5.b.v) and identifies gaps between design intent and in-use performance. The aim is to highlight any improvements or interventions that need to be made and to inform operational processes. 5. An independent party carries out the POE covering: a. A review of the design intent and construction process (review of design, procurement, construction and handover processes). b. Feedback from a wide range of building users including facilities management on the design and environmental conditions of the building covering: i. Internal environmental conditions (light, noise, temperature, air quality) ii. Control, operation and maintenance iii. Facilities and amenities iv. Access and layout v. Energy and water consumption (see criterion 2 and M1) vi. Other relevant issues, where appropriate. 6. The independent party provides a report with lessons learned to the client and building occupiers 7. The client or building occupier commits funds to pay for the POE in advance. This requires an independent party to be appointed to carry out the POE as described in criterion 5	4-7. A signed and dated commitment by the client or developer or future building occupier.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment. ___ Additional Team Appointment - Post Occupancy Evaluation Consultant ___		
Hea 01.1	Natural Light - Minimum Standard	0	0	0		Minimum Standard - Natural Light 1. Achieve one of the following: a. At least 95% of all relevant building areas for daylight, have vertical and/or inclined windows with a glazed area ≥ 20% of the surrounding wall area (see Definitions and M1). OR b. At least 80% of relevant	1. Design drawings. 1. Calculations.	140526 PA Workshop - The prerequisite Credit was discussed and it was agreed that it must be sought. ___ 290426 Initial SC Review - MTTS note that this Credit is an assessment prerequisite. As the assessment is for a shell-only building and the future occupied layout is not yet defined, compliance is not being relied upon at this stage to pursue the associated natural light credits. ___	ARCH	
Hea 01.2	Natural Light - Glare Control	1	0	0		One Credit - Glare Control 2. Identify areas at risk of glare using a glare control assessment. The glare control assessment also justifies any areas deemed not at risk of glare. 3. Where risk has been identified within a relevant building area, a glare control strategy is used to design out the potential for glare (see M2). 4. The glare control strategy does not increase energy consumption used for lighting. This is achieved by: 3.a Maximising daylight levels in all weather, cloudy or sunny AND 3.b Ensuring the use or location of shading does not conflict with the operation of lighting control systems.	2-4. Design drawings. 2-4. Glare control assessment, where required. 2-4. Relevant section or clauses of the building specification or contract.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the shell-only nature of the development means the location of future workstations/screened areas is unknown and compliant glare control cannot be robustly demonstrated. ___		

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Hea 01.3	Natural Light - Daylighting	**2**	**0**	**0**		Up to Two Credits - Daylighting 5. Daylighting criteria have been met using one of the options outlined in Table 5.2 (see M3.2): a. The relevant building areas meet good practice average and minimum point daylight illuminance criteria as outlined in Table 5.2. OR b. The relevant building areas meet any level of recommendation using the daylight illuminance criteria in BS EN 17037:2018+A1:2021(20). OR c. The relevant building areas achieve at least 'nominally accepted' daylight sufficiency as per IES LM-83-23(21)	5, 12. Design drawings. 5, 12. Daylight calculations. 5, 12. OR Relevant section or clauses of the building specification or contract confirming national best practice daylighting guidelines or BREEAM requirements.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought, but kept under review as a potential measure, pending later detailed design development Following discussion, Responsible Party updated to Architect. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the future internal layout and occupied areas are not yet defined and compliant daylighting performance cannot be reliably evidenced at shell stage. ___		
Hea 01.5	Natural Light - View Out	**1**	**1**	**0**		One Credit - View Out 8. At least 95% of the floor area in 95% of spaces for each relevant building area are within the distances of a window or permanent opening that provides an adequate view out (see Definitions and M5), as outlined in Table 5.1. OR 9. At least 75% of the floor area in 95% of spaces for each relevant building area can meet both of the following criteria: a. Horizontal sight angle ≥ 28° AND b. The landscape layer and at least one additional layer (sky or ground) are visible through a permanent opening (see M5.4).	8-9. Design drawings. 8-9. Window schedules. 8-9. Calculations.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought as the design team believe the measures are reasonable and achievable for this building type. Following discussion, Responsible Party updated to Architect. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the future internal planning of occupied areas and it is therefore difficult to demonstrate compliant view out for all relevant spaces. ___	**ARCH**	
Hea 02.1	Artificial Light - Prerequisite - Flicker	**0**	**0**	**0**		Prerequisite - Flicker 1. All lighting types should be designed to avoid flicker and stroboscopic effects (see M1), including across their full dimming and colour tuning range if applicable. This is applicable to all internal and external lighting.	1. Design drawings/lighting schedules. 1. OR Relevant section or clauses of the building specification or contract OR A letter of formal confirmation of compliance from the building services engineer or lighting designer. 1. Where luminaire specifications are known, manufacturer's product data sheets.	140526 PA Workshop - The prerequisite Credit was discussed and it was agreed that it must be sought. ___ 170426 Initial Review - MTTS note that this item is an assessment prerequisite and shall be complied with where artificial lighting is provided, as flicker-free luminaires are a standard specification requirement and necessary to support the relevant lighting credit. ___	**SERV**	

credit tracker...

BREEAM NC V7 - Credit Tracker

Project:	Bryn Lane, Wrexham	**Job Number:**	2119
Subject:	BREEAM NC V7 - PreAssessment	**Date:**	20th May 2026
Assessor:	Martin Lawless	**Issue:**	02
Checked:	Alexandra Ball		

DESIGN STAGE - SUMMARY AND MAIN TABLE

NC V7 SC	DESIGN STAGE
	REVIEW

Req. %: >55% | Req. Rating: Very Good | Sought %: 60.85% | Sought Rating: Very Good | Complete %: 0.00% | Complete Rating: Fail | Risk %: 0.00%

Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Hea 02.2	Artificial Light - Internal and External Lighting Levels	**1**	**1**	**0**		One Credit - Internal and External Lighting Levels Internal Lighting 2. Internal lighting in all relevant areas of the building is designed to provide illuminance (lux) levels and colouring rendering index in accordance with the SLL Code for Lighting 2022(24) and any other relevant industry standard. Internal lighting should be appropriate to the tasks undertaken, accounting for building user concentration and comfort levels. Compliance criteria should include, as applicable for each type of application: a. Illuminance levels and uniformity b. Glare limits c. Colour appearance d. Colour rendering 3. For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7 - Sections 2.5, 2.15 to 2.17, 2.22, and 6.10 to 6.20.(25) This gives recommendations highlighting: a. Limits to the luminance of the luminaires to avoid screen reflections. (Manufacturers' data for the luminaires should be sought to confirm this.) b. Any area where a surface is used to reflect light in to a space, such as uplighting, the recommendations refer to the luminance of the lit ceiling rather than the luminaire; a design team calculation is usually required to demonstrate this. c. Recommendations for direct lighting, ceiling illuminance, and average wall illuminance. External Lighting 4. All external lighting located within the construction zone is specified in accordance with BS 5489-1:2020(26) and BS EN 12464-2:2024(27). External lighting should provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night. Compliance criteria should include, as applicable for each type of application: a. Illuminance / luminances level and uniformity b. Glare limits c. Colour rendering	2-4. Design drawings. 2-4. OR Relevant section or clauses of the building specification or contract. OR A letter of formal confirmation of compliance from the building services engineer or lighting designer. 2-4. Lighting schedules. 2-4. Lighting control strategy.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. --- 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as compliant internal/external lighting performance can be addressed through the normal lighting design and specification. Prepare Indoor Air Quality Plan and specify compliant materials before construction ---	**SERV**	

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Hea 02.3	Artificial Light - Zoning and Occupant Control	0	0	0		One Credit - Zoning and Occupant Control 5. Internal lighting is zoned to allow for occupant control in accordance with the criteria below for relevant areas present within the building, as applicable: a. Workstations adjacent to windows or atria and other building areas are separately zoned and controlled b. In office areas where furniture layout is known, zones of no more than four workplaces c. Seminar and lecture rooms: zoned for presentation and audience areas d. Library spaces: separate zoning of stacks, reading and counter areas e. Teaching space or demonstration area f. Whiteboard or display screen g. Auditoria: zoning of seating areas, circulation space and lectern area h. Dining, restaurant, café areas: separate zoning of servery and seating or dining areas i. Retail: separate zoning of display and counter areas j. Bar areas: separate zoning of bar and seating areas k. Wards or bedded areas: zoned lighting control for individual bed spaces and control for staff over groups of bed spaces l. Treatment areas, dayrooms, waiting areas: zoning of seating and activity areas and circulation space with controls accessible to staff. 6. Areas used for teaching, seminar or lecture purposes have lighting controls provided in accordance with CIBSE Lighting Guide 5(28) 7. Where automatic lighting controls are used for energy efficiency reasons, manual override must be provided. 8. In addition, the building type criteria in Table 5.4 (where relevant).	5-10. Design drawings. 5-10. OR Relevant section or clauses of the building specification or contract. OR A letter of formal confirmation of compliance from the building services engineer or lighting designer. 5-10. Lighting schedules. 5-10. Lighting control strategy.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment. ___		
Hea 03	Non-Visual Effects of Light	0	0	0		One Credit - Non-visual Effects of Light 1. Achieve at least one Credit for 'Daylighting' in Hea 01 Natural light. 2. All relevant areas achieve one of the below, as applicable: a. Where occupant positions are known and fixed (see M1.1): All positions in all relevant building areas receive a vertical illuminance of at least 250 lux melanopic EDI at occupant eyes for at least four hours during the daytime (beginning by noon at the latest). b. Where occupant positions are unknown or variable (see M1.2): Cylindrical illuminance at eye height across each relevant building area corresponds to at least 250 lux melanopic EDI for at least four hours during the daytime (beginning by noon at the latest). 3. Electric lighting systems and controls are in place to adjust the flux and spectral output of the emitted light over time (colour tuning) so that melanopic EDI at occupant eye level can be reduced in the afternoon and evening, as relevant for each type of application. Residential areas (Healthcare, Residential Institutions, Prisons, and Hospitality)	2-4. A letter of formal confirmation of compliance from the building services engineer or lighting designer. 2-4. Lighting product datasheets and schedules or specification. 2-4. Documentary evidence to confirm the measured or calculated inputs of illuminance or spectral power density. 2-4. The calculated lux melanopic EDI confirming criteria has been achieved.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment. ___		

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NC V7 SC	DESIGN STAGE
	REVIEW

Req. %:	Req. Rating:	Sought %:	Sought Rating:	Complete %:	Complete Rating:	Risk %:
>55%	Very Good	60.85%	Very Good	0.00%	Fail	0.00%

Sought Margin %:	Complete Margin %:
5.85%	15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk	
Hea 04.1	Indoor Air Quality - Indoor Air Quality Plan	**1**	**1**	**0**		One Credit - Indoor Air Quality Plan 1. A site-specific indoor air quality plan has been produced in accordance with Guidance Note 6 (GN06). This plan informs the design, specification, and installation to maximise improvement of indoor air quality during occupation. The plan must consider the following: a. Removal of highly contaminating sources b. Dilution and control of other contaminant sources, including: i. Air quality requirements of specialist areas such as laboratories, where present c. Procedures for pre-occupancy flush out and purge ventilation d. Third party testing and analysis e. Maintaining indoor air quality in-use f. Any relevant local or national authority plans or policies (for example, Air Quality Management Areas or Local Air Quality Action Plans)	1. A copy of the indoor air quality plan.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as preparation of an Indoor Air Quality Plan setting out responsibilities for source control, protection of ductwork / absorptive materials, sequencing and pre-handover measures is a manageable design-stage requirement. ___ Additional Team Appointment - Specialist Consultant for Indoor Air Quality Plans ___	**PM**		x
Hea 04.2	Indoor Air Quality - Ventilation	**1**	**1**	**0**		One Credit - Ventilation The building has been designed to minimise the concentration and recirculation of pollutants in the building as follows: 2. Provide fresh air into the building in accordance with one of the best practice standards for ventilation (see M1.1). 3. Ventilation pathways are designed to minimise the ingress and build-up of air pollutants inside the building (see M1.2). 4. Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 16798-3:2025 Section B.4.2.(36) The specified filters should achieve supply air classification of at least SUP 2. The level of filtration required is dependent on the quality of the outdoor air. 5. Occupied spaces have calibrated carbon dioxide (CO2) or calibrated air quality sensors specified in accordance with Building Regulations ADF2(37) and: a. In mechanically ventilated buildings or spaces: sensors are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space. b. In naturally ventilated buildings or spaces: sensors either have the ability to alert the building owner or manager when CO2 levels exceed the recommended set point, or are linked to controls with the ability to adjust the quantity of fresh air, i.e. automatic opening windows or roof vents. c. The total number of sensors, and the net internal area of relevant areas covered by the sensors, is reported via the BREEAM Platform. 6. The ventilation strategy provides adequate ventilation rates throughout the year, including sufficient airflow rates in summer to prevent overheating and maintain required thermal comfort conditions, in accordance with: a. CIBSE AM10(38) (for naturally ventilated buildings) b. CIBSE AM13(39) (for mixed-mode buildings)	2-6. Design drawings. 2-6. Relevant sections of the building specification or contract clauses.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as the ventilation strategy can be developed to meet the relevant fresh air provision, intake / exhaust separation and user controllability requirements through normal MEP design development. ___	**SERV**		x

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NC V7 SC | DESIGN STAGE

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Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Hea 04.3	Indoor Air Quality - Emissions From Construction Products	0	0	0		One Credit - Emissions from Construction Products 7. Three of the five product types meet the emission limits, testing requirements and any additional requirements listed in Table 5.6 and M2. Where wood-based products are not one of three selected product types, all wood-based products used for internal fixtures and fittings must be tested and classified as formaldehyde E1 class as a minimum (see CN2.2). Note: Even if low emitting products are used, the air quality may still exceed the indoor air quality limits, depending on the amount of material used, the volume of the space, and the ventilation rate. Two Credits - Emissions from construction products 8. All the product types meet the emission limits, testing requirements and any additional requirements listed in Table 5.6 and M2.	7-8, 16-17. Relevant sections of the building specification, contract clauses, or schedule. 7-8, 16-17. Where product specification is known, letters from or copies of the manufacturer's literature confirming testing standards and emissions achieved. 7-8, 16-17. OR Letter of commitment confirming specification of compliant materials.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment. ___		
Hea 04.4	Indoor Air Quality - Post-Construction Indoor Air Quality Measurement	0	0	0		One Credit - Post-construction Indoor Air Quality Measurement 9. Criterion 1 has been achieved.. 10. The formaldehyde concentration in indoor air is measured post-construction (but pre-occupancy) and does not exceed 100 µg/m³, averaged over 30 minutes(40). 11. The formaldehyde sampling and analysis is performed in accordance with ISO 16000-2(41) and ISO 16000-3(42) and Methodology M3. 12. The total volatile organic compound (TVOC) concentration in indoor air is measured post-construction (but pre-occupancy) and does not exceed an 8-hour time-weighted average of 300 µg/m3.(42) 13. The TVOC sampling and analysis is performed in accordance with ISO 16000-5(44) and ISO 16000-6(45) or ISO 16017-1(46) and Methodology M3. 14. Where levels are found to exceed these limits, the project team confirms the measures that have, or will be undertaken in accordance with the recommendations of the IAQ plan, to reduce the TVOC and formaldehyde levels to within the above limits. 15. The measured concentration levels of formaldehyde (µg/m3) and TVOC(µg/m3) are reported via the BREEAM Platform.	9-15. Commitment to carry out necessary testing post-construction.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment. ___		

