

Bristol Airport Limited

Development of Bristol Airport to Accommodate 12 Million Passengers Per Annum: BREEAM Pre- Assessment

BREEAM Pre-Assessment
Report



Report for

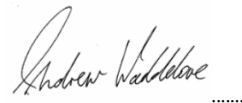
James Shearman
Head of Sustainability
Bristol Airport

Bristol Airport
Bristol
BS48 3DY

Main contributors

Andrew Waddelove
Alex Melling

Issued by



Andrew Waddelove

Approved by



.....
Alex Melling

Wood

Floor 12
25 Canada Square
Canary Wharf
London E14 5LB
United Kingdom
Tel +44 (0) 203 215 1610

Doc Ref. 40506-34

Copyright and non-disclosure notice

The contents and layout of this report are subject to copyright owned by Wood (© Wood Environment & Infrastructure Solutions UK Limited 2018) save to the extent that copyright has been legally assigned by us to another party or is used by Wood under licence. To the extent that we own the copyright in this report, it may not be copied or used without our prior written agreement for any purpose other than the purpose indicated in this report. The methodology (if any) contained in this report is provided to you in confidence and must not be disclosed or copied to third parties without the prior written agreement of Wood. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests. Any third party who obtains access to this report by any means will, in any event, be subject to the Third Party Disclaimer set out below.

Third party disclaimer

Any disclosure of this report to a third party is subject to this disclaimer. The report was prepared by Wood at the instruction of, and for use by, our client named on the front of the report. It does not in any way constitute advice to any third party who is able to access it by any means. Wood excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage howsoever arising from reliance on the contents of this report. We do not however exclude our liability (if any) for personal injury or death resulting from our negligence, for fraud or any other matter in relation to which we cannot legally exclude liability.

Management systems

This document has been produced by Wood Environment & Infrastructure Solutions UK Limited in full compliance with the management systems, which have been certified to ISO 9001, ISO 14001 and OHSAS 18001 by LQA.

Document revisions

No.	Details	Date
1	First Draft	29/08/2018
2	Client Comments	30/08/2018
3	Following workshop	06/09/2018
4	Final for issue	30/11/2018

Executive Summary

Wood Environment & Infrastructure Solutions UK Limited (Wood) has been appointed by Bristol Airport Limited (BAL) to undertake a Building Research Establishment Environmental Assessment Method (BREEAM) pre-assessment in support of a planning application to expand Bristol Airport beyond the permitted passenger cap of 10 million passengers per annum (mppa) to 12 mppa. This application includes the associated infrastructure necessary to accommodate this growth, whilst making best and most efficient use of the existing airport site.

This report details the results of a BREEAM pre-assessment of the proposed terminal building extension (herein 'the project'), outlining the credits that are potentially achievable and those which the project should target to achieve the desired BREEAM rating. This pre-assessment has been undertaken against the BREEAM 2018 Standard¹ in support of the planning application. It is understood that a BREEAM 'Bespoke' assessment will be required for the final assessment.

This pre-assessment provides a high-level summary of the likely score the project could achieve, subject to full bespoke criteria development from the Building Research Establishment (BRE), the technical authors of BREEAM.

Policy CS2 of the North Somerset Core Strategy (January 2017) 'Delivering Sustainable Design and Construction' supports high standards of design in developments and stipulates that BREEAM 'Excellent' will be required on all non-residential developments over 1,000m² (which is equivalent to a score $\geq 70\%$ (but less than 85%).

The current predicted score, based on this pre-assessment, is 74.38%. This is a rating of 'Excellent'.

Of these credits, it is considered that 61.87% of the score is relatively achievable (obtaining 'Very Good'), with the shortfall requiring input from across the BAL project team to support delivery.

The minimum requirement to achieve BREEAM 'Excellent' is a score $\geq 70\%$. Circa 90 credits need to be achieved to meet the 'Excellent' rating. The current predicted score shows that a **minimum of 97 credits, out of a potential 139 credits**, could be realistically achieved when a full BREEAM Bespoke Assessment is undertaken of the project. This meets the requirements of the planning authority's Core Strategy but does not allow for many credits to be lost during the design and construction phase. The margin for error needed to achieve the desired Rating of 'Excellent' is low, budgeting 4.38% of the total score for lost credits through the delivery of the project and with action required to meet the current predicted shortfall. At this stage, it is considered that the project, given work that is already underway, can realistically achieve a minimum of 86 credits (61.87%) which is a BREEAM 'Very Good' rating. As such we would determine that this represents a **marginal case**.

The pre-assessment score includes several credits which are currently achievable but are not yet directly targeted. This will require careful monitoring and review as the design progresses to ensure they can be achieved when a formal BREEAM assessment is undertaken. This is based on a series of assumptions which are detailed in this report and reliant on support from the project team to meet them as the 12 mppa application progresses. This includes the assumption that the minimum credits required to allow certification at the 'Excellent' level will be achieved.

Please also note that Ene01 has currently been scored as 'Not Met'. There are additional credits available against this credit, with it currently achieving 4 of the identified 9 potential credits. As above, in reference

¹ <http://www.breeam.com/NC2018/>

to allowing for slippage in credits, this would allow for some additional security to allow certification at 'Excellent'.

As the design evolves, additional credits may be identified. However, with the level of detail currently available, it is felt that this predicted score is representative of the project. We would recommend that the project should be targeting a score of at least 75% at this time to allow for 'lost' credits through the delivery of the project, which would represent an additional 5 credits over the 93 currently identified. This is especially pertinent as the BREEAM scheme has recently been updated, meaning project teams will be less familiar with the evidence requirements for demonstrating compliance.

To support the successful delivery of a final BREEAM certificate, the following recommendations are made:

- Appoint BRE to develop the BREEAM bespoke criteria for the project to allow the formal certification process to begin. This would require a BREEAM Assessor with experience of undertaking bespoke assessments;
- The project team coordinates or supports a workshop to identify roles and responsibilities at the earliest possible stage, with interim meetings with the BREEAM Assessor established at key project milestones to update on progress;
- Engage with all members of the project team to ensure they understand the client requirements and will support the delivery of the BREEAM assessment;
- Ensure the development of BREEAM bespoke criteria to ensure a final certificate can be issued;
- Identify what credits could be easily achieved given work that is already underway or is within the development pipeline that would support certification;
- Timelines for delivery are agreed with all project team members, with key project milestones and evidence requirements set to allow for full certification; and
- Ensure all stakeholders understand the evidence requirements to undertake a full BREEAM assessment against the requirements of BREEAM New Construction 2018 Bespoke Criteria and understand how to submit this to the BREEAM assessor to support the delivery of the final certificate.

Contents

1.	Introduction	6
1.1	Context	6
1.2	BREEAM	6
1.3	Development Plan Requirements	8
1.4	This Report	9
2.	Pre-Assessment: Achieving BREEAM 'Excellent'	10
2.1	Overview of Pre-Assessment Outcomes	10
2.2	Removing 'at risk' Credits	12
2.3	BREEAM Bespoke	13
2.4	Pre-Assessment Assumptions	14
2.5	Management	13
2.7	Health & Wellbeing	20
2.8	Energy	26
2.9	Transport	32
2.11	Water	35
2.12	Materials	38
2.13	Waste	44
2.14	Land Use & Ecology	51
2.15	Pollution	56
2.16	Innovation	59
3.	Next Steps	60
Table 1.1	BREEAM Categories Summary (Fully Fitted Out) subject to change under Bespoke Criteria	8
Table 1.2	BREEAM Rating required scores	8
Table 2.3	Current BREEAM score breakdown	11
Table 2.4	BREEAM credits 'at risk' removed	13
Figure 1.1	BREEAM pre-assessment predicted score	12

1. Introduction

1.1 Context

Bristol Airport is located on the A38, approximately 11km south-west of Bristol city centre and within the local authority administrative area of North Somerset Council (NSC). Operated by Bristol Airport Limited (BAL), it is the principal airport and main international gateway for the South West of England and South Wales².

In 2017, Bristol Airport handled over 8.2 million passengers making it the ninth busiest UK airport and the third largest regional airport in England³. Leading low cost, charter and full service airlines currently fly from Bristol Airport to over 120 destinations across 34 countries⁴.

BAL was granted outline planning permission by NSC on 16 February 2011 for the expansion of Bristol Airport to handle 10 mppa⁵. Between 2010 and 2017, investment totalling over £160 million has been made in a significant upgrade of facilities and infrastructure at Bristol Airport and passenger numbers have grown by over 40%, from 5.8 mppa to 8.2 mppa. BAL currently forecasts that passenger demand will reach 10 mppa by 2021, beyond which passenger traffic is projected to rise further to 15 mppa by the mid-2030s and to 20 mppa by the mid-2040s.

To meet passenger demand, both now and in the future, BAL is currently preparing a new Master Plan. The Master Plan will set out a strategy for phased growth to meet the forecast level of passenger demand by the mid-2040s; in doing so, it will ensure that Bristol Airport contributes fully to enhancing national airport capacity, delivers increased connectivity and supports economic prosperity in the South West and South Wales regions.

As part of the approach, set out in the emerging Master Plan to meeting future passenger demand beyond 2021, BAL is seeking planning consent for an initial phase of growth beyond the current cap of 10 mppa to 12 mppa. This will allow for growth in passenger numbers up to at least the mid-2020s. To support the increase in passenger numbers and ensure safe and efficient passenger movement to and around the airport site, BAL is proposing new infrastructure, improvements to existing facilities and operational changes which together form the Proposed Development.

1.2 BREEAM

Building Research Establishment's Environmental Assessment Method⁵ (BREEAM) is the leading environmental assessment method for UK non-residential buildings. It sets the standard for best practice sustainable design and encourages and certifies that best environmental practice is incorporated within building design and construction.

² York Aviation (2018). Bristol Airport Limited, Part 1 (Strategic) Economic Impact Assessment of Bristol Airport. Final Report.

³ Civil Aviation Authority (2017). Size of Reporting Airport January 2017 – December 2017. Comparison with previous year, [online]. Available at:

https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Airport_stats/Airportdata-2017-12/Table_01_Size_of_UK_Airports.pdf [Checked 01/03/2018]

⁴ Bristol Airport (2017). Your airport: your views. A world of opportunities. Preparing a new Master Plan: Public consultation, [online]. Available at: <https://www.bristolairportfuture.com/consultation> [Checked 01/08/2018] ⁵ Application reference 09/P/1020/OT2. ⁶ <http://www.breeam.com/>

⁵ <http://www.breeam.com/>

BREEAM is a nationally recognised standard for the design and construction of new non-residential developments. The BREEAM assessment process involves the evaluation of a building's performance against the scheme and its criteria using an independent third-party licensed BREEAM assessor. A BREEAM certificate provides formal verification that the assessor has completed an assessment of the building in accordance with the requirements of the scheme and its quality standards and procedures have been met. A BREEAM certificate verifies that a building's BREEAM rating, at the time of certification, accurately reflected its performance against the BREEAM standards.

