



PRIESTS BRIDGE, EAST SHEEN RICHMOND

BREEAM UK NEW CONSTRUCTION 2018 PRE-ASSESSMENT

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OFFICES

KENT (HQ) – Unit 3 Grove Dairy Farm Business Centre, Bobbing Hill, Bobbing, Sittingbourne, Kent ME9 8NY

LONDON – One Bridge Wharf, 56 Caledonian Road, London, N1 9UU

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1.0 EXECUTIVE SUMMARY

This report provides an indicative BREEAM UK New Construction 2018 pre-assessment for the proposed Wimshurst Pelleriti development, Priests Bridge, Richmond, which is predominantly residential with 594 m² of commercial space.

The development falls under a BREEAM *Shell & Core* assessment and will focus on the commercial units only as there is currently no BREEAM scheme for residential.

The commercial areas of this building are split into 2 no. separate assessments under BREEAM. This study will focus on the 649 sqm of commercial space, which are classified as one development under BREEAM 2018.

The London Borough of Richmond Core Strategy, policy CP1, Local Plan, policy LP22, and Development Management Plan, policy SD9, outline the following BREEAM requirements:

- All new commercial buildings must achieve BREEAM “Excellent”.
- New developments must achieve at least 2 credits under BREEAM New Construction 2018 Wat 01 Water Consumption.

The pre-assessment has been carried out based upon the current design and a summary of the potential credits for this site can be found in the table below:

Section	Available		Potential	
	No. of Credits	% Contribution	No. of Credits	% Contribution
Management (Man)	18	11.0%	16	9.8%
Health and Wellbeing (Hea)	11	8.0%	6	4.4%
Energy (Ene)	21	14.0%	10	6.7%
Transport (Tra)	12	11.5%	7	6.7%
Water (Wat)	8	7.0%	5	4.4%
Materials (Mat)	14	17.5%	12	15.0%
Waste (Wst)	11	7.0%	9	5.7%
Land Use and Ecology (LE)	13	15.0%	10	11.5%
Pollution (Pol)	12	9.0%	10	7.5%
Innovation (Inn)	10	10.0%	0	0%

Potential Credits %	72%
Potential BREEAM Rating	Excellent

Table 01: Overall potential BREEAM rating

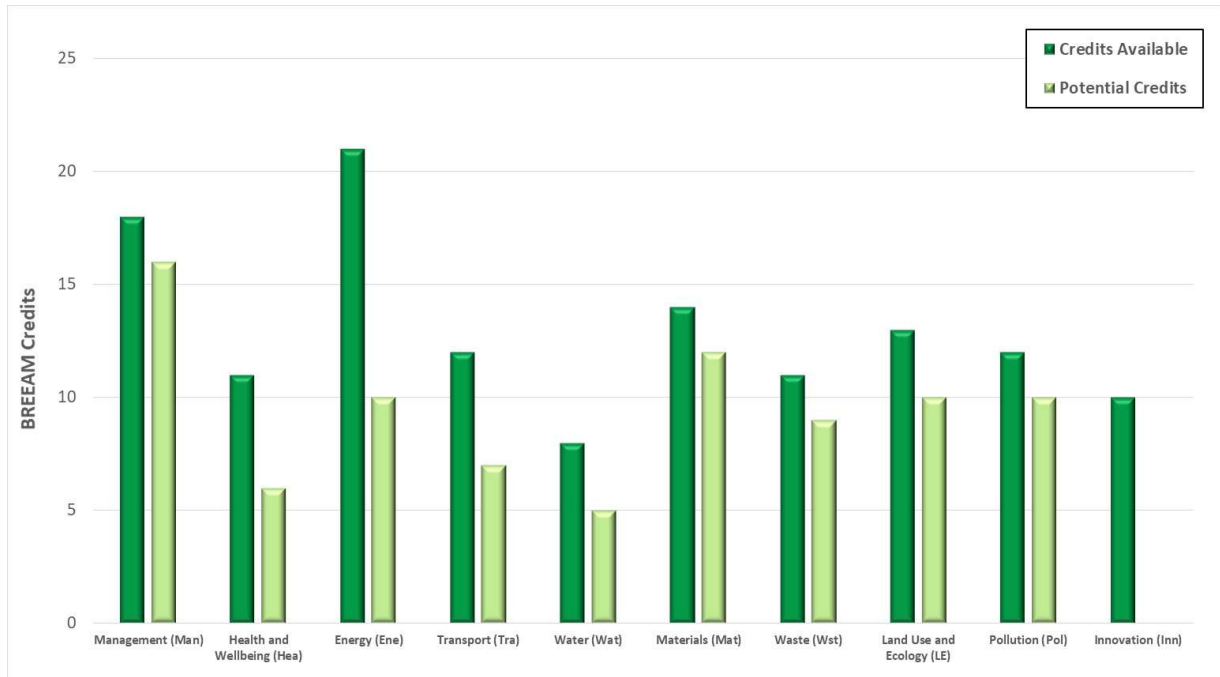


Image 01: BREEAM pre-assessment available and potential credits comparison

The above assumed credits will achieve a score of 72% which meets the target of a BREEAM “Excellent”.

The building will be targeting 3 credits under BREEAM Wat 01, water efficiency.

Please note the following:

- A number of the potential credits have a “medium” feasibility rating which means it is difficult to ascertain at this stage whether the credit will be plausible or not.
- The final rating achieved in a certified BREEAM assessment is dictated by the BRE, not QuinnRoss Consultants, and dependent on the production of satisfactory evidence for each credit. If sufficient evidence cannot be provided the credit will not be awarded affecting the overall score.

2.0 INTRODUCTION

Quinn Ross Consultants was commissioned by Wimshurst Pelleriti to develop a BREEM pre-assessment for the proposed Priests Bridge development that would demonstrate the projects ability to achieve sets of credits under BREEM UK New Construction 2018.

The new development is expected to comprise 9 residential units, mainly one and two-bedroom apartments at 3 storeys. There will also be 649 m² of commercial space, in the form of a 94 m² unit, a larger 555 m² unit at the rear.

This pre-assessment has been conducted based upon the current drawings and specifications. It also considers those BREEM credits that have the potential to be achieved if changes to the current designs are implemented. Note that the award of each credit is dependent upon satisfactory evidence being supplied by the Client, design team and contractor to the BREEM assessor.

All BREEM pre-assessments will apply to the commercial space only, as there is currently no BREEM schemes applicable to domestic/residential spaces.

The commercial areas of this building are split into 2 no. separate assessments under BREEM. This study will focus on the 94 & 555 sqm of commercial space, which are classified as one development under BREEM 2018.

BREEM (Building Research Establishment Environmental Assessment Method) seeks to minimise the adverse effects of buildings (new build and refurbishment) on the environment. It also aims to enable developments to be recognised according to their environmental benefits; provide a credible, environmental label for buildings; and to stimulate demand for environmentally sustainable buildings.

