125 Shaftesbury Avenue

Sustainability Statement

SEPTEMBER 2016

RENEWABLE ENVIRONMENTAL SERVICES

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Sustainability Statement

Project:	125 Shaftesbury Avenue	**Date:**	16/08/2016
Project No:	7690	**Prepared By:**	Keith Harding/Yasmina Mikhael
Issue:	1	**Rev:**	2

Introduction:

This Sustainability Statement has been prepared in support of a planning application in relation to the proposed 125 Shaftesbury Avenue development. The document responds to the relevant planning policy points in respect of how the design of the proposed scheme responds to the sustainability requirements as set out in both the London Plan and the Camden Council Sustainability requirements.

The London Plan:

The London Plan (2015 consolidated with alterations since 2011) document contains various policies which apply to the proposed 125 Shaftesbury Avenue development. The table below demonstrates how these policies are to be addressed:

The London Plan Policies addressed by RES in this document are:

London's Response to Climate Change	
Policy 5.1 Climate change mitigation	This policy states that the Mayor intends that carbon dioxide is reduced by 60% over 1990 levels and requires that Local Authorities develop policies that are consistent with the achievement of this target. Camden Council meet this policy by the creation of the Camden Council Policies CS13 and DP22
Policy 5.2 Minimising carbon dioxide emissions	Throughout the design process of the proposed 125 Shaftesbury Avenue development, the environmental impacts of the development and ways to reduce this impact have been considered where possible. This has been done by undertaking an Energy Strategy and, in addition, a BREEAM assessment which is targeting an Excellent rating. As such, this policy has been addressed. The Energy Strategy is to be submitted separately and the BREEAM pre-assessment is included at the back of this statement and confirms that an Excellent score is targeted.
Policy 5.3 Sustainable design and construction	This policy is met in part by the completion of the Energy Strategy document and by the inclusion of improved performances for the thermal envelope, glazing, ventilation, lighting, lighting controls and system efficiencies which have all been incorporated in order to reduce emissions as part of Lean design measures. The improved glazing and

	low energy cooling and ventilation systems avoid internal overheating whilst other measures such as daylight management, low-flow sanitaryware combined with split-flush WC controls, automatic shut-off valves water meters, water flow restrictors, and a major leak detection system shall collectively make efficient use of natural resources. The Principal Contractor shall be required to implement a site Waste Management Plan concerning waste and recycling and the responsible sourcing of materials to minimise waste and maximise recycling. The existing nature of the development means that long standing arrangements for drainage/flood risks are not changed. Sustainable materials and local suppliers will be specified wherever possible.
Policy 5.4 Retrofitting	This policy requires that London Boroughs develop policies and proposals regarding the sustainable retrofitting of existing buildings to reduce carbon dioxide emissions from the existing building stock. The Camden Council CPG 13 addresses this requirement by dedicating a chapter to this subject.
Policy 5.5 Decentralised energy networks	Whilst it is not appropriate to connect the 125 Shaftesbury Avenue development to a heating or cooling network, and the scheme does not utilise CHP, the provision of a soft punch point in the structure will allow for a future connection. This means that the proposed design approach at the 125 Shaftesbury Avenue development adheres to this London Plan Policy.
Policy 5.6 Decentralised energy in development proposals	Whilst it is not appropriate to connect the 125 Shaftesbury Avenue development to a heating or cooling network, and the scheme does not utilise CHP, the provision of a soft punch point in the structure will allow for a future connection. This means that the proposed design approach at the 125 Shaftesbury Avenue development adheres to this London Plan Policy.
Policy 5.7 Renewable energy	This policy states that major development proposals should provide a 20% reduction in expected carbon dioxide emissions through the use of on-site renewable energy generation, where feasible. The Energy Strategy for the 125 Shaftesbury Avenue development has maximised the potential of the retention, refurbishment and extension of an existing building on a restrictive site. This construction means there is a very large embodied carbon saving in terms of the materials used in construction due to the retained structure. The use of the existing structure means that the use of GSHP technology is not feasible, whilst the use of CHP is not suitable for an office development do to the low DHW demand. Thus whilst the carbon savings achieved for 125 Shaftesbury Avenue are predominantly through passive design measures with the specification of highly efficient HVAC and lighting equipment, the proposed development does utilise both Air Source Heat Pumps and PV to achieve a total carbon dioxide emissions reduction of 22.9%.

Policy 5.8 Innovative energy technologies	This policy is not appropriate to include in the design of the proposed scheme.
Policy 5.9 Overheating and cooling	The scheme is a major refurbishment and extension of an existing building and consequently, the 125 Shaftesbury Avenue development is not able to account for some items such as orientation, floor slab thermal mass or ceiling heights. It does however seek, as part of the refurbishment, to replace the existing glazing and thermal envelope to improve its performance in minimising solar gains and heat loss and therefore reducing internal temperatures to avoid internal overheating. As part of the Lean design process in London Plan Policy 5.2, the active cooling systems that are to be utilised have been selected to use the minimum amount of energy for the generation of the cooling as well as in the systems used to transport the cooling to the office space. As such the proposed 125 Shaftesbury Avenue development is meeting and complying with the requirements of this policy as far it is reasonably possible given that the scheme entails a major refurbishment.
Policy 5.10 Urban greening	The existing footprint of the building fills the full extent of the site; therefore public realm soft landscaping and tree planting are not applicable to the scheme. However, planting is proposed to roof top spaces to improve the local environment.
Policy 5.11 Green roofs and development site environs	The development is restricted in where large scale green roofs can be placed due to the requirements to conceal the mechanical plant and the additional limitations a green roof would place on the existing building structure bearing in mind the limited scope available to strengthen the building. However, the design team wish to enhance the site where possible and so planting is proposed to roof top spaces to improve the local environment.
Policy 5.12 Flood risk management	The site is located within flood zone 1 and is unlikely to require any flood risk management as part of the planning process.
Policy 5.13 Sustainable drainage	The London Plan requires that the surface water runoff for 125 Shaftesbury Avenue is restricted to 50% of the existing flow rate. The existing surface water runoff rate from the Site has been calculated to be 100.8l/s which is then restricted to 50.4l/s as part of the proposed works. This requires a total attenuation tank storage volume of 81m^3, allowing for the impacts of climate change over the lifetime of the Development. Appropriate treatment of the water is to be incorporated into the drainage system to ensure that the quality of water discharged from the development is acceptable. The on-Site drainage networks and Sustainable Drainage Systems would be privately managed and maintained for the lifetime of the Development, ensuring they remain fit for purpose and function appropriately.

Policy 5.14 Water quality and wastewater infrastructure	The increased volume of wastewater will be minimal for this development and will be agreed with Thames Water as part of their connection approval process. No existing or proposed use of the building will be detrimental to water quality.
Policy 5.15 Water use and supplies	The use of low-flow sanitaryware combined with split-flush WC controls, automatic shut-off valves water meters, water flow restrictors, and a major leak detection system shall collectively promote water-use savings. The addition of low energy pumps will ensure minimum energy is used to distribute water. The increased volume of wastewater will be minimal for this development and will be agreed with Thames Water as part of their connection approval process. No existing or proposed use of the building will be detrimental to water quality, infrastructure or environment.
Policy 5.16 Waste self-sufficiency	The Principal Contractor shall be required to implement a site Waste Management Plan concerning waste and recycling and the responsible sourcing of materials to minimise waste and maximise recycling. Occupants of the development will be encouraged to recycle as much material as is reasonably practicable. This will be aided by the provision of dedicated recycling storage/facilities.
Policy 5.17 Waste capacity	All the occupants of the building will have access to and will be required to place their waste into the waste and recycling storage area provided. The development includes dedicated storage for recyclables and general waste which will be clearly labelled. The storage areas have been located so as to provide easy access for refuse collection. A waste and recycling strategy will be discussed and agreed and is therefore considered to be reasonable and appropriate.
Policy 5.18 Construction, excavation and demolition waste	The Principal Contractor shall be required to implement a site Waste Management Plan concerning waste and recycling and the responsible sourcing of materials to minimise waste and maximise recycling
Policy 5.19 Hazardous waste	A desktop study, site investigation and waste classification exercise will be completed to establish if there is the potential for hazardous soils within the ground and this will be completed prior to construction. Thereafter an engineered design and remedial solution, including materials management plan, will be developed that minimises the generation of waste from the site.
Policy 5.20 Aggregates	The proposed works to the 125 Shaftesbury Avenue development involve demolition of large parts of existing building with the retention of the existing floors slabs and columns. This retention creates restricted available space for the necessary aggregate processing plant, means that the onsite recycling of aggregate may not be feasible but is to be considered. An engineered design and remedial solution, including materials management plan, will be developed to minimise the generation of waste from the site.

Policy 5.21 Contaminated land	A desktop study and site investigation will be completed to establish the risks associated with ground contamination and this will be completed prior to construction. Thereafter a process of risk assessment, remediation design and validation will be implemented to develop the site suitability.
Policy 5.22 Hazardous substances and installations	Whilst no major hazards are known to be in the vicinity of this existing site, a survey/investigation will be carried out into all the location of all utilities and other cables/pipes as part of the design process. This will identify all potential hazards immediately surrounding and running under the proposed development.

Camden Council Requirements:

In addition to the above points, Camden Council requires that the following points are included within a Sustainability Statement:

Requirement	
BREEAM Assessment	The 125 Shaftesbury Avenue development has had both Energy Strategy and BREEAM assessments undertaken to ensure that the environmental impact of the development is minimised. The BREEAM assessment looks at a variety of areas including, energy consumption, water consumption, materials, air quality, transport links, daylighting quality and scores the commercial office on how well it performs against a series of targets with the cumulative score allowing a particular BREEAM rating to be awarded. The BREEAM report demonstrates how the commercial office scores against each BREEAM credit and targets a BREEAM Excellent rating which requires increased resource savings. The BREEAM pre-assessment is included at the back of this statement and confirms that an Excellent score is targeted.
Energy Strategy	The 125 Shaftesbury Avenue development has had both Energy Strategy and BREEAM assessments undertaken to ensure that the environmental impact of the development is minimised. The Energy Strategy demonstrates that the thermal envelope, air permeability, HVAC systems, lighting and controls have all been addressed with a view to minimise the energy consumption of the development. These are report in line with London Plan guidance which requires the use of the Energy Hierarchy (Be Lean, Be Clean and Be Green). The Energy Strategy is a separate document submitted as part of planning.