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk	
Hea 05.1	Thermal Comfort - Thermal Modelling - Current Climate	**1**	**0**	**0**		One Credit - Thermal Modelling - Current Climate 1. Thermal modelling has been carried out using software in accordance with CIBSE AM11(64) Building Energy and Performance Modelling (see M1.2). 2. The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis. 3. The modelling demonstrates that: a. For air-conditioned buildings, summer and winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design(65), Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement or level for the building type); or the thermal environment in occupied spaces meet the Category B requirements for PPD, PMV and local discomfort set out in Table A.1 of Annex A of ISO 7730:2005. b. For naturally ventilated buildings and mechanically ventilated buildings with limited comfort cooling: i. Winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5. Or other appropriate industry standard (where this sets a higher or more appropriate requirement or level for the building type). ii. The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in either of the following standards as appropriate; CIBSE TM52: The limits of thermal comfort: avoiding overheating in European buildings(66) or CIBSE TM59: Design methodology for the assessment of overheating risk in homes(67). 4. For air-conditioned buildings, when generated, report the PMV and PPD indices based on the above modelling via the BREEAM Platform (see CN1.3 and CN1.4).	1-4. Compliant thermal modelling report, measurements and evaluation results with confirmation that these are within the required limits. 1-4. Confirmation that the modelling software is BREEAM compliant. 1-4. Where applicable, PMV/PPD data from the design team.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. 290426 Initial SC Review - MTTS do not recommend that the Credit is sought, as this would require dynamic thermal modelling of the occupied areas under current climate conditions together with potential façade, glazing, shading and servicing iterations to demonstrate compliance, which is considered disproportionate for this scheme. Time Critical Action - RIBA Stage 4 - The Project Team should complete detailed design thermal modelling using compliant full dynamic thermal analysis before Technical Design completion			x
Hea 05.2	Thermal Comfort - Thermal Modelling - Future Climate	**1**	**0**	**0**		One Credit - Thermal Modelling - Future Climate 5. Criteria 1 to 4 are achieved. 6. The thermal modelling demonstrates that the relevant requirements set out in criterion 3 on the previous page are achieved for a projected climate change environment (see M1.3). 7. Where criterion 6 above is not met, the project team demonstrates how the building has been adapted, or designed to be easily adapted in future using passive design solutions to meet the requirements under criterion 6 above. 8. For air-conditioned buildings, when generated, report the PMV and PPD indices based on the above modelling via the BREEAM Platform (see CN1.3 and CN1.4).	5-8. Compliant thermal modelling report, measurements and evaluation results with confirmation that these are within the required limits. 5-8. Confirmation that the modelling software is BREEAM compliant. 5-8. Where applicable, PMV/PPD data from the design team. 7. Where the requirements are not met for the projected climate change environment provide evidence such as drawings or specifications to demonstrate how the building has been adapted or designed to be easily adapted using passive design solutions in order to comply.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. 290426 Initial SC Review - MTTS do not recommend that the Credit is sought, as this would require dynamic thermal modelling against future weather files and likely further resilience measures to the façade, solar control and servicing strategy, which is beyond the level of analysis currently considered proportionate.			x

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Hea 05.3	Thermal Comfort - Thermal Zoning and Controls	0	0	0		One Credit - Thermal Zoning and Controls 9. Criteria 1 to 4 are achieved. 10. The thermal modelling analysis (criteria 1 to 4) has informed the temperature control strategy for the building and its users. 11. The strategy for proposed heating or cooling shows that it has addressed: a. Thermal zoning in the building and how the building services will efficiently and appropriately heat or cool these areas. b. The degree of user control required for these zones appropriate for the end users (see M2.1). The strategy considers: i. User knowledge of building services. ii. The level of control required based on occupancy type, patterns and room functions (see M2.2). iii. How the user is likely to operate or interact with the heating or cooling systems. iv. The user expectations across seasons and degree of individual control. c. Where there is more than one system, how the proposed systems will interact and interlock with each other and how this may affect the thermal comfort of the building occupants. d. The need or otherwise, for an accessible user actuated manual override for any automatic systems.	9-11. Thermal comfort strategy and software results highlighting the points that have been considered and decisions taken accordingly. 9-11. Design drawings.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment. ___		
Hea 06.1	Acoustic Performance - Sound Insulation	1	1	0		Up to Three Credits - Acoustic Performance For all building types, except residential institutions (short term and long term stay) and hospitality, which have four Credits available below. 1. The building meets the appropriate acoustic performance standards and testing requirements defined in the relevant table. These tables define criteria for the acoustic principles of: a. Sound insulation b. Indoor ambient noise level c. Room acoustics. OR 2. A suitably qualified acoustician (SQA) is appointed to define a bespoke set of performance requirements for all function areas in the building. The bespoke performance requirements use the three acoustic principles defined in criterion 1, setting out the performance requirements for each and the testing regime required. Up to four Credits - Acoustic performance for residential institutions (short term and long term stay) and hospitality	1 and 3. The relevant section of the building specification, clauses of the contract or a letter of commitment to meet the relevant acoustic performance standards, carry out all precompletion testing using a compliant test body and complete remedial work where necessary. 1 and 3. Where available, a report from a suitably qualified acoustician (SQA) may be used to confirm required performance standards will be achieved. 2. Professional report or study from the acoustician confirming the bespoke acoustic performance standards and testing regime. 2. Evidence to verify that the acoustician meets the definition of a suitably qualified acoustician. 2. The relevant section of the building specification, clauses of the contract or a letter of commitment to carry out all required precompletion testing using a compliant test body and remedial works where necessary.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as the envelope/separating elements can be designed to achieve appropriate sound insulation performance where required. ___ Additional Team Appointment - Suitably Qualified Acoustician ___	PM	

BREEAM NC V7 - Credit Tracker

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Hea 06.2	Acoustic Performance - Indoor Ambient Noise Level	**1**	**1**	**0**		Up to Three Credits - Acoustic Performance For all building types, except residential institutions (short term and long term stay) and hospitality, which have four Credits available below. 1. The building meets the appropriate acoustic performance standards and testing requirements defined in the relevant table. These tables define criteria for the acoustic principles of: a. Sound insulation b. Indoor ambient noise level c. Room acoustics. OR 2. A suitably qualified acoustician (SQA) is appointed to define a bespoke set of performance requirements for all function areas in the building. The bespoke performance requirements use the three acoustic principles defined in criterion 1, setting out the performance requirements for each and the testing regime required. Up to four Credits - Acoustic performance for residential institutions (short term and long term stay) and hospitality	1 and 3. The relevant section of the building specification, clauses of the contract or a letter of commitment to meet the relevant acoustic performance standards, carry out all pre-completion testing using a compliant test body and complete remedial work where necessary. 1 and 3. Where available, a report from a suitably qualified acoustician (SQA) may be used to confirm required performance standards will be achieved. 2. Professional report or study from the acoustician confirming the bespoke acoustic performance standards and testing regime. 2. Evidence to verify that the acoustician meets the definition of a suitably qualified acoustician.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as ambient noise levels can be addressed through the normal acoustic design of the building envelope and building services. Confirm credit requirements and integrate into design specifications before Technical Design completion Additional Team Appointment - Suitably Qualified Acoustician	**PM**	
Hea 06.3	Acoustic Performance - Room Acoustics	**1**	**1**	**0**		Up to Three Credits - Acoustic Performance For all building types, except residential institutions (short term and long term stay) and hospitality, which have four Credits available below. 1. The building meets the appropriate acoustic performance standards and testing requirements defined in the relevant table. These tables define criteria for the acoustic principles of: a. Sound insulation b. Indoor ambient noise level c. Room acoustics. OR 2. A suitably qualified acoustician (SQA) is appointed to define a bespoke set of performance requirements for all function areas in the building. The bespoke performance requirements use the three acoustic principles defined in criterion 1, setting out the performance requirements for each and the testing regime required. Up to four Credits - Acoustic performance for residential institutions (short term and long term stay) and hospitality	1 and 3. The relevant section of the building specification, clauses of the contract or a letter of commitment to meet the relevant acoustic performance standards, carry out all pre-completion testing using a compliant test body and complete remedial work where necessary. 1 and 3. Where available, a report from a suitably qualified acoustician (SQA) may be used to confirm required performance standards will be achieved. 2. Professional report or study from the acoustician confirming the bespoke acoustic performance standards and testing regime. 2. Evidence to verify that the acoustician meets the definition of a suitably qualified acoustician.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as the room acoustics requirements for the relevant occupied ancillary areas should be capable of being addressed through standard specification. Additional Team Appointment - Suitably Qualified Acoustician	**ARCH**	

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Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Hea 07.1	Safe and Accessible Design - Safe Access	**1**	**1**	**0**		One Credit - Safe Access Where external site areas form part of the assessed development (see M1.1) the following apply: 1. Dedicated and safe cycle paths are provided from the site entrance to any cycle storage, and connect to off-site cycle paths where applicable. 2. Dedicated and safe footpaths are provided on and around the site providing suitable links for the following: a. The site entrance to the building entrance b. Car parks (where present) to the building entrance c. The building to outdoor space d. Connecting to off-site paths where applicable. 3. Pedestrian drop-off areas are designed off, or adjoining to, the access road and should provide direct access to other footpaths. Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply: 4. Delivery areas are not accessed through general parking areas and do not cross or share the following: a. Pedestrian and cyclist paths b. Outside amenity areas accessible to building users and general public. 5. There is a dedicated parking or waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking. 6. Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting.	1-6. Design drawings (including a scaled site layout plan) highlighting safe pedestrian and cycle routes and other compliant features and dimensions. 1-6. Where required, relevant sections of the building specification.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as safe pedestrian/vehicle access arrangements can be incorporated through the normal site and highway design process. ___	**ARCH**	
Hea 07.2	Safe and Accessible Design - Outside Space	**1**	**1**	**0**		One Credit - Outside Space 7. There is an outside space providing building users with an external amenity area	7. Design drawings (including a scaled site layout plan) showing provision of an adequate external space. 7. Where required, relevant sections of the building specification or letter of commitment confirming the outside space will be in line with the definition for outside space.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as suitable outside space/amenity provision can be incorporated within the site layout at limited additional cost. ___	**LAND**	
Hea 08	Security	**0**	**0**	**0**		One Credit - Security of Site and Building 1. A suitably qualified security specialist (SQSS) must conduct an evidence-based security needs assessment (SNA) during or before Concept Design (RIBA Stage 2). The purpose of the SNA is to identify any security-relevant attributes of the proposed development, site context, and surrounding environment that may influence the security strategy. 2. Based on the SNA findings, the SQSS must develop a set of security controls and design recommendations. These must directly address the specific threats and assets identified in the SNA. 3. The agreed security controls and recommendations shall be incorporated into proposals and implemented in the as-built development. Any deviation from those controls and recommendations shall be justified and agreed with the SQSS.	1-2. Copy of a compliant security needs assessment and recommendations from a SQSS. 1-2. Evidence to demonstrate the SQSS meets the definition of a suitably qualified security specialist. 3. Design drawings, relevant section of the building specification, contract clauses or letter of commitment to confirm the recommendations from the SQSS will be implemented within the final design.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment. ___ Time Critical Action - RIBA Stage 2 - The Project Team should appoint an SQSS and complete the Security Needs Assessment during or before Concept Design ___		

BREEAM NC V7 - Credit Tracker

Project:	Bryn Lane, Wrexham	**Job Number:**	2119
Subject:	BREEAM NC V7 - PreAssessment	**Date:**	20th May 2026
Assessor:	Martin Lawless	**Issue:**	02
Checked:	Alexandra Ball		

DESIGN STAGE - SUMMARY AND MAIN TABLE

NC V7 SC | DESIGN STAGE

Req. %: >55% | Req. Rating: Very Good | Sought %: 60.85% | Sought Rating: Very Good | Complete %: 0.00% | Complete Rating: Fail | Risk %: 0.00% | REVIEW

Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk	
Ene 01.1	Energy and Carbon Performance for Regulated Energy Uses - Calculated Energy Performance	**9**	**3**	**0**		Up to Nine Credits - Calculated Energy Performance 1. Calculate the overall Energy Performance Ratio (EPRNC). The number of BREEAM Credits awarded is given in Table 6.1. See M1.	1. A copy of the building regulations output document from the approved software. 1. Confirmation that the energy modelling is based on the design stage of analysis and is the final version that has been submitted to building control, where relevant. 1. SAP calculations (where relevant for multi-residential buildings). 1. Confirmation of the expertise and experience of the individual carrying out the modelling in compliance with the requirements of the local building regulations. 1. Additional calculations where the EPR has been calculated based on averaging.	140526 PA Workshop - The Credit was discussed and it was agreed that a Credit score of 3 should be sought. ___ 290426 Initial SC Review - MTTS recommend that three Credits are sought as part of the 'Baseline' score, based on the current fabric and servicing strategy. Higher scores are not currently assumed, as these would likely require more substantial specification upgrades and/or additional low carbon measures. ___	**ENERGY**		
Ene 02.1	Prediction of Operational Energy and Carbon - Predictive Energy Modelling Process : Energy Strategy	**5**	**0**	**0**		One Credit - Energy Strategy 1. Define an energy strategy for the building at the concept design stage that describes qualitatively how the operational energy and carbon performance of the building will be minimised (see M1.1).	1. Energy strategy statement for the building, detailing all the requirements within M1.1.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought, as achieving this Credit would require a formal NABERS UK-aligned predictive energy modelling process and energy strategy for the landlord areas / base building, which would introduce a substantial modelling, coordination and documentation exercise beyond the current BREEAM strategy. ___ Time Critical Action - RIBA Stage 2 - The Project Team should define the operational energy strategy at Concept Design stage ___			x
Ene 02.2	Prediction of Operational Energy and Carbon - Predictive Energy Modelling Process : Predictive Energy Modelling	**1**	**0**	**0**		Three Credits - Predictive Energy Modelling 2. Estimate unregulated energy uses and occupancy patterns for the building (see M1.2.1). 3. Construct a detailed energy model during the technical design stage and undertake sensitivity analysis and scenario modelling to explore the impact of key parameters and assumptions on energy consumption (see M1.2.2). 4. Predict annual operational energy consumption in use by fuel type for the building based on the scenario modelling. The modelling must be updated at the post-construction stage to account for any changes to the building specification (see M1.2.3 and M1.2.4).	2-4. Energy modelling report which includes: •Estimated unregulated energy uses and occupancy patterns used within the detailed energy modelling. •Sensitivity analysis and scenario modelling. •The predicted annual operational energy consumption in use by fuel type based on the results. 2-4. Confirmation of the energy modeller's qualifications and experience.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought, as this element would require detailed predictive operational energy modelling of the base building using the relevant occupancy, hours, controls and systems assumptions, which is not currently proposed for this assessment. ___ Time Critical Action - RIBA Stage 4 - The Project Team should construct the detailed predictive energy model and complete sensitivity/scenario modelling during Technical Design ___			x
Ene 02.3	Prediction of Operational Energy and Carbon - Predictive Energy Modelling Process : Risk Assessment and Mitigation	**3**	**0**	**0**		One Credit - Risk Assessment and Mitigation 5. Achieve the predictive energy modelling Credits. 6. Highlight any significant design technical and process risks that might prevent the buildings achieving energy performance target and indicate how these risks will be mitigated throughout the construction and commissioning process (see M1.3).	6. Energy modelling report or other document that includes a risk assessment and details of mitigation measures, in line with M1.3.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought, as this would require a formal review of operational energy performance risks together with documented mitigation measures and design responses, which would add a further layer of specialist analysis beyond the current scope. ___			x
Ene 02.4	Prediction of Operational Energy and Carbon - Predicted Operational Energy Performance Score	**1**	**0**	**0**		Up to Seven Credits - Predicted Operational Energy Performance Score 7. Achieve the predictive energy modelling Credits. 8. Credits are awarded based on the Operational Energy Performance score for New Construction (OEPNC) as shown in Table 6.3(see M2).	8. Results of the predictive energy modelling confirming the predicted operational energy consumption for all energy uses. 8. Where appropriate, calculations showing how the carbon emission factor for district heating and district cooling have been determined.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought, as this outcome depends on completion of the wider predictive operational energy modelling process and achievement of a qualifying performance score, which is not being targeted. ___			x

credit tracker...