The site is located on 26-28 Priests Bridge, East Sheen, in the London Borough of Richmond. See site images below:

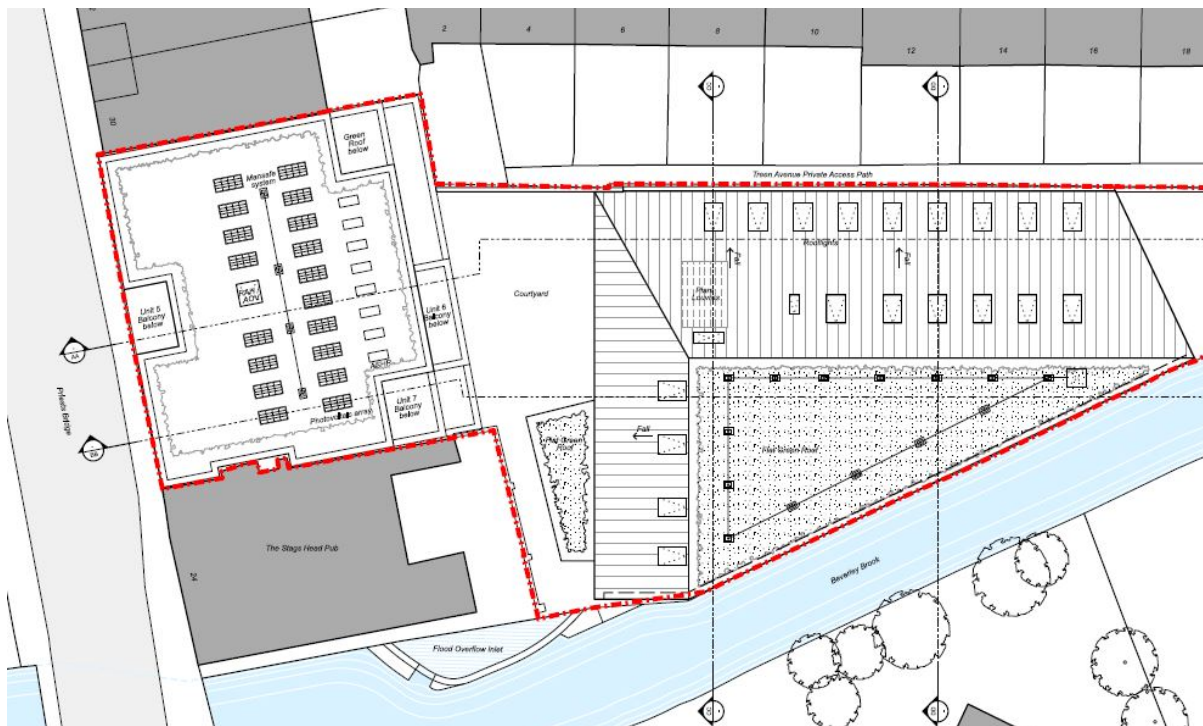


Image 02: Site location

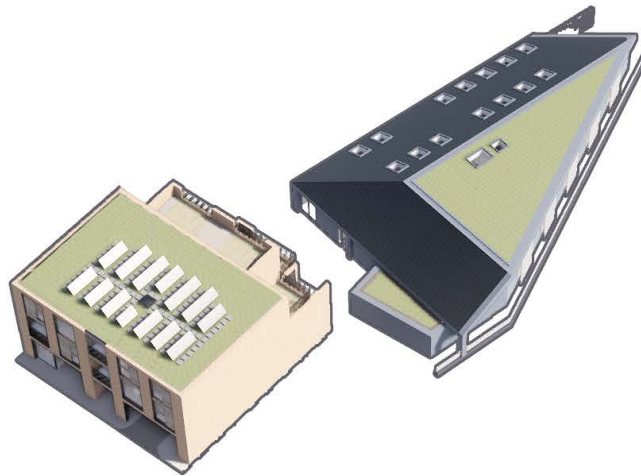


Image 03: Architect's model image of scheme

The report is based on information and discussions made at team meetings, review of the project's development brief and consultation with a BREEAM standard of delivery.

3.0 Richmond Borough Council Planning Policies

The proposed building falls within the administrative area of the London Borough of Richmond who have a set of requirements for new developments outlined in the *Local Plan*, *Core Strategy* and *Development Management Plan*. These plans outline a number of topics related to development, energy and CO₂ requirements however there are also several BREEAM related targets.

- Core Strategy - policy CP1.
- Local Plan - policy LP22.
- Development Management Plan - policy SD9.

The above documents require the following targets are met in relation to BREEAM:

- All new commercial buildings must achieve BREEAM "Excellent".
- New developments must achieve at least 2 credits under BREEAM New Construction 2018 Wat 01 Water Consumption.

4.0 BREEAM NEW CONSTRUCTION 2018

The BREEAM UK New Construction 2018 scheme can be used to assess the environmental life cycle impacts of new buildings at the design and construction stages. "New Construction" is defined as development that results in a new standalone structure or new extension to an existing structure, which will come into operation for a first time upon completion. A variety of buildings can be assessed, which are listed within the BREEAM New Construction 2018 Manual, which include *shell only* buildings the type applicable to this scheme.

The whole BREEAM assessment can be undertaken at three stages:

- Pre-assessment stage – initial assessment of possible credits
- Design Stage – leading to an interim BREEAM certified rating
- Post-Construction Stage – leading to a Final BREEAM rating

This report will focus on the pre-assessment stage only.

There are many elements that determine the overall performance of a new construction project assessed using BREEAM, these are as follows:

- The BREEAM rating level benchmarks
- The minimum BREEAM standard
- The environmental section weighting
- The BREEAM assessment issues and credits

The BREEAM rating benchmarks for new construction projects assessed using the 2018 scheme are as follows:

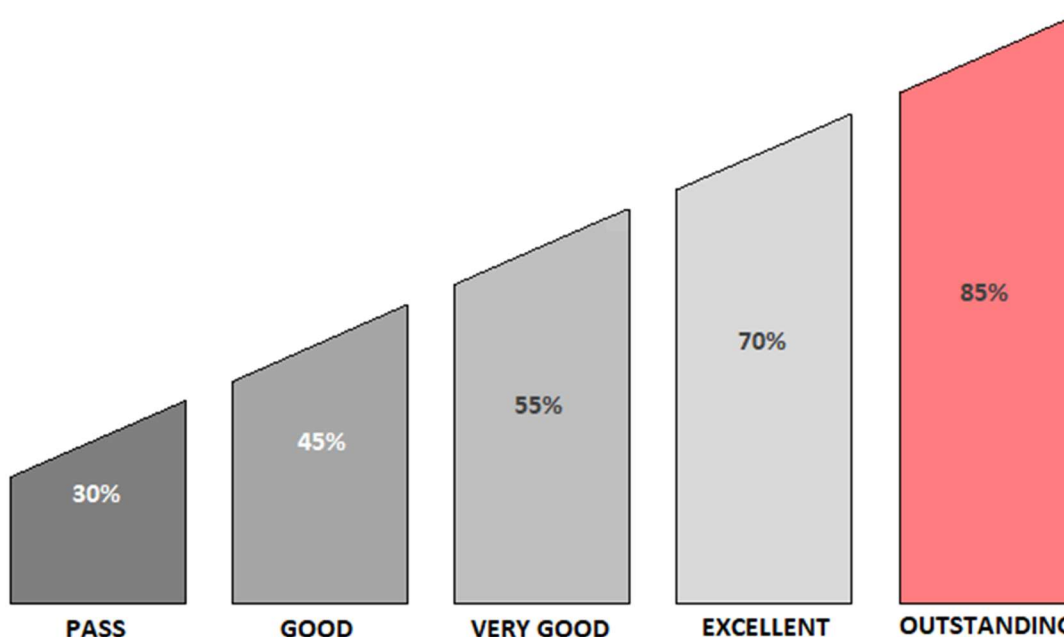


Image 04: BREEAM ratings and target % score

This is determined from the total number of BREEAM criteria met and their respective environmental weightings.

