AtkinsRéalis

CROSSKEYS CAMPUS PHASE 1

BREEAM Pre-Assessment

Coleg Gwent

19/03/2024

Notice

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This document has 23 pages including the cover.

Document History

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1.0	BREEAM Pre-Assessment	UU	AR	AS	AW	19/03/2024

Client Signoff

Client	Coleg Gwent	**Client signature/date**
Project	Crosskeys Campus Phase 1	
Job number	TBC	

Contents

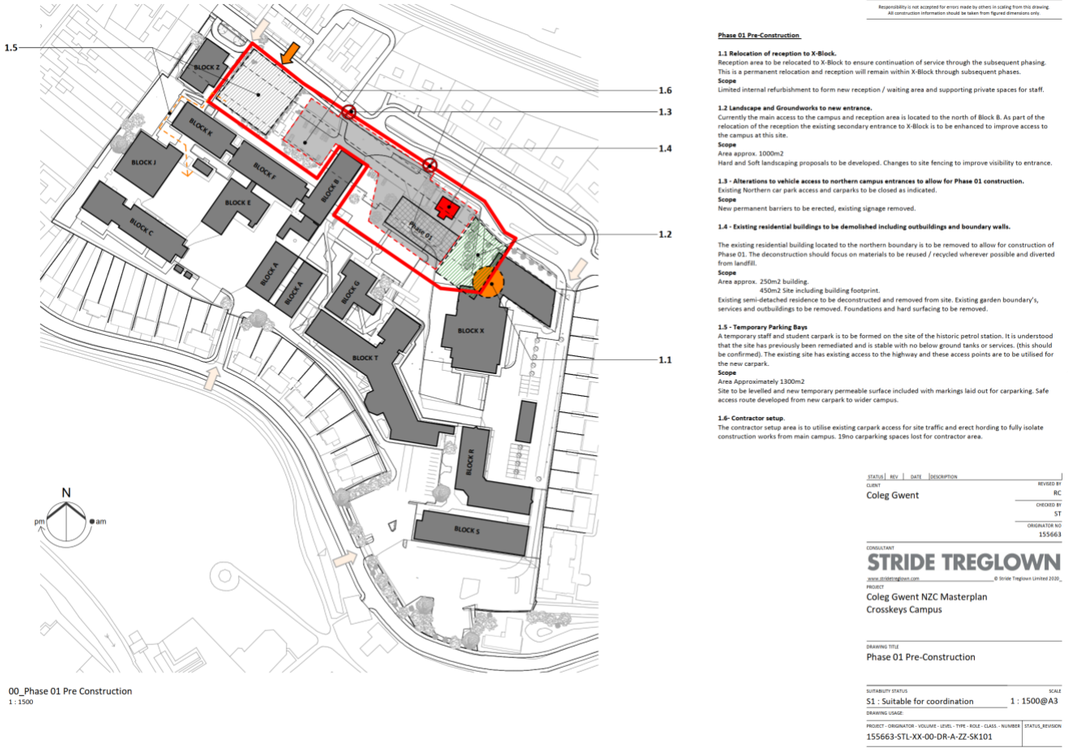
1. Project Brief and BREEAM Scope

This report concerns the BREEAM pre-assessment carried-out for the Crosskeys Campus Phase 1 project and aims to capture the aspirational sustainability objectives agreed during a workshop with the project team. The project is concerning the construction of the first phase of Coleg Gwent's wider Net Zero Carbon Masterplan. The aspirations for the Phase 1 block include a high-quality 21st-century three storey educational facility, adhering to Net Zero Carbon Principles,

The BREEAM assessment is for 1 building only, with an approximate GIFA of 2580 m^2. The project will be assessed under the BREEAM New Construction Version 6 assessment scheme. Once it has been registered with the BRE, this will be confirmed with the project team.

1.1 BREEAM Site Boundary

The project team confirmed that the site boundary for the BREEAM is as below. Figure 1 and Figure 2 show the site pre- and post-development. The red line represents the planning boundary.



Responsibility is not accepted for errors made by others in scaling from this drawing. All construction information should be taken from figured dimensions only.

Phase 01 Pre-Construction

1.1 Relocation of reception to X-Block.
Reception area to be relocated to X-Block to ensure continuation of service through the subsequent phasing. This is a permanent relocation and reception will remain within X-Block through subsequent phases.
Scope
Limited internal refurbishment to form new reception / waiting area and supporting private spaces for staff.

1.2 Landscape and Groundworks to new entrance.
Currently the main access to the campus and reception area is located to the north of Block B. As part of the relocation of the reception the existing secondary entrance to X-Block is to be enhanced to improve access to the campus at this site.
Scope
Area approx. 1000m2
Hard and Soft landscaping proposals to be developed. Changes to site fencing to improve visibility to entrance.

1.3 - Alterations to vehicle access to northern campus entrances to allow for Phase 01 construction.
Existing Northern car park access and carparks to be closed as indicated.
Scope
New permanent barriers to be erected, existing signage removed.

1.4 - Existing residential buildings to be demolished including outbuildings and boundary walls.