BREEAM NC V7 - Credit Tracker

Project:	Bryn Lane, Wrexham	**Job Number:**	2119
Subject:	BREEAM NC V7 - PreAssessment	**Date:**	20th May 2026
Assessor:	Martin Lawless	**Issue:**	02
Checked:	Alexandra Ball		

DESIGN STAGE - SUMMARY AND MAIN TABLE

NC V7 SC | DESIGN STAGE

Req. %: >55% | Req. Rating: Very Good | Sought %: 60.85% | Sought Rating: Very Good | Complete %: 0.00% | Complete Rating: Fail | Risk %: 0.00% | REVIEW

Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk	
Ene 02.3	Prediction of Operational Energy and Carbon - Minimum Standard - No Fossil Fuels On-Site	**0**	**0**	**0**		14. No fossil fuels will be used by the building in operation (see M6).	14. Design drawings, relevant section of the building specification, contract clauses or letter of confirmation from the project team which demonstrates that no fossil fuels will be used onsite.	140526 PA Workshop - The minimum standard Credit was discussed and it was agreed that it must be sought. ___ 170426 Initial Review - This item is a minimum standard rather than a separate scoring Credit. No separate score is available, however if the relevant operational energy pathway is pursued the servicing strategy should avoid on-site fossil fuel use. ___	**ENERGY**		
Ene 03.1	Energy Monitoring - Energy Monitoring By End-Use	**1**	**1**	**0**		One Credit - Energy Monitoring By End-use 1. Identify the energy sources that will be used by the building and estimate the annual energy consumption for the following (see M1): a. Grid supply electricity b. Grid supply gas c. District heating d. District cooling e. Renewable electricity generated on-site. 2. Energy monitoring is installed that allows ≥ 90% of the estimated annual energy consumption for each energy source to be assigned to an end-use category (see M2). 3. Renewable electricity generated on-site and exported from the building must be separately monitored 4. There is an energy metering system appropriate for the size of the building: a. For buildings with a gross internal area ≥ 1000 m², the energy meters are connected to an energy monitoring and management system. b. For buildings with a gross internal area < 1000 m², the energy meters are either: i. Connected to an appropriate energy monitoring and management system. OR ii. Are accessible meters with pulsed outputs or other open protocol communication outputs. 5. Those responsible for monitoring the building's energy consumption can clearly identify the end-use category covered by each meter.	2-3. The metering schedule or metering strategy document. 4. Specification for the energy monitoring system and/or meters. 5. The metering schedule or metering strategy document. 1. Estimates of energy consumption by energy source including an indication of how the estimates were derived 2-3. Floor plans showing functional or tenanted areas, where applicable.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, , as the relevant landlord energy uses can be separately metered by end-use through the normal electrical / MEP design process. ___	**SERV**		x
Ene 03.2	Energy Monitoring - Energy Monitoring for Different Occupiers and Functional Areas	**1**	**1**	**0**		One Credit - Energy Monitoring For Different Occupiers and Functional Areas 6. Energy monitoring is installed that allows energy consumption to be assigned to separately tenanted or occupied areas and to relevant functional areas within the building (see M3). 7. There is an energy metering system appropriate for the size of the building: a. For buildings with a gross internal area ≥ 1000 m², the energy meters must be connected to an energy monitoring and management system. b. For buildings with a gross internal area < 1000 m², the energy meters are either: i. Connected to an appropriate energy monitoring and management system. OR ii. Are accessible meters with pulsed outputs or other open protocol communication outputs. 8. Those responsible for monitoring the building's energy consumption can clearly identify the functional or occupier area covered by each meter.	6, 8. The metering schedule or metering strategy document. 7. Specification for the energy monitoring system and/or meters. 6. Floor plans showing functional or tenanted areas, where applicable.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, , as separate metering for different occupiers / tenancy areas and functional zones can be incorporated within the Shell and Core landlord metering strategy. ___	**SERV**		x

credit tracker...

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Ene 04.1	Low Carbon Design - Building Form Optimisation	**1**	**0**	**0**		One Credit - Building Form Optimisation 1. The project team carries out an analysis of the site and proposed development during the Concept Design stage to explore the effect of building form on energy demand (see M1). 2. Demonstrate that the analysis has informed the building design and will lead to a reduction in building energy consumption in use.	1, 2. A copy of the compliant building form analysis, completed in line with M1. 1, 2. Supporting documentary evidence to verify how it has influenced the final building form such as design drawings and specifications.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought, but kept under review as a potential measure, if additional modelling work were later justified. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of the 'Baseline' score. However, it could be pursued as part of the 'Enhanced' score if a formal building form/passive design appraisal is undertaken and demonstrates worthwhile energy demand reduction, noting the additional modelling and iterative design input that would be required. ___ Time Critical Action - RIBA Stage 2 - The Project Team should complete building form optimisation analysis during Concept Design so that the findings can influence the design ___		
Ene 04.2	Low Carbon Design - Fabric Performance Optimisation	**2**	**0**	**0**		Up to Two Credits - Reduction In Building Energy Demand Analysis of alternative fabric specifications 3. The project team carries out an analysis of the proposed development to explore the impact of alternative fabric specifications on the building's demand for heating and cooling. One Credit - 5% reduction in building energy demand 4. Achieve criterion 3. 5. Implement fabric performance measures which reduce the overall building heating and cooling energy demand by ≥ 5% compared to minimum values set by building regulations. OR Two Credits - 10% reduction in building energy demand 6. Achieve criterion 3. 7. Implement fabric performance measures which reduce the overall building heating and cooling energy demand by ≥ 10% compared to minimum values set by building regulations. OR Two Credits - Fabric Performance Has Been Optimised 8. Demonstrate that the fabric specification has minimised the demand for heating and cooling. See Methodology M2.	5, 7, 8. Modelling results demonstrating the reduced energy demand for heating and cooling arising from the proposed fabric specification and, where relevant, that the fabric performance has been optimised as far as possible. 3. A copy of the analysis of fabric performance, completed in line with M2.1.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as demonstrating a formal fabric optimisation exercise and securing further upgrades beyond the current design would require additional modelling and potentially higher capital cost. ___		

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Ene 04.3	Low Carbon Design - Low and Zero Carbon Energy Generation Technologies	**2**	**1**	**0**		One Credit - Installation of LZC Energy Generation Technologies 9. One or more eligible LZC energy generation technologies have been installed by competent installers. One Credit - Meeting LZC Energy Generation Targets 10. Achieve the 'Installation of LZC energy generation technologies' Credit (criterion 9). 11. The energy generated by the installed LZC energy generation technologies meet the following targets: a. Where photovoltaic (PV) panels are the only LZC energy generation technology installed, the electricity generated must: i. Be equal to, or exceed, that generated by reference PV panels covering 50% of the ground floor area. OR ii. Account for ≥ 60% of the building's annual electricity consumption. b. Where only LZC energy generation technologies other than PV panels are installed, the energy generated must: i. Be equal to, or exceed, 137 kWh/year/m² of ground floor area. OR ii. Meet ≥ 60% of the building's annual demand for the relevant energy source. c. Where the installed LZC energy generation technologies include both PV panels and other LZC energy generation technologies, selected generation targets as listed in 11.a and 11.b should be used in conjunction scaled proportionally to the amount of electricity generated by each technology (see M3.4).	9. Technical specification for LZC energy generation technology and where appropriate, plan drawings of the building showing the LZC energy generation systems 9. Confirmation that the systems will be installed by competent installers or that the installation will be certified. 11a. Technical specifications of PVs and plan drawings of the building with the PV panels 11a. Calculations showing the predicted carbon reduction from the PV panels meets the energy generation target. 11b. Technical specifications of LZC energy generation system(s) and plan drawings of the building with the LZC energy generation systems(s) installed. 11b. Calculations showing the predicted carbon reduction from the LZC energy generation systems(s) meets the energy generation target.	140526 PA Workshop - The Credit was discussed and it was agreed the a Credit score of one should be sought. ___ 290426 Initial SC Review - MTTS recommend that two Credits are sought as part of the 'Baseline' score, as the current energy strategy is assumed to be capable of accommodating suitable low/zero carbon technology provision. ___ Additional Team Appointment - Energy Specialist ___	**ENERGY**	

BREEAM NC V7 - Credit Tracker

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DESIGN STAGE - SUMMARY AND MAIN TABLE

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Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk	
Ene 05	Energy Efficient Equipment	0	0	0		Up to Five Credits - Energy Efficient Equipment 1. Identify items of equipment in the project specification (in-scope equipment) that are users of unregulated energy (see M1). 2. Estimate the expected annual energy consumption by the in-scope equipment identified in criterion 1 (see M2). 3. Determine the ratio of in-scope unregulated energy use by equipment to regulated energy use to determine the number of Credits available (see Table 6.5 and M3). 4. Determine which in-scope equipment items are energy efficient (see M4).	1. Design drawings, relevant sections of the building specification, equipment schedules or other documentary evidence identifying all proposed in-scope equipment. 1. Where items with low annual energy consumptions have been excluded from the scope due to the cost of replacement, this must be stated and justified. 2. Calculations to show the estimated energy consumption for all in-scope equipment. 3. Where not automatically calculated from Ene 02, supporting data to confirm regulated energy consumption values. 4. Where compliance demonstrated by comparison to a standard version of the equipment, acceptable evidence sources include: •Written justification for the selection and benchmarking of the standard product based on reasonable assumptions or basic market research. •Specific clauses from reports or manufacturer's literature relating to the energy performance of the actual product. •Specific clauses from reports or manufacturer's literature relating to the energy performance of the standard product. Plus: •Where available, calculations showing that the actual product is more energy efficient than the standard product. Where a percentage reduction in energy consumption has been accepted as signifying a meaningful reduction in energy efficiency, then this should be stated and justified. 4. Where this is demonstrated by meeting the deemed to comply energy labelling schemes and lists, acceptable evidence sources include: •Relevant section of the building specification, equipment schedules or contract clauses. •Where products are specified, manufacturer's literature or copy of the energy rating label, indicating the energy labelling scheme and the rating achieved, 4. AND In addition to the above, where this is demonstrated by meeting other energy efficient labelling schemes or energy efficiency listings, confirmation that the energy efficient labelling scheme or listing is: •Nationally or regionally recognised. •Effectively identifies energy efficient products.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment for a building of this type. ___			x

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Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk	
Ene 06	Energy Efficient Systems	**2**	**2**	**0**		Up to Nine Credits - Energy Efficient Systems 1. Identify systems in the project specification (in-scope systems) that are users of unregulated energy (see M1). 2. Estimate the expected annual energy consumption by in-scope systems identified in criterion 1 (see M2). 3. Determine the ratio of in-scope unregulated energy used by systems to regulated energy use to determine the number of Credits available (see Table 6.7 and M3). 4. Determine in-scope systems that are energy efficient (see M4).	1. Documentation or correspondence identifying the unregulated energy using systems that are included within the project specification. 1. Where systems with low annual energy consumptions have been excluded from the scope due to the cost of replacement, this must be stated and justified. 2. Calculations to show the estimated energy consumption by each in-scope system. 3. Where not automatically calculated from Ene 02, supporting data to confirm regulated energy consumption values. 4. Where compliance is demonstrated by comparison to a standard version of the system acceptable evidence sources include: •Written justification for the selection and benchmarking of the standard product based on reasonable assumptions or basic market research. •Specific clauses from reports or manufacturer literature relating to the energy efficiency of the specified actual system •Design drawings. •Specific clauses from reports or manufacturer's literature relating to the energy performance of the standard product. Plus: •Calculations showing that the actual system is more energy efficiency than a standard system. Where a percentage reduction in energy consumption has been accepted as signifying a meaningful reduction in energy consumption, then this should be stated and justified. 4. Where this is demonstrated by meeting the deemed to comply route as set out within M4.2, acceptable evidence sources are listed for each system type in the following rows. 4 - External Lighting. Relevant section of the building specification or contract clauses. 4 - External Lighting. OR Where available, design drawings such as external lighting layout or luminaire schedules. 4 - External Lighting. Where products are specified, manufacturer's literature for the proposed luminaires and calculations to show average initial luminous efficacy. 4 - Cold storage. Design drawings, relevant section of the building specification or contract clauses. 4 - Cold storage. Where specific systems are specified: Evidence of the ETL listing for the specific product or evidence to show they are on equivalent list. 4 - Lifts and escalators. Transport analysis. 4 - Lifts and escalators. Energy consumption calculations. 4 - Lifts and escalators. Relevant section of the building specification or contract clauses confirming energy efficient measures.	140526 PA Workshop - The Credit was discussed and it was agreed that a Credit score of 2 should be sought. ___ 290426 Initial SC Review - MTTS recommend that the two Credits are sought as part of the 'Baseline' score, as the full available score can be targeted through specification of efficient fixed building services systems serving the Shell and Core areas, including appropriate system selection and controls. ___	**SERV**		x
Ene 07	Flexible Demand Response	**2**	**1**	**0**		Up to Two Credits - Flexible Demand Response 1. Identify installed systems present on-site and their flexible demand response capability. 2. The number of Credits awarded is based on the number of Credits available and the percentage of flexible demand response points awarded (see Table 6.14).	All. Design drawings, relevant section or clauses of the building specification or contract. All. Where products are specified, manufacturer's product details, confirming the flexible demand capability of specified systems.	140526 PA Workshop - The Credit was discussed and it was agreed that a Credit score of 1 should be sought. ___ 290426 Initial SC Review - MTTS recommend that one Credit is sought as part of the 'Baseline' score, as a basic level of demand response readiness can be incorporated through the controls and metering strategy. An increased score may be achievable as part of the 'Enhanced' scenario; however this would require more advanced controls logic, load management capability and coordination with the landlord electrical strategy. ___	**SERV**		x

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DESIGN STAGE - SUMMARY AND MAIN TABLE

NC V7 SC	DESIGN STAGE
	REVIEW

Req. %:	Req. Rating:	Sought %:	Sought Rating:	Complete %:	Complete Rating:	Risk %:
>55%	Very Good	60.85%	Very Good	0.00%	Fail	0.00%