The weightings for each of the nine environmental sections included in the BREEAM New Construction scheme specifically for this building are as follows:

Section	% Contribution to overall score
Management (Man)	11.0%
Health and Wellbeing (Hea)	8.0%
Energy (Ene)	14.0%
Transport (Tra)	11.5%
Water (Wat)	7.0%
Materials (Mat)	17.5%
Waste (Wst)	7.0%
Land Use and Ecology (LE)	15.0%
Pollution (Pol)	9.0%
Innovation (Inn)	10.0%

Table 02: BREEAM section % weightings

To maintain a flexible system BREEAM adopts a *balanced score-card* approach to the assessment and rating of building performance. This means that, to achieve a level of performance the majority of BREEAM credits can be traded, i.e. non-compliance in one area can be off-set through compliance in other to achieve the target BREEAM rating. However, to ensure that performance against fundamental environmental issues is not overlooked in pursuit of an environmental objective, BREEAM sets minimum standards of performance in key areas.

To achieve a BREEAM rating, in addition to the minimum overall percentage score that must be achieved, the minimum standards, detailed in the table below must also be complied with:

BREEAM Issue	Pass	Good	Very Good	Excellent	Outstanding
Man 03: Responsible construction practices	None	None	None	One credit (responsible construction management)	Two credit (responsible construction management)
Man 04: Commissioning and handover	None	None	One credit (commissioning-test schedule and responsibilities)	One credit (commissioning-test schedule and responsibilities)	One credit (commissioning-test schedule and responsibilities)
	None	None	Criterion 11 (Building user guide)	Criterion 11 (Building user guide)	Criterion 11 (Building user guide)
Man 5: Aftercare	None	None	None	One credit (commissioning-implementation)	One credit (commissioning-implementation)
Ene 01: Reduction of energy use and carbon emissions	None	None	None	Four credits (Energy performance)	Six credits (Energy performance) and Four credits (Energy modelling and reporting)
Ene 02: Energy monitoring	None	None	One credit (First sub-metering credit)	One credit (First sub-metering credit)	One credit (First sub-metering credit)
Wat 01: Water consumption	None	One credit	One credit	One credit	Two credits
Wat 02: Water monitoring	None	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Mat 03: Responsible sourcing of materials	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Wst 01: Construction waste management	None	None	None	None	One credit
Wst 03: Operational waste	None	None	None	One credit	One credit

Table 03: BREEAM minimum requirements

5.0 BREEAM PRE-ASSESSMENT

The explanation and outline of how to achieve each credit is found below in this section. There is also a feasibility result for each credit that states how likely or easily the credit can be achieved. These are summarised below:

High	- Credit is ideal for the building and analysis is part of standard best practice design
Medium	- Credit is applicable to the building & achievable however feasibility is uncertain at this stage
Low	- Credit is not applicable and/or analysis is unfeasible

Please note BREEAM credits that are not applicable will not be shown/outlined:

5.01 Management (Man)

BREEAM Section	Credit	Pre-Assement			Credit Requirements	Design Stage Evidence Requirements	Typical Responsibility to provide
		Available Credits	Targeted Credits	Feasibility			
Management	Man 01: Project brief and design						
	Project delivery planning (Criteria 1-3)	1	1	High	Roles, responsibilities and contributions for each phase of the project delivery have been clearly defined and inputs have influenced early design options	Early meeting minutes detailing design considerations Project responsibility matrix Stage/options reports Man 01 proforma (if necessary)	Project Manager
	Stakeholder consultation (third party) (Criteria 4-7)	1	1	High	Third party stakeholders have been consulted and their contributions and outcomes are documented and shown if they have influenced design	Consultation plan List of consultees Documented design changes that were influenced by consultation exercise	Project Manager
	Pre-requisite - Advisory professional credits	0	0	High	Prerequisite for credits below. Project team and client formally agree performance targets with the help of a BREEAM AP	Confirmation letter	Client / Building owner & Project team
	Sustainability Champion (design) (Criteria 8-10)	1	1	High	BREEAM AP is appointed to define the BREEAM target for the project	BREEAM AP appointment/ agreed targets	Project Manager
	Sustainability Champion (monitoring progress) (Criteria 11-12)	1	1	High	BREEAM AP is appointed to monitor and oversee BREEAM target through the design	BREEAM AP appointment/ stage reports	Project Manager
	Man 02: Life cycle cost and service life planning						
	Elemental life cycle cost (LCC) (Criteria 1-3)	2	2	High	An elemental LCC analysis is carried out at RIBA stage 2. The LCC indicates future replacement costs and service life, maintenance and operation costs. It must show how it has influenced the design	LCC analysis - Stage 2	Cost consultant
	Component level LCC Plan (Criteria 4-5)	1	1	Medium	A component level LCC plan is developed by the end of RIBA stage 4. It must show how it has influenced the design	LCC component level - Stage 4	Cost consultant
	Capital cost reporting (Criteria 6)	1	1	High	Capital cost for the building in pounds per square metre (EK/m ²) is reported	Confirmation letter	Cost consultant
	Man 03: Responsible construction practices						
	Pre-requisite - Legally harvested and traded timber (Criteria 1)	0	0	High	All timber and timber-based products used on the project are to be legally harvested and traded timber	Contract clause/ written confirmation	Contractor
	Pre-requisite - Healthcare NHS buildings only (Criteria 2)	0	0	N/A	Any party who at any stage manages the construction site operates an Environmental Management System (EMS)	Contract clause/ written confirmation	Contractor
	Environmental Management (Criteria 3 OR 4)	1	1	High	Principal contractor operates a certified EMS (ISO14001 or BS8555) Principal contractor implements best practice pollution prevention policies on-site. (PPGG)	Copy of the ISO14001 certificate Signed copy of the PPGG checklist	Contractor
	Pre-requisite - BREEAM AP credit (Criteria 5)	0	0	High	Project team and client formally agree performance targets with the help of a BREEAM AP	Confirmation letter	Client / Building owner
	Sustainability Champion (construction) (Criteria 6)	1	1	Medium	Involve BREEAM AP to work with project team to maximise project performance, monitor construction progress against performance targets, identify risks, provide feedback and coordinate evidence	BREEAM AP appointment/ stage reports	Client / Building owner
	Responsible construction management (Criteria 7-9)	2	1	High	Achieve items listed in table 4.1. For two credits achieve six additional items	See table 4.1	Contractor
	Monitoring of construction-site-impacts (Criteria 10-23)	2	2	High	Responsibility is assigned to an individual to monitor, record and report energy, water and transport data resulting from on-site construction processes.	Written confirmation	Contractor
					Energy consumption is monitored and records in kWh (and where relevant litres of fuel used)	Written confirmation	
					Water consumption is monitored and records in m ³	Written confirmation	
					Set targets for transportation movements and impacts. Monitor transportation of major building materials, ground works and landscaping. Monitor transportation movements	Written confirmation	
					Transport of waste from site is monitored	Written confirmation	
	Report total transport related CO ₂ emissions (kg CO ₂) plus distance travelled (km) via BREEAM projects	Written confirmation					
	Man 04: Commissioning and handover						
	Testing schedule and responsibilities (Criteria 1-5)	1	1	High	A commissioning manager is appointed to monitor and programme commissioning in accordance with the relevant standards	Commissioning schedule Project programme accounting for commissioning Written confirmation	Contractor
	Design and preparation (Criteria 6-7)	1	1	High	Achieve Criteria 1-5 above	Commissioning schedule	Contractor
					A project team member is appointed to undertake reviews, manage and advise on commissioning. For complex services this needs to be undertaken by a specialist	Project programme accounting for commissioning Written confirmation	
	Testing and inspecting building fabric (Criteria 8-10)	1	0	Medium	The integrity of the building fabric is quality assured through a thermographic survey as well as airtightness testing. Rectify any defects prior to building handover	Written commitment to undertake	Contractor
Handover (Criteria 11-12)	1	1	High	2 building user guides are developed, technical and non-technical, along with 2 training schedules prior to handover	Written confirmation	Contractor	

