



Client: Advanced Research Clusters

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Plot 4200, Nash Court, ARC Oxford (shell  
& core)

## BREEAM V6 New Construction Pre-assessment Report



Date: 2<sup>nd</sup> February 2024

Report Status: Rev 1.2 – For Issue

SBL Project No: SBL530

BREEAM Assessor: Phil Garlick





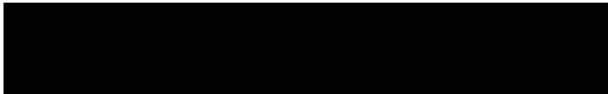
## Quality Assurance

This report has been checked in accordance with SBL's internal Quality Assurance procedures.

Issue	Rev	Prepared & checked by	Description	Issued
1	0	Phil Garlick	For Issue	17.09.23
1	1	Phil Garlick	For Issue	13.12.23
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## 1.0 EXECUTIVE SUMMARY

SBL were commissioned by Tim Gardner of Advanced Research Clusters (ARC) as client and developer to provide BREEAM assessment services for the redevelopment of Plot 4200 at ARC Oxford to provide 85,000 sq ft of new lab enabled Cat A office space. The assessment covers the developer's base-build and is being carried out using the BREEAM V6 New Construction method assuming a 'shell & core' level of fit-out for BREEAM purposes. A BREEAM rating of Excellent is required by ARC.

Fig 1 overleaf shows the current predicted BREEAM score and rating. This shows that 7.5% is achieved and signed off at design stage and a further 72.2% is achieved subject to the submission of suitable evidence. This totals 79.7% and achieves the required Excellent rating (minimum 70% required) with a substantial margin of comfort. All mandatory credits and criterion for an Excellent rating will be achieved. Further to this, there are:

- 2.9% of cost options available. The actions required to achieve these credits are set out in Table 2 in Section 7.0 of this report.

- 19.3% of credits which are uncertain at this stage. Of these, 16.8% may realistically be achievable, possibly at little or no cost to the project. The actions required to achieve these credits are set out in Table 3 in Section 7.0 of this report.

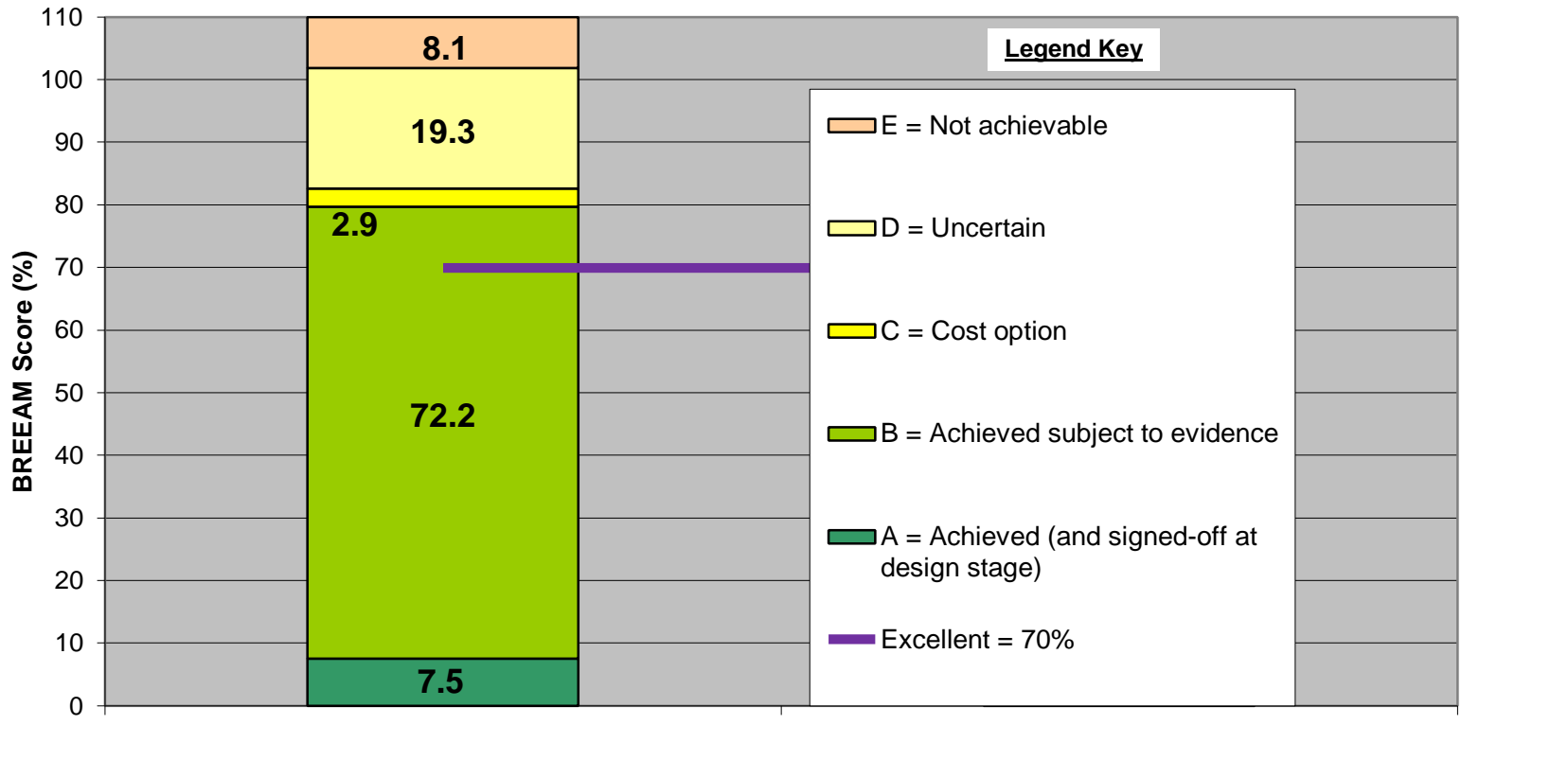
A BREEAM rating of Excellent is achievable on this project. The following are recommended at this stage:

- The cost options and uncertain credits in Tables 2 & 3 should be reviewed to confirm whether the margin of comfort in achieving Excellent can be increased without incurring significant cost.

- In order to comfortably achieve a BREEAM Excellent rating, a score of comfort of 75% should be considered as the target minimum at this early stage in the development of the scheme. This is as a contingency to allow for unforeseen issues arising between now and the end of construction and also to allow for BRE's QA check of the final BREEAM report.



**Figure 1 - BREEAM V6 NC Scoring Prediction**



**Predicted score = 79.7 %**

**Predicted margin of comfort = 9.7 %**



## **2.0 DISCLAIMER**

This report has been prepared by Sustainably Built Ltd. (SBL) using all reasonable skill, care and diligence on behalf of the consultant. The study to which this report relates has been carried out in accordance with the strict quality requirements prescribed by the Building Research Establishment (BRE).

In order to prepare this report, SBL has made use of evidence supplied by the design team. This has been both physical, e.g. documentation such as reports, drawings, plans, correspondence, etc., and anecdotal, i.e. verbally reported information from meetings, telephone calls, etc. SBL's professional liability is strictly limited to the provision of assessment services against criteria set out by the Building Research Establishment (BRE). The consultant accepts no responsibility for misinformation or inaccurate information supplied by any third party as part of this assessment.

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If the reader disagrees with any statement, or finds any information contained within this report to be inaccurate, SBL request that the writer is informed immediately.

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#### 4.0 INTRODUCTION

SBL were commissioned by Tim Gardner of Advanced Research Clusters (ARC) as client and developer to provide BREEAM assessment services for the redevelopment of Plot 4200 at ARC Oxford to provide 85,000 sq ft of new lab enabled Cat A office space. The assessment covers the developer's base-build and is being carried out using the BREEAM V6 New Construction method assuming a 'shell & core' level of fit-out for BREEAM purposes. A BREEAM rating of Excellent is required by ARC.

#### 5.0 PROJECT DESCRIPTION

Plot 4200 lies within the southern part of ARC Oxford to the west of John Smith Drive. The plot is currently 'Nash Court' which comprises of seven individual two-storey office buildings organised around areas of car parking and intermittent tree planting. Residential development lies to the west and an existing private footpath runs alongside the southern side of the site.

The proposals involve the demolition of all existing buildings on the site, making way for the redevelopment of a single building with 8714 m<sup>2</sup> NIA of Cat A laboratory-enabled speculative office space over four storeys (including 3rd floor plant room and roof terrace). The building will contain internal ancillary amenity in the form of a café and gym on upper floors. Some ancillary servicing infrastructure will be provided in the landscape. The proposals will also deliver enhancements to the existing private footpath leading into the ARC Oxford site from Boswell Road, alongside car and cycle parking.

The building will have an insitu RC frame with flat slab upper floors and roof structure. External walls will comprise a mixture of MF/SFS lightweight construction with GRC panels and curtain walling. The roof will be single/ply membrane and green roof with an extensive PV installation. The M&E services in the base-build will comprise the following:

- Space heating and cooling from air source heat pumps with delivery via 4-pipe fan coil units.

- DHW from a centralised system from air source heat pumps.



Full supply & extract mechanical ventilation.  
 Full BMS.  
 LZC from the air-source heat pumps and PV array to the roof.

## 6.0 BREEAM ASSESSMENT METHODOLOGY

Appendix 1 to this report provides a brief summary of the BREEAM methodology.

A BREEAM Workshop was held on-line on the 5<sup>th</sup> September 2023. The following members of the team were present:

Table 1 – BREEAM Workshop Attendees

	Initials
Phil Garlick, SBL - BREEAM assessor	PG
Tim Gardner, ARC, PM for Client & Developer	TG
Glenn Turner, Spratley & Partners, Architect	GT
Gavin Lord, BMP, Civil Engineer	GL
Lizzie Palmer, Macgregor Smith, Landscape Architect	LP
Malcolm Pain, BMP, Structural Engineer	MP
Sam George, Spratley & Partners, Architect	SG
Jonathan Bell, Dalkia, MEP Engineer	JB
Simon Bloomfield, Dalkia, MEP Engineer	SB
Robin Moxon, ARC, Planner for Client & Developer	RM
Michael Constantinides, Spratley & Partners, Architect	MC

In this assessment, all credits are classified using a simple A, B, C, D and E whereby credits are assessed in terms of the relative ease with which they could be achieved by the developments and are categorised as follows:

- A. Credits that are achieved (and signed off at design stage);
- B. Credits that are achieved subject to provision of suitable evidence;
- C. Credits that could be achieved with additional cost;
- D. Credits that are uncertain at this stage; and
- E. Credits that are not achieved.

The above system provides a simple method for project teams to assess the most cost-effective options for achieving the required BREEAM rating. The BREEAM thresholds given ratings are shown below.

- Pass = 30%
- Good = 45%
- Very Good = 55%
- Excellent = 70%
- Outstanding = 85%

All BREEAM ratings contain mandatory credits which must be achieved for a particular rating band.

Table 4 details the assessment status of the development with details of compliance with BREEAM credit criteria. This BREEAM Report provides a further snapshot of the buildings BREEAM performance under current proposals together with options to improve the BREEAM score.

## 7.0 RESULTS, CONCLUSIONS AND RECOMMENDATIONS

Fig 1 shows the current predicted BREEAM score and rating. This shows that 7.5% is achieved and signed off at design stage and a further 72.2% is achieved subject to the submission of suitable evidence. This totals 79.7% and achieves the required Excellent rating (minimum 70% required) with a substantial margin of comfort. All mandatory credits and criterion for an Excellent rating will be achieved. Further to this, there are:

- 2.9% of cost options available. The actions required to achieve these credits are set out in Table 2 below.

- 19.3% of credits which are uncertain at this stage. Of these, 16.8% may realistically be achievable, possibly at little or no cost to the project. The actions required to achieve these credits are set out in Table 3 below.

A BREEAM rating of Excellent is achievable on this project. The following are recommended at this stage:

The cost options and uncertain credits in Tables 2 & 3 should be reviewed to confirm whether the margin of comfort in achieving Excellent can be increased without incurring significant cost.

In order to comfortably achieve a BREEAM Excellent rating, a score of comfort of 75% should be considered as the target minimum at this early stage in the development of the scheme. This is as a contingency to allow for unforeseen issues arising between now and the end of construction and also to allow for BRE's QA check of the final BREEAM report.

**Table 2 - Actions required to achieve the cost options**

Note: Table 2 only provides 'headline' details of the actions required to achieve the cost options (rated as 'C' in Table 4). Further details of the required actions are given in Table 4.

Credit Ref.	Credit Title	Credit % worth	Actions required (all to meet full BREEAM requirements)
Man02	Component level LCC options appraisal	0.61	Undertake a component level life-cycle costing option appraisal during Technical Design (RIBA Stage 4).
Man04	Testing and inspecting building fabric	0.61	Carry out a thermographic survey at PC and rectify any defects if found.
Tra02	Sustainable transport measures	0.96	Provide a public transport information system in reception or similar 'public' location.
Wst05	Adaptation to climate change	0.70	Undertake adaptation to climate change study and implement the recommendations.
	Total %	2.9	

**Table 3 - Actions required to resolve uncertain credits**

Note: Table 3 only provides 'headline' details of the actions required to resolve the uncertain credits (rated as 'D' in Table 4). Further details of the required actions are given in Table 4.

Credit Ref.	Credit Title	Credit % worth	Actions required (all to meet full BREEAM requirements)
Hea01	Daylighting	0.80	Undertake daylight modelling to confirm whether BREEAM criteria is met.
Hea01	View out	0.80	Confirm whether at least 95% of the floor area in at least 95% of spaces for each relevant building area provides an adequate view out.
Hea02	Indoor air quality - Ventilation	0.80	Provide fresh air into the building in accordance with BS ISO 17772-1:2017 or CIBSE AM13.
Hea06	Safe access	0.80	Confirm whether site layout allows safe pedestrian and cyclist access in accordance with BREEAM criteria.
Ene01	Reduction of energy use and carbon emissions	Up to 3.33	Confirm whether an $EPR_{NC}$ of up to 0.90 is achieved.
Ene04	Passive design analysis	0.67	Confirm whether, through design development, passive design measures reduce the total heating, cooling, mechanical ventilation, lighting loads over the 'standard' building.
Tra02	Sustainable transport measures	0.96	Confirm whether either of the following are achieved: Local public transport Accessibility Index of at least 8. Provide a gym or similar in the new building.
Wat01	Water consumption	0.78	Confirm whether the sanitary spec achieves a 55% improvement on the BREEAM Wat01 notional baseline.
Mat02	Specification of products with a recognised EPDs.	1.25	Confirm whether sufficient construction products have compliant EPDs to meet BREEAM threshold score.

Credit Ref.	Credit Title	Credit % worth	Actions required (all to meet full BREEAM requirements)
Mat03	Measuring responsible sourcing	1.25	Confirm whether a Mat03 Calculator score of at least 30% can be achieved.
Wst01	Construction waste management – Resource efficiency	0.70	Confirm whether non-hazardous construction waste generated during the construction phase can be limited to no more than 3.4m <sup>3</sup> or 3.2 tonnes per 100m <sup>2</sup> GIFA.
	Diversion of resources from landfill	0.70	Confirm whether at least 90% of demolition waste (by weight) will be diverted from landfill.
Pol01	Impact of refrigerants	0.75	Confirm whether mechanical cooling (and catering refrigeration if applicable) systems achieve a DELC of ≤1000 CO <sub>2</sub> -eq/kW.
Pol03	Surface water drainage	Up to 1.50	Surface water drainage system meets BREEAM criteria for volume discharge and minimising watercourse pollution.
Pol05	Reduction of noise pollution	0.75	Confirm whether night-time noise levels are at least 5dB below background at all nearest noise-sensitive receptors.
Wst02 Exemplary	Use of recycled and sustainably sourced aggregates (inc. Exemplary)	1.00	Aggregate sourcing to achieve a Wst02 Calculator score of at least 6 points.
	Total %	Up to 16.8	

## 8.0 REFERENCES

The references used in this assessment are listed in a separate document.