Sought Margin %:	Complete Margin %:
5.85%	15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Ene 08	Installed Controls	**2**	**1**	**0**		Up to Two Credits - Installed Controls 1. Determine the number of installed controls points available based on the installed HVAC services and relevant system details. 2. Determine the number of installed controls points achieved based on the functionality of the controls. 3. The number of Credits awarded is determined by the proportion of available installed controls points that are achieved. (see Table 6.17 and M1).	All. Relevant section or clauses of the building specification, contract or drawings confirming the HVAC systems and installed controls specified to support the answers entered within the BREEAM Platform.	140526 PA Workshop - The Credit was discussed and it was agreed that a Credit score of 1 should be sought, with the potential to achieve 2 Credits kept under review subject to detailed design development ___ 290426 Initial SC Review - MTTS recommend that one Credit is sought as part of the 'Baseline' score, as a basic package of time and user controls can be provided for the relevant building services. An increased score may be achievable as part of the 'Enhanced' scenario; however this would require a more sophisticated controls strategy with additional zoning, automatic control functions and coordination across the building services design. ___	**SERV**	
Tra 01	Transport Assessment and Travel Plan	**2**	**2**	**0**		Two Credits - Transport Assessment and Travel Plan 1. Conduct a site-specific transport assessment by the end of the Concept Design stage; see M1. 2. Develop a site-specific travel plan following the transport assessment recommendations by the end of the Concept Design stage; see M3. 3. Demonstrate that the travel plan can guide the appropriate implementation of sustainable transport measures during the design, construction, and occupancy stages and be supported by the building's management during operation.	1. A copy of the transport assessment or statement. 2. A copy of the travel plan. 1. Submit the PTAI calculation inputs to the BREEAM Platform. 2, 3. Where the building occupier is known, documentation confirming the building occupier's involvement in the travel plan. 1. Justification of why transport statement was chosen over transport assessment (if applicable). 1. Scale map highlighting the location of the building and all public transport nodes in the proximity of the building via a safe pedestrian route; updated digital sources such as online mapping services may be used. 1. Timetables for each service at each public transport node are considered. 1. Calculations to show average services per hour for each node. 1. When applicable, information about the on-demand bus service. 1. For developments that utilise a BRE-approved Public Transport Accessibility Level (PTAL) report, no additional evidence is required to demonstrate compliance with the criteria. 1. To-scale maps or drawings to show the location and type of key local amenities present and their distance from the assessed development via a safe pedestrian route; digital sources such as online mapping services may be used. 2, 3. Where the building user is not known, documentation confirming provided that the travel plan will be handed by the developer to the building owner.	140526 PA Workshop - MTTS noted that Curtins (Transport Consultant) had confirmed via email that a Credit score of 2 could be sought. ___ 290426 Initial SC Review - MTTS recommend that two Credits are sought as part of the 'Baseline' score, as a transport assessment/travel plan is typically required, or can be readily prepared, for a development of this type. Undertake transport assessment and travel plan prior to planning submission ___ Time Critical Action - RIBA Stage 2 - The Project Team should complete the transport assessment and develop the travel plan by the end of Concept Design ___ Additional Team Appointment - Transport Consultant ___	**TRANS**	

BREEAM NC V7 - Credit Tracker

Project:	Bryn Lane, Wrexham	**Job Number:**	2119
Subject:	BREEAM NC V7 - PreAssessment	**Date:**	20th May 2026
Assessor:	Martin Lawless	**Issue:**	02
Checked:	Alexandra Ball		

DESIGN STAGE - SUMMARY AND MAIN TABLE

NC V7 SC | DESIGN STAGE

Req. %: >55% | Req. Rating: Very Good | Sought %: 60.85% | Sought Rating: Very Good | Complete %: 0.00% | Complete Rating: Fail | Risk %: 0.00% | REVIEW

Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Tra 02	Sustainable Transport Measures	**10**	**4**	**0**		Prerequisite - Transport Assessment and Travel Plan 1. Complete a transport assessment and travel plan in line with Tra 01. If these documents are completed after Concept Design, they can still be used to meet this prerequisite. Up to 10 Credits - Transport options implementation 2. Calculate the Credits as follows: a. Refer to the score given in the Public Transport Accessibility Index (PTAI) as calculated in Tra 01. This score will be used to weight the points awarded in Tra 02. b. Award points for the sustainable transport measures implemented in Tra 02, as per Table 7.3 below. c. Use Table 7.4 on the next page to convert the number of points achieved for sustainable transport measures into Credits, as weighted by the PTAI score.	1. A copy of the transport assessment or statement. 1. A copy of the travel plan. 2. Documentary supporting evidence to verify how the assessment options have been or will be achieved. Evidence may include: •Design drawings •Clauses of building specifications •Contracts •Commitment letters See individual options for more details. 2 - Option 1. Submit the PTAI calculation inputs to the BREEAM Platform. 2 - Option 1. Where applicable, information about on-demand bus services. 2 - Option 1. Scale map highlighting the location of the building and all public transport nodes in the proximity of the building. 2 - Option 1. Timetables for each service at each public transport node are considered. 2 - Option 1. Calculations to show average services per hour for each node. 2 - Option 2. Documentary supporting evidence showing how the PTAI improvement will be achieved i.e. meeting minutes, correspondence with local public transport companies or contractual agreements. 2 - Option 2. PTAI calculations demonstrating the improvement over the existing PTAI. 2 - Option 3. Specifications for the public transport information system (e.g., digital displays or online tools). 2 - Option 3. Proposed location and accessibility plan for the information system. 2 - Option 4. Design drawings showing the planned EV charging parking spaces (passive and active) and total number of parking spaces provided. 2 - Option 4. Specifications for the EV charging points (e.g., ≥ 7 kW). 2 - Option 4. Submit the calculation inputs to the BREEAM Platform. 2 - Option 4. Contractual agreements or purchase orders for EV charging infrastructure. 2 - Option 5. Car sharing group or policy evidence (e.g., documentation, meeting minutes). 2 - Option 5. Marketing or communication materials. 2 - Option 5. Marked-up site plan showing priority spaces for car sharers and total number of parking spaces provided.	140526 PA Workshop - MTTS noted that Curtins (Transport Consultant) had confirmed via email that a Credit score of 4 could be sought. Following discussion, Responsible Party updated to include the Architect. ___ 290426 Initial SC Review - MTTS recommend that four Credits are sought as part of the 'Baseline' score, based on practical measures such as cycle provision, EV charging and travel information. A higher score is not currently assumed, as this would depend on broader off-site improvements or more extensive facilities/services. ___	**TRANS ARCH**	

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Wat 01	Water Consumption	**5**	**3**	**0**		Up to Five Credits (plus One Exemplary Credit) - Water Consumption 1. Determine the water efficiency of all in-scope water consuming components. 2. Determine the amount of recycled water expected from approved blackwater, greywater, and rainwater systems. 3. The number of Credits awarded is determined by the percentage improvement in potable water use in litres per person per day for the actual building compared to that of a baseline building are shown in Table 8.1 below.	All. Calculations e.g., relating the flow rate for push and automatic shut off taps or for blackwater, greywater, or rainwater collection systems. All. The relevant sections or clauses of the building specification, design drawings or schedules confirming the number, specification and water consumption of all water-consuming components. All. Where specific products are specified, manufacturer's literature, EU Energy Label or European Unified Water Label information must be provided to support the water consumption values used. All. Technical details for blackwater, greywater, or rainwater collection systems, where specified. All. Relevant clauses from green lease agreements.	140526 PA Workshop - The Credit was discussed and it was agreed that a Credit score of 3 should be sought. Following discussion, Responsible Party updated to Building Services Engineer. ___ 290426 Initial SC Review - MTTS recommend that three Credit is sought as part of the 'Baseline' score, as the targeted score can be achieved through the specification of efficient sanitary fittings and associated design assumptions for the landlord areas without recourse to more onerous water-saving measures. ___	**SERV**	
Wat 02	Water Monitoring	**1**	**1**	**0**		One Credit - Water Monitoring 1. A water meter with a pulsed or other open protocol output is installed on all potable water supplies entering the building. 2. Water-consuming plant or building areas with significant water demand must be fitted with easily accessible sub-meters or have water monitoring equipment that is integral to the plant or area. 3. There is a water monitoring system that is appropriate for the size of the building. a. For buildings with a gross internal area ≥ 1000 m², the water meters are connected to a monitoring and management system. b. For buildings with a gross internal area < 1000 m², the water meters are either: i. Connected to an appropriate water monitoring and management system. ii. Accessible meters with pulsed outputs or other open protocol communication outputs. 4. Those responsible for monitoring the building's water consumption must be able to clearly identify the water uses and areas covered by each meter.	All. The relevant sections or clauses of the building specification or contract. All. Design drawings or metering schematics. All. Calculations and justification relating to selection of significant water demands.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as incoming water metering can be specified at shell stage without significant additional cost. ___	**SERV**	
Wat 03.1	Water Leak Detection and Prevention - Leak Detection System	**1**	**1**	**0**		One Credit - Leak Detection System 1. Install a leak detection system capable of detecting a major water leak: a. On the utilities water supply within the building, to detect any major leaks within the buildings. AND b. Between the building and the utilities' water supply, to detect any major leaks between the utilities' supply and the building under assessment.	1. The relevant sections or clauses of the building specification or contract. 1. Design drawings or metering schematics. 1. Where available, manufacturer's product details.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as a permanent leak detection arrangement can be incorporated within the base building services strategy. ___	**SERV**	
Wat 03.2	Water Leak Detection and Prevention - Flow Control Devices	**0**	**0**	**0**		One Credit - Flow Control Devices 2. Flow control devices that regulate the supply of water to each WC area or facility according to demand are installed	2. The relevant sections or clauses of the building specification or contract. 2. Design drawings or metering schematics. 2. Where available, manufacturer's product details.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment. ___		

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Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk	
Wat 04	Water Efficient Equipment and Systems	**3**	**1**	**0**		Up to Three Credits - Water Efficient Equipment and Systems 1. Identify systems and equipment that use significant amounts of water for non-sanitary uses that are included in the project specification (see M1). 2. Determine the ratio of in-scope non-sanitary water consumption to sanitary water consumption to determine the number of Credits available, see Table 8.4. 3. Demonstrate installed non-sanitary water-using systems and equipment are water efficient (see M2). 4. Determine the number of Credits awarded based on the percentage of non-sanitary water demands that are provided by water efficient equipment, see Table 8.5.	1. Design drawings, relevant sections of the building specification, schedules or other documentary evidence identifying all water demands from uses other than domestic scale drinking and sanitary use components, as per M1. 1. Where items with low annual water consumptions have been excluded from the scope due to the cost of replacement, this must be stated and justified. 2. Calculations and data sources used to demonstrate the estimated annual water consumption of systems and equipment, as per M2 and M3. 3. Where compliance demonstrated by comparison to a standard version of the system or equipment, acceptable evidence sources include: •Written justification for the selection and benchmarking of the standard product based on reasonable assumptions or basic market research. •Specific clauses from reports or manufacturer's literature relating to the water consumption of the actual product. •Specific clauses from reports or manufacturer's literature relating to the water consumption of the standard product. Plus: •Where available, calculations showing that the actual product is more water efficient than the standard product. Where a percentage reduction in water consumption has been accepted as signifying a meaningful reduction in water efficiency, then this should be stated and justified. 3. Where this is demonstrated by meeting the deemed to comply requirements within Table 8.6, acceptable sources of evidence include: •Relevant sections of the building specification, systems or equipment schedules or contract clauses. •Where products are specified, manufacturer's product details confirming they meet the deemed to comply requirements.	140526 PA Workshop - The Credit was discussed and it was agreed that a Credit score of 1 should be sought. Following discussion, Responsible Party updated to Building Services Engineer with Landscape Consultant. ___ 290426 Initial SC Review - MTTS recommend that the Credits is sought as part of the 'Baseline' score, as the relevant measures such as leak detection, flow control and appropriate shut-off / monitoring provisions can be incorporated within the building services design. ___	**SERV LAND**		x
Wat 05	Prediction of Operational Water Consumption	**1**	**1**	**0**		One Credit - Predict Operational Water Consumption 1. Estimate the annual operational water consumption for the building	1. Documentation detailing all water-using components and equipment as identified in line with M1, such as specifications, design drawings or schedules. 1. Calculations and data sources used to confirm the overall estimated annual operational water consumption for the building. 1. Where known, manufacturer's product details. 1. Calculations and data sources used to confirm the overall estimated annual operational water consumption for the building.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credits is sought as part of the 'Baseline' score, as the targeted score can be achieved through the specification of efficient sanitary fittings and associated design assumptions for the landlord areas without recourse to more onerous water-saving measures. ___	**SERV**		x

BREEAM NC V7 - Credit Tracker

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NC V7 SC | DESIGN STAGE

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Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Mat 01.1	Building Life Cycle Assessment - LCA and Embodied Carbon Reporting : Early Design	**2**	**0**	**0**		Two Credits - Early Design LCA and Embodied Carbon Reporting 1. Carry out an early design phase LCA calculation from the materials that the project incorporates into the building. The LCA must: a:. Meet the requirements for tools and scope given in M1. b:. Include relevant options appraisals, including a baseline assessment. There are no requirements to carry out a specific number of options appraisals for the project. c:. Be used as a basis for choosing design solutions and materials with the aim of achieving a low environmental impact. If an alternative solution with a lower environmental impact has not been chosen, then this must be justified. 2. From the early design LCA results (criterion 1), report the embodied carbon emissions from materials used in the building. Results must be reported using the BREEAM Platform. To ensure consistency follow the requirements in M2.	1. A copy of the LCA results or output report from the tool including all the requirements specified in M1. 2. In the BREEAM Platform, report and submit the embodied carbon data for the early design phase. 1. Relevant options appraisals and baseline assessment. 1. Evidence to demonstrate how the LCA has influenced the design.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as a compliant early-stage whole-building LCA would have needed to influence concept design and would add consultant cost with limited project benefit at this stage. Time Critical Action - RIBA Stage 2, 3 - The Project Team should complete the early design LCA, options appraisal and embodied carbon reporting early enough to influence design and material selection		
Mat 01.2	Building Life Cycle Assessment - LCA and Embodied Carbon Reporting : Technical Design	**1**	**1**	**0**		One Credit - Technical Design LCA and Embodied Carbon Reporting 3. Carry out a technical design phase LCA calculation from the materials that the project incorporates into the building. The LCA must: a:. Meet the requirements for tools and scope given in M1. b:. Include at least one assessment showing the evolving design and specification at technical design. 4. From the technical design LCA results (criterion 3), report the embodied carbon emissions from materials used in the building. Results must be reported using the BREEAM Platform.. To ensure consistency follow the requirements in M2.	3. A copy of the LCA results or output report from the tool including all the requirements specified in M1. 4. In the BREEAM Platform, report and submit the embodied carbon data for the technical design phase.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. Following discussion, Responsible Party updated to LCA Specialist. 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as a Technical Design stage LCA/embodied carbon reporting exercise can still be undertaken and evidenced without committing to the full three-stage process. Time Critical Action - RIBA Stage 4 - The Project Team should complete the technical design LCA and embodied carbon reporting during Technical Design	**LCA**	
Mat 01.3	Building Life Cycle Assessment - LCA and Embodied Carbon Reporting : Post-Construction	**2**	**0**	**0**		Two Credits - Post-construction LCA and Embodied Carbon Reporting 5. Carry out a post-construction phase LCA calculation from the materials that the project incorporates into the building. The LCA must: a:. Meet the requirements for tools and scope given in M1. b:. Include as-built specification at post-construction. 6. From the post-construction LCA results (criterion 5), report the embodied carbon emissions from materials used in the building. Results must be reported using the BREEAM Platform. To ensure consistency follow the requirements in M2.	5. Relevant section or clauses of the Employer's Requirements, contract documentation or a letter of commitment from the client or developer to complete a LCA on the as-built specification at post-construction. 6. Relevant section or clauses of the Employer's Requirements, contract documentation, or a letter of commitment from the client or developer to report the embodied carbon at post-construction.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as post-construction updating and final reporting would require additional consultant input and as-built data collation beyond the current scope.		
Mat 01.4	Building Life Cycle Assessment - Embodied Carbon Benchmark Comparison	**0**	**0**	**0**		Up to Two Credits (plus One Exemplary Credit) - Embodied Carbon Benchmark Comparison 7. For relevant assessment and building types, compare the calculated embodied carbon emissions (modules A1-A5, B1-B5, C1-C4) against the benchmark (see Table 9.1). The comparison against the benchmark must use the latest embodied carbon calculation available: a. For interim design stage assessment: i. Technical design LCA b. For final post-construction stage assessment: i. Post-construction LCA	7a. The BREEAM Platform will calculate this automatically based on the evidence provided for criterion 4. 7b. Relevant section or clauses of the Employer's Requirements, contract documentation or a letter of commitment from the client or developer to complete a benchmark comparison of the embodied carbon at postconstruction.	290426 Initial SC Review - The Credit is not in scope for a 'Shell and Core' Assessment.		