Flooding	The 125 Shaftesbury Avenue development is located within an area which, on the Camden Council Core Policy Map 5, does not carry a risk of flooding. The London Plan requires that the surface water runoff for 125 Shaftesbury Avenue is restricted to 50% of the existing flow rate. The existing surface water runoff rate from the Site has been calculated to be 100.8l/s which is then restricted to 50.4l/s as part of the proposed works. This requires a total attenuation tank storage volume of 81m^3, allowing for the impacts of climate change over the lifetime of the Development. Appropriate treatment of the water is to be incorporated into the drainage system to ensure that the quality of water discharged from the development is acceptable. The on-Site drainage networks and Sustainable Drainage Systems would be privately managed and maintained for the lifetime of the Development, ensuring they remain fit for purpose and function appropriately.
Waste Reduction	The design team and Principal Contractor shall be encouraged to promote the specification and installation of reused materials and/or materials containing recycled content. A target of 20% shall be sought by the team.

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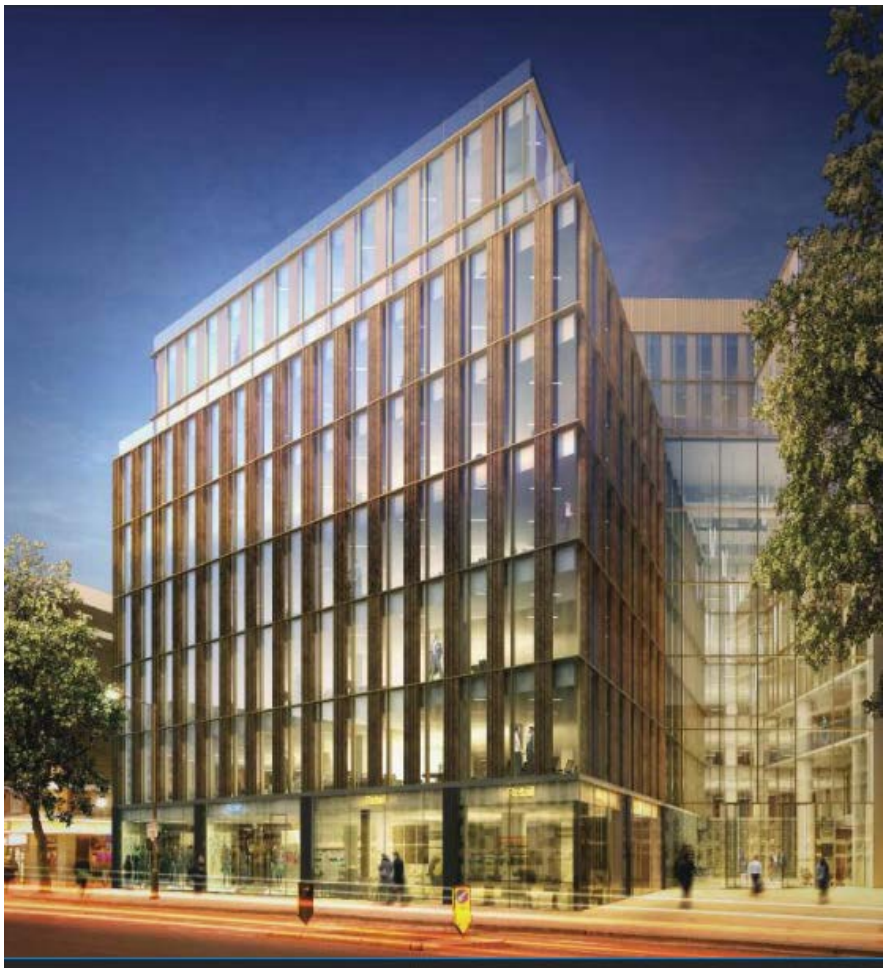


125 Shaftesbury Avenue

Environmental Certifications
BREEAM 2014 NC Report
Draft Stage C

Issue Register

Rev	Issue	Date	Issued By	Checked
1	Pre-assessment Draft	26.08.14	AS	YM
2	Meeting notes	27.08.14	YM	-
3	Meeting notes	24.02.15	YM	-
4	Preliminary Strategy Draft	11.08.15	YM	-
5	Stage B+ report	18.12.15	AE	AS
6	Draft Stage C Report	01.09.16	LR	YM

Contents

Summary

RES Design has been appointed by Almacantar Ltd to review and define a BREEAM certification strategy for 125 Shaftesbury Avenue, a mixed use redevelopment within London Borough of Camden.

This report is intended as a summary of the BREEAM routemap to certify the Office spaces exclusively.

Almacantar, the Developer, intends to ensure the redeveloped spaces mitigate environmental impact, achieving the highest viable BREEAM rating.

Project Overview & Target

The redevelopment will comprise of:

- Office Accommodation
- Retail Units (excluded from the certification)

The offices shall be assessed under BREEAM 2014 New Construction (Offices) 'Shell & Core' with a target rating of BREEAM Excellent.

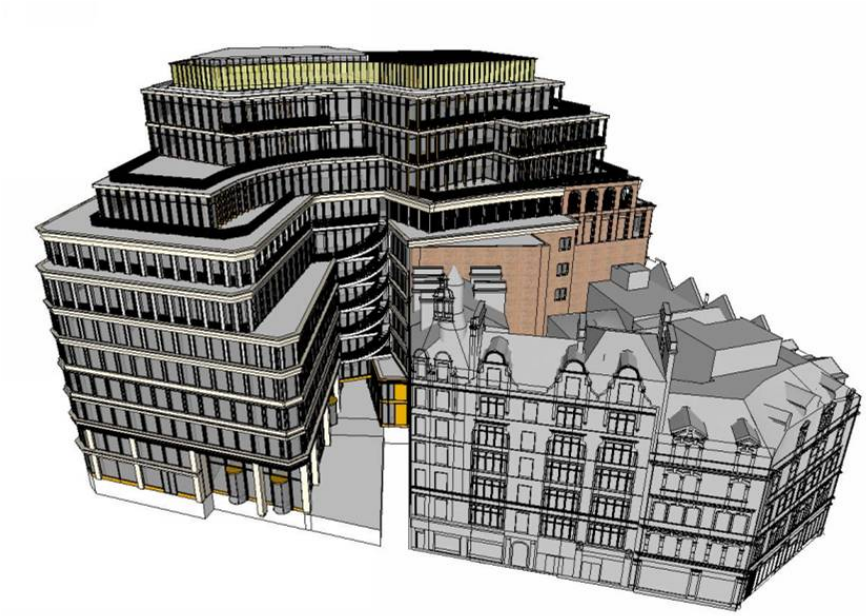
Space	Scheme	Rating
Office	BREEAM NC[1] 2014	EXCELLENT

The design team is determined to achieve the highest viable BREEAM rating.

The Development comprises the refurbishment and extension of an existing nine storey building of approximarely 190,000ft^2. The site is bounded to the north by residential properties, to the east by Stacey Street, to the south by Shaftesbury Aveue and to the west by Charing Cross Road.

The Development extends the the existing building by two storeys to a height of 11 storeys plus ground level and basement:

- Retail and office entrances at the ground floor
- Office space on the upper storeys



[1] New Construction

BREEAM Optimisation Timeline

To satisfy BREEAM criteria, the following actions must be initiated or carried out within the following timeframes;

RIBA Stage 1 Preparation and Brief

- ☐ Ecologist[2] to be appointed
- ☐ BREEAM Accredited Professional (AP) to be appointed[3]

RIBA Stage 2 Concept Design

- ☐ BREEAM Assessor to be appointed
- ☐ BREEAM strategy to be developed
- ☐ BREEAM performance targets to be formally agreed (i.e. Good, V Good, or Excellent etc)
- ☐ Energy Strategy to be issued
- ☐ Ecology report to be issued
- ☐ Designing Out Crime Officer to issue security recommendations
- ☐ Consultation to be carried out
- ☐ Life Cycle Cost Analysis to be carried out
- ☐ Time sensitive materials, waste, and climate change issues to be instigated
- ☐ BREEAM AP to attend DTM

RIBA Stage 3 Detailed Design

- ☐ BREEAM strategy to be reviewed with the design team, agreed to in principle, and integrated into the detailed design
- ☐ BREEAM AP to attend DTM

RIBA Stage 4 Technical Design

- ☐ Design team to provide detailed documentary evidence demonstrating compliance with the requirements of the BREEAM strategy
- ☐ Principle contractor to provide formal commitments demonstrating intent to meet the requirements of the BREEAM strategy
- ☐ BREEAM AP to attend DTM

[2] Suitably Qualified, as defined by BRE Global.
[3] BREEAM AP (accredited Professional) qualification is separate from the BREEAM Assessor role and is open to suitably experienced construction professionals who wish to deliver buildings to meet BREEAM certification requirements.

RIBA Stage 5 Construction

- ☐ BREEAM assessor to submit the formal 'Design Stage' BREEAM report to the BRE[4]
- ☐ Interim BREEAM certificate to be issued by the BRE
- ☐ Principle contractor to ensure site impacts and monitored and records are kept in accordance with the BREEAM design stage commitments

RIBA Stage 6 Commissioning & Handover

- ☐ BREEAM assessor to carry out an as-built site inspection
- ☐ Design team and principle contractor to provide as-built detailed documentary evidence that demonstrates compliance with the requirements of the BREEAM strategy
- ☐ BREEAM assessor to submit the formal 'Post Construction' BREEAM report to the BRE
- ☐ Final BREEAM certificate to be issued by the BRE[5]

RIBA Stage 7 In Use

- ☐ BREEAM complaint aftercare to be provided

BREEAM AP

This report contributes towards BREEAM AP involvement (Yasmina Mikhael cert. 0441). To maintain these credits, the BREEAM AP needs to attend 1 meeting per RIBA stage.

Management Portal

The BREEAM Assessment, relevant action lists and supporting documents are available on the BREEAM Tracker Plus, the first software product to receive a 'BREEAM Badge of Recognition' via http://www.tracker-plus.co.uk.

[4] The BREEAM report can only be submitted once all required detailed documentary evidence has been received and deemed compliant by the BREEAM assessor. The submission should be made prior to, or shortly after, the commencement of site works.

[5] Typically, the BREEAM certificate should be received within three months of practical completion. However, this is dependent on the design and construction team providing compliant as-built evidence in a timely manner.