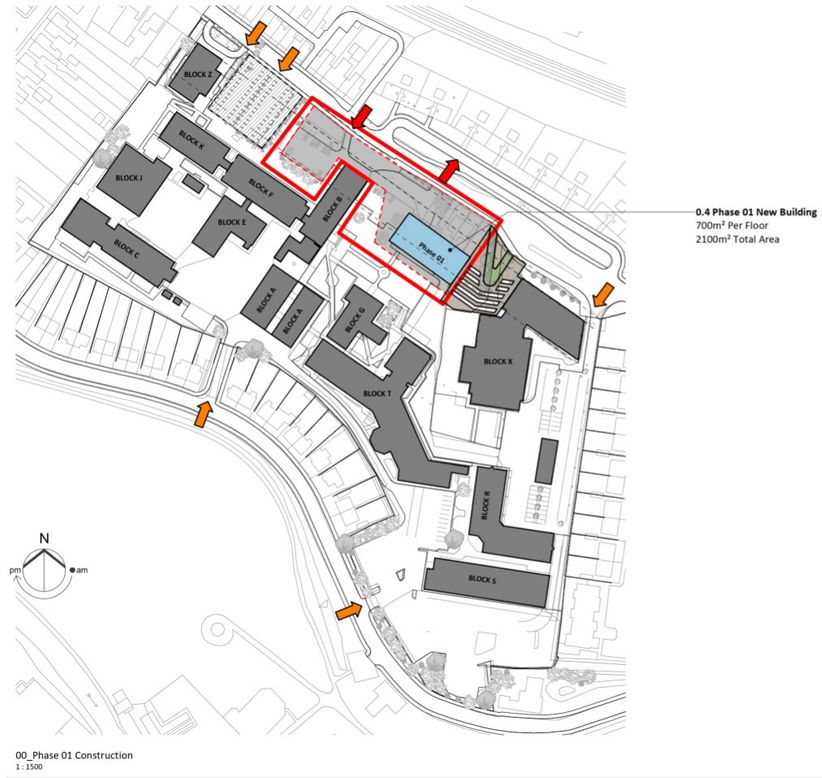
The existing residential building located to the northern boundary is to be removed to allow for construction of Phase 01. The deconstruction should focus on materials to be reused / recycled wherever possible and diverted from landfill.
Scope
Area approx. 250m2 building.
450m2 Site including building footprint.
Existing semi-detached residence to be deconstructed and removed from site. Existing garden boundary's, services and outbuildings to be removed. Foundations and hard surfacing to be removed.

1.5 - Temporary Parking Bays
A temporary staff and student carpark is to be formed on the site of the historic petrol station. It is understood that the site has previously been remediated and is stable with no below ground tanks or services. (this should be confirmed). The existing site has existing access to the highway and these access points are to be utilised for the new carpark.
Scope
Area Approximately 1300m2
Site to be levelled and new temporary permeable surface included with markings laid out for carparking. Safe access route developed from new carpark to wider campus.

1.6- Contractor setup.
The contractor setup area is to utilise existing carpark access for site traffic and erect hording to fully isolate construction works from main campus. 19no carparking spaces lost for contractor area.

STATUS | REV. | DATE | DESCRIPTION
CLIENT: Coleg Gwent — REVISED BY: RC — CHECKED BY: ST — ORIGINATOR NO: 155663
CONSULTANT: STRIDE TREGLOWN — www.stridetreglown.com — © Stride Treglown Limited 2020
PROJECT: Coleg Gwent NZC Masterplan; Crosskeys Campus
DRAWING TITLE: Phase 01 Pre-Construction
SUITABILITY STATUS: S1 : Suitable for coordination — SCALE: 1 : 1500@A3
DRAWING USAGE:
PROJECT - ORIGINATOR - VOLUME - LEVEL - TYPE - ROLE - CLASS - NUMBER: 155663-STL-XX-00-DR-A-ZZ-SK101 — STATUS_REVISION

Figure 1: Proposed Pre-Construction Plan



0.4 Phase 01 New Building
700m² Per Floor
2100m² Total Area

Responsibility is not accepted for errors made by others in scaling from this drawing. All construction information should be taken from figured dimensions only.

02.PHASE 01 CONSTRUCTION. RIBA 0-3

Phase 01 building to be constructed, fitted out and commissioned ready for handover to the college.

Phase 01 Breakdown
Ground Floor -
2.1 - Support Space / Student Lounge. New Space
2.2 - Engineering teaching studios inc. Robotics. Relocation from E Block

First Floor -
2.3 - Teaching spaces, flexible classroom space with options for expansion for exam space. Relocated from B, F Block.
2.4 - Dedicated Exam room relocated from T Block.

Second Floor -
2.5 - Internal administration office space. Relocation from B Block.

Services
NOTE: Dependant on NZC strategy additional trenching and servicing works may be required outside of building footprint. This may include for facilitating Phase 2.

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DRAWING USAGE:
PROJECT - ORIGINATOR - VOLUME - LEVEL - TYPE - ROLE - CLASS - NUMBER: 155663-STL-XX-00-DR-A-ZZ-SK102 — STATUS_REVISION

Figure 2: Proposed Post Construction Plan

1.1.1 Programme

Table 1 identifies the project program (valid on 05/03/2024). The BREEAM team has been appointed, and the pre-assessment workshop was carried out on 08/03/2024 during RIBA Stage 2. It was highlighted that it is the responsibility of the design team to provide evidence of all appointments and Early Action Credits from RIBA 1 and 2.

Table 1: Project Programme

Programme Item	Start Date	End Date
RIBA Stage 2	January 2024	May 2024
RIBA Stage 3	May 2024	August 2024
Enabling Works	July 2024	September 2024
RM Application	August 2024	December 2024
RIBA Stage 3+	September 2024	September 2024
Tender	October 2024	January 2025
RIBA Stage 4	January 2025	April 2025
RIBA Stage 5	April 2025	February 2027

1.1.1.1 Targeted BREEAM Rating

The project team have identified a target to achieve a minimum rating of BREEAM ‘Excellent’ (70%).

2. Pre-Assessment Workshop

The pre-assessment workshop was carried out on 08/03/2024. The workshop was facilitated by Alice Snelling, BREEAM Assessor, at AtkinsRéalis. Project team representatives were present at the BREEAM Pre-assessment Workshop with roles/responsibilities identified in .

Table 2: BREEAM Pre-Assessment Workshop Attendees

Name	Company	Role	Email
Martin Owen	Coleg Gwent	Client Representative	Martin.Owen@coleggwent.ac.uk
Faye Morrison	Stride Treglown	Architect	FayeMorrison@stridetreglown.com
Daniel Walker	Rider Levett Bucknall	Quantity Surveyor	Daniel.Walker@uk.rlb.com
Maxine White	AtkinsRéalis	Project Manager	Maxine.White@atkinsrealis.com
Shephard, Dan	AtkinsRéalis	Structural Engineer	Dan.Shephard@atkinsrealis.com
Adam Rees	AtkinsRéalis	MEP Engineer	Adam.Rees@atkinsrealis.com
Steph Hopkins	AtkinsRéalis	Civil Engineer	Steph.Hopkins@atkinsrealis.com
Alice Snelling	AtkinsRéalis	BREEAM Lead	Alice.Snelling@atkinsrealis.com
Umar Umar	AtkinsRéalis	BREEAM Support	Umar.Umar@atkinsrealis.com

The workshop resulted in a predicted base score (Base Case Scenario) of **73.3%** based on information provided by the project team at the workshop; this score is also based on a number of assumptions as set out in Section 6.0. This base score equates to a BREEAM ‘Excellent’ rating (‘Excellent’ threshold is ≥ 70%). The credits making up the base score are credits feasible at this stage of the project and standard practice specification items. It has been explained to the project team that a higher score of 75% should be targeted initially to provide a greater tolerance to achieve a BREEAM ‘Excellent’ rating, which can be achieved by targeting some of the potential credits identified.