Table 4 - BREEAM Credit Assessment

Outline Credit Criteria				Assessment Commentary		
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT						
<b>Management</b>						
	<p>1. Prior to completion of the Concept Design, the project delivery stakeholders (see Definitions on page 37) meet to identify and define for each key phase of project delivery:</p> <p>a. Roles b. Responsibilities c. Contributions.</p> <p>2. Consider each one of the following items when defining roles, responsibilities and contributions for each key phase of the project:</p> <p>a. End user requirements b. Aims of the design and design strategy c. Particular installation and construction requirements or limitations d. Occupiers' budget and technical expertise in maintaining any proposed systems e. Maintainability and adaptability of the proposals f. Operational energy (see Assessment scope on page 121) g. Requirements for the production of project and end user documentation h. Requirements for commissioning, training and aftercare support. Where the building occupants are not known, the list of considerations above still applies. The appropriate project delivery stakeholder considers each item, based on likely scenarios of building occupancy.</p> <p>3. The project team demonstrates how the project delivery stakeholders' contributions and the consultation process outcomes influence the following:</p> <p>a. Initial Project Brief b. Project Execution Plan (see Definitions on page 37) c. Communication Strategy (see Definitions on page 37) d. Concept Design.</p>	1	0.61	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 3 provides BREEAM AP reports and associated meeting (DTM) minutes and email correspondence.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 22 provides the following from the client &amp; developer: - Main design team appointments (architect, civil &amp; structural engineer, MEP engineer and landscape architect), which confirms scope of services in Appendix 1.</p> <p><b>This credit is achieved subject to further evidence.</b></p> <p><b>Outstanding pre-planning evidence:</b> - S&amp;P to provide DAS detailing design evolution.</p>	
	<p>4. Prior to completion of the Concept Design, the design team consult with all interested parties (see Definitions) on matters that cover the minimum consultation content (see Methodology).</p> <p>5. Demonstrate how the stakeholder contributions and consultation exercise outcomes influence the Initial Project Brief and Concept Design.</p> <p>6. Prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), all interested parties (see Definitions) give and receive consultation feedback.</p> <p>7. Not applicable to commercial buildings.</p>	1	0.61	B	<p>REF 1 provides a planning documents matrix. This confirms the following: - A 'Statement of Community Involvement' is not included in the planning documentation. - A 'Heritage Impact Assessment' will be included in the planning documentation.</p> <p>BREEAM Workshop 05.09.23 - This credit will be pursued. A Statement of Community Involvement will be provided.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 25 provides a Statement of Community Involvement from the planning consultant.</p> <p><b>This credit is achieved subject to further evidence.</b></p>	

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p><b>8. The project team, including the client, formally agree strategic performance targets (see Definitions) early in the design process (see Definitions), (with the support of the BREEAM AP where appointed).</b></p>	0	0.00	N/A	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 5 provides a development programme (with updates).</p> <p>DTM 10.10.23 - ARC confirmed that Planet Mark are not BREEAM AP's and therefore their scope of services for 'Sustainability Champion' will not meet BREEAM criteria for these two credits. Phil Garlick, SBL to remain as BREEAM AP.</p> <p>REF 22 provides the following from the client &amp; developer: - Outline specification for Plot 4200. Para 1.4 confirms BREEAM target of Excellent and Energy Performance Certification of A.</p> <p><b>The prerequisite criteria are achieved and signed off at design stage.</b></p>
	<p><b>9. Involve a BREEAM AP in the project at an appropriate time and level to:</b></p> <p><b>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></p> <p><b>b. Monitor progress against the performance targets (see Definitions) agreed under criterion 8 above throughout all stages after their appointment where decisions critically impact BREEAM performance.</b></p> <p><b>c. Proactively identify risks and opportunities related to the achievement of the targets agreed under criterion 8 on the previous page.</b></p> <p><b>d. Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets.</b></p> <p><b>e. Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team.</b></p>	1	0.61	B	<p>BREEAM Workshop 05.09.23 - Phil Garlick, SBL will be employed as BREEAM AP at Concept Design stage.</p> <p>REF 3 provides BREEAM AP reports and associated meeting (DTM) minutes and email correspondence.</p> <p>REF 4 provides an appointment letter for Phil Garlick, SBL as BREEAM AP for the Concept &amp; Developed Design stages.</p> <p>REF 5 provides a development programme (with updates).</p> <p>DTM 10.10.23 - ARC confirmed that Planet Mark are not BREEAM AP's and therefore their scope of services for 'Sustainability Champion' will not meet BREEAM criteria for these two credits. Phil Garlick, SBL to remain as BREEAM AP.</p> <p><b>This credit is achieved subject to further evidence.</b></p>

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p><b>10. Criteria 8 and 9 are achieved.</b></p> <p>11. Involve the BREEAM AP in the project at an appropriate time and level to:</p> <ul style="list-style-type: none"> <li>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.</li> <li>b. Monitor progress against the performance targets agreed under criterion 8 on the previous page throughout all stages where decisions critically impact the specification and tendering process and the BREEAM performance.</li> <li>c. Proactively identify risks and opportunities related to the achievement of the targets agreed under criterion 8 on the previous page.</li> <li>d. Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets.</li> <li>e. Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team.</li> </ul>	1	0.61	B	<p>BREEAM Workshop 05.09.23 - Phil Garlick, SBL will be employed as BREEAM AP at Developed Design stage and also to attend DTMs at Stage 4.</p> <p>REF 3 provides BREEAM AP reports and associated meeting (DTM) minutes and email correspondence.</p> <p>REF 4 provides an appointment letter for Phil Garlick, SBL as BREEAM AP for the Concept &amp; Developed Design stages.</p> <p>REF 5 provides a development programme (with updates).</p> <p>DTM 10.10.23 - ARC confirmed that Planet Mark are not BREEAM AP's and therefore their scope of services for 'Sustainability Champion' will not meet BREEAM criteria for these two credits. Phil Garlick, SBL to remain as BREEAM AP.</p> <p><b>This credit is achieved subject to further evidence.</b></p>
	<p><b>1. A competent person (see Definitions on the facing page) carries out an outline, entire asset LCC plan at Process Stage 2 (equivalent to Concept Design - RIBA Stage 2) together with any design options appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865: 2008.</b></p> <p><b>2. The elemental LCC plan:</b></p> <ul style="list-style-type: none"> <li>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);</li> <li>b. Includes service life, maintenance and operation cost estimates. The study period should ideally be agreed by the client, in line with the design life expectancy of the building. However, where the life expectancy of the building is not yet formally agreed (due to being at very early design stages), the default design life of 60 years should be used for modelling purposes (in line with the UK default).</li> </ul> <p><b>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.</b></p>	1	0.61	E	<p>BREEAM Workshop 05.09.23 - An elemental LCC plan could be developed pre-planning as a cost option.</p> <p>02.02.24 - Elemental LCC not provided at planning stage.</p> <p><b>Two credits are not achieved.</b></p>
		1	0.61	E	

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable





**Table 4 - BREEAM Credit Assessment**

		Outline Credit Criteria				Assessment Commentary
		<b>RIBA STAGE 1 &amp; 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT</b>				
		<p>4. A competent person develops a component level LCC options appraisal by the end of Process Stage 4 (equivalent to Technical Design – RIBA Stage 4) in line with PD 156865: 2008. The component level LCC includes (where present):</p> <p>a. Envelope, e.g. cladding, windows, or roofing            b. Services, e.g. heat source, cooling source, or controls            c. Finishes, e.g. walls, floors or ceilings            d. External spaces, e.g. alternative hard landscaping, boundary protection.</p> <p>The Component level LCC option appraisal should review all of the above component types (where present). However, you do not need to consider every single example cited under each component; only a selection of those most likely to draw valued comparisons. This is to ensure that a wide range of options are considered and help focus the analysis on components which would benefit the most from appraisal.</p> <p>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.</p> <p><b>Shell &amp; Core Notes</b> - Component level LCC plan must include all component types installed by the developer.</p>	1	0.61	C	<p>BREEAM Workshop 05.09.23 - A component LCC could be undertaken at RIBA Stage 4 as a cost option.</p> <p><b>This credit is a cost option at this stage.</b></p>
		<p>6. Report the capital cost for the building in pounds per square metre of gross internal floor area (£k/ m<sup>2</sup>) as part of the submission to BRE. See also Methodology below and Additional information on page 44.</p>	1	0.61	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>This credit is achieved subject to evidence.</b></p>
		<p>1. All timber and timber-based products used during the construction process of the project are legal and sustainable timber (see Definitions).            For other materials there are no prerequisite requirements at this stage.</p>	0	0.00	N/A	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Construction Management Plan' will be included in the planning documentation.</p> <p><b>The prerequisite criteria are achieved subject to further evidence.</b></p>

A = Achieved  
 B = Achieved subject to evidence  
 C = Cost option  
 D = Uncertain  
 E = Not achievable



**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p>3. All parties who at any stage manage the construction site (e.g. the principal contractor, the demolition contractor) operate an EMS covering their main operations. The EMS must:</p> <p>a. Be third party certified, to ISO 14001: 2015, EMAS (EU Eco-Management and Audit Scheme) or equivalent standard; OR</p> <p>b. In compliance with BS 8555: 2016 have:</p> <p>i. Appropriate structure</p> <p>ii. Reached implementation stage phase four 'implementation and operation of the environmental management system'</p> <p>iii. Completed defined phase audits one to four.</p> <p>4. All parties who at any point manage the construction site (e.g. the principal contractor, the demolition contractor) implement best practice pollution prevention policies and procedures on site in accordance with Working at construction and demolition sites: PPG6, Pollution Prevention Guidelines.</p>	1	0.61	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued. Demolition will be undertaken as part of the principal contractor's scope of works.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Construction Management Plan' will be included in the planning documentation.</p> <p><b>This credit is achieved subject to further evidence.</b></p>
	<p>5. The client and the contractor formally agree performance targets.</p>	0	0.00	N/A	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>The prerequisite criteria are achieved subject to evidence.</b></p>
	<p>6. Involve a BREEAM AP in the project at an appropriate time and level to:</p> <p>a. Work with the project team, including the client, to consider the links between BREEAM issues and assist them in achieving and if possible going beyond the design intent, to maximise the project's performance against the agreed performance targets throughout the Construction, Handover and Close Out stages.</p> <p>b. Monitor construction progress against the performance targets agreed under criterion 5 above throughout all stages where decisions critically impact BREEAM performance.</p> <p>c. Proactively identify risks and opportunities related to the procurement and construction process and the achievement of the targets agreed under criterion 5 above.</p> <p>d. Provide feedback to the constructors and the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets.</p> <p>e. Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team and the provision to the assessor.</p>	1	0.61	B	<p>BREEAM Workshop 05.09.23 - A BREEAM AP (site) will be employed by the principal contractor at construction stage.</p> <p>REF 3 provides BREEAM AP reports and associated email correspondence.</p> <p><b>This credit is achieved subject to further evidence.</b></p>

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria						Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT						
	<p><b>ONE CREDIT MANDATORY FOR EXCELLENT</b></p> <p><b>One credit</b> 7. Achieve items listed as required for one credit in Table 4.1.</p> <p><b>Two credits</b> 8. Achieve criterion 7 above. 9. Achieve six additional items in Table 4.1.</p> <p><b>Alternative CCS route to compliance</b> In response to the 2022 changes to the structure and scoring in the CCS, the adjusted points for credits are as follows for each of the three new sections; Community, Environment and Workforce:  One credit requires a minimum of 13 points per section and 39 overall plus demonstrating ... "clear and safe access in and around the buildings at the point of handover".</p>		1	0.61	B	<p>BREEAM Workshop 05.09.23 - These credits will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Construction Management Plan' will be included in the planning documentation.</p> <p><b>Two credits are achieved subject to further evidence.</b></p>
			1	0.61	B	
	<p>10. Assign responsibility to an individual for monitoring, recording and reporting energy use, water consumption and transportation data (where measured) resulting from all on-site construction processes (and dedicated off-site manufacturing) throughout the build programme. To ensure the robust collection of information, this individual must have the appropriate authority and responsibility to request and access the data required. Where appointed, the BREEAM AP could perform this role.</p>		0	0.00	N/A	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Construction Management Plan' will be included in the planning documentation.</p> <p><b>The prerequisite criteria are achieved subject to further evidence.</b></p>
	<p><b>Energy consumption</b> 11. Achieve criterion 10. 12. Set targets for the site energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation. 13. Monitor and record data for the energy consumption described in criterion 12. 14. Report the total carbon dioxide emissions (total kgCO<sub>2</sub>/project value) from the construction process via BREEAM Projects (for the purposes of potential future BREEAM performance benchmarking).</p> <p><b>Water consumption</b> 15. Achieve criterion 10. 16. Set targets for the potable water consumption ( m<sup>3</sup>) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation. 17. Monitor and record data for the potable water consumption described in criterion 16. 18. Use the collated data to report the total net water consumption ( m<sup>3</sup>), i.e. consumption minus any recycled water use from the construction process via BREEAM Projects (for the purposes of potential future BREEAM performance benchmarking).</p>		1	0.61	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Construction Management Plan' will be included in the planning documentation.</p> <p><b>This credit is achieved subject to further evidence.</b></p>

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

		Outline Credit Criteria				Assessment Commentary
		<b>RIBA STAGE 1 &amp; 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT</b>				
		<p><b>Transportation of construction materials and waste</b></p> <p>19. Achieve criterion 10.</p> <p>20. Set targets for transportation movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum cover:</p> <p>a. transportation of materials from the point of supply to the building site, including any transport, intermediate storage and point of supply (see Definitions). Monitor as a minimum:</p> <p>i. Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01 Environmental impacts from construction products - Building life cycle assessment (LCA)).</p> <p>ii. Ground works and landscaping materials.</p> <p>b. Transportation of construction waste from the construction gate to waste disposal processing or recovery centre gate. This monitoring must cover the construction waste groups outlined in the project's resource management plan.</p> <p>21. Monitor and record data for the transportation movements as described in criterion 20.</p> <p>22. Using the collated data, report separately for materials and waste, the total transport-related carbon dioxide emissions (kgCO<sub>2</sub>-eq), plus total distance travelled (km) via BREEAM Projects (for the purposes of potential future BREEAM performance benchmarking).</p>	1	0.61	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Construction Management Plan' will be included in the planning documentation.</p> <p><b>This credit is achieved subject to further evidence.</b></p>
		<p><b>CREDIT MANDATORY FOR EXCELLENT</b></p> <p>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.</p> <p>2. The schedule identifies the appropriate standards for all commissioning activities to be conducted, where applicable, in accordance with:</p> <p>a. Current Building Regulations.</p> <p>b. BSRIA guidelines.</p> <p>c. CIBSE guidelines.</p> <p>d. Other appropriate standards (see Methodology).</p> <p>Exclude from the assessment any process or manufacture-related equipment specified as part of the project. However, include such equipment in cases where they form an integral part of the building HVAC services, such as some heat recovery systems.</p> <p>3. Where a building management system (BMS) is specified:</p> <p>a. Carry out commissioning of air and water systems when all control devices are installed, wired and functional.</p> <p>b. Include physical measurements of room temperatures, off-coil temperatures and other key parameters, as appropriate, in commissioning results.</p> <p>c. The BMS or controls installation should be running in auto with satisfactory internal conditions prior to handover.</p> <p>d. All BMS schematics and graphics (if BMS is present) are fully installed and functional to user interface prior to handover.</p> <p>e. Fully train the occupier or facilities team in the operation of the system.</p> <p>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.</p> <p>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.</p> <p><b>Shell &amp; Core Notes</b> - Applicable according to the scope of services being specified or installed.</p>	1	0.61	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>This credit is achieved subject to evidence.</b></p>