BREEAM NC V7 - Credit Tracker

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DESIGN STAGE - SUMMARY AND MAIN TABLE

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Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Mat 02	Environmental Product Declarations	**1**	**1**	**0**		One Credit - Product Specification 1. Specify construction products with EPDs that achieve a total EPD points score of at least 20, according to M1. 2. Enter the details of each EPD in the BREEAM Platform, including the material category classification. The EPD points score and the number of Credits achieved will be calculated automatically.	1-2. Relevant section of the building specification or schedule confirming materials or products which will have EPDs. 1-2. Where products are specified at design stage, copies of EPD certificates to be provided.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. Following discussion, Responsible Party updated to Architect with Structural & Civil Engineer and Landscape Consultant. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as suitable products with third-party EPDs should be available for the principal specified elements. ___	**ARCH STRU LAND**	
Mat 03.1	Responsible Sourcing of Construction Products - Prerequisite - Legally Harvested and Traded Timber	**0**	**0**	**0**		Prerequisite - Legally Harvested and Traded Timber 1. 100% of timber and timber-based products used on the project are 'Legal' and 'Sustainable' as per the UK Government's Timber Procurement Policy (TPP) (see Definitions).	1. Relevant section of the building specification or contract clauses.	140526 PA Workshop - The prerequisite Credit was discussed and it was agreed that it must be sought. ___170426 Initial Review - MTTS note that this item is an assessment prerequisite and shall be complied with, as legally harvested and legally traded timber is a mandatory requirement for the assessment where timber products are specified. ___	**ARCH**	
Mat 03.2	Responsible Sourcing of Construction Products - Enabling Sustainable Procurement	**1**	**1**	**0**		One Credit - Enabling Sustainable Procurement 2. A sustainable procurement plan must be used by the design team to guide specification towards sustainable construction products. The plan must: a. Be in place before the end of Concept Design. b. Include sustainability aims, objectives, and strategic targets to guide procurement activities. Targets do not need to be achieved for the Credit to be awarded at post-construction stage but justification must be provided for targets that are not achieved. c. Include a requirement for assessing the potential to procure construction products locally. There must be a policy to procure construction products locally where possible. d. Include details of procedures in place to check and verify the effective implementation of the sustainable procurement plan. e. The documented policy and procedure must be disseminated to all relevant internal and external personnel, and included within the construction contract to ensure that they are enforceable on the assessed project. In addition, if the plan is applied to several sites or adopted at an organisational level it must: f. Identify the risks and opportunities of procurement against a broad range of social, environmental, and economic issues following the process set out in ISO 20400:2017.	2. A copy of the Sustainable Procurement Plan. 2. Evidence to show the plan forms part of the construction contract. 2. Relevant section of the building specification, contract clauses or letter of commitment to confirm how the plan will be disseminated to all relevant internal and external personnel.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. Following discussion, Responsible Party updated to Quantity Surveyor. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as sustainable procurement requirements can be embedded within the project specifications and tender documentation. ___ Time Critical Action - RIBA Stage 2 - The Project Team should put the Sustainable Procurement Plan in place before the end of Concept Design ___	**QS**	
Mat 03.3	Responsible Sourcing of Construction Products - Measuring Responsible Sourcing	**3**	**3**	**0**		Up to Three Credits (plus One Exemplary Credit) - Measuring Responsible Sourcing 3. In the BREEAM Platform, use the Mat 03 calculator and follow M1 to determine the number of Credits achieved for the construction products. Credits are awarded in proportion to the scope of the assessment - see M2 - and the number of points achieved, as set out in Table 9.5.	3. Relevant sections of the building specification, summary or schedule confirming all materials within the project, those to be responsibly sourced and to what level. 3. Where products are specified at design stage, copies of responsible sourcing certificates to be provided.	140526 PA Workshop - The Credit was discussed and it was agreed that a Credit score of 3 should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credits is sought as part of the 'Baseline' score, as the principal construction products should be capable of being procured with recognised responsible sourcing certification, subject to evidence being collected through procurement. ___	**ARCH**	

BREEAM NC V7 - Credit Tracker

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	REVIEW

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>55%	Very Good	60.85%	Very Good	0.00%	Fail	0.00%

Sought Margin %:	Complete Margin %:
5.85%	15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Mat 04	Designing for Durability and Resilience	1	1	0		One Credit - Durability and Resilience Protecting Vulnerable Parts of the Building from Damage 1. Protection measures are incorporated into the building's design and construction to reduce damage to the building's fabric or materials in case of accidental or malicious damage occurring. These measures must provide protection against: a. Negative impacts of high user numbers in relevant areas of the building (e.g. corridors, lifts, stairs, doors etc.). b. Damage from any vehicle or trolley movements within 1 metre of the internal building fabric in storage, delivery, corridor and kitchen areas. c. External building fabric damage by a vehicle. Protection where parking or manoeuvring areas are within 1 metre of the building façade and where delivery areas or routes are within 2 metres of the façade, i.e. specifying bollards or protection rails. d. Potential malicious damage to building materials and finishes, in public and common areas where appropriate. Protecting Exposed Parts of the Building from Material Degradation 2. Key exposed building elements have been designed and specified to limit long and short term degradation due to environmental factors. This can be demonstrated through one of the following: a. The element or product achieving an appropriate quality or durability standard or design guide, see Table 9.13 for examples. If no relevant standards or guides are listed in Table 9.13, either use BS 7543:2015(93) as the default appropriate standard or use relevant equivalent standards. OR b. A detailed assessment of the element's resilience when exposed to the applicable material degradation and environmental factors. 3. Produce an access to the roof and façade strategy for cost-effective cleaning, replacement and repair in the building's design. 4. Design the roof and façade to prevent water damage, ingress and detrimental ponding.	1. Design drawings illustrating vulnerable areas or parts of the building. 2. Design drawings confirming the applicable elements. 2. Documentary evidence for the environmental factors and material degradation effects considered relevant to the building. 2. Design and specification measures in place to limit degradation effects. 2. Where relevant, manufacturer's technical details confirming the material degradation effect mitigated by the specified product. 3. Roof and façade access strategy. 4. Design drawings and specification showing measures to prevent water damage, ingress and ponding. 1. Design drawings or specification confirming the durability of the measures specified.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as robust detailing and appropriate protection measures for an industrial building can be incorporated through the normal design process. ___	ARCH	

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Mat 05	Material Efficiency	**1**	**1**	**0**		One Credit - Material Efficiency 1. At the Preparation and Brief and Concept Design stages, set targets and report on opportunities and methods to optimise the use of materials. This must be done for each of the following stages (see Table 9.14): a. Preparation and Brief b. Concept Design c. Developed Design d. Technical Design e. Construction. 2. Develop and record the implementation of material efficiency, see Table 9.14, during: a. Developed Design b. Technical Design c. Construction. 3. Report the targets and actual material efficiencies achieved.	1 - Preparation and Brief. Dedicated report that sets out a clear framework to guide material efficiency activities throughout the design and construction of the project. The report should set out aims, objectives, targets, performance indicators, opportunities, constraints and responsibilities to guide material efficiency activities. 1 - Concept Design. Minutes of the workshops held. 1 - Concept Design. Documentation demonstrating how the feedback from the workshop has been incorporated in the concept design of the project, for example: outline specification for materials selection, report on approximate predicted reductions in material quantities. 1 - Developed Design. Report on deviations from previous stages and additional actions to be taken. 1 - Developed Design. Documentation demonstrating the incorporation of the outcomes from the concept stage and additional actions, for example: design drawings or specifications demonstrating materials efficiency measures undertaken. 1 - Technical Design. Report on deviations from previous stages and additional actions to be taken. 1 - Technical Design. Documentation demonstrating the incorporation of the outcomes from the concept stage and additional actions, for example: design drawings or specifications demonstrating materials efficiency measures undertaken. 1 - Construction. Report on deviations from previous stages. 1 - Construction. Documented evidence of activity to further identify efficiencies at this stage, for example: meeting minutes, training events, waste reduction documentation etc. 2 - Developed Design. Evidence showing how opportunities for material efficiency have been implemented at this stage. 2 - Technical Design. Evidence showing how opportunities for material efficiency have been implemented at this stage. 2 - Construction. Evidence showing how opportunities for material efficiency have been implemented at this stage. 3. Relevant section of the building specification or contract clauses or letter of commitment to report material efficiencies at post-construction.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of the 'Baseline' score. However, it could be pursued as part of the 'Enhanced' score if a dedicated material efficiency review is undertaken and its recommendations are implemented, noting the additional design and procurement coordination required. ___ Time Critical Action - RIBA Stage 1, 2, 3, 4 - The Project Team should set material efficiency targets and identify opportunities during Preparation and Brief and Concept Design and should review and report material efficiency measures during Developed Design and Technical Design ___	**ARCH**	

BREEAM NC V7 - Credit Tracker

Project:	Bryn Lane, Wrexham	**Job Number:**	2119
Subject:	BREEAM NC V7 - PreAssessment	**Date:**	20th May 2026
Assessor:	Martin Lawless	**Issue:**	02
Checked:	Alexandra Ball		

DESIGN STAGE - SUMMARY AND MAIN TABLE

NC V7 SC | DESIGN STAGE

Req. %: >55% | Req. Rating: Very Good | Sought %: 60.85% | Sought Rating: Very Good | Complete %: 0.00% | Complete Rating: Fail | Risk %: 0.00% | REVIEW

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Wst 01.1	Construction Waste Management - Pre-Demolition Audit	**1**	**1**	**0**		One credit – Pre-Demolition Audit 1. Complete a pre-demolition audit of any existing buildings, structures or hard surfaces being considered for demolition. This must be used to determine whether refurbishment or reuse is feasible and, in the case of demolition, to maximise the recovery of material for subsequent high grade or value applications. The audit must cover the content of M1: Pre-demolition audit scope and: 1.a: Be carried out at Concept Design stage by a competent person prior to strip-out or demolition works 1.b: Guide the design, consider materials for reuse and set targets for waste management 1.c: Engage all contractors in the process of maximising high-grade reuse and recycling opportunities 2. Make reference to the audit in the resource management plan (RMP). 3. Compare actual waste arisings and waste management routes used with those forecast and investigate significant deviations from planned targets.	1-3. Copy of compliant pre-demolition audit.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score where demolition/strip-out forms part of the works, as a pre-demolition audit is a relatively straightforward specialist exercise. ___ Time Critical Action - RIBA Stage 2 - The Project Team should complete any required pre-demolition audit at Concept Design stage and before strip-out or demolition works ___	**QS**	
Wst 01.2	Construction Waste Management - Construction Resource Efficiency	**3**	**2**	**0**		Up to Three Credits - Construction Resource Efficiency 4. Prepare a compliant Resource Management Plan (RMP) covering: a. Non-hazardous waste materials (from on-site construction and dedicated off-site manufacture or fabrication), including demolition and excavation waste b. Accurate data records on waste arisings and waste management routes. 5. Meet or improve upon the benchmarks in Table 10.1 for non-hazardous construction waste, excluding demolition and excavation waste.	4-5. Copy of compliant resource management plan (RMP) including appropriate targets for construction waste produced. 4-5. Where contractor is not yet appointed, credits may be awarded based on a contract requirement or letter of commitment from the client or developer.	140526 PA Workshop - The Credit was discussed and it was agreed that a Credit score of 2 should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credits is sought as part of the 'Baseline' score, as standard waste/resource planning should allow a proportionate level of construction resource efficiency to be achieved. A higher enhanced score may be possible, but would require tighter targets, greater contractor engagement and more onerous monitoring/reporting. ___	**QS**	
Wst 01.3	Construction Waste Management - Diversion From Landfill	**1**	**1**	**0**		One Credit - Diversion from Landfill 6. Meet, where applicable, the diversion from landfill benchmarks in Table 10.2 for non-hazardous construction waste and demolition and excavation waste generated. 7. Sort waste materials into separate key waste groups as per Table 10.3, either on-site or through a licensed contractor for recovery.	6. Relevant section or clauses of the building specification or contract. OR A letter of commitment from the client or developer. 6. OR Copy of RMP which includes relevant commitments/targets and procedures to divert waste from landfill. 7. Confirmation of procedures in place for sorting construction waste into key waste groups.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as high diversion of construction waste from landfill can normally be secured through the Contractor's waste management procedures. The Credit is assigned to the QS because it can be conveyed onto the Contractor by way of contract preliminaries/employers requirements. ___	**QS**	

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Wst 02	Use of Recycled and Sustainably Sourced Aggregates	**1**	**0**	**0**		Prerequisite - Pre-demolition Audit 1. If demolition occurs on site, to encourage the reuse of site-won material on site, complete a pre-demolition audit of any existing buildings, structures or hard surfaces in accordance with Wst 01 Construction waste management: Criterion 1 and Wst 01 Construction waste management: Criterion 2. One Credit - Project Sustainable Aggregate Points 2. Identify all aggregate uses and types on the project (see Table 10.5 and Table 10.6). 3. Determine the quantity in tonnes for each identified use and aggregate type. 4. Identify the region in which the aggregate source is located. 5. Calculate the distance in kilometres travelled by all aggregates by transport type. 6. Enter the information into the BREEAM Platform to calculate the Project Sustainable Aggregate Points. The corresponding number of BREEAM Credits will be awarded as shown in Table 10.4	1. Copy of pre-demolition audit which identifies aggregates available within existing buildings, structures or hard landscaping. 2-7. Where contractor not yet appointed, relevant section and clauses of the building specification or contract or letter of commitment to achieve project sustainable aggregate points. 2-7. OR, where available: Schedule summarising amounts, source and types of aggregates used on the project. 2. Confirmation from the design team of all aggregates used in line with the uses and types defined in Table 10.5 and Table 10.6. 2. For aggregates recycled on site: Evidence from engineer to confirm that the waste will be suitable for re-use. 3. Calculations to confirm the amount of each aggregate likely to be used. For aggregates recycled on-site this should include estimated amounts of material available. 4. Confirmation from the design team of the likely source of the aggregates. Where supplied or manufactured by another party, this company should confirm the source of their aggregate. 5. Evidence to support the distance and routes likely travelled. For quarried or marine dredged: The distance from the quarry or wharf to the site gate. Where from a supplier/manufacturer: quarry/wharf - batching facility/supplier - site gate.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. However, Curtins shall keep the requirements of this Credit under review. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as achieving the required recycled/sustainably sourced aggregate content can be constrained by structural performance requirements and local material availability. ___		
Wst 03	Operational Waste	**1**	**1**	**0**		One Credit - Operational Waste 1. Provide a dedicated space, identified by clear signage, for the segregation and storage of operational recyclable waste (see M1, M2, and M3). The space is: a. Clearly labelled for long-term durability, to assist with segregation, storage and collection of the recyclable waste streams. b. Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors. c. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily or weekly operational activities and occupancy rates. 2. For consistent and large amounts of operational waste generated, provide: a. Static waste compactors or balers; situated in a service area or dedicated waste management space. b. Vessels for composting suitable organic waste OR adequate spaces for storing segregated food waste and compostable organic material for collection and delivery to an alternative composting facility. c. A water outlet provided adjacent to or within the facility for cleaning and hygiene purposes where organic waste is to be stored or composted on site. - Additional requirements exist for healthcare buildings only - Additional requirements exist for (long-term stay) with self-contained dwellings or bedsits only - Additional requirements exist for (long-term stay) with individual bedrooms and communal facilities only	1. Design drawings or relevant section of the building specification or contract clauses to confirm the provision of compliant dedicated facilities for the storage and segregation of recyclable waste, in addition to provisions for general waste. 1. Confirmation from end user or design team of predicted waste streams and indicative volumes. OR Where not known, calculations used to confirm the minimum space required. 2. Where applicable to the building, design drawings or relevant section of the building specification or contract clauses to confirm the provision of compactors or balers or compliant organic waste storage where relevant. 3. Design drawings or relevant section of the building specification or contract clauses or statement from the project team to demonstrate how the facilities are compliant with relevant NHS guidelines. 4-9. Design drawings or relevant section of the building specification or contract clauses to confirm the provision of compliant internal recyclable waste storage and home composting facilities. 4-9. Commitment to provide home composting information leaflets.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as suitable operational waste segregation provision can be allowed for within the site/building layout. ___	**ARCH**	