The potential credits identified during the pre-assessment can increase the score to **82.8%**. This is sufficient to achieve an ‘Excellent’ BREEAM rating and provide a good buffer above 70%. It is highlighted that these potential additional credits were not agreed to be completed during the pre-assessment workshop. It will therefore be the responsibility of the project team to assess feasibility, examine any implications to cost and formally agree additional targets to increase the overall score to **≥ 75%** should the aspiration be pursued. In some cases, this may involve changes to standard procedures and designs, i.e. towards best and innovative practice; and may have cost implications.

During the pre-assessment workshop, it was confirmed that the project team, including the client, have formally agreed strategic performance targets early in the design process.

NOTE: Apart from the overall score, there are minimum requirements which must be met to achieve each BREEAM rating. The minimum requirements for ‘Very Good’ and ‘Excellent’ are outlined in . ‘Excellent’ is being targeted on this project.

Table 3: BREEAM UK New Construction V6 - Minimum Requirements for 'Very Good' and 'Excellent'

BREEAM UK NC V6 Issue	Minimum requirement for BREEAM ‘Very Good’ rating	Minimum requirement for BREEAM ‘Excellent’ rating
Man 03 Responsible Construction Practices	None	One credit – Responsible Construction Management (Principal Contractor monitors risks, plans and implements actions to minimise risks)
Man 04: Commissioning and handover	One Credit – Commissioning test schedule and responsibilities	One Credit – Commissioning test schedule and responsibilities
Man 04: Commissioning and handover	Criterion 11 – Building User Guide (Develop 2 guides: Non-technical and Technical)	Criterion 11 – Building User Guide (Develop 2 guides: Non-technical and Technical)
Man 05: Aftercare	None	One Credit – Commissioning-Implementation (12-month period for commissioning activities after initial occupation)
Ene 01: Reduction of energy use and carbon emissions	None	At least 4 credits (energy performance) based on the BRUKL document OR 4 credits for Prediction of Operational Energy Consumption
Ene 02: Energy monitoring	One credit- sub-metering of major energy consuming systems	One credit- sub-metering of major energy consuming systems
Wat 01: Water consumption	One credit – at least 12.5% improvement against BREEAM baseline with regards to predicted water consumption	One credit – at least 12.5% improvement against BREEAM baseline with regards to predicted water consumption
Wat 02: Water monitoring	Criterion 1 only – specification of 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.	Criterion 1 only – specification of 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.
Mat 03: Responsible sourcing of construction products	Criterion 1 only - all timber, and timber-based products used on the project, is legally harvested and traded timber	Criterion 1 only - all timber, and timber-based products used on the project, is legally harvested and traded timber
Wst 03: Operational waste	None	One credit – compliant central storage facilities for operational waste

3. Introduction to BREEAM

Operational since 1990, the Building Research Establishment Environmental Assessment Methodology (BREEAM) “is the world’s leading sustainability assessment method for master planning projects, infrastructure and buildings. It addresses a number of lifecycle stages such as New Construction, Refurbishment and In-Use”. BREEAM implements an evidence-based process which evaluates the procurement, design, construction and operation of a development against targets that are based on performance benchmarks. Sustainable design is assessed holistically through criteria under ten different categories (refer to Table 4): Project Management, Health and Wellbeing, Energy, Water, Transport, Materials, Waste, Pollution Ecology and Innovation. The scheme is owned and operated by BRE Global, a founding member of the UK Green Building Council. To date, over 500,000 projects across 73 countries worldwide have been certified by a network of independent trained BREEAM assessors and Accredited Professionals (AP).

Table 4: BREEAM UK Non Domestic New Construction V6 Categories

Category	Issues covered
Management	Sustainable management practices in connection with design, refurbishment, fit-out, commissioning, handover and aftercare activities
Health and Wellbeing	Indoor and outdoor factors that affect the health, well-being and safety of building occupants.
Energy	Specification and design of energy efficient building solutions, systems and equipment that support the sustainable use of energy in the building and sustainable management in the building’s operation
Transport	Better access to sustainable modes of transport for building users (overall accessibility and alternative transport solutions).
Water	Sustainable water use through reduction in potable water consumption and minimisation of leaks.
Materials	Impacts of material selection, including responsible procurement and selection of materials with low embodied environmental impact.
Waste	Sustainable management (and reuse where feasible) of construction and operational waste.
Land Use and Ecology	Habitat protection and creation, and improvement of long term biodiversity for the building’s site and surrounding land.
Pollution	Prevention and control of noise, light, air and water pollution, as well as surface water runoff management to minimise flooding.
Innovation	Innovation within the construction industry through the recognition of sustainability related benefits which are not rewarded by standard BREEAM issues.

A set of environmental weightings enables the credits to be added together and produce a single overall score. The overall BREEAM score is calculated by multiplying the percentage of credits achieved in each category by the environmental weighting, then totalling the weighted scores into a single figure.

The building is then rated on a scale of ‘PASS’ (≥ 30%), ‘GOOD’ (≥ 45%), ‘VERY GOOD’ (≥ 55%), ‘EXCELLENT’ (≥ 70%) or ‘OUTSTANDING’ (≥ 85%).

The BREEAM assessment process commences early in the design at concept stage and concludes after the building has been handed over. An outline of the BREEAM methodology against the RIBA Stages of work is presented in Figure 3.