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**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p>6. Achieve criteria 1 to 5.</p> <p>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:</p> <ul style="list-style-type: none"> <li>a. Undertaking design reviews and giving advice on suitability for ease of commissioning.</li> <li>b. Providing commissioning management input to construction programming and during installation stages.</li> <li>c. Management of commissioning, performance testing and handover or post-handover stages.</li> </ul> <p>For buildings with complex building services and systems, this role needs to be carried out by a specialist commissioning manager (see Definitions on page 58).</p> <p><b>Shell &amp; Core Notes</b> - Applicable according to the scope of services being specified or installed.</p>	1	0.61	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>This credit is achieved subject to evidence.</b></p>
	<p>8. Achieve criteria 1 to 5.</p> <p>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). A suitably qualified professional (see Definitions) undertakes the survey and testing in accordance with the appropriate standard.</p> <p>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 Methodology).</p>	1	0.61	C	<p>BREEAM Workshop 05.09.23 - A thermographic survey could be carried out as a cost option.</p> <p><b>This credit is a cost option at this stage.</b></p>

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**Table 4 - BREEAM Credit Assessment**

		Outline Credit Criteria				Assessment Commentary
		<b>RIBA STAGE 1 &amp; 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT</b>				
		<p><b>CRITERIA 11 MANDATORY FOR EXCELLENT</b></p> <p>11. Prior to handover, develop two building user guides (see Methodology) 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.</p> <p>12. Prepare two training schedules 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.</p> <p><b>Shell &amp; Core Notes</b> - The guides and training schedules include, as far as possible, all relevant sections regarding the services and fabric installed. On completion of works the building owner, agent or user hands it over to the fit-out contractor, who can then complete the relevant sections based on the fit-out strategy.</p>	1	0.61	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>This credit is achieved subject to evidence.</b></p>
		Subtotals	18	11.0		
<b>Health and Wellbeing</b>						
		<p>4. Daylighting criteria have been met using either of the following options: 4.a. The relevant building areas meet good practice daylight factors and other criteria as outlined in Table 5.1 and Table 5.2 on the next page OR 4.b. The relevant building areas meet good practice average and minimum point daylight illuminance criteria as outlined in Table 5.3 on the next page.</p>	1	0.80	D	<p>BREEAM Workshop 05.09.23 - It is uncertain whether relevant spaces will meet the required daylighting criteria.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Daylight and Sunlight Assessment' will be included in the planning documentation.</p> <p><b>This credit is uncertain at this stage.</b></p>
		<p>5. 95% of the floor area in 95% of spaces for each relevant building area provides an adequate view out.</p> <p>6. In addition, the building type criteria in Table 5.6 are applicable to view out criteria.</p> <p><b>Shell &amp; Core Notes</b> - If it is not possible to confirm which areas of the building will contain workstations, benches or desks, all areas of the building designed for or likely to be occupied by workstations, benches or desks must comply with the relevant criteria.</p>	1	0.80	D	<p>BREEAM Workshop 05.09.23 - It is uncertain whether relevant spaces will meet the required view out criteria.</p> <p><b>This credit is uncertain at this stage.</b></p>

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**Table 4 - BREEAM Credit Assessment**

		Outline Credit Criteria				Assessment Commentary
		<b>RIBA STAGE 1 &amp; 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT</b>				
		<p><b>External lighting</b></p> <p>9. All external lighting located within the construction zone is specified in accordance with BS 5489-1:2013 Code for the practice for the design of road lighting. Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places. External lighting should provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night.</p> <p>10. Where no external light fittings are specified (either separate from or mounted on the external building façade or roof), the criteria relating to external lighting do not apply and the credit can be awarded on the basis of compliance with criteria 8 – 9.c above.</p>	1	0.80	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>This credit is achieved subject to evidence.</b></p>
		<p>1. A site-specific indoor air quality plan has been produced and implemented in accordance with Guidance Note 6 (GN06). The objective of the plan is to facilitate a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during occupation of the building. The indoor air quality plan must consider the following:</p> <p>a. Removal of contaminant sources.</p> <p>b. Dilution and control of contaminant sources, including: i. Air quality requirements of specialist areas such as laboratories, where present.</p> <p>c. Procedures for pre-occupancy flush out and purge ventilation.</p> <p>d. Third party testing and analysis.</p> <p>e. Maintaining good indoor air quality in-use.</p> <p>f. Any relevant local authority plans or policies (for example, Air Quality Management Areas or Local Air Quality Action Plans).</p>	0	0.00	N/A	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Air Quality and Dust Assessment' will be included in the planning documentation.</p> <p>REF 27 provides an Air Quality Impact Assessment report.</p> <p><b>The prerequisite criteria are achieved subject to further evidence.</b></p>

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Table 4 - BREEAM Credit Assessment

		Outline Credit Criteria				Assessment Commentary
		RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT				
		<p>2. The building has been designed to minimise the indoor concentration and recirculation of pollutants in the building as follows:</p> <p>a. Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation.</p> <p><b>Shell &amp; Core Notes</b> - If ventilation systems are not within the remit of the shell and core developer, compliance can be demonstrated through the building servicing strategy where this is predetermined by the built form or core services provision.</p>	1	0.80	D	<p>BREEAM Workshop 05.09.23 - It is uncertain whether BREEAM ventilation criteria will meet BS ISO 17772-1:2017 or CIBSE AM13.</p> <p><b>This credit is uncertain at this stage.</b></p>
		<p>1. Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Performance Modelling.</p> <p>2. The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis. For smaller and more basic building designs with less complex heating or cooling systems, an alternative less complex means of analysis may be appropriate (such methodologies must still be in accordance with CIBSE AM11).</p> <p>3. The modelling demonstrates that:</p> <p>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, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement or level for the building type)</p> <p>b. For naturally ventilated buildings:</p> <p>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)</p> <p>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 or CIBSE TM59: Design methodology for the assessment of overheating risk in homes.</p> <p>4. For air-conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.</p> <p><b>Shell &amp; Core Notes</b> - See refs 1.1 and 1.2.</p>	1	0.80	B	<p>KBCN00035 'Air-conditioned spaces' confirms ... "Air-conditioned spaces are assessed to ensure appropriate thermal comfort levels are achieved. Cooling capacity should be sufficient to comply with the requirements of CIBSE Guide A, however providing sufficient space to install additional capacity to meet the requirements at a later date in line with projected climate change scenarios is also acceptable.</p> <p>In addition, if it can be demonstrated that the air-conditioning system can achieve the thermal comfort criteria in accordance with CIBSE Guide A, Table 1.5, thermal modelling does not need to be carried out. The "time out of range" (TOR) metric should be reported as 0%."</p> <p>BREEAM Workshop 05.09.23 - Thermal comfort modelling would be carried out and thermal comfort standards would be met in line with KBCN00035 above.</p> <p>REF 14 provides the thermal comfort study report which confirms the following:</p> <ul style="list-style-type: none"> <li>- Full dynamic modelling in accordance with CIBSE AM11.</li> <li>- 5.0 - "The thermal modelling demonstrates that the building can achieve the comfort criteria of CIBSE Guide A for current and future weather files." IES 'Apachesim' software used for the modelling.</li> <li>- 4.0 - Current weather file - PMV = -1.6 to +1.2 and PPD = &lt;5% to &gt;45%.</li> </ul> <p><b>This credit is achieved subject to further evidence.</b></p> <p><b>Note:</b> Dalkia to confirm that the results in REF 14 above apply to the final facade design.</p>
		<p>5. Criteria 1 to 4 are achieved.</p> <p>6. The thermal modelling demonstrates that the relevant requirements set out in criterion 3 above are achieved for a projected climate change environment (see Definitions).</p> <p>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 in order to subsequently meet the requirements under criterion 6 above.</p> <p>8. For air-conditioned buildings, the PMV and PPD indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.</p>	1	0.80	B	<p>KBCN00035 'Air-conditioned spaces' confirms ... "Air-conditioned spaces are assessed to ensure appropriate thermal comfort levels are achieved. Cooling capacity should be sufficient to comply with the requirements of CIBSE Guide A, however providing sufficient space to install additional capacity to meet the requirements at a later date in line with projected climate change scenarios is also acceptable.</p> <p>In addition, if it can be demonstrated that the air-conditioning system can achieve the thermal comfort criteria in accordance with CIBSE Guide A, Table 1.5, thermal modelling does not need to be carried out. The "time out of range" (TOR) metric should be reported as 0%."</p> <p>BREEAM Workshop 05.09.23 - Thermal comfort modelling for a future climate scenario would be carried out in line with KBCN00035 above. It is uncertain whether, if required, there is sufficient spare capacity in the cooling plant or space to install additional cooling plant.</p> <p>REF 14 provides the thermal comfort study report which confirms the following:</p> <ul style="list-style-type: none"> <li>- Full dynamic modelling in accordance with CIBSE AM11.</li> <li>- 5.0 - "The thermal modelling demonstrates that the building can achieve the comfort criteria of CIBSE Guide A for current and future weather files." IES 'Apachesim' software used for the modelling.</li> <li>- 4.0 - Future weather file DSY2 - PMV = -1.6 to +1.2 and PPD = &lt;5% to 45%.</li> <li>- 4.0 - Future weather file DSY3 - PMV = -1.6 to +1.2 and PPD = &lt;5% to &gt;45%.</li> </ul> <p><b>This credit is achieved subject to further evidence.</b></p> <p><b>Note:</b> Dalkia to confirm that the results in REF 14 above apply to the final facade design.</p>

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**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria		Score	Weight	Rating	Assessment Commentary
<p><b>RIBA STAGE 1 &amp; 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT</b></p>					
	<p>For all building types, except Residential institutions (short term and long term stay), which have four credits available below.</p> <p>1. The building meets the appropriate acoustic performance standards and testing requirements defined in the relevant table below. These tables define criteria for the acoustic principles of:</p> <p>b. Indoor ambient noise level</p> <p>OR</p> <p>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 Hea 05 Acoustic performance - Criterion 1 above, setting out the performance requirements for each and the testing regime required.</p> <p><b>Shell &amp; Core Notes</b> - When assessing criteria 2 below for a shell and core building, only Indoor ambient noise level below should be assessed. See also Ref 1.0.</p>	0	0.00		<p>BREEAM Workshop 05.09.23 - The scope of the acoustician's appointment would be extended to include indoor ambient noise levels and the required standards for indoor ambient noise levels met.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Noise Impact Assessment' will be included in the planning documentation.</p> <p>REF 27 provides a Noise Impact Assessment report which includes a baseline existing ambient noise survey.</p> <p><b>One credit is achieved subject to further evidence.</b></p>
		1	0.80	B	
		0	0.00		
	<p><b>1. A Suitably Qualified Security Specialist (SQSS) conducts an evidence-based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent). The purpose of the SNA will be to identify attributes of the proposal, site and surroundings which may influence the approach to security for the development .</b></p> <p><b>2. The SQSS develops a set of security controls and recommendations for incorporation into the proposals. Those controls and recommendations shall directly relate to the threats and assets identified in the preceding SNA.</b></p> <p>3. The 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.</p> <p><b>Shell &amp; Core Notes</b> - Speculative project - If the SQSS is unable to make complete recommendations due to the speculative nature of the assessment, then the credit may still be available. The SQSS must confirm that they have addressed all parts of the project where it is feasible to do so, based on the information available to them at the time of assessment. In relation to the influence of the occupiers on security, the SQSS shall clearly document their assumptions in the SNA.</p>	1	0.80	B	<p>BREEAM Workshop 05.09.23 - A Security Needs Assessment would be undertaken and their security recommendations implemented.</p> <p>SBL email feedback 14.08.23.</p> <p>SBL email brief 15.09.23 and contact 22.09.23.</p> <p>REF 5 provides a development programme (with updates).</p> <p>SNA email quotes from SGW 25.10.23 &amp; Dakin 29.11.23.</p> <p><b>This credit is achieved subject to further evidence.</b></p> <p><b>Outstanding pre-planning evidence:</b> - S&amp;P to provide Security Needs Assessment from local Police or security specialist (email brief &amp; request 15.09.23).</p>

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**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p>Where external site areas form part of the assessed development the following apply:</p> <ol style="list-style-type: none"> <li>1. Dedicated and safe cycle paths are provided from the site entrance to any cycle storage, and connect to offsite cycle paths where applicable.</li> <li>2. Dedicated and safe footpaths are provided on and around the site providing suitable links for the following:               <ol style="list-style-type: none"> <li>a. The site entrance to the building entrance,</li> <li>b. Car parks (where present) to the building entrance</li> <li>c. The building to outdoor space</li> <li>d. Connecting to off-site paths where applicable.</li> </ol> </li> <li>3. Pedestrian drop-off areas are designed off, or adjoining to, the access road and should provide direct access to other footpaths.</li> </ol> <p>Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply:</p> <ol style="list-style-type: none"> <li>4. Delivery areas are not accessed through general parking areas and do not cross or share the following:               <ol style="list-style-type: none"> <li>a. pedestrian and cyclist paths</li> <li>b. outside amenity areas accessible to building users and general public.</li> </ol> </li> <li>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.</li> <li>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.</li> </ol>	1	0.80	D	<p>BREEAM Workshop 05.09.23 - It is uncertain whether the development will meet the required safe pedestrian and cyclist access criteria.</p> <p><b>This credit is uncertain at this stage.</b></p>
	<ol style="list-style-type: none"> <li>7. There is an outside space providing building users with an external amenity area.</li> </ol>	1	0.80	B	<p>BREEAM Workshop 05.09.23 - A suitable outdoor amenity space will be provided.</p> <p><b>This credit is achieved subject to evidence.</b></p>
Subtotals		10	8.0		
<b>Energy</b>					
	<p><b>FOUR CREDITS MANDATORY FOR EXCELLENT</b></p> <ol style="list-style-type: none"> <li>1. Calculate an Energy Performance Ratio for New Construction (EPR NC). Compare the EPR NC achieved with the benchmarks in Table 6.1 and award the corresponding number of BREEAM credits.</li> </ol> <p>A description of how the EPR NC is calculated from a building's modelled operational energy performance, primary energy consumption and CO<sub>2</sub> emissions is provided.</p> <p><b>Shell &amp; Core Notes</b> - See ref. 1.1 and 1.2.</p>	1	0.67	B	<p>BREEAM Workshop 05.09.23 - That an EPR of 0.4 will be achieved. Any further improvements uncertain at this stage.</p> <p>REF 14 provides the Building Regulation Part L Report.</p> <p>REF 15 provides the as-designed BRUKL INP file.</p> <p><b>Four credits are achieved subject to further evidence. Five credits are uncertain at this stage.</b></p> <p><b>Outstanding pre-planning evidence:</b></p> <ul style="list-style-type: none"> <li>- In the first instance, BRE to confirm when IES software issues are resolved (email request 10.01.24).</li> <li>- Then, Dalkia to provide revised as-designed BRUKL INP file.</li> </ul>
		1	0.67	B	
		1	0.67	B	
		1	0.67	B	
		1	0.67	D	
		1	0.67	D	
		1	0.67	D	
		1	0.67	D	