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Wst 05	Adaptation to Climate Change	**1**	**1**	**0**		One Credit - Resilience of Structure, Fabric, Building Services and Renewables Installation 1. Conduct a climate change adaptation strategy appraisal using: a. A systematic risk assessment to identify the impact of expected extreme weather conditions arising from physical climate risks and climate change on the building and vulnerabilities over its projected life cycle. The assessment covers the installation of building services and renewable systems, as well as structural and fabric resilience aspects and includes (see M1): i. Hazard identification ii. Hazard assessment iii. Risk estimation iv. Risk evaluation v. Risk management. 2. Develop recommendations or solutions based on the climate change adaptation strategy appraisal, before or during Concept Design, that aim to mitigate the identified impact. 3. Provide an update during Technical Design demonstrating how the recommendations or solutions proposed at Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing by the assessor.	All. Copy of a compliant climate change adaptation strategy appraisal All. Documentation such as specification clauses and/or design drawings to show that all identified mitigation measures have been adopted within the final design. Omissions must be justified in writing.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. Following discussion, Responsible Party updated to Architect. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as a formal climate change adaptation review and implementation exercise would add consultant input beyond the current scope, with core resilience matters already being addressed through the normal design process. ___ Time Critical Action - RIBA Stage 2,4 - The Project Team should complete the climate change adaptation appraisal and develop mitigation recommendations before or during Concept Design and should provide a Technical Design update confirming implementation of adaptation recommendations or justified omissions ___ Additional Team Appointment - Facilitator for the Adaptation to Climate Change Strategy ___	**ARCH**	
Wst 06.1	Design for Disassembly and Adaptability - Recommendations	**1**	**1**	**0**		One Credit - Design For Disassembly and Adaptability - Recommendations 1. By the end of Concept Design, conduct a study to explore the disassembly and adaptation potential of different design scenarios (see M1). 2. By the end of Concept Design, develop solutions based on the study (criterion 1) that allow disassembly and adaptability (see M1).	1-2. A copy of the disassembly and adaptability study completed at Concept Design.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. Following discussion, Responsible Party updated to Architect. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as a formal design for disassembly/adaptability review is not considered proportionate for a standard industrial shell and may constrain structural and procurement decisions. ___ Time Critical Action - RIBA Stage 2 - The Project Team should complete the design for disassembly/adaptability study and develop solutions by the end of Concept Design ___ Additional Team Appointment - Facilitator for the Functional Adaptability Strategy ___	**ARCH**	
Wst 06.2	Design for Disassembly and Adaptability - Implementation	**1**	**1**	**0**		One Credit - Design For Disassembly and Adaptability - Implementation 3. Achieve criteria 1 and 2. 4. During Technical Design, provide an update on the following (see M2): a. How the solutions proposed by Concept Design have been implemented where practical and cost effective. Omissions must be clearly justified. b. Changes to the recommendations and solutions during the development of the Technical Design. 5. Produce a building design for disassembly and adaptability manual (see Definitions and M2) to communicate the disassembly and adaptability principles and characteristics to prospective owners or building operators.	4. A copy of the design for disassembly and adaptability implementation plan report completed at Technical Design. 5. Relevant section of the building specification, contract clauses or letter of commitment to produce a building design for disassembly and adaptability manual.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. Following discussion, Responsible Party updated to Architect. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as implementing a design-for-disassembly strategy would require further redesign and specific procurement commitments beyond the current project scope. ___ Time Critical Action - RIBA Stage 4 - The Project Team should provide a Technical Design update confirming implementation of disassembly/adaptability solutions or justified omissions ___	**ARCH**	

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LUE 01.1	Site Selection - Previously Occupied Land	**2**	**2**	**0**		One Credit - Previously Occupied Land 1. At least 75% of the proposed development is on previously occupied land.	1. Design drawings (including existing and proposed site plans), site photographs or report that confirm the previous land use and clearly identify the percentage area of the site previously developed.	140526 PA Workshop - The Credit was discussed and it was agreed that a Credit score of 2 should be sought. 290426 Initial SC Review - MTTS recommend that the Credits is sought as part of the 'Baseline' score, as the site appears to comprise previously occupied/previously developed land and the full available score can therefore be targeted.	**ARCH**	
LUE 02.1	Ecological Risks and Opportunities - Survey and Evaluation : Comprehensive Route	**1**	**1**	**0**		One Credit - Survey and Evaluation (Comprehensive Route) 2. A suitably qualified ecologist (SQE) carries out a survey and evaluation (see M3.1) for the site early enough to influence site preparation works, layout and, where necessary, strategic planning decisions (typically Preparation and Brief stage) (see Definitions). 3. The SQE's survey and evaluation determines the site's ecological baseline, including: a. Current and potential ecological value and condition of the site and related areas within the zone of influence. b. Direct and indirect risks to current ecological value from the project. c. Capacity and feasibility for enhancement of the site's ecological value and, where relevant, areas within the zone of influence.	2-3. A copy of the ecological survey and evaluation that meets the requirements as detailed in this issue.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. 060526 Ecology Consulting confirmed they agree with MTTS' assumptions and targeted Credits. 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as ecology survey work is typically required to inform planning and can satisfy this credit if undertaken to the required standard. Additional Team Appointment - Suitably Qualified Ecologist	**ECO**	
LUE 02.2	Ecological Risks and Opportunities - Determining Ecological Outcomes : Comprehensive Route	**1**	**1**	**0**		One Credit - Determining Ecological Outcomes (Comprehensive Route) 6. Achieve criteria 2 and 3. 7. The ecologist collaborates with appropriate project team members (e.g. landscape architect, architect etc.), sharing relevant information and recommendations from the survey and evaluation to influence the project design as well as decisions regarding site preparation and construction works (see M3.2). 8. The ecologist, with full support from the project team, collaborates with representative stakeholders (see M3.2) early enough to influence key planning decisions (typically Concept Design stage). 9. The ecologist identifies the optimal ecological outcomes for the site, and identifies measures to achieve these outcomes in line with: a. The collaborations undertaken as part of criteria 7 and 8. b. The mitigation hierarchy for the comprehensive route: i. Avoidance ii. Protection iii. Reduction or limitation of negative impacts iv. On-site compensation v. Enhancement, considering the capacity and feasibility within the site, or where this is not viable, off-site.	7-9. Statement from the ecologist confirming that they collaborated with all project team members and stakeholders they deemed necessary to identify and deliver the project's optimal ecological outcomes and measures to achieve them. 9. A report or statement confirming the optimal ecological outcomes identified for the project, as well as the measures being implemented to achieve these outcomes (in accordance with the mitigation hierarchy).	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. 060526 Ecology Consulting confirmed they agree with MTTS' assumptions and targeted Credits. 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as the project's ecological strategy can use the survey findings to define proportionate ecological outcomes for the site. Time Critical Action - RIBA Stage 2 - The Project Team should ensure the ecologist collaborates with representative stakeholders early enough, typically by Concept Design, to influence planning/design decisions Additional Team Appointment - Suitably Qualified Ecologist	**ECO**	

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
LUE 03.1	Managing Impacts On Ecology - Implementation of Measures On-Site : Comprehensive Route	**2**	**2**	**0**		Prerequisite - Ecological Risks and Opportunities 1. Whether a project is using the foundation route or the comprehensive route, the criteria in Lue 02 for 'Survey and evaluation' and 'Determining ecological outcomes' must have been met to achieve any Credits in this issue. Two Credits - Implementation of Measures On-site (Comprehensive Route) 2. For both routes, handover between the design and construction teams must be sufficiently structured and thorough to ensure that all planned ecological measures are communicated, understood, and adhered to throughout construction. a. For the comprehensive route only, an ecologist will have been in place throughout planning and design. If an Ecological Clerk of Works has been appointed for the construction and handover stages (RIBA Stages 5 and 6), there must be an additional handover between the two ecologists. 3. The measures required to achieve optimal ecological outcomes must be integrated with site preparation and construction processes. These must be measured and monitored throughout construction and handover (RIBA Stages 5 and 6) as follows: b.Comprehensive route: An Ecological Clerk of Works (ECoW) will have been appointed by the contractor to monitor and advise on the protection of site ecology as agreed. If the ECoW requires the input of an additional ecological specialist at any point (for example, an expert on a particular form of wildlife), the contractor must provide for such services as required.	2. Evidence that information about the optimal ecological outcome and the measures required to achieve it have been handed over appropriately e.g. Tender documents incorporating ecological requirements. 2a. If there has been a change in ecologist, the incoming ecologist must confirm they were provided with all the information they needed to understand the optimal ecological requirements and implement the measures to achieve them. 2a. Where a contractor has not been appointed at design stage, the developer must include the appointment of an ecologist, and the facilitation of handover between ecologists, in the tender documents. 3. A statement from the ecologist covering: •All measures to be implemented to achieve optimal ecological outcomes. •How each measure should be implemented on site by the contractor. •What evidence should be provided by the contractor to demonstrate compliance at handover of the project. •The management and monitoring actions to be undertaken by the ecologist (if any). The statement must also provide the name of the contractor's appointed Biodiversity Champion, and their position on site to demonstrate they have appropriate authority to undertake this role. Where the contractor has not been appointed, this can comprise tender documents requiring this information.	140526 PA Workshop - The Credit was discussed and it was agreed that a Credit score of 2 should be sought. 060526 Ecology Consulting confirmed they agree with MTTS' assumptions and targeted Credits. 290426 Initial SC Review - MTTS recommend that the Credits is sought as part of the 'Baseline' score through standard ecological protection measures during construction. However, a higher score could be pursued as part of the 'Enhanced' score if more comprehensive implementation, liaison and evidence requirements are secured. Time Critical Action - RIBA Stage 2, 3, 4, 5, 6 - The Project Team should have the ecologist in place throughout planning and design to integrate ecological outcomes before construction and the Contractor should monitor ecological measures during construction/handover and complete handover between ecologists where an Ecological Clerk of Works is appointed Additional Team Appointment - Suitably Qualified Ecologist	**ECO**	
LUE 03.2	Managing Impacts On Ecology - No Net Loss	**1**	**1**	**0**		Prerequisite - Ecological Risks and Opportunities 1. Whether a project is using the foundation route or the comprehensive route, the criteria in Lue 02 for 'Survey and evaluation' and 'Determining ecological outcomes' must have been met to achieve any Credits in this issue. One Credit - No net loss (Comprehensive route only) 4. Criteria 2 to 3 have been achieved. 5. There is no net loss of ecological value on site caused by construction and handover activities. This must be confirmed at project handover by the ecologist.	5. Statement from the ecologist confirming there will be no net loss of ecological value on-site as a result of the project. 5. Where appropriate, the Statutory Biodiversity Metric for the site can be used to support the ecologist's statement.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. 060526 Ecology Consulting confirmed they agree with MTTS' assumptions and targeted Credits. 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as achieving no net loss should be possible through the proposed mitigation and landscaping strategy, subject to ecologist confirmation. Time Critical Action - RIBA Stage 6 - The Contractor should obtain ecologist confirmation at handover that construction and handover activities have caused no net loss of ecological value	**ECO**	
LUE 04.1	Ecological Change and Enhancement - Ecological Enhancement : Comprehensive Route	**1**	**1**	**0**		Prerequisite - Managing Negative Impacts On Ecology 1. Achieve criteria 2 and 3 in Lue 03. One Credit - Ecological Enhancement (Comprehensive Route) 3. Measures have been implemented that enhance ecological value, which are based on input from the project team and SQE in collaboration with representative stakeholders and data collated as part of 'Determining ecological outcomes' in Lue 02. Measures are implemented in the following order: a. On-site, and where this is not feasible, b. Outside of the site boundary, within the zone of influence. 4. Data collated are analysed and where potentially valuable, provided to the local environmental records centres nearest to, or relevant for, the site.	3. Report or letters detailing the recommendations for measures of ecological enhancement. 3. Drawings and specifications demonstrating that the recommendations have been implemented in the design. 4. Evidence demonstrating that data has been submitted to a local environmental record centre, where relevant.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. 060526 Ecology Consulting confirmed they agree with MTTS' assumptions and targeted Credits. 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as modest ecological enhancement measures can be incorporated within the landscape proposals. Additional Team Appointment - Suitably Qualified Ecologist	**ECO**	

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
LUE 04.2	Ecological Change and Enhancement - Quantifying Change In Ecological Value	**3**	**1**	**0**		Prerequisite - Managing Negative Impacts On Ecology 1. Achieve criteria 2 and 3 in Lue 03. Up to Three Credits (Plus one Exemplary Credit) - Quantifying Change in Ecological Value (Comprehensive Route) Site baseline > 0.1 BU 5. Up to three Credits are available based on the scale in Table 11.4 below. The enhancement measures that contribute to the score for biodiversity net gain should be implemented in the following order: a. On-site within the boundary, and where this is not feasible, b. Enhancements within the zone of influence/wider development area, and where this is not feasible, c. Off-site units following the rules of the Statutory Biodiversity Metric, subject to the following: i. The SQE confirms that better outcomes for nature can be achieved off-site and/or off-site enhancement would be more be effective than what can be done solely in the development boundary/zone of influence. ii. There has been no net loss of biodiversity on-site. iii. There are arrangements in place for the on-going maintenance of the enhanced land to ensure the habitat is safeguarded over a 30-year period. Site baseline ≤ 0.1 BU 6. Up to three Credits are available based on biodiversity units (BUs) per site area (ha) or per 10 m of hedgerow post development as shown in Table 11.5 below. This is only based on the hedgerow-based metric and area-based metric. For more information, see M3.4.	5. Evidence to support the data input within the tool such as ecological survey report and landscape plans (existing and proposed). 6. Output from the Statutory Biodiversity Metric (SBM) or Small Sites Metric (SSM) tool and the size of the site to show that the requirements in Table 11.5 have been met. 5. Completed version of the Statutory Biodiversity Metric (SBM) or Small Sites Metric (SSM) tool. 6. Evidence to support the data input within the tool such as ecological survey report and landscape plans (existing and proposed).	140526 PA Workshop - The Credit was discussed and it was agreed that a Credit score of 1 should be sought. ___ 060526 Ecology Consulting confirmed they agree with MTTS' assumptions and targeted Credits. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, based on the current landscape/ecology proposals. Higher scores are not currently assumed, as they would require a more substantial uplift in habitat value and associated land-take/maintenance commitments. ___ Additional Team Appointment - Suitably Qualified Ecologist ___	**ECO**	
LUE 05.1	Long Term Ecological Management and Maintenance - Handover to Building Owner or Tenant	**1**	**1**	**0**		Prerequisite - Ecological Change and Enhancement 1. Achieve at least one Credit in LUE 04. One Credit - Handover to Building Owner or Tenant 2. A section on ecology and biodiversity has been included as part of the information supplied to the tenant or building owner. This information must be in a separate document from the landscape and ecology management plan (which is covered by criterion 3) and: a. Inform the building owner or tenant about local ecological features and biodiversity associated with the site (see M1) including an 'as-built' biodiversity metric calculation (where relevant). b. Include detailed management and maintenance plans and relevant handover information to minimise loss of planting during establishment phase (see M1). Note: For Route 1, only one Credit is awarded when both 'Handover to building owner or tenant' AND 'Landscape and ecology management plan' are achieved.	2. Draft copy of the ecology and biodiversity handover information.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 060526 Ecology Consulting confirmed they agree with MTTS' assumptions and targeted Credits. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as ecology information and management responsibilities can be handed over through the normal project documentation. ___	**ECO**	