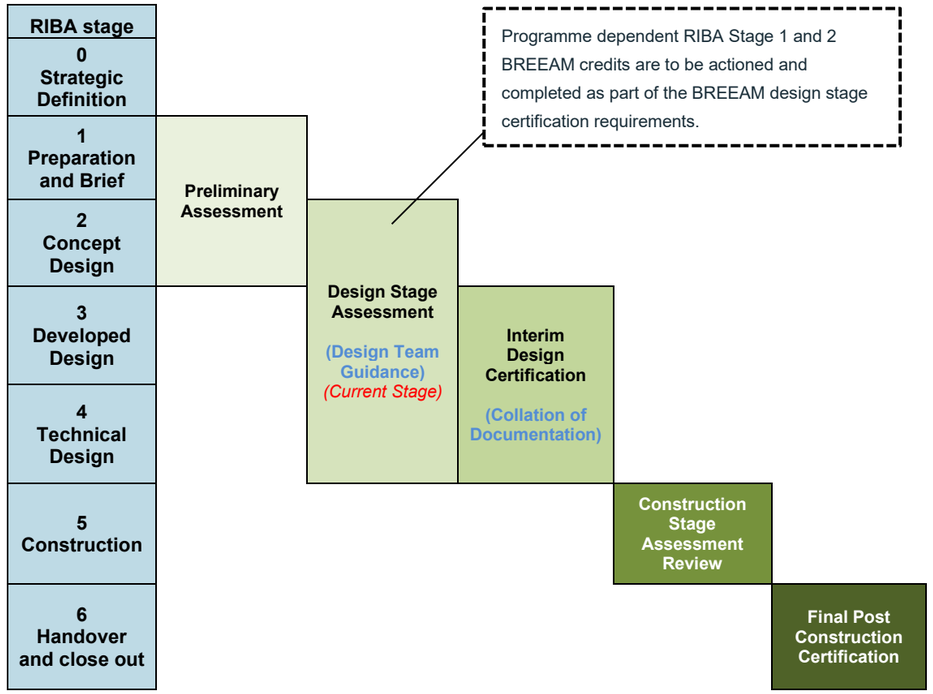

Figure 3: BREEAM Assessment Process against RIBA Stage of Work

4. BREEAM Preliminary Assessment & Score Prediction

The purpose of the preliminary assessment is to ensure that where early actions are required, it is brought to the attention of key decision makers, and the most cost-effective approach to compliance is adopted. However, the pre-assessment can only provide an indication of the likely BREEAM rating and is based on the following assumptions:

- The project is completed according to the information provided at the pre-assessment workshop. If changes are made to the management, design or execution of the project following the pre-assessment, this could affect the final predicted BREEAM score.
- All evidence required by the BRE is made available during the formal BREEAM assessment. Robust evidence is the basis of all BREEAM assessments and without it credits cannot be awarded. Detailed evidence requirements and guidance for the design team are provided within the online portal to be used for the assessment, which is called Tracker Plus.
- Credits are considered early enough in the design process to allow them to be achieved. Considering BREEAM credits from the project inception and design brief stage improves the cost effectiveness of delivering the sustainability measures required by BREEAM.

Note: It is vital that individual design team members consult the detailed credit and evidence requirements within the BREEAM criteria to ensure compliance; evidence that is not provided in accordance with these requirements will not pass the BRE's strict quality assurance process. Summary information of evidence required under each targeted credit has been provided in Section 6. This information is provided for guidance only and does not constitute a comprehensive set of requirements.

Following the BREEAM Pre-assessment workshop, two scoring predictions have been generated, which correspond to two distinct scenarios:

- Predicted Base Case Scenario = 73.3% (equating to BREEAM 'Excellent' rating) - core credits achievable, based on the current design intent.
- Predicted Improved Case Scenario = 82.8% (equating to BREEAM 'Excellent' rating) – as Base Case Scenario plus inclusion of additional credits not unfeasible on the project.

On this basis, the predicted overall score under each scenario is presented in Figure 4 and Figure 5.

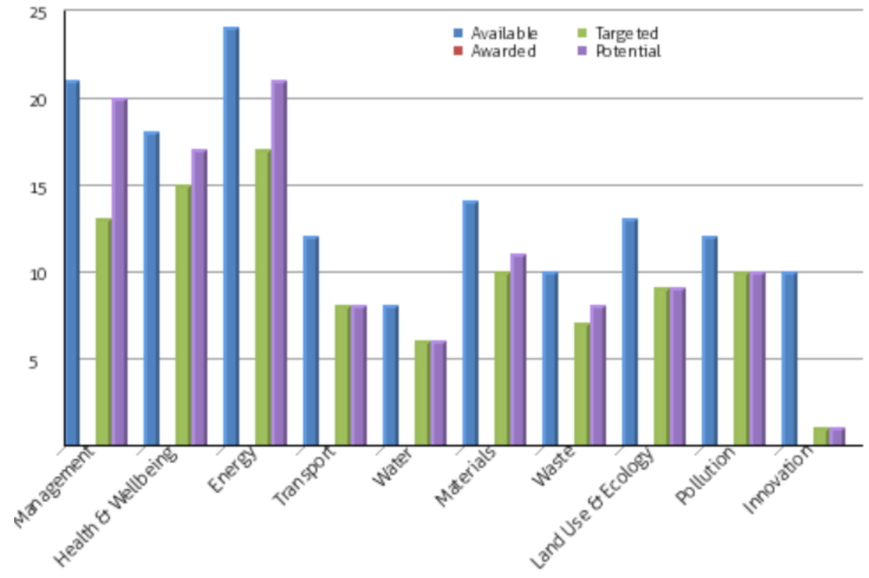

Figure 4: Predicted Percentage of Targeted Credits Against Available

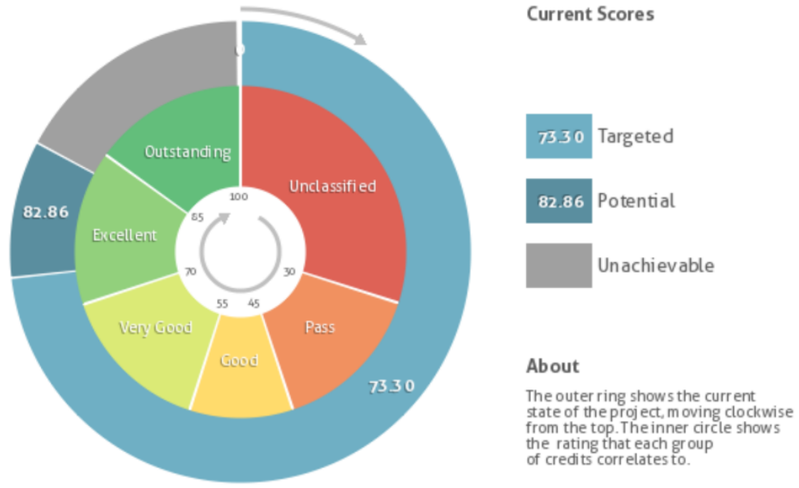

Figure 5: BREEAM Score Chart

5. Early Credits & Action

A number of BREEAM issues require early action to ensure full compliance can be achieved. These have been captured below in – All credits listed require action by the end of Concept Design (RIBA Stage 2). Credits highlighted in blue are potentially achievable credits, as discussed in the pre-assessment workshop.