BREEAM Section	Credit	Pre-Assement			Credit Requirements	Design Stage Evidence Requirements	Typical Responsibility to provide
		Available Credits	Targeted Credits	Feasibility			
Management	Man 05: Aftercare						
	Aftercare support (Criteria 1-2)	0	0	N/A	An extensive aftercare support system will be in place and include operational infrastructure to collect and monitor data for a minimum of 12 months and have one month of weekly site attendance support	Written confirmation	Contractor
	Commissioning - implementation (Criteria 3)	0	0	N/A	Seasonal commissioning activities will be completed over a minimum 12 month period	Written confirmation	Contractor
	Post occupancy evaluation (Criteria 4-7)	0	0	N/A	The client makes a commitment to carry out a post occupancy evaluation (POE), review of design intent, feedback from building users, lessons learnt reported to client.	Written confirmation including confirmation funds have been committed to perform POE	Client / Building owner

5.02 Health and Wellbeing (Hea)

BREEAM Section	Credit	Pre-Assement			Credit Requirements	Design Stage Evidence Requirements	Typical Responsibility to provide
		Available Credits	Targeted Credits	Feasibility			
Health and Wellbeing	Hea 01: Visual comfort						
	Control of glare from sunlight (Criteria 1-3)	0	0	N/A	Disabling glare has been designed out of all relevant building areas using a glare control strategy, either through building form and layout and/or building design measures	Glare modelling report	Consultant
	Daylighting (Criteria 4)	2	0	Low	Daylight modelling is required to demonstrate good practice daylight factors are achieved	Daylight modelling report	Consultant
	View out (Criteria 5-7)	1	1	Medium	95% of the occupied rooms have a wall with a window that provided a view out (window >20% of the surrounding wall area)	Marked up plans and elevations	Architect
	Internal and external lighting levels, zoning and control (Criteria 8-14)	1	1	High	Internal and external lighting is designed in accordance with the reference standards. The lighting is zoned and control in the relevant areas.	Specification/ M&E proforma confirming design standards Internal and External lighting drawings	M&E consultant
	Hea 02: Indoor air quality						
	Pre-requisite - Indoor air quality (IAQ) plan (criteria 1)	0	0	N/A	An indoor air quality plan is developed in accordance with guidance Note GND6, no later than concept stage	Copy of the indoor air quality plan	Consultant / Contractor
	Ventilation (Criteria 2-5)	1	1	High	Show the building has been designed to minimise the indoor concentration and recirculation of pollutants. For naturally ventilated or mixed mode buildings, the design demonstrates that the ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates in accordance with CIBSE AM10	Ventilation layouts	M&E consultant
	Emissions from construction products (Criteria 3-4)	0	0	N/A	One credit - 3 of 5 product types meet emissions limits outlined in table 5.11 Two credit - All product types meet emissions limits outlined in table 5.11	Manufacturer's literature confirming testing standards and emissions achieved	Contractor
	Post-construction indoor air quality measurement (Criteria 5-10)	0	0	N/A	Formaldehyde & VOC concentration is measured post construction and meets requirements. If not, project team confirms intent to reduce levels Testing & measurements are in line with British Standards Concentration levels are reported via BREEAM assessment tool	On site testing report confirming testing standards and emissions achieved and IAQ plan	Consultant / Contractor
	Hea 03: Safe containment in laboratories						
	This is no longer assessed as a separate issue within BREEAM UK New Construction 2018						
	Hea 04: Thermal comfort						
	Thermal modelling (criteria 1-4)	1	1	High	Dynamic thermal modelling is carried out to demonstrate operative temperatures are in accordance with the requirements.	Thermal modelling report	Consultant
	Adaptability - for a project climate change scenario (Criteria 5-8)	1	1	High	The thermal modelling analysis is run against a future weather scenario	Thermal modelling report	Consultant
	Thermal zoning and Controls (criteria 9-11)	0	0	N/A	The thermal modelling analysis has informed the temperature control strategy	Drawings showing the heating, cooling and ventilation strategy in accordance with the criteria.	Consultant / M&E consultant
	Hea 05: Acoustic Performance						
	Acoustic performance for shell & core commercial units	1	1	Medium	The building meets the appropriate acoustic performance (indoor ambient noise levels) outlined in table 5.14 - 5.19	Acoustic statement/report confirming compliance	Consultant
	Hea 06: Security						
	Security of site and building (criteria 1-3)	1	0	Medium	An SQSS conducts evidence-based security needs assessment (SNA) no later than concept stage	SQSS report	Consultant
	Hea 07: Safe and Healthy Surroundings						
	Safe access (criteria 1-6)	1	0	Low	Criteria must be met for cycle paths, footpaths, drop-off areas, pedestrian crossings, signposting and access road lighting Criteria must be met for parking, waiting areas, turning areas and storage areas for delivery / goods vehicles	Design drawings (including a scaled site plan), AND/OR relevant sections of the specification highlighting all necessary compliant features and dimensions	Architect
	Outside space	1	0	Low	There is an outside space providing building users with an external amenity area		