Results Summary

Development Name	**125 Shaftesbury Avenue**

Offices - Indicative Certification Score	**74.34%**
Indicative Rating	**BREEAM EXCELLENT**

Minimum Pre-requisite Standards:

BREEAM 2014 (Commercial)	Targeted
Man 03 - Responsible construction practices	✓
Man 04 - Commissioning and handover	✓
Ene 01 - Reduction of energy use and carbon emissions	✓
Ene 02 - Energy Monitoring	✓
Wat 01 - Water Consumption	✓
Wat 02 - Water Monitoring	✓
Mat 03 - Responsible Sourcing of Materials	✓
Wst 01 - Construction Waste Management	✓
Wst 03 - Operational Waste	✓
LE 03 - Minimising impact on existing site ecology	✓

Routemap- BREEAM Offices

The table below sets out the achievable score for Commercial areas against BREEAM 2014 to achieve an Excellent rating for the offices.

A baseline strategy is set out in the 'Target' column below. 'Potential' credits have been identified where the target score could be increased by going above and beyond the anticipated BREEAM level.

Based on the below strategy, the overall score would be **74.34%** which represents a small 'safety' buffer above the minimum 70% threshold for 'Excellent'. It is our recommendation that the team reviews → selects *at least* +5 credits from the 'potential uplifts' column for inclusion in the Target strategy.

Credits		Available	Target 74.34%	Potential Uplifts	Responsibility
Management					
Man 01	Project brief and design	4	4	-	Project Manager, Architect, Structural Engineer, Mechanical Engineer, Consultation and Liaison Consultant
Man 02	Life cycle cost and service life planning	4	4	-	Cost Consultant
Man 03	Responsible construction practices	6	6	-	Contractor
Man 04	Commissioning and handover	4	4	-	Contractor, Mechanical Engineer, Electrical Engineer
		18	**18**		
Health & Wellbeing					
Hea 01	Visual Comfort	4	1	+1	Energy / Thermal Modelling Consulta, Architect
Hea 02	Indoor Air Quality	2	1	+1	Mechanical Engineer
Hea 04	Thermal comfort	2	2	-	Energy / Thermal Modelling Consulta, Mechanical Engineer
Hea 05	Acoustic Performance	1	1	-	Acoustician, Architect, Mechanical Engineer
Hea 06	Safety and Security	2	2	-	Architect, Project Manager
		11	**7**		
Energy					
Ene 01	Reduction of energy use and carbon emissions	12	5	-	Energy / Thermal Modelling Consulta, Architect
Ene 02	Energy Monitoring	2	2	-	Mechanical Engineer, Electrical Engineer

Credits		Available	Target 74.34%	Potential Uplifts	Responsibility
Ene 03	External Lighting	1	1	-	Electrical Engineer
Ene 04	Low carbon design	3	1	+2	Energy / Thermal Modelling Consulta
Ene 06	Energy Efficient Transportation Systems	3	3	-	Lift Engineer
		21	**12**		
Transport					
Tra 01	Public Transport Accessibility	3	3	-	Transport Consultant, Assessor
Tra 02	Proximity to amenities	1	1	-	Transport Consultant, Assessor
Tra 03	Cyclist facilities	2	2	-	Planning Consultant, Architect, Electrical Engineer
Tra 04	Maximum Car Parking Capacity	2	2	-	Architect
Tra 05	Travel Plan	1	1	-	Planning Consultant, Transport Consultant, Project Manager
		9	**9**		
Water					
Wat 01	Water Consumption	5	3	+1	Public Health Engineer, Structural Engineer, Architect
Wat 02	Water Monitoring	1	1	-	Public Health Engineer
Wat 03	Leak Detection	2	2	-	Public Health Engineer
Wat 04	Water Efficient Equipment	1	1	-	Public Health Engineer, Architect
		9	**7**		
Materials					
Mat 01	Life Cycle Impacts	5	2	+2	Architect
Mat 02	Hard Landscaping and Boundary Protection	1	1	-	Architect
Mat 03	Responsible Sourcing of Materials	4	4	-	Contractor, Architect
Mat 04	Insulation	1	1	-	Contractor, Architect, Public Health Engineer
Mat 05	Designing for durability and resilience	1	1	-	Architect
Mat 06	Material efficiency	1	1	-	Project Manager, Architect
		13	**10**		
Waste					

Credits		Available	Target 74.34%	Potential Uplifts	Responsibility
Wst 01	Construction Waste Management	4	2	+2	Contractor
Wst 02	Recycled Aggregates	1	0	+1	Structural Engineer
Wst 03	Operational Waste	1	1	-	Architect
Wst 04	Speculative Floor and Ceiling Finishes	1	0	+1	Project Manager, Architect
Wst 05	Adaptation to climate change	1	1	-	Project Manager, Architect, Structural Engineer
Wst 06	Functional adaptability	1	1	-	Project Manager, Architect, Mechanical Engineer
		9	**5**		
Land Use & Ecology					
LE 01	Site Selection	2	1	-	Ecologist
LE 02	Ecological Value of Site and Protection of Ecological Features	2	2	-	Ecologist
LE 03	Minimising impact on existing site ecology	2	2	-	Ecologist
LE 04	Enhancing site ecology	2	2	-	Ecologist, Architect
LE 05	Long Term Impact on Biodiversity	2	2	-	Ecologist, Contractor
		10	**9**		
Pollution					
Pol 01	Impact of Refrigerants	3	0	+2	Mechanical Engineer, Energy / Thermal Modelling Consulta
Pol 02	NOx emissions	3	0	-	Mechanical Engineer, Energy / Thermal Modelling Consulta
Pol 03	Surface Water Run Off	5	5	-	Drainage / Flood Risk Consultant, Project Manager, Planning Consultant
Pol 04	Reduction of Night Time Light Pollution	1	1	-	Electrical Engineer
Pol 05	Noise Attenuation	1	1	-	Acoustician
		13	**7**		
Innovation					
Man 03	Responsible construction practices	1	0	+1	Contractor
Hea 01	Visual Comfort	1	0	-	
Ene 01	Reduction of energy use and carbon emissions	5	0	-	
Wat 01	Water Consumption	1	0	+1	

Credits		Available	Target 74.34%	Potential Uplifts	Responsibility
Mat 01	Life Cycle Impacts	3	0	-	
Mat 03	Responsible Sourcing of Materials	1	0	+1	Contractor
Wst 01	Construction Waste Management	1	0	-	
Wst 02	Recycled Aggregates	1	0	-	
Wst 05	Adaptation to climate change	1	0	+1	Project Manager, Structural Engineer, Architect
AI	Approved Innovation	1	0	-	
		16	**0**		

Credit requirements

Detailed BREEAM requirements are provided below

CREDIT REQUIREMENTS	
BREEAM 2014 Requirements Table	
Management	
Man 01 - Project brief and design:	
One credit Stakeholder consultation (project delivery)	Prior to completion of the Concept Design (RIBA Stage 2 or equivalent), the project delivery stakeholders (see Relevant definitions) have met to identify and define their roles, responsibilities and contributions for each of the key phases of project delivery.
	In defining the roles and responsibilities for each key phase of the project, the following must be considered: a. End user requirements b. Aims of the design and design strategy c. Particular installation and construction requirements/limitations d. Occupiers budget and technical expertise in maintaining any proposed systems e. Maintainability and adaptability of the proposals f. Requirements for the production of project and end user documentation g. Requirements for commissioning, training and aftercare support
	The project team demonstrate how the project delivery stakeholder contributions and the outcomes of the consultation process have influenced or changed the Initial Project Brief, including if appropriate, the Project Execution Plan, Communication Strategy, and the Concept Design.
One credit Stakeholder consultation (third party)	Prior to completion of the Concept Design stage, all relevant third party stakeholders have been consulted by the design team and this covers the minimum consultation content: The *minimum consultation content* of the consultation plan will be dependent on the building but would typically include the following; – Functionality, build quality and impact (including aesthetics) – Provision of appropriate internal and external facilities (for future building occupants and visitors/users) – Management and operational implications – Maintenance resources implications – Impacts on the local community, e.g. local traffic/transport impact – Opportunities for shared use of facilities and infrastructure with the community/appropriate stakeholders, if relevant/appropriate to building type – Compliance with statutory (national/local) consultation requirements – Inclusive and accessible design. In the case of *educational building types*, minimum content also includes; – How the building/grounds could best be designed to facilitate learning and provide a range of social spaces appropriate to the needs of pupils, students and other users. In the case of building types containing *technical areas or functions*, e.g. laboratories, workshops etc., minimum content also includes; – The end users broad requirements for such facilities, including appropriate sizing, optimisation and integration of equipment and systems.
	The project must demonstrate how the stakeholder contributions and outcomes of the

	consultation exercise have influenced or changed the Initial Project Brief and Concept Design.
	Prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), consultation feedback has been given to, and received by, all relevant parties.
One credit Sustainability Champion (design)	A Sustainability Champion has been appointed to facilitate the setting and achievement of BREEAM performance target(s) for the project. The design stage Sustainability Champion is appointed to perform this role during the feasibility stage (Stage 1, Preparation and Brief stage, as defined by the RIBA Plan of Work 2013 or equivalent).
	The defined BREEAM performance target(s) has been formally agreed (see Relevant definitions) between the client and design/project team no later than the Concept Design stage (RIBA Stage 2 or equivalent).
	To achieve this credit at the interim design stage assessment, the agreed BREEAM performance target(s) must be demonstrably achieved by the project design. This must be demonstrated via the BREEAM Assessor's design stage assessment report.
One credit Sustainability Champion (monitoring progress)	The Sustainability Champion criteria have been achieved.
	A Sustainability Champion is appointed to monitor progress against the agreed BREEAM performance target(s) throughout the design process and formally report progress to the client and design team. *Note: To do this the Sustainability Champion must attend key project/design team meetings during the Concept Design, Developed Design and Technical Design stages, as defined by the RIBA Plan of Work 2013, reporting during, and prior to, completion of each stage, as a minimum.*
Man 02 - Life cycle cost and service life planning:	
Two credits Elemental life cycle cost (LCC)	An elemental life cycle cost (LCC) analysis has been carried out, at Process Stage 2 (equivalent to Concept Design - RIBA Stage 2) together with any design option appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:2008.
	The LCC analysis shows: a. An outline LCC plan for the project based on the building's basic structure and envelope, appraising a range of options and based on multiple cash flow scenarios e.g. 20, 30, 50+ years; b. The fabric and servicing strategy for the project outlining services component and fit-out options (if applicable) over a 15-year period, in the form of an 'elemental LCC Plan'.
One credit – Component level LCC Plan	A component level LCC plan has been developed by the end of Process Stage 4 (equivalent to Technical Design – RIBA Stage 4) in line with PD 156865:2008 and includes the following component types (where present): a. Envelope, e.g. cladding, windows, and/or roofing b. Services, e.g. heat source cooling source, and/or controls c. Finishes, e.g. walls, floors and/or ceilings d. External spaces, e.g. alternative hard landscaping, boundary protection.
	Demonstrate, using appropriate examples provided by the design team, how the component level LCC plan has been used to influence building and systems design/specification to minimise life cycle costs and maximise critical value.
One credit – Capital cost reporting	Report the capital cost for the building in pounds per square metre (£k/m^2), via the BREEAM Assessment Scoring and Reporting tool, Assessment Issue Scoring tab, Management section.