BREEAM UK New Construction 2018 (published in March 2018) relates to standard building typologies and is applicable to new non-domestic development located in the United Kingdom. The BREEAM standard assesses and awards credits based on the environmental performance of non-residential developments within a framework of nine categories, these being:

- Management;
- Health and Wellbeing;
- Energy;
- Transport;
- Water;
- Materials;
- Waste;
- Land use and Ecology; and
- Pollution.

BREEAM also awards additional credits in recognition of sustainability related benefits or performances that go beyond best practice, termed 'innovation credits'. An additional 1% can be added to a building's overall score for each 'innovation credit' achieved up to a maximum of 10 credits for any one building, with the potential to score 110%. Innovation credits can be awarded regardless of the building's final BREEAM rating.

BREEAM should be implemented at different stages of the design (pre-assessment), construction (typically design stage assessment) and use of a building (final certificate). BREEAM assessment of a new build, refurbishment or fit-out is split into three main stages:

- BREEAM pre-assessment (this report) at RIBA stage 1 / 2, or at the earliest convenience, which will form the basis for the inclusion of BREEAM principles and awareness in the whole design process – leading to a pre-assessment report;
- Assessment of the design and commitments against the BREEAM criteria – this leads to an interim certificate;
- Review of the building during and post construction to ensure the design and commitments have been fully implemented in the building – this leads to a final certificate.

A full assessment is required to deliver a final certificate.

The categories within BREEAM are weighted according to their level of importance (see **Table 1.1**). Each category is allocated a different number of credits and therefore individual credits carry specific weightings, as a percentage of the total points score.

Please Note: under a bespoke assessment these section weightings are liable to change. BRE, the technical authors of the BREEAM standard, alter the section weightings dependent on the building type. This is anticipated to be relatively minor in the instance of the Proposed Development.

Table 1.1 BREEAM Categories Summary (Fully Fitted Out) subject to change under Bespoke Criteria

BREEAM Categories	Weighting Factor (% Points Contribution)	Total Credits Available
Management	11%	21
Health & Wellbeing	14%	16
Energy	16%	24
Transport	10%	12
Water	7%	8
Materials	15%	14
Waste	6%	9
Land Use & Ecology	13%	13
Pollution	8%	12
Total	100%	139
Innovation (additional)	10%	10

During the assessment, an independent BREEAM assessor will sum the total number of credits awarded for each of the BREEAM categories and apply the appropriate category weighting. Finally, the weighted score of each category is added together to produce a single environmental score.

The BREEAM ratings are divided into five levels of compliance 'Pass', 'Good', 'Very Good', 'Excellent' and 'Outstanding'. The BREEAM ratings thresholds are set out in **Table 1.2**.

Table 1.2 BREEAM Rating required scores

BREEAM Rating	% Score
Outstanding	≥ 85
Excellent	≥ 70
Very Good	≥ 55
Good	≥ 45
Pass	≥ 30
Unclassified	< 30

1.3 Development Plan Requirements

Policy CS2 of the North Somerset Core Strategy (January 2017), 'Delivering Sustainable Design and Construction', supports high standards of design in developments. It stipulates that BREEAM 'Very Good' will be required on all non-residential developments over 500m²; BREEAM 'Excellent' is required on all non-residential developments over 1,000m².

The Supplementary Planning Document (SPD) 'Creating Sustainable Buildings and Places in North Somerset: Guidance for energy efficiency, renewable energy and the transition to zero carbon development'⁶ provides more detailed guidance on (inter alia) BREEAM in support of Policy CS2. The SPD sets out that planning applications should be supported by a pre-assessment or a design stage certificate and that applicants are encouraged to submit a post-construction certificate. The SPD also states that:

11.7 Where a successful case has been made demonstrating non-viability in meeting the required BREEAM standards, it may be permissible for applicants to apply a lower standard or potentially utilise alternative strategies. These will be assessed on their merits at the planning application stage⁷.

It is BAL's intention to strive for BREEAM 'Excellent' in accordance with Core Strategy Policy SC2, however, noting the volume of at risk credits BAL will achieve at least a 'Very Good' rating.

1.4 This Report

The pre-assessment contained in this report meets the requirement for the planning application to be supported by a BREEAM pre-assessment. The report sets out:

- The current predicted potential BREEAM score for the proposed development.
- The score is justified against each of the BREEAM categories, with each credit broken down into specific requirements and the assumptions that have been made in reaching the target credits.

⁶ <https://www.n-somerset.gov.uk/wp-content/uploads/2015/11/Creating-sustainable-buildings-and-places-supplementary-planning-document.pdf>

⁷ <https://www.n-somerset.gov.uk/wp-content/uploads/2015/11/Creating-sustainable-buildings-and-places-supplementary-planning-document.pdf>

2. Pre-Assessment: Achieving BREEAM 'Excellent'

2.1 Overview of Pre-Assessment Outcomes

The minimum requirement to achieve BREEAM 'Excellent' is a score $\geq 70\%$. Circa 90 credits need to be achieved to meet the 'Excellent' rating. The current predicted score shows that a **minimum of 97 credits, out of a potential 139 credits**, could be realistically achieved when a full BREEAM assessment is undertaken of the project. This meets the Development Plan requirements but does not allow for any credits to be lost during the design and construction phase. At present, it is considered that 83 credits are achievable, a score of 61.87% ('Very Good').

To achieve a 'Excellent' rating, the project will need to meet the following minimum standards:

- Man03 Responsible construction practices: One credit (responsible construction management);
- Man04 Commissioning and Handover: One credit (commissioning-test schedule and responsibilities);
- Man04 Commissioning and Handover: Criterion 11 (Building User Guide);
- Man05 Aftercare: One credit (commissioning-implementation)
- Ene01 Reduction of energy use and carbon emissions: Four credits (Energy performance)
- Ene02 Energy monitoring: One credit (First sub-metering credit);
- Wat01 Water consumption: One credit;
- Wat02 Water monitoring: Criterion 1 only;
- Mat03 Responsible sourcing of materials: Criterion 1 only;
- Wst03 Operational waste: One credit.

The pre-assessment shows that a 'Excellent' rating is achievable, although the minimum criteria against Ene01 have not been fully met (see **Table 2.1**).

Table 2.1 Current BREEAM score breakdown

BREEAM Rating							
	Credits available	Credits achieved	Credits targeted	% Credits achieved	Weighting	Category score	Target score
Man	21.0	18.0	18.0	85.71%	11.00%	9.42%	9.42%
Hea	16.0	14.0	14.0	87.50%	14.00%	12.25%	12.25%
Ene	24.0	10.0	15.0	41.67%	16.00%	6.66%	10.00%
Tra	12.0	8.0	10.0	66.67%	10.00%	6.66%	8.33%
Wat	8.0	6.0	6.0	75.00%	7.00%	5.25%	5.25%
Mat	14.0	10.0	11.0	71.43%	15.00%	10.71%	11.78%
Wst	9.0	6.0	7.0	66.67%	6.00%	4.00%	4.66%
LE	13.0	6.0	6.0	46.15%	13.00%	6.00%	6.00%
Pol	12.0	8.0	10.0	66.67%	8.00%	5.33%	6.66%
Inn	10.0	0.0	0.0	0.00%	10.00%	0.00%	0.00%
Total	139.0	86.0	97.0	61.87%	-	66.30%	74.38%
Rating	-	-	-	-	-	Very Good	Excellent

Figure 2.1 (below) demonstrates the relative predicted score against the total available.

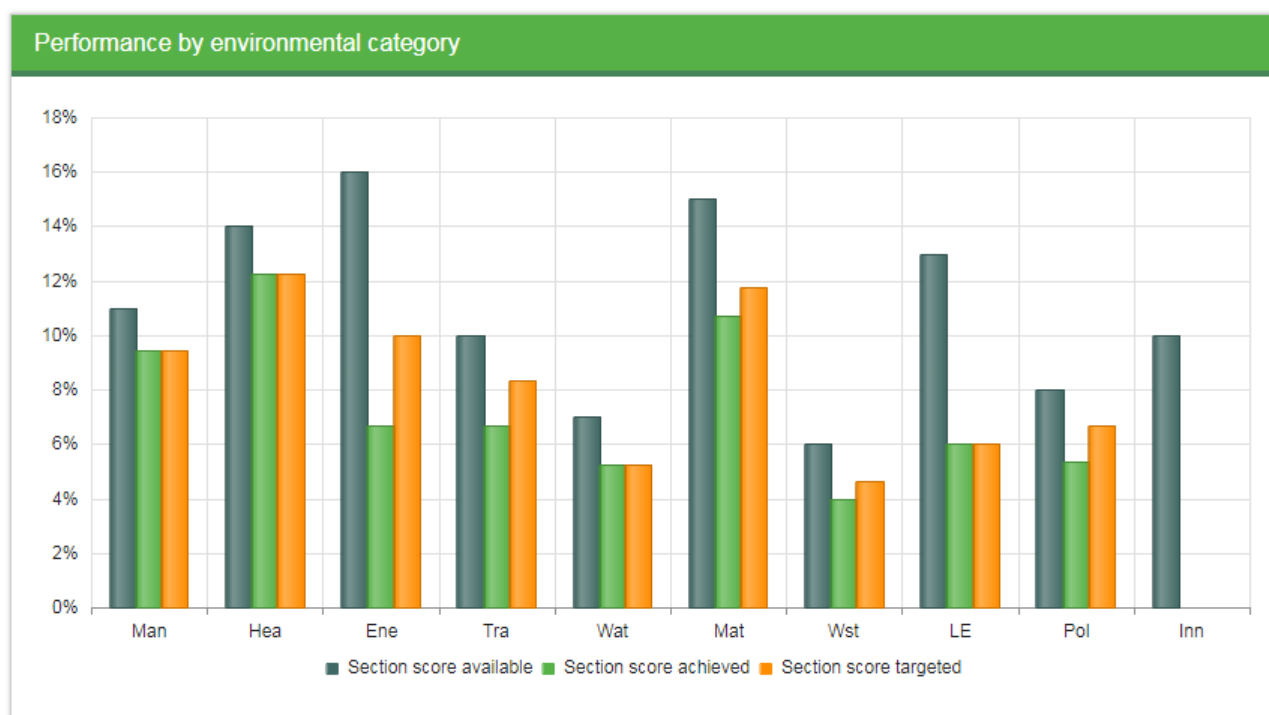


Figure 2.1 BREEAM pre-assessment predicted score

Figure 1.1 demonstrates where the predicted shortfall may occur. These are Energy; Materials; Waste and Pollution. **This may be a result of limited information at this stage of the assessment.**

2.2 Removing 'at risk' Credits

Sections 2.5 to 2.15 detail the assumptions made in delivering the above BREEAM score. This was tested with the project team in a meeting held on 5th September 2018. Following this, a series of 'at risk' issues were identified (Ene01; Man05; Hea07; Ene08 and Mat01). These are shown in Table 2.2 below. The credits identified as being at risk are subject to further review by the design team as to their potential to be delivered.