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**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p><b>Four credits – Prediction of operational energy consumption</b>  <b>2. Achieve criterion 2 in Ene 04 Low carbon design.</b>            3. Estimate the occupancy, energy use for unregulated energy loads and management practices.            4. Undertake detailed energy modelling to predict the building energy consumption.            5. Undertake sensitivity analysis to determine the factors that can significantly impact building energy consumption.            6. Based on the results of the sensitivity analysis, and in discussion with the project team, the client and the prospective occupier devise scenarios to explore how high impact factors might influence the building energy consumption.            7. Undertake scenario modelling and use these findings to inform improvements to design of the building and to operational, maintenance, and handover strategies.            8. Determine an energy target for the building based on the results of the scenario modelling.            9. At the post-construction stage, the scenario modelling should be repeated to reflect the post construction building specification and, if necessary, adjust the energy target.</p>	1	0.67	B	<p>BREEAM Workshop 05.09.23 - That additional energy modelling during the design and post-construction stage would be undertaken.            REF 5 provides a development programme (with updates).            REF 14 provides the passive design analysis report which confirms the following:            - 3.0 - Full passive design analysis carried out.            - 4.0 - Passive design options considered to reduce energy consumption.            SBL email brief 11.01.24.  <b>Four credits are achieved subject to further evidence.</b></p>
		1	0.67	B	
		1	0.67	B	
		1	0.67	B	
	<p><b>CREDIT MANDATORY FOR EXCELLENT</b>            1. Install energy metering systems so that at least 90% of the estimated annual energy consumption of each fuel is assigned to the end-use categories (see Methodology).            2. Meter the energy consumption in buildings according to the total useful floor area:            a. If the area is greater than 1,000 m<sup>2</sup>, by end-use category with an appropriate energy monitoring and management system.            b. If the area is less than 1,000 m<sup>2</sup>, use either:            i. an energy monitoring and management system or            ii. separate accessible energy sub-meters with pulsed or other open protocol communication outputs, for future connection to an energy monitoring and management system (see Definitions).            3. Building users can identify the energy consuming end uses, for example through labelling or data outputs.</p>	1	0.67	B	<p>BREEAM Workshop 05.09.23 - Energy monitoring by end-use category would be provided and monitoring by area will be provided.            REF 27 provides the following:            - Main HV / LV Schematic drwg.            - Stage 2 MEP Report.  <b>Two credits are achieved subject to further evidence.</b></p>

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 E = Not achievable



**Table 4 - BREEAM Credit Assessment**

		Outline Credit Criteria				Assessment Commentary
		<b>RIBA STAGE 1 &amp; 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT</b>				
		<p>4. Monitor a significant majority of the energy supply with:</p> <p>a. An accessible energy monitoring and management system for:</p> <p>i. tenanted areas or</p> <p>ii. relevant function areas or departments in single occupancy buildings.</p> <p>OR</p> <p>b. Separate accessible energy sub-meters with pulsed or other open protocol communication outputs for future connection to an energy monitoring and management system for:</p> <p>i. tenanted areas or</p> <p>ii. relevant function areas or departments in single occupancy buildings.</p> <p>5. Sub-meter per floor plate in large single occupancy or single-tenancy buildings with one homogeneous function, for example hotel bedrooms, offices.</p> <p><b>Shell &amp; Core Notes</b> - Meters must be installed on the energy supply to each separate tenanted unit or floor plate within the assessed development.</p>	1	0.67	B	
		<p>1. No external lighting (which includes lighting on the building, at entrances and signs).</p> <p>OR</p> <p>2. External light fittings within the construction zone with:</p> <p>a. Average initial luminous efficacy of not less than 70 luminaire lumens per circuit Watt.</p> <p>b. Automatic control to prevent operation during daylight hours</p> <p>c. Presence detection in areas of intermittent pedestrian traffic.</p>	1	0.67	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>This credit is achieved subject to evidence.</b></p>
		<p>1. Achieve the first credit Assessment scope - One credit - Thermal modelling to demonstrate that the building design delivers appropriate thermal comfort levels in occupied spaces.</p> <p><b>2. The project team analyses the proposed building design and development during Concept Design to identify opportunities for the implementation of passive design measures (see Passive design analysis).</b></p> <p>3. Implement passive design measures to reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption in line with the passive design analysis findings.</p> <p>4. Quantify the reduced total energy demand and carbon dioxide (CO<sub>2</sub>) emissions resulting from the passive design measures.</p>	1	0.67	D	<p>BREEAM Workshop 05.09.23 - A passive design analysis will be carried out pre-planning.</p> <p>SBL email brief 15.09.23.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 14 provides the passive design analysis report which confirms the following:</p> <p>- 3.0 - Full passive design analysis carried out.</p> <p>- 4.0 - Passive design options considered to reduce energy consumption.</p> <p>- 4.3 - "The analysis shows that the proposed building has passive design measures applied which saves 1005 kgCO<sub>2</sub> per annum in heating, cooling auxiliary and lighting carbon emissions on the proposed base case. However, the proposed building still generates 721 kgCO<sub>2</sub> more than the standard building and therefore currently does not meet the BREEAM passive design requirements."</p> <p><b>This credit is uncertain at this stage.</b></p>

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Table 4 - BREEAM Credit Assessment

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p><b>5. Achieve the passive design analysis credit.</b></p> <p>6. Include a free cooling analysis (see Free cooling analysis on the facing page) in the passive design analysis carried out under criterion 2.</p> <p>7. Identify opportunities for the implementation of free cooling solutions.</p> <p>8. The building is naturally ventilated or uses any combination of the free cooling strategies listed in Free cooling analysis.</p>	1	0.67	E	<p>BREEAM Workshop 05.09.23 - Conventional mechanical cooling is provided.</p> <p><b>This credit not achieved.</b></p>
	<p><b>9. An energy specialist (see Definitions) completes a feasibility study (see Low and zero carbon feasibility study) by the end of Concept Design.</b></p> <p>10. Establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy sources for the building or development (see Scope of LZC systems and how they are assessed), based on the feasibility study.</p> <p>11. Specify local LZC technologies for the building or development in line with the feasibility study recommendations.</p> <p>12. Quantify the reduced regulated carbon dioxide (CO<sub>2</sub>) emissions resulting from the feasibility study.</p>	1	0.67	B	<p>BREEAM Workshop 05.09.23 - That an LZC study would be carried out and the credit achieved.</p> <p>SBL email brief 15.09.23.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 14 provides an LZC which meets full BREEAM criteria and confirms that PV and ASHPs are the most suitable technologies and are specified.</p> <p><b>This credit is achieved subject to further evidence.</b></p>
	<p>1. For specified lifts, escalators or moving walks (transportation types):</p> <p>a. Analyse the transportation demand and usage patterns for the building to determine the optimum number and size of lifts, escalators or moving walks</p> <p>b. Calculate the energy consumption in accordance with BS EN ISO 25745 Part 2(123) or Part 3(124) for one of the following:</p> <p>i. At least two types of system for each transportation type required OR</p> <p>ii. An arrangement of systems, for example for lift systems, hydraulic, traction, machine room-less lift (MRL) OR</p> <p>iii. A system strategy that is 'fit for purpose'</p> <p>c. Consider the use of regenerative drives, subject to the requirements in Regenerative drives below</p> <p>d. Specify the transportation system with the lowest energy consumption.</p>	1	0.67	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>This credit is achieved subject to evidence.</b></p>

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Table 4 - BREEAM Credit Assessment

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p>2. Criterion 1 is achieved.</p> <p><b>Lifts</b></p> <p>3. Specify the following three energy efficient features for each lift:</p> <p>a. A standby condition for off-peak periods</p> <p>b. The lift car lighting and display lighting provides an average luminous efficacy across all fittings in the car of &gt; 70 luminaire lumens per circuit Watt</p> <p>c. Use of a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor.</p> <p>4. Specify regenerative drives where their use is demonstrated to save energy.</p>	1	0.67	B	BREEAM Workshop 05.09.23 - This credit will be pursued. <b>This credit is achieved subject to evidence.</b>
	Subtotals	21	14.0		
<b>Transport</b>					
	<p><b>1. No later than Concept Design stage, undertake a site-specific transport assessment (or statement) and draft travel plan, which can demonstrably be used to influence the site layout and built form; see Methodology.</b></p> <p><b>2. The site-specific travel assessment or statement covers as a minimum:</b></p> <p>a. Existing travel patterns and opinions of existing building or site users towards cycling and walking, identifying constraints and opportunities, if relevant.</p> <p>b. Travel patterns and transport impact of future building users.</p> <p>c. Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children).</p> <p>d. Reporting of the number and type of existing accessible amenities, see Table 7.1 below, within 500m of the site.</p> <p>e. Disabled access (accounting for varying levels of disability and visual impairment).</p> <p>f. Calculation of the existing public transport Accessibility Index (AI), see Methodology.</p> <p>g. Current facilities for cyclists.</p> <p><b>3. Following a transport assessment (in accordance with the requirements set out in criteria 2a-2g) develop a site-specific travel plan, that provides a long term management strategy which encourages more sustainable travel. The travel plan includes measures to increase or improve more sustainable modes of transport and movement of people and goods during the building's operation; see Methodology.</b></p> <p>4. If the occupier is known, involve them in the development of the travel plan.</p> <p>5. Demonstrate that the travel plan will be implemented post construction and be supported by the building's management in operation.</p>	1	0.96	B	BREEAM Workshop 05.09.23 - These credits will be pursued.  REF 1 provides a planning documents matrix. This confirms that a 'Transport Assessment' and Travel Plan are included in the planning documentation.  SBL email brief 15.09.23.  REF 5 provides a development programme (with updates).  REF 17 provides a Draft Transport Assessment Draft Travel Plan.  <b>Two credits are achieved subject to further evidence.</b>  <b>Outstanding pre-planning evidence:</b> - ARC to provide revised Transport Assessment and Travel Plan (email brief & request 15.09.23 & 20.12.23).
		1	0.96	B	

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**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	1. Achieve criteria 3-5 in the Tra 01 Transport assessment and travel plan Issue.	0	0.00	N/A	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that a 'Transport Assessment' and Travel Plan are included in the planning documentation.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 17 provides a Draft Transport Assessment Draft Travel Plan.</p> <p><b>The prerequisite criteria are achieved subject to further evidence.</b></p>

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**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
		1	0.96	B	<p>BREEAM Workshop 05.09.23 confirmed the following:            Option 1 - Existing AI &gt; 8 (1B).            Option 2 - Increase in AI uncertain (3D).            Option 3 - Public transport information system (1C).            Option 4 - EVCPs (1B).            Option 5 - Car share (1B).            Option 6 - Improve local cycle/pedestrian routes uncertain (2B) - Improvements to business park pedestrian footpaths and cycleways in consultation with LPA.            Option 7 - Covered cycle storage spaces (1B).            Option 8 - Cyclists' facilities (1B).            Option 9 - Existing amenities (1B).            Option 10 - Enhanced amenities (2B &amp; 1D) - New cafe as part of the development and possibly a gym.</p> <p><b>Option 1</b> - REF 17 provides a Draft Transport Assessment Draft Travel Plan which confirm the AI is 5.58.</p> <p><b>Option 4</b> - REF 24 provides a drwg extract with written confirmation from ARC as client/developer of 30% EVCP provision in the car park.</p> <p><b>Option 6</b>            REF 5 provides a development programme (with updates).            REF 8 provides a letter from the local planning authority confirming consultation on the existing pedestrian and cycle access from Plot 4200 onto Boswell Road and proposed improvements to this link.            REF 12 provides a 'wider connections' diagram from the landscape architect. This confirms the existing &amp; future pedestrian routes and future off road cycle routes in the vicinity of Plot 4200.</p> <p><b>Options 7&amp;8</b>            SBL email feedback 28.09.23 on numbers required for BREEAM.            REF 23 provides a schedule from the architect detailing the minimum required numbers of cycle racks and cyclist facilities to meet BREEAM, local authority, BCO and FITWEL criteria. Local authority requirements are approximately double that required for BREEAM.</p> <p><b>Nine credits are achieved subject to further evidence (Options 4, 5, 6, 7, 8, 9 &amp; 10). One credit is either a cost option at this stage (Option 3) or uncertain at this stage (Options 1 &amp; part 10). Option 2 will not be achieved.</b></p>
		1	0.96	B	
		1	0.96	B	
		1	0.96	B	
		1	0.96	B	
		1	0.96	B	
		1	0.96	B	
		1	0.96	B	
	2. Identify the sustainable transport measures, see Table 7.4.	1	0.96	B	
	3. Award credits according to the Accessible Index (AI) of the project, and the total number of points achieved for the options implemented, see Table 7.3.	1	0.96	C	
<b>Subtotals</b>		<b>12</b>	<b>11.5</b>		

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**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
<b>Water</b>					
<p><b>ONE CREDIT MANDATORY FOR EXCELLENT</b></p> <p>1. Use the BREEAM Wat 01 calculator to assess the efficiency of the domestic water-consuming components.</p> <p>2. Use the standard Wat 01 method (see Methodology) to compare the water consumption (litres/person/day) for the assessed building against a baseline performance. Award BREEAM credits based upon Table 8.1. Where it is not possible to use the standard method, complete the assessment using the alternative Wat 01 method (see Methodology).</p> <p>3. If a greywater or rainwater system (see Definitions on page 196) is specified, use its yield in L/person/day to offset potable water demand from components.</p> <p>4. If a greywater or rainwater system is specified and installed: a. Greywater systems in compliance with BS 8525-1:2010 Greywater systems - Part 1 Code of Practice. b. Rainwater systems in compliance with BS 8515:2009+A1:2013 Rainwater harvesting systems - Code of practice.</p> <p>Achieve - Criterion 6 from Wat02 below if you intend to carry out a post occupancy evaluation.</p> <p><b>Shell &amp; Core Notes</b> - See ref 1.0 and 1.1.</p>	1	0.78	B	<p>BREEAM Workshop 05.09.23 - Project team confirmed that at least a 50% improvement on the notional baseline would be achieved. Any further improvements are uncertain at this stage.</p> <p><b>Four credits are achieved subject to evidence and one credit is uncertain at this stage.</b></p>	
	1	0.78	B		
	1	0.78	B		
	1	0.78	B		
	1	0.78	D		

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Table 4 - BREEAM Credit Assessment