5.03 Energy (Ene)

BREEAM Section	Credit	Pre-Assement			Credit Requirements	Design Stage Evidence Requirements	Typical Responsibility to provide
		Available Credits	Targeted Credits	Feasibility			
Ene 01: Reduction of energy use and carbon emissions							
Energy	Energy performance (criteria 1)	9	0	High	Calculate the Energy Performance Ratio (EPR). Compare the EPR achieved with the benchmarks in Table 6.1 and award the corresponding number of BREEAM credits	Dynamic Simulation Modelling (DSM) output files	M&E consultant
	Prediction of operational energy consumption (criteria 2-5)	4	4	High	Pre-requisite - Design team meeting at concept stage focusing on operational energy performance	Energy modelling report	M&E consultant
					Energy modelling during design and post-construction stage predicting operational energy consumption and targets		
Report predicted energy consumption targets by end use	Carry out risk assessment to highlight any design, technical or process risks						
Ene 02: Energy monitoring							
Energy	Sub metering of end-use categories (Criteria 1-3)	1	1	High	Separate energy sub metering is installed to cover 90% of energy consumption. The meters should have a pulsed output to enable connection to a energy monitoring system. The energy meters should be suitably labelled.	Electrical & mechanical metering schematic	M&E consultant
	Sub metering of high energy load and tenancy areas (Criteria 4-5)	1	1	High	The tenancy areas will be separately sub metered	Electrical & mechanical metering schematic	
Ene 03: External lighting							
Energy	External lighting (Criteria 1-2)	1	1	High	No external lighting OR.....	External lighting schedule/ specification/calculations	M&E consultant
					Average luminous efficacy is not less than 70 luminaire lumens per circuit Watt	External lighting drawings	
External lighting includes for a timeclock, daylight sensor and presence detection (where appropriate)							
Ene 04: Low carbon design							
Energy	Passive design (criteria 1-4)	1	0	Low	A passive design analysis is undertaken and the Hea 04 thermal comfort credit has been achieved	Energy report	Consultant
	Free cooling (Criteria 5-8)	1	0	Low	Implementation of free cooling solutions	Ventilation strategy confirming free cooling	M&E consultant/Architect
	Low and zero carbon technologies (Criteria 9-12)	1	1	High	A low and zero carbon feasibility study has been undertaken	Energy report	M&E consultant
Specification/drawings showing the PV installation							
Ene 05: Energy efficient cold storage							
Energy	Refrigeration energy consumption (criteria 1-2)	0	0	N/A	The refrigeration systems on site have been installed and commissioned in line with British standards, appear in the Enhanced Capital Allowance (ECA) Energy Technology Product List (ETPL) and in line with BREEAM credit Man 04 (above)	Manufacturers literature and refrigeration plant commissioning record	M&E consultant
	Indirect greenhouse gas emissions (criteria 3-4)	0	0	N/A	Credit above is achieved & the installed refrigeration system demonstrates a saving in indirect greenhouse gas emissions (CO2 eq.) over the course of its operational life.	Documents confirming type of technology specified and estimated savings in indirect greenhouse emissions, including a description of how this saving is achieved. Calculations carried out by a qualified professional	M&E consultant
Ene 06: Energy efficient transportation systems							
Energy	Energy consumption (Criteria 1)	1	1	High	An analysis of transportation demand and usage patterns for the building has been carried out to determine the size of the lift and the transportation system with the lowest energy consumption specified	Analysis of usage pattern	M&E consultant
	Energy efficient features (Criteria 2-7)	1	1	High	Standby condition during off-peak periods, energy efficient lighting and drive controller with variable speed are specified for the lift	Lift manufacture energy calculations	
Ene 07: Energy efficient laboratory systems							
Energy	Design specification (criteria 2-4)	0	0	N/A	Client engagement throughout consultation during initial project brief to determine occupant requirements and performance criteria	Meeting minutes	-
	Best practice energy efficient measures (criteria 5-8)	0	0	N/A	Correct sizing of servicing equipment	Calculations and equipment schedule	
Criteria 1 to 5 (above) are achieved					See documentation requirements above		
Laboratory plant is designed, specified and installed to promote energy efficiency	Equipment spec						
Energy efficient measures must have a reasonably significant effect on the total energy consumption of the laboratory, i.e. 2% reduction or greater	Calculations or modelling report						
Energy efficient measures do not compromise the defined performance criteria	Confirmation document						
Ene 08: Energy efficient equipment							
Energy	Procurement of energy efficient equipment to (criteria 1-3)	0	0	N/A	Identify the building's unregulated energy consuming loads and estimate their contribution to the total annual unregulated energy consumption	Professional report/study/calculations of transportation analysis	-
					Identify the systems and/or processes that use a significant proportion of the total annual unregulated energy consumption	Relevant section/clauses of the building specification	
					Demonstrate a meaningful reduction in the total annual unregulated energy consumption	Manufacturers products details	

5.04 Transport (Tra)

BREEAM Section	Credit	Pre-Assement			Credit Requirements	Design Stage Evidence Requirements	Typical Responsibility to provide
		Available Credits	Targeted Credits	Feasibility			
Transport	Tra 01: Transport Assessment & Travel Plan						
	Travel assessment & plan (Criteria 1-5)	2	2	High	A Travel plan based upon a site specific travel assessment will be developed	Copy of the travel assessment Copy of the travel plan Confirmation the travel plan will be handed over to the building's future tenants to inform their own travel strategy.	Any project member
	Tra 02: Sustainable Transport Measures						
	Transport options implementation	10	5	Medium	Achieve Tra 01 credits (above) Identify transport measures available from Table 7.4 Award credits based on table 7.3	See above Report and site plans/maps showing transport measures and amenities and summarised credits achieved	Any project member

5.05 Water (Wat)

BREEAM Section	Credit	Pre-Assement			Credit Requirements	Design Stage Evidence Requirements	Typical Responsibility to provide
		Available Credits	Targeted Credits	Feasibility			
Water	Wat 01: Water consumption						
	Water consumption (Criteria 1-6)	5	3	Medium	An assessment of the efficiency of the building's domestic water-consuming components is undertaken using the BREEAM Wat 01 calculator	Wat 01 Calculator output	M&E consultant
	Wat 02: Water monitoring						
	Water monitoring & metering (Criteria 1-4)	1	1	Medium	Specification of a mains water meter on each supply, easily accessible meters and pulsed connection to a BMS	Water metering schematic/drawing Water meter datasheet	M&E consultant
	Wat 03: Water leak detection						
	Leak detection system (criteria 1-2)	1	0	Low	A mains water leak detection system is installed	Specification/drawings	M&E consultant
Flow control devices (criteria 3)	1	1	Medium	Shut off devices are installed to the cold water supply of each WC area which is linked to a PIR sensor	Water metering schematic/drawing	M&E consultant	
Wat 04: Water efficient equipment							
Reducing water consumption by specifying efficient equipment (criteria 1-2)	0	0	N/A	Identify all unregulated water demands that can be reduced and demonstrate, through either good practice design or specification, a meaningful reduction in the total water demand of the building	Documentation detailing the planting and irrigation strategy Relevant section/clauses of the building specification or contract AND/OR design drawings (where necessary) Manufacturers product details	M&E consultant	

5.06 Materials (Mat)

BREEAM Section	Credit	Pre-Assement			Credit Requirements	Design Stage Evidence Requirements	Typical Responsibility to provide
		Available Credits	Targeted Credits	Feasibility			
Materials	Mat 01: Environmental impacts from construction products - Building life cycle assessment (LCA)						
	Superstructure (Criteria 1-7)	7	5	Medium	BREEAM awards credits on the basis of the building's quantified environmental life cycle impact through assessment of the main building elements	Marked up drawings of new build elements Manufacture documentation confirming the new elements have robust environmental performance details Mat 01/02 calculators	M&E consultant/Architect
	Mat 02: Environmental impacts from construction products - Environmental Product Declarations (EPD)						
	Specification of products with a recognised environmental product declaration (EPD) (criteria 1-2)	1	1	Medium	Specify construction products that achieve EPD points of at least 20 Enter details of each EPD into Mat 01/02 calculator	Copies of EPD certificates Mat 01/02 calculators	Architect / Structures
	Mat 03: responsible sourcing of construction products						
	Pre-requisite - timber (Criteria 1)	0	0	High	All timber and timber-based products used on the project is to be legally harvested and traded timber	Contract clause/ written confirmation	Architect / Structures
	Enabling sustainable procurement (Criteria 2)	1	1	High	Materials are sourced in accordance with a site specific sustainable procurement plan	Copy of the site specific sustainable procurement plan	
	Measuring responsible sourcing (Criteria 3)	3	3	High	>10% (1 credit), >20% (2 credits), >30% (3 credits) of the responsible sourcing materials points have been achieved, through the specification of responsibly sourced materials.	Mat 03 proforma - confirming suppliers of the major building materials	
	Mat 04: Insulation						
	This is no longer assessed as a separate issue within BREEAM UK New Construction 2018	0	0	N/A	-	-	-
Mat 05: Designing for durability and resilience							
Protecting vulnerable parts of the building from damage (Criteria 1)	1	1	High	Specification of suitable external and internal protection measures	Drawings/specification confirming measures included to protect the building eg. Kick plates, corner protection, external kerbs and bollards etc.	Architect / Structures	
Protecting exposed parts from material degradation (Criteria 2-4)				Specification of measures to limit material degradation due to environmental factors	Drawings/specification confirming the inclusion of measures to limit material degradation effects (corrosion, swelling, fading, rotting melting abrasion etc.).		
Mat 06: Material efficiency							
Material efficiency (Criteria 1-3)	1	1	High	Opportunities have been identified, investigated and documented to optimise the use of materials throughout the building design, procurement construction, maintenance and end of life	documented investigation at each RIBA stage	Architect	