With the 'at risk' credits removed the project scores a potential 57.43%, a rating of 'Very Good'.

It must be noted that it is BAL's intention to strive for BREEAM 'Excellent' however, noting the volume of at risk credits BAL will achieve at least a 'Very Good' rating.

Table 2.2 BREEAM credits 'at risk' removed

BREEAM Rating							
	Credits available	Credits achieved	Credits targeted	% Credits achieved	Weighting	Category score	Target score
Man	21.0	16.0	18.0	76.19%	11.00%	8.38%	9.42%
Hea	16.0	13.0	14.0	81.25%	14.00%	11.37%	12.25%
Ene	24.0	6.0	13.0	25.00%	16.00%	4.00%	8.66%
Tra	12.0	8.0	10.0	66.67%	10.00%	6.66%	8.33%
Wat	8.0	6.0	6.0	75.00%	7.00%	5.25%	5.25%
Mat	14.0	6.0	7.0	42.86%	15.00%	6.42%	7.50%
Wst	9.0	6.0	7.0	66.67%	6.00%	4.00%	4.66%
LE	13.0	6.0	6.0	46.15%	13.00%	6.00%	6.00%
Pol	12.0	8.0	10.0	66.67%	8.00%	5.33%	6.66%
Inn	10.0	0.0	0.0	0.00%	10.00%	0.00%	0.00%
Total	139.0	75.0	91.0	53.96%	-	57.43%	68.76%
Rating	-	-	-	-	-	Very Good	Very Good

2.3 BREEAM Bespoke

The bespoke process for BREEAM allows those buildings that are not considered to be 'standard' to be assessed and certified against BREEAM. The scope section of each of the BREEAM technical manuals (SD5076, SD5075, SD216, and SD225) defines the "standard" building types covered by that scheme. For any other building types the bespoke process will be required⁸.

A bespoke assessment will be required for the Proposed Development. It is also worth noting the BREEAM Guidance for developments that are a mix of new-build and refurbishment of existing spaces the choice of scheme selection and application is determined according to the scope of the new-build and refurbishment works.

For smaller projects, where the total development area is less than 1,000m², a single BREEAM assessment can be undertaken to cover both the new-build and refurbished areas. The choice of BREEAM New Construction or BREEAM Refurbishment and Fit-out scheme should be based on whichever (new-build or refurbishment) constitutes the majority of the assessed floor area.

For larger projects, a single New Construction assessment can be undertaken, though the refurbished areas have to comply with assessment criteria designed for new builds which can be more challenging in some instances. If the development is predominantly a refurbishment with new-build extension then the BREEAM Refurbishment and Fit-out scheme may be the most appropriate as it contains thresholds under which a single Refurbishment and Fit-out assessment can be completed.

Where none of the above options are deemed suitable for the project, there are two further options:

- Option 1: Separate BREEAM New Construction and BREEAM Refurbishment and Fit-out assessments. Under option 1, two separate BREEAM assessments would be conducted with a

⁸ <https://tools.breeam.com/filelibrary/Guidance%20Notes/GN23-BREEAM-Bespoke-Process.pdf>

BREEAM New Construction assessment undertaken on the new extension and a BREEAM Refurbishment and Fit-out assessment undertaken on the existing building refurbishment or fit-out. Two separate certificates and ratings can be obtained to indicate the performance of both the new extension and existing building refurbishment or fit-out.

- Option 2: Bespoke BREEAM combined New Construction and Refurbishment and Fit-out assessment. Under option 2, BRE Global will produce a Bespoke criteria appendix document which will determine, for specific BREEAM issues, which issues and assessment criteria are applicable to the part new-build part refurbishment project. It will refer to both the BREEAM UK Refurbishment and Fit Out manual and the BREEAM UK New Construction manuals. A bespoke Scoring and Reporting tool will also be produced for the project. In determining the appropriate option for a part new-build part refurbishment project, the BREEAM Assessor should review the scope of the proposed works, and in particular, consider the scope of the refurbished elements, e.g. whether it is a major refurbishment, will there be a significant change of use and will the building's thermal and structural elements remain unchanged? Using this information, the assessor should advise the client on the most suitable BREEAM version or scheme for maximising the building's environmental performance.
- **Please Note:** under the bespoke criteria development BRE will advise what route is most applicable to the Proposed Development.

2.4 Pre-Assessment Assumptions

Circa 90 credits need to be achieved to meet the 'Excellent' rating. The current predicted score shows that 93 credits could be achieved out of a potential 139.

The following sections details the BREEAM credit criteria and how many credits it is felt the 12 mppa application could achieve. Each of the BREEAM sections includes a short summary and a table outlining the opportunity to influence the credit outcome against the RIBA Plan of Work.

The following section details the assumptions that have been made to reach this. In support of the pre-assessment the project team met on 5th September 2018.

2.5 Management

As established by the BRE the ability of the project team to influence the outcome of the individual credits is shown below. The opportunities to influence a positive outcome for the Management credits comes at RIBA Stage 4 – 5, therefore it is of **HIGH IMPORTANCE** that these issues are addressed at this stage.

Man01 should be prioritised at this stage, with an assessment as to the merits of undertaking Life Cycle Analysis and reporting this. The Project Team need to work with appointed cost consultants / BRS Finance Department to report capital cost to score one additional credit. The Project Team also need to be aware of their commitments beyond construction to support the delivery of credits in the long term.

For Man02 the requirements need to be met at this stage.

		Sub credits	Plan of Work						
			Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out
Section									
Man 01	Project brief and design	Project delivery planning							
		Stakeholder consultation							
		BREEAM Advisory Professional			maximise project performance	maximise project performance			
Man 02	Life cycle cost and service life planning	Life cycle cost			elemental LCC		Component level LCC options		
		Capital cost reporting							
Man 03	Responsible construction practices	Environmental management							
		BREEAM Advisory Professional							
		Responsible construction management							
		Monitoring of construction site impacts							
Man 04	Commissioning and handover	Commissioning-testing schedule and responsibilities							
		Handover					Building user guides and training schedules prepared	Building user guides and training schedules prepared	
Man 05	Aftercare								
		Design or management influence							
		Design or client decision							
		Design or management changes at a high cost							
		No further changes can be made							
		RIBA stage stipulated within BREEAM criteria.							

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Man01 Project Brief and Design	4 / 4	<p>Based on the BREEAM requirements, at this stage there should be a focus on:</p> <ul style="list-style-type: none"> ● Prior to completion of the concept design, the project delivery stakeholders meet to identify and define for each key phase of project delivery: <ul style="list-style-type: none"> ○ Roles; ○ Responsibilities; ○ Contributions. ● Consider each one of the following items when defining roles, responsibilities and contributions for each key phase of the project: <ul style="list-style-type: none"> ○ End user requirements; ○ Aims of the design and design strategy; ○ Particular installation and construction requirements or limitations; ○ Occupiers' budget and technical expertise in maintaining any proposed systems; ○ Maintainability and adaptability of the proposals; ○ Operational energy; ○ Requirements for the production of project and end user documentation; ○ Requirements for commissioning, training and aftercare support. ● Evidence should be provided that shows 'the project team demonstrates how the project delivery stakeholders' contributions and the consultation process outcomes influence the following: <ul style="list-style-type: none"> ○ Initial Project Brief; ○ Project Execution Plan;

	<ul style="list-style-type: none"> ○ Communication Strategy; ○ Concept Design. <p>A consultation plan should be developed to meet the requirement that 'Prior to completion of the concept design, the project team consult with all interested parties on matters that cover the minimum consultation content and demonstrate how the stakeholder contributions and consultation exercise outcomes influence the initial project brief and concept design.</p>
Assumptions:	<p>It is assumed that the project delivery plan and stakeholder consultation credits will be targeted.</p> <p>It is assumed that the client and the contractor will formally agree performance targets and that this will be written into their briefs. This credit should be a key focus at this stage. Under the BREEAM assessment criteria evidence would need to be provided of project team collaboration and discussion on the following topics:</p> <ul style="list-style-type: none"> ○ Functionality, build quality and impact (including aesthetics). ○ Provision of appropriate internal and external facilities (for future building occupants and visitors or users). ○ Management and operational implications. ○ Maintenance resources implications. ○ Impacts on the local community, e.g. local traffic or transportation impact. ○ Opportunities for shared use of facilities and infrastructure with the community or appropriate stakeholders. ○ Compliance with statutory (national or local) consultation requirements. ○ Energy use and sustainability measures. ○ Implementing principles and processes that deliver an inclusive and accessible design. <p>Be aware that prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), all interested parties give and receive consultation feedback.</p> <p>The project team should develop a series of short technical summaries / minutes based on the outcomes of team meetings, highlighting the above points and areas of collaboration.</p> <p>PLEASE NOTE: an additional 2 Credits have been awarded beyond the baseline. To score an additional 2 Credits the client team would need to appoint a BREEAM Accredited Professional (AP) at Concept Design and Detailed Design.</p>

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Man 02 Life cycle cost and service life planning	4 / 4	<p>This issue is split into three parts:</p> <ul style="list-style-type: none"> ● Elemental life cycle cost (LCC) (two credits): the requirements for this need to be met at RIBA Stage 2. <ul style="list-style-type: none"> ○ A competent person carries out an outline, entire asset LCC plan at RIBA Stage 2 together with any design options appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865: 2008 ○ The elemental LCC plan: <ul style="list-style-type: none"> ▪ 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). ▪ 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). ▪ Demonstrate, using appropriate examples provided by the project team, how the elemental LCC plan has been used to influence. ● Component level life options appraisal (one credit): the requirements for this need to be met at RIBA Stage 4. ● Capital cost reporting (one credit). <p>Credits for each one of the three parts are awarded independently from one another.</p>
Assumptions:		<p>It has been assumed that one credit will be targeted for Component Level Life Cycle Costing. An easy credit to achieve will be the Capital Cost Reporting as all this requires is to 'Report the capital cost for the building in pounds per square metre of gross internal floor area (£k/m²) as part of the submission to BRE'.</p> <p>It is suggested that this is addressed with the project Cost Consultant as this would be a relatively easy and low-cost option for a credit. Following discussion with the project team we have allocated maximum Credits.</p>