Outline Credit Criteria		Assessment Commentary			
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p><b>CRITERIA 1 MANDATORY FOR EXCELLENT</b></p> <p>1. Specify a water meter on the mains water supply to each building. This includes instances where water is supplied via a borehole or other private source.</p> <p>2. For water-consuming plant or building areas consuming 10% or more of the building's total water demand:</p> <p>a. Fit easily accessible sub-meters OR</p> <p>b. Install water monitoring equipment integral to the plant or area.</p> <p>3. For each meter (main and sub):</p> <p>a. Install a pulsed or other open protocol communication output AND</p> <p>b. Connect it to an appropriate utility monitoring and management system, e.g. a building management system (BMS), for the monitoring of water consumption. If there is no BMS system in operation at Post-Construction stage, award credits provided that the system used enables connection when the BMS becomes operational.</p> <p>4. In buildings with swimming pools, or large water tanks and aquariums, fit separate sub-meters on the water supply of the above and any associated changing facilities (toilets, showers etc.) irrespective of their water consumption levels.</p> <p>5. In buildings containing laboratories, fit a separate water meter on the water supply to any process or cooling loop for 'plumbed-in' laboratory process equipment, irrespective of their water consumption levels.</p> <p>Additionally, for those carrying out a post occupancy evaluation:</p> <p>6 The water monitoring strategy used enables the identification of all water consumption for sanitary uses as assessed under Wat 01 (litres/person/day).</p> <p><b>Shell &amp; Core Notes</b> - See ref 1.0 and 1.1.</p>	1	0.78	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 27 provides the following:</p> <ul style="list-style-type: none"> <li>- Cold water services schematic drwg.</li> <li>- Stage 2 MEP Report.</li> </ul> <p><b>This credit is achieved subject to further evidence.</b></p>
	<p>1. Install a leak detection system capable of detecting a major water leak:</p> <p>1.a. On the utilities water supply within the buildings, to detect any major leaks within the buildings</p> <p>AND</p> <p>1.b. Between the buildings and the utilities water supply, to detect any major leaks between the utilities supply and the buildings under assessment.</p> <p>2. The leak detection system is:</p> <p>a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an inbuilt automated diagnostic procedure for detecting leaks.</p> <p>b. Activated when the flow of water passing through the water meter or data logger is at a flow rate above a pre-set maximum for a pre-set period of time. This usually involves installing a system which detects higher than normal flow rates at meters or sub-meters. It does not necessarily require a system that directly detects water leakage along part or the whole length of the water supply system.</p> <p>c. Able to identify different flow and therefore leakage rates, e.g. continuous, high or low level, over set time periods. Although high and low level leakage rates are not specified, the leak detection equipment installed must have the flexibility to distinguish between different flow rates to enable it to be programmed to suit the building type and owner's or occupier's usage patterns.</p> <p>d. Programmable to suit the owner's or occupier's water consumption criteria.</p> <p>e. Where applicable, designed to avoid false alarms caused by normal operation of large waterconsuming plant such as chillers.</p> <p>Where there is physically no space for a leak detection system between the utilities water meter and the building, alternative solutions can be used, provided that a major leak can still be detected.</p>	1	0.78	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 27 provides the following:</p> <ul style="list-style-type: none"> <li>- Cold water services schematic drwg.</li> <li>- Stage 2 MEP Report.</li> </ul> <p><b>This credit is achieved subject to further evidence.</b></p>

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**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p>3. Install flow control devices that regulate the water supply to each WC area or sanitary facility according to demand, in order to minimise undetected wastage and leaks from sanitary fittings and supply pipework.</p> <p><b>Shell &amp; Core Notes</b> - Assess the water supplies to WC areas or facilities as per criterion 3 regardless of whether the WC areas or facilities are fitted out or not.</p>	1	0.78	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>This credit is achieved subject to evidence.</b></p>
	<p>1. Identify all water demands from uses other than those listed under - Table 8.4 that could be realistically mitigated or reduced. Where there is no water demand from uses other than domestic-scale, sanitary use components in the building, this issue is not applicable.</p> <p>2. Identify systems or processes to reduce the relevant water demand (criterion 1 above), and establish, through either good practice design or specification, a demonstrable reduction in the total water demand of the building.</p> <p><b>Shell &amp; Core Notes</b> - Where the only non-domestic scale, non-sanitary water demand comes from an irrigation system specified or installed by the developer, then use this system to assess compliance.</p>	1	0.78	B	<p>KBCN0553 'Manual watering' confirms - "Where the design team can justify that manual watering provides a reduction in unregulated water consumption, this can be considered as an acceptable method for reducing unregulated water use."</p> <p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>This credit is achieved subject to evidence.</b></p>
Subtotals		9	7.0		

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Table 4 - BREEAM Credit Assessment

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
<b>Materials</b>					
	<p><b>Up to six credits – Superstructure</b></p> <p><b>Comparison with the BREEAM benchmark during Concept Design (offices, industrial and retail buildings only)</b>  <b>Superstructure (offices, industrial and retail buildings)</b>            1. During the Concept Design, demonstrate the environmental performance of the building as follows:            a. Carry out a building LCA on of the superstructure design using either the BREEAM Simplified Building LCA tool or an IMPACT Compliant LCA tool according to the methodology (see Methodology).            b. Submit the Mat 01/02 Results Submission Tool to BRE at the end of Concept Design, and before planning permission is applied for (that includes external material or product specifications).</p> <p><b>Comparison with the BREEAM benchmark during Technical Design (offices, industrial and retail buildings only)</b>            2. During Technical Design, demonstrate the environmental performance of the building as follows:            a. As criterion 1.a            b. Submit the Mat 01/02 Results Submission Tool to BRE at the end of Technical Design.            Where a project has not achieved criterion 1, criterion 2 may still be achieved.</p> <p><b>Option appraisal during Concept Design (all building types)</b>            3. For offices, industrial and retail building types, achieve criterion 1 (except where Notes 1.0, 1.1 and 1.2 above apply).            4. During Concept Design, identify opportunities for reducing environmental impacts as follows:            a. Carry out building LCA options appraisal of 2 to 4 significantly different superstructure design options (applicable to the Concept Design stage, see Methodology).            b. Use a building LCA tool that is recognised by BREEAM (as suitable for assessing superstructure during Concept Design) according to the methodology (see Methodology).            c. For each design option, fulfil the same functional requirements specified by the client and all statutory requirements (to ensure functional equivalency).            d. Integrate the LCA options appraisal activity within the wider design decision-making process. Record this in an options appraisal summary document.            e. Record the following in the Mat 01/02 Results Submission Tool: The differences between the design options; the design option selected by the client to be progressed beyond Concept Design; the reasons for selecting it and the reasons for not selecting the other design options.            f. Submit the Mat 01/02 Results Submission Tool to BRE at the end of Concept Design, and before planning permission is applied for (that includes external material or product specifications).            If the building LCA tool recognised by BREEAM and used for criteria 3 to 5 (and 6 to 9, if pursued) is not an IMPACT Compliant LCA tool and criteria 1 to 2 are applicable, then the BREEAM Simplified</p>	1	1.25	A	<p>BREEAM Workshop 05.09.23 - Seven credits will be pursued for superstructure and substructure/hard landscaping LCA scope at Concept Design stage followed by superstructure at Technical Design stage.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 13 provides floor plans (with updates) from the architect confirming the following:            - Total NIFA = 8579m<sup>2</sup>.            - Total GIFA = 9829m<sup>2</sup>.</p> <p>REF 18 provides specification and quantities information for relevant material in the superstructure, substructure and hard landscaping from the architect and civil &amp; structural engineer.</p> <p>REF 19 provides a set of planning stage architectural drwgs (with updates).</p> <p>REF 20 provides email correspondence with the project team with regard to design optioneering for the LCA study.</p> <p>REF 21 provides relevant manufacturer's literature for construction products as detailed in the drwgs/specs in REF 18 above.</p> <p>REF 31 provides the Mat01 Calculator tool and associated files confirming 5 credits achieved at Concept Design stage.</p> <p>REF 32 provides the Concept Design Stage LCA Option Appraisal Summary.</p> <p>REF 33 provides the Process Statement from the project team for the Concept Design Stage LCA study.</p> <p><b>Five credits are achieved and signed off at design stage. Two credits are achieved subject to further evidence.</b></p>
		1	1.25	A	
		1	1.25	A	
		1	1.25	A	
		1	1.25	A	
		1	1.25	A	

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Table 4 - BREEAM Credit Assessment

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p><b>Building LCA tool (or an IMPACT Compliant LCA tool) shall be used for criteria 1 to 2.</b></p> <p><b>Options appraisal during Technical Design (all building types)</b> 5. During Technical Design identify opportunities for reducing environmental impacts as follows: a. Carry out building LCA options appraisal of 2 to 3 significantly different superstructure design options (based on the selected Concept Design option and as applicable to the Technical Design stage, see Methodology). b. Use a building LCA tool that is recognised by BREEAM (as suitable for assessing superstructure during Technical Design) according to the methodology (see Methodology). c. As criteria 4.c to 4.e above. Where an options appraisal summary document was produced during Concept Design, update it to include the Technical Design options. d. Submit the Mat 01/02 Results Submission Tool to BRE at the end of Technical Design. Where a project has not achieved criteria 3 and 4, criterion 5 may still be achieved.</p> <p><b>One credit – Substructure and hard landscaping options appraisal during Concept Design (all building types)</b> 6. <b>Criteria 3 and 4 are achieved.</b> 7. <b>During Concept Design identify opportunities for reducing environmental impacts as follows:</b> a. <b>Carry out building LCA options appraisal of a combined total of at least six significantly different substructure or hard landscaping design options (at least two shall be substructure and at least two shall be hard landscaping).</b> b. <b>Using a building LCA tool that is recognised by BREEAM (as suitable for assessing substructure and hard landscaping during Concept Design) according to the methodology (see Methodology).</b> c. <b>As criteria 4.c to 4.f above.</b></p> <p><b>Shell &amp; Core Notes - See ref 1.1 and 1.2.</b></p>	1	1.25	B	
	<p>1. Specify construction products with EPD that achieve a total EPD points score of at least 20, according to the Methodology.</p> <p>2. Enter the details of each EPD into the Mat 01/02 Results Submission Tool, including the material category.</p>	1	1.25	D	<p>BREEAM Workshop 05.09.23 - It is uncertain whether sufficient EPDs will be available to achieve this credit.</p> <p><b>This credit is uncertain at this stage.</b></p>

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Table 4 - BREEAM Credit Assessment

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p><b>CRITERIA 1 MANDATORY FOR EXCELLENT</b></p> <p>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).</p> <p>Compliance with criterion 1 is a minimum requirement for achieving any BREEAM rating. There are no prerequisite requirements for other materials.</p>	0	0.00	N/A	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>The pre-requisite requirements are achieved subject to evidence.</b></p>
	<p><b>2. A sustainable procurement plan must be used by the design team to guide specification towards sustainable construction products. The plan must:</b></p> <p><b>a. Be in place before Concept Design.</b></p> <p><b>b. Include sustainability aims, objectives and strategic targets to guide procurement activities. Note: targets do not need to be achieved for the credit to be awarded but justification must be provided for targets that are not achieved.</b></p> <p><b>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.</b></p> <p><b>d. Include details of procedures in place to check and verify the effective implementation of the sustainable procurement plan.</b></p> <p><b>In addition, if the plan is applied to several sites or adopted at an organisational level it must:</b></p> <p><b>e. Identify the risks and opportunities of procurement against a broad range of social, environmental and economic issues following the process set out in BS ISO 20400:2017.</b></p>	1	1.25	A	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 2 provides the Sustainable Procurement Plan.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 6 provides written confirmation from the client and developer of the approval and distribution of the Sustainable Procurement Plan in REF 2 above.</p> <p><b>This credit is achieved and signed off at design stage.</b></p>
	<p>3. Use the Mat 03 calculator tool and methodology to determine the number of credits achieved for the construction products specified or procured. Credits are awarded in proportion to the scope of the assessment and the number of points achieved, as set out in Table 9.10.</p>	1	1.25	B	<p>BREEAM Workshop 05.09.23 - That at least 20% of the available points will be achieved with any further improvements uncertain at this stage.</p> <p><b>Two credits are achieved subject to evidence and one credit is uncertain at this stage.</b></p>
1		1.25	B		
1		1.25	D		

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**Table 4 - BREEAM Credit Assessment**

		Outline Credit Criteria				Assessment Commentary
		<b>RIBA STAGE 1 &amp; 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT</b>				
		<p><b>Protecting vulnerable parts of the building from damage</b></p> <p>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:</p> <ul style="list-style-type: none"> <li>a. Negative impacts of high user numbers in relevant areas of the building (e.g. corridors, lifts, stairs, doors, etc.)</li> <li>b. Damage from any vehicle or trolley movements within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas.</li> <li>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.</li> <li>d. Potential malicious damage to building materials and finishes, in public and common areas where appropriate.</li> </ul> <p><b>Protecting exposed parts of the building from material degradation</b></p> <p>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:</p> <ul style="list-style-type: none"> <li>a. The element or product achieving an appropriate quality or durability standard or design guide, see Table 9.14 on the facing page. If none are available, use BS 7543:2015 as the default appropriate standard</li> <li>OR</li> <li>b. A detailed assessment of the element's resilience when exposed to the applicable material degradation and environmental factors.</li> </ul> <p>3. Include convenient access to the roof and façade for cost-effective cleaning, replacement and repair in the building's design.</p> <p>4. Design the roof and façade to prevent water damage, ingress and detrimental ponding. See Table 9.14 for an example list of relevant industry durability and quality standards.</p>	1	1.25	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>This credit is achieved subject to evidence.</b></p>
		<p><b>1. At the Preparation and Brief and Concept Design stages, set targets and report on opportunities and methods to optimise the use of materials. These must be done for each of the following stages. See Table 9.15:</b></p> <ul style="list-style-type: none"> <li><b>a. Preparation and Brief</b></li> <li><b>b. Concept Design</b></li> <li>c. Developed Design</li> <li>d. Technical Design</li> <li>e. Construction</li> </ul> <p>2. Develop and record the implementation of material efficiency, see Table 9.15, during:</p> <ul style="list-style-type: none"> <li>a. Developed Design</li> <li>b. Technical Design</li> <li>c. Construction</li> </ul> <p>3. Report the targets and actual material efficiencies achieved.</p>	1	1.25	D	<p>BREEAM Workshop 05.09.23 - It is uncertain whether a suitable material efficiency study was carried out at Stage 1.</p> <p><b>This credit is uncertain at this stage and unlikely to be achieved.</b></p>
		Subtotals	14	17.5		

A = Achieved  
 B = Achieved subject to evidence  
 C = Cost option  
 D = Uncertain  
 E = Not achievable



Table 4 - BREEAM Credit Assessment

Outline Credit Criteria			Assessment Commentary		
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
<b>Waste</b>					
	<p><b>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 Pre-demolition audit scope on the next page and:</b></p> <p><b>a. Be carried out at Concept Design stage (RIBA Stage 2) by a competent person (see Definitions) prior to strip-out or demolition works.</b></p> <p><b>b. Guide the design, consider materials for reuse and set targets for waste management.</b></p> <p><b>c. Engage all contractors in the process of maximising high grade reuse and recycling opportunities.</b></p> <p><b>d. Compare actual waste arisings and waste management routes used with those forecast and investigate significant deviations from planned targets.</b></p> <p><b>2. Make reference to the audit in the resource management plan (RMP) (see Definitions).</b></p>	1	0.70	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>SBL emailed brief &amp; template 17.09.23.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 7 provides details of 'Collect-Eco', a company specialising in reuse of elements of the existing buildings.</p> <p>REF 9 provides a draft disassembly statement from the architect detailing considerations in the disassembly and strip-out/demolition of the existing buildings to maximise material recovery and re-use.</p> <p><b>This credit is achieved subject to further evidence.</b></p> <p><b>Outstanding pre-planning evidence:</b> - ARC to provide pre-demo audit (SBL email 17.09.23 with brief &amp; template. Latest in SBL email feedback 22.09.23).</p>
	<p>3. Prepare a compliant Resource Management Plan (RMP) covering:</p> <p>a. Non-hazardous waste materials (from on-site construction and dedicated off-site manufacture or fabrication, see Definitions on page 246), including demolition and excavation waste.</p> <p>b. Accurate data records on waste arisings and waste management routes.</p>	1	0.70	B	<p>BREEAM Workshop 05.09.23 - Non-hazardous waste output will be limited to no more than 6.5 tonnes per 100m<sup>2</sup> GIFA. At least 80% by weight of construction waste will be diverted from landfill. It is uncertain whether at least 90% of demo waste will be diverted from landfill.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Construction Management Plan' will be included in the planning documentation.</p> <p>REF 7 provides details of 'Collect-Eco', a company specialising in reuse of elements of the existing buildings.</p>
	<p>4. Meet or improve upon the benchmarks in Table 10.1 for non-hazardous construction waste, excluding demolition and excavation waste.</p>	1	0.70	B	
	<p>5. Meet, where applicable, the diversion from landfill benchmarks in Table 10.2 for non-hazardous construction waste and demolition and excavation waste generated.</p> <p>6. Sort waste materials into separate key waste groups as per Table 10.3, either on-site or through a licensed contractor for recovery.</p>	1	0.70	D	