Man 03 - Responsible construction practices:	
Pre-requisite	All timber and timber based products used on the project is 'Legally harvested and traded timber' (see Relevant definitions). *Note: For other materials there are no pre-requisite requirements at this stage.*
One credit – Environmental management	The principal contractor operates an environmental management system (EMS) covering their main operations. The EMS must be either: a. third party certified, to ISO 14001/EMAS or equivalent standard; or b. have a structure that is in compliance with BS 8555:2003 and has reached phase four of the implementation stage, 'implementation and operation of the environmental management system', and has completed phase audits one to four, as defined in BS 8555.
	The principal contractor implements best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at construction and demolition-sites: PPG6.
One credit – Sustainability Champion (construction) Requirement 5 Requirement 6	A Sustainability Champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target(s), during the Construction, Handover and Close Out stages (as defined by the RIBA Plan of Works 2013, stages 5 and 6). To do this the Sustainability Champion will ideally be site based or will visit the site regularly to carry out spot checks, with the relevant authority to do so and require action to be taken to address shortcomings in compliance. The Sustainability Champion will monitor site activities with sufficient frequency (see compliance note CN6) to ensure that risks of noncompliance are minimised. They will report on progress at relevant project team meetings including identifying potential areas of non-compliance and any action needed to mitigate.
	The defined BREEAM performance target forms a requirement of the principal contractor's contract (see compliance note Man 01 Project brief and design – CN5 and in Man 01 Project brief and design – Relevant definitions).
	To achieve this credit at the final post-construction stage of assessment, the BREEAM related performance target for the project must be demonstrably achieved by the project. This is demonstrated via the BREEAM assessor's final post-construction stage certification report.
Up to two credits - Considerate construction	Where the principal contractor has used a 'compliant' organisational, local or national considerate construction scheme and their performance against the scheme has been confirmed by independent assessment and verification. The BREEAM credits can be awarded as follows: a. One credit where the contractor achieves 'compliance' with the criteria of a compliant scheme. b. Two credits where the contractor significantly exceeds 'compliance' with the criteria of the scheme. Refer to the Relevant definitions section for a list of compliant schemes and therefore how performance, as determined by a compliant scheme, translates in to BREEAM credits.
Up to two credits - Monitoring of construction-site impacts	Pre-requisite: Responsibility has been assigned to an individual(s) for monitoring, recording and reporting energy use, water consumption and transport data (where measured) resulting from all on-site construction processes (and dedicated off-site monitoring) throughout the build programme. To ensure the robust collection of information, this individual(s) must have the appropriate authority and responsibility to request and access the data required. Where appointed, the Sustainability Champion could perform this role.
	First monitoring credit - Utility consumption:

	Monitor and record data on principal constructor's and subcontractors' energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation.
	Report the total carbon dioxide emissions (total $kgCO_2$/project value) from the construction process via the BREEAM Assessment Scoring and Reporting tool.
	Monitor and record data on principal constructor's and subcontractors' potable water consumption (m^3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation.
	Using the collated data report the total net water consumption (m^3), i.e. consumption minus any recycled water use, from the construction process via the BREEAM Assessment Scoring and Reporting tool.
	Second monitoring credit - Transport of construction materials and waste
	Monitor and record data on transport movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum this must cover: a. Transport of materials from the factory gate to the building site, including any transport, intermediate storage and distribution. See Relevant definitions. b. Scope of this monitoring must cover the following as a minimum: i. Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01 Life cycle impacts), including insulation materials. ii. Ground works and landscaping materials. c. Transport of construction waste from the construction gate to waste disposal processing/recovery centre gate. Scope of this monitoring must cover the construction waste groups outlined in the project's waste management plan.
	Using the collated data, report separately for materials and waste, the total fuel consumption (litres) and total carbon dioxide emissions ($kgCO_2$ eq), plus total distance travelled (km) via the BREEAM Assessment Scoring and Reporting tool.
Man 04 - Commissioning and handover:	
One credit - Commissioning and testing schedule and responsibilities	A schedule of commissioning and testing that identifies and includes a suitable timescale for commissioning and recommissioning of all complex and non-complex building services and control systems and testing and inspecting building fabric.
	The schedule will identify the appropriate standards that all commissioning activities will be conducted in accordance with, such as current Building Regulations, BSRIA and CIBSE guidelines and/or other appropriate standards, where applicable. Where a building management system (BMS) is specified, refer to compliance note CN5 on BMS commissioning procedures.
	An appropriate project team member(s) is appointed to monitor and programme pre-commissioning, commissioning, testing and, where necessary, re-commissioning activities on behalf of the client.
	The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of works, allowing for the required time to complete all commissioning and testing activities prior to handover.
One credit - Commissioning building services	The commissioning and testing schedule and responsibilities credit is achieved.
	For buildings with complex building services and systems, a specialist commissioning manager is appointed during the design stage (by either the client or the principal

	contractor) with responsibility for: a. Undertaking design reviews and giving advice on suitability for ease of commissioning. b. Providing commissioning management input to construction programming and during installation stages. c. Management of commissioning, performance testing and handover/post-handover stages. Where there are simple building services, this role can be carried out by an appropriate project team member (see criterion 3), provided they are not involved in the general installation works for the building services system(s).
One credit - Testing and inspecting building fabric	The commissioning and testing schedule and responsibilities credit is achieved.
	The integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths is quality assured through completion of post construction testing and inspection. Dependent on building type or construction, this can be demonstrated through the completion of a thermographic survey as well as an airtightness test and inspection (see compliance notes CN6 and CN7. The survey and testing is undertaken by a Suitably Qualified Professional (see Relevant definitions) in accordance with the appropriate standard.
	Any defects identified in the thermographic survey or the airtightness testing reports are rectified prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building/element.
One credit - Handover	A Building User Guide (BUG) is developed prior to handover for distribution to the building occupiers and premises managers (see Relevant definitions).
	A training schedule is prepared for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans, which includes the following content as a minimum: a. The building's design intent b. The available aftercare provision and aftercare team main contact(s), including any scheduled seasonal commissioning and post occupancy evaluation c. Introduction to, and demonstration of, installed systems and key features, particularly building management systems, controls and their interfaces d. Introduction to the Building User Guide and other relevant building documentation, e.g. design data, technical guides, maintenance strategy, operations and maintenance (O&M) manual, commissioning records, log book etc. e. Maintenance requirements, including any maintenance contracts and regimes in place.
Health & Wellbeing	
Hea 01 - Visual Comfort:	
One credit - Glare control	The potential for 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 (see compliance note CN3).
	The glare control strategy avoids increasing lighting energy consumption, by ensuring that: a. The glare control system is designed to maximise daylight levels under all conditions while avoiding disabling glare in the workplace or other sensitive areas. The system should not inhibit daylight from entering the space under cloudy conditions, or when sunlight is not on the facade **AND** b. The use or location of shading does not conflict with the operation of lighting

	control systems.
One credit (offices) **OR** two credits (retail) - Daylighting	Daylighting criteria have been met using either of the following options: a. The relevant building areas meet good practice daylight factor(s) and other criterion as outlined in BREEAM Table - 10 and Table - 11. OR b. The relevant building areas meet good practice average and minimum point daylight illuminance criteria as outlined in BREEAM Table - 12.
One credit - View out	95% of the floor area in relevant building areas is within 7m of a wall which has a window or permanent opening that provides an adequate view out.
	The window/opening must be ≥ 20% of the surrounding wall area (refer to Relevant definitions in the Additional information section). Where the room depth is greater than 7m, compliance is only possible where the percentage of window/opening is the same as, or greater than, the values in table 1.0 of BS 8206.
	In addition, the building type criteria in BREEAM Table - 13 are applicable to view out criteria.
One credit - Internal and external lighting levels, zoning and control	**Internal lighting** All fluorescent and compact fluorescent lamps are fitted with high frequency ballasts.
	Internal lighting in all relevant areas of the building is designed to provide an illuminance (lux) level appropriate to the tasks undertaken, accounting for building user concentration and comfort levels. This can be demonstrated through a lighting design strategy that provides illuminance levels in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard.
	For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7 sections 3.3, 4.6, 4.7, 4.8 and 4.9. This gives recommendations highlighting: a. Limits to the luminance of the luminaires to avoid screen reflections. (Manufacturers' data for the luminaires should be sought to confirm this.) b. For uplighting, the recommendations refer to the luminance of the lit ceiling rather than the luminaire; a design team calculation is usually required to demonstrate this. c. Recommendations for direct lighting, ceiling illuminance, and average wall illuminance.
	External lighting All external lighting located within the construction zone is designed to provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night. To demonstrate this, external lighting provided is specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places.
	Zoning and occupant control Internal lighting is zoned to allow for occupant control (see Relevant definitions) in accordance with the criteria below for relevant areas present within the building: a. In office areas, zones of no more than four workplaces b. Workstations adjacent to windows/atria and other building areas separately zoned and controlled c. Seminar and lecture rooms: zoned for presentation and audience areas d. Library spaces: separate zoning of stacks, reading and counter areas e. Teaching space or demonstration area f. Whiteboard or display screen