BREEAM NC V7 - Credit Tracker

Project:	Bryn Lane, Wrexham	**Job Number:**	2119
Subject:	BREEAM NC V7 - PreAssessment	**Date:**	20th May 2026
Assessor:	Martin Lawless	**Issue:**	02
Checked:	Alexandra Ball		

DESIGN STAGE - SUMMARY AND MAIN TABLE

NC V7 SC | DESIGN STAGE

Req. %: >55% | Req. Rating: Very Good | Sought %: 60.85% | Sought Rating: Very Good | Complete %: 0.00% | Complete Rating: Fail | Risk %: 0.00% | REVIEW

Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk	
LUE 05.2	Long Term Ecological Management and Maintenance - Landscape and Ecology Management Plan	**1**	**1**	**0**		Prerequisite - Ecological Change and Enhancement 1. Achieve at least one Credit in LUE 04. One Credit - Landscape and Ecology Management Plan 3. A landscape and ecology management plan, or equivalent, has been developed in accordance with BS 42020:2013 Section 11.1.(132) This will cover detailed plans for an initial 5-year establishment period and maintenance of the scheme, as well as an additional 25-year management strategy. The whole plan should cover a period of 30 years in total. It should cover the broader management of habitats and other ecological features on site, not just those specific to the BNG measures. The plan includes: a. Actions and responsibilities of relevant individuals before handover. b. The ecological value and condition of the site at handover and how this is expected to develop and change over time. c. Procedures to monitor and review the on-going implementation and effectiveness of measures, incorporating an adaptive management approach. d. Risk register, including trigger for action and remedial measures with consideration on how these feed into monitoring requirements (see M2.1l). e. Maintenance and management plans for the retained, enhanced and created habitats, as well as any features for protected species. This should include a detailed work schedule outlining relevant maintenance on a monthly basis for the first five years after completion. f. Identifying opportunities for ongoing alignment with activities external to the asset. g. Clearly defined responsibilities and competencies of those delivering the plan. Note: For Route 1, only one Credit is awarded when both 'Handover to building owner or tenant' AND 'Landscape and ecology management plan' are achieved.	3. Draft copy of the landscape and ecology management plan. 3. OR The relevant section or clauses of the building specification or contract confirming its development and scope. Pollution	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 060526 Ecology Consulting confirmed they agree with MTTS' assumptions and targeted Credits. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as a landscape and ecology management plan can be prepared as part of the wider ecology strategy. Confirm credit requirements and integrate into design specifications before Technical Design completion ___ Time Critical Action - RIBA Stage 6 - The Contractor should define LEMP actions and responsibilities before handover ___ Additional Team Appointment - Suitably Qualified Ecologist ___	**ECO**		
Pol 01.1	Impact of Refrigerants - No Refrigerant Use	**3**	**1**	**0**		Three Credits - No Refrigerant Use 1. Where the building does not require the use of refrigerants within its installed plant or systems	1. Letter from M&E engineer or specification document confirming the absence of refrigerants in the development. 1. OR Relevant section or clauses of the building specification or contract or letter of confirmation from the M&E engineer.	140526 PA Workshop - The Credit was discussed and it was agreed that a Credit score of 1 should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as at least part of the available score can be targeted through limiting refrigerant use within the Shell and Core services strategy. The full available score is not currently proposed, as complete avoidance of refrigerant-based systems may unduly constrain the servicing strategy. ___	**SERV**		x
Pol 02	Local Air Quality	**3**	**3**	**0**		Three Credits - No Installed Combustion Plant 1. Non-combustion systems supply all space heating and domestic hot water generation on-site. Up to Two Credits - Low-emission Combustion Plant 2. Emissions from all installed combustion plant that provide space heating or domestic hot water do not exceed the levels set in Table 12.2.	1. Design drawings, relevant sections of the building specifications or contract clauses that identify all heat-generating equipment for space heating and domestic hot water in the building. 2. Design drawings, relevant section of the building specification or contract clauses confirming either: Commitment to meet maximum NOx ratings for heat generators. OR Where known, details of specified plant and supporting manufacturer's product data sheets. 2. For low population areas, evidence to support population density.	140526 PA Workshop - The Credit was discussed and it was agreed that a Credit score of 3 should be sought. ___ 290426 Initial SC Review - MTTS recommend that all three Credit is sought as part of the 'Baseline' score, as the full available score can be targeted through selection of appropriate combustion / low-emission plant strategy and discharge arrangements, or by avoiding local combustion sources altogether. ___	**SERV**		x

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NC V7 SC	DESIGN STAGE
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Sought Margin %:	Complete Margin %:
5.85%	15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Pol 03.1	Flood and Surface Water Management - Prerequisite - Appropriate Consultant	**0**	**0**	**0**		Prerequisite - Appropriate Consultant 1. An appropriate consultant is appointed to carry out and demonstrate the development's compliance with all criteria.	1. Appointment of an appropriate consultant and confirmation they are qualified in line with the definition. 1. Evidence to show an appropriate consultant was appointed.	140526 PA Workshop - The prerequisite Credit was discussed and it was agreed that it must be sought. 170426 Initial Review - MTTS note that this item is an assessment prerequisite and shall be complied with, as appointment of an appropriate drainage/flood risk consultant is necessary to pursue the related flood and surface water management credits. Additional Team Appointment - Flood Risk Assessor	**CIVIL**	
Pol 03.2	Flood and Surface Water Management - Flood Resilience	**2**	**1**	**0**		Two Credits - Low Flood Risk 2. A site-specific flood risk assessment (FRA) confirms the development is in a flood zone that is defined as having a low annual probability of flooding. The FRA takes all current and future sources of flooding into consideration (see M4). One Credit - Medium or high flood risk 3. A site-specific FRA, developed by an appropriate consultant (see Definitions), confirms the development is in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain. The FRA must take all current and future sources of flooding into consideration (see M4). For smaller sites refer to M6: Level of detail required in the FRA for smaller sites, which overrides criterion 2. 4. To increase the resilience and resistance of the development to flooding, one of the following must be achieved: a. The ground level of the building and access to both the building and the site, are designed (or zoned) so they are at least 600 mm above the design flood level of the site's flood zone (see M5). b. The final design of the building and the wider site reflects the recommendations made by an appropriate consultant in accordance with the hierarchy approach outlined in section 5 of BS 8533:2017(135).	2-3. Copy of a compliant flood risk assessment (FRA). 2-3. Evidence to confirm that the site is not a functional flood plain, where applicable. 4. Evidence to show measures to increase resilience and resistance of the development to flooding: a. Confirmation of the design flood level and design drawings to show ground level of all habitable parts of the building and access to the site and buildings to be at least 600 mm above this. OR b. Report or correspondence from an appropriately qualified professional which includes recommendations for the design of the building and site. Evidence to confirm these are to be implemented such as design drawings, sections of the building specification, contract clauses or commitment letter.	140526 PA Workshop - The Credit was discussed and it was agreed that a score of 1 should be sought. 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as flood resilience measures can be addressed through the civil/drainage strategy and the building's levels/landscaping design. Additional Team Appointment - Appropriate Consultant	**CIVIL**	
Pol 03.3a	Flood and Surface Water Management - Surface Water Run-Off : Prerequisite for Surface Water Run-Off Credits	**0**	**0**	**0**		5. Surface water run-off design solutions must be bespoke, i.e. they must take account of the specific site requirements and natural or man-made environment of and surrounding the site. The priority levels detailed in the methodology must be followed, with justification given by the appropriate consultant where water is allowed to leave the site.	5. Consultant's report confirming the site specific surface water-run off design solutions, in line with the priority levels.	140526 PA Workshop - The prerequisite Credit was discussed and it was agreed that it must be sought. 290426 Initial SC Review - MTTS note that this Credit is an assessment prerequisite and does not attract a separate score. As the related run-off rate/volume credits are not currently targeted, no separate allowance is made at this stage. Additional Team Appointment - Appropriate Consultant	**CIVIL**	

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Sought Margin %:	Complete Margin %:
5.85%	15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Pol 03.3b	Flood and Surface Water Management - Surface Water Run-Off : Rate	**1**	**1**	**0**		One Credit - Surface Water Run-off - Rate 6. For brownfield sites, drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) shows a 30% improvement for the developed site compared with the pre-developed site. This should comply at the 1-year and 100-year return period events. 7. For greenfield sites, drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for the pre-development site. This should comply at the 1-year and 100-year return period events. 8. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place. 9. Calculations include an allowance for climate change. This should be made in accordance with current best practice planning guidance (see Definitions).	6, 7, 9. Calculation results to show the predevelopment, greenfield and post-development peak rate of run-off and volume of run-off. 6, 7, 9. Where credits awarded based on the impermeable area being reduced: drawings showing the impermeable areas pre- and post-development, including areas. 6, 7, 9. Surface water drainage report, statement or design drawings to confirm the proposed drainage design. 6, 7, 9. Details of any opportunities identified to reduce surface water-run-off. 8. Relevant section or clauses of the building specification or contract. OR Letter of commitment.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as demonstrating the required improvement in run-off rate may require significant attenuation or constrained discharge arrangements that are not presently justified. ___ Additional Team Appointment - Appropriate Consultant ___	**CIVIL**	
Pol 03.3c	Flood and Surface Water Management - Surface Water Run-Off : Volume	**1**	**0**	**0**		One Credit - Surface Water Run-off - Volume 10. Flooding of assessed buildings will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance); AND EITHER 11. Specify drainage design measures that ensure post-development surface water run-off volume is no greater than the predevelopment run-off volume. Show this with calculations for a 100-year 6-hour event adjusted for climate change, timing the event at the end of the development's expected life (see criterion 16). 12. Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other SuDS techniques. OR (only where criteria 11 and 12 cannot be achieved): 13. Justification from the appropriate consultant indicating why the above criteria cannot be achieved, i.e. where infiltration or other SuDS techniques are not technically viable options. 14. Drainage design measures are specified so that the post-development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flow rate from the following options: a. The pre-development one-year peak flow rate b. The mean annual flow rate (Qbar) c. 2L/s/ha. For the one-year peak flow rate, the one-year return period event criterion applies. 15. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place. 16. For either option, above calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance.	10. Information showing the proposed drainage solution, system failure flood flow routes, potential flood ponding levels and ground floor levels. 11-14, 16. Calculation results to show the pre-development, greenfield and post-development peak rate of run-off and volume of run-off. 11-14, 16. Surface water drainage report, statement or design drawings to confirm the proposed drainage design. 11-14, 16. Where credits awarded based on the impermeable area being reduced: drawings showing the impermeable areas pre- and post-development, including areas. 11-14, 16. Details of any opportunities identified to reduce surface water-run-off. 15. Relevant section or clauses of the building specification or contract. OR Letter of commitment.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as achieving the required reduction in run-off volume may require extensive SuDS/attenuation provision and could be constrained by site layout and ground conditions. ___ Additional Team Appointment - Appropriate Consultant ___		

credit tracker...

BREEAM NC V7 - Credit Tracker

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>55%	Very Good	60.85%	Very Good	0.00%	Fail	0.00%	5.85%	15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Pol 03.4	Flood and Surface Water Management - Minimising Watercourse Pollution	**1**	**0**	**0**		One Credit - Minimising Watercourse Pollution 17. There is no discharge from the developed site for rainfall up to 5 mm (confirmed by the appropriate consultant). 18. Areas with a low risk source of watercourse pollution, have an appropriate level of pollution prevention treatment provided using appropriate SuDS techniques. 19. Areas with a high risk of contamination or spillage of substances, such as petrol and oil, have separators (or an equivalent system) installed in surface water drainage systems. 20. Chemical or liquid gas storage areas have a means of containment fitted to the site drainage system (i.e. shut-off valves). This is to prevent the escape of chemicals to natural watercourses in the event of a spillage or bunding failure. 21. All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as the SuDS manual(136) and other relevant industry best practice. They must be bespoke solutions taking account of the specific site requirements and natural or man-made environment of and surrounding the site. 22. A comprehensive and up to date drainage plan of the site will be made available for the building or site occupiers. 23. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place. 24. All external storage and delivery areas are designed and detailed in accordance with the current best practice planning guidance.	17. Calculations and confirmation from the appropriate consultant to demonstrate that there will be no discharge from the site for rainfall up to 5 mm. 18-21. Design drawings or relevant section or clauses of the building specification or contract or confirmation from the appropriate consultant indicating: 1. High and low risk areas of the site. 2. Specification of sustainable drainage system or SuDS, source control systems, oil or petrol separators and shut-off valves as appropriate. 3. Water pollution prevention systems have been designed in accordance with best practice guidance. 22. Relevant section or clauses of the building specification or contract. OR Letter of commitment. 23. Relevant section or clauses of the building specification or contract. OR Letter of commitment. 24. Design drawings and confirmation from the appropriate consultant as to how the external storage and delivery areas are in-line with best practice planning guidance.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. ___ 170426 Initial Review - MTTS do not recommend that the Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as providing all compliant treatment/pollution prevention measures may require additional drainage infrastructure and maintenance commitments beyond the current scope. ___ Additional Team Appointment - Appropriate Consultant ___		
Pol 04	Reduction of Night Time Light Pollution	**1**	**1**	**0**		One Credit - Reduction of Light Pollution 1. Light pollution has been eliminated through effective design that removes the need for artificial lighting at night. This does not adversely affect the safety and security of the site and its users. OR alternatively, where the building does use artificial lighting at night, one Credit can be awarded as follows: 2. The lighting strategy has been designed to reduce obtrusive light. This includes both external lighting and internal lighting in spaces with glazed apertures. 3. A curfew is established for all external lighting (except for safety and security lighting), which is automatically switched off between 23:00 and 07:00. 4. Illuminated advertisements are designed to control brightness and minimise visual disturbance during night-time hours. 5. Lighting is designed to minimise impacts on nocturnal wildlife.	1. Written confirmation from appropriate member of the design team or design drawings to confirm that there is no artificial lighting at night. 2-5. Relevant section or clauses of the building specification or contract OR Letter of commitment 2-5. OR Where available, design drawings and lighting design data or calculations. 2-5. The M&E engineer or lighting designer must provide indicative examples of where and how the strategy complies with the assessment criteria.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. ___ 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as the external lighting design can be developed to limit light spill in accordance with good practice. ___	**SERV**	

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Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Pol 05	Reduction of Noise Pollution	**1**	**1**	**0**		One Credit - Noise Level 1. There are no noise-sensitive areas within the assessed building or within 800 m radius of the assessed site. OR 2. Where there are noise-sensitive areas within the assessed building or noise-sensitive areas within 800 m radius of the assessed site, a noise impact assessment compliant with BS 4142:2014(145) is commissioned. Noise levels must be measured or determined for: a. Existing background noise levels: i. At the nearest or most exposed noise-sensitive development to the proposed assessed site. ii. Including existing plant on a building, where the assessed development is an extension to the building. b. New noise level from the assessed building (see M1 and M2). 3. The noise impact assessment must be carried out by a suitably qualified acoustic consultant. 4. The noise level from the assessed building, as measured in the locality of the nearest or most exposed noise-sensitive development, must be at least 5 dB lower than the background noise throughout the day and night. 5. If the noise sources from the assessed building are greater than the levels described in criterion 4, measures have been installed to attenuate the noise at its source to a level where it will comply with criterion 4.	1. Design drawings highlighting: 1. All existing and proposed noise-sensitive buildings local to, and within, the site boundary. 2. Proposed sources of noise from the new development. 3. Distance (m) from these buildings to the assessed development 2-4. The acoustician's noise impact assessment report. 2-4. Commitment to complete post-construction testing. OR Relevant section of the building specification, contract clauses or letter of commitment requiring a compliant noise assessment to be carried out by a suitably qualified acoustician. 5. Acoustician's report with recommendations for noise attenuation measures. 5. A marked-up design plan highlighting the specification of the acoustician's attenuation measures 5. OR A formal letter from the client or design team confirming where relevant, that attenuation measures recommended by an appointed suitably qualified acoustician will be installed. Evidence to verify the acoustician's qualifications and professional status.	140526 PA Workshop - The Credit was discussed and it was agreed that it should be sought. 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score, as the relevant fixed plant and service noise limits can be considered through standard acoustic coordination and specification. Additional Team Appointment - Suitably Qualified Acoustician	**ACO**	
Inn 01	Innovation	**1**	**0**	**0**		2. One Innovation Credit can be awarded for each innovation application approved by BRE Global, where the building complies with the criteria defined within an approved innovation application form. Up to a maximum of 10 Exemplary Credits are available in aggregate from a combination of criteria 1 and 2 (with the total BREEAM score capped at 100%).	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Credit was discussed and it was agreed that it should not be sought. 290426 Initial SC Review - MTTS recommend that the Credit is sought as part of the 'Baseline' score as this is a reasonable measure for a project of this type and scope.		
Exe Man 03	Responsible Construction Management	**1**	**0**	**0**		One Exemplary Credit - Responsible Construction Management 19. Achieve all items in Table 4.1 on page 51.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed that it should not be sought. 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the full score for the main Credit is not sought.		
Exe Man 05	Zero Carbon Transition Planning	**1**	**0**	**0**		One Exemplary Credit – Zero Carbon Transition Planning 8 Where net zero carbon benchmarks are not met for operational performance and/or fossil fuels are being used on-site, a competent person develops a Zero Carbon Transition Plan demonstrating how the asset will achieve net zero carbon in operation by 2050 at the latest (see M2).	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed that it should not be sought. 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as this is not considered appropriate for a project of the type and scope.		