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable





**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p><b>Prerequisite</b></p> <p>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 Assessment scope - Wst01 Criterion 1 &amp; 2.</p> <p><b>One credit - Project Sustainable Aggregate Points</b></p> <p>2. Identify all aggregate uses and types on the project Table 10.5 and Table 10.6.</p> <p>3. Determine the quantity in tonnes for each identified use and aggregate type.</p> <p>4. Identify the region in which the aggregate source is located.</p> <p>5. Calculate the distance in kilometres travelled by all aggregates by transport type.</p> <p>6. Enter the information into the BREEAM Wst 02 calculator to calculate the Project Sustainable Aggregate points.</p> <p>The corresponding number of BREEAM credits will be awarded as shown in Table 10.4</p>	1	0.70	B	<p>BREEAM Workshop 05.09.23 - That at least 3.5 Project Sustainable Aggregate points will be achieved in the BREEAM Wst02 Calculator.</p> <p><b>This credit is achieved subject to evidence.</b></p>
	<p><b>CREDIT MANDATORY FOR EXCELLENT</b></p> <p>1. Provide a dedicated space for the segregation and storage of operational recyclable waste generated. The space is:</p> <p>a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams.</p> <p>b. Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors.</p> <p>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.</p> <p>2. For consistent and large amounts of operational waste generated, provide:</p> <p>a. Static waste compactors or balers; situated in a service area or dedicated waste management space.</p> <p>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.</p> <p>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.</p>	1	0.70	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms the following:</p> <ul style="list-style-type: none"> <li>- The DAS will cover waste storage.</li> <li>- 'Delivery and Servicing Management Plan' will be included in the planning documentation.</li> </ul> <p>REF 10 provides a copy of Oxford City Council's waste storage technical advisory note.</p> <p>REF 13 provides floor plans (with updates) from the architect confirming the total NIFA of 8579m<sup>2</sup>. BREEAM requires min. 10m<sup>2</sup> for recyclables waste storage plus suitable space for general waste.</p> <p><b>This credit is achieved subject to further evidence.</b></p> <p><b>Note: SBL to review DAS for details of operational waste and the 'Delivery and Servicing Management Plan' (from Stantec) in the planning documentation.</b></p>

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



Table 4 - BREEAM Credit Assessment

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p>1. Conduct a climate change adaptation strategy appraisal using:</p> <p>a. A systematic risk assessment to identify the impact of expected extreme weather conditions arising from climate change on the building over its projected life cycle. The assessment covers the installation of building services and renewable systems, as well as structural and fabric resilience aspects and includes (see Methodology):</p> <p>i. Hazard identification ii. Hazard assessment iii. Risk estimation iv. Risk evaluation v. Risk management.</p> <p>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.</p> <p>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.</p>	1	0.70	C	<p>BREEAM Workshop 05.09.23 - That a climate change adaptation study could be carried out as a cost option.</p> <p><b>This credit is a cost option at this stage.</b></p>
	<p>1. Conduct a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios (see Methodology below) by the end of Concept Design.</p> <p>2. Develop recommendations or solutions (see Methodology) based on the study (criterion 1 above), during or prior to Concept Design, that aim to enable and facilitate disassembly and functional adaptation.</p>	1	0.70	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>SBL emailed brief 17.09.23 and sample study 23.01.24.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 9 provides a draft disassembly statement from the architect detailing considerations in the disassembly and strip-out/demolition of the existing buildings to maximise material recovery and re-use.</p> <p><b>This credit is achieved subject to further evidence.</b></p> <p><b>Outstanding pre-planning evidence:</b> - S&amp;P to provide design for disassembly and functional adaptability study with support from Dalkia/BMP (SBL email brief &amp; request 17.09.23. Latest is SBL email feedback 10.11.23 &amp; 30.01.24)</p>
	<p>3. Achieve criteria 1 and 2</p> <p>4. Provide an update, during Technical Design, on:</p> <p>a. How the recommendations or solutions proposed by Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing to the assessor.</p> <p>b. Changes to the recommendations and solutions during the development of the Technical Design.</p> <p>5. Produce a building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants.</p>	1	0.70	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>This credit is achieved subject to evidence.</b></p>
	Subtotals	10	7.0		

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria			Assessment Commentary		
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
<b>Land Use and Ecology</b>					
	<p>1. At least 75% of the proposed development's footprint is on an area of land which has previously been occupied (see Definitions).</p>	1	1.15	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p><b>This credit is achieved subject to evidence.</b></p>
	<p>2. A contaminated land professional's site investigation, risk assessment and appraisal has deemed land within the site to be affected by contamination. The site investigation, risk assessment and appraisal have identified:</p> <p>a. The degree of contamination.</p> <p>b. The contaminant sources or types.</p> <p>c. The options for remediating sources of contamination which present an unacceptable risk.</p> <p>3. The client or principal contractor confirms that remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan as recommended by the contaminated land professional (see Definitions).</p>	1	1.15	D	<p>BREEAM Workshop 05.09.23 - It is uncertain whether there is any significant ground contamination requiring remediation.</p> <p>REF 1 provides a planning documents matrix. This confirms that a 'Land Contamination Assessment' will be included in the planning documentation.</p> <p>REF 11 provides a Phase 2 Geo-environmental Report which confirms a low risk of there being significant ground contamination.</p> <p>REF 29a provides a Land Quality Assessment report. Section 9 confirms ... "The recent investigation works has confirmed that no evidence of significant contamination has been discovered on site that is likely to present a risk to the future site user (including the build /demo stage). As such no remediation measures are deemed necessary for the new development."</p> <p><b>This credit is uncertain at this stage and unlikely to be achieved.</b></p>
	<p>1 The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site.</p>	0	0.00	N/A	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Arboricultural Impact Assessment', 'Biodiversity Net Gain' calculation, 'Ecological Assessment' and 'Tree Canopy Cover Assessment' are included in the planning documentation.</p> <p>SBL emailed brief 17.09.23.</p> <p>REF 26 provides the GN40 Ecology Report and LEMP: - C1 of the GN40 report confirms SQE. - A3 confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site.</p> <p>REF 28 provides the landscape general arrangement plan with comments from the landscape architect.</p> <p><b>The pre-requisite criteria are achieved subject to further evidence.</b></p>

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p><b>Foundation route (Route 1)</b> 2. The site is evaluated using the BREEAM Ecological Risk Evaluation Checklist (Guidance Note 34) confirming that the Foundation route can be used (see Methodology and Definitions).</p> <p><b>Comprehensive route (Route 2)</b> 3. A Suitably Qualified Ecologist (SQE) carries out a survey and evaluation (see Methodology) for the site early enough to influence site preparation works, layout and, where necessary, strategic planning decisions (typically Preparation and brief stage) (see Definitions). 4. The SQE's survey and evaluation determines the site's ecological baseline (see Definitions), 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. 5. Recommendations and data collected from the survey and evaluation are shared with appropriate project team members to influence decisions made for activities during site preparation, design and construction works, which can support ecological features (see Methodology and Definitions).</p>	1	1.15	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Arboricultural Impact Assessment', 'Biodiversity Net Gain' calculation, 'Ecological Assessment' and 'Tree Canopy Cover Assessment' are included in the planning documentation.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 26 provides the GN40 Ecology Report and LEMP: - C2a of the GN40 report confirms 'Survey and evaluation' criteria are met.</p> <p>REF 28 provides the landscape general arrangement plan with comments from the landscape architect.</p> <p><b>This credit is achieved subject to further evidence.</b></p>
	<p><b>Foundation and Comprehensive routes (Routes 1 and 2)</b> 6. Survey and evaluation criteria relevant to the chosen route (criterion 2 if following the Foundation route or Criteria 3–5 above for the Comprehensive route).</p> <p>7. The project team liaise and collaborate with representative stakeholders (see Methodology) early enough to influence key planning decisions (typically Concept Design stage), to: a. Identify the optimal ecological outcomes for the site. b. Identify, appraise and select measures to meet the optimal ecological outcomes for the site (criterion 7.a), in line with the mitigation hierarchy of action, according to the route being used (see Definitions).</p>	1	1.15	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Arboricultural Impact Assessment', 'Biodiversity Net Gain' calculation, 'Ecological Assessment' and 'Tree Canopy Cover Assessment' are included in the planning documentation.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 26 provides the GN40 Ecology Report and LEMP: - C2a of the GN40 report confirms 'Determining the ecological outcomes' criteria are met.</p> <p>REF 28 provides the landscape general arrangement plan with comments from the landscape architect.</p> <p><b>This credit is achieved subject to further evidence.</b></p>

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



Table 4 - BREEAM Credit Assessment

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p><b>1. LE02's 'Survey and evaluation and Determining ecological outcomes' criteria have been achieved using the Foundation route (Route 1) or the Comprehensive route (Route 2).</b></p>	0	0.00	N/A	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Arboricultural Impact Assessment', 'Biodiversity Net Gain' calculation, 'Ecological Assessment' and 'Tree Canopy Cover Assessment' are included in the planning documentation.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 26 provides the GN40 Ecology Report and LEMP: - C2b of the GN40 report confirms prerequisite criteria is met.</p> <p>REF 28 provides the landscape general arrangement plan with comments from the landscape architect.</p> <p><b>The pre-requisite criteria are achieved subject to further evidence.</b></p>
	<p><b>Foundation and comprehensive route (Routes 1 and 2)</b></p> <p><b>2. Further planning to avoid and manage negative ecological impacts on-site is carried out (see Methodology) early enough to influence the concept design and design brief as well as site preparation planning (typically Concept Design stage).</b></p> <p><b>3. On-site measures for managing negative ecological impacts during site preparation and construction are implemented in-practice (e.g. mitigation measures to protect existing ecological features) (see Methodology).</b></p> <p><b>4. Criteria 2-3 are based on input from the project team in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in LE 02 Ecological risks and opportunities (see Methodology).</b></p>	1	1.15	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Arboricultural Impact Assessment', 'Biodiversity Net Gain' calculation, 'Ecological Assessment' and 'Tree Canopy Cover Assessment' are included in the planning documentation.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 26 provides the GN40 Ecology Report and LEMP: - C2b confirms the 'Planning and measures on-site / Liaison, implementation, and data' criteria are met.</p> <p>REF 28 provides the landscape general arrangement plan with comments from the landscape architect.</p> <p><b>This credit is achieved subject to further evidence.</b></p>

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p><b>Foundation route (Route 1) (one credit)</b> <b>5. Criteria 2 and 3 have been achieved.</b></p> <p>6. Negative impacts from site preparation and construction works are managed according to the mitigation hierarchy (see Methodology on the next page) and no overall loss (see Definitions) of ecological value has occurred.</p>	1	1.15	B	<p>BREEAM Workshop 05.09.23 - The loss in ecological value has been minimised. It is uncertain whether no overall loss will occur.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Arboricultural Impact Assessment', 'Biodiversity Net Gain' calculation, 'Ecological Assessment' and 'Tree Canopy Cover Assessment' are included in the planning documentation.</p> <p>REF 5 provides a development programme (with updates).</p>
	<p><b>Comprehensive route (Route 2) (up to two credits)</b> <b>7. Criteria 2-4 have been achieved.</b></p> <p>8. Negative impacts from site preparation and construction works have been managed according to the mitigation hierarchy, in line with the SQE's recommendations (see Methodology) and, either: a. No overall loss of (see Definitions) ecological value has occurred (two credits). OR where criterion 8.a is not possible: b. The loss of ecological value has been minimised (Minimising Loss) (one credit).</p>	1	1.15	B	<p>REF 26 provides the GN40 Ecology Report and LEMP: - C2b confirms the 'Managing negative impacts' criteria are met and 'No overall loss of ecological value has occurred'. REF 28 provides the landscape general arrangement plan with comments from the landscape architect.</p> <p><b>Two credits are achieved subject to further evidence.</b></p>
	<p><b>1. Criterion 6 (for Foundation route) or 8 (for Comprehensive route) in LE03 has been achieved.</b></p> <p>2. The client or contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site.</p>	0	0.00	N/A	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Arboricultural Impact Assessment', 'Biodiversity Net Gain' calculation, 'Ecological Assessment' and 'Tree Canopy Cover Assessment' are included in the planning documentation.</p> <p>REF 26 provides the GN40 Ecology Report and LEMP: - A3 confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site. - C2c of the GN40 report confirms prerequisite criteria is met.</p> <p>REF 28 provides the landscape general arrangement plan with comments from the landscape architect.</p> <p><b>The pre-requisite criteria are achieved subject to further evidence.</b></p>

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p><b>Foundation route (Route 1) only</b></p> <p>3. Locally relevant ecological measures have been implemented that enhance the site's ecological value. The measures adopted are based on (see Methodology).</p> <p>a. Recommendations from recognised 'local' ecological expertise and specialist input and guidance.</p> <p>b. Input from the project team in collaboration with representative stakeholders and data collated as part of 'Determining ecological outcomes' in LE02.</p> <p><b>Comprehensive route (Route 2) only</b></p> <p>4. Measures have been implemented that enhance ecological value, which are based on input from the project team and SQE in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in LE02 (see Methodology). Measures are implemented in the following order:</p> <p>a. On site, and where this is not feasible,</p> <p>b. Off site within the Zone of Influence.</p> <p>5. Data collated are analysed and where potentially valuable, provided to the local environmental records centres nearest to, or relevant for, the site.</p>	1	1.15	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Arboricultural Impact Assessment', 'Biodiversity Net Gain' calculation, 'Ecological Assessment' and 'Tree Canopy Cover Assessment' are included in the planning documentation.</p> <p>REF 26 provides the GN40 Ecology Report and LEMP: - C2c confirms 'Ecological enhancement' criteria are met with 'On site enhancement'.</p> <p>REF 28 provides the landscape general arrangement plan with comments from the landscape architect.</p> <p><b>This credit is achieved subject to further evidence.</b></p>
	<p><b>Comprehensive route (Route 2) only</b></p> <p>6 Up to three credits are awarded based on the change in ecological value occurring as a result of the project. This must be calculated in accordance with the process set out in GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology – Route 2. Credits are awarded in line with the Reward Scale table in GN36 where there are no residual impacts on protected sites or irreplaceable habitats.</p>	1	1.15	B	<p>BREEAM Workshop 05.09.23 - A change in ecological value of at least 95% will be achieved.</p>
		1	1.15	B	<p>REF 1 provides a planning documents matrix. This confirms that an 'Arboricultural Impact Assessment', 'Biodiversity Net Gain' calculation, 'Ecological Assessment' and 'Tree Canopy Cover Assessment' are included in the planning documentation.</p>
		1	1.15	B	<p>REF 26 provides the GN40 Ecology Report and LEMP: - C2c confirms 'Change and enhancement of ecology / Liaison, implementation, and data' criteria are met.</p> <p>REF 28 provides the landscape general arrangement plan with comments from the landscape architect.</p> <p>REF 30 provides the Biodiversity Metric 4.0 calculation from the SQE which confirms an overall net gain of +70.35%.</p> <p><b>Three credits are achieved subject to further evidence.</b></p>