5.07 Waste (Wst)

BREEAM Section	Credit	Pre-Assement			Credit Requirements	Design Stage Evidence Requirements	Typical Responsibility to provide
		Available Credits	Targeted Credits	Feasibility			
Waste	Wst 01: Construction waste management						
	Pre-demolition audit (criteria 1-2)	1	1	Medium	Complete a pre-demolition audit that must determine whether refurbishment or reuse is feasible	Pre-demolition audit	Contractor
	Construction resource efficiency (Criteria 3-4)	3	2	Medium	Resource Management Plan (RMP) has been developed Construction waste m³ or tonnes meets or is lower than targets set out in table 10.1	RMP Waste volume calculations & confirmation	Contractor
	Diversion of resources from landfill (Criteria 5-6)	1	1	Medium	Where over 70% of non-demolition and 80% of demolition waste (tonnage) is diverted from landfill (table 10.2)	Waste volume calculations & confirmation	Contractor
	Wst 02: Use of recycled and sustainably sourced aggregates						
	Pre-requisite - (criteria 1)	0	0	Low	Complete a pre-demolition audit of existing structures	Copy of report / audit	Contractor
	Project Sustainable Aggregate Points (Criteria 2-6)	1	0	Medium	Complete BREEAM Wst 02 calculator	Wst 02 calculator will dictate points	Contractor
	Wst 03: Operational waste						
	Operational waste (Criteria 1-2)	1	1	Medium	Provision of a dedicated spaces for the segregation and storage of operational recyclable waste	Drawing indicating the location of the bin store provision Confirmation they are suitably sized and will have the necessary labelling in place Drawings indicating the location of storage and manufacturers literature detailing capacity	Contractor
	Wst 04: Speculative floor and ceiling finishes						
	Speculative floor and ceiling finishes (Criteria 1-2)	1	1	Medium	For tenanted areas, where the future occupant is not known and carpets or other floor or ceiling finishes are installed, these must be limited to a show area only Only install floor and ceiling finishes selected by the known occupant of a development	Drawings showing display area Letter confirming finishes selection from tenant	Architect Client/Building owner
	Wst 05: Adaptation to climate change						
	Resilience of structure, fabric, building services and renewables installation (criteria 1-3)	1	1	Medium	A climate change adaptation strategy appraisal for the structural and fabric resilience is undertaken	Climate change strategy appraisal	Architect / Structures
	Wst 06: Design for disassembly and adaptability						
Design for disassembly and functional adaptability - recommendations (criteria 1-2)	1	1	Medium	Conduct a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios by the end of Concept Design	Report	Architect / Structures	
Design for disassembly and functional adaptability - implementation (criteria 3-5)	1	1	Medium	Achieve criteria above. Show how study above has been implemented in the design and produce an adaptability and disassembly guide	Adaptability and disassembly guide	Architect / Structures	

5.08 Land Use and Ecology (LE)

BREEAM Section	Credit	Pre-Assement			Credit Requirements	Design Stage Evidence Requirements	Typical Responsibility to provide
		Available Credits	Targeted Credits	Feasibility			
Land Use & Ecology	LE 01: Site selection						
	Previously occupied land (criteria 1)	1	1	High	At least 75% of the footprint is on an area of land which has previously been occupied	Marked up plans detailing before and after scenarios	Architect
	Contaminated land (criteria 2-3)	1	0	Low	Site investigation confirms land is contaminated, remediation is in line with contaminated land specialist's report	Report from contaminated land specialist and confirmation from client that report has been adhered to	Consultant
	LE 02: Identifying and understanding the risks and opportunities for the project						
	Pre-requisite - Assessment route selection (criteria 1-2)	0	0	Medium	An assessment route for the project has been determined using BREEAM Guidance Note GN34 BREEAM Ecological Risk Evaluation Checklist	Completed GN34 checklist	Any project team member
	Survey and evaluation (criteria 3-10)	2	2	Medium	Take route 1 or 2 to determining ecological outcomes for the site	BREEAM Ecological Risk Evaluation Checklist OR survey report outlining ecological baseline	Any project team member
	LE 03: Managing negative impacts on ecology						
	Prerequisite - Identifying and understanding the risks and opportunities for the site (criteria 1-2)	0	0	Low	LE02 is achieved. Client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site	Written confirmation / Certificate, evidence requirements for LE 02 (above)	Contractor / Any project team member
	Planning, liaison, implementation and data (criteria 3-5)	1	1	Medium	Roles and responsibilities are defined, site prep and construction works have been planned and implemented, project team has been liaising with stakeholders	Project responsibility matrix, meeting minutes, reports, generic project information	Any/all project team member/s
	Managing negative impacts of the project (criteria 6-7)	2	1	Medium	Negative impacts from site preparation and construction works have been managed according to the hierarchy and no net impact has resulted	Ecologist report	Consultant
	LE 04: Change and enhancement of ecological value						
	Prerequisite - Identifying and understanding the risks and opportunities for the project (criteria 1-2)	0	0	Low	LE 03 is achieved Roles and responsibilities are defined Site prep and construction works have been planned and implemented	See evidence requirements for LE 03 above Project responsibility matrix Generic project information	See above Project manager Contractor
	Enhancement of ecology (criteria 3-4)	4	3	Medium	The project team has implemented solutions and measures based on recommendations from recognised 'local' ecological expertise Data collated is provided to the local environmental records centres nearest to, or relevant for, the site	Ecologist report, drawings marked up to show recommendations have been implemented Ecologist report, proof it has been forwarded to local env records centre	Ecologist / Architect Ecologist / Project manager
	LE 05: Long term ecology management and maintenance						
	Prerequisite - Roles and responsibilities, implementation, statutory obligations (criteria 1-2)	0	0	Medium	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	Written confirmation / certificate	Contractor
	Prerequisite - Roles and responsibilities, implementation, statutory obligations (criteria 1-2)	0	0	Medium	LE 04 is achieved Project team liaises with stakeholders to monitor, review management and maintenance solutions	See above requirements for LE 04 Meeting minutes, generic project information	See above Lead consultant
	Planning, liaison, data, monitoring and review management and maintenance (criteria 3-5)	2	2	Medium	Monitor and report ecological outcomes, arrangements of landscape management, maintaining the site in line with sustainable activities	Generic project information	Contractor
Landscape and ecology management plan (or similar development) (criteria 6-7)	2	2	Medium	Tenant information should contain a section on ecology and biodiversity Landscape and ecology management plan is developed in accordance with BS 42020:2013 covering as a minimum the first five years after project	Building user guide / Handover document containing applicable section Landscape and ecology management plan	Contractor Consultant	