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Man 03 Responsible construction practices	4 / 6	<p>Within the contractor requirements specific reference needs to be made to the 'prerequisite - legally harvested and traded timber' that all timber and timber-based products used during the construction process of the project are 'legally harvested and traded timber' and they should comply with this requirement. For other materials there are no prerequisite requirements at this stage.</p> <p>The contractor must also be required to address the Responsible construction management issues, notably:</p> <ul style="list-style-type: none"> ○ Vehicle movement; ○ Pollution management; ○ Health and wellbeing; ○ Security processes; ○ Monitoring and reporting.
Assumptions:	<p>It has been assumed that 4 credits will be targeted. This includes:</p> <ul style="list-style-type: none"> ● Prerequisite: Are all timber and timber-based products used during the construction process of the project 'legally harvested and traded timber'? ● Prerequisite: Have the client and the contractor formally agreed performance targets? ● Environmental management (contractor is ISO14001 Compliant). ● Responsible construction management. ● Monitoring of construction site impacts (this will not include utility consumption or transport of materials – these could be targeted if written into contractor / supplier briefs). <p>As above, it is important to ensure that the contractor is clear that the requirements of Man03 MUST be met and clauses written into their contract to comply with the requirements and provide evidence to demonstrate this. This is a prerequisite credit and therefore must be achieved to allow certification.</p> <p>In addition to Man01 we have assumed the appointment of a BREEAM AP.</p>	

	The additional two Credits we have not awarded are for the monitoring of construction site impacts. This includes utility and transportation of construction materials and waste. This could be assessed when the contractor is appointed with requirements set for them to deliver this, allowing for an additional 2 Credits.
--	---

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Man 04 Commissioning and handover	4 / 4	<p>This issue is split into four parts:</p> <ul style="list-style-type: none"> ● Commissioning - testing schedule and responsibilities (one credit): Prepare a schedule of commissioning and testing in accordance with BSRIA / Building Regulations. / CIBSE with an appointed team member. ● Commissioning - design and preparation (one credit): appoints an appropriate project team member responsible for: <ul style="list-style-type: none"> ○ Undertaking design reviews and giving advice on suitability for ease of commissioning. ○ Providing commissioning management input to construction programming and during installation stages. ○ Management of commissioning, performance testing and handover or post-handover stages. ○ Testing and inspecting building fabric (one credit): ensure 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). ● Handover (one credit): Prior to handover, develop two building user guides (a non-technical user guide for distribution to the building occupiers and a technical user guide for the premises facilities managers).
Assumptions:		It has been assumed that maximum credits should be achieved against Man04. This requires action by the project team to ensure this is written in to M&E contractor briefs. In our experience they are used to these issues and this should be achievable. As such the project team should be aware of the above requirements and ensure this is within their scope at this stage with a plan to be developed for how this should be met.

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Man 05 Aftercare	2 / 3	<p>There are no actions required at this stage. However, the Project Team should be aware that this issue is split into three parts:</p> <ul style="list-style-type: none"> ● Aftercare support (one credit): understand who will be accountable for providing aftercare support and ensure key information on the building including the design intent and how to use the building to ensure it operates as efficiently and effectively as possible will be delivered. ● Commissioning - implementation (one credit): ensure the requirements appropriate to the type of system to be installed will be delivered when the project is complete. ● Post-Occupancy Evaluation (POE) (one credit): commission a POE that meets the BREEAM requirements.
Assumptions:	<p>It is assumed that 2 of the credits available will be targeted. This is due to no POE being commissioned.</p> <p>There are no actions required at this stage but the project team should be aware of the measures required at RIBA Stages 5 – 6 and for supporting the project after Construction.</p> <p>It should be noted that these Credits are considered beyond business as usual.</p>	

2.7 Health & Wellbeing

As established by the BRE the ability of the Project Team to influence the outcome of the individual credits is shown below.

The opportunities to influence a positive outcome for the Health & Wellbeing credits comes at RIBA Stage 2 – 3, therefore it is of **HIGH IMPORTANCE** that these issues are addressed at this stage. This category really requires interdisciplinary working within the Project Team as Hea02 and Hea04 specifically require co-ordination within the decisions that will be made. There are potentially additional credits available at Hea04.

To meet the requirements of Hea05 the project team need to appoint an acoustician and for Hea06 a Suitably Qualified Security Specialist (SQSS) needs to undertake an assessment of the design.

Section	Sub credits	Plan of Work						
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out
Hea 01	Visual comfort							
Hea 02	Indoor air quality			Indoor air quality plan				
Hea 04	Thermal comfort							
Hea 05	Acoustic performance			Acoustician appointment				
Hea 06	Security							
Hea 07	Safe and healthy surroundings							

	Design or management influence
	Design or client decision
	Design or management changes at a high cost
	No further changes can be made
	RIBA stage stipulated within BREEAM criteria.

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Hea 01 Visual comfort	3 / 4	<p>This issue is split into four parts:</p> <ul style="list-style-type: none"> Control of glare from sunlight (one credit): identify those areas of the building that will be at risk of glare, with a strategy developed to limit this / design out glare. Daylighting (up to two credits - building type dependent): relevant building areas meet good practice daylight factors. View out (one credit): view out criteria are met (95% of the floor area in 95% of spaces for each relevant building area is within 8 m of an external wall. The external wall has a window or permanent opening / The window or opening must be \geq 20% of the surrounding wall area). Internal and external lighting (one credit): Internal lighting in all relevant areas of the building is designed to provide illuminance (lux) levels and colouring rendering index in accordance with the SLL Code for Lighting 2012 AND 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.
Assumptions:	<p>In our experience of undertaking assessments at airports these credits are the most likely to be adapted by the BRE under the bespoke criteria development. They require specific attention from the design team to ensure the daylighting levels are met but are achievable.</p> <p>The Credit not achieved at present is 'view out'.</p>	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Hea 02 Indoor air quality	3 / 4	<p>Ensure that the prerequisite for an Indoor air quality (IAQ) plan is met in accordance with the guidance in Guidance Note GN06. The plan must be produced no later than the end of Concept Design.</p> <p>The Project Team need to understand the implications of the emissions from construction products credits (there are two available) if the project requires an Excellent rating.</p> <p>Need to review with the M&E leads as to the potential to meet the ventilation credits.</p>
Assumptions:	For the project to meet Excellent this is a prerequisite. This requires an IAQ with ventilation and low emissions from building products.	

	The credit not achieved is for 'Post-construction indoor air quality measurement'. There is a range of criteria but ultimately the formaldehyde concentration in indoor air is measured post construction (but pre-occupancy) and does not exceed 100 µg/ m ³ averaged over 30 minutes.
--	--

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Hea 04 Thermal comfort	3 / 3	<p>This issue is split into three parts:</p> <ul style="list-style-type: none"> Thermal modelling (one credit): Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Performance Modelling. Design for future thermal comfort (one credit): The thermal modelling demonstrates that the relevant requirements are achieved for a projected climate change. Thermal zoning and controls (one credit): The thermal modelling analysis has informed the temperature control strategy for the building and its users.
Assumptions:	3 / 3 targeted.	It is assumed that the M&E Designer will be able to conform with the thermal modelling credit.

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Hea 05 Acoustic performance	3 / 3	Acoustic performance (up to three credits available): it is confirmed the building meets the appropriate acoustic performance standards and testing requirements OR a suitably qualified acoustician (SQA) is appointed to define a bespoke set of performance requirements for all function areas in the building.
Assumptions:	The Project Team should appoint an acoustician to the team, or the architect team need to take accountability for meeting the requirements.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Hea 06 Security	1 / 1	<p>This issue has one part: 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.</p> <p>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.</p> <p>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>
Assumptions:		<p>The client needs to appoint an SQSS at this stage.</p> <p>An individual achieving 1–3 or 4 of the following can be considered to be suitably qualified for the purposes of compliance with BREEAM:</p> <ol style="list-style-type: none"> 1. Minimum of three years' experience in a relevant security profession (in the last five years). This experience must clearly demonstrate a practical understanding of factors affecting security in relation to construction and the built environment, relevant to the type and scale of the project being undertaken. 2. Holds a qualification relevant to security. 3. Maintains a full membership to a relevant professional body, institute or certification scheme that has a professional code of conduct, to which members adhere. 4. A specialist registered with a BREEAM recognised third party licensing or registration scheme for security specialists. <p>An SQSS may be any practising security professional (e.g. a private security consultant or advisor, an ALO, CPDA, CTSA, or an individual associated with the client team), however they must demonstrate that they hold the experience, qualifications and memberships required by the SQSS criteria.</p> <p>When appointing the SQSS, consideration should be given to the appropriateness of the individual to carry out the task assigned. The SQSS should be able to demonstrate that they have experience dealing with similar projects with equal security levels and similar risks.</p>

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Hea 07 Safe & Healthy Surroundings	1 / 1	<p>Need to ensure that the landscape design takes account of the requirements:</p> <ul style="list-style-type: none"> • Dedicated and safe cycle paths are provided from the site entrance to any cycle storage and connect to offsite cycle paths where applicable. • Dedicated and safe footpaths are provided on and around the site providing suitable links for the following: <ul style="list-style-type: none"> ○ The site entrance to the building entrance; ○ Car parks (where present) to the building entrance; ○ The building to outdoor space; ○ Connecting to off-site paths where applicable. • Pedestrian drop-off areas are designed off, or adjoining to, the access road and should provide direct access to other footpaths. Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply. • Delivery areas are not accessed through general parking areas and do not cross or share the following: <ul style="list-style-type: none"> ○ pedestrian and cyclist paths; ○ outside amenity areas accessible to building users and general public. • There is a dedicated parking or waiting area for goods vehicles with appropriate separation from manoeuvring area and staff and visitor car parking. • Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting. <p>The additional credit that there is an outside space providing building users with an external amenity area.</p>
Assumptions:	<p>The safe access criteria apply only to developments that have areas external to the assessed building and within the boundary of the assessed development (regardless or not of whether that external area is or will be the responsibility of the future building occupant). This includes external parking areas. If the assessed building does not have any external areas and access to the building is direct from the</p>	

public highway or footpath, then the criteria concerning safe access are not applicable and the credit can be awarded by default. Please note the criteria:

- Dedicated and safe cycle paths are provided from the site entrance to any cycle storage, and connect to offsite cycle paths where applicable.
- Dedicated and safe footpaths are provided on and around the site providing suitable links for the following:
 - The site entrance to the building entrance;
 - Car parks (where present) to the building entrance;
 - The building to outdoor space;
 - Connecting to off-site paths where applicable.
- Pedestrian drop-off areas are designed off, or adjoining to, the access road and should provide direct access to other footpaths.
- Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply:
- Delivery areas are not accessed through general parking areas and do not cross or share the following:
 - pedestrian and cyclist paths;
 - outside amenity areas accessible to building users and general public.
- There is a dedicated parking or waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking.
- Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting.