Table 5: BREEAM Early Action Credits

BREEAM Issue		Early-Stage Action Required	Responsibility
Contractor Requirements		Ensure that contractor requirements relating to individual BREEAM issues are included in tender documents.	Client & Project Manager (Martin Owen/ Maxine White)
Man01	Project Delivery Planning	Project team met and defined roles and responsibilities during RIBA Stage 2.	Project Manager (Maxine White)
Man 01	Stakeholder Consultation (Interested Parties)	Client/ Architect to advise whether a third-party consultation process can be evidenced, including all minimum consultation content required under this issue.	Client (Martin Owen) / Architect (Faye Morrison) / PM (Maxine White)
Man 01	BREEAM AP – Concept Design	Client to provide letter of appointment confirming that BREEAM AP has been involved since RIBA 1/B and will be involved in the design process (letter template available). Ensure that BREEAM is an item on all DTM agendas/ minutes and that the BREEAM AP is invited to attend key meetings.	Client & Project Manager (Martin Owen/ Maxine White)
Man 02	Life cycle cost and service life planning	Elemental LCC to be carried-out and evidenced before the end of RIBA Stage 2.	Client (Martin Owen) / LCC Specialist
Hea 06	Safety & Security (Security of Site & Building)	Security Specialist consulted by the end of RIBA Stage 2.	Architect (Faye Morrison)
Ene 01	Energy Performance	BRUKL output- Multiple credits to gain here, beneficial to get this provided early on in the project.	MEP Designer (Adam Rees)
Ene01	Prediction of Operational Energy Consumption	Recommended that prior to end of RIBA Stage 2, relevant members of the design team hold a preliminary design workshop focusing on operational energy performance.	PM / MEP Designer (Maxine White/Adam Rees)
Ene 04	Low Carbon Design (Passive Design)	Project team analyse proposed building design and development during RIBA Stage 2 to identify opportunities for implementation of passive design measures.	MEP Designer (Adam Rees)
Ene 04	Low Carbon Design (LZC Technology Feasibility)	Ensure feasibility study is completed by RIBA 2 and compliant with detailed BREEAM requirements CO2 reduction calculations.	MEP Designer (Adam Rees)
Ene 07	Energy Efficient Laboratory Equipment (Design Specification)	Engage with client at preparation stage to determine occupant requirements and define laboratory performance criteria.	MEP Designer (Adam Rees)
Ene 07	Energy Efficient Laboratory Equipment (Best Practice Energy Efficient Measures)	Applicable if the laboratory area applies to more than 10% of the building area.	MEP Designer (Adam Rees)
Tra 01	Travel Plan	Travel Plan – Recommended this is produced prior to end of RIBA Stage 2. Based on site-specific travel assessment or statement. Must adhere to BREEAM criteria.	Client & Architect (Martin Owen/Faye Morrison)
Mat 01	Life Cycle Impacts	Operational appraisal during RIBA Stage 2. Will be updated during Technical Design stage to maximise credits awarded.	Client (Martin Owen) / Embodied Carbon Specialist (Adrian Wilkins)
Mat03	Enabling Sustainable Procurement	Sustainable Procurement Plan to be in place before RIBA Stage 2.	PM / Contractor (Maxine White)
Mat 06	Material efficiency process	Identify opportunities (with appropriate measures investigated and implemented) to optimise the use of materials in building design, procurement, construction, maintenance, and end of life. This needs to occur at every RIBA stage.	Architect/Services Engineer (Faye Morrison/Adam Rees)
Wst01	Pre-Demolition Audit	If demolition occurring, pre-demolition audit must be carried-out during RIBA Stage 2.	Project Manager / Contractor (Maxine White)
Wst 05	Adaptation to climate change	Requires a climate change adaptation strategy, including hazard and risk analysis, during RIBA Stage 2.	Architect (Faye Morrison)
Wst06	Design for Disassembly and Adaptability	A building-specific functional adaptation strategy study, which includes recommendations for measures to be incorporated to facilitate future adaptation by end of RIBA Stage 2.	Architect (Faye Morrison)
LE 02 and 03	Mitigating Ecological Impact	Involvement of a suitably qualified ecologist is essential to maximise credits in the Land Use & Ecology section. Ecologist must be commissioned as early as possible to consider and report on BREEAM requirements specifically (ecology reports commissioned purely for planning purposes are unlikely to comply).	Ecologist

6. BREEAM Scorecard and Action Schedule

6.1 Credit Progress Log

Management							
Man 01 - Project brief and design							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Project delivery planning	1	0	1	1	PM	
Credit 2 ●	Stakeholder consultation (interested parties)	1	0	1	1	Arch / PM	2 Stakeholder Consultation events occurring in March (evidence should include promotional materials, tracked comments, comment cards, digital system, minutes)
Credit 3 ●	BREEAM AP (concept design)	1	0	0	1	PM/ Client/ BREEAM AP	BREEAM AP not currently appointed. AtkinsRéalis has provided a fee for this. Client & PM to discuss further.
Credit 4 ●	BREEAM AP (developed design)	1	0	0	1	BREEAM AP	
Man 02 - Life cycle cost and service planning							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Elemental LCC	2	0	0	2	QS/LCC Specialist	Alice Snelling (AtkinsRéalis) to liaise with AtkinsRéalis LCC team to provide a fee for conducting a Man02 Elemental Life Cycle Cost Plan. RLB to also provide a fee for undertaking Man02 LCC.
Credit 2 ●	Component level LCC options appraisal	1	0	0	1	QS	
Credit 3 ●	Capital cost reporting	1	0	1	1	QS	
Man 03 - Responsible construction practices							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**