5.09 Pollution (Pol)

BREEAM Section	Credit	Pre-Assement			Credit Requirements	Design Stage Evidence Requirements	Typical Responsibility to provide
		Available Credits	Targeted Credits	Feasibility			
Pollution	Pol 01: Impact of refrigerants						
	Impact of refrigerants - no refrigerant use (criteria 1)	3	3	High	Where the building does not require the use of refrigerants	Documentary evidence confirming the absence of refrigerant in the development	M&E consultant
	Pre-requisite - Impact of refrigerants (criteria 2)	0	0	N/A	All systems must comply with the requirements of BS EN 378:2008	A copy of the specification clause or letter from the M&E engineer/system manufacturer confirming relevant refrigeration type and system information	M&E consultant
	Impact of refrigerants (criteria 3-5)	0	0	N/A	Refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELCCO2e) of ≤100 kgCO2e/kW cooling/heating capacity	Assessor's building/site inspection and or as built drawings confirming the presence of compliant refrigeration plant	M&E consultant
		0	0	N/A	Refrigerants used have a Global Warming Potential (GWP) <10	Assessor's building/site inspection and or as built drawings confirming the presence of compliant refrigeration plant	M&E consultant
	Leak detection (criteria 6-7)	0	0	N/A	Refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELCCO2e) of ≤1000 kgCO2e/kW cooling/heating capacity	AC systems have a permanent leak detection system installed and it must be capable of automatically isolating and containing the remaining refrigerant charge in response to a leak	M&E consultant
	Pol 02: Local air quality						
	Local air quality (criteria 1-3)	2	1	Medium	All heating and hot water is supplied by non-combustion systems, ie electricity OR Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels set in Table 12.4 and Table 12.5	Heating schedule	M&E consultant
	Pol 03: Flood and surface water management						
	Pre-requisite - (criteria 1)	0	0	Medium	An appropriate consultant is appointed to carry out and demonstrate the development's compliance with all criteria	Flood risk assessment (FRA) report	Consultant
	Low flood risk (criteria 2)	2	2	High	Floor Risk Assessment (FRA) confirms flood risk is low	FRA from consultant	Consultant
	Medium or high floor risk (criteria 3-4)	0	0	Low	Floor Risk Assessment (FRA) confirms flood risk is medium or high	FRA from consultant	Consultant
	Surface water run-off (criteria 5-15)	2	2	Medium	Pre-requisite - Run-off design solutions must be bespoke Run-off rate: Peak run-off rate shows a 30% improvement for the site over existing and include measures for climate change Run-off volume: Confirmation flooding of property will not occur in event of drainage failure and run-off volume is no higher than the existing scenario	Drawings marked up showing solutions	Architect / Structures
						Run-off calculations existing and proposed, drawings marked up showing adaptability measures	Architect / M&E consultant
	Minimising watercourse pollution (Criteria 16-23)	1	0	Low	No discharge from the site for rainfall up to 5mm and the provision of pollution interceptors were appropriate	Surface water run-off report Pol 03 Proforma Drainage drawing	Any project team member
Pol 04: Reduction of night time light pollution							
External lighting (Criteria 1-6)	1	1	Medium	External lighting strategy complies with the necessary standards and the circuit has a timeclock	External lighting drawing Specification/ confirmation of necessary standards	M&E consultant	
Pol 05: Reduction of noise pollution							
Noise pollution	1	1	High	A noise impact assessment is carried out in compliance with BS4142:2014 and noise pollution levels are restricted.	Noise impact assessment Commitment to under post completion but pre-occupancy testing	Consultant	

5.10 Innovation (Inn)

BREEAM Section	Credit	Pre-Assement			Credit Requirements	Design Stage Evidence Requirements	Typical Responsibility to provide
		Available Credits	Targeted Credits	Feasibility			
Innovation	Inn 01: Innovation						
	Man 01: BREEAM AP (Simple buildings only)	0	0	N/A	Involve a BREEAM AP in the project at an appropriate time and level	Details of AP	-
	Man 03: Responsible construction practices	1	0	Low	In addition to meeting both credits of criteria 7 (above), the contractor achieves compliance to an exemplary level of practice	Scheme certificate and/or compliance report.	-
	Hea 01: Visual comfort	1	0	Low	Daylight modelling is required to demonstrate exemplary daylight factors are achieved	Daylight modelling report	-
	Hea 02: Indoor air quality	0	0	N/A	Three product types meet emissions limits outlined in table 5.12	Manufacturer's literature confirming testing standards and emissions achieved	-
	Hea 06: Security	1	0	Low	A risk based security rating scheme has been used The building achieves an EPR of >0.90	SQSS report	-
	Ene 01: Reduction of energy use and carbon emissions	0	0	N/A	An equivalent % of the building's modelled 'regulated' operational energy consumption is generated from carbon neutral sources	Dynamic Simulation Modelling (DSM) output files	-
	Wat 01: Water consumption	0	0	N/A	BREEAM Wat 01 calculator results in >65% improvement over baseline	Wat 01 Calculator output	-
	Mat 01: Environmental impacts from construction products - Building life cycle assessment (LCA)	2	0	Low	Achieve Mat 01 criteria 3-4 above. Carry out LCA for at least 3 core building designs	3 no. LCA's	-
					Achieve criteria Mat 01 3-5 above. Achieve Man 02 LCC	LCC analysis - Stage 2 (as used for Man 02)	-
	Mat 03: Responsible sourcing of materials	1	0	Low	>50% of the responsible sourcing materials points have been achieved, through the specification of responsibly sourced materials.	Mat 03 proforma - confirming suppliers of the major building materials	-
	Wst 01: Construction waste management	1	0	Low	Where over 85% of non-demolition and 90% of demolition waste (tonnage) is diverted from landfill (table 10.2)	Waste volume calculations & confirmation	-
					Waste material is required to be sorted into separate key waste groups either on-site or through a licensed contractor	Compliant SWMP/RMP (including targeted benchmarks)	-
	Wst 01: Construction waste management - Simple buildings only	0	0	N/A	Achieve the first three construction resource efficiency credits	Compliant SWMP/RMP (including targeted benchmarks)	-
	Wst 02: Recycled aggregates	1	0	Low	Record the source of the waste arisings of the non-hazardous construction waste measured	Waste volume calculations & confirmation	-
	Wst 05: Adaptation to climate change	0	0	N/A	Meet or improve on the BREEAM exemplary level benchmark Table 10.2	Wst 02 calculator will dictate points	-
	LE 02: Identifying and understanding the risks and opportunities for the project	1	0	Low	Complete BREEAM Wst 02 calculator	See requirements for applicable criteria	-
	LE 04: Change and enhancement of ecological value	1	0	Low	Meet criteria Wst 05, Hea 04, Ene 01, Ene 04, Wat 01, Mat 05, Pol 03	See applicable credits above	-
	Pol 03: Surface water run-off (Simple buildings only).	0	0	N/A	Credits are awarded based on the calculation of the change in ecological value occurring as a result of the project, calculated in accordance with GN 35 - BREEAM, CEEQUAL, HOM Ecology Assessment Issues	GN35 guidance report	-
					Achieve Pol 03 criteria 4-14 for simple buildings	Documentation as outlined above	-