This credit is potentially at risk due to the limits on the site to deliver cycle paths.

2.8 Energy

As established by the BRE the ability of the Project Team to influence the outcome of the individual credits is shown below.

The opportunities to influence a positive outcome for the Energy credits comes at RIBA Stage 2 – 3, therefore it is of **HIGH IMPORTANCE** that these issues are addressed at this stage.

The energy strategy needs to begin to be developed at this stage. These credits are potentially high risk in terms of being lost through the delivery of the project and are expensive / difficult to redress and so should be a focus. There are additional credits available here at POE that should be explored as potentially achievable.

		Sub credits	Plan of Work						
			Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out
Section									
Ene 01	Reduction of energy use and carbon								
Ene 02	Energy monitoring								
Ene 03	External lighting								
Ene 04	Low carbon design	Passive design			passive design analysis				
		Low and zero carbon technologies feasibility			feasibility study				
Ene 05	Energy efficient cold storage	Refrigeration energy consumption			strategy for design and installation				
Ene 06	Energy efficient transportation systems								
Ene 07	Energy efficient laboratory systems	Design specification			client engagement				
Ene 08	Energy efficient equipment								

	Design or management influence
	Design or client decision
	Design or management changes at a high cost
	No further changes can be made
	RIBA stage stipulated within BREEAM criteria.

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Ene 01 Reduction of energy use and carbon emissions	4 / 13	<p>We need to see evidence of:</p> <ul style="list-style-type: none"> relevant members of the project team hold a preliminary design workshop focusing on operational energy performance. <ul style="list-style-type: none"> A copy of the building regulations output document from the approved software (i.e. SBEM output). The output documents must be based on the design stage of analysis. A copy of the building regulations output document from the design stage SAP calculations. Workshop minutes, agreed outcomes. Predicted energy consumption values, design assumptions, input data and risk assessments reported as detailed in the Energy Prediction and Post-occupancy guidance available from BREEAM. Evidence confirming: <ul style="list-style-type: none"> The total carbon neutral energy generation (kWh/yr); The source of the carbon neutral energy; Calculated estimate of energy consumption from unregulated systems or process (kWh/yr); Calculated estimate of exported energy surplus (only required if confirming carbon negative status). Within the scope of design and post construction ensure that the Project Team 'Undertake additional energy modelling during the design and post-construction stage to generate predicted operational energy consumption figures'. <p>The Project Team need to assess with the Client whether there is a need to go beyond zero net regulated carbon or for the building to be carbon negative as there are additional credits available.</p> <p>There are also 2 credits available at the Post Occupancy stage that may be achievable if POE is pursued.</p>
Assumptions:	<p>Requires 6 credits to be achieved (equivalent to an EPR_{NC} of at least 0.6) and 4 credits for Energy modelling and reporting. The Project Team need to ensure:</p> <ul style="list-style-type: none"> Prior to completion of the Concept Design, relevant members of the project team hold a preliminary design workshop focusing on operational energy performance. 	

	<ul style="list-style-type: none"> Undertake additional energy modelling during the design and post-construction stage to generate predicted operational energy consumption figures. Report predicted energy consumption targets by end use, design assumptions and input data. <p>Carry out a risk assessment to highlight any significant design, technical, and process risks that should be monitored and managed throughout the construction and commissioning process.</p>
--	--

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Ene 02 Energy monitoring	2 / 2	<p>We need to ensure within the Design Specification that there is:</p> <ul style="list-style-type: none"> Sub-metering of end-use categories (One credit): 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. Ensure the additional requirements are met (based on floor area / communications / building users). Sub-metering of high energy load and tenancy areas (One credit): Monitor a significant majority of the energy supply in relevant function areas or departments in single occupancy buildings OR sub-meter per floor plate in large single occupancy or single-tenancy buildings with one homogeneous function, for example hotel bedrooms, offices.
Assumptions:	As above within the M&E design ensure that sub-metering is installed and that this is reported on a floor by floor basis and that the building users can access this to review energy consumption.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Ene 03 External lighting	1 / 1	<p>The project team need to take account of the BREEAM Guidance which sets out that:</p> <ul style="list-style-type: none"> No external lighting (which includes lighting on the building, at entrances and signs) OR External light fittings within the construction zone with: <ul style="list-style-type: none"> Average initial luminous efficacy of not less than 70 luminaire lumens per circuit Watt

		<ul style="list-style-type: none"> ○ Automatic control to prevent operation during daylight hours ○ Presence detection in areas of intermittent pedestrian traffic.
Assumptions:	As the design evolves there is a need to ensure external lighting conforms with the above requirements. Where there is any external lighting need to ensure this meets the luminaire lumens per circuit Watt requirements.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Ene 04 Low carbon design	0 / 3	<p>This issue is split into two parts:</p> <ul style="list-style-type: none"> ● Passive design (2 credits): <ul style="list-style-type: none"> ○ Thermal modelling to demonstrate that the building design delivers appropriate thermal comfort levels in occupied spaces. ○ The project team analyses the proposed building design and development during Concept Design to identify opportunities for the implementation of passive design measures. ○ 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. ○ Quantify the reduced total energy demand and carbon dioxide (CO₂) emissions resulting from the passive design measures. ○ An additional credit is available for Free Cooling where the above is met and the Project Team have included a free cooling analysis in the passive design analysis. In this they have identified opportunities for the implementation of free cooling solutions. The building is naturally ventilated or uses any combination of the free cooling strategies identified in the BREEAM Guidance. ● Low or zero carbon technologies (1 credit). <ul style="list-style-type: none"> ○ An energy specialist completes a feasibility study by the end of Concept Design. They establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy sources for the building based on the feasibility

		study. Specify local LZC technologies for the building or development in line with the feasibility study recommendations. Quantify the reduced regulated carbon dioxide (CO ₂) emissions resulting from the feasibility study.
Assumptions:	At present no credits have been awarded against ENE04, contributing to the shortfall of 10. One credit should be achievable against the requirement for 15% renewables but the other credits may be difficult to achieve.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Ene 05 Energy efficient cold storage	N / A	Assumed that there are no refrigeration / cold storage systems in the building.
Assumptions:	Confirm that there are no refrigeration / cold storage systems in the building. This issue is applicable only in instances where commercial or industrial sized refrigeration and storage systems are specified and cannot be awarded by default where these systems are not present.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Ene 06 Energy efficient transportation systems	3 / 3	<p>Ensure compliance with the following:</p> <ul style="list-style-type: none"> One credit - Lifts Specify the following three energy efficient features for each lift: <ul style="list-style-type: none"> A standby condition for off-peak periods; The lift car lighting and display lighting provides an average luminous efficacy across all fittings in the car of > 70 luminaire lumens per circuit Watt; Use of a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor. 4 Specify regenerative drives where their use is demonstrated to save energy. One credit - Escalators or moving walks Specify at least one of the following for each escalator or moving walk:

		<ul style="list-style-type: none"> ○ A load-sensing device that synchronises motor output to passenger demand through a variable speed drive; OR ○ A passenger-sensing device for automated operation (auto walk), so the escalator operates in auto start mode when there is no passenger demand.
Assumptions:	For the transportation systems ensure the energy efficiency features are within the product brief / specification and that they confirm with the above.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Ene 08 Energy efficient equipment	2 / 2	<p>There is a need to:</p> <ul style="list-style-type: none"> ● Identify the building's unregulated energy consuming loads. Estimate their contribution to the total annual unregulated energy consumption of the building, assuming a typical or standard specification. ● Identify the systems or processes that use a significant proportion of the total annual unregulated energy consumption of the building. ● Demonstrate a meaningful reduction in the total annual unregulated energy consumption of the building.
Assumptions:	<p>Need to confirm whether this credit is applicable by assessing whether there are kitchen and catering facilities present and ensure these are accounted for in energy calculations.</p> <p>We have removed this credit at present as an 'at risk' issue.</p>	

2.9 Transport

As established by the BRE the ability of the Project Team to influence the outcome of the individual credits is shown below:

The opportunities to influence a positive outcome for the Transport credits comes at RIBA Stage 2 – 3, therefore it is of **HIGH IMPORTANCE** that these issues are addressed at this stage.

Section		Sub credits	Plan of Work						
			Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out
Tra 01	Transport assessment and travel plan			Travel plan					
Tra 02	Sustainable transport measures			Consultation with local authority (option 6 only)					

	Design or management influence
	Design or client decision
	Design or management changes at a high cost
	No further changes can be made
	RIBA stage stipulated within BREEAM criteria.

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Tra 01 Transport assessment and travel plan	2 / 2	<p>In short, at the early stages (during the feasibility and design stages), develop a travel plan based on a site-specific travel assessment or statement. This should address:</p> <ul style="list-style-type: none"> Existing travel patterns and opinions of existing building or site users towards cycling and walking, identifying constraints and opportunities, if relevant. Travel patterns and transport impact of future building users. Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children). Reporting of the number and type of existing accessible amenities, within 500m of the site. Disabled access (accounting for varying levels of disability and visual impairment). Calculation of the existing public transport Accessibility Index (AI). Current facilities for cyclists.