Credit Pre-req 1 ●	Prerequisite - Legally harvested and traded timber		✗	✓	✓	QS / Contractor to deliver	
Credit 1 ●	Environmental management	1	0	1	1	QS / Contractor to deliver	
Credit 2 ●	BREEAM AP (site)	1	0	1	1	QS / Contractor to deliver	
Credit 3 ●	Responsible construction management	2	0	2	2	QS / Contractor to deliver	
Credit 4 ●	Monitoring of construction site impacts	2	0	1	1	QS / Contractor to deliver	
Credit e1 ●	Responsible construction management	1	0	1	1	QS / Contractor to deliver	
Man 04 - Commissioning and handover							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit Pre-req ●	Prerequisite (Very Good to Outstanding)		✗	✓	✓	QS	
Credit 1 ●	Commissioning - testing schedule and responsibilities	1	0	1	1	QS	
Credit 2 ●	Commissioning - design and preparation	1	0	1	1	QS	
Credit 3 ●	Testing and inspecting building fabric	1	0	0	1	QS	
Credit 4 ●	Handover	1	0	1	1	Arch / M&E	
Man 05 – Aftercare							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Aftercare support	1	0	1	1	Client	

Credit 2 ●	Commissioning - implementation	1	0	1	1	M&E	
Credit 3 ●	Post occupancy evaluation (POE)	1	0	0	1	Client	
		21	0	13	20	**Standard Management Credit Total**	
		1	0	1	1	**Exemplary Management Credit Total**	
		11.92	0	7.76	11.40	**% Management Total (Standard + Exemplary)**	
Health & Wellbeing							
Hea 01 - Visual comfort							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Control of glare from sunlight	1	0	1	1	Arch / MEP	
Credit 2 ●	Daylighting (building type dependent)	2	0	0	1	Arch / Mechanical	Adam Rees (AtkinsRéalis) to confirm the scope for daylighting calculations.
Credit 3 ●	View out	1	0	1	1	Arch	
Credit 4 ●	Internal and external lighting levels, zoning and control	1	0	1	1	M&E	
Credit e1 ●	Daylighting (building type dependent)	1	0	0	0	Arch / Mechanical	
Credit e2 ●	Internal and external lighting levels, zoning and control	1	0	0	0	M&E	
Hea 02 - Indoor air quality							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit Pre-req ●	Prerequisite - Indoor air quality (IAQ) plan		✗	✓	✓	Arch / PM	Adam Rees (AtkinsRéalis advised likely in scope)
Credit 1 ●	Ventilation	1	0	1	1	Mechanical Eng.	Ventilation strategy will likely be Mechanical ventilation – (MVHR & AHU) - to be confirmed at later stage.

Credit 2 ●	Emissions from construction products	2	0	2	2	Arch	
Credit 3 ●	Post-construction indoor air quality measurement	1	0	0	1	M&E	
Credit e1 ●	Minimising sources of air pollution - Emissions from construction products	1	0	0	0	Arch	
Hea 04 - Thermal comfort							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Thermal modelling	1	0	1	1	Mechanical Eng.	
Credit 2 ●	Design for future thermal comfort	1	0	1	1	Mechanical Eng.	
Credit 3 ●	Thermal zoning and controls	1	0	1	1	Mechanical Eng.	
Hea 05 - Acoustic performance							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Acoustic performance	3	0	3	3	Acoustician	
Hea 06 - Security							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Security of site and building	1	0	1	1	Arch / Client	
Credit e1 ●	Security of site and building	1	0	0	0	Arch / Client	
Hea 07 - Safe and healthy surroundings							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Safe access	1	0	1	1	Arch / Client	Pedestrian entrance is separate to vehicle entrance.

Credit 2 ●	Outside space	1	0	1	1	Arch / Client	
		18	0	15	17	**Standard Health & Wellbeing Credit Total**	
		4	0	0	0	**Exemplary Health & Wellbeing Credit Total**	
		18.04	0	11.70	13.26	**% Health & Wellbeing Total (Standard + Exemplary)**	
Energy							
Ene 01 - Reduction of energy use and carbon emissions							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Energy performance	9	0	6	6	M&E	
Credit 2 ●	Prediction of operational energy consumption	4	0	0	4	All	Adam Rees (AtkinsRéalis) to confirm – TM54 assessment is likely to be undertaken to align with Net Zero targets
Credit e1 ●	Beyond zero net regulated carbon - - Exemplary level criteria	2	0	0	0	M&E	
Credit e2 ●	Carbon negative - Exemplary level criteria	3	0	0	0	M&E	
Credit e3 ●	Post-occupancy evaluation of operational energy consumption - Exemplary level criteria	2	0	0	0	M&E	
Ene 02 - Energy monitoring							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Sub-metering of end use categories	1	0	1	1	M&E	
Credit 2 ●	Sub-metering of high energy load and tenancy areas	1	0	1	1	M&E	
Ene 03 - External Lighting							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**

Credit 1 ●	External lighting	1	0	1	1	M&E	The project team has confirmed that there is likely to be external lighting.
Ene 04 - Low carbon design							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Passive design	2	0	2	2	M&E	Nightime Cooling is considered a free cooling strategy under BREEAM requirements.
Credit 2 ●	Low and zero carbon technologies	1	0	1	1	M&E	
Ene 06 - Energy efficient transportation systems							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Energy consumption	1	0	1	1	M&E	Adam Rees (AtkinsRéalis) to confirm scope
Credit 2 ●	Energy efficient features	1	0	1	1	M&E	Adam Rees (AtkinsRéalis) to confirm scope
Ene 07 - Energy efficient laboratory systems							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Design specification	1	0	1	1	M&E	Lab specialist Consultants appointed - unlikely to be under M&E scope
Ene 08 - Energy efficient equipment							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Energy efficient equipment	2	0	2	2	Client / Catering Consultant	Some legacy equipment will be specified in the labs, some new equipment specified in the building.
		24	0	17	21	**Standard Energy Credit Total**	
		7	0	0	0	**Exemplary Energy Credit Total**	
		23.08	0	11.39	14.07	**% Energy Total (Standard + Exemplary)**	
Transport							

Tra 01 - Transport assessment and travel plan

	Credit	Available	Awarded	Targeted	Potential	Responsibilities	Comments
Credit 1 ●	Travel plan	2	0	2	2	Transport Consultant	Transport Consultant appointment underway.