6.0 BREEAM PRE-ASSESSMENT CREDITS SUMMARY

The pre-assessment has been carried out based upon the current design. It also considers those BREEAM credits that have the potential to be achieved if changes to the current design are implemented. A summary of the individual credits and potential credits for this site can be found in Table 4 below:

Section	Credit	Available Credits	Potential Credits
Management (Man)	Man 01: Project brief and design	4	4
	Man 02: Life cycle cost and service life planning	4	4
	Man 03: Responsible construction practices	6	5
	Man 04: Commissioning and handover	4	3
	Man 05: Aftercare	0	0
Health and Wellbeing (Hea)	Hea 01: Visual comfort	4	2
	Hea 02: Indoor air quality	1	1
	Hea 03: Safe containment in laboratories	0	0
	Hea 04: Thermal comfort	2	2
	Hea 05: Acoustic Performance	1	1
	Hea 06: Security	1	0
	Hea 07: Safe and Healthy Surroundings	2	0
Energy (Ene)	Ene 01: Reduction of energy use and carbon emissions	13	4
	Ene 02: Energy monitoring	2	2
	Ene 03: External lighting	1	1
	Ene 04: Low carbon design	3	1
	Ene 05: Energy efficient cold storage	0	0
	Ene 06: Energy efficient transportation systems	2	2
	Ene 07: Energy efficient laboratory systems	0	0
	Ene 08: Energy efficient equipment	0	0
Transport (Tra)	Tra 01: Transport Assessment & Travel Plan	2	2
	Tra 02: Sustainable Transport Measures	10	5
Water (Wat)	Wat 01: Water consumption	5	3
	Wat 02: Water monitoring	1	1
	Wat 03: Water leak detection	2	1
	Wat 04: Water efficient equipment	0	0
Materials (Mat)	Mat 01: Environmental impacts from construction products - Building life cycle assessment (LCA)	7	5
	Mat 02: Environmental impacts from construction products - Environmental Product Declarations (EPD)	1	1
	Mat 03: responsible sourcing of construction products	4	4
	Mat 04: Insulation	0	0
	Mat 05: Designing for durability and resilience	1	1
	Mat 06: Material efficiency	1	1
Waste (Wst)	Wst 01: Construction waste management	5	4
	Wst 02: Use of recycled and sustainably sourced aggregates	1	0
	Wst 03: Operational waste	1	1
	Wst 04: Speculative floor and ceiling finishes	1	1
	Wst 05: Adaptation to climate change	1	1
	Wst 06: Design for disassembly and adaptability	2	2
Land Use and Ecology (LE)	LE 01: Site selection	2	1
	LE 02: Identifying and understanding the risks and opportunities for the project	2	2
	LE 03: Managing negative impacts on ecology	3	2
	LE 04: Change and enhancement of ecological value	4	3
	LE 05: Long term ecology management and maintenance	2	2
Pollution (Pol)	Pol 01: Impact of refrigerants	3	3
	Pol 02: Local air quality	2	1
	Pol 03: Flood and surface water management	5	4
	Pol 04: Reduction of night time light pollution	1	1
	Pol 05: Reduction of noise pollution	1	1
Innovation (Inn)	Inn 01: Innovation	10	0

Table 04: BREEAM pre-assessment individual credit score

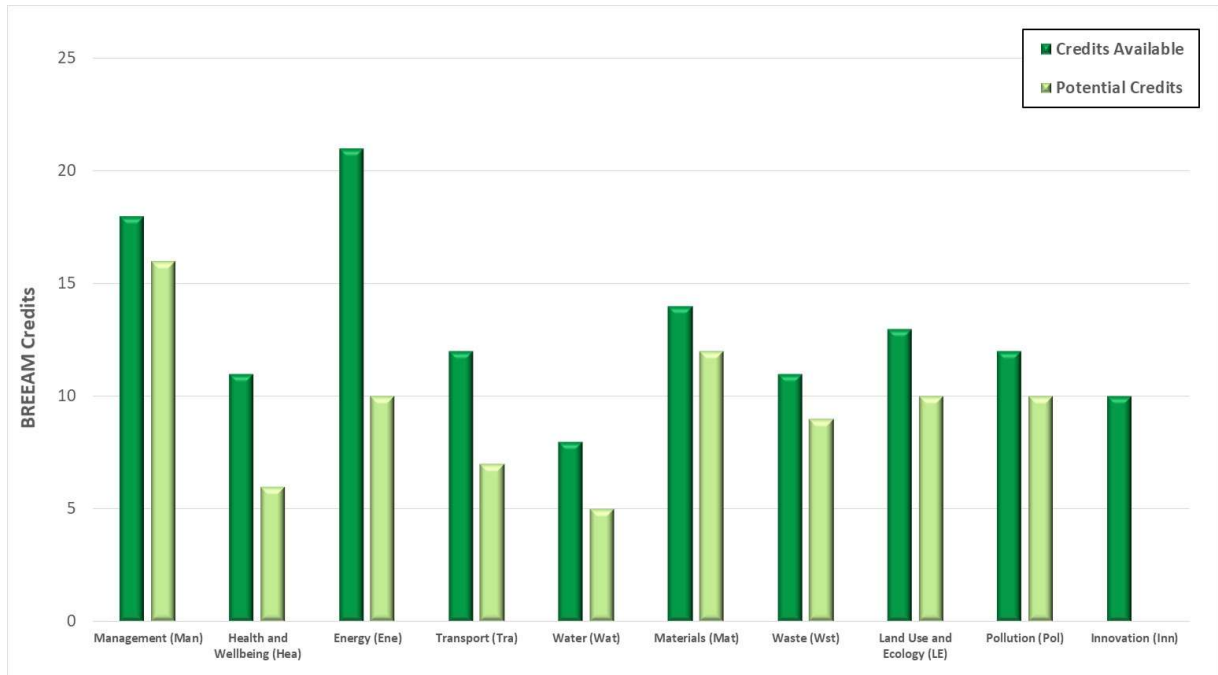


Image 01: BREEM pre-assessment available and potential credits comparison

7.0 BREEAM PRE-ASSESSMENT RATING

The above pre-assessment will give the building the following results:

Section	Available		Potential	
	No. of Credits	% Contribution	No. of Credits	% Contribution
Management (Man)	18	11.0%	16	9.8%
Health and Wellbeing (Hea)	11	8.0%	6	4.4%
Energy (Ene)	21	14.0%	10	6.7%
Transport (Tra)	12	11.5%	7	6.7%
Water (Wat)	8	7.0%	4	4.4%
Materials (Mat)	14	17.5%	12	15.0%
Waste (Wst)	11	7.0%	9	5.7%
Land Use and Ecology (LE)	13	15.0%	10	11.5%
Pollution (Pol)	12	9.0%	10	7.5%
Innovation (Inn)	10	10.0%	0	0%
Potential Credits %	72%			
Potential BREEAM Rating	Excellent			

Table 01: Overall potential BREEAM rating

The above assumed credits will achieve a score of 72% which meets the target of a BREEAM “Excellent”.

The building will be targeting 3 credits under BREEAM Wat 01, water efficiency.

Please note the following:

- A number of the potential credits have a “medium” feasibility rating which means it is difficult to ascertain at this stage whether the credit will be plausible or not.
- The final rating achieved in a certified BREEAM assessment is dictated by the BRE, not QuinnRoss Consultants, and dependent on the production of satisfactory evidence for each credit. If sufficient evidence cannot be provided the credit will not be awarded affecting the overall score.