		<ul style="list-style-type: none"> ○ The travel plan includes proposals to increase or improve sustainable modes of transport and movement of people and goods during the building's operation and use. ○ If the occupier is known, involve them in the development of the travel plan. ○ Demonstrate that the travel plan will be implemented post construction and be supported by the building's management in operation. <p>As a minimum, the following measures shall be considered as part of the travel plan for development:</p> <ul style="list-style-type: none"> ○ Negotiation with local bus, train or tram companies an increase in the local service provision for the development. ○ Provision of a public transport information system in a publicly accessible area. ○ Provision of electric recharging stations. ○ Provision of parking priority spaces for car sharers. ○ Consultation with the local authority on the state of the local cycling network and on improvements. ○ Provision of dedicated and convenient cycle storage. ○ Provision of cyclists' facilities. ○ Lighting, landscaping and shelter to create pleasant pedestrian and public transport waiting areas. ○ Restrictions or charging for car parking. ○ Pedestrian and cyclist friendly (for all types of user regardless of the level of mobility or visual impairment) with the provision of cycle lanes, safe crossing points, direct routes, appropriate tactile surfaces, good lighting and signposting to other amenities, public transport nodes and adjoining off-site pedestrian and cycle routes. ○ Provision of suitable taxi drop-off or waiting areas.
Assumptions:	The Project Team need to work with the client to define the transport needs of the redeveloped site. This should conform with the Local Authority Green Travel Plan and highlight the requirements of the redeveloped site.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Tra 02	6 / 10	Need to engage the local bus company to increase frequency of stoppages at site, or enhance existing bus stops.
Sustainable transport measures		Need to incorporate a public transport information system in a publicly accessible area, to allow building users access to up-to-date information on the available public transport and transport infrastructure. This may include signposting to public transport, cycling, walking infrastructure or local amenities.

		<p>Provide electric recharging stations of a minimum of 3kw for at least 10% of the total car parking capacity for the development.</p> <p>Explore the feasibility of a car share scheme, or work with the client to expand existing scheme. In support of this:</p> <ul style="list-style-type: none"> ○ Provide priority spaces for car sharers for at least 5% of the total car parking capacity for the development. ○ Locate priority parking spaces nearest the development entrance used by the sharing scheme participants. <p>During preparation of the brief, the project team consults with the local authority (LA) on the state of the local cycling network and public accessible pedestrian routes, to focus on whichever the LA deems most relevant to the project, and how to improve it. This will include:</p> <ul style="list-style-type: none"> • 1 cycle space per 10 members of staff (<i>the number of building occupants in an existing development of similar type and size can be used (the assessor must justify or validate the number used in their certification report vs occupant density of 0.111).</i> • Provide two compliant (based on the BRE definition) facilities of the following: Showers; Changing facilities; Lockers; Drying spaces. <p>Install compliant cycle storage spaces and include showers / changing facilities / lockers / drying space within design.</p>
Assumptions:	The Project Team need to take account of the above within the Design Brief and ensure there is a commitment to deliver these elements.	

2.11 Water

As established by the BRE the ability of the Project Team to influence the outcome of the individual credits is shown below.

The opportunities to influence a positive outcome for the Water credits comes at RIBA Stage 2 – 3, therefore it is of **HIGH IMPORTANCE** that these issues are addressed at this stage.

The Project Team need to ensure they have access to the BRE's water calculator software to comply with the credits.

Section	Sub credits	Plan of Work						
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out
Wat 01	Water consumption							
Wat 02	Water monitoring							
Wat 03	Water leak detection							
Wat 04	Water efficient equipment							

	Design or management influence
	Design or client decision
	Design or management changes at a high cost
	No further changes can be made
	RIBA stage stipulated within BREEAM criteria.

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Wat 01 Water consumption	3 / 5	<p>Use the standard Wat 01 method to compare the water consumption (litres/person/day) for the assessed building against a baseline performance. Award BREEAM credits based upon the technical guidance manual.</p> <p>To achieve 3 credits there needs to be a 40% improvement over the baseline building water consumption.</p> <p>The Project Team need to confirm whether there will be any rain or greywater systems installed and that, where installed, these conform with BS 8525-1:2010 Greywater systems and BS 8515:2009+A1:2013 Rainwater harvesting systems respectively.</p>
Assumptions:	<p>Ensure the project team have access to the water calculator and understand the flow rates / volume required to meet the BREEAM credits. The baseline is measured in litres/person/day and m³/person/yr for a building. The modelled output is compared with the output for a</p>	

	baseline component specification and the water demand saving determined as a percentage improvement. The percentage improvement determines the number of BREEAM credits achieved.
--	---

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Wat 02 Water monitoring	1 / 1	<p>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>For water-consuming plant or building areas consuming 10% or more of the building's total water demand:</p> <ul style="list-style-type: none"> ○ Fit easily accessible sub-meters; OR ○ Install water monitoring equipment integral to the plant or area. <p>For each meter (main and sub):</p> <ul style="list-style-type: none"> ○ Install a pulsed or other open protocol communication output; AND ○ 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.
Assumptions:	Ensure that the technical design includes a water meter and comply with the above guidance within the technical design.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Wat 03 Water leak detection	2 / 2	<p>This credit is split into two parts:</p> <ul style="list-style-type: none"> ● Leak detection system (One credit): Install a leak detection system capable of detecting a major water leak (additional criteria are met). ● Flow control devices (One credit): 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.

Assumptions:	2 / 2 targeted at 'Excellent' for the installation of a leak detection system and flow control devices.
---------------------	---

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Wat 04 Water efficient equipment	N / A	<p>Not currently targeted as 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>However, where this isn't the case the project team should identify systems or processes to reduce the relevant water demand, and establish, through either good practice design or specification, a demonstrable reduction in the total water demand of the building.</p>
Assumptions:	This is not currently targeted but the Project Team should review, at a later stage, the provision of white goods within the building and any water consuming goods not assessed under Wat01 that may mean this credit is relevant.	

2.12 Materials

As established by the BRE the ability of the Project Team to influence the outcome of the individual credits is shown below.

The opportunities to influence a positive outcome for the Materials credits comes at RIBA Stage 2 – 3, therefore it is of **HIGH IMPORTANCE** that these issues are addressed at this stage.

For Mat02 the Project Team need to ensure the specification of the right type of products. The contractor should then provide evidence of the EPD when built. Mat03 is a prerequisite and needs to be achieved.

To meet the requirements of Mat03 a sustainable procurement plan must be used by the project team to guide specification towards sustainable construction products and be in place prior to concept design.

There are specific actions required at the RIBA stages to comply with the credits in this technical section that the Project Team need to be aware with to ensure credits are not lost.

Section		Sub credits	Plan of Work						
			Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out
Mat 01	Environmental impacts from construction products - Building life cycle assessment				Building LCA submission		Building LCA submission		
Mat 02	Environmental impacts from construction products							Installation of certified products	
Mat 03	Responsible sourcing of materials	sustainable procurement plan		Sustainable procurement plan	Review sustainable procurement plan	Review sustainable procurement plan			
Mat 05	Designing for durability and resilience								
Mat 06	Material efficiency			Stage actions	Stage actions	Stage actions	Stage actions	Stage actions	

	Design or management influence
	Design or client decision
	Design or management changes at a high cost
	No further changes can be made
	RIBA stage stipulated within BREEAM criteria.

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Mat 01 Life cycle impacts	4 / 7	<p>This credit is split into some key areas:</p> <ul style="list-style-type: none"> ● Superstructure: during the Concept Design, demonstrate the environmental performance of the building as follows: <ul style="list-style-type: none"> ○ 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 BREEAM Requirements. ○ 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). ● Substructure and hard landscaping options appraisal during Concept Design: During Concept Design identify opportunities for reducing environmental impacts as follows: <ul style="list-style-type: none"> ○ 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). ○ Use a building LCA tool that is recognised by BREEAM. ● Core building services options appraisal during Concept Design: Carry out building LCA options appraisal of at least 3 significantly different core building services design options. <ul style="list-style-type: none"> ○ Use a building LCA tool that is recognised by BREEAM. <p>There is an additional credit available for LCA and LCC alignment where the Project Team have integrated the aligned LCA and LCC options appraisal activity within the wider design decision-making process.</p>
Assumptions:	There is a need to ensure the LCA credits are pursued and fully understood. These are detailed and relate to specific building components and therefore there needs to be a clear commitment and guidance to deliver these from design through to construction.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Mat 02 Environmental impacts from construction products	1 / 1	<p>There is One credit available: Specification of products with a recognised environmental product declaration (EPD):</p> <ul style="list-style-type: none"> Specify construction products with EPD that achieve a total EPD points score of at least 20. Enter the details of each EPD into the Mat 01/02 Results Submission Tool, including the material category classification. The Mat 01/02 Results Submission Tool will verify the EPD points score and credit award.
Assumptions:	Need to ensure each EPD that is applicable to a specified construction product is available. This includes: timber / timber based products; concrete; metal; stone or aggregate; clay-based products; gypsum; glass; plastics; animal fibres and other products.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Mat 03 Responsible sourcing	3 / 4	<p>The Project Team need to ensure that the contractor conforms with the prerequisite: all timber and timber-based products used on the project are legally harvested and traded timber as per the UK Government's Timber Procurement Policy (TPP) (this is a minimum requirement for achieving any BREEAM rating).</p> <p>The credits require:</p> <ul style="list-style-type: none"> Enabling sustainable procurement (One credit): a sustainable procurement plan must be used by the project team to guide specification towards sustainable construction products. The plan must: <ul style="list-style-type: none"> Be in place before Concept Design. Include sustainability aims, objectives and strategic targets to guide procurement activities. Note: targets do not need to be achieved for the credit to be awarded but justification must be provided for targets that are not achieved. Include a requirement for assessing the potential to procure construction products locally. There must be a policy to procure construction products locally where possible. Include details of procedures in place to check and verify the effective implementation of the sustainable procurement plan. In addition, if the plan is applied to several sites or adopted at an organisational level it must:

		<ul style="list-style-type: none"> ○ 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(170). ● Measuring responsible sourcing (Up to 3 credits): 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.
Assumptions:	<p>We have been cautious and awarded three credits against this.</p> <p>The Project Team need to be aware of the requirements for sustainable procurement.</p>	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Mat 05 Designing for durability and resilience	1 / 1	<p>This issue is split into several deliverables:</p> <ul style="list-style-type: none"> ● Protecting vulnerable parts of the building from damage: 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: <ul style="list-style-type: none"> ○ Negative impacts of high user numbers in relevant areas of the building (e.g. corridors, lifts, stairs, doors etc.). ○ Damage from any vehicle or trolley movements within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas. ○ External building fabric damage by a vehicle. Protection where parking or manoeuvring areas are within 1 metre of the building façade and where delivery areas or routes are within 2 metres of the façade, i.e. specifying bollards or protection rails. ○ Potential malicious damage to building materials and finishes, in public and common areas where appropriate. ● Protecting exposed parts of the building from material degradation: 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:

		<ul style="list-style-type: none"> ○ The element or product achieving an appropriate quality or durability standard or design guide. If none are available, use BS 7543:2015(172) as the default appropriate standard OR ○ A detailed assessment of the element's resilience when exposed to the applicable material degradation and environmental factors. ○ Include convenient access to the roof and façade for cost-effective cleaning, replacement and repair in the building's design. ○ Design the roof and façade to prevent water damage, ingress and detrimental ponding.
Assumptions:	<p>It is assumed that this credit can be achieved. The Project Team need to take account of the BREEAM requirements and ensure this is reflected in the design. Examples of durability measures include:</p> <ul style="list-style-type: none"> ○ Bollards, barriers or raised kerbs to delivery and vehicle drop-off areas; ○ Robust external wall construction, up to 2m high; ○ Protection rails to walls of corridors; ○ Kick plates or impact protection (e.g. trolleys) on doors; ○ Hard-wearing and easily washable floor finishes in heavily used circulation areas (i.e. main entrance, corridors, public areas etc.); ○ Door stoppers to prevent door handles damaging walls; ○ Designing out the risk without the need for additional materials specification to protect vulnerable areas. <p>These need to conform with the relevant BS / technical standards for durability or quality standards and design guides as set out in the BREEAM Manual.</p>	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Mat 06	1 / 1	<p>To comply with the credit 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.</p> <ul style="list-style-type: none"> ○ Preparation and Brief;

Material efficiency		<ul style="list-style-type: none"> ○ Concept Design; ○ Developed Design; ○ Technical Design; ○ Construction. <p>Develop and record the implementation of material efficiency during:</p> <ul style="list-style-type: none"> ○ Developed Design; ○ Technical Design; ○ Construction. <p>Report the targets and actual material efficiencies achieved.</p>
Assumptions:	<p>It is assumed that one credit will be achieved for material optimisation.</p> <p>The Project Team need to provide a dedicated report that sets out a clear framework to guide material efficiency activities throughout the design and construction of the project. The report should set out aims, objectives, targets, performance indicators, opportunities, constraints and responsibilities to guide material efficiency activities.</p>	

2.13 Waste

As established by the BRE the ability of the Project Team to influence the outcome of the individual credits is shown below.

The opportunities to influence a positive outcome for the Waste credits comes at RIBA Stage 2 – 3, therefore it is of **HIGH IMPORTANCE** that these issues are addressed at this stage.

The Project Team need to work with the contractor to ensure Wst01 is met. Wst03 should be targeted to provide an element of safety.

Section		Sub credits	Plan of Work						
			Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out
Wst 01	Construction waste management				Pre-demolition audit				
Wst 02	Use of recycled and sustainably sourced aggregates								
Wst 03	Operational waste								
Wst 04	Speculative finishes								
Wst 05	Adaptation to climate change				Climate adaptation strategy appraisal		Update on Climate adaptation strategy appraisal		
Wst 06	Design for disassembly and adaptability	Design for disassembly and functional adaptability			Disassembly and functional adaptation study				
		Adaptability: Potential for natural ventilation							

	Design or management influence
	Design or client decision
	Design or management changes at a high cost
	No further changes can be made
	RIBA stage stipulated within BREEAM criteria.

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Wst 01 Construction waste management	3 / 4	<p>This issue is split into three parts:</p> <ul style="list-style-type: none"> Pre-demolition audit (1 credit): 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 and: <ul style="list-style-type: none"> Be carried out at Concept Design stage (RIBA Stage 2) by a competent person. Guide the design, consider materials for reuse and set targets for waste management. Engage all contractors in the process of maximising high-grade reuse and recycling opportunities. Compare actual waste arisings and waste management routes used with those forecast and investigate significant deviations from planned targets. Make reference to the audit in the resource management plan (RMP). Construction resource efficiency (3 credits): Prepare a compliant Resource Management Plan (RMP) covering: <ul style="list-style-type: none"> Non-hazardous waste materials (from on-site construction and dedicated off-site manufacture or fabrication, including demolition and excavation waste. Accurate data records on waste arisings and waste management routes. Meet or improve upon the benchmarks for non-hazardous construction waste, excluding demolition and excavation waste. Diversion of resources from landfill (1 credit): meet, where applicable, the diversion from landfill benchmarks for non-hazardous construction waste and demolition and excavation waste generated. Sort waste materials into separate key waste groups either on-site or through a licensed contractor for recovery.
Assumptions:	<p>The project team need to take account, with the relevant stakeholders, of the following key requirements:</p> <ul style="list-style-type: none"> Amount of waste generated per 100 m² (gross internal floor area): 	

	BREEAM credits	Amount of waste generated per 100 m ² (gross internal floor area)	
		m ³ (actual, not bulk volume)	tonnes
	One credit	≤ 13.3	≤ 11.1
	Two credits	≤ 7.5	≤ 6.5
	Three credits	≤ 3.4	≤ 3.2
	Exemplary level	≤ 1.6	≤ 1.9
	<ul style="list-style-type: none"> Diversion from landfill benchmarks: 		

BREEAM credits	Type of waste	Volume	Tonnage
One credit	Non-demolition	70%	80%
	Demolition	80%	90%
	Excavation	N/A	N/A
Exemplary level	Non-demolition	85%	90%
	Demolition	85%	95%
	Excavation	95%	95%

It is assumed that there is a Compliant Resource Management Plan and that any waste materials will be sorted into separate key waste groups during construction.

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Wst 02 Use of recycled and sustainably sourced aggregates	0 / 1	<i>Not targeting this credit.</i>
Assumptions:	<i>Not targeting this credit.</i>	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Wst 03 Operational waste	1 / 1	<p>The detailed design needs to take account of the specific requirements for operational waste whereby the design:</p> <ul style="list-style-type: none"> Provides a dedicated space for the segregation and storage of operational recyclable waste generated. The space is: <ul style="list-style-type: none"> Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams. Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily or weekly operational activities and occupancy rates. For consistent and large amounts of operational waste generated, provide: <ul style="list-style-type: none"> Static waste compactors or balers; situated in a service area or dedicated waste management space. Vessels for composting suitable organic waste OR adequate spaces for storing segregated food waste and compostable organic material for collection and delivery to an alternative composting facility. A water outlet provided adjacent to or within the facility for cleaning and hygiene purposes where organic waste is to be stored or composted on site. <p>The project team demonstrates that the provision of waste management facilities for the assessed building is adequate given the building type, occupier (if known), operational function and likely waste streams and volumes to be generated. Where it is not possible to determine what provision should be made, use the following guide for minimum storage space provision:</p> <ul style="list-style-type: none"> At least 2 m² per 1000 m² of net floor area for buildings < 5000 m². A minimum of 10 m² for buildings ≥ 5000 m². An additional 2 m² per 1000 m² of net floor area where catering is provided (with an additional minimum of 10 m² for buildings ≥ 5000 m²). <p>The net floor area should be rounded up to the nearest 1000 m².</p>

Assumptions:	This credit is targeted. The airport need to work with their operational teams to ensure compliance with any internal procedures and there is no clash.
---------------------	---

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Wst 04 Speculative finishes (offices only)	0 / 0	<i>This credit is not applicable.</i>
Assumptions:	<i>This credit is not applicable.</i>	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Wst 05 Adaptation to climate change	1 / 1	<p>This credit requires the completion of a climate change adaptation strategy appraisal using:</p> <ul style="list-style-type: none"> ● 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: <ul style="list-style-type: none"> ○ Hazard identification; ○ Hazard assessment; ○ Risk estimation; ○ Risk evaluation; ○ Risk management. ● Develop recommendations or solutions based on the climate change adaptation strategy appraisal, before or during Concept Design, that aim to mitigate the identified impact.

		<ul style="list-style-type: none"> 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.
Assumptions:	1 credit is targeted. This may be picked up as part of the Design & Access statement or EIA but adaptations needs to be addressed in the building design.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Wst 06 Design for disassembled and adaptability	1 / 2	<p>This issue is split into two elements:</p> <ul style="list-style-type: none"> Design for disassembly and functional adaptability – recommendations (One credit): Conduct a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios by the end of Concept Design. <ul style="list-style-type: none"> Develop recommendations or solutions based on the study during or prior to Concept Design, that aim to enable and facilitate disassembly and functional adaptation. Disassembly and functional adaptability – implementation (One credit): Achieve the above and provide an update, during Technical Design, on: <ul style="list-style-type: none"> How the recommendations or solutions proposed by Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing to the assessor. Changes to the recommendations and solutions during the development of the Technical Design. Produce a building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants.
Assumptions:	<p>The Project Team should be aware that at this stage any study must consider the following as a minimum:</p> <ul style="list-style-type: none"> Feasibility: The likelihood to contain multiple or alternative building uses, area functions and different tenancies over the expected life cycle, e.g. related to the structural design of the building. Accessibility: Design aspects that facilitate the replacement of all major plant within the life of the building, e.g. panels in floors and walls that can be removed without affecting the structure, providing lifting beams and hoists. Accessibility also involves access to local services, such as local power, data infrastructure etc. 	

- Versatility: The degree of adaptability of the internal environment to accommodate changes in working practices.
- Adaptability: The potential of the building ventilation strategy to adapt to future building occupant needs and climatic scenarios.
- Convertibility: The degree of adaptability of the internal physical space and external shell to accommodate changes of in-use.
- Expandability: The potential for the building to be extended, horizontally or vertically.
- 'Refurbishment potential': The potential for major refurbishment, including replacing the façade.

It is assumed that one credit will be achieved for the consideration of Design for disassembly and functional adaptability – recommendations.

2.14 Land Use & Ecology

As established by the BRE the ability of the Project Team to influence the outcome of the individual credits is shown below.

The opportunities to influence a positive outcome for the Land Use & Ecology credits comes at RIBA Stage 2 – 3, therefore it is of **HIGH IMPORTANCE** that these issues are addressed at this stage.

Under LE01 two credits should be achievable as we believe the site meets the definition of previously occupied land. To meet the additional credit the client should undertake a contaminated land survey.

The Project Team need to work with the appointed ecologist to define the route to compliance for the site.

Section		Sub credits	Plan of Work						
			Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out
LE 01	Site selection	Previously occupied land							
		Contaminated land							
LE 02	Identifying and understanding the risks and opportunities for the site	Survey and evaluation							
		Determining the site wide outcomes							
LE 03	Managing negative impacts on ecology								
LE 04	Enhancing site ecology								
LE 05	Long term ecology management and maintenance								

	Design or management influence
	Design or client decision
	Design or management changes at a high cost
	No further changes can be made
	RIBA stage stipulated within BREEAM criteria.