Tra 02 - Sustainable transport measures

	Credit	Available	Awarded	Targeted	Potential	Responsibilities	Comments
Credit Pre-req ●	Pre-requisite		✗	✓	✓	Arch	
Credit 1 ●	Transport options implementation	10	0	6	6	Arch	Bus routes, cycle facilities (new and existing), accessible amenities within wider site.
		12	0	8	8	**Standard Transport Credit Total**	
		0	0	0	0	**Exemplary Transport Credit Total**	
		9.96	0	6.64	6.64	**% Transport Total (Standard + Exemplary)**	

Water

Wat 01 - Water consumption

	Credit	Available	Awarded	Targeted	Potential	Responsibilities	Comments
Credit 1 ●	Water consumption	5	0	3	3	Arch / Mechanical Eng.	Low water rates to be specified.
Credit e1 ●	Water consumption	1	0	0	0	Arch / Mechanical Eng.	

Wat 02 - Water monitoring

	Credit	Available	Awarded	Targeted	Potential	Responsibilities	Comments
Credit Pre-req ●	Prerequisite (Good to Outstanding)		✗	✓	✓	Mechanical Eng.	
Credit 1 ●	Water monitoring	1	0	1	1	Mechanical Eng.	

Wat 03 - Water leak detection

	Credit	Available	Awarded	Targeted	Potential	Responsibilities	Comments
Credit 1 ●	Leak detection system	1	0	1	1	Mechanical Eng.	
Credit 2 ●	Flow control devices	1	0	1	1	Mechanical Eng.	
		8	0	6	6	**Standard Water Credit Total**	
		1	0	0	0	**Exemplary Water Credit Total**	
		8.04	0	5.28	5.28	**% Water Total (Standard + Exemplary)**	

Materials

Mat 01 - Environmental impacts from construction products - Building life cycle assessment (LCA)

	Credit	Available	Awarded	Targeted	Potential	Responsibilities	Comments
Credit 1 ●	Superstructure	6	0	4	4	Arch / Structural Eng.	AtkinsRéalis LCA Team to provide a Mat01 LCA fee.
Credit 2 ●	Substructure and hard landscaping options appraisal during Concept Design (all building types)	1	0	1	1	Arch / Structural Eng.	
Credit e1 ●	Core building services options appraisal during Concept Design (all building types)	1	0	0	0	M&E	
Credit e2 ●	LCA and LCC alignment (all building types)	1	0	0	0	LCA/LCC consultant	
Credit e3 ●	Third party verification (all building types) - Exemplary level criteria	1	0	0	0	LCA/LCC consultant	

Mat 02 - Mat 02 Environmental impacts from construction products - Environmental Product Declarations (EPD)

	Credit	Available	Awarded	Targeted	Potential	Responsibilities	Comments
Credit 1 ●	Specification of products with a recognised environmental product declaration (EPD)	1	0	0	1	Arch	Challenging to obtain EPDs. Therefore credit not targeted.

Mat 03 - Responsible sourcing of construction products

	Credit	Available	Awarded	Targeted	Potential	Responsibilities	Comments
Credit Pre-req	Prerequisite		✗	✓	✓	QS	
Credit 1	Enabling sustainable procurement	1	0	1	1	QS	
Credit 2	Measuring responsible sourcing	3	0	2	2	QS	
Credit e1	Measuring responsible sourcing	1	0	0	0	QS	
Mat 05 - Designing for durability and resilience							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1	Protecting vulnerable parts of the building from damage/material degradation	1	0	1	1	Arch	
Mat 06 - Material efficiency							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1	Material efficiency	1	0	1	1	Arch	
		14	0	10	11	**Standard Materials Credit Total**	
		4	0	0	0	**Exemplary Materials Credit Total**	
		18.98	0	10.70	11.77	**% Materials Total (Standard + Exemplary)**	
Waste							
Wst 01 - Construction waste management							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1	Pre-demolition audit	1	0	1	1	QS	2 phases demolition (1 x houses are considered enabling works, 1 x main building B&Fs).
Credit 2	Construction resource efficiency	3	0	2	2	QS	

Credit 3 ●	Diversion of resources from landfill	1	0	1	1	QS	
Credit e1 ●	Construction resource efficiency/Diversion of resources from landfill	1	0	0	0	QS	
Wst 02 - Use of recycled and sustainably sourced aggregates							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit Pre-req ●	Prerequisite		✗	✓	✓	Structural Eng. / Civil Eng.	
Credit 1 ●	Project Sustainable Aggregate points	1	0	0	0	Structural Eng. / Civil Eng.	
Credit e1 ●	Project Sustainable Aggregate points	1	0	0	0	Structural Eng. / Civil Eng.	
Wst 03 - Operational waste							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Operational waste	1	0	1	1	Arch	
Wst 05 - Adaptation to climate change							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Resilience of structure, fabric, building services and renewables installation	1	0	1	1	Arch / Structural Eng.	
Credit e1 ●	Responding to climate change	1	0	0	0	Arch / Structural Eng.	
Wst 06 - Design for disassembly and adaptability							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Design for disassembly and functional adaptability - recommendations	1	0	1	1	Arch / BREEAM AP	
Credit 2 ●	Disassembly and functional adaptability â€“ implementation	1	0	0	1	Arch / BREEAM AP	

	10	0	7	8	**Standard Waste Credit Total**	
	3	0	0	0	**Exemplary Waste Credit Total**	
	9	0	4.20	4.80	**% Waste Total (Standard + Exemplary)**	

Land Use & Ecology

LE 01 - Site selection

	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Previously occupied land	1	0	0	0	Arch	
Credit 2 ●	Contaminated land	1	0	0	0	Civil Eng.	Site inspection & GI instructed.