	g. Auditoria: zoning of seating areas, circulation space and lectern area h. Dining, restaurant, café areas: separate zoning of servery and seating/dining areas i. Retail: separate zoning of display and counter areas j. Bar areas: separate zoning of bar and seating areas k. Wards or bedded areas: zoned lighting control for individual bed spaces and control for staff over groups of bed spaces l. Treatment areas, dayrooms, waiting areas: zoning of seating and activity areas and circulation space with controls accessible to staff.
	Areas used for teaching, seminar or lecture purposes have lighting controls provided in accordance with CIBSE Lighting Guide 5.
	In addition meet the building type criteria in BREEAM Table - 14 (where relevant).
Hea 02 - Indoor Air Quality:	
One credit- Ventilation	The building has been designed to minimise the concentration and recirculation of pollutants in the building as follows: Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation.
	Design ventilation pathways to minimise the build-up of air pollutants in the building, as follows: a. In air conditioned and mixed mode buildings/spaces: i. The building's air intakes and exhausts are over 10m apart and intakes are over 20m from sources of external pollution. OR ii. The location of the building's air intakes and exhausts, in relation to each other and external sources of pollution, is designed in accordance with BS EN 13779:2007 Annex A2. b. In naturally ventilated buildings/spaces: openable windows/ventilators are over 10m from sources of external pollution.
	Not Applicable to Shell & Core Assessments Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 Annex A3.
	Not Applicable to Shell & Core Assessments Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO_2) or air quality sensors specified and: a. In mechanically ventilated buildings/spaces: sensor(s) are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space. b. In naturally ventilated buildings/spaces: sensors either have the ability to alert the building owner or manager when CO_2 levels exceed the recommended set point, or are linked to controls with the ability to adjust the quantity of fresh air, i.e. automatic opening windows/roof vents.
One credit - Potential for natural ventilation	The building ventilation strategy is designed to be flexible and adaptable to potential building occupant needs and climatic scenarios. This can be demonstrated as follows: a. Occupied spaces of the building are designed to be capable of providing fresh air entirely via a natural ventilation strategy. The following are methods deemed to satisfy this criterion dependent upon the complexity of the proposed system: i. Room depths are designed in accordance with CIBSE AM10 (section 2.4) to ensure effectiveness of any natural ventilation system. The openable window area in each occupied space is equivalent to 5% of the gross internal floor area of that room/floor plate. OR ii. The design demonstrates that the natural ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. This is demonstrated using ventilation design tool types recommended by CIBSE AM10 (or for education buildings by using the ClassVent tool).

	For a strategy which does not rely on openable windows, or which has occupied spaces with a plan depth greater than 15m, the design must demonstrate (in accordance with criterion 13a - i above) that the ventilation strategy can provide adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates.
	The natural ventilation strategy is capable of providing at least two levels of user-control on the supply of fresh air to the occupied space (see compliance note CN6 for further details). Note: Any opening mechanisms must be easily accessible and provide adequate user-control over air flow rates to avoid draughts. Relevant industry standards for ventilation can be used to define 'adequate levels of fresh air' sufficient for occupancy and internal air pollution loads relevant to the building type. Note: Multi-residential buildings with self-contained flats and individual bedrooms must have a degree of openable window function. This does not need to provide two levels of user-control (as required above), but must be occupant controlled.
Hea 03 - Safe containment in laboratories	
Applicable only to developments with laboratories	
Hea 04 - Thermal comfort:	
One credit – Thermal modelling	Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Environmental Modelling.
	The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis. For smaller and more basic building designs with less complex heating or cooling systems, an alternative less complex means of analysis may be appropriate (such methodologies must still be in accordance with CIBSE AM11).
	The modelling demonstrates that: a. For air conditioned buildings, summer and winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type). b. For naturally ventilated/free running buildings: i. Winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type). ii. The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in CIBSE TM52: The limits of thermal comfort: avoiding overheating in European buildings.
	For air conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.
One credit – Adaptability - for a projected climate change scenario	Criteria 1 to 4 are achieved.
	The thermal modelling demonstrates that the relevant requirements set out in criteria 3 are achieved for a projected climate change environment (see Relevant definitions).
	Where thermal comfort criteria are not met for the projected climate change environment, the project team demonstrates how the building has been adapted, or designed to be easily adapted in future using passive design solutions in order to subsequently meet the requirements under criterion 6.

	For air conditioned buildings, the PMV and PPD indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.
One credit – Thermal zoning and controls	**Not Applicable to Shell & Core Assessments** The thermal modelling analysis (undertaken for compliance with Thermal modelling criteria) has informed the temperature control strategy for the building and its users.
	Not Applicable to Shell & Core Assessments The strategy for proposed heating/cooling system(s) demonstrates that it has addressed the following: a. Zones within the building and how the building services could efficiently and appropriately heat or cool these areas. For example consider the different requirements for the central core of a building compared with the external perimeter adjacent to the windows. b. The degree of occupant control required for these zones, based on discussions with the end user (or alternatively building type or use specific design guidance, case studies, feedback) considers: i. User knowledge of building services ii. Occupancy type, patterns and room functions (and therefore appropriate level of control required) iii. How the user is likely to operate or interact with the system(s), e.g. are they likely to open windows, access thermostatic radiator valves (TRV) on radiators, change air-conditioning settings etc., iv. The user expectations (this may differ in the summer and winter) and degree of individual control (i.e. obtaining the balance between occupant preferences, for example some occupants like fresh air and others dislike drafts). c. How the proposed systems will interact with each other (where there is more than one system) and how this may affect the thermal comfort of the building occupants. d. The need or otherwise for an accessible building user actuated manual override for any automatic systems.
Hea 05 - Acoustic Performance:	
One credit (Shell & Core) **OR** Three credits (Fully Fitted) – Acoustic Performance	The building meets the appropriate acoustic performance standards and testing requirements defined in the checklists and tables section which defines criteria for the acoustic principles of: a. Sound insulation b. Indoor ambient noise level c. Reverberation times Note: Retail assessments require a suitably qualified acoustician to define a bespoke set of performance requirements
Hea 06 - Safety and Security:	
One credit – Safe access	Where external site areas form part of the assessed development the following apply: Dedicated cycle paths provide direct access from the site entrance(s) to any cycle storage provided, without the need to deviate from the cycle path and, if relevant, connect to off-site cycle paths (or other appropriate safe route) where these run adjacent to the development's site boundary.
	Footpaths on-site provide direct access from the site entrance(s) to the building entrance(s) and connect to public footpaths off-site (where existing), providing practical and convenient access to local transport nodes and other off-site amenities (where existing).
	Where provided, drop-off areas are designed off/adjoining to the access road and provide direct access to pedestrian footpaths, therefore avoiding the need for the pedestrian to

	cross vehicle access routes.
	Dedicated pedestrian crossings are provided where pedestrian routes cross vehicle access routes, and appropriate traffic calming measures are in place to slow traffic down at these crossing points.
	For large developments with a high number of public users or visitors, pedestrian footpaths must be signposted to other local amenities and public transport nodes off-site (where existing).
	The lighting for access roads, pedestrian routes and cycle lanes is compliant with the external lighting criteria defined in Hea 01 Visual comfort, i.e. in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas.
	Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply: Delivery areas are not directly accessed through general parking areas and do not cross or share pedestrian and cyclist routes and other outside amenity areas accessible to building users and general public.
	There is a dedicated parking/waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking.
	Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting.
	There is a dedicated space for the storage of refuse skips and pallets away from the delivery vehicle manoeuvring area and staff/visitor car parking (if appropriate given the building type/function).
One credit - Security of site and building	A suitably qualified security specialist (SQSS) conducts an evidence-based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent).
	The SQSS develops a set of recommendations or solutions during or prior to Concept Design (RIBA Stage 2 or equivalent). These recommendations or solutions aim to ensure that the design of buildings, public and private car parks and public or amenity space are planned, designed and specified to address the issues identified in the preceding SNA.
	The recommendations or solutions proposed by the SQSS are implemented (see CN9. Any deviation from those recommendations or solutions will need to be justified, documented and agreed in advance with a suitably qualified security specialist.
Energy	
Ene 01 - Reduction of energy use and carbon emissions:	
Up to twelve credits – Energy performance	Calculate an Energy Performance Ratio for New Constructions (EPR_{NC}). Compare the EPR_{NC} achieved with the benchmarks in BREEAM Table - 25 and award the corresponding number of BREEAM credits.
Ene 02 - Energy Monitoring:	
One credit – Sub-metering of major energy consuming systems	Energy metering systems are installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems (see Methodology).
	The energy consuming systems in buildings with a total useful floor area greater than 1,000m^2 are metered using an appropriate energy monitoring and management system.

	The systems in smaller buildings are metered either with an energy monitoring and management system or with separate accessible energy sub-meters with pulsed or other open protocol communication outputs, to enable future connection to an energy monitoring and management system (see Relevant definitions).
	The end energy consuming uses are identifiable to the building users, for example through labelling or data outputs.
One credit – Sub-metering of high energy load and tenancy areas	An accessible energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs to enable future connection to an energy monitoring and management system are provided, covering a significant majority of the energy supply to tenanted areas or, in the case of single occupancy buildings, relevant function areas or departments within the building/unit.
Ene 03 - External Lighting:	
One credit – External Lighting	The average initial luminous efficacy of the external light fittings within the construction zone is greater than 60 luminaire lumens per circuit Watt.
	All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.
	OR, the building has been designed to operate without the need for external lighting (which includes on the building, signs and at entrances).
Ene 04 - Low carbon design:	
One credit – Passive design analysis	The first credit within issue Hea 04 Thermal comfort has been achieved to demonstrate the building design can deliver appropriate thermal comfort levels in occupied spaces.
	The project team carries out an analysis of the proposed building design/development to influence decisions made during Concept Design stage (RIBA Stage 2 or equivalent) and identify opportunities for the implementation of passive design solutions that reduce demands for energy consuming building services (see compliance note CN4).
	The building uses passive design measures to reduce the total heating, cooling, mechanical ventilation and lighting loads and energy consumption in line with the findings of the passive design analysis and the analysis demonstrates a meaningful reduction in the total energy demand as a result (see compliance note CN16).
One credit - Free cooling	The passive design analysis credit is achieved.
	The passive design analysis carried out under criterion 2 includes an analysis of free cooling and identifies opportunities for the implementation of free cooling solutions.
	The building uses ANY of the free cooling strategies listed in compliance note CN5 to reduce the cooling energy demand, i.e. it does not use active cooling.
One credit - Low zero carbon feasibility study	A feasibility study has been carried out by the completion of the Concept Design stage (RIBA Stage 2 or equivalent) by an energy specialist (see Relevant definitions) to establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy source(s) for the building/development (see compliance note CN7).
	A local LZC technology/technologies has/have been specified for the building/development in line with the recommendations of this feasibility study and this method of supply results in a meaningful reduction in regulated carbon dioxide (CO_2) emissions (see compliance note CN16).