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria			Assessment Commentary		
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p>1. The client or contractor has confirmed that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site.</p> <p>2. The following must be achieved, according to the route being assessed:</p> <p>a. Foundation route (Route 1) - Criterion 6 in LE03 has been achieved.</p> <p>b. Comprehensive route (Route 2) - Criterion 8 in LE03 has been achieved, and at least one credit under LE04 for 'Change and Enhancement of Ecology' has been awarded.</p>	0	0.00	N/A	<p>BREEAM Workshop 05.09.23 - The prerequisite will be achieved.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Arboricultural Impact Assessment', 'Biodiversity Net Gain' calculation, 'Ecological Assessment' and 'Tree Canopy Cover Assessment' are included in the planning documentation.</p> <p>REF 26 provides the GN40 Ecology Report and LEMP:</p> <ul style="list-style-type: none"> <li>- A3 confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site.</li> <li>- C2d of the GN40 report (&amp; REF 30 below) confirm prerequisite criteria is met.</li> </ul> <p>REF 28 provides the landscape general arrangement plan with comments from the landscape architect.</p> <p><b>The pre-requisite criteria are achieved subject to further evidence.</b></p>

A = Achieved  
 B = Achieved subject to evidence  
 C = Cost option  
 D = Uncertain  
 E = Not achievable





**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p>3. Measures have been implemented to manage and maintain ecology throughout the project. These measures are based on input from the project team in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in LE 02 (see Methodology). To ensure the optimal ecological outcomes agreed in LE 02 are met in-practice, these measures must monitor and review the effectiveness of the mitigation and enhancement measures in place for LE 03 &amp; LE 04 to ensure they are implemented.</p> <p>4. A section on Ecology and Biodiversity has been included as part of the tenant or building owner information supplied, to inform the owner or occupant of local ecological features, value and biodiversity on or near the site (see Methodology). This should include detailed management and maintenance plans as required by landscape and asset managers as well as relevant parts of the handover information for occupiers written in a format that encourages understanding and supportive behaviours.</p>	1	1.15	B	<p>BREEAM Workshop 05.09.23 - These credits will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Arboricultural Impact Assessment', 'Biodiversity Net Gain' calculation, 'Ecological Assessment' and 'Tree Canopy Cover Assessment' are included in the planning documentation.</p> <p>REF 26 provides the GN40 Ecology Report and LEMP: - C2d confirms 'Management and maintenance throughout the project' criteria are met. - C2d of the GN40 report confirms the 'Landscape and ecology management plan' criteria is met. - The LEMP 1.4 confirms ... "This LEMP has been written in accordance with BS 42020:2013 Section 11.1, with reference to published guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) and in accordance with Natural England guidelines for protected species" and covers the first five years post-completion.</p> <p>REF 28 provides the landscape general arrangement plan with comments from the landscape architect.</p> <p><b>Two credits are achieved subject to further evidence.</b></p>
	<p>5. A Landscape and Ecology Management Plan, or equivalent, has been developed in accordance with BS42020:2013 Section 11.1(205) covering at least the first five years after project completion as a minimum and including:</p> <p>a. Actions and responsibilities of relevant individuals prior to handover.</p> <p>b. The ecological value and condition of the site at handover and how this is expected to develop and change over time.</p> <p>c. Identification of opportunities for ongoing alignment with activities beyond the development project, which support the aims of BREEAM's Strategic Ecology Framework.</p> <p>d. Identification and guidance to trigger appropriate remedial actions to address previously unforeseen impacts.</p> <p>e. Clearly defined and allocated roles and responsibilities for delivering the plan.</p> <p>6. The landscape and management plan or similar will be updated to support maintenance of the ecological value of the site (see sections relating to Maintenance and Monitoring in CIEEM, CIRIA, IEMA, for helpful guidance).</p>	1	1.15	B	<p>REF 28 provides the landscape general arrangement plan with comments from the landscape architect.</p> <p><b>Two credits are achieved subject to further evidence.</b></p>
Subtotals		13	15.0		

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria				Assessment Commentary		
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT						
<b>Pollution</b>						
	<p><b>Three credits - No refrigerant use</b> 1. No refrigerant use within the installed plant or systems. OR alternatively, where the building does use refrigerants, the three credits can be awarded as follows:</p> <p><b>Prerequisite</b> 2. All systems with electric compressors comply with the requirements of BS EN 378:2016(203) (parts 2 and 3). Refrigeration systems containing ammonia comply with the Institute of Refrigeration Ammonia Refrigeration Systems code of practice.</p> <p><b>Impact of refrigerant</b> <b>Two credits</b> 3. The direct effect life cycle CO<sub>2</sub> equivalent emissions (DEL<sub>C</sub>) of ≤ 100 CO<sub>2</sub>-eq/kW. For systems which provide cooling and heating, the worst performing output based on the lower of kW cooling output and kW heating output is used to complete the calculation. To calculate the DEL<sub>C</sub>, refer to the relevant definitions in Methodology and Additional information. OR 4. All refrigerants used have a global warming potential (GWP) ≤ 10. OR <b>One credit</b> 5. Systems using refrigerants have a DEL<sub>C</sub> of ≤ 1000 kgCO<sub>2</sub>-eq/kW cooling and heating capacity.</p> <p><b>One credit - Leak detection</b> 6. All systems are hermetically sealed or only use environmentally benign refrigerants (see 'Leak detection and Hermetically sealed systems'). OR 7. Where the systems are not hermetically sealed: a. Systems have: i. A permanent automated refrigerant leak detection system, that is robust and tested, and capable of continuously monitoring for leaks. OR ii. An inbuilt automated diagnostic procedure for detecting leakage is enabled. b. In the event of a leak, the system must be capable of automatically responding and managing the remaining refrigerant charge to limit loss of refrigerant (see 'Automatic isolation and containment of refrigerant').</p> <p><b>Shell &amp; Core Notes</b> - If the building is designed to avoid the need for refrigerant-containing building services, so no refrigerant use will be specified for the fit-out, the available credits can be awarded by default.</p>	1	0.75	E	<p>BREEAM Workshop 05.09.23 - It is uncertain whether one credit will be achieved for DEL<sub>C</sub> of ≤ 1000 kgCO<sub>2</sub>-eq/kW cooling and heating capacity. The credit for refrigerant leak detection &amp; recovery will not be achieved.</p> <p><b>One credit is uncertain at this stage and two credits are not achieved.</b></p>	
		1	0.75	D		
		1	0.75	E		

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D = Uncertain  
E = Not achievable

**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p>1. All heating and hot water is supplied by non-combustion systems. For example, only powered by electricity.</p> <p>OR alternatively;</p> <p>2. Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels set in Table 12.4 and Table 12.5 on the next page. The measurements must be provided by manufacturers, following the labelling requirements of the European directive 2009/125/EC. No credits can be awarded for Pol 02 if any of the combustion appliances are not covered in Table 12.4 and Table 12.5.</p> <p>3. Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels set in Table 1.21 and Table 1.22.</p>	1	0.75	B	<p>BREEAM Workshop 05.09.23 - Space heating &amp; DHW from all electric systems.</p> <p><b>Two credits are achieved subject to evidence.</b></p>
		1	0.75	B	
	<p>1. An appropriate consultant is appointed to carry out and demonstrate the development's compliance with all criteria.</p>	0	0.00	N/A	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 29 provides an FRA and Drainage Strategy report.</p> <p><b>The prerequisite requirements are achieved subject to further evidence.</b></p>
	<p><b>Two credits - Low flood risk</b></p> <p>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 'Sources of flooding').</p> <p><b>One credit - Medium or high flood risk</b></p> <p>3. A site-specific FRA 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 'Sources of flooding'). For smaller sites refer to 'Level of detail required in the FRA for smaller sites', which overrides criterion 2 above.</p> <p>4. To increase the resilience and resistance of the development to flooding, one of the following must be achieved:</p> <p>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 '600 mm threshold').</p> <p>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.</p>	1	0.75	E	<p>BREEAM Workshop 05.09.23 - The site has a low flood risk from all sources.</p> <p>REF 1 provides a planning documents matrix. This confirms that a 'Drainage Strategy' and FRA are included in the planning documentation.</p> <p>REF 29 provides an FRA and Drainage Strategy report. Section 2 &amp; Table 4 - The site has a medium current flood risk from sewers and a high current risk from groundwater.</p> <p><b>Two credits are achieved subject to further evidence.</b></p>
		1	0.75	B	

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**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria						Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT						
		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.	0	0.00	N/A	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that a 'Drainage Strategy' and FRA are included in the planning documentation.</p> <p>REF 29 provides an FRA and Drainage Strategy report. 5.1 confirms hierarchy approach to surface water drainage design.</p> <p><b>The prerequisite criteria are achieved subject to further evidence.</b></p>
		<p>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 predeveloped site. This should comply at the 1-year and 100-year return period events.</p> <p>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-velopment site. This should comply at the 1-year and 100-year return period events.</p> <p>8. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place.</p> <p>9. Calculations include an allowance for climate change. This should be made in accordance with current best practice planning guidance (see Definitions).</p>	1	0.75	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that a 'Drainage Strategy' and FRA are included in the planning documentation.</p> <p>REF 29 provides an FRA and Drainage Strategy report which confirms the following: - 5.3 &amp; Table 5 detail required SUDS maintenance. - 7.0 confirms ... "A variety of SuDS features have been considered and incorporated within the design of the development. Surface water discharge will be attenuated by green roofs, pervious pavements and geo-cellular systems with a combined attenuation volume of approximately 481m<sup>3</sup> – equivalent to a 1 in 100 year plus 40% climate change event. This will lead to a discharged surface water rate equivalent to 4.7l/s."</p> <p><b>This credit is achieved subject to further evidence.</b></p>

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

		Outline Credit Criteria				Assessment Commentary
		<b>RIBA STAGE 1 &amp; 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT</b>				
		<p>10. Flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance);</p> <p>AND EITHER</p> <p>11. Drainage design measures are specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. This must be for the 100-year 6-hour event, including an allowance for climate change (see criterion 14).</p> <p>12. Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other SuDS techniques.</p> <p>OR (only where criteria 10 and 11 cannot be achieved):</p> <p>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.</p> <p>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:</p> <p>a. The pre-development one-year peak flow rate.</p> <p>b. The mean annual flow rate (Qbar).</p> <p>c. 2L/s/ha.</p> <p>For the one-year peak flow rate, the one-year return period event criterion applies.</p> <p>15. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place.</p> <p>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.</p>	1	0.75	D	<p>BREEAM Workshop 05.09.23 - It is uncertain whether this credit will be achieved.</p> <p>REF 1 provides a planning documents matrix. This confirms that a 'Drainage Strategy' and FRA are included in the planning documentation.</p> <p>REF 29 provides an FRA and Drainage Strategy report which confirms the following:</p> <ul style="list-style-type: none"> <li>- 5.3 &amp; Table 5 detail required SUDS maintenance.</li> <li>- 7.0 confirms ... "A variety of SuDS features have been considered and incorporated within the design of the development. Surface water discharge will be attenuated by green roofs, pervious pavements and geo-cellular systems with a combined attenuation volume of approximately 481m3 – equivalent to a 1 in 100 year plus 40% climate change event. This will lead to a discharged surface water rate equivalent to 4.7l/s."</li> </ul> <p><b>This credit is uncertain at this stage.</b></p>
		<p>17. There is no discharge from the developed site for rainfall up to 5 mm (confirmed by the appropriate consultant).</p> <p>18. Areas with a low risk source of watercourse pollution, an appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques.</p> <p>19. Areas with a high risk of contamination or spillage of substances, such as petrol and oil, have separators (or an equivalent system) are installed in surface water drainage systems.</p> <p>20. Chemical or liquid gas storage areas have a means of containment fitted to the site drainage system (i.e. shutoff valves). This is to prevent the escape of chemicals to natural watercourses in the event of a spillage or bunding failure.</p> <p>21. All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as the SuDS manual(211) 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.</p> <p>22. A comprehensive and up to date drainage plan of the site will be made available for the building or site occupiers.</p> <p>23. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place.</p> <p>24. All external storage and delivery areas are designed and detailed in accordance with the current best practice planning guidance.</p>	1	0.75	D	<p>BREEAM Workshop 05.09.23 - It is uncertain whether pt 17 will be met.</p> <p>REF 1 provides a planning documents matrix. This confirms that a 'Drainage Strategy' and FRA are included in the planning documentation.</p> <p>REF 29 provides an FRA and Drainage Strategy report which confirms the following:</p> <ul style="list-style-type: none"> <li>- 5.3 &amp; Table 5 detail required SUDS maintenance.</li> <li>- 7.0 confirms ... "A variety of SuDS features have been considered and incorporated within the design of the development. Surface water discharge will be attenuated by green roofs, pervious pavements and geo-cellular systems with a combined attenuation volume of approximately 481m3 – equivalent to a 1 in 100 year plus 40% climate change event. This will lead to a discharged surface water rate equivalent to 4.7l/s."</li> </ul> <p><b>This credit is uncertain at this stage.</b></p>

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p>1. External lighting pollution has been eliminated through effective design that removes the need for external lighting. This does not adversely affect the safety and security of the site and its users. OR alternatively, where the building does have external lighting, one credit can be awarded as follows:</p> <p>2. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00.</p> <p>3. If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP guidance notes.</p> <p>4. Illuminated advertisements are designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements.</p>	1	0.75	B	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that a 'Lighting Assessment' to manage the impact of the development will be included in the planning documentation.</p> <p><b>This credit is achieved subject to evidence.</b></p>
	<p>1. There are no noise-sensitive areas within the assessed building or within 800 m radius of the assessed site. OR</p> <p>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 is commissioned. Noise levels must be measured or determined for:</p> <p>a. Existing background noise levels:</p> <p>i. at the nearest or most exposed noise-sensitive development to the proposed assessed site.</p> <p>ii. including existing plant on a building, where the assessed development is an extension to the building.</p> <p>2.b. Noise rating level from the assessed building.</p> <p>3. The noise impact assessment must be carried out by a suitably qualified acoustic consultant.</p> <p>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 5dB lower than the background noise throughout the day and night.</p> <p>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 the criterion.</p>	1	0.75	D	<p>BREEAM Workshop 05.09.23 - This credit will be pursued.</p> <p>REF 1 provides a planning documents matrix. This confirms that an 'Noise Impact Assessment' will be included in the planning documentation.</p> <p>SBL baseline email advice 06.09.23 and RM email feedback 07.09.23. SBL email feedback 13.11.23.</p> <p>REF 27 provides a Noise Impact Assessment report which confirms the following:</p> <ul style="list-style-type: none"> <li>- 6.2 - SQA competencies.</li> <li>- Section 3.0 - Assessment methodology to BS 4142:2014+A1:2019.</li> <li>- Table 6.1 - Daytime noise levels greater than 5dB below background at all nearest NSRs and therefore comply with BREEAM criteria. Night-time noise levels less than 5dB below background at all nearest NSRs and so DO NOT COMPLY with BREEAM criteria.</li> </ul> <p><b>This credit is uncertain at this stage.</b></p>
Subtotals		12	9.0		