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Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Exe Hea 01	Natural Light > 1. Evaluating Glare From Daylight	**1**	**0**	**0**		One Exemplary Credit – Evaluating Glare from Daylight 10. Achieve the credit for 'Glare control' (criteria 2–4). 11. An evaluation has been undertaken to demonstrate compliance with either of the following and M6: 11.a: The Daylight Glare Probability (DGP) does not exceed 0.40 over more than 5% of annual operating hours at all workstations in all relevant building areas. OR 11.b: Annual Sunlight Exposure ASE1000, 250 ≤ 10% of an occupied space. This means no more than 10% of the occupied space in all relevant building areas can receive a daylight illuminance of ≥ 1000 lux for ≥ 250 hours per year.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the full score in the main Credit is not sought. ___		
Exe Hea 01	Natural Light > 2. Daylighting	**1**	**0**	**0**		One Exemplary Credit - Daylighting 12. Daylighting criteria have been met using one of the following options: a. Relevant building areas meet exemplary criteria for average and minimum point daylight illuminance as outlined in Table 5.3 OR b. Relevant building areas meet the highest rating in EN 17037:2018+A1:2021 OR IES LM-83-23 and the relevant criteria in Table 5.3.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the full score in the main Credit is not sought. ___		
Exe Hea 02	Lighting Control	**1**	**0**	**0**		One Exemplary Credit – Lighting Control 9. Lighting in each control zone with an occupied space can be manually dimmed by occupants down to no more than 20% of the maximum light output using lighting control interfaces positioned in accessible locations. 10. Lighting in each control zone within an occupied space can be colour tuned over a correlated colour temperature range from 2700K or less to 4000K or more, with automatic controls set to limit the correlated colour temperature in the afternoon and evening to 2700K or less.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as this is not considered appropriate or addressable for a project of the type and scope. ___		
Exe Hea 04	Emissions From Construction Products	**1**	**0**	**0**		Two Exemplary Credits - Emissions from Construction Products 17. All product types meet the emission limits, testing requirements and any additional requirements listed in Table 5.7 and M2.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the full score in the main Credit is not sought. ___		
Exe Hea 08	Security Rating Scheme	**1**	**0**	**0**		One Exemplary Credit – Security Rating Scheme 4. A compliant risk-based security rating scheme has been used. The performance against the scheme has been confirmed by independent assessment and verification. The 'Security of site and building' credit must first be achieved for the exemplary credit to be awarded.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it would not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as this is not considered beneficial for a project of the type and scope. ___		
Exe Ene 01	Beyond Zero Net Regulated Carbon	**1**	**0**	**0**		Up to three Exemplary Credits – Beyond Zero Net Regulated Carbon 2. The building regulation modelling results demonstrate that at least 100% of the building's service energy requirements are met by eligible low and zero carbon (LZC) technologies (see M3). 3. The number of BREEAM credits awarded is based on the percentage of operational energy use that is met by LZC sources (see Table 6.2).	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed that it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as this is not considered appropriate for a project of the type and scope. ___		

BREEAM NC V7 - Credit Tracker

Project:	Bryn Lane, Wrexham	**Job Number:**	2119
Subject:	BREEAM NC V7 - PreAssessment	**Date:**	20th May 2026
Assessor:	Martin Lawless	**Issue:**	02
Checked:	Alexandra Ball		

DESIGN STAGE - SUMMARY AND MAIN TABLE

NC V7 SC	DESIGN STAGE
	REVIEW

Req. %:	Req. Rating:	Sought %:	Sought Rating:	Complete %:	Complete Rating:	Risk %:
>55%	Very Good	60.85%	Very Good	0.00%	Fail	0.00%

Sought Margin %:	Complete Margin %:
5.85%	15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Exe Ene 02	Prediction of Operational Energy and Carbon > 1. Disclosing An In-Use Energy Performance Target	1	0	0		One Exemplary Credit – Disclosing an In-Use Energy Performance Target 9. An in-use energy performance target has been disclosed to stakeholders and been made publicly available prior to practical completion (see M3).	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the ishould not be sought. — 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as this is not considered appropriate for a project of the type and scope. — Time Critical Action - RIBA Stage 6 - The Contractor should disclose the in-use energy performance target to stakeholders and make it publicly available before practical completion —		
Exe Ene 02	Prediction of Operational Energy and Carbon > 2. Third-Party Validation of Predictive Energy Modelli	1	0	0		One Exemplary Credit – Third-Party Validation of Predictive Energy Modelling 10. The predicted energy consumption modelling results have undergone third-party validation (see M4).	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. — 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as this is not considered addressable for a project of the type and scope. —		
Exe Ene 02	Prediction of Operational Energy and Carbon > 3. Preparing for In-Use Measurement of Energy Consumpt	1	0	0		One Exemplary Credit – Preparing for In-Use Measurement of Energy Consumption 11. Achieve maximum available credits in Ene 03 Energy monitoring. 12. The energy modelling outputs include a breakdown of the energy use by sub-meter that aligns with the energy monitoring strategy for the building.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. — 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as this is not considered addressable for a project of the type and scope. —		
Exe Ene 02	Prediction of Operational Energy and Carbon > 4. Commitment to Measure Energy Consumption In-Use	1	0	0		One Exemplary Credit – Commitment to Measure Energy Consumption In-Use 13. The client or building occupier commits funds to pay for the in-use energy consumption to be measured by a suitably qualified energy assessor once the building reaches the occupancy threshold (see M5).	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. — 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as this is not considered addressable for a project of the type and scope. —		
Exe Wat 01	Water Consumption	1	0	0		Up to Five Credits (plus One Exemplary Credit) - Water Consumption 1. Determine the water efficiency of all in-scope water consuming components. 2. Determine the amount of recycled water expected from approved blackwater, greywater, and rainwater systems. 3. The number of Credits awarded is determined by the percentage improvement in potable water use in litres per person per day for the actual building compared to that of a baseline building are shown in Table 8.1 below.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. — 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as this is not considered addressable for a project of the type and scope. —		

BREEAM NC V7 - Credit Tracker

Project:	Bryn Lane, Wrexham	**Job Number:**	2119
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Checked:	Alexandra Ball		

DESIGN STAGE - SUMMARY AND MAIN TABLE

NC V7 SC | DESIGN STAGE

Req. %: >55% | Req. Rating: Very Good | Sought %: 60.85% | Sought Rating: Very Good | Complete %: 0.00% | Complete Rating: Fail | Risk %: 0.00% | REVIEW

Sought Margin %: 5.85% | Complete Margin %: 15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Exe Wat 05	Disclosing an In-Use Water Performance Target and Commitment to Measure Water Consumption In-Use	**1**	**0**	**0**		One Exemplary Credit – Disclosing an In-Use Water Performance Target and Commitment to Measure Water Consumption In-Use 2. Achieve the credit for predicting operational water consumption. 3. Achieve maximum available credits in Wat 02 Water monitoring. 4. An in-use water performance target has been disclosed to stakeholders and been made publicly available prior to practical completion. 5. The client or building occupier commits funds to pay for in-use water consumption measurement and reporting once the building is occupied. This requires a suitably qualified individual or organisation to be appointed and to measure and report on the actual in-use operational consumption.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as this is not considered addressable for a project of this type and scope. ___ Time Critical Action - RIBA Stage 6 - The Contractor should disclose the in-use water performance target to stakeholders and make it publicly available before practical completion ___		
Exe Mat 01.1	Building Life Cycle Assessment > 1. Embodied Carbon Benchmark Comparison	**1**	**0**	**0**		Up to Two Credits (plus One Exemplary Credit) - Embodied Carbon Benchmark Comparison 7. For relevant assessment and building types, compare the calculated embodied carbon emissions (modules A1-A5, B1-B5, C1-C4) against the benchmark (see Table 9.1). The comparison against the benchmark must use the latest embodied carbon calculation available: a. For interim design stage assessment: i. Technical design LCA b. For final post-construction stage assessment: i. Post-construction LCA	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as this is not considered addressable for a project of this type and scope. ___		
Exe Mat 01.2	Building Life Cycle Assessment > 2. Third Party Verification	**1**	**0**	**0**		One Exemplary Credit – Third Party Verification 8. A suitably qualified third party verifies the building LCA work. The suitably qualified third party must: a: Produce a report describing how they have checked that the building LCA work accurately represents the designs under consideration during the: i Early design phase, and ii Technical design phase, and iii Post-construction phase (only relevant if criteria 5 to 6 have been targeted) b: Itemise in the report the checks made for each LCA option. As a minimum, this must include the quality requirements shown in Table 9.2 in M3. c: Include in the report details of their relevant skills and experience and a declaration of their third-party independence from the project client and design team. 9. Any recommendations in the third-party verification report must be resolved and evidenced.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the full score in the main Credit is not sought. ___ Time Critical Action - RIBA Stage 2, 4 - The Project Team should arrange third-party verification of early design and technical design LCA outputs at the corresponding project stages ___		
Exe Mat 01.3	Building Life Cycle Assessment > 3. Embodied Carbon Public Data Disclosure	**1**	**0**	**0**		One Exemplary Credit – Embodied Carbon Public Data Disclosure 10. For each project phase where an LCA has been conducted, submit the LCA or carbon results and data to a relevant publicly available LCA or carbon database. If suitable local or national options are not available, submit to the Built Environment Carbon Database (BECD).	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the full score in the main Credit is not sought. ___		
Exe Mat 03	Measuring Responsible Sourcing	**1**	**0**	**0**		Up to Three Credits (plus One Exemplary Credit) - Measuring Responsible Sourcing 3. In the BREEAM Platform, use the Mat 03 calculator and follow M1 to determine the number of Credits achieved for the construction products. Credits are awarded in proportion to the scope of the assessment - see M2 - and the number of points achieved, as set out in Table 9.5.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as this is not considered addressable for a project of this type and scope. ___		

BREEAM NC V7 - Credit Tracker

Project:	Bryn Lane, Wrexham	**Job Number:**	2119
Subject:	BREEAM NC V7 - PreAssessment	**Date:**	20th May 2026
Assessor:	Martin Lawless	**Issue:**	02
Checked:	Alexandra Ball		

DESIGN STAGE - SUMMARY AND MAIN TABLE

NC V7 SC	DESIGN STAGE
	REVIEW

Req. %:	Req. Rating:	Sought %:	Sought Rating:	Complete %:	Complete Rating:	Risk %:
>55%	Very Good	60.85%	Very Good	0.00%	Fail	0.00%

Sought Margin %:	Complete Margin %:
5.85%	15.85%

Credit ID	Credit Name	Maximum Credits	Sought Credits	Complete Credits	Credit Status	Credit Criteria	Evidence Requirements	MTTS Commentary	Resp. Party	Risk
Exe Wst 01	Diversion From Landfill	1	0	0		One Exemplary Credit – Embodied Carbon Public Data Disclosure 10. For each project phase where an LCA has been conducted, submit the LCA or carbon results and data to a relevant publicly available LCA or carbon database. If suitable local or national options are not available, submit to the Built Environment Carbon Database (BECD).	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the main Credit is not sought. ___		
Exe Wst 02	Use of Recycled and Sustainably Sourced Aggregates	1	0	0		One Exemplary Credit - Project Sustainable Aggregate Points 7. The Project Sustainable Aggregate Points score meets or exceeds the exemplary level performance benchmark in Table 10.4.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the full score in the main Credit is not sought. ___		
Exe Wst 05	Responding to Climate Change	1	0	0		One Exemplary Credit - Responding to Climate Change 4. Achieve Wst 05 criteria 1 to 3. 5. Achieve the criteria or Credits given in Table 10.11.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the full score in the main Credit is not sought. ___		
Exe LUE 02	Wider Site Sustainability	1	0	0		One Exemplary Credit – Wider Site Sustainability 10. Achieve criteria 4 to 5 (foundation route) or 6 to 9 (comprehensive route). 11. When determining the optimal ecological outcome for the site consider the wider site sustainability-related activities and the potential for ecosystem service-related benefits. For a list of the minimum areas for consideration, see M4. 12. Incorporate at least one measure into the design that would demonstrate an ecosystem service related benefit. Methodology	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the full score in the main Credit is not sought. ___		
Exe LUE 04	Quantifying Change In Ecological Value	1	0	0		Up to Three Credits (Plus one Exemplary Credit) - Quantifying Change in Ecological Value (Comprehensive Route) Site baseline > 0.1 BU 5. Up to three Credits are available based on the scale in Table 11.4 below. The enhancement measures that contribute to the score for biodiversity net gain should be implemented in the following order: a. On-site within the boundary, and where this is not feasible, b. Enhancements within the zone of influence/wider development area, and where this is not feasible, c. Off-site units following the rules of the Statutory Biodiversity Metric, subject to the following: i. The SQE confirms that better outcomes for nature can be achieved off-site and/or off-site enhancement would be more be effective than what can be done solely in the development boundary/zone of influence. ii. There has been no net loss of biodiversity on-site. iii. There are arrangements in place for the on-going maintenance of the enhanced land to ensure the habitat is safeguarded over a 30-year period. Site baseline ≤ 0.1 BU 6. Up to three Credits are available based on biodiversity units (BUs) per site area (ha) or per 10 m of hedgerow post development as shown in Table 11.5 below. This is only based on the hedgerow-based metric and area-based metric. For more information, see M3.4.	Please refer to the BREEAM NC V7 Technical Manual.	140526 PA Workshop - The Exemplary Credit was discussed and it was agreed the it should not be sought. ___ 290426 Initial SC Review - MTTS do not recommend that the Exemplary Credit is sought as part of either the 'Baseline' or 'Enhanced' score, as the full score in the main Credit is not sought. ___		