Ene 06 - Energy Efficient Transportation Systems:	
One credit - Energy consumption	Where lifts, escalators and/or moving walks (transportation types) are specified: a. An analysis of the transportation demand and usage patterns for the building has been carried out to determine the optimum number and size of lifts, escalators and/or moving walks. b. The energy consumption has been calculated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2 : Energy calculation and classification for lifts (elevators) and/or Part 3 - Energy calculation and classification for escalators and moving walks, for one of the following: i. At least two types of system (for each transportation type required); OR ii. An arrangement of systems (e.g. for lifts, hydraulic, traction, machine room-less lift (MRL)); OR iii. A system strategy which is 'fit for purpose'. c. The use of regenerative drives should be considered, subject to the requirements in CN6. d. The transportation system with the lowest energy consumption is specified.
Two credits - Energy efficient features	The energy consumption criteria are achieved.
	Lifts For each lift, the following three energy efficient features are specified: a. The lifts operate in a standby condition during off-peak periods. For example the power side of the lift controller and other operating equipment such as lift car lighting, user displays and ventilation fans switch off when the lift has been idle for a prescribed length of time. b. The lift car lighting and display lighting provides an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt. c. The lift uses a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor.
	Where the use of regenerative drives is demonstrated to save energy, they are specified.
	Escalators and/or moving walks Each escalator and/or moving walk complies with at least one of the following: It is fitted with a load-sensing device that synchronises motor output to passenger demand through a variable speed drive; OR
	It is fitted with a passenger-sensing device for automated operation (auto walk), so the escalator operates in standby mode when there is no passenger demand.
Transport	
Tra 01 - Public Transport Accessibility:	
Up to three credits (offices) **OR** five credits (retail) – Accessibility Index	The Accessibility Index is determined by entering the following information in to the BREEAM Tra 01 calculator: a. The distance (m) from the main building entrance to each compliant public transport node b. The public transport type(s) serving the compliant node e.g. bus or rail c. The average number of services stopping per hour at each compliant node during the operating hours of the building for a typical day (see compliance notes and Table - 30 in the Additional Information section). BREEAM credits awarded in accordance with the table of building types, AI benchmarks and credits in BREEAM Table – 29.

Tra 02 - Proximity to amenities:	
Up to two credits – Proximity to amenities	Where the building is located within close proximity of, and accessible to, local amenities which are likely to be frequently required and used by building occupants, as outlined in BREEAM Table - 31
	Where a building type is indicated to have core amenities (Labelled as C in Table - 31) at least two of these must be provided as a part of the total number required. The remaining number of amenities required can be met using any other applicable amenities (including any remaining core amenities).
Tra 03 - Cyclist facilities:	
One credit – Cycle storage	Compliant cycle storage spaces that meet the minimum levels set out in Table - 32 (see checklists and tables) are installed.
One credit – Cyclist facilities	The cycle storage criteria has been achieved.
	At least two of the following types of compliant cyclist facilities have been provided for all staff and pupils (where appropriate) (see relevant definitions for the scope of each compliant cyclist facilities: a. Showers b. Changing facilities c. Lockers d. Drying spaces
Tra 04 - Maximum Car Parking Capacity:	
Up to two credits - Car parking capacity	The building's car parking capacity is compared to the maximum car parking capacity benchmarks in Table - 33 and the relevant number of BREEAM credits awarded. For most building types, except those where stated, the benchmarks vary according to the building's public transport Accessibility Index (AI determined in accordance with BREEAM issue Tra 01 Public transport accessibility). Therefore, for these building types the AI must be determined prior to assessing this issue.
Tra 05 - Travel Plan:	
One credit - Travel Plan	A travel plan has been developed as part of the feasibility and design stages.
	A site specific travel assessment/statement has been undertaken to ensure the travel plan is structured to meet the needs of the particular site and covers the following (as a minimum): a. Where relevant, existing travel patterns and opinions of existing building or site users towards cycling and walking so that constraints and opportunities can be identified. b. Travel patterns and transport impact of future building users. c. Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children) d. Disabled access (accounting for varying levels of disability and visual impairment) e. Public transport links serving the site f. Current facilities for cyclists.
	The travel plan includes a package of measures to encourage the use of sustainable modes of transport and movement of people and goods during the buildings operation and use.
	If the occupier is known, they must be involved in the development of the travel plan and

	they must confirm that the travel plan will be implemented post construction and be supported by the buildings management in operation.
Water	
Wat 01 - Water Consumption:	
Up to five credits – Water Consumption	An assessment of the efficiency of the building's domestic water-consuming components is undertaken using the BREEAM Wat 01 calculator.
	The water consumption (L/person/day) for the assessed building is compared against a baseline performance and BREEAM credits awarded based upon Table - 35.
	The efficiency of the following 'domestic scale' water-consuming components must be included in the assessment (where specified): a. WCs b. Urinals c. Taps (wash hand basins and where specified kitchen taps and waste disposal unit) d. Showers e. Baths f. Dishwashers (domestic and commercial sized) g. Washing machines (domestic and commercial or industrial sized). The BREEAM Wat 01 calculator defines the building types and activity areas for which the above components must be assessed.
	Where a greywater and/or rainwater system is specified, its yield (L/person/day) is used to off-set non potable water demand from components that would otherwise be supplied using potable water.
	Any greywater systems must be specified and installed in compliance with BS 8525-1:2010 Greywater Systems - Part 1 Code of Practice. Any rainwater systems must be specified and installed in compliance with BS 8515:2009+A1:2013 Rainwater Harvesting Systems - Code of practice.
Wat 02 - Water Monitoring:	
One credit - Water Monitoring	The 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.
	The 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.
	Water-consuming plant or building areas, consuming 10% or more of the building's total water demand, are either fitted with easily accessible sub-meters or have water monitoring equipment integral to the plant or area (see Compliance notes).
	Each meter (main and sub) has a pulsed or other open protocol communication output to enable connection to an appropriate utility monitoring and management system, e.g. a building management system (BMS), for the monitoring of water consumption (see Relevant definitions).
	If the site on which the building is located has an existing BMS, managed by the same occupier/owner (as the new building), the pulsed/digital water meter(s) for the new building must be connected to the existing BMS.
Wat 03 - Leak Detection:	

One credit - Leak detection system	A leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter is installed. The leak detection system must be: a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an in-built automated diagnostic procedure for detecting leaks is installed. b. Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time. c. Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods. d. Programmable to suit the owner/occupiers' water consumption criteria. e. Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers.
One credit - Flow control devices	Flow control devices that regulate the supply of water to each WC area/facility according to demand are installed (and therefore minimise water leaks and wastage from sanitary fittings).
Wat 04 - Water Efficient Equipment:	
One credit - Water Efficient Equipment	The design team has identified all unregulated water demands that could be realistically mitigated or reduced.
	System(s) or processes have been identified to reduce the unregulated water demand, and demonstrate, through either good practice design or specification, a meaningful reduction in the total water demand of the building.
Mat 01 – Life Cycle Impacts	
Up to six credits	BREEAM awards credits on the basis of the building's quantified environmental life cycle impact through assessment of the main building elements, as set out in Table - 38:
	Credits are awarded on the basis of the total number of points achieved, as set out in Table - 39 below, and calculated using the BREEAM Mat 01 calculator. This point's score is based on the Green Guide rating(s) achieved for the specifications that make up the main building elements (as in Table - 38). Note: Where an independently verified third party Environmental Product Declaration (EPD), covering part of or the whole life cycle, is available for a material or product that forms part of an assessed building element, this can be used to increase the contribution of that element to the building's Mat 01 performance. (Refer to Calculation procedure where a specific Environmental Product Declaration (EPD) is available for a material in the Methodology section for more details.)
	Life cycle greenhouse gas emissions ($kgCO_2$ eq.) for each element are also required to be reported based on a 60-year building life. Where specific data is not available for a product or element, generic data should be used. Generic data can be obtained from the online Green Guide for each element and must be entered in to the BREEAM Mat 01 calculator.
Mat 02 - Hard Landscaping and Boundary Protection:	
One credit	Where at least 80% of all external hard landscaping and 80% of all boundary protection (by area) in the construction zone achieves an A or A+ rating, as defined in the Green Guide to Specification. Green Guide ratings for the specification(s) of each element can be found at www.thegreenguide.org.uk
Mat 03 - Responsible Sourcing of Materials:	
Pre-requisite	All timber and timber based products used on the project is 'Legally harvested and traded timber' (see Relevant definitions). Note:

	a. It is a minimum requirement for achieving a BREEAM rating (for any rating level) that compliance with criterion 1 is confirmed. b. For other materials there are no pre-requisite requirements at this stage.
One credit - Sustainable procurement plan	The principal contractor sources materials for the project in accordance with a documented sustainable procurement plan (see the Relevant definitions in the Additional information section).
Up to 3 credits - Responsible sourcing of materials (RSM)	The available RSM credits (refer to Table - 43) can be awarded where the applicable building materials (refer to Table - 44) are responsibly sourced in accordance with the BREEAM methodology, as defined in steps 1 to 2 in the Methodology section.
Mat 04 - Insulation:	
One credit - Embodied impact	Any new insulation specified for use within the following building elements must be assessed: a. External walls b. Ground floor c. Roof d. Building services
	The Insulation index for the building fabric and services insulation is the same as or greater than 2.5. See Mat 04 Insulation section for a description of calculating the Insulation index.
Mat 05 - Designing for durability and resilience:	
One credit	**Protecting vulnerable parts of the building from damage.** The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements. This must include, but is not necessarily limited to: a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc.). b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas. c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and manoeuvring occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas.
	Protecting exposed parts of the building from material degradation The relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors. (See Methodology for the process to assess this criterion). See Table - 47 in the Checklists and tables section for a list of applicable elements, environmental factors and material degradation effects to consider.
Mat 06 - Material efficiency:	
One credit	Opportunities have been identified, and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life
	The above is carried out by the design/construction team in consultation with the relevant parties (see CN3) at each of the following RIBA stages: a. Preparation and Brief b. Concept Design c. Developed Design d. Technical Design

	e. Construction.
Waste	
Wst 01 - Construction Waste Management:	
Up to three credits - Construction resource efficiency	**Up to three credits** Where a Resource Management Plan (RMP) has been developed covering the non-hazardous waste related to on-site construction and dedicated off-site manufacture or fabrication (including demolition and excavation waste) generated by the building's design and construction (see CN3).
	Where construction waste related to on-site construction and dedicated off-site manufacture/fabrication (excluding demolition and excavation waste) meets or is lower than that shown in Table - 48:
	Where existing buildings on the site will be demolished a pre-demolition audit of any existing buildings, structures or hard surfaces is completed to determine if, in the case of demolition, refurbishment/reuse is feasible and, if not, to maximise the recovery of material from demolition for subsequent high grade/value applications. The audit must be referenced in the RMP and cover: a. Identification of the key refurbishment/demolition materials. b. Potential applications and any related issues for the reuse and recycling of the key refurbishment and demolition materials in accordance with the waste hierarchy.
One credit - Diversion of resources from landfill	The following percentages of non-hazardous construction (on-site and off-site manufacture/fabrication in a dedicated facility), demolition and excavation waste (where applicable) generated by the project have been diverted from landfill ans shown in Table - 49.
	Waste materials will be sorted into separate key waste groups as per Table - 50 (according to the waste streams generated by the scope of the works) either on-site or through a licensed contractor for recovery.
Wst 02 - Recycled Aggregates:	
One credit - Recycled aggregates	The percentage of high-grade aggregate that is recycled and/or secondary aggregate, specified in each application (present) must meet the following minimum % levels (by weight or volume) to contribute to the total amount of recycled and/or secondary aggregate, as specified in table -48.
	The total amount of recycled or secondary aggregate specified, and meeting criterion 1, is greater than 25% (by weight or volume) of the total high grade aggregate specified for the development. Where the minimum level in criterion 1 is not met for an application, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified.
	The recycled and/or secondary aggregates are EITHER: a. Construction, demolition and excavation waste obtained on-site or off-site OR b. Secondary aggregates obtained from a non-construction post-consumer industrial byproduct source (see Relevant definitions section).
Wst 03 - Operational Waste:	
One credit - Operational waste	Dedicated space(s) is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities. This space must be: 1. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams