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
<b>Exemplary &amp; Innovation Credits</b>					
	<p>23. Achieve all items in Table 4.1.</p> <p><b>Note:</b> GN33 confirms that a CCS score of at least 39 (with no less than 13 in each section) plus the following Table 4.1 items will achieve the Exemplary credit:</p> <p>g. Ensure clear and safe access in and around the buildings at the point of handover.</p> <p>p. The fleet operators undertakes driver training and awareness to promote safety within the development footprint and off site.</p> <p>q. The fleet operators, captures and investigates any road accidents, incidents and near misses and reports them back to the principal contractor. The principal contractor analyses these items.</p> <p>Fleet operator is defined as - "A fleet operator is responsible for groups of motor vehicles owned or leased by a business, government agency or other organisation rather than by an individual or family. Transportation to the project is likely to be by several fleet operators many of which will not be under the control of the constructor. The criteria relate to all fleet operators nonetheless."</p>	1	1.00	D	<p>BREEAM Workshop 05.09.23 - It is unlikely that exemplary criteria for fleet monitoring will be achieved.</p> <p><b>This credit is uncertain at this stage and unlikely to be achieved.</b></p>
	<p>To achieve an exemplary performance credit for daylighting:</p> <p>14. Daylighting criteria have been met using either of the following options:</p> <p>a. Relevant building areas meet exemplary daylight factors and the relevant criteria in Table 5.8 on the facing page.</p> <p>b. Relevant building areas meet exemplary average and minimum point daylight illuminance criteria in Table 5.9 on the facing page.</p>	1	1.00	E	<p>BREEAM Workshop 05.09.23 - That BREEAM exemplary daylighting performance will not be achieved.</p> <p><b>This credit is not achieved.</b></p>
	<p>4. A compliant risk based security rating scheme has been used. The performance against the scheme has been confirmed by independent assessment and verification.</p>	1	1.00	E	<p>BREEAM Workshop 05.09.23 - That the security performance of the project will not be confirmed by SABRE scheme.</p> <p><b>This credit is not achieved.</b></p>

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E = Not achievable



**Table 4 - BREEAM Credit Assessment**

		Outline Credit Criteria				Assessment Commentary
		<b>RIBA STAGE 1 &amp; 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT</b>				
		<p><b>Up to two credits - Beyond zero net regulated carbon</b></p> <p>10. The building achieves an EPR NC <math>\geq</math> 0.9 and zero net regulated CO<sub>2</sub>-eq emissions (see Definitions).</p> <p>11. Energy generation from on-site and near-site LZC sources is sufficient to offset carbon emissions from regulated energy use plus a percentage of emissions from unregulated energy use.</p> <p>12. Award the exemplary credits based on the percentage of additional emissions from unregulated energy that are offset by LZC sources (see Table 6.2).</p> <p><b>Three credits - Carbon negative</b></p> <p>13. The building is deemed carbon negative where &gt; 100% (see Table 6.2) of carbon emissions from unregulated (and regulated) energy use are offset by energy generated from on-site and near-site LZC sources (see Definitions).</p> <p><b>Two credits – Post-occupancy evaluation of operational energy consumption</b></p> <p>14. Achieve 'Four credits - Prediction of operational energy consumption' (criteria 2 to 9).</p> <p>15. Achieve maximum available credits in Ene02 Energy monitoring . In addition, preschools, primary schools, law courts, prisons and multi-residential buildings must meet the requirements of the second credit for sub-metering of high energy load and tenancy areas.</p> <p>16. The client or building occupier commits funds to pay for the post-occupancy evaluation.</p> <p>a. Where performance targets are set in relation to external rating schemes (e.g. a DEC, UK NABERS energy for offices, or BREEAM In-Use rating), confirm that an assessor will be appointed to report on the actual energy consumption compared with the target set in criterion 8 or 9, OR</p> <p>b. Where the energy performance target is project specific, the funds committed to pay for the post occupancy evaluation explicitly include provision for third party verification of the operational energy performance.</p> <p>17. The energy model (criterion 4) is saved so that it can be rerun post occupancy. This can be achieved by either:</p> <p>a. Submitting the model to BRE, OR</p> <p>b. Reporting the building owner, or named third party, who has access to the model and permission to use or share it.</p>	1	1.00	E	<p>BREEAM Workshop 05.09.23 - That the building will not achieve an EPRNC <math>\geq</math>0.9 and have zero net CO<sub>2</sub> emissions. Post-occupancy appointment of an assessor to report on the actual energy consumption will be pursued.</p> <p><b>Two credits are achieved subject to evidence and five credits are not achieved.</b></p>
			1	1.00	E	
			1	1.00	E	
			1	1.00	E	
			1	1.00	E	
			1	1.00	B	
			1	1.00	B	
		<p>7. Achieve criteria 1 to 4 of Wat01.</p> <p>8. The water consumption (litres/person/day) for the assessed building achieves the 65% improvement described as exemplary performance in Table 8.1.</p>	1	1.00	E	<p>BREEAM Workshop 05.09.23 - That a 65% improvement on the notional baseline will not be achieved.</p> <p><b>This credit is not achieved.</b></p>

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D = Uncertain  
E = Not achievable





**Table 4 - BREEAM Credit Assessment**

Outline Credit Criteria					Assessment Commentary
RIBA STAGE 1 & 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT					
	<p><b>One credit – Core building services options appraisal during Concept Design (all building types)</b>  <b>8. Criteria 3 to 4 are achieved.</b>  <b>9. During Concept Design identify opportunities for reducing environmental impacts as follows:</b>  <b>a. Carry out building LCA options appraisal of at least 3 significantly different core building services design options.</b>  <b>b. Use a building LCA tool that is recognised by BREEAM (as suitable for assessing core building services during Concept Design) according to the methodology (see Methodology).</b>  <b>c. As criteria 4.c to 4.f above.</b></p>	1	1.00	E	<p>BREEAM Workshop 05.09.23 - That the building services design will not be included in the scope of the LCA study.</p> <p><b>This credit is not achieved.</b></p>
	<p><b>One credit – LCA and LCC alignment (all building types)</b>            10. Achieve criteria 3 to 5.  <b>11. Achieve Elemental LCC plan and Component Level LCC options appraisal credits (Man 02 Life cycle cost and service life planning).</b>            12. Include design options appraised for criteria 3 to 4 (and 6 to 7 and 8 to 9, if pursued) during Concept Design in Assessment scope - The elemental LCC plan.            13. Include the design options appraised for criterion 5 during Concept Design in the 'Component level LCC option appraisal' (in Man 02 Life cycle cost and service life planning).            14. Integrate the aligned LCA and LCC options appraisal activity within the wider design decision-making process. Record this in an options appraisal summary document including the relevant cost information from the 'elemental LCC plan' and 'Component level LCC option appraisal'.</p>	1	1.00	E	<p>BREEAM Workshop 05.09.23 - That the LCC will not be aligned with the LCA study.</p> <p><b>This credit is not achieved.</b></p>
	<p><b>One credit – Third party verification (all building types)</b>  <b>15. Criteria 1 to 7 (as applicable to the building type) are achieved.</b>            16. A suitably qualified third party (see Definitions) carries out the building LCAs or produces a report verifying the building LCAs accurately represent the designs under consideration during Concept Design and Technical Design with reference to the requirements of criteria 1 to 7 (and 8 to 14 if pursued).            17. For each LCA option, itemise the findings of the verification checks made by the suitably qualified third party in the report including, as a minimum, the quality requirements show in Table 9.4.            18. Include details of the suitably qualified third party's relevant skills and experience and a declaration of their third party independence from the project client and design team in the report.</p>	1	1.00	B	<p>BREEAM Workshop 05.09.23 - 3rd party verification of the LCA study could be pursued as a cost option.</p> <p>DTM 10.10.23 - ARC confirmed that Planet Mark's scope of services covers the verification of the BREEAM LCA study.</p> <p>REF 5 provides a development programme (with updates).</p> <p>REF 16 provides client written confirmation that LCA verification will be undertaken, probably by Pat Hermon, LCD Consulting.</p> <p><b>This credit is achieved subject to further evidence.</b></p>

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 B = Achieved subject to evidence  
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 D = Uncertain  
 E = Not achievable



**Table 4 - BREEAM Credit Assessment**

		Outline Credit Criteria				Assessment Commentary
		<b>RIBA STAGE 1 &amp; 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT</b>				
		3. Use the Mat 03 calculator tool and methodology to determine the number of credits achieved for the construction products specified or procured. Credits are awarded in proportion to the scope of the assessment and the number of points achieved, as set out in Table 9.10.	1	1.00	E	BREEAM Workshop 05.09.23 - That BREEAM exemplary responsible sourcing criteria will not be achieved.  <b>This credit is not achieved.</b>
		7. Non-hazardous construction waste generated, excluding demolition and excavation waste, is less than or equal to the exemplary level resource efficiency benchmarks (see Table 10.1).  8. The percentage of non-hazardous construction, demolition and excavation waste (if relevant) diverted from landfill meets or exceeds the exemplary level percentage benchmarks in Table 10.2.  9. All key waste groups in Table 10.3 for diversion from landfill are covered in the RMP.  10. Waste data obtained from licensed external waste contractors is reliable and verifiable, by using data from EA/SEPA/EA Wales/NIEA Waste Return Forms or from a PAS 402:2013 compliant company (see Definitions).	1	1.00	E	BREEAM Workshop 05.09.23 - Exemplary Wst01 criteria will not be met.  <b>This credit is not achieved.</b>
		7. The Project Sustainable Aggregate Points score meets or exceeds the exemplary level performance benchmark in Table 10.4.	1	1.00	D	BREEAM Workshop 05.09.23 - That it is uncertain whether exemplary BREEAM criteria will be met.  <b>This credit is uncertain at this stage.</b>
		Achievement of the following criteria demonstrates a holistic approach to the design and construction of the building's life cycle to mitigate against the impacts of climate change.  To achieve an exemplary performance credit: 4. Meet criteria 1 to 3 above. 5. Meet the criteria or achieve credits of the assessment issues given in Table 10.11.	1	1.00	E	BREEAM Workshop 05.09.23 - That BREEAM exemplary Wst05 criteria will not be achieved.  <b>This credit is not achieved.</b>

A = Achieved  
B = Achieved subject to evidence  
C = Cost option  
D = Uncertain  
E = Not achievable



**Table 4 - BREEAM Credit Assessment**

		Outline Credit Criteria				Assessment Commentary
		<b>RIBA STAGE 1 &amp; 2 ACTIONS HIGHLIGHTED IN RED BOLD TEXT</b>				
		<p><b>8. Achieve criterion 7 above.</b></p> <p>9. Wider sustainability related activities and potential ecosystem service benefits (see Definitions) are considered as part of determining the optimal ecological outcomes for the site (criterion 7), including the areas outlined in the Methodology below.</p> <p>10. Achieve the credits of the assessment issues outlined below:            a. Hea 07 Safe and healthy surroundings - Both credits.            b. Pol 03 Flood and surface water management - Achieve credits for 'Surface water run-off' and 'Minimising watercourse pollution'.            c. Pol 05 Reduction of noise pollution.</p>	1	1.00	E	<p>BREEAM Workshop 05.09.23 - The credit Pol03 'Minimising watercourse pollution' is unlikely to be achieved.</p> <p>REF 26 provides the GN40 Ecology Report and LEMP:            - C2 of the GN40 report confirms 'Wider site sustainability' criteria are not met.</p> <p><b>This credit is not achieved.</b></p>
		<p>7. The change in ecological value calculated under criterion 6 above confirms significant net gain has been achieved as set out in GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology – Route 2.</p>	1	1.00	B	<p>BREEAM Workshop 05.09.23 - It is uncertain whether a significant net gain in ecological value will be achieved.</p> <p>REF 30 provides the Biodiversity Metric 4.0 calculation from the SQE which confirms an overall net gain of +70.35%.</p> <p><b>This credit is achieved subject to further evidence.</b></p>
		<p>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.</p>	1	1.00	E	<p>BREEAM Workshop 05.09.23 - That no innovations will be applied for.</p> <p><b>This credit is not achieved.</b></p>
Subtotals			21	21.0		

A = Achieved  
 B = Achieved subject to evidence  
 C = Cost option  
 D = Uncertain  
 E = Not achievable



## APPENDIX 1 - DETAILS OF THE BREEAM METHODOLOGY

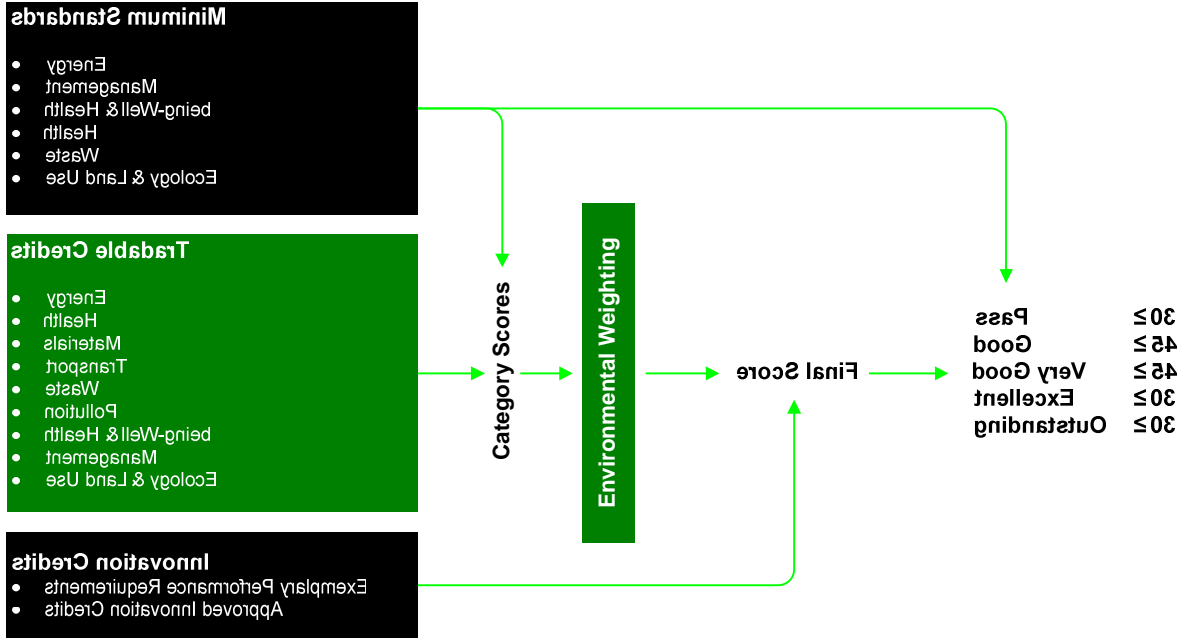
BREEAM is a tool that allows professionals with a vested interest in buildings to review and improve environmental performance throughout their life cycle. In the UK, BREEAM has been accepted as representing best practice and is now being used extensively by property professionals to provide a benchmark for the environmental performance of buildings that they are designing, refurbishing or operating. BREEAM is flexible and can be applied to provide a benchmark of environmental performance at any stage of the building's life cycle.

Using BREEAM, a building is assessed against a range of environmental issues covering impacts of a global, regional, local and indoor scale. For each issue, there are a number of credits available. Where a building attains or exceeds various benchmarks of performance, an appropriate number of credits are awarded.

Although a wide range of credits is available for each assessment, each credit does not carry equal importance to the overall score. The findings are weighted based upon their perceived importance as determined by consensus, achieved through detailed research and consultation by BRE with a variety of interest groups including:

Government Policy Makers	Developers and Investors
Construction Professionals	Environmental Groups and Lobbyists
Local Authorities	Academics
Materials Producers	

The weightings obtained as a result of this research are applied to the individual issue categories to provide an overall BREEAM Assessment score.



Depending upon the number of credits attained in the various issue categories, the results are translated into a corresponding overall rating as follows:

- Outstanding (85%+);
- Excellent (70%+);
- Very Good (55%+);
- Good (45%+), or;
- Pass (30%+).