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
LE 01 Site selection	1 / 2	<p>This issue is split into two parts:</p> <ul style="list-style-type: none"> Previously occupied land (1 credit): at least 75% of the proposed development's footprint is on an area of land which has previously been occupied. Contaminated land (1 credit): 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: <ul style="list-style-type: none"> The degree of contamination; The contaminant sources or types; The options for remediating sources of contamination which present an unacceptable risk; The client or principal contractor 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.
Assumptions:		<p>The client need to appoint a contaminated land professional with the contractor taking account of this.</p> <p>When assessing new buildings developed within the boundary of an existing site, they do not automatically comply with the reuse of land criteria. At least 75% of the land on which the new building will be sited must meet the definition of 'previously occupied' (it is our understanding the site would meet this criteria).</p> <p>It is assumed that there is no contaminated land and that 100% of the buildings footprint is on previously developed land. If the site is found to be contaminated, then 2 credits could be available.</p>

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
LE 02 Identifying and	1 / 2	<p>This issue is split into two parts:</p> <ul style="list-style-type: none"> Survey and evaluation.

understanding the risks and opportunities for the site		<ul style="list-style-type: none"> Determining the ecological outcomes for the site. <p>The ecologist needs to have defined the required assessment route for the site to identify the assessment criteria.</p>
Assumptions:	<p>The Project Team need to be aware of the prerequisites for this credit (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> <p>The ecologist needs to have defined the required assessment route for the site.</p> <p>Due to the bespoke nature of the assessment the ecology section needs to understand how compliance can be achieved where the site does not allow this. We have assumed 1 credit will be achieved for determining the site is of low ecological value.</p>	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
LE 03 Managing negative impacts on ecology	2 / 3	<p>This issue is split into three parts:</p> <ul style="list-style-type: none"> Identification and understanding the risks and opportunities for the site (prerequisite): The client or contractor has confirmed that compliance is monitored against all relevant UK, and EU or International legislation relating to the ecology of the site. Planning, liaison and implementation (one credit): <ul style="list-style-type: none"> Roles and responsibilities have been clearly defined, allocated and implemented to support successful delivery of project outcomes at an early enough stage to influence the concept design or design brief. Site preparation and construction works have been planned for and are implemented at an early project stage to optimise benefits and outputs. The project team liaising and collaborating with representative stakeholders, taking into consideration data collated and shared, have implemented solutions, and measures have been selected during site preparation and construction works. Managing negative impacts of the project (up to two credits): <ul style="list-style-type: none"> Route 1 (one credit): Negative impacts from site preparation and construction works have been managed according to the hierarchy and no net impact has resulted.

		<ul style="list-style-type: none"> ○ Route 2 (up to two credits): Negative impacts from site preparation and construction works have been managed according to the hierarchy and either: <ul style="list-style-type: none"> ▪ No overall loss of ecological value has occurred (2 credits). ▪ The loss of ecological value has been limited as far as possible (1 credit).
Assumptions:	<p>The client or contractor has confirmed that compliance is monitored against all relevant UK, and EU or International legislation relating to the ecology of the site.</p> <p>The focus needs to be on the ecologist to confirm the route to compliance and the ecological value of the site.</p> <p>It is assumed that 2 credits will be achieved whereby the Planning, liaison and implementation and Managing negative impacts of the project requirements are met.</p>	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
LE 04 Change and enhancement	1 / 4	<p>This issue is split into three parts:</p> <ul style="list-style-type: none"> ● Identifying and understanding the risks and opportunities for the site (prerequisite): LE 03 has been achieved. Including the following, specific to the aims of this issue: <ul style="list-style-type: none"> ○ Roles and responsibilities have been clearly defined, allocated and implemented to support successful delivery of project outcomes. ○ Site preparation and construction works have been planned for and implemented at a stage that is sufficiently early in the project to optimise benefits and outputs. ○ The client or contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site. ● Planning, liaison, implementation and data collation (up to one credit). ● Enhancement of ecology (up to three credits): dependent on route (ecologist to confirm).
Assumptions:	The Project Team need to work with the appointed ecologist to define the route to compliance for the site.	

	It is assumed 1 credit will be achieved that limits site impacts. This may be a route to add security to the assessment, but needs to be confirmed by the ecologist.
--	--

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
LE 05 Long term impact on biodiversity	1 / 2	<p>This issue is split into three parts:</p> <ul style="list-style-type: none"> • Roles and responsibilities, implementation and statutory obligations (prerequisite): 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. Where pursued, LE 04 has been achieved, including the following specific aims of this issue: <ul style="list-style-type: none"> ○ Roles and responsibilities have been clearly defined, allocated and implemented to support successful delivery of project outcomes. ○ Site preparation and construction works have been planned for and implemented at a stage that is sufficiently early in the project to optimise benefits and outputs. • Planning, liaison, data, monitoring and review, management and maintenance: The project team liaise and collaborate with representative stakeholders, taking into consideration data collated and shared and take account of the additional requirements. • Landscape and management plan: Landscape and ecology management plan, or similar, is developed in accordance with BS 42020:2013.
Assumptions:	The Project Team need to ensure that 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.	

2.15 Pollution

As established by the BRE the ability of the Project Team to influence the outcome of the individual credits is shown below.

The opportunities to influence a positive outcome for the Pollution credits comes at RIBA Stage 2 – 3, therefore it is of **HIGH IMPORTANCE** that these issues are addressed at this stage.

POL01 has detailed guidance on refrigerants that need to be complied with.

Section	Sub credits	Plan of Work						
		Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out
Pol 01	Impact of refrigerants							
Pol 02	Local air quality							
Pol 03	Flood and surface water management							
Pol 04	Reduction of night time light pollution							
Pol 05	Reduction of noise pollution							

	Design or management influence
	Design or client decision
	Design or management changes at a high cost
	No further changes can be made
	RIBA stage stipulated within BREEAM criteria.

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Pol 01 Impact of refrigerants	3 / 3	To achieve three credits the Project Team need to confirm that there are no refrigerant use within the installed plant or systems. OR alternatively, where the building does use refrigerants, the three credits can be awarded as set out in the technical guidance.
Assumptions:	The Project Team need to demonstrate compliance with the specific requirements of the Technical Guidance Manual. It has been assumed that all three credits will be targeted at this level. This requires that any new refrigeration systems in the building comply with BS EN 378:2016 (parts 2 and 3) and that the global Warming Potential (GWP) of the specified refrigerant(s) is 10 or less.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Pol 02 Local air quality	0 / 2	Ensure within the design that all heating and hot water is supplied by non-combustion systems. For example, only powered by electricity OR alternatively; Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels set out in the technical guidance manual.
Assumptions:	This will be picked up at a later detailed design stage but the design intent needs to reflect the requirements. Need to confirm with the M&E designer the nature of any systems in the building.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Pol 03 Flood risk management and reducing surface water run-off	3 / 5	Deliver 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. This should be undertaken by an appropriate consultant. This takes account of flood resilience, surface water run-off and minimising watercourse pollution.
Assumptions:	<p>As above, the Project Team need to deliver a site-specific flood risk assessment that takes account of the specific BREEAM Criteria.</p> <p>It has been assumed that 3 credits will be achieved. This requires:</p> <ul style="list-style-type: none"> • A site specific flood risk assessment is conducted by an appropriately qualified consultant; • That the site is of low probability of flooding; • That surface water run-off prerequisite levels are achieved; • Flooding will not occur where local drainage systems fail; 	

	<ul style="list-style-type: none"> Water course flood risk is minimised. <p>The two additional credits could be achieved where:</p> <ul style="list-style-type: none"> The surface water run-off Rate credit has been achieved; the Surface Water Run-Off - Volume credit has been achieved.
--	---

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Pol 04 Reduction of Night Time Light Pollution	1 / 1	Need to work in the detailed design to ensure that 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 where the external lighting strategy has been designed in compliance with the Institution of Lighting Professionals (ILP) Guidance notes for the reduction of obtrusive light, 2011.
Assumptions:	Ensure the project team are aware that external lighting (other than security lighting) needs to be eliminated or designed in conformance with the above standard.	

Credit	Target Credits	Requirement (RIBA Stage 2 – 3)
Pol 05 Noise attenuation	1 / 1	At the design stage of assessment, where noise-sensitive areas or buildings are present, actual measurement is unlikely to be possible due to the planned but non-existent installation. In such situations, compliance can be demonstrated through the use of acousticians' calculations or by scale model investigations. For such cases, BS 4142 states 'Determine the specific sound level by calculation alone if measurement is not practicable, for example if the source is not yet in operation. In such cases, report the method of calculation in detail and give the reason for using it'. Where prediction methods are not possible, measurement will be necessary using either a noise source similar to that proposed or measurement of the actual noise from the installation (once installed). Compliance with the latter approach requires a written commitment to appoint a suitably qualified acoustician to carry out the required measurements post-installation, and a further commitment to attenuate the noise source in compliance with criteria 4 above and 5 above (if proved necessary by the measurements).

Assumptions:	Conform with the above requirements at this stage. However, this credit could be achieved where there is no disruption to other buildings. This credit has been awarded on the assumption that, linked to Hea05, an acoustician is appointed.
---------------------	--

2.16 Innovation

It has been assumed that no credits will be targeted at the Innovative Level.

3. Next Steps

The next phase of the BREEAM Assessment process, subject to planning, is to appoint the BRE to develop the final BREEAM Bespoke criteria for the project. The project team also need to take account of the assumptions made in targeting specific credits and assign responsibility to ensure these can be delivered as the project progresses. This includes ensuring the minimum standards are achieved to allow certification at the required level for planning.

To support the successful delivery of a final BREEAM certificate, the following recommendations are made:

- Appoint BRE to develop the BREEAM bespoke criteria for the project to allow the formal certification process to begin. This would require a BREEAM Assessor with experience of undertaking bespoke assessments;
- The project team coordinates or supports a workshop to identify roles and responsibilities at the earliest possible stage, with interim meetings with the BREEAM Assessor established at key project milestones to update on progress;
- Engage with all members of the project team to ensure they understand the client requirements and will support the delivery of the BREEAM assessment;
- Ensure the development of BREEAM bespoke criteria to ensure a final certificate can be issued;
- Identify what credits could be easily achieved given work that is already underway or is within the development pipeline that would support certification;
- Timelines for delivery are agreed with all project team members, with key project milestones and evidence requirements set to allow for full certification; and
- Ensure all stakeholders understand the evidence requirements to undertake a full BREEAM assessment against the requirements of BREEAM New Construction 2018 Bespoke Criteria and understand how to submit this to the BREEAM assessor to support the delivery of the final certificate.
- As noted It is BAL's intention to strive for BREEAM 'Excellent' in accordance with Core Strategy Policy SC2, however, noting the volume of at risk credits BAL will achieve at least a 'Very Good' rating.

wood.