	2. Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors 3. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily/weekly operational activities and occupancy rates.
	Where the consistent generation in volume of the appropriate operational waste streams is likely to exist, e.g. large amounts of packaging or compostable waste generated by the building's use and operation, the following facilities are provided: a. Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space. b. Vessel(s) for composting suitable organic waste resulting from the building's daily operation and use; OR adequate space(s) for storing segregated food waste and compostable organic material prior to collection and delivery to an alternative composting facility. c. Where organic waste is to be stored/composted on-site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes.
	The area for storage of recyclable materials must be provided in addition to areas and facilities provided for dealing with general waste and other waste management facilities, e.g. compactors, balers and composters.
	The design team demonstrates that the provision of waste management facilities for the assessed building is adequate given the building type, occupier (if known), operational function and likely waste streams and volumes to be generated. Where it is not possible to determine what provision should be made, the following guide for minimum storage space provision should be used: 1. At least 2m^2 per 1000m^2 of net floor area for buildings <5000m^2 2. A minimum of 10m^2 for buildings ≥5000m^2 3. An additional 2m2 per 1000m^2 of net floor area where catering is provided (with an additional minimum of 10m^2 for buildings ≥5000m^2). The net floor area should be rounded up to the nearest 1000m^2.
Wst 04 - Speculative Floor and Ceiling Finishes: Applicable to Office buildings only	
One credit	For tenanted areas (where the future occupant is not known), prior to full fit-out works, carpets, other floor finishes and ceiling finishes have been installed in a show area only.
	In a building developed for a specific occupant, that occupant has selected (or agreed to) the specified floor and ceiling finishes.
Wst 05 - Adaptation to climate change:	
One credit structural and fabric resilience	Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design (RIBA Stage 2 or equivalent), in accordance with the following approach: a. Carry out a systematic (structural and fabric resilience specific) risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts. The assessment should cover the following stages: i. Hazard identification ii. Hazard assessment

	iii. Risk estimation iv. Risk evaluation v. Risk management
Wst 06 - Functional adaptability:	
One credit Functional adaptability	A building-specific functional adaptation strategy study has been undertaken by the client and design team by Concept Design (RIBA Stage 2 or equivalent), which includes recommendations for measures to be incorporated to facilitate future adaptation.
	Functional adaptation measures have been implemented (RIBA Stage 4 or equivalent) in accordance with the functional adaptation strategy recommendations, where practical and cost effective. Omissions have been justified in writing to the assessor.
Land Use & Ecology	
LE 01 - Site Selection:	
One credit - Previously occupied land	At least 75% of the proposed development's footprint is on an area of land which has previously been occupied by industrial, commercial or domestic buildings or fixed surface infrastructure.
One credit - Contaminated land	A contaminated land specialist's site investigation, risk assessment and appraisal has deemed land within the site to be affected by contamination. The site investigation, risk assessment and appraisal have identified: a. The degree of contamination b. The contaminant sources/types c. The options for remediating sources of contamination which present an unacceptable risk.
	The client or principal contractor confirms that remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan as recommended by the contaminated land specialist.
LE 02 - Ecological Value of Site and Protection of Ecological Features:	
One credit - Ecological value of site	Land within the construction zone is defined as 'land of low ecological value' using either: a. The BREEAM checklist for defining land of low ecological value (see Table -52); OR b. A Suitably Qualified Ecologist (SQE) who has identified the land as being of 'low ecological value' within an ecological assessment report, based on a site survey.
One credit - Protection of ecological features	All existing features of ecological value within and surrounding the construction zone and site boundary area are adequately protected from damage during clearance, site preparation and construction activities in line with BS42020: 2013.
	In all cases, the principal contractor is required to construct ecological protection recommended by the SQE, prior to any preliminary site construction or preparation works (e.g. clearing of the site or erection of temporary site facilities).
LE 03 - Minimising impact on existing site ecology:	
Up to two credits	Where a Suitably Qualified Ecologist (SQE) has been appointed and, based on their site survey, they confirm the following and either the assessor or ecologist inputs this data in to the BREEAM LE 03/LE 04 calculator: 1. The broad habitat types that define the landscape of the assessed site in its

	existing pre-developed state and proposed state. 2. Area (m^2) of the existing and proposed broad habitat plot types. 3. Average total taxon (plant species) richness within each habitat type.
	Two credits where The change in ecological value of the site is equal to or greater than zero plant species, i.e. no negative change
	One credit where the change in ecological value of the site is less than zero but equal to or greater than minus nine plant species i.e. a minimal change
LE 04 - Enhancing site ecology:	
One credit - Ecologist's report and recommendations	A suitably qualified ecologist (SQE) has been appointed by the client or their project representative by the end of the Preparation and Brief stage (RIBA Stage 1 or equivalent) to advise on enhancing the ecology of the site at an early stage.
	The SQE has provided an Ecology Report with appropriate recommendations for the enhancement of the site's ecology at Concept Design stage (RIBA Stage 2 or equivalent). The report is based on a site visit/survey by the SQE (see also CN4).
	The early stage advice and recommendations of the Ecology Report for the enhancement of site ecology have been, or will be, implemented in the final design and build.
One credit - Increase in ecological value	The criteria of the first credit are met.
	The recommendations of the Ecology Report for the enhancement of site ecology have been implemented in the final design and build, and the SQE confirms that this will result in an increase in ecological value of the site, with an increase of six plant species or greater (refer also to Compliance note CN8 for alternative means of compliance).
	The increase in plant species has been calculated using the BREEAM LE 03/LE 04 calculator, using actual plant species numbers.
LE 05 - Long Term Impact on Biodiversity:	
Up to two credits	Where a Suitably Qualified Ecologist (SQE) is appointed prior to commencement of activities on-site and they confirm that all relevant UK and EU legislation relating to the protection and enhancement of ecology has been complied with during the design and construction process.
	Where a landscape and habitat management plan, appropriate to the site, is produced covering at least the first five years after project completion in accordance with BS 42020:2013 Section 11.1. This is to be handed over to the building owner/occupants for use by the grounds maintenance staff.
	Where additional measures to improve the assessed site's long term biodiversity are adopted, according to Table - 55. • **One credit** where at least 2 additional measures are adopted • **Two credits** where at least 4 additional measures are adopted Where the Suitably Qualified Ecologist (SQE) confirms that some of the additional measures listed in Table - 55 are not applicable to the assessed development, the credits can be awarded in accordance with the table in the Tracker Plus Additional Guidance document.
Pollution	
Pol 01 - Impact of Refrigerants:	

Three credits - No refrigerant use	Where the building does not require the use of refrigerants within its installed plant/systems. **OR**
Pre-requisite	`All systems (with electric compressors) must comply with the requirements of BS EN 378:2008 (parts 2 and 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice.
Two credits - Impact of refrigerant	Where the systems using refrigerants have Direct Effect Life Cycle CO_2 equivalent emissions (DELC CO_{2e}) of ≤ 100 kgCO2e/kW cooling/heating capacity. To calculate the DELC CO_{2e} please refer to the Relevant definitions in the Additional information section and the Methodology section. **OR**
	Where air-conditioning or refrigeration systems are installed the refrigerants used have a Global Warming Potential (GWP) ≤ 10. **OR**
One credit - Impact of refrigerant	Where the systems using refrigerants have Direct Effect Life Cycle CO_2 equivalent emissions (DELC CO_{2e}) of ≤ 1000 $kgCO_{2e}$/kW cooling/heating capacity.
One credit - Leak detection	Where systems using refrigerants have a permanent automated refrigerant leak detection system installed; OR where an in-built automated diagnostic procedure for detecting leakage is installed. In all instances a robust and tested refrigerant leak detection system must be installed and must be capable of continuously monitoring for leaks. **AND**
	The system must be capable of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident (see Other information section for additional information).
Pol 02 - NOx emissions:	
Up to three credits	Where the plant installed to meet the building's delivered heating and hot water demand has, under normal operating conditions, a NOx emission level (measured on a dry basis at 0% excess O_2) as follows: • 1 Credit: ≤ 100 mg/kWh • 2 Credits: ≤ 70 mg/kWh • 3 Credits: ≤ 40 mg/kWh
	Report via the BREEAM scoring and reporting tool the direct and indirect NOx emissions in mg/kWh and energy consumption in kWh/m^2/yr arising from systems installed to meet the building's space heating, cooling and hot water demands.
Pol 03 - Surface Water Run Off:	
Up to two credits - Flood Risk	**Two credits - Low flood risk** Where a site-specific flood risk assessment (FRA) confirms the development is situated in a flood zone that is defined as having a low annual probability of flooding (in accordance with current best practice national planning guidance). The FRA must take all current and future sources of flooding into consideration (see CN5).
	One credit - Medium / High flood risk Where a site-specific FRA confirms the development is situated in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain (in accordance with current best practice national planning guidance). The FRA must take all current and future sources of flooding into consideration (see CN5).