LE 02 - Ecological risks and opportunities

	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit Pre-req ●	Prerequisite - Statutory obligations		✗	✓	✓	Ecologist	
Credit 1 ●	Survey and evaluation/Determining ecological outcomes	2	0	2	2	Ecologist	Route 1 (BREEAM Ecological Risk Evaluation Checklist) = 1 credit Route 2 (Ecologist) = 2 credits
Credit e1 ●	Wider site sustainability - Exemplary level criteria	1	0	0	0	Ecologist	

LE 03 - Managing impacts on ecology

	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit Pre-req ●	Prerequisite â€“ Ecological risks and opportunities		✗	✓	✓	Client / Contractor	
Credit 1 ●	Planning and measures on-site	1	0	1	1	Client / Contractor	Existing site is of low ecological value.
Credit 2 ●	Managing negative impacts	2	0	2	2	Client / Contractor	

LE 04 - Ecological change and enhancement							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit Pre-req ●	Prerequisite - Managing negative impacts on ecology		✖	✔	✔	Ecologist	No BNG requirements for the site. Wales planning requirements follow more holistic approach and will require evidence that there has been a gain in BNG.
Credit 1 ●	Change and enhancement of ecology / Ecological enhancement	1	0	1	1	Ecologist / Client	Route 1 Only
Credit 2 ●	Change and enhancement of ecology	3	0	1	1	Ecologist / Client	Route 2 Only
Credit e1 ●	Change and enhancement of ecology - Exemplary level criteria	1	0	0	0	Ecologist / Client	
LE 05 - Long term ecological management and maintenance							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit Pre-req ●	Prerequisite - Statutory obligations, planning and site implementation		✖	✔	✔	Ecologist	
Credit 1 ●	Management and maintenance throughout the project / Landscape and ecology management plan	2	0	2	2	Ecologist / Client	Only achievable when Route 2 being used. Landscape & ecologist to feed into LEMP
		13	0	9	9	**Standard Land Use & Ecology Credit Total**	
		2	0	0	0	**Exemplary Land Use & Ecology Credit Total**	
		15	0	9	9	**% Land Use & Ecology Total (Standard + Exemplary)**	
Pollution							
Pol 01 - Impact of refrigerants							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Impact of refrigerants	3	0	1	1	Mechanical Eng.	Alternatively, where the building does use refrigerants, the three credits can be awarded as follows.
Pol 02 - Local air quality							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**

Credit 1 ●	Local air quality	2	0	2	2	Mechanical Eng.	No combustion sources on site
Pol 03 - Flood and surface water management							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Flood resilience	2	0	2	2	Civil Eng.	No FRA required – Low Flood Risk Zone.
Credit 2 ●	Surface water run-off	2	0	2	2	Civil Eng.	Aim to achieve betterment and SUDS, pending availability of space, red line boundary will have significant impact
Credit 3 ●	Minimising watercourse pollution	1	0	1	1	Civil Eng.	To depend on surface availability, brownfield site challenges
Pol 04 - Reduction of night time light pollution							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Reduction of night time light pollution	1	0	1	1	Electrical Eng.	
Pol 05 - Reduction of noise pollution							
	Credit	**Available**	**Awarded**	**Targeted**	**Potential**	**Responsibilities**	**Comments**
Credit 1 ●	Reduction of noise pollution	1	0	1	1	Acoustician	Following acoustic appointment, noise impact assessment to be completed.
		12	0	10	10	**Standard Pollution Credit Total**	
		0	0	0	0	**Exemplary Pollution Credit Total**	
		8.04	0	6.70	6.70	**% Pollution Total (Standard + Exemplary)**	

7. Potential Credits Action Schedule

7.1 Potential Credits

Table 6 below details the potential credits identified in the pre-assessment workshop and a summary of the associated actions that would be required to achieve these credits. The full requirements for each credit can be seen within the BREEAM manual.

Table 6: Potential Credits for Crosskeys Campus – Phase 1

Potential Credit	BREEAM Requirements
Man 01 - Credit 3: BREEAM AP - Concept Design	Appointment of a BREEAM AP; agree BREEAM targets and achieve these at design stage.
Man 01 - Credit 4: BREEAM AP - Developed Design	In addition to the above, the BREEAM AP attends key design team meetings and formally reports on progress throughout the design stages.
Man 02 - Credit 1: Elemental LCC Analysis	Elemental life cycle cost (LCC) analysis is carried out based on basic structure and envelope appraising a range of options and cash flow scenarios at RIBA 2.
Man 02 – Credit 2: Component Level LCC Options Appraisal	Component level cost plan including envelope, services, finishes and external spaces. Demonstrate influence on building/ systems design specification to minimise life cycle costs by RIBA 4.
Man 04 - Credit 3: Testing and Inspecting Building Fabric	Post-construction testing and inspection of building fabric including insulation, air leakage and thermal bridging (e.g. thermographic survey). Remedial work where necessary.
Man 05 - Credit 3: Post-Occupancy Evaluation	Client or building occupier makes a commitment to carry out a post-occupancy evaluation (POE) exercise one year after initial building occupation.
Hea 01 - Credit 2: Daylighting	Relevant building areas meet good practice daylighting criteria as defined by BREEAM for individual building types.
Hea 02 - Credit 3: Post-Construction Indoor- Air Quality Measurement (1 Credit)	Measure formaldehyde and VOC levels post-construction and implement measures to reduce to required levels where necessary.
Ene 01 - Credit 2: Predication of Operational Energy Consumption (4 Credits)	Workshop to focus on operational energy consumption of the building.
Ene 06 - Credit 1: Energy Consumption	For any lifts, escalators or moving walkways, carry out analysis of transportation demand/ usage patterns, calculate energy consumption and specify lowest energy consumption option.
Ene 06 - Credit 2: Energy Efficient Features	In addition to the above, specify additional energy efficiency features as listed in the BREEAM manual.
Ene 07 - Up to 4 credits: Best Practice Energy Efficient Measures	Design, specify and install lab plant and systems to promote energy efficiency as per the BREEAM manual.
Mat 02 - Credit 1: Specification of Products with a Recognised Environmental Product Declaration (EPD)	Specify construction products with EPDs.
Wst 06 - Credit 2: Implementation	Update Wst 06 Stage 2 report during Technical Design stage and production of building adaptability and disassembly guide.

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