	To increase the resilience and resistance of the development to flooding, one of the following must be achieved: a. The ground level of the building and access to both the building and the site, are designed (or zoned) so they are at least 600mm above the design flood level of the flood zone in which the assessed development is located (see CN8); OR b. The final design of the building and the wider site reflects the recommendations made by an appropriate consultant in accordance with the hierarchy approach outlined in section 5 of BS 8533:2011.
Two credits - Surface water run-off	**Pre-requisite** An Appropriate Consultant is appointed to carry out, demonstrate and/or confirm the development's compliance with the following criteria:
	One credit Where drainage measures are specified to ensure that the peak rate of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for the pre-development site. This should comply at the 1-year and 100-year return period events.
	Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place.
	Calculations include an allowance for climate change; this should be made in accordance with current best practice planning guidance (see definitions).
	One credit Where flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance); **AND EITHER**
	Drainage design measures are specified to ensure that the post development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development for the 100-year 6-hour event, including an allowance for climate change (see criterion 14).
	Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other Sustainable Drainage System (SuDS) techniques.
	OR (only where criteria 9 and 10 for this credit cannot be achieved): Justification from the Appropriate Consultant indicating why the above criteria cannot be achieved, i.e. where infiltration or other SuDS techniques are not technically viable options.
	Drainage design measures are specified to ensure that the post development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flow rate from the following options: a. The pre-development 1-year peak flow rate; OR b. The mean annual flow rate Qbar; OR c. 2L/s/ha. Note that for the 1-year peak flow rate the 1-year return period event criterion applies (as described in the peak run-off criteria above).
	Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place.
	For either option, above calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance.
One credit - Minimising watercourse pollution	There is no discharge from the developed site for rainfall up to 5mm (confirmed by the Appropriate Consultant).
	In areas with a low risk source of watercourse pollution, an appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques.

	Where there is a high risk of contamination or spillage of substances such as petrol and oil (see Compliance notes for a list of areas), separators (or an equivalent system) are installed in surface water drainage systems.
	Where the building has chemical/liquid gas storage areas, a means of containment is fitted to the site drainage system (i.e. shut-off valves) to prevent the escape of chemicals to natural watercourses (in the event of a spillage or bunding failure).
	All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as Pollution Prevention Guideline 3 (PPG 3) and/or where applicable the SUDS manual For areas where vehicle washing will be taking place, pollution prevention systems must be in accordance with Pollution Prevention Guidelines 13.
	A comprehensive and up-to date drainage plan of the site will be made available for the building/site occupiers.
	Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place.
	Where present, all external storage and delivery areas designed and detailed in accordance with the current best practice planning guidance (see Other information for further information).
Pol 04 - Reduction of Night Time Light Pollution:	
One credit	Where external lighting pollution has been eliminated through effective design that removes the need for external lighting without adversely affecting the safety and security of the site and its users. OR alternatively, where the building has no external lighting, one credit may be awarded as follows:
	The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011. Buildings located in Scotland must comply with the light pollution criteria in the guidance note 'Controlling Light Pollution and Reducing Lighting Energy Consumption'. This can be demonstrated via completion of the checklists in Annexes B and C of the guidance note by a relevant member of the design team.
	All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00.
	If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes.
	Illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 – The Brightness of Illuminated Advertisements.
Pol 05 - Noise Attenuation:	
One credit	Where there are, or will be, no noise-sensitive areas or buildings within 800m radius of the assessed development.
	OR alternatively, where the building does have noise-sensitive areas or buildings within 800m radius of the development, one credit can be awarded as follows: a. Where a noise impact assessment in compliance with BS 7445 has been carried out and the following noise levels measured/determined: i. Existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development or at a location where

	background conditions can be argued to be similar. ii. The rating noise level resulting from the new noise source (see CN4).
	The noise impact assessment must be carried out by a suitably qualified acoustic consultant holding a recognised acoustic qualification and membership of an appropriate professional body (see Relevant definitions in the Additional information section).
	The noise level from the proposed site/building, as measured in the locality of the nearest or most exposed noise-sensitive development, is a difference no greater than +5dB during the day (07:00 to 23:00) and +3dB at night (23:00 to 07:00) compared to the background noise level.
	Where the noise source(s) from the proposed site/building is greater than the levels described in criterion 4, measures have been installed to attenuate the noise at its source to a level where it will comply with criterion 4.
Innovation	
Man 03 - Responsible construction practices:	
One credit	With reference to the considerate construction criterion 7, in addition to meeting the criteria for two credits, the contractor achieves compliance with the criteria of the compliant scheme to an exemplary level of practice.
Hea 01 - Visual Comfort:	
One credit	Daylighting criteria have been met using either of the following options: a. Relevant building areas meet exemplary daylight factor(s) and the relevant criteria in Table - 15. OR b. Relevant building areas meet exemplary average and minimum point daylight illuminance criteria in Table - 16.
Ene 01 - Reduction of energy use and carbon emissions:	
One credit	**Up to four credits - Zero regulated carbon** The building achieves an EPRNC≥ 0.9 and zero net regulated CO_2 emissions (see Relevant definitions).
	An equivalent percentage of the buildings modelled 'regulated' operational energy consumption, as stipulated in Table - 26, is generated by carbon neutral on-site or near-site sources and used to meet energy demand from 'unregulated' building systems or processes.
	Five credits - Carbon negative The building is 'carbon negative' in terms of its total modelled operational energy consumption, including regulated and unregulated energy (see Relevant definitions in the Additional information section of this issue).
Wat 01 - Water Consumption:	
One credit	An assessment of the efficiency of the building's domestic water-consuming components is undertaken using the BREEAM Wat 01 calculator.
	The water consumption (L/person/day) for the assessed building is compared against a baseline performance and BREEAM credits awarded based upon Table - 35.
	The efficiency of the following 'domestic scale' water-consuming components must be included in the assessment (where specified): a. WCs

	b. Urinals c. Taps (wash hand basins and where specified kitchen taps and waste disposal unit) d. Showers e. Baths f. Dishwashers (domestic and commercial sized) g. Washing machine (domestic and commercial or industrial sized) The BREEAM Wat 01 calculator defines the building types and activity areas for which the above components must be assessed.
	Where a greywater and/or rainwater system is specified, its yield (L/person/day) is used to off-set non potable water demand from components that would otherwise be supplied using potable water.
	Any greywater systems must be specified and installed in compliance with BS 8525-1:2010 Greywater Systems - Part 1 Code of Practice. Any rainwater systems must be specified and installed in compliance with BS 8515:2009+A1:2013 Rainwater Harvesting Systems - Code of practice.
Mat 01 - Life Cycle Impacts:	
One credit	Where assessing four or more applicable building elements, the building achieves at least two points in addition to the total points required to achieve maximum credits under the standard BREEAM criteria (as outlined in the table above) **OR**
	Where assessing fewer than four applicable building elements, the building achieves at least one point in addition to the total points required to achieve maximum credits under the standard BREEAM criteria. Where the assessed building does not specify an element listed above, see the compliance note CN3 regarding the exemplary level benchmark.
	Where the design team has used an IMPACT compliant software tool (or equivalent) to measure the environmental impact of the building.
	Where the design team can demonstrate how the use of an IMPACT compliant software (or equivalent) has benefited the building in terms of measuring and reducing its environmental impact. See CN16
	Where the design team submit the building information model (BIM) from the IMPACT compliant software tool (or equivalent) for the assessed building to BRE Global (via the project's appointed BREEAM Assessor). See compliance note CN17.
Mat 03 - Responsible Sourcing of Materials:	
One credit	Where at least 70% of the available RSM points are achieved.
Wst 01 - Construction Waste Management:	
One credit	Non-hazardous construction waste generated by the building's design and on-site construction and off-site manufacture or fabrication (excluding demolition and excavation waste) is no greater than the exemplary level resource efficiency benchmark (outlined in Table - 48).
	The percentage of non-hazardous construction (on-site and dedicated off-site manufacture/fabrication), demolition and excavation waste (if relevant) diverted from landfill meets or exceeds the exemplary level percentage benchmark (outlined in Table - 49).
	All key waste groups are identified for diversion from landfill in the RMP.

Wst 02 - Recycled Aggregates:	
One credit	The percentage of high grade aggregate that is recycled or secondary aggregate, specified in each application (present) must meet the exemplary minimum levels (by weight or volume), as defined in table -51. Where this minimum level is not met, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified.
	The percentage of high grade aggregate that is recycled or secondary aggregate, specified in each application (present) must meet the exemplary minimum levels (by weight or volume), as defined in table -51. Where this minimum level is not met, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified.
	Where the total amount of recycled or secondary aggregate specified is greater than 35% (by weight or volume) of the total high grade aggregate specified for the project. Where the minimum level in criterion 1 is not met for an application, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified.
	Where the total amount of recycled or secondary aggregate specified is greater than 35% (by weight or volume) of the total high grade aggregate specified for the project. Where the minimum level in criterion 1 is not met for an application, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified.
	The contributing secondary aggregate must not be transported more than 30 km by road transport.
	The contributing recycled or secondary aggregate must not be transported more than 30 km by road transport.
Wst 05 - Adaptation to climate change:	
One credit	Achievement of the Structural and fabric resilience criterion in this issue and the following criteria points or credits: **Hea 04 Thermal comfort** (Link to Wst 05 issue:- to preventing increasing risks of overheating) • Criterion 6 in the second credit of the Hea 04 issue has been achieved. **Ene 01 Reduction of energy use and carbon emissions** (Link to Wst 05 issue: to maximise energy efficiency contributing to low carbon emissions resulting from increasing energy demands) • At least eight credits in this issue have been achieved. **Ene 04 Low carbon design** (Link to Wst 05 issue: to maximise opportunities to avoid unecessary carbon emissions) • The Passive design analysis credit in this issue has been achieved. **Wat 01 Water consumption** (Link to Wst 05: to minimise water demands in periods of drought) • A minimum of three credits in this issue have been achieved. **Mat 05 Designing for durability and resilience** (Link to Wst 05 issue: to avoid increased risks of deterioration and higher maintenance demands) • Criterion 2 relating to material degradation in this issue has been achieved. **Pol 03 Surface water run-off** (Link to Wst 05: to minimise the risks of increased flood risk and surface water run-off affecting the site or others) • Flood risk – a minimum of one credit has been achieved. • Surface water run-off – two credits have been achieved.
AI - Approved Innovation:	

One credit	One innovation credit can be awarded for each innovation approved by BRE Global, where the building complies with the criteria defined within an Approved Innovation application form.